GUNEM CATUR
IN THE SUNDA REGION OF WEST JAVA:

INDIGENOUS COMMUNICATION ON THE MAC PLANT KNOWLEDGE AND PRACTICE WITHIN THE *ARISAN* IN LEMBANG, INDONESIA

Siti Chaerani Djen Amar

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'Most definitions of indigenous knowledge refer to the accumulation of experience and the passing down of information from one generation to the next within a society (Wang 1982, CIKARD 1988). Yet, despite frequent expressions of concern for enculturation, little attention has been given to how knowledge is accumulated and shared within local societies'.

Paul A. Mundy & J. Lin Compton (1995: 112)

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This dissertation is dedicated to the memory
of my late beloved husband Djen Amar,
who was my greatest inspiration for this study.

Preface

The writing of this dissertation was partly inspired by experience during my childhood. I grew up between two cultures, when I was ill at one time I was treated with western medicine, and at another with traditional medicine which was often administered forcibly. This was due to its unpleasant bitter taste, especially those herbal medicines for the promotion of health and the treatment of certain ailments. Nevertheless, one thing remains the same, *jamu* and medicinal, aromatic and cosmetic (MAC) plants are nearly always available for health and beauty at home. The MAC plants were picked from the garden or bought from the market, and preparations were made in accordance to knowledge obtained from my grandmother.

Lately, the use of traditional medicine, especially made from medicinal plants has grown largely due to the increasing price of modern medicine which is becoming rather unreachable for people from the lower socio-economic class.

Numerous studies on medicinal plants and *jamu* have been conducted by scholars from several disciplines, and still many questions require an answer. Although the electronic and non-electronic media paid much attention to the utilisation of traditional herbal medicine, the process of how local people in rural areas get their information on the use of MAC plant knowledge has barely been documented and analysed, particularly since the elder generation is encountering growing difficulties in transferring their knowledge and practice of MAC plants to the younger generation as invaluable local wisdom.

In Lembang, a sub-district in the Bandung regency, health service has not yet reached all the local people in the rural areas. The essence of Primary Health Care is that it should be available to all community members who should take responsibility for their own health and well-being, including self-care. Moreover, involving community members in the provision of their own health care has shown to promote the community's self-reliance.

Apart from the appropriate cultural context of *jamu*, the inaccessibility of modern medicine has further encouraged local people to continue to rely on their traditional medicine. Also, those community members who possess the knowledge of medicinal plants and herbs tend to choose to be treated with traditional medicine, largely because of prolonged treatment by modern medicine does not always show positive results.

This interesting and complicated situation has motivated me to study the process of communication on knowledge and practice of medicinal, aromatic and cosmetic (MAC) plants among the members of *arisan* institutions, which are found in almost every community, both in rural as well as in urban areas in Indonesia, especially in the Island of Java.

I am privileged to have the opportunity to use the methodology which has been developed at Leiden University as an appropriate instrument to explore, measure - both qualitatively and quantitatively - and analyse the interactions among various factors involved in the actual communication behaviour of the *arisan* members with a view to provide a contribution to the understanding of the social process of communication on MAC plant knowledge and practice in the research area.

Hopefully, the results of this study on indigenous communication within local institutions will contribute to the sustainable preservation of local peoples' invaluable knowledge and practice on the use and conservation of MAC plants in the Sunda Region of West Java Province, and in Indonesia and beyond.

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Contents

List of Tables

List of Figures

List of Maps

Chapter I INTRODUCTION

1.1 Communication through Local Institutions

1.1.1 The Social Process of Communication Behaviour

In general, communication refers to a process whereby information is contained in a form of a 'package' and channeled and imparted by a 'sender' to a 'receiver' via some kind of medium. Upon reception, the 'receiver' decodes the message and gives the 'sender' a feedback or reaction. Although all forms of communication require a 'sender', a 'message', and an 'intended recipient', the 'receiver', however, needs not be present or aware of the sender's intention to communicate at the time of communication in order for the act of communication to occur.

While the subject of communication has concerned scholars since the early time of ancient Greece, today, the topic has been conceptualized as a natural psycho-social process and sub-divided into a number of special disciplines. Initially, the English philosopher and linguist Richards (1923) offered one of the first—and possibly still the best—definitions of communication as a discrete aspect of human enterprise: *'Communication takes place when one mind so acts upon its environment that another mind is influenced, and in that other mind an experience occurs which is like the experience in the first mind, and is caused in part by that experience.'* His early 'Meaning of Meaning' theory's main principle is that meanings do not reside in words; but that they reside in people. Understanding that meaning comes from individual people will contribute to prevent confusion and arguments during the process of communicating with others.

Although Richards's definition is rather general and its application suits nearly all kinds of communication, recently, questions have been raised concerning the adequacy of any single definition of the term *communication* as it is currently employed. Over the past decades, not less than 40 varieties of disciplinary approaches to the subject have been identified, including anthropological, medical, psychological, political, and many other interpretations of the apparently simple interaction which has been described by Richards & Ogden (1923).

While in general, most research in the new field of *health communication* focuses its attention on the results of communication activities in intervention programmes, aimed at behavioural change for the improvement of the health and well-being of specific target groups, this study seeks to document and understand the actual patterns of behaviour of actors who communicate and exchange particular information within local institutions of the *arisan* in Indonesia. In this context, this study aims to find an answer to the central question:

What are the characteristics of the members of a local institution arisan who are showing a particular form of communication behaviour on medicinal, aromatic and cosmetic (MAC) plant knowledge and practice for health promotion, illness prevention and treatment in the Sunda Region of West Java, Indonesia?

Such expression of communication in the form of *gunem catur* refers to informal group discussion which is typical for the cultural area of the Sunda Region of West Java. As is further elaborated in Chapter II, this study embarks on the appropriate dual theoretical orientation of ideation and convergence, and links up with the distinction of global – or modern – and local – or indigenous - communication to document and analyse the factors

involved in the process of communication among members of a local social organization in the research area. The type of communication relates to the persuasive exchange of information on MAC plant knowledge and practice and as such focuses on the behavioural aspects of the human activities undertaken in the process of communication itself, which eventually may or may not service the improvement of the health situation community-level. This last aspect of health communication aimed at behaviour change for improved health and well-being, however, is beyond the scope of this study.

In view of the increasing influx of global patterns of communication behaviour, supported by the modern media of radio, TV, computers and the internet, the next paragraph will pay attention to the interplay between global and local forms of communication.

1.1.2 Global *versus* Local Forms of Communication

A huge number of ethnic groups in the rural areas of Indonesia still depend on indigenous communication, as most of them are still out of the reach of modern, exogenous communication systems, while their communication is mostly conducted in the local language. The exchange of knowledge is essential in the dissemination and continuity of knowledge, consequently communication is included in the diverse processes essential to the continuity and dissemination of knowledge and culture. As Wang (1982) states, parallel to the concept of indigenous knowledge is the idea of indigenous communication. Of course, indigenous communication systems do exist alongside exogenous systems such as the mass media, schools, extension services and many more. In conjuction with the exogenous form, they provide the information environment of people in both urban and rural areas. Generally speaking, indigenous channels carry a wide range of messages including entertainment, news, and other social exchanges.

So far, the mass media have served largely as vehicles for top-down persuasion or as channels to convey information to the people from authorities or experts. Since the1970s, there has been renewed interest in studying and emphasizing the positive role of local culture in social change. As Wang & Dissanayake (1984) note, culture was essential to providing a context for development and change and also to maintaining a certain degree of continuity. Denying the role of culture would be tantamount to denying the continuity which it has provided to the people or nations involved during all periods of change and hence it would be repudiating history. Local cultures in developing countries are and are not static. The fact that they have survived centuries of hostile alien rule under colonial regimes is a measure of their dynamic nature. Moreover, Melkote (1991) observes, the local culture was constantly exchanging information with its external environment, interacting with other components in the system and consequently continuously changing. In short, the culture was acting on the environment, and at the same time, being acted upon by it. Wang & Dissanayake (1984a) provide examples of how culture and tradition could in fact be employed in social development efforts. In India, Mahatma Gandhi used traditional cultural symbolic systems to propagate new ideas, behaviours, and values among the masses. He used his reputation as a holy man to bring about several social reforms.

Unquestionably, indigenous communication is important since its roots are in people's need to share and transmit meanings and ideas. In the Sunda Region, indigenous communication still exists in the form of *gunem catur*. This local concept refers to informal group discussion and is performed by community members when they discuss such matters as health issues including the options for health and healing and the use of medicine, the price of food, children's education etc. This practice also encourages 'healer shopping', that is the

consultation of different healers for the same illness. Information on health issues, such as what treatment is best to choose for a sick member of the family, is often communicated through *gunem catur*. Such information also includes ways of promoting health and preventing illnesss by using local knowledge of Medicinal, Aromatic and Cosmetic (MAC) plants and related issues.

Gunem catur generally occurs in informal meetings of local associations such as *arisan,* and sometimes in more formal occasions such as seminars (Sobarna, pers. comm. 2008). Since health issues, especially those concerning members of the family, have become topics of interest in *gunem catur*, this form of communication has become an important field, as Schiavo (2007: 5) states: '*it aims at improving health outcomes by sharing health-related information'*.

Local associations such as *arisan* are small communication groups, usually consisting of about twelve, but not more than twenty members, as a larger group will reduce its members' aptitude for communicating and interacting with all members of the group. Therefore, it stands to reason that members of the group must be capable of communicating with all the other members of the group without restriction, and that it has a common purpose. Since an *arisan* is a socially-oriented informal small communication group, it generally is held in a context which mixes interpersonal interactions in a social gathering. It generally consists of friends who come together and enjoy each other's company. From this perspective, interpersonal communication is defined as one which occurs between people who have known each other for some time. Significantly, these people view each other as unique individuals, not simply as people acting out of spontaneous social situations.

It is clear, that indigenous modes of communication such as the oral tradition, drama, indigenous entertainment forms, cultural performances, transfer of indigenous knowledge and practice and local language – are essential to the communities within which they exist and which create them. The interaction with global forms of modern communication means such as the internet and electronic information, indigenous modes of communication remain crucial for the processes of human development. The expression of such interaction between global and local forms of communication, specifically between communities, has pertained to the concept of *cross culture communication*. It is basically a challenge for the communication process since the lack of knowledge of other cultures can easily create misunderstanding during the interaction process.

1.1.3 Local Institutions and Health Communication

As Werner (1998) states, Indonesia has a long tradition of community-based groups, the majority of which are informally organised. In order to promote its goals locally and organise people with the same occupations or interests such as teachers, the women's organisation, health and family planning units, the Indonesian government has set up a number of new groups on a national scale. In 1979, the government passed the *Village Governance Law* which established a new structure of local government based on *Rukun Tetangga*/*Rukun Warga* or RT/RW (neighbourhoods) and *dusun* (hamlets) within the *desa* (villages). The main characteristic of these government-based groups is that they are formally organised and that their membership is mandatory. Yet, both community-based and government-based associations can be found crosswise in the working range of associations, for instance in social service groups, occupational groups, finance and credit groups. There are a number of local associations, ranging from broadly based national level organizations with many local branches, such as the *Pemberdayaan Kesejahteraan Keluarga* or PKK (Family Welfare

Empowerment)[8], large political parties, and the *Kelompok Tani* (Farmers' Association) to very local groups, such as *arisan*. Informal groups such as *arisan* and cattle-rearing groups play a significant role and can be used as basis for addressing a range of social and economic development needs.

Senge (1990) notes, that many groups are unable to function as knowledge-based organisations since they suffer from learning disabilities, as to some extent every human process provides a vital success factor. Although the village structure is the overall basis for informal conversation, it is seldom used for tackling general problems or for educational purposes. As the exchange of knowledge or knowledge-sharing are aiming to use knowledge gainfully, a very important part in knowledge-sharing is understanding how to encourage people to share what they know. It is vital to make sure that knowledge-exchange or knowledge-sharing is encouraged and that people in possession of knowledge understand the benefits of sharing. The idea, that exchanging or sharing knowledge does not imply losing it, as it will only generate new knowledge and increase the value of the organisation as well as its individualism, must be reinforced for the next generation.

In knowledge-sharing, family members are the primary information source. Specific aspects of knowledge, covering a wide range of needs of daily life can be determined; knowledge about the healing power of plants especially plays an ongoing important role in case of illness. Unfortunately, the passing on of knowledge concerning local plants by the elder generation is generally now waning, although the elder generation still owns much specific traditional knowledge. In a period of increasingly rapid change, the younger generation tends to have less interest in the environment as it is more concerned with recent issues. This decrease of interest is seen as a process encouraged by various media such as TV and radio which render more, albeit a different kind of knowledge available.

Local institutions generally emphasise information-sharing and mutual understanding in a particular mode which is in line with both the theories of *ideation* and the *convergence*. This important dual theoretical orientation – selected for the study in Lembang - combines the concept of diffusion of ways of thinking by means of social interaction within culturally homogenous communities, with the theorem of information-sharing, mutual understanding and mutual agreement on any collective or group action that would bring social change. It is based on the perspective that the individual's perceptions and behaviour are shared by the perceptions and behaviours of members of the same group, being various associations, institutions, neighbours or family members, and by people from personal networks, such as peers, friends, or professional acquaintances. The specific dual theoretical orientation, used as the framework of the research in Lembang is elaborated in Chapter II (*cf.* Kincaid, Figueroa, Storey & Underwood 2001; O'Sullivan, Yonkler, Morgan & Merritt 2003).

1.1.4 *Arisan* and the Spirit of *Gotong Royong*

Much of the daily life of ordinary Indonesians is built up around institutions which facilitate intense social interactions. One common institution is the *arisan,* an association which can be found in almost every part of the country, most specifically in Java. Many Indonesian community organisations in both rural and urban areas are originally based on the *arisan* association, which is best defined as an indigenous association which holds regular social gatherings, usually once a month. At a meeting, members contribute a fixed amount of money to a pot, and take turns at winning the sum of money collected via a lottery system. Such activities help the *arisan* members to save money and also contribute significantly to informal saving activities in Indonesia. The formation of such an association is a very common practice

in Indonesia, and is found throughout Indonesia, in towns and in the countryside at almost all socio-economic levels of the society. *Arisan* can often be found at official meetings arranged at the different hierarchical levels of a *desa/kelurahan* (village) or a *dusun/lingkungan* (neighbourhood). Especially in the urban areas, the *arisan* are also building relationships in groups in which people might have something in common but meet irregularly, such as the wives of Foreign Service officials.

Arisan are basically rotating saving and credit associations and are the most widespread institutions for mutual saving. Besides this monetary function, they are also a social association which has been established in Indonesia for many generations as a form of *gotong royong* or mutual cooperation, concerned not only with money but also with other purposes such as those which have been carried out by *arisan* in some sub-districts in which the winners of the lottery have used the money to improve their houses with the help of local community members, or even to buy a motorcycle to support their earnings.Potter (2004) notes that since the 1970s, *arisan* have become distinctly commercial. Being a member of an *arisan*, has become a great way to save money for items too costly to be included in the normal family budget. In addition to its social function, the *arisan* has also the benefit that members can make purchases of large items sooner than they could have done with conventional savings which can take a long time to grow. Therefore, the economic dimension of the *arisan* is the one which looms largest in people's minds. It is recognized as a valuable means of saving, since people regard the *arisan* as an effective means for saving money through the rotating lottery which is usually drawn at a defined period of time. Its significance grows especially in times of economic crisis and hardship in which people have to struggle hard to earn enough money to pay for food, school-fees, health services, fuel and other necessities.

Besides its economic significance, another of its important social functions is that it often binds large circles of relatives and neighbours to each other through various social celebrations. As it is a traditional institution, an *arisan* meeting can contain elements of indigenous practices, like the *sumbangan* (a kind of contribution to an event, in the form of money or rice) which will be donated to those who are in need. It is a social activity which has long been pursued in Indonesia as a form of *gotong royong* (mutual cooperation).

Furthermore, as Sarwono (1993) notes, *gotong royong* organised by means of community meetings or informal gatherings such as *arisan,* is an actual demonstration of community participation in Indonesia. It is a method frequently used to assemble the community to participate in such projects as community health programmes. The informal meetings also include gatherings for ceremonial activities and the *arisan*. During the government of the late President Soekarno, the first President of the Republic of Indonesia, the idea of *gotong royong* was officially elevated to a central principle of Indonesian life. According to Gumisawa (2006), when General Soeharto replaced Soekarno as President of the Republic of Indonesia in 1967, the practice of *gotong royong* was also encouraged under his government. Accordingly, the meaning of *gotong royong* adapted its proper meaning of free labour to assist in public works in village development projects, community services as well as the more limited sphere of help in the household.

As the spirit of *gotong royong* seems to be embedded in almost all community-based organisations, this study attempt to document the various types of *arisan* which can be found in the research area and specifically their role in communication on MAC plants by members of the *arisan*, who are potential actors in information exchange.

1.2 MAC Plants: The Cultural Heritage of *Jamu*

1.2.1 MAC Plants and Medical Pluralism in Indonesia

From the time when such exotic Eastern spices such as cinnamon and black pepper are discovered, to be followed much later by commercially valuable plants such as tobacco, maize, rubber and cocoa from the New World, as a sub-field of ethnobotany economic botany, has concentrated largely on the economic value of these plants. By contrast, the related fields of ethnobotany and ethnomedicine are mostly engaged in the study of medicinal, aromatic and cosmetic (MAC) plants and herbs. Initially, the components of plants are mostly used in secret formulas for cosmetic use by the aristocracy and prominent people such as in ancient Egypt. However, the secret recipes of mostly plant-based cosmetic subsequently spread out from North Africa to Babylon, Assyria and Greece, and have soon been accepted as a lifestyle by the upper classes all through the Mediterranean Region and the Middle East (*cf.* Slikkerveer 2006).

As Slikkerveer (2006) states, the amount of medicine originating from medicinal and poisonous plants increased substantially, and afterwards evolved into an important basis for the innovation of new drugs. While the study of aromatic plants as an overlapping category has developed well, most attention has been paid to aromatic plants which provide fragrance and essential oils. Moreover, as Swahn (1995) states, various aromatic plants are also spices. WHO (1988) eliminated from its definition of herbal medicine those drugs which are based on already isolated or synthesized plant materials, as formulated in its *Guidelines for the Appropriate Use of Herbal Medicines*.

Slikkerveer (1997) states that consequently, the *Network on Identification, Conservation and Use of Wild Plants in the Mediterranean Region* (MEDUSA) has expanded its list adding the distinct category of plants with cosmetic uses because of the vast volume of plants used for cosmetic purposes in this and other regions around the world. In search of such useful plants, Quah & Slikkerveer (2003) describe experiences related to the complex identification of medicinal plants, such as those of the Indonesian *jamu*. In this field, the use of cosmetic plants for health and beauty has been a major part of the cultural heritage of the Archipelago for many centuries and has placed an emphasis on the practical need of the distinction between medicinal, aromatic and cosmetic (MAC) plants. De Silva (1997) notes, that in developing countries the compilation of extended categorisations of medicinal, aromatic and cosmetic (MAC) plants is rising as the result of a current re-appraisal of industrial uses of medicinal plants.

Moreover, Slikkerveer (2006) elaborates on the circumstance, that from the ethnobotanical and ethnomedical point of view, the application of the extended categorisation of MAC plants is related to a number of indigenous classifications of useful plants in Java and Bali, and therefore confirms the *emic*[1] view of indigenous plants, belief and use. This approach is vital to the understanding of the position of medicinal plants in local health care improvement and forest conservation around the globe.

As every society has established its own medical system conforms to its culture, a medical system has a different meaning in a different society. The medical system of one society can be very complex because it might consist of several sub-medical systems, which are all available to the people, who therefore can choose which system fits their requirements best. Long before the emergence of the cosmopolitan medical system, various medical systems already existed in Indonesia, all more or less connected to the different ethnic groups and the

historical process of the nation. As Slikkerveer (1990) states, the various medical traditions are dynamic and it is appropriate that the co-existing systems interact.

Meanwhile, Foster & Anderson (1978) argue that these medical systems have something in common such as the fact that every medical system is an integral part of a culture, that is, illness is culturally defined; therefore in every culture different symptoms are accepted as indicators that someone is ill. This has led them to make a division of medical systems into two categories; namely, the personalistic medical system which is defined by Forster and Anderson (1978: 53) as: '*one in which illness is believed to be caused by the active, purposeful intervention of a sensate agent who may be a supernatural being (a deity or a god), a nonhuman being (such as a ghost, ancestor, or evil spirit), or a human being (a witch or sorcerer)*'; and the naturalistic medical system which is defined as a medical system in which '*illness is explained in impersonal, systematic terms'* and is caused by a biological agent. Health is thought to be the result of a balanced state of forces or substances within the body and any disturbance of this balance might result in illness.

Examining the same problem, Dunn (1977)[2] divides medical systems, into three categories on the basis of the geographic and cultural environments as follows:

Firstly, the local medical system, which is a system of folk medicine usually on a local level, in which knowledge and skills are mostly transmitted orally from one practitioner to another and are often passed down from generation to generation as well. It places a strong emphasis on curative medicine. In this system, most practitioners often work part time and are little or only moderately specialised.

Secondly, the regional medical system, which is a system distributed over a relatively large area. Although this medical system is officially taught in schools, it restricted to specific regions of the world such as the Ayurvedic medicine in India and the Traditional Chinese medicine in China. These systems used to put a strong emphasis on public health, although at present there is a stronger emphasis on curative medicine and a moderate attention of attention is paid to preventive medicine; hence, interest in them is less than it used to be.

Thirdly, there is the cosmopolitan medical system, which is often referred to as modern or scientific medicine. It is found in nearly all parts of the world. Modern medicine is usually distributed in urban areas and places a strong emphasis on public health and curative medicine, but does not neglect preventive medicine and conventional health education. It is characterised by a very strong specialist division and knowledge is obtained from education at school.

In addition to the cosmopolitan, regional, and indigenous medical systems, Slikkerveer (1990: 210) defines yet another medical system; the transitional medical system which: '*comprises a form of commercial pharmaceutical medicine which has been similarly observed in Asia, Western Europe and the United States. It is characterized by utilization on large scale of commercial products and the sale of domestic and western pharmaceuticals*'. Hence, Slikkerveer (1982) describes it as a result of the interaction between rival medical systems and sub-systems; pharmaceutical medicine represents a transition from traditional to cosmopolitan medicine in the on-going process of change in medical beliefs and practice. It can be considered as an intermediate system, partly resembling the traditional and partly the modern medical system. Generally speaking, medical pluralism is typical of many developing countries and the co-existence of these indigenous, regional, cosmopolitan and transitional medical systems is not uncommon.

A wide range of medical systems is available to provide the population with health care. Primary Health Care (PHC), traditional birth attendants and indigenous herbal medicine are

all part of it. As Afdhal & Welsh (1988) point out, in Indonesia, there is the presence of an enormously extended production and consumption of indigenous Western pharmaceutical medicines, which co-exists with an increase in the large-scale production of traditional herbal medicine or the modern *jamu* industry. Besides, in Indonesia as in many developing countries, pharmaceutical medicines can easily be obtained at local markets or in small shops (*warung*). Although every medical system has its own characteristics, the co-existence of and the interaction between the various systems sometimes results in the adoption of similar techniques and treatments, such as the use of pharmaceutical medicine by indigenous health practitioners or the use of *jamu* by cosmopolitan health workers. In addition to modern health facilities, a wide range of indigenous practices exists to provide the population with health care. Therefore, individuals can make a choice depending mostly on the geographic and economic accessibility of the health services and on the nature of the illness as well. On the other hand, Buskens & Slikkerveer (1982) show, that as a result of the conjuction of geographical, economic and socio-cultural factors, disagreement can be generated between the modern health care systems and the local community. Moreover, Slikkerveer (1990: 69) indicates that: *'…the utilisation of health care can be regarded as a specific form of consumer behaviour in which interaction between the individual's psycho-biological system and the social system takes place*'.

Importantly, Yoder (1982) emphasizes that differentiation within particular systems must not be ignored such as in Indonesia for instance, illnesses are explained in personalistic terms as well as naturalistic terms. The Sundanese perception of health as an equilibrium between 'hot' and 'cold' substances within the body would, according to Foster & Anderson, fall into the category of naturalistic systems. However, Sundanese healers might also explain illnesses as a result of personalistic causes, such as the interference of evil spirits.

Currently, as a result of unease about impersonal treatment and the extraordinary cost of the existing bio-medical system, people in the Western world seem to be interested in traditional healing. Feeling alienated, people have returned to 'alternative' therapies such as homeopathy, herbals, natural healing and New Era holism. The existence and communication in a wide range of traditional and modern healing systems in many parts of Africa, Asia and Latin America has generally been regarded as a typical phenomenon in the developing world. In the developing countries, besides the services of doctors and health workers in mostly urban-oriented, hospital-based, modern health facilities for the elite, different types of indigenous healers following ancient local and regional systems such as Chinese traditional medicine, *Ayurveda*, *Siddha* and *Unani-Tibbi* have continued to provide alternative healthcare to the majority of the marginalized people.

Slikkerveer (1990: 14) notes that: '*…as in cultural pluralism, where two or more cultural systems in prolonged contact have established a mutual accommodation to sustain distinctive ways if life, medical pluralism refers to the historically grounded co-existence of more than one medical system which in a more or less interconnected way seeks to maintain the health status within the community'.* With medical pluralism, modern Western medicine can co-exist with the traditional way of practising medicine. Therefore, members of society can choose which system they consider is best for themselves. The subsequent communication on more than one medical system is often referred to by Slikkerveer (1990: 63) as: '*healer shopping*': when individuals make use of different medical systems or use various systems at the same time. For example, during the process of pregnancy and childbirth in Indonesia, Western-educated health professionals are consulted for prenatal care, while the services of indigenous health workers are called in for pre- and postnatal care. Both might be consulted at the same time for assistance in childbirth.

At present, the South-East Asian countries are making different degrees of progress in health development, as important factors by which to obtain successful community health are both numerous and complex. They include disparities in population growth, economic development, socio-cultural practices, and environmental factors and social settings. As a result of the vast size of its population as well as the low socio-economic status of a large proportion of the population, the five foremost challenges in health development in the twenty-first century are removing the differences in health status, creating conditions which promote health and cooperation and partnerships, ensuring basic health services for all, especially the poor, and vulnerable groups, upholding and enforcing health ethics, and placing health at the centre of development. Beside these challenges, inadequacies in proper health systems, the double burden of disease[3] and deforestation and environment degradation, exacerbated by such other serious issues such as the low literacy rate and gender discrimination are all factors which cannot be disregarded. Despite all these factors, health development has still made progress in many ways, particularly in terms of reducing morbidity and extending life expectancy.

Rafei (1997) has stated that an increasing number of countries in the South-East Region of Asia, including Indonesia, are facing failing government resources for health, as the result of rapidly changing socioeconomic and political situations. Simultaneously, they also have to cope with rising expectations and subsequent demands for more services from a more enlightened and affluent general public. In order to respond to this challenge, governments are looking for partnerships with other sectors, communities and non-governmental organisations (NGO). During the past few decades, member countries have made many fruitful endeavours to improve community actions for health with the full involvement of communities, political leaders and NGOs at various levels of health care delivery. Among the successful community health development programmes are the Integrated Health Package Programme or *Posyandu*[4] in Indonesia and the 'Village Health Volunteer Schemes' and the 'Basic Minimum Needs Programmes' in Thailand. However, these programmes are teetering at the crossroads, as the result of decentralisation and changes in health care management.

The health sector reforms initiated in many countries, including in Indonesia, in the 1990s are characterised by greater concern with demand which has grown on account of the extensive political and economic changes during the past two decades. Among them are the transformation from centrally planned to market-oriented economics, reduced State intervention in national economies, lesser government control and more decentralisation.

In addition, the health reform process is now proceeding rapidly, accelerated by a desire to improve equity and quality of care. The chief goals are to expand coverage and reduce costs, as well as to decentralise health care management and increase community participation. As part of the political and civil service reforms, the decentralisation of health systems has emerged as the most common form of reforms. However, this decentralisation has not been wholesale. The central government has not decentralised certain functions, among them drug selection, drug quality and drug pricing policies, human resource recruitment and deployment. It has to juggle with an appropriate mix of centralised and decentralised functions, responsibilities, and authority if it is to meet its best policy objectives.

Although governments in many countries have willingly embraced globalisation, only certain social groups profit from the escalation in commerce and financial investment associated with liberalisation policies. It goes without saying that the policies associated with globalisation have affected the health sector and caused a decrease in overall government spending, which also spells a reduction in health expenses. Since the government is the main provider of mother and child health services, AIDS prevention work, leprosy control

programmes and anti-smoking campaigns, all these and other primary health care initiative have been badly affected. What remains after the reduction in government services, is often introduced as user costs. This method of introducing the market mechanism into the provision of health care obviously makes health services less available to the poor and those living in rural areas.

In addition, the poor are also badly affected by the privatisation of health and hospital services, as these services are oriented more towards those who can pay. Moreover, important drug policies, which aim to make necessary medicines available to all at an affordable price, are a threat to pharmaceutical companies because of increasingly open-market policies. Finally, the rapid growth of unemployment and poverty has added to the health problems of the nation by creating extra demands on government services.

Meanwhile, the WHO (2004) indicated that approximately half of the population in developing countries had no access to good quality public health services; cut off by financial limitations, related to rapid population growth, political instability and poor economic performance. However, the most common reason for not going to a clinic was failure to pay the various costs incurred such as transport, fees, and prescriptions. Hence, primary health care and essential medicines are becoming even less accessible.

To meet the growing demands for basic facilities such as safe drinking water, sanitation and housing, most governments have initiated reforms in health systems which will increase the participation of the people and non-government organisations (NGOs); Rafei (2004) notes that many of the NGOs now work in collaboration with respective governments. One such example is the Bangladesh Women's Health Coalition which works primarily in the area of women's issues. Similar organisations are found in all countries in the South-East Asia Region. In Indonesia, *Pemberdayaan Kesejahteraan Keluarga* (PKK) (Family Welfare Empowerment) is represented in every village in the country, where it is engaged in various activities relevant to the needs of women in rural areas.

As health is a shared responsibility, the creation of *Healthy Indonesia 2010* obliges the Ministries of Health and Social Welfare to build collaborative relationships with others; all strata of the community, all related government departments and agencies, and the private sector. In their effort to achieve *Healthy Indonesia 2010,* the Ministries of Health and Social Welfare have also been obliged to act in a proactive and progressive way to attain the goals. The *Healthy Indonesia 2010* goals are as follows:

> *Firstly,* to initiate and lead a health orientation in the national development;
> *Secondly*, to maintain and enhance individual, family, and public health and to improve the environment;
> *Thirdly*, to maintain and enhance quality, accessible, and affordable health services;
> *Fourthly*, to promote public self-reliance in achieving government health programmes (WHO 2009).

In the mean time, two new fundamental Acts are passed, namely Act No. 22/1999 on Local Governance and Act No. 25/1999 on 'Financial Balance between Central Government and Local Governments'. These two Acts are point of reference for the implementation of a decentralized policy in Indonesia. They give provinces and districts a large degree of autonomy in managing their own home affairs but they have no say in defence, monetary and fiscal matters, foreign affairs, justice and religion.

Indonesia is composed of thirty-three provinces and each province is sub-divided into districts and each district into sub-districts. At present, since decentralisation has already been

implemented, the 349 regencies and ninety-one municipalities are now the key of administrative units. Each sub-district in Indonesia has at least one health centre headed by a doctor, usually supported by two or three sub-centres, the majority of which are headed by nurses. Most of the health centres are equipped with four-wheel drive vehicles or motorboats to serve as mobile health centres and provide services to people living in urban and remote rural areas. At the community level, *Pos pelayanan terpadu* (*Posyandu*[4]), the integrated Family Health Post provides preventive and health promotion services. These health posts are established and managed by the community with the assistance of health centre staff. To improve maternal and child health, midwives are being deployed in the villages.

Health development in the province of West Java is integral to the National Health System in general, which is based on local needs and problems. In its effort to attain *Healthy West Java 2008* (*Jawa Barat Sehat 2008*) followed by *Healthy Indonesia 2010* (*Indonesia Sehat 2010*), a strategy has been worked out as a health paradigm in which the centre of gravity of health development is concentrated on more at preventive and promotional efforts, without ignoring the curative and rehabilitative efforts (*cf.* Mahmoed 2001). However, since *Healthy West Java 2008* has not yet been successfully completed, the implementation of *Healthy Indonesia 2010* needs the active participation of the community and concerned sectors, as this is one of the imperative factors by which this vision can be reached.

In early 2000, the government revitalised the *Desa Siaga* (Alert Village) programme, a nationwide programme to improve the capability of a village to prevent and overcome various threats to the health of its community. In fact, this programme is a continuation of the *Gerakan Sayang Ibu*[5] pioneered in 1996 by the Health Department to eradicate the obstacles which hampered pregnant women from obtaining appropriate health care, especially in rural areas where the mortality rate in childbirth was still high. At the present time, with the resurgence of the *Desa Siaga* programme, each village will have at least one health centre (*Puskesdes*) and one community development programme (*Gerbangmas*). Importantly, the *Desa Siaga* programme also encourages communities to conduct simple surveillance procedures to watch out for contagious diseases; provide medical and disaster relief services; promote health, nutrition and sanitation and be on the alert for imminent outbreaks of diseases such as, Dengue fever, avian flu and diarrhoea, which have overwhelmed the country lately. Therefore, the Health Department target is that by the year 2009, all communities in the country will have been included in the *Desa Siaga* programme (Pikiran Rakyat 2006). The idea of involving individuals, families and community groups in providing health care for all members of the community tallies with the real meaning of Primary Health Care (PHC), which encourages community members to take responsibility for their own health and welfare. Moreover, involving members of the community in providing health care will promote the community's self-reliance in health care of the community.

Prayudha (2006) claims, that to improve primary health care in the province of West Java, 994 *puskesmas*[6] and 65 *puskesmas* for Obstetrics and Neonatal Basic Emergencies (*Pelayanan Obstretik dan Neonatal Emergensi Dasar* or PONED), 1,465 *puskesmas pembantu* are established up to 2005, and there are 527 mobile health centres (*puskesmas keliling*). In addition, 1,622 general practitioners and 3,919 midwives are now available in the rural areas of the province.

In a recent step, the Health Department has included the *pesantren* (a school for Koranic Studies for children and young people, most of whom are boarders) in its health programme, to improve primary health care through Health Centres in *pesantren* (*poskestren* or *Pos Kesehatan Pesantren*). However, in the province of West Java, the unavailability of medical doctors in 400 *puskesmas* and 183 *poskestren* has rather hampered the efforts to provide

optimal health care to communities, including those living in remote areas. Crucially, health is an important factor in improving the human development index. The Head of the West Java province health service states that medical doctors rarely volunteer to be placed in a *Puskesmas*. The reason might be that from an economic point of view, working in a *puskesmas* will not assure them a rapid rise to affluence (Pikiran Rakyat 2007).

1.2.2 Renewed Interest in Traditional Herbal Medicine

As Slikkerveer (2003) states, since the times when the European countries made great discoveries in the non-Western world, medicinal plants and herbs have always played an important role in the development of medicine and public health in both Western and non-Western countries. Gradually, however, the interest in traditional medicinal plants as a potential resource for the Western medical world had weakened in the wake of the discovery of more advanced medical technologies and antibiotics which have been produced since the end of the nineteenth century.

However, growing dissatisfaction with the ineffectual responses and unaffordability of bio-medicine in treating various diseases such as cancer, hepatitis and HIV/AIDS, not to mention mental disorders, has elicited a debate on the possible integration of traditional and modern medical systems, as alternative therapies seem to provide low-cost solutions.

In addition, Farnsworth *et al* (1985) point out, that in the estimation of WHO, about 80% of the world population uses some kind of herbal medicine and that the majority of the population in developing countries continue to depend on the use of traditional herbal medicine for their primary health care needs. Considering difficulties in meeting the need for essential drugs in many developing countries, the revitalisation of interest in traditional medicine in developing and developed nations has led to an overall reassessment of the way in which basic health services are made available in the 1970s, causing the WHO (1978) suitably to redefine its strategy of accomplishing '*Health for All*' by introducing the concept of Primary Health Care (PHC). The new strategy, developed at the conference in Alma Ata (WHO 1978) refers to: '*essential health care made accessible at a cost that the country and community can afford*', and is based on the principles of fairness, participation, suitable technology, prevention and an intersectoral approach to public health problems. Among the programmes which are executed, the provision of essential drugs, the promotion of health and the partnership with traditional healers and birth attendants opened up new health policy options for making use of local resources, especially traditional and herbal medicines.

Meanwhile, Quah (2003) has stated that various factors have begun to encourage mutual study between the biomedicine and traditional medicine although these two fields have already existed together concurrently in the same place in corresponding but diverse worlds. The most important of these factors is the search for success in the controlling and curing some serious diseases; new developments in science and technology; a revived interest in cultural heritage; and the fascinating possibility of finding concealed treasures in each other's field. Warren *et al* (1995) claim that this new strategy has resulted largely from a renewed theoretical interest in ethnoscience; an essential step required to operationalize and apply indigenous peoples' ideas and practices in the socio-economic development process. Later, this successful integration of local knowledge into the health care development process was well documented for various cooperation projects and programmes around the world. The outcome has been, as Slikkerveer (2006) elaborates, that many health care development programmes have been successful in increasing the integration of indigenous medical remedies, perceptions and practices into the formal health care systems, on the basis of

economic factors and even more in appealing to a more participatory and sustainable form of integrated health care for the entire population in the country.

However, Quah & Slikkerveer (2003) note, in spite of the success of some of the approaches and strategies which are intended to integrate traditional and modern medical systems. It has to be acknowledged that the related concept of '*Health for All 2000*' (WHO 1981) has not yet been realised. Currently, a large number of people living in the rural areas in the tropics still have no access to adequate health care, which is often only partly based on the incorporation of traditional healing and midwifery. Mostly, as a result of the artificial division which sometimes opposes bio-medicine and ethnomedicine, the expected integration is still facing several theoretical and methodological complications which need further study and analysis.

In line with the Recommendation of the International Conference on Primary Health Care of the WHO/UNICEF in Alma Ata (1978), confirming that proven traditional remedies should be incorporated in the national health care services, and the subsequent *Global Strategy for Health for All by the Year 2000* (1981) with the purpose of improving the health care system in the country, the Indonesian government has officially incorporated the use of herbal medicine into its health policy. The legal basis of the use of traditional medicine has been ratified in three legal documents: in the guidelines for national health care (Article of Law No 9/1960); on pharmacy (Article of Law No 7/1963); and the National Health Care System and its policy on the use of traditional medicines (*cf.* Slikkerveer & Slikkerveer 1995).

Traditional medicinal practices which use tried and tested methods are rooted in the socio-cultural background of the community and can be categorized as an appropriate technology, since the necessary materials are found around about in the environment of the community and are easily available, cheap and easy to prepare. As Balick & Cox (1996) note, the World Health Organization (WHO) claims that approximately more than 3.5 billion of the population of the developing world still depends on the use of plants in Primary Health Care.

Countries in South-East Asia have a long heritage of traditional medicine which has been used in the health care of its people from time immemorial. In spite of the influx of modern medicine, traditional medicine is still widely popular and provides a very large component of health care. Accordingly, a number of developing countries have decided to integrate traditional medicine into their primary health systems. These countries have realised the potential of traditional medicine and have taken steps to promote it as part of their national health care systems.

As traditional medicine has existed throughout the whole of Indonesia from the beginning of time Indonesian people have been using herbs and medicinal plants for the treatment of ailments for centuries. Traditional healers or *dukun* treat a variety of illnesses, whether physical, emotional or spiritual origin using combinations of herbal and sometimes magical means. In North Sumatra, some ethnic healers such as the *Karo* bone-setters are traditional healers who are specialists in setting broken bones and who practise their skill in clinics.The ubiquitous herbal medicines and tonics called *jamu* are both home-made and mass produced. Home-made *jamu* is often simply used as a home-remedy for ailments occurring in the family but home-made *jamu* is also sold by the *jamu gendong*[7]. Commercial brands of herbal medicines and tonics are sold throughout the country by *jamu* vendors penetrating far into remote areas.

Traditional herbal medicine is a cultural heritage which has been handed down from generation to generation. Initially, plants used for home-remedies are cultivated in home-gardens, called *Apotek Hidup* (Living Pharmacy). More recently, the use of medicinal plants as well as the cultivation of medicinal plants for the family (*tanaman obat keluarga* or

TOGA) has contributed to building up the knowledge of medicinal plants among the local people (*cf.* Slikkerveer & Slikkerveer 1995).

In its effort to empower the community, especially in the field of traditional medicine, and to improve the level of health condition through self-care and use of home-remedies, the Centre for Development and Application of Traditional Medicine (*Sentra Pengembangan dan Penerapan Pengobatan Tradisional* or SP3T) was established in the province of West Java in 1997. The establishment of the centre was based on the Decree of the Health Minister in 1995 (*SKM* No.0584/Menkes/SK/VI/1995), showing its concern in the increase of the use of traditional medicine in the country. The functions of SP3T are to monitor, study and conduct research on traditional medicine and to execute pre-clinical and clinical trial testing of traditional medicine. It also has a duty to organize education and training of selected traditional treatments (SP3T 2001). It must be especially vigilant to stamp out the production of the so-called illegal *jamu.* These *jamu* are mass produced by irresponsible *jamu* manufacturers, who do not follow the regulations for a properly manufactured product, and therefore can harm users of traditional medicine.

Meanwhile, the dissemination of information about medicinal plants to be used by the family (TOGA) [9], to people living in urban and rural areas has issued a new challenge to the Community Health Centre Development in Indonesia in general, and to the province of West Java in particular. It has to be said that the use of local resources and the involvement of the community in health care are both very much in line with the concept of Community Health Care. In 1997, to socialize the cultivation and use of medicinal plants, the SP3T arranged an annual competition for TOGA in co-ordination with the prominent *Pemberdayaan Kesejahteraan Keluarga* (PKK) (Family Welfare Empowerment).

1.2.3 Traditional Medicine and Primary Health Care

Health care can be intimately linked to conservation and ethnobotany because many medical plants are found in habitats endangered by current land use. At this critical point, it is a matter of some urgence to legitimize and promote traditional ways of curing and to make people aware that continued access to plant medicines is dependent on forest conservation.

As Hoffmann (1983) notes, until recently almost every culture all over the world used healing plants as the basis for its medicine. For thousands of years plants have demonstrated their efficacy and significance, although the therapeutic philosophy and rationale behind the plant use might differ. Each culture had basic healing plants from which remedies are made. This range of plants would vary from area to area, depending on the local ecosystem. It is rare to find herbs with equivalent actions in any other area; just as rare as it is to find plant species or even botanical types which might be totally different but nevertheless, various human problems are dealt in a similar botanical way. People do not always restrict themselves to the plants provided by the local ecosystem within which they happen to live. Currently, people's food may come from anywhere in the world and modern information technology brings the world into people's homes, opening up their mental worlds and expanding their emotional lives to a wide range of influences. Notwithstanding these advantages, the human impact on local ecosystems must invariably be borne in mind. At present, the range of plants available locally is being reduced, as they have fallen victim to intensive agriculture, deforestation and reforestation, and the expansion and industrialisation of towns therefore. Therefore, there are a few truly natural, wild habitats left.

Initially, plants are used as man's first medical treatment and means to improve health. Many rural people and urban poor, especially in developing countries, still rely on the use of

medicinal plants even in a whirl of cultural, social and economic changes. Van Seters (1995) reports more than 35,000 plant species are being exploited by people around the world for medical purposes but perilously they are uncontrolled by local and external trade. So far, an estimated forty tropical species have been incorporated into modern medicine but only a small part of the tropical flora has been thoroughly analysed for their pharmacological properties. Hence, the extinction of approximately 3,000 plant species annually could imply the loss of potential drugs to combat such incurable diseases as cancer and HIV/AIDS.

On the one hand, deforestation has meant that certain medicinal plants and other useful wild plants have become more difficult to find and some are on the verge of extinction. As the number of plants diminishes so does the knowledge or culture associated with them since people who have a deep understanding of the properties of their local plants and wisdom of nature die and their knowledge perishes with them because of changes in socio-economic situations. Hence, rainforest deforestation poses a clear threat to human safety by causing such natural disasters as landslides, floods, soil erosion and the spread of certain disease, such as diarrhoea. Moreover, the extinction of medicinal plants and traditional healers presages the enormous risk of the lost of medicinal plants knowledge to developing and industrialised countries.

For thousands of years humankind has used plants as a means of healing of ailments and still continues to rely on them for health care, particularly in developing countries where the traditional practitioner usually applies them in their treatments of patients. Besides providing food, plants have been used for other purposes. Medicinal plants, for example, play an important role in the lives of rural people, particularly in the rural areas of developing countries where only few Public Health Care centres are available. It should also not be overlooked that plants used in traditional medicine by local people throughout the world are now often assessed as sources of drugs for Western medicine.

Likewise, Van Seters (1995) notes that traditional medical practitioners and herbal remedies play an important role in the health care of millions of people in developing countries. According to WHO (1983), 85% of this population does not have access to Western medical care. In most developing countries, traditional and modern health systems operate independently in non-hospital care, but in remote rural areas only traditional healing and herbal home-remedies might be available. Therefore, in these countries there is a great demand for medicinal plants most of which come from the forests. For this reason, it can be expected, that in the future, the use of medicinal plants will increase because of population growth and not forgetting the influence of the WHO policy on traditional medicine in Primary Health Care.

Unquestionably, health care is very important in building a better future; physical and mental health is essential to people living in developing countries. It is also a human investment in national development programmes. Two important health care strategies are Community Health and Primary Health Care (PHC). These strategies are officially introduced by the World Health Organization (WHO) in *the Declaration of Alma Ata* (WHO 2003), by which the international community committed itself to the global strategy of *'Health for all by the year 2000',* as in most countries of the Third World, health conditions are inadequate since the people there have almost no access to modern health services.

WHO defines Primary Health Care in the *Declaration of Alma Ata* (WHO/UNICEF 1978: 3-4) as '*… essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the community through their full participation and at cost that the community and country can afford to maintain at every stage of their development in the spirit of self-reliance and self-*

determination. It forms an integral part of both of the country's health system, of which it is the central function and main focus, and of the overall social and economic development of the community. It is the first level of contact of individuals, the family and community with the national health system bringing health care as close as possible to where people live and work, and constitutes the first element of a continuing health care process'. In the Primary Health Care strategy, launched by WHO (1978), the main concern is to pursue fairness in health care and prevention of illnesses, as well as ensuring accessibility (geographical, financial and cultural), especially for those deprived and vulnerable and high-risk groups.

Although, the global strategy of '*Health for all by the year 2000*' failed to be successfully realised, it is still an inspirational goal of health development and it is believed that this could be achieved through revitalising Primary Health Care (PHC). Unquestionably, the cosmopolitan health services are disinterested in alternative and traditional health care, although most of the people are actually still dependent on them on account of the unfavourable geographical conditions in which they live and their lack of financial accessibility to the modern health services.

Farnworth *et al*. (1985) note that according to WHO approximately 80% of the world population, in particular the majority in developing countries, still rely on the efficacy of traditional herbal medicine for their primary health needs.

In relation to this, Slikkerveer (1990) points out that at that point WHO considered it then necessary to formulate a new approach for Primary Health Care as a reaction towards the use of traditional practices and perceptions of indigenous peoples as well as the result of numerous empirical studies carried out among others by Warren et al. in 1982, Buschkens and Slikkerveer in 1982, and MacLean in 1985 among others. Accordingly, WHO (1983) decided to promote the use of traditional medicine, including indigenous practices and various types of traditional healers and birth attendants to contribute to achieve a socially and economic productive life for all people. Lately, the effectiveness of traditional medicinal plants especially has led to the current international resurgence of interest in their use for both new drug development and for biodiversity conservation.

1.3 Conservation of Biocultural Diversity

1.3.1 Threat of Extinction of MAC Plants

As Shapiro (1993) notes, the influx of Western drugs to cure such diseases as influenza and tuberculosis has often demonstrated the superiority of modern medicine, hence affecting the prestige of the local healers. At the same time, it has also opened the market for expensive modern medicine. Therefore, the reputation of available and often equally effective traditional medicine has come under pressure; frequently falling into disuse and even disrepute.

People are well aware that there are weaknesses in traditional medical practices. Integrated health care is one in which local medical specialists and Western-educated doctors work together taking the best of both traditions but giving their preference to the local tradition, all things being equal. Integrated health care is seen as preferable to the present arrangement (common in tropical countries) in which local people have to make a decision about whether to visit a traditional or a Western doctor.

Although, they often think that if the one is not efficacious; they will try the other treatment. The problem is, that by the time the inadequacies of treatment are realized, the patient's condition is likely to have worsened sometimes drastically. On the basis of

economic, cultural and environmental criteria it is thought that the integrated health care approach could offer great advantages in many countries.

In Indonesia, the phenomenon of using traditional and modern medicine in combination is not strange. Undergoing long-term treatment by modern doctors can at times can be rather unsuccessful, so patients resort to herbal medicine. Often, if there is no immediate improvement in the patient's condition after seeing the doctor, the decision maker in the household either stops the use of modern medicine if this was the first choice, or changes to the use of traditional or herbal medicine. Before making this decision, the family seeks for information about traditional medicine, which is usually derived from medicinal plants, used in self-medication (*cf.* Slikkerveer 1990), and can be acquired in the local surroundings or in other areas outside their local environment.

Currently, for people living in rural and urban communities, it is not always easy to obtain information about the specifications of indigenous herbal medicine. Knowledge of medicinal plants which is a resource for herbal medicine or *jamu* is constantly being threatened with loss because of deforestation and the massive resettlement programmes sponsored by the government. The situation is exacerbated because the present younger generation, often has very different ambitions. Therefore, despite the continued communication on medicinal plants, indigenous knowledge and skills are still threatened with loss.

The valuable knowledge and wisdom possessed by indigenous people about MAC plants and how to use them has accumulated over many generations, as part of the indigenous management system, and normally includes local methods and practices of conservation of bio- and cultural diversity. Nevertheless, it is occasionally disregarded. While biodiversity refers to the diversity of species, genes and ecosystems, cultural diversity includes the diversity of related knowledge, belief and practices, recently referred to as biocultural diversity (*cf*. Slikkerveer 1999; Posey 1999; Agung 2005). The local practices are generally rooted in a combination of traditional ecological knowledge and belief systems which have developed over a long period of time. For many Western researchers, it is still rather difficult to understand most indigenous systems of what is fairly holistic knowledge about the management and conservation of biocultural diversity.

One central tenet is ethics, considered the 'sacred balance' which controls such stipulations as collecting only what is essential, rather than saving an excess for later consumption or wealth. Moreover, as compassion for natural resources is an aspect of traditional law (*adat*), Affif *et al.* (1996: 68) point out that *adat* rights are '*part of a complete system of customary rules of behaviour that evolved in and are accepted by local communities to regulate daily life in such a way that the community survived and harmonious interactions with the environment ensued*'. Therefore, conduct is also decreed by *adat*. For instance, if a person should take more than required from nature, he/she is not rebukedby legal sanctions, but punished by 'divine forces'. Now, these indigenous laws of balance are threatened, since globalization has increased rapidly and introduced community members to ways of obtaining quick cash returns for such resources as timber; plus the associated alternative views of the human-environment paradigm. Evidently, this has caused a reduction in resource and changed cultural practices. Afiff *et al.* (1996: 68) state that the biocultural diversity concept argues that the human-plant discussion is essential to maintaining the relationship between the preservation of resources and the practices and perpuating the knowledge associated with the environment. It is also concerned with preserving or even increasing variations and large quantities of plants. Conversely, environmentalists, ecologists and biologists prefer the 'hands-off' approach to save the global ecosystems and object to the banning of biodiverse forests to people who are dependent on them for their livelihood and survival.

As Agung (2005) notes, following the publication of Edward Wilson's important book on *Biodiversity* (1988), the early 1990's witnessed world-wide attention from scientists, policy makers and the general public to the advancing global biodiversity crisis, which was largely identified by biologists as a human-made predicament. WRI/IUCN/UNEP (1992) listed six fundamental causes of biodiversity loss, including high population growth; the narrowing spectrum of agricultural and forest products; economic systems failing to value the environment; inequity in ownership, access and benefits from natural resources; inadequate knowledge and legal systems which promote unsustainable exploitation of resources.

The accelerating rate of biodiversity loss and its imminent impact on the future of humankind has also continued to draw the attention of a growing number of international organisations and foundations leading up to a series of influential publications, conventions and strategies. These include relevant documents from the *World Bank* (1994), the *World Resources Institute* (1991), the *International Union for the Conservation of Nature* (IUCN) (McNeely *et al*. 1990), the *United Nations Environment Programme* (UNEP) (Heywood 1995).

Also, several international organisations have also expressed their concern over the biodiversity crisis, such as the *World Commission on Environment and Development* (WECD), the *World Conservation Monitoring Centre* (WCMC), the *United Nations Development Programme* (UNDP), the *World Wide Fund for Nature* (WWF), and the *United Nations Food and Agricultural Organisation* (FAO). Recently, the *Convention on Biological Diversity* (CBD 1992), regularly up-dated in the Conference of the Parties to the Convention on Biological Diversity, published the *Global Strategy for Plant Conservation (*COP 9 Decision IX/3 – 2008), and the *Forest Biodiversity Plan* (COP 9 Decision IX/5 – 2008).

Following the *Kyoto Declaration on Climate Change* (1997), the *Leipzig Declaration on Global Climate Change* (2005, revised) continues the international debate on this timely topic, in which the conservation of biodiversity continues to receive similar high priority on the agenda. The *Fifth Meeting of the Conference of the Parties serving as the Meeting of the Parties to the Cartagena Protocol on Biosafety (CBD COP-MOP 5)* will be held in Nagoya, Aichi Prefecture, Japan.

The Society for Ethnobiology (2009) is active in the study of the relationships between humans and their biological worlds. Following its purpose to gather and disseminate knowledge of ethnobiology, and to foster an ongoing appreciation for the richness of ethnobiology worldwide it has organized a conference on biodiversity conservation at Tulane University in New Orleans, Louisiana from April 1–4, 2009.

1.3.2 Community-based Conservation of MAC Plants

Meanwhile, most rural people do not agree voluntarily with the limitations placed on their daily life, especially those relating to crops cultivated on 'abandoned land' even though the State regards such areas as its own. Discussing this, Afiff *et al.* (1996: 68) note that: '*It is commonly the case that when someone is apprehended for some form of trespass on this land, the defense presented is based on adat rights. It is generally true that in former times people really did live in harmony with their environment, but if people living adjacent to conservation areas today are allowed to exercise the same rights as then, disaster would ensue from the conservation point of view'.* Furthermore, rural people with a low income collect MAC plants in abundance to generate extra income by selling the plants for a little money at markets or to producers of herbal medicine.

Yet another threat to the availability of local MAC plants is posed by building projects, the development of rural areas and the consequent decrease in natural resources. Although it has been recognized that there is relationship between the knowledge of ecosystems and the use of natural materials, this knowledge of ecosystems might actually be disappearing faster than the plants themselves. Plenderleith (1999: 321) argues that the reality is: '*almost all local knowledge of medicinal plants and systems as well as all the plants themselves could disappear within one generation'.* Therefore, it is vital to the conservation of biodiverse habitats that humans interact with the environment, in places where the existing ecosystems are regarded as invaluable and honoured assets for reasons which have nothing to do with monetary rewards. In this context, Slikkerveer (2005) warns that the 'hands-off' solution put forward by biodiversity biologists is a limited approach to managing the biodiversity crisis; human behaviour has both positive and negative impacts on biocultural diversity, revealing a much more complex interaction of social, cultural, economic, and ecological variables.

Besides, that Slikkerveer (2006) stresses that as one of the major sub-fields of ethnobotany, economic botany has focused mainly on the economic value of such useful plants as tobacco, maize, rubber and cocoa; not forgetting such Eastern spices as cinnamon and black pepper.So far, the related fields of ethnobotany and ethnomedicine have mainly been involved in the study of 'exotic' medicinal, aromatic and cosmetic plants and herbs. The initial use of cosmetics compounded from plant ingredients spread from ancient Egypt to Africa, Babylon, Assyria and Greece, to become part of the lifestyle of the upper classes throughout the Mediterranean Region and the Middle East.

Simultaneously, interest in medicinal and poisonous plants increased enormously since these plant species are used, usually in combination, as medicines as well as offering a significant basis for the development of new medicines. Swahn (1995) notes that spices also include several aromatic plants. Hence, the study of aromatic plants as an overlapping category has developed and more attention is paid to those plant species which provide fragrance and essential oils. A similar overlap defining medicinal and aromatic plants (MAPs) as plants primarily used for medicinal or aromatic purposes in pharmaceutics and perfumery has been used by the European Union, in its *Glossary of Biodiversity-Related Terms* (2005). Previously, WHO (1998) had excluded those drugs which are based on already isolated or synthesized plant materials from its definition of herbal medicines, as formulated in its *Guidelines for the Appropriate Use of Herbal Medicines*.

In a manner similar to the distinction in herbal medicine between raw plants materials, processed plant materials and medicinal herbal products, De Padua *et al*. (1999) distinguish three different types of herbal medicine: traditional medicine referring to the use or consumption of an indigenous medicinal plant in its country of origin; herbal medicine indicating the cultivation and processing of the same medicinal plant in the country of origin into a formulation of herbal medicine to be sold in Western countries and pharmaceutical medicine, if the same plant supplies a principal compound for a pharmaceutical product. Balick *et al.* (1996) argue that these systems of medicine are complementary in health care and cannot replace one another.

In addition, Slikkerveer (2006) notes that the desire to implement accurate definitions in the study and analysis of wild and cultivated plants species is also embodied in the *Global Plant of Action* of FAO (1996), adopted by 150 countries and the European Union, promoting the conservation and use of wild plants for food and agricultural production. Therefore, the objectives of the *Network on Identification, conservation and use of Wild Plants in the Mediterranean Region* (MEDUSA) include the identification of native and naturalized plants of the Mediterranean Region and their diverse uses.

Earlier, Slikkerveer (1997) has pointed out that the extensive volume of plants used for cosmetic purposes in the region motivated the Network to extend its list by adding a distinct category of plants with cosmetic uses. Furthermore, Quah & Slikkerveer (2003) record a comparable experience with the complicated identification of medicinal plants for *jamu* in Indonesia, where cosmetic use of plants for health and beauty has been a major part of the cultural heritage of the country for many centuries. This unquestionably emphasizes the practical need to make a difference between medicinal, aromatic and cosmetic (MAC) plants.

From the viewpoint of ethnobotany and ethnomedicine, Agung (2005) and Ibui (2006) note that the application of the extended categorization of MAC plants has also been shown to link up with several indigenous classifications of useful plants in Java and Bali, and has helped to substantiate the *emic* view of indigenous plants, belief and use, vital to the understanding of the position of medicinal plants in local health care improvement and forest conservation around the globe. Consequently, disputes arguing for the expansion of the concept of MAC plants are based both on considerations of overlapping definitions, economic value and the promotion of health and beauty and also on the socio-cultural perceptions and classifications of the indigenous and traditional peoples involved.

As Balick & Cox (1996) observe, in various indigenous cultures the Earth is perceived as available in the sacred and not in the secular sense. This is in contrast to the Western tradition, in which natural resources are considered to be property and therefore are subject to private or government ownership. Moreover, indigenous cultures place an emphasis on the obligation to protect the Earth, not because of its usefulness to people, but because of its sacredness. Therefore, conservation is considered a religious task, even though it simultaneously also fulfils ecological and cultural purposes.

Certainly, the conservation of nature is not unfamiliar to the people of the Archipelago, since centuries ago their ancestors had already implemented environmental wisdom for preserving the nature. As they have always considered nature a part of their life, damaging nature is equivalent to destroying their life. In the island of Java, the culture of this conservation is reflected among other ways in the values of environmental wisdom called *Sapta Mahayuning Bhawana* (KLH 2001), meaning seven conservation values of environmental wisdom which encompasses:

- land and its environment being the main source of life;
- environment is a part of life; therefore it has to be respected;
- natural riches are certain and limited;
- nature gives knowledge about cosmology and natural signs;
- natural resources should always be kept in a balanced condition;
- plants are an analogy of the human body;
- nature is as a teacher in life.

Sapta Mahayuning Bhawana also teaches humankind that learning from the wisdom of nature is always worthier than manipulating nature in all its aspects.

Members of the Sunda ethnic group in West Java, for example, state that the Earth is considered their life as well as their mother, hence the term *ibu pertiwi* (*ibu* means ‘mother’, *pertiwi* means ‘earth’), meaning ‘motherland’. It is sacred and should be respected and honoured. Forests and rivers in West Java are maintained on the basis of local wisdom. Further, Hardjasaputra (2007) notes that the wisdom was often presented as a privilege of the regent (*bupati*) who was then the highest authority in the region. When the regent went in pursuit of game, he sat on a roofed dais (*saung*) in the hunting grounds, watching the progress

of the hunt. Since the regent was a charismatic figure, the local people living near the forests would not dare enter them at any time or damage them by cutting down trees. Hence, these forests are called *leuweung larangan* or sacred forests. Similarly, when going fishing in the river, the regent waited in his *pasanggrahan* (a kind of rest-house) near the river, while the people went to catch fish in the river for their ruler. Aware of these privileges, local people voluntarily took care of the conservation of rivers and forests. In essence, this seemingly feudal lifestyle of hunting and fishing was the regent's wisdom for the conservation of forests and rivers.

In fact, the concept of the management of natural conservation was introduced by the Western world. Received Western wisdom says, that the local community living in a forest area must be isolated and not be allowed to interact with the forest environment. This concept ignores the dissimilarities between the Western and Eastern communities in their development in the social, economic and cultural spheres. From the Western people's point of view, to separate and prohibit the inhabitants from entering the conservation sites is considered rational; a view generally supported by their education and ample means of livelihood, which means that they are not dependent on nature.

By contrast, Indonesian people, especially those living in rural areas, generally have a close relationship with their living environment, such as forest sites. In many cases, before the forest sites became a nature conservation area, the local community lived and managed the forest sites from one generation to the other for hundreds of years. Therefore, in the management of natural conservation sites, obviously the aspects of the bio-physics, society, economy, and culture of the local communities must not be overlooked when considering the conservation practice of the sacred natural sites by the local people.

In addition, Iskandar (2006) observes, the bulk of the rain forests in diverse regions of the province of West Java have been severely damaged, although there are still specific areas with well-maintained forests, especially in the regions of Ciamis and Garut, because of the adherence of the surrounding population to their own local wisdom. According to the local wisdom, the forests in these areas are sacred (*leuweung larangan*). These forests have also survived deforestation. Hence, the biodiversity in these areas is preserved independently and sustainably. In contrast to these sacred forests, the forests outside of the sacred forest environment are in a parlous condition. The natural reserves of *Leuweung Sancang* and Kawah Kamojang, in the region of Garut, for example, were once dense forests, home to a wide diversity of flora and fauna. It is the same story with the wild-life reserve of Cikepuh in Sukabumi, which was formerly inhabited by various kinds of animals, and is now in a deplorable condition.

Currently, huge amounts of indigenous knowledge are disappearing, often as a consequence of alterations in the lifestyles of communities, in response to the rapid changes in the world, especially in the field of information technology. The last causes disruptions in traditional channels of oral communication. Exogenous communication has introduced breaks in the traditional channels of oral communication and this interruption is hindering the process of transferring knowledge from the elders to the younger members of the community. The purpose of this study is to verify whether indigenous communication and exchange of knowledge especially on communication on MAC plants still exists and, if so, to attempt to revitalise the use of herbal remedies or traditional herbal medicine in the treatment of illness by members of the *arisan* in communities in Lembang. In its course, the study will also document the types of *arisan*, a traditional social association which is found in the research area; the knowledge and use of medicinal plants as discussed by members of the *arisan*, who are potential actors of information exchange.

1.4 Aim, Objectives and Structure of the Study

The introduction demonstrates that medicinal plants obviously play an important role in health care in Indonesia. Apart from the lack of access to the modern health care system by, the larger segment of the population, the cultural appropriateness of local herbal medicine is a major factor in the predominant use of traditional medicine. The people of Indonesia have used medicinal, aromatic and cosmetic (MAC) plants – often in the form of plant parts mixtures called *jamu* - in their daily lives from time immemorial. While currently, there is a growing threat of loss of such knowledge, especially of the utilization of MAC plants, the government shows some concern about the exchange of information and communication on MAC plants which would not only safeguard the cultural identity of the nation, but also provide a useful alternative to Western medicine.

Hence, the *general aim* of this study is to document and analyse the factors involved in the process of communication behaviour on MAC plant knowledge and practice among members of a local social organization *arisan* in the research area. Thus, an analysis is conducted of the role of various categories of factors which appear to be involved in this complicated communication process from the local people's point of view, in which particular attention is paid to the 'invisible' factors which seem to play a determinant role leading to the patterns of communication behaviour in the *arisan*. The focal point of the study is Lembang in the Province of West Java, a mountainous area with communities scattered on the slopes of the mountains.

In order to realise this general aim, the *specific objectives* of the study are as follows:

Firstly, to give a description of the research setting or the sociography of Lembang in the Sunda Region of West Java, in Indonesia as a developing country in South-East Asia.

Secondly, to present the dual theoretical approach towards the study of communication behaviour of actors within groups and associations, where also a distinction is made between *indigenous*, or *local* communication, largely operational in developing countries, and *modern* or *global* communication, largely operational in Western countries.

Thirdly, to draw special attention to the *arisan* association, particularly its socio-cultural role in indigenous communication on MAC plant knowledge and practice among its members.

Fourthly, to assess the impacts of the major dimensions of globalisation on both the the biological and culturalMAC plant diversity at community level.

Fifthly, to provide an *emic* perspective on life in four communities in the Sunda Region of West Java, located in rural, semi-rural, semi-urban and urban areas of the study area, on the basis of largely qualitativ surveys.

Sixthly, to provide a description of the arisan members' indigenous knowledge and practice of MAC plants in the region, based on the underlying Sundanese cosmovion. In addition, an assessment of the Indonesian health policy is given with regard to the actual use of traditional medicinal plants in Primary Health Care.

Seventhly, to document, analyse and explain the complicated process of interaction among the various factors in determining the communication behaviour on MAC plants by the members of *arisan* in Lembang through the implementation of a special analytical multivariate model.

The theoretical implications of the study will be important to theory development in the multidisciplinary fields of Communication, Medical Anthropology, Ethnobotany and Sustainable Community Development. Furthermore, the results are expected to offer a deeper

understanding of Sundanese traditional ecological knowledge and ethnobotanical knowledge of MAC plants, and of the patterns of communication behaviour on MAC plant knowledge and practice among the members of the *arisan* associations.

The practical implications will include the identification of factors and processes which could contribute to strengthening community-based communication, as well as conservation for future sustainable community development in West Java and elsewhere in Indonesia.

In order to meet both the general aim and the specific objectives, the structure and organization of this study has been divided into nine chapters, as follows

Chapter I provides – as mentioned above - the general introduction to the study by assessing communication through local institutions, the cultural heritage of MAC plants in *jamu* and the conservation of bio-cultural diversity.

Chapter II discusses the theoretical orientation of the study which elaborates on the communication of MAC plant knowledge and practice, local institutions and communication behaviour, the role of MAC plants in health care and conservation, and the anticipated patterns of communication behaviour on MAC plants in the research area.

Chapter III focuses on the selection of the specific research methodology, the implementation of complementary qualitative and quantitative surveys, and the selection of the appropriate analytical model. It elaborates on the Ethnosystems Approach as the particular research methodology used for data collection and analysis of indigenous knowledge systems.

Chapter IV provides the general background information about Indonesia as a newly developing country, and Lembang as the actual research setting of the study. It will briefly describe the sociography of Lembang, providing comprehensive information about the geography, ecological diversity, the people and their history, as well as their socio-economic situation and the social institutions of the area.

Chapter V describes the general profile of daily life in four Sundanese communities: The study population and sample survey, the geography, landscape and location, the socio-demographic and economic profile, and the modern administration in Lembang.

Chapter VI contains an overview of the *arisan* association, *gotong royong, berdikari* and *Taman Obat Keluarga* (TOGA), as well as *Pemberdayaan Kesejahteraan Keluarga* (PKK) (Family Welfare Empowerment) and the recent contribution of the *arisan* to the development of integrated microfinance management.

Chapter VII discusses MAC plant knowledge and practice with regard to their use in mixtures - *jamu* - in Lembang. It also presents an overview of the Sundanese philosophy of life, the use of *ubar kampung*, the traditional Sundanese medicine. in addition, this chapter also describes traditional healers and traditional birth attendants, as well as the role of MAC plants for health promotion, illness prevention and treatment.

Chapter VIII presents the results of the stepwise analyses of the quantitative data from the household surveys relevant to the development of the multivariate model of communication behaviour. This chapter assesses the reported patterns of communication behaviour on MAC plant knowledge and practice, and particularly seeks to analyse, explain and predict the role of the determinants of such communication in the overall interaction process, and the relationships within the analytical model from the participants' point of view. The chapter prescribes subsequently the bivariate analysis, the multivariate analysis end the multiple regression analysis pertaining to the completed analytical model of the study.

Finally, Chapter IX presents the conclusions and interpretations of the research findings considering the theoretical, methodological and practical implications, for the process of communication on MAC plant knowledge and practice in the *arisan* in Lembang.

Notes

1 *Emic* approaches are those drawn from the way local people perceive things through their own eyes and approach objects in their own language (Martin 1996:11).

2 Dunn (1977: 135) defines a medical system as '*... the pattern of social institutions and cultural traditions that evolves from deliberate behaviour to enhance health, whether or not the outcome of particular items of behaviour is ill health*'. This definition differentiates the medical systems based on the geographical and cultural environments, into three categories namely: the local medical system, the regional medical system and the cosmopolitan medical system.

3 As Murray & Lopez (1996) indicate, in the early decades of the twenty-first century, '*health policy makers will need to address a double burden of disease: first, the emerging epidemics of non-communicable diseases and injuries, which are becoming more prevalent in industrialized and developing countries alike, and second, some major infectious diseases which survived the 20th century. In the developing regions, non-communicable disease such as depression and heart disease are fast replacing the traditional enemies, in particular infectious diseases and malnutrition, as the leading causes of disability and premature death. Injuries, both intentional and unintentional, are also growing in importance and by 2020 could rival infectious disease worldwide as a source of ill-health*'.

4 As Surjadi (1997) defines, *Posyandu* (*Pos Pelayanan Terpadu*) is an integrated health and family planning service, and operates at neighbourhood level to improve the coverage of the health care system. The target groups of the *Posyandu* are mothers with children under five years of age (called *balita*), and mothers in their fertile period. The *Posyandu* is operated by voluntary Community Health Workers, who are selected by the community and trained for a short period by the staff of the *Puskesmas* in health related matters.

5 *Gerakan Sayang Ibu* (Care for Mother Movement) was pioneered in 1996 to eradicate obstacles to obtaining health care for pregnant women, especially in rural areas where the mortality rate was still high, such as availability of ambulance, blood transfusions and the like.

6 *Puskesmas* (*Pusat Kesehatan Masyarakat*) is a Community Health Centre established by the Ministry of Health and is a unit of health providing the people with easily accessible and comprehensive health care through an integrated, curative and preventive system (Sarwono 1993).

7 *A jamu gendong* vendor is usually a young woman, wearing *Javanese* traditional dress called *kebaya* and *batik/sarong*, who sells the indigenous herbal medicine or *jamu* in a basket, tied on her back with a *batik* cloth. She generally sells door-to-door. She usually offers fresh home-made *jamu*, although currently, she also offers herbal medicine produced by *jamu* manufacturers.

8 *Pemberdayaan Kesejahteraan Keluarga* (PKK) refers literally to Family Welfare Empowerment (Slikkerveer & Slikkerveer 1995). Formerly, it was named *Pembinaan Kesejahteraan Keluarga* (PKK) refering to the 'Family Welfare Education Programme' which provides guidelines by which women ensure the well-being of the family throughout the nation.

9 TOGA is an acronym for *Taman Obat Keluarga* meaning 'Garden for Medicine for the Family'. Initially, its name was *Apotik Hidup* meaning 'Living Pharmacy' referring to a garden close to the house, in which medical plants are cultivated to supply the family with locally available herbal medicines. However, because of lack of space medicinal plants are also sometimes cultivated in pots and polybags (Slikkerveer & Slikkerveer 1995).

Chapter II THEORETICAL ORIENTATION

This chapter provides a general description of recent studies, discussions of and approaches to the study and analysis of communication behaviour on Medicinal, Aromatic and Cosmetic (MAC) plant knowledge and practice with a view to provide the theoretical background of the study of the process of indigenous communication on MAC plants for health and well-being among the members of *arisan,* a local institution in Lembang.

The chapter begins with the description of the theoretical approach selected for the analysis of communication on MAC plant knowledge and practice. Following the theory of ideation, elaborated by Kincaid *et al.* (2004), the related convergence theory of communication within social groups, as introduced by O'Sullivan *et al*. (2003), is further described as a very useful point of embarkation for the present study. In this way, the focus is laid on the social aspects of communication within culturally homogenous groups such as local institutions and associations, most relevant to the case of the *arisan* in Lembang.

Thereafter*,* the role of such local institutions in communication is desdribed, with a focus on the social aspect of promotion of MAC plants for the improvement of the health and well-being of its members. Here, indigenous knowledge is described as a concept to increase local empowerment and sustainability. Also, the processes of localisation *versus* globalisation of knowledge are further assessed.

This chapter also discusses MAC plants from the point of view of their potential for health care improvement and forest conservation. Special attention is paid to the contribution of Traditional Medicine (TM) for Primary Health Care (PHC) development.

Finally*,* the chapter concludes with an assessment of the significance of the analysis of the patterns of communication behaviour on MAC plants of members of local institutions, specified according to the exchange of knowledge and practice for health promotion, illness prevention and treatment of illness.

2.1 Communication on MAC Plant Knowledge and Practice

2.1.1 Ideation and Convergence: Communication as a Social Process

As mentioned in the Introduction, communication within local institutions generally emphasises information-sharing and mutual understanding among its members, which links up with both the theories of *ideation* and *convergence*. This important dual theoretical orientation selected for this study in Lembang combines the concept of diffusion of ways of thinking by means of social interaction within culturally homogenous communities with the theorem of information-sharing, mutual understanding and mutual agreement on any collective or group action that would bring social change.

As Kincaid, Figueroa, Storey & Underwood (2001) show, the ideation theory refers to: *'new ways of thinking and diffusion of thise ways of thinking by means of social interaction in local, culturally homogenenous communities'*. This theory is generally used in strategic behaviour communication in order to identify and influence ideational elements, such as knowledge, social and peer approval and other factors which may affect and determine particular forms of a particult for of human behaviour, *i.e.* health behaviour. Although the present study focuses on the process of communication behaviour itself, the focus of the ideation theory of communication on the social interaction within local, culturally homogenenous communities provides a useful framework for the analytical process of communication behaviour within local institutions in Indonesia.

In addition, the convergence theory of approaching communication as a social process, introduced by O'Sullivan, Yonkler, Morgan & Merritt (2003) provides a useful model in the social process category which highlights the significance of sharing information, mutual understanding and mutual agreement on any group action which will lead to social change from the point of view that an individual's perceptions and behaviour are affected by the perceptions and behaviours of members of the same group, including members of associations, institutions, colleagues, and family members, and by people from personal networks', such as peers, friends, or personal or professional acquaintances. While Schiavo (2007: 43) notes, that the convergence theory has played a major role in: '*redefining communication as a process in which all participants need to respect and consider other people's feelings, emotions, and beliefs*' as well as highlighting the significance of social networks in defining the way to social change, this theory has three characteristics:

- Sharing information uses a participatory process without a sender or receiver however, everyone creates and shares information. Participants in this process are individuals or groups and institutions such as professional associations, community organizations, churches, and schools.
- Communication highlights individual perceptions and interpretations of the information being shared, encourages discourses, and promotes mutual understanding and agreement on common meanings.
- Communication is horizontal and concerns two or more participants. In a horizontal model of communication, all participants are equal and aim to attain mutual agreement which may motivate a group action. (*cf.* Kincaid 1979; Rogers & Kincaid 1981; Figueroa *et al*. 2002).

Ruddle (1993) argues that the communication of traditional knowledge between generations is a complex and essential process implanted in the socio-cultural structure in any society. Traditional knowledge is a central issue in the regulation and equilibrium of the manipulative pressures which enable an ecosystem to maintain its solidity and revitalizing capacity, particularly in rural subsistence communities. The processes through which information about the preservation of the integrity of the system and its eventual modification are communicated from one generation to the next are often neglected by studies of the ecology of human subsistence and food procurement.

Figure 2.1 presents a schematic representation of the ideation theory in which various factors such as knowledge, attitudes, self-image etc. are influencing behaviour.
Importantly, the process communication of knowledge directs people rationally to that of institutionalization, since the reason for institutions and that of relationships among them is not revealed by the institutions themselves but from the way in which they are treated by the conscious reflections which operate in them, especially during the process of knowledge exchange. In this context, Ruddle (1993: 18) notes that: '*Just as traditional knowledge and its transmission shape society and culture, culture and society shape knowledge; these arereciprocal phenomena*'.

Hence, this process gives extensive rise to highly opposing interpretations of knowledge and processes of transmission as well as the social uses to which knowledge is put. In addition to its practical aspects of ensuring sustained resource management, the transmission of traditional knowledge has a fundamental socio-cultural importance in any society.

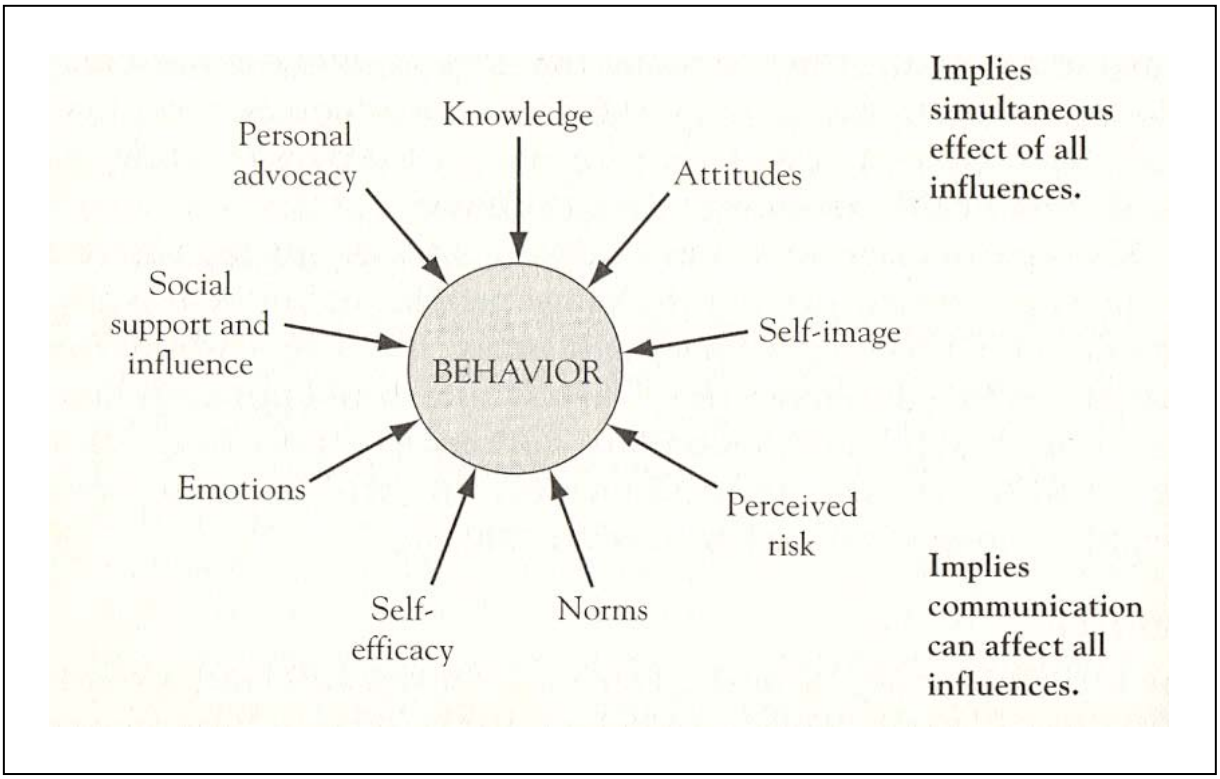


Figure 2.1 Schematic representation of the ideation theory in which various factors such as knowledge, attitudes, self-image etc. are influencing behaviour.
Sources: Kincaid & Figueroa (2004) *&* Rimon (2002)

During communication of knowledge over several generations, social institutions gradually become well-defined; slowly but surely routine or habitual ways of doing things become the traditional way in which things are done. Throughout all this process, observation is very important, as Borosfsky (1978: 81) states: '*knowledge is something grasped visually*', and listening to the conversation of others is another important means of acquiring knowledge. Repetition of observation, listening and practice are also principal factors in the exchange of knowledge.

Mundy & Compton (1999) note, that Freire (1973) defines knowledge as the process of knowing, of individual cognition, and he states that it cannot be communicated but is created in the minds of individuals as a result of each person's perceptions of the environment or through communication with others, in the process of making a distinction between knowledge and information.

It is generally acknowledged that the 'Information Age' came into existence in the middle of the twentieth century. It was preceded by the 'Industrial Age', when communication was largely face-to-face or paper-based. Interpretation of events could be tested by direct perception and immediate awareness of what was going on around a person. A person's knowledge was closely related to the knowledge of others with whom he or she was closely associated.

All organised processes of the generation and exchange of information managed by rural communities are referred to as local indigenous communication systems. Their means, such as traditional theatre, mask and puppets performances, tales, proverbs, riddles and songs, should be seen as a cultural and endogenous reaction to various community needs for information, education, social protest and entertainment. These systems are often used to solve conflicts which arise between the development of a rural community and the need to preserve its

cultural values. At the same time, these values assure that the innovations are acceptable to all social groups in the the community. However, as Chiovoloni (1994) notes, communication operations based on media but not designed and operated by the rural community themselves, such as on radio, television and video, are unacceptable to the local people, who regard the programmes as external. Generally, extension agents and technical staff of development organisations pay very scant attention to traditional means of communication. They frequently ignore the communication process of a particular ethnic group or rural community. They disregard the way the group produces and obtains information, what media and devices are used and to what extent the traditional communicators play a role as well.

Moreover, they supervise the communications network and exchange channels of technical and non-technical information inside and outside the community. The interactive and participatory quality of many indigenous devices and media is rarely mentioned. Extension workers think that the simple use of local and indigenous media automatically guarantees people's participation and the creation of a good communication channel with rural people. The problem is not the choice of which communications device should be used, but the application of the selected media. In the history of cross-cultural contacts, African communication systems have been used in the past by Christian missionaries, Muslim *mullas*, colonial rulers and development workers in their efforts to get messages across and to affect and change rural people's behaviour.

In Indonesia, under the New Order government puppet theatre and other popular traditional media were used in a top-down approach, supporting such projects as the government's agricultural and educational campaign, to convince local people to adopt new techniques to improve their yield and to encourage their children to go to school. In this case, indigenous media were used much more as a means of extension than as an interactive communication channel. A story-teller (*pendongeng*) from the Aceh Region will use a diverse approach when telling stories in his efforts to entertain victims of the tsunami of 2004. When telling stories, he spontaneously adapts his own verbal style to his audience's reactions. Thereby, developing a dialogue between the story-teller and his listeners, hence it becomes an interactive communication device for the audience.

As Wang (1982) indicates, indigenous knowledge is mostly concerned with the gathering of experience and the delivery of information from one generation to the next within a community. Discussing the problem of loss, Grenier (1998) notes, the increasing loss of knowledge can be attributed to interference in the traditional channels of oral communication. Presently, some people commute to the city to go to work or to go to school on a daily basis and many young people are no longer interested in, or do not have the opportunity for learning traditional methods. Hence, neither children nor adults spend as much time in their communities as they once did; consequently, it becomes harder for the older generation to transmit its knowledge to the younger generation.

As the World Health Organization (2003) and Bernhardt (2004) note, health communication draws from several disciplines, and it also depends on distinct communication activities or action areas, including interpersonal communications, public relations, public advocacy, community mobilization, and professional communications. As a consequence, Bernhardt (2004: 2051) states, health communication is '*transdisciplinary in nature*'. This statement shows the importance of health communication, since one of its key objectives is to influence individuals and communities. In fact, the Centers for Disease Control and Prevention (CDC) define health communication as 'the study and use of communication strategies to inform and influence individual and community decisions that enhance health' (*cf.* CDC 2001; U.S. Department of Health and Human Services, 2005). According to the U.S.

Department of Health and Human Services (2005:11), this links up with the *Healthy People 2010* definition of health communication which defines it as: '*the art and technique of informing, influencing, and motivating individual, institutional, and public audiences about important health issues*'.

Certainly, one important feature of health communication is that it supports and sustains change. In fact, key elements in successful health communication programmes always include long-term programmme sustainability, as well as the development of communication tools and steps which make it easy for individuals, communities, and other audiences to adopt or sustain a recommended behaviour, practice, or policy change. It will be beneficial for members of *arisan* associations if this practice-based perspective is integrated into the already existing definitions which include that stated by Muturi (2005: 78): '*the goal of health communication is to increase knowledge and understanding of health-related issue and to improve the health status of the intended audience*', as well as the health communication definition which empowers people as Muturi (2005: 81) defines it: '*Communication empowers people by providing them with knowledge and understanding about specific health problems and interventions*'.

Meanwhile Mulyana (2008) argues for the recognition of the importance of health communication in the health service, since a human's perception is limited. Perception is the essence of communication; without accurate perception an individual is unable to communicate effectively. As an inaccurate diagnosis of the physician can cause the patient's physical condition to deteriorate, Babrow & Dinn (2005) state that a capable doctor should also be a skilful communicator who can understand the uncertainty experienced by the patient and the patient's family. Medical professionals who rely solely on their medical skill and ignore the importance of health communication are considered not only arrogant but are also a threat to the lives of their patients, not to mention their medical career. Hippocrates, 400 years BC, realised the relationships between effective communication and the greater chance of the recovery of a patient. Although the patient is aware his condition is severe, the chances are that he might possibly recover as a consequence of the sympathetic behaviour of the doctor. Effective communication, which is considered an art by doctors, in fact seems to be an extremely effective medicine for the patient. This has been reinvestigated by Bending and Verhaak (2004) and what was initially thought to have been merely a placebo effect has been scientifically proven correct. The more hope the doctor gives of the patient's recovery, the more the chance there actually is of that recovery. Apparently, the attention a doctor pays a patient lowers the anxiety, pain and blood pressure of the sufferer, and improves their health in general as well. Hence, one effort to increase the health service would be to improve the doctor's communication skills. A negative tendency among doctors is their unwillingness to listen to the patient's complaints. As Taylor (1999) notes, research shows that only 23% of patients are given the opportunity to explain their complaints in detail. While explaining their ailments, 69% of patients are interrupted by the doctor who directs the patient's thoughts to a certain disease. On the average, a doctor interrupts a doctor-patient dialogue after 18 seconds. In Indonesia, most probably the doctor will dominate the dialogue since there he is part of a paternalistic society.

Health communication is influenced by beliefs, values and language (verbal and non-verbal). The people living in *Pagimana* sub-district in Central *Sulawesi* for instance, are used to drinking unboiled water since they believe boiled water is tasteless. Health extension workers in the area considered this belief an obstruction which had to be surmounted, since it could cause diarrhoea. In Eastern collective life communities, communication is more complicated than in Western communities where life is more individualistic. In order to

maintain harmonious relationships with other people, a member of a collective community tends to be courteous (*berbasa-basi*) to please other people. Since language has a relative characteristic, words cannot be translated exactly the same into another language. The comprehension of words will be more complicated if people have divergent mother tongues, for instance, the illness called *masuk angin* (it literary means 'wind enters') in Indonesia, does not exist in Western countries. Most people treat this illness by way of having their backs rubbed with the edge of a coin lubricated with oil. Besides, that nonverbal communication is also included in health communication. A nod to the doctor's request to return the following week does not really mean that the patient actually will return to visit the doctor. Probably, the patient might have no intention of returning, although it is important to his health.

Another important aspect of nonverbal communication is the 'touch'. Kreps & Thorton (1992) note, research into health communication shows that the need of the patient for 'touch' is not fulfilled by the medical professionals. In addition, Knapp & Hall (2002) indicate that massage and touching by doctors and nurses has a positive effect on patients treated in hospitals. Medical professionals need to take note of the kind, frequency, location of the touch, gender, culture and religion of the patient so that the patient will feel comfortable when they are touched.

2.1.2 Indigenous Communication for Human Development

Every society seemingly has evolved elaborate ways of transmitting information from person to person. Doobs (1960) states that such indigenous communication includes the transmission of technical information and also of other messages: entertainment, news, persuasion, announcements and social exchanges of every type within an extensive scope. Humans are compulsive communicators. The way people behave, speak, stay silent or greet people; the way people dress, the people choose to befriend others and the style of their work all send out a multiplicity of messages to those in their environment. Good communicators know how to use all of these devices to transmit various messages, as effective communication is a repeated process between people who want to share their knowledge with others and to listen to what others have to say. There is no 'perfect' medium for this exchange of views: the best medium is the one which is appropriate to the people taking part (*cf.* Mundy & Lloyd-Laney 1992).

Despite the scant attention paid to how knowledge is gathered and shared in local communities, communication is one of the various processes essential to ensuring the continuity and dissemination of knowledge and the culture in which it is firmly embedded. It appears that every community has developed complex ways of transmitting information from person to person. Such indigenous communication includes the transmission of technical information but this is invariably mingled with a plethora of other messages such as entertainment, news, and all types of social changes.

Mundy & Compton (1995) observe that communication might actually be present without the knowledge of the sender of the information being aware of it and likewise incoming information will be decoded and matched with the existing knowledge of the receiver. Under these circumstances, a person's body language, attire or actions can be translated as anything by an observer. However, it is impossible for two persons to have exactly the same knowledge about something because during the matching process of encoding and decoding, 'noise' has been created in the communication channel. Similarly, Western people may interpret indigenous knowledge in completely different ways than do rural people in developing countries. Hence, to refer to the process of encoding and decoding and the related creation of new knowledge in the sender's and receiver's minds, it is more appropriate to use the term

'communication of indigenous information' than of 'communication of indigenous knowledge', hence keeping in mind the distinction between knowledge[1] and information.

Basically, indigenous communication is an important aspect of culture. As it is used to preserve and pass on a culture, so it has value in its own right. However, at the moment it is being replaced by external systems such as the mass media, schools, extension services, and bureaucracies, which are endangering the survival of large amounts of valuable information encompassed by indigenous knowledge. As Compton & Mundy (1995) point out, the mass media (radio, television, newspapers, magazines and the like), and some bureaucratically organised networks such as firms, schools, banks, postal and telephone services, agricultural extension and other government agencies are regarded as exogenous communication systems. Nevertheless, there are some exceptions, since mosques and churches which are regarded as indigenous, are organised bureaucratically, while some exogenous forms such as small-circulation newsletters are not. On the other hand, according to Wang (1982: 3) indigenous communication systems are: ' *folk media such as puppet shows, folk drama, storytelling, interpersonal communication channels including the Korean village meetings, the Chinese loaning club, or even local meeting places (community teahouse and open market)*'. Therefore, the use of interpersonal communication is dominant, as indigenous communication is basically performed at the individual and small group levels.

Mundy & Compton (1995: 114) state that: '*in general indigenous communication systems have three features; they have developed locally, are under local control, and use low level of technology'*. Although most of them lack of bureaucratic organisations (for example, small-circulation newsletter), some indigenous systems are clearly organised bureaucratically (for instance, mosques, churches). As with exogenous and indigenous knowledge, there is sometimes no sharp line between exogenous and indigenous communication. Since the two systems overlap in all four elements of the SMCR model of communication[2]: source, message, channel and receiver (*cf.* Mundy & Compton 1995).

Currently, indigenous communication is being encoded since it is vulnerable to rapid changes, especially when people are dislocated or when young people acquire values and lifestyles different from those of their ancestors, thereby threatening the survival of much valuable information, because, as said earlier, indigenous knowledge is transmitted orally. Apparently, in developing countries, external or exogenous channels such as television and newspapers are usually limited to urban areas; and even radio and extension personnel often fail to reach the rural people. Despite these drawbacks, indigenous channels are found everywhere, and are essential to conveying messages to rural communities which are beyond the reach of external channels. Since indigenous channels are managed locally and are familiar therefore, indigenous channels are usually regarded as highly credible and therefore trusted.

Meanwhile, Rogers (1983) states that informal and interpersonal communications are important means of change, a pertinent vehicle in persuading people to make decisions in favour of innovations. As people are now aware of this quality, indigenous communication is used by development programmes for collecting as well as disseminating of information; especially, by attending or organization meetings and interviewing local individuals who have accumulated knowledge. In this context, Warren (1989) notes that integrating indigenous and exogenous communication systems can strengthen both and he cites the collaboration between the local hospital and indigenous healers in central Ghana which has allowed the healers to refer patients to the hospital and vice-versa.

In Indonesia, the traditional birth attendant (*dukun bayi*) will refer her patient to the hospital in the event that the patient's condition calls for emergency measures. Indigenous

channels offer local people opportunities for participation in development efforts, as they allow these people to communicate among themselves and with development professionals and decision makers. During the government of Soeharto, the second President of the Republic of Indonesia, these meetings between peasants and agricultural experts were often conducted by the President himself. The result has been that Indonesia has been transformed into a country with a significant rice surplus.

While, an example of failure as a consequence of the role of indigenous communication is the overlooking of the importance of the network of 'water temples' in Bali, which has lead to the introduction of cropping technologies and the construction of canals and dams which were inappropriate to local conditions (*cf.* Mundy & Compton 1995). Another example occurred recently when the head of the Bandung regency gave orders for the re-establishment of traditional rice barns (*lumbung padi*) to store rice in every village faced with scarcity before the harvest. Hence the people in the region will not suffer a shortage of food in the dry season if the price of rice soars in the dry season if the rice-fields will experience a severe drought. If this did happen, the government would have to counter market-operations by selling rice cheaply to the community. Formerly, the abolition of traditional rice barns was the result of the establishment of a government institution regulating logistics all over the country (BULOG[6]) of which the purpose was to buy and regulate the people's rice supply after the harvest in rural areas and to establish a rice stock for when scarcity of rice might occur. However, the government has still to import rice, since BULOG has proved to be incapable of managing the rice supply. Mundy & Compton (1995) state that there are six types of indigenous communication channels:

Firstly, folk media, which are the indigenous equivalent of the mass media, used primarily for entertainment, but also to promote education, social values and cultural continuity, including festivals, plays and puppet shows, dance, song, story telling, poetry such as the *wawacan* in West Java. Many have been adapted to transfer messages about family planning, politics and other exogenous topics.

Secondly, indigenous organisations and forms of social association. In Indonesia, the *arisan*, a revolving-loan association which pools members' contributions to be redistributed through a monthly lottery, is found in almost every neighbourhood in rural and urban areas of Indonesia. Also included in these indigenous forms of social gathering are Islamic religious groups which meet for prayers, reading the *Quran*, and religious instructions, village meetings, irrigation associations such as *subak* in Bali, and many more. Such organizations provide many opportunities, not only for informal interactions but also for formal communication among the members. However, governments often ignore such arrangements and have established new organizations such as co-operatives, extension groups or irrigation management units. While, such new organizations might be necessary, they also may be confronted with failure when attempting to take advantage of existing indigenous communication systems.

Thirdly, deliberate instruction. This includes child-rearing, instructions given at traditional or religious schools, during childhood training at home or in the fields, passed on by parents or older people, craftspeople teaching apprentices, adolescents undergoing initiation rites. Many societies have traditional and often religious schools. Most of the knowledge the people need to survive is obtained through deliberate instructions.

Fourthly, records, particularly in the form of formal records, whether written, incised, painted or memorised; other means of communicating indigenous information are proverbs and folklore. Examples of these are the ancient manuscripts on *lontar* leaves containing

records of land ownership and tax obligations in Bali (*cf.* Rupa 1985) and the ancient manuscripts on *bai lan* leaves preserved in Thai Buddhist temples (*cf.* Geertz 1980). Also included in this group are memorised historical epics and family histories narrated elaborately by storytellers.

Fifthly, unstructured channels. Indigenous communication occurs in many other settings such as talk at home and at the well, in the fields and on the road, in the tea house and coffee shop, at the market and wherever else people meet and talk in fact. This communication is not organised but spontaneous and informal. Folk media and indigenous organisations provide many opportunities for such unstructured communication before, during and after meetings and other activities.

Sixthly, direct observation. Doobs (1960) makes the point that communication does not have to occur deliberately. A farmer might assume that a neighbour's large harvest was attributable to the right variety or the technique used and then begin planting the same variety or using the same technique as well. Importantly, the source does not have to be another person, for example, a dark cloud warning the people that a thunderstorm is coming is just as clearly, as a verbal warning from another person.

In order to show how information and knowledge flows between indigenous peoples and in order to comprehend the knowledge-communication interface, Mundy and Compton (1995) create a matrix, discriminating the functions of both types of communication into two major communications systems the exogenous[2] and the indigenous. Table 2.1 shows the matrix of a typology of knowledge and communications interface which compares both the exogenous and indigenous types of each system. The four quadrants represent the communication of each type of information through each type of channel.

Exogenous communication systems (Quadrant A) are used for various functions such as to entertain, inform, educate, persuade and advertise. Entertainment has the biggest share of most television and radio programming; in contrast newspapers contain mainly news and advertising. The extension service is responsible for delivering exogenous information to farmers through interpersonal contacts and the mass media. Generally, broadcast media assigned the transmission of technical knowledge to odd time slots at inconvenient hours newspapers squirrel it away on their inside pages. These inconvenient decisions make the school system the main channel for exogenous technical information, whereas books, pamphlets, newsletters and magazines become the main printed channels. Therefore, the extension service uses interpersonal contacts and the mass media as ways of delivering exogenous information to farmers.

Table 2.1 Typology of the interface between knowledge and communication types. Source: Mundy & Compton (1995).

Communication systems	Knowledge	Systems
	Exogenous	Indigenous
Exogenous	A. Technology transfer	C. Indigenous knowledge-based Development
Indigenous	B. Diffusion; co-opting of traditional media	D. Cultural continuity and change

Although the indigenous communication of exogenous information (Quadrant B) is similar to indigenous technical information, in which each of the six indigenous communication

channels previously mentioned can transmit exogenous messages, even though some seem more suitable to the task than others. The Indonesian government, for instance, has used the *wayang* puppet performance to spread information about family planning (Surjodiningrat 1982). The advantages of using these media as an element in a communication campaign include their familiarity and credibility among local people and the potential for the involvement of the audience in performances.

However, problems can arise in using folk media to spread development messages produced by others than the local people, such as:

Firstly, these media will primarily carry entertainment in the same way as Western mass media do. Audiences might therefore not perceive or understand the development messages included in the script.
Secondly, the audience might resent the use of traditional forms to convey development messages outside the local control. Compton (1980) argues that this can be avoided by enabling local people to develop their own messages and performances.

Further, exogenous communication of indigenous information (Quadrant C) shows, that although only a few pieces of indigenous information are being transmitted through exogenous channels, this is already a harbinger of great potential. Another example is the growing scientific literature on indigenous knowledge and the documentation efforts on behalf of indigenous knowledge for agricultural and rural development undertaken by such institutions as CIKARD (Iowa State University, USA), LEAD (Leiden University, The Netherlands), INRIK (Padjadjaran University, Bandung, Indonesia) and KENRIK (National Museums of Kenya, Nairobi, Kenya). At the present moment, this potential growth is also revealed in the use of exogenous communication techniques to enable farmers to learn about aspects of indigenous knowledge, such as the publishing of low cost magazines containing records and the dissemination of knowledge of local farmers to other farmers. In Indonesia, almost all television channels have a programme on indigenous knowledge, particularly on traditional healing, showing traditional healers using their skills in healing with or without herbal medicine or religious prayers. A number of radio stations also broadcast a programme on traditional healing using herbal medicine. In both media, the viewers and listeners are given the opportunity to join the programme interactively by using the telephone.

Finally, indigenous communication of indigenous information (Quadrant D), in which indigenous knowledge channels carry the potential to promote change since they imbue information with a high level of credibility and collect and diffuse information in development programmes. Indigenous information is transmitted entirely through indigenous channels which are usually used only for transmitting of indigenous information, such as that touching on technical knowledge, social organizations, actions and decision processes, values and beliefs. In contrast, the daily messages mainly cover entertainment, news and instructions. Although, each of the six indigenous channels previously mentioned might carry technical information, apparently deliberate instruction is more appropriate to this task. Information might be about an indigenous innovation or an item of traditional knowledge. It could relate to knowledge (cognitive domain), skills (psychomotor) or attitudes (affective).

As Mundy & Compton (1995) note, to sustain cultures, the communication of indigenous knowledge through indigenous communication channels is important. Endorsing this statement, Mphande (2004) notes that cultural programmes will highlight the value of wisdom and respect for the elderly when linked to interactions between generations.

2.1.3 Conceptualisation of Communication on MAC Plants

As the roots of communication basically lie in people's need to share and transmit information, knowledge, ideas and experience, linking up is another of its important roles, namely creating an accessible and favourable environment in which information can be shared, understood and discussed by the intended audiences of a programme. For that reason, an in-depth understanding of the needs, beliefs, taboos, attitudes, lifestyles, and social norms of all key communication audiences is required. Moreover, as the comprehension of people's communication on MAC plant knowledge and practice is based on a full understanding of the fundamental indigenous belief systems, cosmologies and perceptions of nature and culture, suitable parameters are required to identify and substantiate the often 'invisible' factors which play a major role in influencing the resulting patterns of communication behaviour.

The concept of belief has been extensively studied in the context of research of local perceptions, views and belief systems touching on the use and conservation of nature and has intensely influenced recent academic interest in 'indigenous management systems' from the local people's point of view. In these studies, the significance of ensuring the sustained use of resources lies in the local beliefs relating to the management of botanical and agricultural resources (*cf.* Martin 1996, Maffi 2001, Cotton 1995, Posey 1999, Alcorn 1999). Furthermore, comparative research in medicinal, aromatic and cosmetic (MAC) plants and herbs shows a similar predominant influence of traditional beliefs and views of nature on the use of these plants for forest conservation and the improvement of health care (*cf.* Cunningham & Saigo 1997, Slikkerveer 2003).

The local concept of 'respect for nature', sacred sites in particular, emphasises the indigenous people's cosmovisions as an integral part of their belief system. Although essentially, management and conservation are fairly practical actions, indigenous people usually consider their knowledge to be rooted in a spiritual base in which all creations are sacred. In their holistic view of the universe, the secular and sacred are often indivisible. As Agung (2005) describes, for the local people of Bali in Indonesia, Traditional Ecological Knowledge (TEK) depends not only on the relationship between humans and nature, but also on the relationship between humans and the invisible world of the ancestors, spirits and deities. The interaction between life, land and society, summed up in the concept of the 'Sacred Balance' is often part of the local belief system.

The concept of behaviour has attracted great interest from many different disciplines and this has given rise to several elaborate methods and techniques which can be used for the observation, study and analysis of patterns of human behaviour within various fields of life. Most of these methods include the collection of empirical information about patterns of behaviour, and are derived from such techniques as participant observation, monitoring techniques, life histories and case studies. In the context of ethnobotany, such behaviour is generally assessed in relation to the use, management and conservation of plant resources by local people. These studies are often recorded and quantified as 'use reports', either by direct participant observation or retrospectively. The related models of human behaviour tend to consider the actual patterns of behaviour as a result of causal relations with factors or determinants of behaviour, including age, sex and education, socio-economic status, complemented with knowledge, attitude and belief (*cf.* Agung 2005).

As regards the study of communication processes, human behaviour is expressed in a variety of ways by which information is exchanged. In general, there are four different types of communication behaviour, *i.e.* aggressive, submissive, avoidance and assertive (*cf.* Rosenbergh 2003).

While these types of communication behaviour are particularly manifest in person-to-person communication and as such indicate the characteristics of such behaviour, for the purpose of the study in Lembang, the concept of social communication is used, as described above as part of both the ideation and the convergence theories, in which information sharing is regarded as social interaction within culturalle homogenous groups, and in which mutual understanding and mutual agreement on the group action is expected to eventually bring positive social change.

2.2 Local Institutions and Communication

2.2.1 *Arisan*: The Social Aspects of a Local Association

The *arisan*, a social and financing association, was described by Geertz (1962) as a rotating credit association which was later renamed the Rotating Credit Association or ROCSA. While Ardener (1995) defines the ROSCA as an association in which members regularly contribute a fixed amount of money to a pool of funds, which will be then handed over, after the drawing of the *arisan* lottery, in whole or in part to each contributor in turn. Earlier, Ardener (1964) noted the different forms of institutions are indicated by the method of determining the order of distribution. On this basis, three basic types of ROSCAs can be distinguished. In the first type of ROSCA, the person in authority determines the order of rotation, often on the basis of the degree of need. In the second type the order is decided by drawing lots at each meeting of the group. In the third type the fund is lent to the member willing to pay the highest interest on it. Remarkably, the third type of ROSCA is virtually unheard of in the conventional Indonesian *arisan* group.

As a social association, the *arisan* can be categorised as a *Gemeinschaft*[5] (*paguyuban*). As Tonnies (1960) states an essential component of a *Gemeinschaft* is a common will, the understanding and rules which obviously emerge from within the group. In almost every community one of the three types of *Gemeinschaft* can be found:

a. *Gemeinschaft* by blood kinship is a *Gemeinschaft* or *paguyuban* based on blood relationship, that of the immediate family and of the wider kinship group. Linking up with this is the establishment of the *arisan keluarga* (family *arisan*).
b. *Gemeinschaft* of place is a *paguyuban* whose members are people living in the same neighbourhood, who help each other when the necessity arises, for example, neighbourhood communities such as *rukun tetangga* and *rukun warga*. Linking up with this is the *RT/RW arisan* (neighbourhood *arisan*).
c. *Gemeinchaft* of mind is a *Gemeinschaft* whose members are people who have neither a blood relationship nor live near to each other, but share mutual interests or the same ideology. The ties in this type of *Gemeinschaft* are usually not as strong as the ties in *Gemeinschaft* by blood relationship. Linking up with this is the *arisan pasar*[2] composed of sellers in traditional markets (*pasar*).

MacIver & Page (1950: 345) define an association: '… *as a group organised for the pursuit of an interest or group of interests in common*'. Hence, it can be said that an *arisan* is basically a social association with rules and objectives. Initially, the process of establishing an association springs from people's endeavours to achieve their goals. MacIver & Page (1950) state that three features differentiate these efforts, namely: autonomy, conflicts and

cooperation determined either spontaneously or habitually. Linking up with this, an association is established by means of cooperative endeavours.

Setting down his thoughts, Geertz (1962) stated that the rotating credit schemes or *arisan* in Java is an appropriate example of social capital[3]. Its most remarkable feature is that the winners of the pool continue to participate in the *arisan* savings collection and never fail to pay their contributions until the last participant has had a turn. Putnam (1993) argues that the principal factor which prevents members avoiding their obligations is that their participation in the *arisan* has been approved by the other *arisan* members and individuals participate voluntarily in the *arisan.* Hence, after they have drawn the *arisan* lottery, they continue to participate and dare not to fail to pay the monthly contribution for fear that they might be isolated by the group because it seems they are only in it for the benefit, especially in a community of intense networks of exchange.

Looking at the schedules of *arisan*, Rutherford (2000) notes that meetings are either regular or depend on recurring cash flow cycles in rural communities. At the *arisan*, each member contributes the same amount of money at each meeting and one member takes the whole sum once after drawing of the lottery. As a result, each member has the right to obtain a fairly large sum of money during the *arisan* 'round' and use it for whatever purpose he or she desires. As it is free of the annoyances of saving at home where family and other relatives can insist on borrowing what has been put aside, this method of saving is a popular option. All is open and above board as every transaction is seen by all *arisan* members during the meetings. Since no money has to be kept in the group, no records have to be maintained, with the exception of the collector's notes listing the names of *arisan* members and of those who have already won the lottery. These features make the system a model of simplicity and therefore eminently suitable in communities with lower levels of education. The system decreases the risk to members as well, since it is time- limited, usually lasting for a period of not more than twelve months. This factor reduces the size of any loss should a member take funds early and not continue the repayments.

In Indonesia, the *arisan* association is always a traditional savings collection and loan association and almost all *arisan* members are housewives and working women. Every month, mostly after payday - of themselves or of their husbands - members of the *arisan* meet and contribute a fixed amount of cash to a pool. The name of each member is then written on a small piece of paper which is rolled up and put into a bottle or glass. One lot with a name is drawn from the bottle or glass to determine who will receive the cash in the pool. It is a fixed lottery, since each person receives the cash once before anyone can receive it twice. However, depending upon the number of members in the group, a member might receive the *arisan* in their home once or several times a year. It is a safe way to save money without the danger of loss or corruption and has the advantage of serving a social function as well. It is a strategy to accumulate capital as it keeps household cash out of circulation. This advantage is a great help to these women who would otherwise find it impossible to save a certain amount of cash.

Meanwhile, depending on their socio-economic status, *arisan* members use their *arisan* savings either to pay their instalment commitments or to buy consumer goods for the family including crockery, glasses, clocks and cupboards as well as beds. Some of them do purchase high status luxury goods such as television sets, refrigerators and the like. If they receive a sizeable amount of money, they choose to reinvest it in a form families can access if necessary. Consequently, these savings will be available to the family in times of need like when a debt has to be paid, emergencies crop up and life-cycle events such as circumcisions and wedding celebrations have to be subsidised. Such a sum is especially welcome with the arrival of *Idul Fitri* (end of the Islamic fasting month, *Ramadhan*), an extremely consumption-

oriented time of year, when the family will need extra cash. In some villages, there are *arisan* associations which were founded to renovate the old, dilapidated houses of some villagers. Using the *arisan* money, in the spirit of *gotong royong* the men and women of the neighbourhood will help the winner of *arisan*

As further indicated below, this study will focus on the socio-cultural function of *arisan* , particularly with regard to the communication of MAC plant knowledge and pratice, instead of their well-described economic-financial apects.

2.2.2 *Arisan* and the Promotion of MAC Plants

Health remedies and traditional healers play an important role in the health care of a huge number of people in developing countries. In fact, in some countries, a large number of people do not have access to bio-medicine.

This health care is closely linked to conservation and ethnobotany, since many medicinal plants essential to these people are found in habitats endangered by current land use (*cf.* Martin 1996). Ethnobotanists will have to face many challenges in future years, particularly in countering the rapid loss of biodiversity and of indigenous knowledge systems, as the rain forests are depleted (*cf.* Balick & Cox 1996).

Since 1978, WHO has been making a study of medicinal plants (TFA 1982) and the identification of 20,000 species of medicinal plants. A large number of these plants originated from the tropical forests of the world and are now used in traditional medicines which play a major role in maintaining the health and welfare of rural and urban communities in developing countries. The loss of medicinal plants, or even their substitution, is changing the ecology of the environment, and as a consequence has caused either the disappearance of or changes in the number of many medicinal plants.

FAO (1981) attempted to assist the conservation of these species by introducing programmes devised for forest conservation and management, and forestry for local community development. The first provides the underlying principles and systems for managing forests and the latter helps identify and promote the cultivation and use of forest-derived plants, which are proper for the establishment by rural communities because of their potential multiple use.

In Indonesia, the *Pemberdayaan Kesejahteraan Keluarga* (PKK) (‘Family Welfare Empowerment) has played a key role in disseminating information about the cultivation and use of medicinal plants for the family. The cultivation of useful medicinal plants links up with the conservation of these plants. Local associations such as the *arisan* help by exchanging information on the communication on MAC plants and by encouraging their members to cultivate useful plants in home gardens. Those who do not have enough space in their garden are taught to use pots and poly-bags for the cultivation of these plants.

One very cogent problem is that the information supplied by local people and used by pharmaceutical companies leads to the matter of those people’s intellectual property rights and the ownership of biodiversity. Although the payment of fees approaches the Western concept of equity to large extent, for almost all local people the right to live undisturbed on their ancestral land is the most valuable asset. Therefore, the establishment of nature reservations which protect both biodiversity and indigenous cultures is of remarkable importance to indigenous people. Hence, sustainable development becomes important since sustainable development is *development that meets the needs of the present without compromising the ability of future generations to meet their own needs* (WCED 1987:43).

Using traditional herbal medicine has also contributed to an incredibly high degree of irreversible biodiversity loss, which the world is experiencing at present. Even more pertinently, it also has serious consequences for medicine and public health. The peculiar properties of various flora and fauna have provided a major source of therapeutic agents for such human diseases as cancer, malaria, high blood pressure and so forth. Perhaps, the greatest challenge ahead is to understand the complex pattern of ecological relationships between all the people in the world and to appreciate more fully why the diversity of life is essential to the provision of life.

As mentioned earlier, most *arisan*s are organised privately by community members. During the monthly *arisan* meeting, members discuss such topics as the advantage of the use of traditional herbal medicine, which is currently being extensively used by both rural and urban people; since modern medicines are becoming more expensive which makes them inaccessible to most of the people. Accordingly, at the *arisan* meetings the members obtain the information they need about the use of various kinds of MAC plants. However, the information on the use of MAC plants is not confined to *arisan* members only, since they will pass it on to other relatives and friends as well.

Most of the community members cultivate MAC plants for home remedies either in the garden or in polybags if a garden is unavailable. Some *arisan* members even supply raw medicinal materials independently by using the *pekarangan* or home garden for the cultivation of MAC plants on a special area. In cultivating this, they use standard operational procedures so that their products are internationally acceptable. It stands to reason that the cultivation of the MAC plants should comply with specific requirements, such as availability and a ready abundance of the plant in the area, and its utilisation for other purposes. As Soemarwoto-Conway (1992) points out, home gardens are found widespread in many parts of Indonesia. In these home gardens or *pekarangan*, which are small pieces of land in front of or surrounding their houses, families cultivate MAC plants and crops to meet their specific needs.

Further, Slikkerveer & Slikkerveer (1995) state that at that time the *Apotek Hidup* (Living Pharmacy) referred to the *pekarangan* in which MAC plants are cultivated to be used to provide the ingredients for herbal medicine or home remedies. Earlier, the previous government had also motivated families to plant home gardens with vegetables to supply the family with nutrious fresh foods for their daily dietary intake (Garden of Food for the Family or *Taman Gizi Keluarga*). Using these gardens and their produce, *arisan* members give their children *koneng* or *kunyit* (*Curcuma domestica* Vhal.) to improve their appetite and to make them healthier and they are also urged to drink *beras kencur* (a mixture of pounded rice and cikur or *Kaemferia galang* Linn.), a tonic which will revive and strengthen the body. It has been proved that the consumption of *bawang bodas* (*Allium sativum* L.) or calincing (Avverhoa bilimbi L.) will lower an individual's hypertension. Another useful piece of knowledge is that the regular consumption of *daun serawung* (*Ocimum basillicum formacitratum* Backer) will prevent halitosis. Women wash their hair regularly with *lidah buaya* (*Aloe vera*) to maintain beautiful and healthy hair. Pounded rice mixed with rose water is used to soften and whiten the skin. These are only a few examples of MAC plants used by members of the *arisan* for health promotion, illness prevention and for cure.

In this context, it is interesting to further study the way in which information concerning indigenous knowledge and practice of these MAC plants is shared and communicated within the local institution of *arisan*, where mutual understanding exists on the action of its members with regard to the use of plants for health and conservation in the area.

2.2.3 Indigenous Knowledge: Empowerment and Sustainability

Currently, recognition is given to the important role indigenous knowledge plays in decision making, the way in which indigenous organizations facilitate the identification and focus of concern of community problems and the importance of searching for solutions which result in local-level experimentation and innovation. In spite of the arguments made on subjective versus objective views, qualitative versus quantitative techniques, practical versus theoretical approaches, therefore reinforcing the ethnocentric opinions of Western experts towards non-Western knowledge of the past, there is general agreement that the explanation of human behaviour is principally based on the interaction between people's knowledge, beliefs and practices.

The methods used to assess and measure the concept of 'knowledge' in both Western and non-Western societies have been sufficiently developed along linguistic, philosophical and socio-cultural principles to allow valid comparisons. As a consequence, various studies have tried to identify the similarities and differences between indigenous and scientific knowledge (*cf*. Warren, Slikkerveer & Titilola 1989, Johannes 1989, Agrawal 1999, Berkes 1999). Although most of the studies are inclined to emphasise the disparities between knowledge systems, they do substantiate the convenient use of knowledge assessment as a generally applicable parameter.

The principal conclusion is, that regardless of the categorisation of knowledge systems, their determinant role in forming human behaviour has been shown in many pieces of behavioural researches, around the globe.

The majority of the populations in most developing countries, who are mostly peasants (*petani*), represent a variety of ethnic groups and languages, and for the majority of them their knowledge systems have never been recorded systematically, which means that they are not easily accessible to outsiders to the community. Liebenstein (2000) states that the characteristics of indigenous knowledge are that it is generated within a community, it is location and culture specific, it is cost-effective, sustainable and is importantly the basis for decision making and survival strategies. Unfortunately, it has not been systematically documented even though it usually concerns critical issues of human and animal life such as primary production, life and natural resource management. Despite its general academic anonymity, it is dynamic, based on innovation, adaptation and experimentation. Very importantly, it is oral and rural in nature. These so-called knowledge systems are encapsulated in the local culture and transmitted through the oral tradition. Although most definitions of indigenous knowledge refer to the accumulation of experience and the passing down of information from one generation to the next within a society, the fact that people living in developing countries have been producing knowledge and strategies enabling them to survive in a balanced relationship with their natural and social environment seems to be rather disregarded. This widespread situation in which indigenous knowledge is ignored and neglected is largely attributable to the dominance of the Western knowledge system.

Meanwhile, Brokensha *et al.* (1980) state, that trying the undertake development by disregarding the people's knowledge is almost certain to ensure failure. In the same vein, rejecting the role of culture, Wang & Dissanayake (1984) note, would disprove the continuity which it has provided during all periods of change and hence, deny the history of the people involved. Under these circumstances, it is necessary to have an understanding of the dynamics of the indigenous systems before recommending changes which might possibly not exert a positive affect on the local conditions, as knowledge is transmitted in the context of an activity which is relevant to its situation. Writing on this problem, Ruddle (1993: 23) notes

that: '*Some knowledge, however, is taught and learned for enjoyment, such as the entertainment provided by the narration of legends*…'. In Indonesia, the entertainment provided by the narration of legends is purveyed by story tellers (*pendongeng*) or puppet players (*dalang*), who transmit information through the mouths of the puppets (*wayang*[4]), and step by step they socialize members of the younger generation into a group's tradition as well.

Furthermore, Wang (1982) notes that although, since the 1970s, there has been renewed interest in studying and demonstrating the positive role of local culture in social change, so far little attention has been paid to how knowledge is gathered and shared within local communities. Apparently, indigenous knowledge is essential to development since culture is important to providing a context for development and change as well as to maintaining a certain degree of continuity. Therefore, it is often suggested that it must be gathered and documented in a rational and systematic way (*cf.* Brokensha *et al*., 1980; Warren *et al*., 1993).

Warren *et al.* (1993) state that the collection and storage of indigenous knowledge should be improved by adequate dissemination and exchange of information among interested parties, using such vehicles as newsletters, journals and other media. In this fashion, indigenous knowledge can make a significant contribution to settling local problems. In recent years, there has been a tremendous flow of information from developing countries about the role indigenous knowledge plays in a range of sectors such as agriculture (intercropping techniques, animal health care, seed varieties), biology (botany, fish-breeding techniques), human health care (through traditional medicine), the use and management of natural resources (soil conservation, irrigation and other forms of water management), education (oral traditions, local languages) and poverty reduction in general. Over the last two decades, scholars, policymakers and development practitioners have shown an increasing interest in indigenous knowledge by establishing links between indigenous knowledge and science and by acknowledging the relevance of indigenous knowledge to education systems and development issues (*cf.* Okoli 2006).

Meanwhile, Brascoupé & Mann (2001) note that increased interest in indigenous knowledge is attributable to the wide range of commercial and scientific utilizations to which it can be put. This aspect is especially noticeable in the local people's knowledge of medicines, sustainable use of the environment and their cultural practices and arts. At the moment, indigenous knowledge is often endangered to the point of extinction, despite the local people's efforts to preserve and share their indigenous knowledge among community members. They are aware that there are various reasons for preserving their indigenous knowledge; not least the economic benefits to be obtained from sharing their indigenous knowledge with others. For example, the contribution of some characteristics of indigenous knowledge to certain fields such as eco-tourism, culture, traditional medicine, cosmetics, agriculture, and so forth. Linking up to indigenous knowledge are the specific products and services which have potential markets outside the community. Therefore it can assist the community achieve its own economic development goals. Moreover, the preservation of indigenous knowledge has also occurred in art, an assertion borne out by the creation of artistic and literary works which are based on traditional knowledge and apparently, they do not want them to be used by outsiders without their approval. In spite of all these facts, the transference of knowledge from elders to the next generation is hindered by the changes in the younger generation's lifestyle.

Nevertheless, the increasing awareness of indigenous knowledge encounters constraints about preserving and protecting this cultural heritage. The main reason for these obstacles is that most indigenous knowledge is handed down orally from generation to generation. In order to preserve it, local communities pass their indigenous knowledge down to the next

generation adhering to the ways they have used through the centuries and they do their best to protect it from being misused by outsiders. Unquestionably, it is disappearing from many communities, often as the result of changes in the lifestyle of a community. These alterations are hindering the process of transferring knowledge from the elders to younger members of the community. Yet another obstacle is from within the community itself: elders are fearful that it will be misused or abused by people of outside their community. Another internal threat is that the elders in communities prefer and are still using vernaculars to communicate. Since the younger generation is reluctant to speak their local language; this presents the threat of the extinction of local languages. Therefore, indigenous knowledge and its utilisation could become extinct, since it has not been recorded systematically.

Moreover, Brascoupé & Mann (2001) argue that the range of commercial and scientific utilisations of indigenous knowledge has been encouraging the interest in this topic. There has been particular interest in local people's knowledge of medicines, sustainable use of the environment and their cultural practices and arts. This has often led to situations in which indigenous knowledge has been collected and used without contacting the source of the knowledge, such as the use of traditional medicines as a basis for developing Western pharmaceutical products and herbal remedies.

Slikkerveer (1995: 513) defines that: *'indigenous knowledge systems are specific systems of knowledge and practice, developed and accumulated over generations ... and as such unique to a specific culture or region'.* This is sometimes referred to as systems of 'local knowledge', 'traditional knowledge' or even 'common-sense knowledge' as well. These terms are used to differentiate the knowledge produced in universities, research institutions and private industries. The indigenous knowledge of a community can define the uniqueness of that community and it can be the basis of its relationship with the world, linking the past to the future. Therefore, indigenous knowledge systems are local knowledge and are important because they are the information base of their society which facilitates communication and decision making, in sectors of the community such as human and animal health, agriculture and food production, natural resources management and fisheries (*cf.* Warren *et al*. 1999; Slikkerveer 1999).

In addition, Slikkerveer (1995) states that as a package of local expertise, indigenous knowledge combines perceptions, ideas, beliefs and practices which have been transmitted over many generations in a particular community or area. It is a knowledge which has evolved outside Western universities, research centres and laboratories and has formed a base for local decision-making processes. Initially, interest in indigenous knowledge emphasized indigenous technical knowledge of the environment. However, it is now accepted that the concept of indigenous knowledge goes farther than this limited interpretation. Indigenous knowledge is now considered to be cultural knowledge in its broadest sense, including all of the social, political, economic and spiritual aspects of a local way of life. Warren (1991) claims that it has been the basic for local level decision making in agriculture, health care, food preparation, education, natural resource management and a host of other activities. Therefore, it is an important component of global knowledge.

Brascoupé & Mann (2001) indicate that indigenous knowledge systems involve many disciplines and professions including agriculture and horticulture; astronomy; forestry; human health, traditional medicines and healing; knowledge of animals, fish and ecological systems; sustainable use of natural resources and the environment; traditional classification systems for living and other resources; learning systems and oral traditions; spirituality; symbols; and traditional arts and culture. Moreover, the communication on indigenous knowledge is also expressed in local people's artwork, design, symbols, scientific and ecological methods,

crafts, music, dance, songs, stories, foods, traditional medicines and health products. Unquestionably, indigenous knowledge is not static. In general, it continues to develop for as long as the societysurvives, remaining an important aspect of the cultural and technological base of that society. Such knowledge evolves in the local environment and is therefore adapted specifically to the requirements of local people and conditions. Consequently, it would be a mistake to think of indigenous knowledge as 'backward', or 'unchanging', since indigenous knowledge is often the result of many years' experience and it changes continuously as people experiment to find better ways of doing things.

Therefore, indigenous knowledge is dynamic, since it is the result of a continuous process of experimentation, and adaptation. Its capacity to blend with knowledge based on science and technology should be considered complementary to scientific and technological efforts to solve problems in social and economic development.

In addition, Emery (1996) observes that the kinds of indigenous knowledge which are of particular interest are those relevant to a very wide-ranging pectrum of skills from resource management knowledge and the tools, techniques, practices and rules related to pastoralism[2], agriculture, agro-forestry, water management and the gathering of wild food; classification systems of plants, animals, soils, water and weather; empirical knowledge about flora, fauna and inanimate resources and their practical uses; and the worldview or way the local group perceives its relation to the natural world. Importantly, indigenous knowledge must be viewed in terms of its overall cultural context, since it is implanted in a dynamic system in which spirituality, kinship, local politics and other factors are tied together and influence one another. It should not be forgotten that religion is an integral part of indigenous knowledge and is therefore inseparable from technical forms of knowledge. Spiritual beliefs about nature might influence the management of resources and encourage the eagerness of the people to adopt new resource management strategies (*cf.* IIRR 1996a).

Hassan (1992) indicates that in certain ways indigenous knowledge functions as a positive factor in development endeavours. These positive factors should be referred to when mobilising people to participate actively in development programmes. What is positive should also be more widely disseminated and be continuously reinforced. Cultural aspects tend to persevere in their existence as parts of indigenous knowledge of a community, therefore they should be taken into consideration in the policy making and planning of the country. If not, the consequence will be the possibility of miscalculating expected results or else unforeseen negative reactions as result of biased actions.

2.2.4 Localisation *versus* Globalisation of Knowledge

Globalisation is a process of interaction and integration between the people, companies and governments of different nations; a process driven by international trade and investment, and aided by information technology. This process has effects on the environment, culture, political systems, economic development and prosperity, and on human physical well-being in many societies around the world.

The current wave of globalisation has been driven by policies which have opened economies domestically and internationally. In the years since the Second World War and especially during the past two decades, many governments have adopted free-market economic systems, vastly increasing their own productive potential and creating numerous new opportunities for international trade and investment. To aid this process, governments have also negotiated a dramatic reduction in obstructions to commerce and have established international agreements to promote trade in goods, services and investment. Hence, taking

advantage of new opportunities in foreign markets, corporations have built foreign factories and established production and marketing arrangements with foreign partners. As a consequence, an important feature of globalization is an international industrial and financial business structure.

Unquestionably, technology has been the other principal spur behind globalisation. Advances in information technology in particular have dramatically transformed economic life. Information technologies have given all sorts of individual economic actors (consumers, investors, businessmen) valuable new tools for identifying and pursuing economic opportunities, including faster and more informed analyses of economic trends around the world, easy transfers of assets, and collaboration with distant partners. Hence, globalisation refers to increasing global connectivity, integration and interdependence in the economic, social, technological, cultural, political and ecological domain.

Basically, the process of globalisation has arisen from the advanced development of the capitalist world economy, the revolution in electronic information technology and increased transportation facilities around the globe. In scholarly discussions, however, globalisation is often placed in a wider context of interrelated processes leading up to increased interdependence among the economic, political, social, cultural and ecological systems of the world (*cf.* Mittelman 1997). Among the major characteristics of the various aspects of the globalisation process are the increased flows of populations, goods and commodities: the growth of world trade, mass tourism, telecommunications, the media, agribusiness and biotechnology.

As Agung (2005) notes, external pressures such as centralised development planning, excessive use and extraction of natural resources and the exploitation of the indigenous knowledge of local people have emerged as the main centre of interest in discussions, especially in regard to the depriving impact on the local communities and ecosystems. Among the prominent negative impacts are such commercially driven factors as deforestation, environmental degradation, over-use of resources, illegal trade in timber and exotic animals, influx of tourism and even consuming of Western fast food, and the gradual loss of language and culture. In urban areas, it leads to the specific problems of overcrowding, water pollution, solid waste disposal, and sanitation. Crime and cultural confusion have worsened the situation. Its impact on health is revealed in the emergence and spread of new diseases. Hence, to overcome this deprivation, new ways are being explored to find a solution for sustainable development.

Apparently, most of the negative impacts on biodiversity from the complex interactions of globalisation between societies, cultures, institutions and individuals in developing countries are focused on three major dimensions: the economic dimension of centralised government policies, manifest in local planning and development; the cultural dimension of loss of culture and language as a result of international cultural exchange and communication: and the ecological dimension of environmental degradation as a result of over-use and exploitation of resources.

Eldredge (1995) observes that in the economic dimension, the emergence of complex societies beyond the boundaries of local systems is the result of the unbalanced condition between humans and the environment on which they rely. With reference to this situation, Chapin (1994) states that indigenous communities are dynamic and open to adaptation, as long as they can retain their independence and be in control of the process of change. Since local people often perceive their land as sacred, the control of their land and resources has always been an essential factor in their traditional relationship with environment and hence with the related use management and conservation resources. However, Nietschmann (1992)

notes that in certain ways the emergence of a global economy has obstructed the ability of most indigenous people to adapt to the changing environment.

To regulate and control the use of local natural resources for national development purposes, most centralist government planning has been established at local levels, including agricultural food production and cash cropping, mining, logging and fisheries, often at the cost of local communities. Obviously, Maffi and Oviedo (2000) indicate, this process can usher in the destruction of biodiversity and of cultural diversity, as central governments are forcing local cultures into a global monoculture, based on a cash economy characterised by a short-term over-exploitation of resources.

Linking up with the growing threat of destruction of biodiversity, Slikkerveer (2001) states that the consequences of loss of biocultural diversity caused by increased economic global development immediately damages the integrity of indigenous communities which represent most of the cultural and linguistic diversity of the world and that this loss of biocultural diversity is followed by language shift, loss of traditional ecological knowledge and local practices used to manage and conserve the environment in a sustainable way.

In the cultural dimension, globalisation has encouraged the cultural growth of cross-cultural contacts; the advent of new categories of consciousness and identities. This factor reveals cultural diffusion, the desire to consume and enjoy foreign products and ideas, adopt new technology and practices and participate in a 'world culture' and embracing them has harmed cultural diversity. Certainly, improvements in international cultural exchange such as the dissemination of multiculturalism and better individual access to cultural diversity (for instance, through the export of Hollywood and Bollywood movies) have endangered the local people's culture. Striking a warning note, Agung (2005) indicates that the imported culture can easily replace the local culture, causing a reduction in diversity through assimilation as well as through alienation and gradual loss of local language and culture. The most prominent form of this Westernisation is the invasion of such Western fast foods as Kentucky Fried Chicken (KFC), McDonald's (McD) and Coca Cola. Strikingly, the Japanisation of culture has also been overwhelming most Asian countries for many years but is scarcely referred to. Greater international exchange also affects the increase in global travel and tourism. Linking to all of these, the spread of local consumer products such as food to other countries, often adapted to their culture and world-wide trends and pop culture such as represented by Pokémon, SpongeBob, the Idol series and many more, as well as world-wide sporting events such as the FIFA World Cup and the Olympic Games have all affected the world in various diverse ways, in particular the developing countries.

Finally, in the ecological dimension, Agung (2005) argues, that a growing number of studies have identified unsustainable interactions between humans and their environment arising from the recent globalization process, negatively affecting both the environment and also the way of life of the local population. Hence, current environmental problems have increased as a result of the negative implications of the global economic development, ranging from habitat fragmentation and destruction, deforestation, water and air pollution, over-exploitation and depletion of natural resources. All of these have led to a rapid, overall loss in the biodiversity of the Earth. Undeniably, the management of biodiversity and sustainable development has also been provided with new opportunities by globalization as the advent of such global environmental challenges as climate change, cross-boundary water and air pollution, over-fishing of the ocean, as well as the spread of invasive species cannot be solved without international cooperation.

At present, there is growing interest at national and international levels in the role indigenous knowledge plays in participatory approaches to development. Research is

producing a growing volume of data showing the relevance of indigenous knowledge to sustainable development. Recently, interest in the role of indigenous knowledge in participatory approaches to development has dramatically increased. This interest is reflected in the numerous activities generated in communities which are recording their own knowledge for use in their educational systems and for planning purposes, within national institutions in which indigenous knowledge systems are now being regarded as an invaluable national resource, and within the development community, in which indigenous knowledge provides opportunities for designing development projects which emerge from problems identified and priority assigned by the beneficiaries themselves. These are built up on and strengthen community-level knowledge systems and organisations (*cf.* Warren *et al*. 1993).

In linking global knowledge to local knowledge, the focus on the role of knowledge in development processes is the result of understanding the relationship between economic growth and the application of knowledge. It is also evident that knowledge for development should deal not only with scientific and technical knowledge but also with community-based knowledge systems and development practices which support the day-to-day survival and innovations at local levels. Therefore, to be capable of understanding indigenous practices, knowledge and understanding of the concepts on which they are based are essential. This occurs particularly in situations in which social sustainability is the objective of the improvement of indigenous practices which are intended to change the ecological and economic situation.

Indigenous knowledge is more than just technologies and practices. It includes information about which trees and plants grow well together and indicators of plants, for demonstrating the fertility of the soil or which are known to flower at the beginning of the rains; such practices and technologies as the handling of seeds and storage methods, bone-setting methods and illness treatments. Beliefs as beliefs play a fundamental role in a people's livelihood and in maintaining their health and environment for instance, sacred forests are protected for religious reasons. They might maintain a vital watershed and even religious festivals can be an important source of food for people who would otherwise have little to eat. Indigenous knowledge encompasses tools, such as the equipment for planting and harvesting, cooking pots and utensils, materials for housing construction, for basketry and other craft industries, and experimentations such as farmers' integration of new tree species into existing farming systems, healers' tests of new plant medicines, biological resources such as animal breeds, local crop and tree species. Human resources are equally important, for example specialists such as healers and blacksmiths, local organisations such as the kinship group, councils of elders, or groups which share and exchange labour, education such as traditional instruction methods, apprenticeships, learning through observation, communication such as stories, messages incised on to palm leaves and folk media (*cf.* Charyulu 2008).

Meanwhile, globalisation has not only caused problems and challenges, it has also created opportunities. It has contributed to the discovery of medicines to treat illnesss. Pharmaceutical industries do produce drugs needed by the poor; but the poor cannot afford to purchase them since the Trade Related Aspects of Intellectual Property Rights (TRIPs) has given pharmaceutical companies the right to retain patents for twenty years to recoup their research and development investments before generics can be produced. Importantly, with the globalization of infectious diseases such as HIV/AIDS, it is vital that people have access to medicines at affordable costs but the patents remain an obstacle. The World Trade Organization Trade Related Aspects of Intellectual Property Rights agreement compels on developing countries to produce generics of the branded products.

2.3 MAC Plants for Health Care and Conservation

2.3.1 Herbal Medicine for Primary Health Care Development

One of the major factors in the globalisation of infectious diseases has been the massive human movements across borders. Developed and developing countries are all affected by the spread of various communicable diseases. Some of these diseases are spreading because of the ease of transport of people, goods and services between countries; and with them come disease vectors. Dengue fever carrying mosquitoes have invaded America; SARS has found its way to as far as Canada; HIV has spread across the globe and at present, HIV/AIDS is a threat to human security, decreases human development and has an effect on the economy (*cf.* Shisana 2003). Awareness does mean that efforts are in progress to deal with the globalisation of infectious diseases through the establishment of global objectives, such as instituting international health regulations, negotiation of international agreements and financing of health services, as well as improving determinants of health.

Nevertheless, WHO (2000) has recoded that in the last decade, there has been a global increase in the use of traditional medicine and complementary and alternative medicine in most developing countries. As a consequence, today traditional medicine and complementary and alternative medicine play an increasingly significant role in health care and health sector reform globally. Hence, the safety and efficacy, as well as the quality control of traditional medicine and complementary and alternative medicine therapies have become important concerns for both health authorities and the public.

As Indonesia accepted the concept of Primary Health Care (PHC) which was declared at Alma Ata, an operational form of Primary Health Care was developed, called the *Pembangunan Kesehatan Masyarakat Desa* (PKKMD) ('Village Community Health Development Programme'). Sarwono (1993) describes how the 'Village Community Health Development Programme' (PKKMD) is based on the principles of mutual help and self-reliance, supported by activities aimed at helping the community to identify and solve the problems relevant to health and non-health related matters, and finally to promote the welfare and self-dependence of the community. Hence, its activities deal with health matters, as well as with actions relevant to the improvement of the quality of life.

Meanwhile, Kartono (2006) notes the spread of globalisation has had a huge impact on Indonesia because in its wake it has brought the introduction of newly-emerging diseases plus the reappearance of re-emergence of diseases. Certain infectious diseases such as malaria, tuberculosis, Acute Respiratory Infections (ARIs) and preventable infectious diseases which can be contained by immunisation are still a prominent burden in health problems and contribute significantly towards the population's mortality and morbidity rate. They are still a principal concern of the health authorities. Hence, Indonesia is facing a 'double burden of diseases which might possibly become a 'triple burden of diseases' as a consequence of the frequent natural disasters of late.

Furthermore, in its efforts to provide accessible, low cost health care for the people, particularly for those living in the rural areas, the Indonesian government has established the *puskesmas* or Community Health Centre at the sub-district (*kecamatan*) level. Initially, the implementation of the *puskesmas* in the community proved to be difficult, hampered by a lack of manpower and financial resources. The communication on the *puskesmas* was low because of the distance of their location from the people who might possibly use them, limited budgets, and competition with private clinics and traditional healers.

Hence, the Ministry of Health in cooperation with the traditional healers, has conducted courses in health problems and hygiene, since the majority of the Indonesian people still rely on traditional medicine (*cf.* Sarwono 1993). At present, *puskesmas* and *puskesmas pembantu* (Supporting Health Services) are found spread all over the rural and urban areas of Indonesia.

During the past few decades, Indonesia has also made endeavours to encourage community actions for health with the full participation of communities, political leaders and Non Government Organisations at various levels of health care delivery development programmes. The result has been the establishment of the *Pos Pelayanan Terpadu* (*Posyandu*), the Integrated Health Package Programme at neighbourhood level in rural and urban areas, operated mainly by voluntary Community Health Workers who are selected by the community. The *posyandu* plays an important role in the health status of the people at the lowest level, although it is held only one day in a month for the general public. Lately, the *posyandu* are poised at the crossroads because of changes in health care management with private-public partnership and the decentralisation of Indonesian Health Systems.

The *Declaration of Alma Ata* also states that Primary Health Care (PHC) encompasses two processes. The first is related to the growth of an extension of basic health services and the second is related to the development of the local community in terms of infrastructure, education, initiatives and resources.

As Sarwono (1993) notes, Primary Health Care comprises activities such as education about prevailing health problems and the methods of prevention and control, local endemic disease control and prevention, expanded programmes of immunization against the major infectious diseases, maternal and child health care, including family planning, essential drugs provision, nutrition and the promotion of the food supply, the treatment and prevention of locally endemic diseases and injuries, and safe water supply and basic sanitation.

Essential to the delivery of Primary Health Care programme is the health workforce. Many developing countries have launched training programmes for Community or Primary Health Workers. It is important that the traditional and the Western medical systems are able to co-operate with Primary Health Care to achieve success in establishing health care services throughout the country and achieving health for all.

The success of Primary Health Care is dependent not only on the national government; it leans heavily on the medical personnel. However, doctors and nurses are not eager to working in Primary Health Care, since they are often not well informed about it and are consequently not willing to work in rural areas or places where Primary Health Care is implemented. Furthermore, Buschkens (1990) states the participation of the community itself and its acceptance of the Primary Health Care are also important to the success of Primary Health Care. To overcome the first problem, the presidential regulations which formerly required a newly graduated medical student to work in rural areas have been changed by the Health Department, which has issued new regulations to serve as incentives and provide facilities to newly graduated medical students, allowing them to become civil servants and to extend their studies so as to become specialists in their fields, if they are prepared to be posted to remote areas in Indonesia for a certain period of time.

WHO (1991) confirms participation as a concept can be divided into three types, namely participation through contribution (such as the contribution of means or by doing voluntary work); participation through helping the organisation; or participation through giving other people some authority for making decisions about the lives of people in the community. This kind of participation has been implemented in Indonesia in the form of *Posyandu*. In fact, many health development strategies have not had a substantial impact in promoting community participation. Evidently, it is difficult to encourage people to think and act for

themselves but they should not bear the brunt of the blame. Policy-makers do not pay enough attention to the question of sustainability, with the result that it is difficult for the local people to maintain the facilities which have already been established in the place in which they live. The situation has also been marred by the conflicts which have often occurred between the medically directed needs as determined by the health services and the needs as determined by the community which are related to peri-health matters such as water and transport.

While, Sarwono (1993) points out that the *Declaration of Alma Ata* has made great progress in promoting Primary Health Care but the success of many Primary Health Care programmes is uncertain because large public enterprises are expensive and the Third World nations usually do not have the absorptive capacity and ability to support these enterprises for longer periods of time. Therefore, lack of money and unbalanced allocation of medicine (90% is allocated to the important hospitals) have not left Primary Health Care much to work with. When the economic situation is deteriorating, the poorest parts of the society are usually let down; the uncompromising attitude of the health care authorities and of many politicians about accepting fundamental changes in the delivery health care positively have caused the acceptance of Primary Health Care programmes by the members of rural communities to be unsatisfactory. The long and short of it is that medical personnel are often not willing to work in rural Primary Health Care programmes or are often poorly adapted to Primary Health Care work because of the inadequacy of the education on this matter in the existing training programmes. Unquestionably, the government of Indonesian is concerned in the persistence in the country of many of the communicable diseases which are still of public health significance and the re-emergence of others. The increase which is observed in non-communicable disease and degenerative disease are issues which need to be addressed. Of course, nutritional concerns are never far from the picture. Nevertheless, efforts have been made to reallocate some of the subsidies for public hospitals to support primary health care services, particularly for the underserved. The new agenda of the national social health insurance programme for the poor was also introduced to improve the access of the poor to health care services. Social Health Insurance development as a component of National Social Security is now being a priority programme.

In 2005, the Ministry of Health has decided four main strategies for accelerating health development in Indonesia: community empowerment to live healthy life; increase access of qualified health services; strengthening the surveillance, monitoring and information systems; and increase government and community /private health financing. In 2006, these four main strategies are supported by the reinforcement of policy and management of health development and the strengthening of national human resources for health development. All these call for a change in the orientation of the health system, better governance, a balanced stewardship which can lead to better health system performance for dealing with the impact of globalization (*cf.* Ministry of Health 1999).

At Alma Ata (WHO 1978), the World Health Organization promoted Primary Health Care (PHC) which seeks to deal with the major health problems in the community by providing promotive, preventive, curative and rehabilitative services. In this Primary Health Care (PHC) approach, community participation and involvement in health development and management by local resources are crucial. A factor frequently overlooked is that traditional birth attendants and traditional medical practitioners are still found in most societies. They are often part of the local community, culture and traditions, and continue to have high social standing in many places, exerting considerable influence on local health practices.

With the support of the formal health system, they can become important partners in organizing efforts to improve the health of the community, even by utilization of their knowledge of medicinal plants.

As Handra (2004) describes, Indonesia is one of the tropical countries which has a large diversity of ecosystem including flora and fauna, species and gene-pool compared to those of other countries in the world. There are approximately 30,000 plant species which are mostly spread over in the rain-forests of the country. Certainly, more than 3,300 plant species have medicinal properties and an estimated roughly 300 species are utilized as traditional medicine or *jamu* by the communities. The approximately 300 ethnic groups living in Indonesia form an invaluable source of cultural development, science, technology and the civilisation of the world. Each ethnic group has its own medical system for health care, therapy and beauty treatment, and most of them use MAC plants in their treatment. Hence, the wide range of plants are utilised for food, promotion of health, prevention of illnesses, cure for illnesses, cosmetics and in ritual ceremonies and 25-30% of the active compounds available in medicine derive from plants. In addition, an estimate of 119 chemical compounds from ninety-one plants are utilised in Western medicine and of this number, 74% have been obtained through researches into traditional medicine by pharmaceutical industries. At present, these researchers and pharmaceutical industries are focusing their research on the search for the treatment of cancer and AIDS from traditional medicine.

Traditional medicine is linked particularly to the way a healer views a human being, who is seen as being composed of both body and spirit. Bad health of whatever kind is interpreted as being the result of forces acting on both simultaneously. Furthermore, as a rule the healer's knowledge is either inherited or is considered an ancestral gift, which explains the mysterious character of certain practices. Remedies are prepared and distributed in different forms such as decoctions (boiling), infusions (soaking), extractions of juice, and are often a mixture of plants.

Over the past few decades many authors have described and analysed the increasing role of which traditional medicine has begun to play in the provision of integrated health care to the community, particularly in developing countries where restricted resources continue to hinder the equal distribution of limited modern health care. Under these circumstances, the potential of less expensive, locally available alternative forms of widely used indigenous medicinal knowledge and practices to contribute to primary health care delivery is now generally recognised. International organisations, such as WHO and UNICEF, have supported efforts which have been made in Africa, Asia and Latin America to integrate them into Basic Health Services (BHS) and Community Based Health Care (CBHC) (*cf.* Warren *et al*. 1982; Bannerman, Burton & Ch'en Wen Chieh 1983; Hargono 1983; WHO/UNFPA/ UNICEF 1992).

Since the early publication of the comprehensive study in the new field of applied-oriented ethnoscience on Indigenous Knowledge Systems and Development by Brokensha, Warren & Werner (1980), the successful incorporation of local knowledge into the health care development process has been accepted by various corporation projects and programmes around the globe (*cf.* Warren, Slikkerveer & Brokensha 1995).

Despite the success of some of the approaches and strategies which are designed for the integration of traditional and modern medical systems, it has to be acknowledged that the related concept of *'Health for All 2000'* (WHO 1981) has still not been realised. At present, a large part of the rural population in the tropics is still denied adequate community health care which is partly based on the incorporation of traditional healing and midwifery; a sure indication that some of the shortcomings have to be reassessed and possibly reduced.

According to Slikkerveer (2003: 38), this is '*Mainly as a result of the continuing, artificial separation - and sometimes opposition - between biomedicine and traditional medicine in the field, the envisaged integration as the ultimate result of traditional medical systems negotiating successfully the challenges posed by science and technology is still facing several theoretical and methodological complications'.*

As Rafei (2004) indicates, WHO has assisted countries in developing their traditional medicine, especially in the areas of policy formulation, research, standardisation, regulation, quality control, human resource development and information exchange. In the past, research on the efficacy of traditional medicine was based on anecdotal evidence and case studies. Recently, some countries have conducted systematic clinical research to assess various systems of traditional medicine. Each country has its own traditional medicine. Fundamental to the principles of traditional medicine is the concept of the balance between energy forces in a healthy body and some, such as *Ayurveda* and *Unani,* are practised in many countries. Apart from these, many people in the country practise yoga, acupuncture and other alternative systems of medicine. Indonesian indigenous medicine is known as *jamu* and is usually made from medicinal plants. For centuries, *jamu* has played an important role in health care in Indonesia.

The origins of *jamu* probably date back to before the construction of the world-famous Borobudur temple in Central Java, in the late-eighth to early-ninth century. Certainly, on the walls of the temple is a depiction of the eternal *kalpataru* tree, which is a mythological tree, under which a group of people appear to be grinding ingredients, to prepare a concoction of *jamu*. The corpus of ancient handwritten Javanese manuscripts, among them the *Serat Racikan Boreh Wulang nDalem* ('Handbook for Mixing Medicinal Ingredients'), contain exclusive recipes for *jamu*, for the Javanese royal families of the *Solo* and *Yogyakarta* Sultanates in Central Java and are proof of a long-standing use of *jamu*.

As part of traditional medicine, herbal medicine has been attracting a growing interest worldwide. Since 1978, the World Health Organization (WHO) has been urging for more cooperation of traditional and modern medicine. WHO has recognised the potential significance of the practice of traditional medicine and the therapeutic practices of which are also based on the use of traditional herbal remedies. This was clearly stated in the *Declaration of Alma Ata* (1978), which was later followed by the *Global Strategy for Health for All by the Year 2000* (1981), in which WHO recommended that each member State explore and utilise its natural medicinal resources (*cf.* Slikkerveer & Slikkerveer, 1995). This was followed by the *Strategy for Traditional Medicine 2000-2003* which was declared in Geneva in 2000 (*cf.* Sukanta, 2002). It also expressed its concern for traditional medicine for health care needs.

Lately, traditional healing has come under pressure from infectious diseases such as tuberculosis, of which the treatment often shows the superiority of Western medicine. This course of events has greatly affected the prestige of the local healers and opened a market for Western drugs which are usually expensive. Apart from putting a heavy drain on foreign cash reserves, easily available and often equally effective traditional equivalents have therefore been forced to be abandoned and consigned to oblivion. Biomedicine has become the dominant paradigm in the larger hospitals in developing countries.

Rafei (2004) indicates that access to essential medicines has been and will continue to be the core element in health care in the developing countries, especially in South-East Asia. In the framework of the WHO medicines strategy, member countries are strengthening their national drugs policy and food and drugs quality control system in order to promote rational use and thereby to ensure quality, quantity, safety and efficacy. With the expansion of the private sector in health care, access to essential medicines has become an important issue.

While most countries provide essential medicines in their public health sector, either free of charge or for a nominal fee, patients in the private sector have to pay the full cost.

Another unsatisfactory development is, that because it is cheaper and the quantities more efficious, chemicals which originated from medicinal plants are being produced artificially in laboratories of the industrialised countries. By depending on the Western products, developing countries find themselves paying very high prices for drugs. Nor are drug prices the only issue; Trade Related Intellectual Property Rights might prevent the countries of South East Asia from obtaining the new drugs essential to their public health needs in the future.

A wealth of indigenous knowledge on plants can offer valuable clues to the use of medicinal plants most of which are used for common ailments such as fevers, coughs, diarrhoea, wounds and skin diseases. More importantly, this knowledge is familiar to the people and can be used to develop an understanding of the use of medicinal plants. For example, the locations of medicinal plants, the proper times to gather them, the most useful parts and the methods for preparing the medicines.

Furthermore, there are traditional classifications of plants based on the taste and odour of each plant. These tastes and odours, which in fact are medicinal chemicals found in the plants are used by people as a guide to using the medicinal plants. By linking traditional and modern theories, people can learn more about the chemicals found in medicinal plants.

Many developing countries have rich varieties of plants from which drugs can be obtained. As developing countries do not have drug industries of their own and depend on industrialised countries for the materials and technology to produce drugs, their dependence results in expensive drugs. Therefore many of the valuable drugs continue to be obtained from plants and in many cases because of their use by local communities as traditional herbal medicine. Numerous medicinal plants have even become part of people's daily life such as coffee and tea which contain caffeine, which is also found in some drugs used for such ailments as headaches.

Currently, all over the world there is renewed interest in traditional medical systems. National and international agencies are now endorsing medicinal plants, acupuncture and other forms of medicine. The mainspring most often referred to as the reason for this revival is that traditional medicine offers a cheap alternative to meeting the rising costs of health care in developing countries.

2.3.2 Traditional Ecological Knowledge (TEK)

Traditional ecological knowledge (TEK) signifies experience obtained over many years of direct human contact with the environment. There is no universally accepted definition of traditional ecological knowledge (TEK) in the literature. The word 'traditional' usually refers to cultural continuity transmitted in the form of social attitudes, beliefs, principles and conventions of behaviour and practice derived from historical experience.

For the study of indigenous communication on MAC Plants, the systems of Traditional Ecological Knowledge (TEK) not only provide the context of MAC plants in terms of the related local peoples' elaborate knowledge of the natural environment in which these plant resources are living and surving, but also the local beliefs, cosmologies and philosophies of natute and the environment. Such local cosmologies are often playing an important role not only in the sustaimable use of these plant respources, but also in the related indigenous conservation and management practices.

Carlson (2001) claims that at present, there is also a growing recognition of the contributions of ethnobotany to the human health needs of local rural communities. While, Ten Kate & Laird (1999) note, that during the same period, the use of indigenous and traditional knowledge has grown increasingly valuable, not least in the context of development of new commercial products, such as in the pharmaceutics, dietary-supplements and the agricultural field. In the field of anthropology, it involves the use of an *emic* perspective which is useful in ethnobotanical knowledge studies.

The development of a comparative approach of Ethnobotanical Knowledge Systems (EKS) as Slikkerveer (2003: 48) states: '*is based on a general Indigenous Knowledge Systems' perspective, the newly developing field of Ethnobotanical Knowledge Systems (EKS) focuses on the knowledge and use of plant resources within and among cultures and communities within a particular Field of Anthropological Study (FAS*)'. The Ethnobotanical Knowledge Systems (EKS) approach can be used to reveal the link between plant use for health promotion, illness prevention and as a remedy.

As Berkes (1993) notes, Traditional Ecological Knowledge (TEK) represents experience of direct human contact with the environment acquired over thousands of years. Growing recognition of the capabilities of early agriculturalists, water engineers and architects, not to mention increased appreciation of ethnoscience, has paved the way for the acceptability of TEK in various fields. As a consequence, the feasibility of applying Traditional Ecological Knowledge (TEK) to contemporary resource management problems in many parts of the world has gradually been recognized. Linking together the most important features of Traditional Ecological Knowledge (TEK) from major works, Berkes (1993: 3) defines traditional ecological knowledge as: '*…a cumulative body of knowledge and beliefs handed down through generations by cultural transmission, about the relationship of living beings (including humans) with one another and with their environment. Further, TEK is an attribute of societies with historical continuity in resource use practice, by and large, these are non-industrial or less technologically advanced societies, many of them indigenous or tribal*'.

While the field of ethnobotany initially derives from two distinct research traditions of how human societies around the world make use of plants (and animals) in their local environments, a more recent interest has evolved to show how humans perceive, classify, and name the natural world. Now, these two traditions have integrated (*cf.* Carlson & Maffi 2004). Ethnobotany studies the complex relationships between humans and plants, for all cultures rely on, utilise, name and classify plants in their everyday lives.Ethnobotany is an evolving, multidisciplinary field; and its practitioners have backgrounds in various different disciplines, such as biology, pharmacology, anthropology and chemistry. Among the topics studied are the use of specific plants by certain cultures; the search for new drugs from natural plant extracts, and the documentation and construction of folk taxonomies (indigenous classifications of naming and classifying plants) (*cf.* WHO *et al.* 1993, Levinson & Ember 1996).As Toledo (1992) indicates, the emergence of an ethnoecological perspective, including human-environment relationships integrates the ethnological research of biological, cultural, and linguistic studies so as to understand the knowledge and beliefs which indigenous and traditional communities foster about their biological environments and their practices of use and management of the natural resources found in their ecosystems. In addition, Toledo (2000) blends this approach by defining ethnoecology as a discipline which explores three interrelated levels of human-environment relationships: the corpus (knowledge), the cosmos (beliefs), and the praxis (practices) revealed by human societies in their interactions with local ecosystems.

Meanwhile, Posey (1999) notes that in the course of the 1990s another major development was the growing recognition that one growing property of ecosystems which has experienced a significant human presence and human resource use over time is that they are biocultural systems (systems which have been jointly shaped by biological and cultural dynamics) and that much of the biodiversity found in place (including in habitats commonly thought of as perfect, such as a tropical rain forests) is actually anthropogenic. Therefore, Maffi *et al*. (2000) state, this in turn led to the realization that local ecological knowledge, beliefs, and practices have much to contribute to the conservation of biodiversity as well as to sustainable use of natural resources.

2.3.3 MAC Plants for Health and Healing

Medicinal plants and herbs have always played a major role in the development of medicine and public health throughout the world, especially in developing countries. All around the world diverse plants, both wild and cultivated plants are being used for various purposes. Cook (1995) categorises the main usage of wild plants into food plants, food additives, animal fodder plants, bee plants, invertebrate food plants, plants for materials, fuels and social uses, vertebrate poisons, non-vertebrate poisons, medicinal plants, cosmetic perfumery plants, plants for environmental uses and genetic resources.

Considering the use of plants in relation to health care, it seems that the most applicable category is that of MAC plants, since the plants can be used for health promotion as well as for illness prevention and for treatment. These plants can be used as nutrition, beverages as well as medicinal, aromatic and cosmetic plants. The category of medicinal plants could be refined by subdividing it into plants for health promotion, plants for prevention of illnesses and plants for treatment of illness. Importantly, plants use for illness prevention and health promotion are more likely to be used on a long-term basis, because from a philosophical point of view their use implies a healthy way of life.

Medicinal plants whose purpose is illness prevention are used to forestall a person contracting a specific illness, whereas plants used for health promotion are thought to be beneficial to health in general. Interestingly, medicinal plants whose purpose is health promotion and illness prevention vary to some extent and it is not always easy to make a distinction between them. Certainly, it is not clear if people actually differentiate between medicinal plants for health promotion, illness prevention or for treatment.

Furthermore, a number of MAC plants and food plants can be used simultaneously for health purposes. Hence, Slikkerveer (2003) states that medicinal, aromatic and cosmetic plants**,** the so-called MAC plants and food plants are regarded as being the most important in linking plant use to human health. Turning to look more closely at *jamu*, the ingredients are obtained from the leaves, roots, bark, flowers and stems of higher plants[7] and from the minerals and fungi which are usually found in tropical forests. *Jamu* is produced in the form of pills, powders, tea, tonics, topical oils and creams. Remedies are usually composed of three or more ingredients and are used to treat almost all kinds of diseases. It can also be used in the treatment of infertility and even depression. *Jamu* is also very popular in the promotion of the general health and beauty. Obviously, traditional herbal remedies play an important role in the health care of millions of people in developing countries. For instance, Gollin (1993) states that approximately 80% of Indonesians, from all socio-economic levels and ethnicities, take some form of *jamu* which are available in pharmacies, department stores, street stalls as well as from *jamu gendong* vendors daily, or people compound their own home-made *jamu* by themselves from medicinal plants cultivated in the home-gardens.

At present, there is renewed interest in traditional herbal medicine. However, despite this revival in the use of *jamu*, most Indonesian people initially tend to go to the *Puskesmas* (*Pusat Kesehatan Masyarakat* or Health Centre), clinic, hospital or general practitioner when ill. They also do not hesitate to consume Western medicine at the same time as they are using *jamu* for prevention or treatment of specific illnesses and complaints, since *jamu* does not cause side-effects if used appropriately; a benefit which has been shown to them over many generations.

Likewise, the use of aromatic oils derived from MAC plants has been known since time immemorial. Some books of religion have elaborately described the use of plants and aromatic oils from plants in therapies and religious ceremonies. All this evidence reveals that medicinal, aromatic and cosmetic plants play a significant role in the lives of people and are present in innumerable forms. These plants are used as raw materials in medicines, cosmetics, perfumery, and insecticides, as well as in the food industry. The most common species of aromatic plants in Indonesia are jasmine (*melati*), rose (*mawar*), lemon grass (*sereh*) and sandalwood (*cendana*).

Unlike many synthetic preparations, herbal cosmetics made from cosmetics plants do not usually provoke allergic reactions, although it should be said that some individuals are allergic to certain plants. Now, an increasing number of cosmetics are commercially produced entirely from natural ingredients. Some herbal cosmetics are also easy to make at home and they are cheaper than commercial products but just as beneficial and obviously, do not contain chemical preservatives. It should be remembered, however, that home-made cosmetics and some purchased herbal preparations are not as durable as synthetic products.

2.3.4 MAC Plants for Forest Conservation

For thousands of years, humankind has been depending on the biological resources of the Earth for food, medicine, energy, construction, inspiration, art and in a wider universal context, for the socio-economic and cultural development of humanity. (*cf*. Agung 2005).

The Indonesian Archipelago is one of the most biodiverse regions in the world. Over the centuries, Indonesians have experimented with their botanical heritage in numerous ways. Of the 40,000 species of tropical plants in the world, an estimated 30,000 grow in Indonesia. There is no doubt that a huge number of medicinal plants were selected for their effective healing power (*cf*. Beers 2001). Although these biological resources are in principle renewable if managed properly, those which are mistreated have shown that they run the risk of becoming extinct. Such human activities of sustained use, management and conservation, however, have caused some experts to fear the misuse of the concept that such indigenous subsistence and resource and management practices have been guided by a kind of 'conservation ethic' as part of the local culture (*cf*. Redford 1990; Hames 1991; Kalland 1994). As previous studies have shown some indigenous people have lived for centuries largely as a result of their conservation practices, Persoon (1991: 115) clearly states that: '*nature conservation and indigenous life styles are more or less synonymous'.*

Medicinal plant knowledge is inherited from generation to generation to treat illnesses and promote health and was used long before biomedicine existed. Currently, herbal medicine still tends to predominate in Indonesia which is proof of its efficacy. Besides their proved superiority, medicinal plants are proving effective as therapeutic agents since health services and medication costs have risen lately. Unquestionably, the availability of medicinal plants in home gardens will benefit and support the family's health awareness.

As the most obvious use of medicinal plants is as a remedy to treat ailments and diseases, for generations the Indonesian people have used plants as herbal medicine in the treatment of illnesses. This use has been supported by the geographical conditions prevailing in Indonesia, which encompasses of thousands of islands. This geographical diversity promotes the availability of a whole range of various plants. Currently people in Indonesia are turning to using natural sources for health; this of course includes the utilization of plants with medicinal properties. The parts of plant used for ingredients of herbal medicine are the tuber (*umbi*), root (*radix*), bark (*ligna*), leaf (*folia*), flower (*flos*), fruit (*fructus*), seed (*semen*) and plant (*herb*).

As indicated above, recently, a numner of studies and declarations have popinted to the threat of loss of MAC plants in many countries of the world. The *Convention on Biological Diversity* (CBD 1992), regularly up-dated in the Conference of the Parties to the Convention on Biological Diversity, has recently published both the *Global Strategy for Plant Conservation (*COP 9 Decision IX/3 – 2008), and the *Forest Biodiversity Plan* (COP 9 Decision IX/5 – 2008). In addition, Chivian (1997) warns that the alarming decline of earth's plant biodiversity has serious consequences for human health and well-being.

In addition, international organizations are expressing their concern and are publishing guidelines to protect medicinal plant resources around the globe. These include the *Guidelines on Good Agricultural and Collection Practices* (WHO 2003), *Guidelines for the Conservation of Medicinal Plants* (WHO 2006), and the Global Plan of Action (FAO 2009)

2.4 Patterns of Communication Behaviour on MA Plants

The above mentioned theoretical orientation on the way in which communication on MAC plant knowledge and practice and related issues has been conceptualised in previous research is paving the way for the orientation of how to attain the objectives of the study in Lembang. Following the envisage analysis of this particular form of communication behaviour, the overall assessment of the patterns of communication behaviour on MAC plants of members of local institutions, is further specified according to the exchange of knowledge and practice for, on the one hand, health promotion and illness prevention, and on the other hand for the treatment of illness.

2.4.1 Communication on MAC Plants for Health Promotion and Illness Prevention

As health promotion refers in general to the provision of information and/or education to individuals, families, and communities that-encourage family unity, community commitment, and traditional spirituality, which make positive contributions to their health status, the World Health Organization's *Bangkok Charter for Health Promotion in a Globalized World* (2005) defines health promotion as: *'the process of enabling people to increase control over their health and its determinants, and thereby improve their health'.*

Similarly, the prevention of illness refers in general to measures taken to prevent illnesses (or injuries) rather than curing them or treating their symptoms. The term contrasts in method with curative and palliative medicine, but is in line with public health methods, which work at the level of population health rather than individual health. Gordon (1987) has further elaborated the concept of illness prevention for Western medicine, where preventive care may include examinations and screening tests tailored to an individual's age, health, and family history. Such conceptualisation, however, is less useful for the analysis of communication behaviour for illness prevention in the context of traditional herbal medicine.

In this context, the exchange of knowledge of MAC plants at the community level for particular health promotive and illness preventive purposes is not only important for the understanding of this part of the communbication process in *arisan*, but also for the identification of the utility of indigenous MAC plants for the promotion of local peoples' health and well-being, Moreover, it will also provide further ethnobotanical knowledge and insight into the practical aspects of plants which are locally identified as possessing specific illness-preventing properties.

By consequence, in the analysis of the reported patterns of communication behaviour subdivided into the two broad categories, the exchange of knowledge and practice of MAC plants for health promotion and illness prevention will be combined to one category of the communication process. This sub-division is expressed in the analytical model in the dependent variable of patterns of communication behaviour concerning the MAC plant knowledge and practice for health promotion and illness prevention.

2.4.2 Communication on MAC Plants for Treatment of Illness

In general, the treatment of illness is defined as an attempted remediation of a health problem, usually following a diagnosis. In the medical field, it is synonymous with the word 'treatment' of a problem, which may lead to its cure, but treatments often ameliorate a problem only for as long as the treatment is continued, especially in chronic diseases. However, treatments do not always work. In some cases, chemotherapy may pertain to a cure, but not in always for all forms of cancer. In case that nothing can be done to stop or improve a medical condition, beyond efforts to make the patient more comfortable, the condition is said to be untreatable. Some untreatable conditions naturally resolve on their own; others do not. As Barnes (2007) notes, cures are generally defined as a subset of treatments which reverse illnesses completely or end medical problems permanently. Many diseases which cannot be cured, however, are still treatable.

In the analysis of the reported patterns of communication behaviour, broadly subdivided into the two main categories of dependent variables, the exchange of knowledge and practice of MAC plants for treatment is expressed in the analytical model in the dependent variable of patterns of communication behaviour concerning the MAC plant knowledge and practice for treatment.

While the next Chapter III will further elaborate on the construction of the analytical model and its components used for the overall analysis of this form of communication behaviour in *arisan*, Chapter VIII will present the various analyses of the communication behaviour on mac plants as reported by the respondents of the four sample communities in the research area.

Notes

1 Knowledge is the process of knowing, of individual cognition. It is inherent in people. It cannot be communicated but it is created in the minds of individuals as a result of each person's perceptions of the environment or through communication with others (Freire 1973).

2 Modern Communication Theory is based on mathematical theories developed by Claude Shannon, whose original theory (also known as 'information theory') was later elaborated and given a more popular formulation by Warren Weaver. In fact, Weaver extended Shannon's insights into a broad theoretical model of human communication, which he defined as 'all of the ways by which one mind may affect another'. Both mathematical and diagrammatic in character, the Shannon-Weaver model measures the efficiency and flexibility of a

communication system. It is sometimes referred to as the S-M-C-R model, a mnemonic formula representing the sequence of its main components (Sender-Message-Channel-Receiver). Harold Lasswell, a communication expert famous for his invention of content analysis and his research on propaganda techniques, probably provided the best characterization of the Shannon-Weaver model when he defined communication as essentially a matter of '*who says what in which channel to whom and with what effects?*'
[obtained from Internet http://collaboratory.nunet.net/dsimpson/comtheory.html].

3 Social capital is one type of social relationship, characterized by trust, reciprocity and cooperation. It is associated with positive community development outcomes (Narayan & Pritchett 1999).

4 A *wayang* is a shadow play with leather puppets (*wayang kulit*) or wooden puppets (*wayang golek*), mostly dramatising themes from Hindu epics. The *dalang* is the puppeteer in an Indonesian *wayang* performance. Although at present, schools of teaching the art of puppetry (*pedhalangan*) have been established in the *kraton* (palace) of Yogyakarta, the art was traditionally handed down in families. Much of the traditional training of *dalang* was in the form of a practical apprenticeship, with a certain amount of spiritual training put in it (Van Groenendael 1985).

5 *Gemeinschaft* (often translated as *community*) is an association in which individuals are oriented towards the large association as much if not more than to their own interest. Furthermore, individuals in *Gemeinschaft* are regulated by common mores or beliefs about appropriate behaviour and responsibility of members of the association, to each other and to the association at large; associations marked by 'unity of will'. The family is seen as the most perfect expression of *Gemeinschaft*; however, Gemeinschaft could be based on shared place and shared belief as well as kinship, and globally dispersed religious communities are included as possible examples of *Gemeinschaft*. *Gemeinschafts* are broadly characterized by a moderate division of labour, strong personal relationships, strong families, and relatively simple social institutions. In such institutions there is seldom a need to enforce social control externally, because of the collective sense of loyalty individuals feel for society (Tonnies 2001).

6 Higher plants also known as vascular plants (or *traceophytes*) are those plants which have lignified tissues for conducting water, minerals and photosynthetic products through the plant. Higher plants include ferns, clubmosses, flowering plants, conifers and other gymnosperms [obtained from Internet http://en.wikipedia.org/wiki/Higher_plant].

Chapter III METHODOLOGY AND ANALYTICAL MODEL

This chapter presents the methodology and analytical model selected for the study, and describes the fundamental considerations of the choice of the most appropriate research methods and techniques to be applied in the study area of Lembang.

It describes the Ethnosystems Approach which is based on the anthropological and geo-historical concepts of the 'Participant's View' (PV), the 'Field of Ethnological Study' (FES), and the 'Historical Dimension' (HD), which in combination facilitates the analysis of the *emic* view of the local people on their life and livelihood. This concept refers to the understanding of indigenous knowledge and practices which are based on local experience and wisdom and as they have evolved over many generations in specific socio-cultural settings.

This description is followed by an outline of the complementary qualitative and quantitative surveys in the four pre-selected communities in Lembang, in the Province of West Java. The description of the qualitative study is based on observations and in-depth interviews with key informants and is followed by the design of a formal questionnaire which is used to conduct the quantitative household surveys in the four sample communities or *desa* in the study area.

Finally, the construction of the conceptual model is described, to be used as the multivariate model of comunication on local knowledge and practice of medicinal, aromatic and cosmetic plants. Also, the related blocks of factors[1], variables, indicators and categories are presented as operational guidelines for the collection of reliable data for the analysis of patterns of communication behaviour of respondents in the study area. In this context, the multivariate model is further described as a Non-linear Canonical Correlation Analysis or OVERALS, developed at Leiden University.

3.1 Selection of Research Methodology

3.1.1 The Leiden 'Ethnosystems Approach'

At the present moment, there is a growing need to establish and extend a comprehensive body of information about indigenous knowledge and development, both at the theoretical and the methodological levels. Such an accomplishment would certainly have to include more than the simple accumulation of data from case studies and accounts on the subject. In this research, the attempt to contribute to this objective has been confronted with a number of problems, since such effort requires the development of a specific research methodology suitable for the study, analysis and comparison of several systems of local and regional indigenous knowledge and technology in a more dynamic context of communication behaviour and its fundamental principles from the above-mentioned *emic* viewpoint.

Slikkerveer (1999: 172) states that such an attempt must include the general field of the study and documentation of indigenous knowledge systems in comparison with global knowledge systems, available from written resources and electronic data bases. Such effort contributes to the lasting mark of indigenous knowledge and its *etic*[2] 'invisibility' as part of the unwritten oral tradition of the local culture, and the less tangible symbolic and spiritual phenomena and worldviews. At this point in time, the growing recognition of the potential of indigenous knowledge for enhanced sustainable management of agriculture and natural resources, its practical significance and cultural utility for participation and local level decision making, and its contribution to biocultural diversity conservation blend with global

knowledge and requires extended research, and further operationalisation of the relevant concepts and implementation of results.

Despite differences between indigenous and Western knowledge, it is currently acknowledged that indigenous knowledge is holistic in nature and therefore requires a different approach in research and development practices. This new approach is one which can deal with the holistic character of indigenous knowledge. It is also essential that this approach provokes dialogue so that the underlying beliefs can be identified and analysed.

Linking up with the previously mentioned considerations and acknowledging the inadequacy of existing research methods and techniques for indigenous knowledge-related research, a special *emic-oriented*, interactive research methodology has been developed to study, analyse, understand and interact with global knowledge and technology, in order to shed more light on complex systems of indigenous knowledge and practice in developing countries (*cf.* Leakey & Slikkerveer 1991; Adams and Slikkerveer 1996; Warren *et al*. 1995; Slikkerveer 1999).

The 'new' ethnoscience makes a special effort not to overlook local and regional systems of knowledge and practice in a more dynamic context of processes of development and change. Its objective is to combine the formal and empirical approaches, and because of this characteristic, this ethnosystems methodology has shown to strengthen the understanding and clarification of the interaction process between indigenous and global knowledge in several study areas of East Africa, Indonesia and the Mediterranean (*cf*. Leakey & Slikkerveer 1991; Adimihardja 1995; Slikkerveer & Lionis 1996; Adams & Slikkerveer 1996).

This multivariate model is similarly based on the concept of 'ethnosystems' which broadens the perspective on culture and facilitates the assessment of the cognitive and behavioural components of particular groups or communities as 'systems' in a fairly holistic form. Such a definition of ethnosystems assists more dynamically in the elaboration of the concept of culture as the result of historical processes of acculturation. It accommodates the previously mentioned analysis of the processes of interaction between humans and their environment and its natural resources, allowing for the analysis of significant patterns of behaviour within the context of medicinal aromatic and cosmetic (MAC) plants.

As Slikkerveer (1989; 1999) states, the so-called Ethnosystems Approach embarks on a combination of three methodological principles, partially developed on the basis of concepts of the Leiden Tradition of Structural Anthropology at Leiden University. To attain an understanding of these complex indigenous systems, perceptions, beliefs, values and practices associated with biological and cultural diversity, a specific methodology has been developed by Slikkerveer (1991; 1995; 1999) which is now widely known as the 'Etnhnosystems Approach'. It shows the assessment and explanation of Indigenous Knowledge Systems (IKS) in various cultures on the basis of the anthropological and geo-historical concepts of the 'Participant's View' (PV), the 'Field of Ethnological Study' (FES), and the 'Historical Dimension' (HD), a combination which permits an in-depth analysis of the *emic* view of the local people on their life and livelihood.

The three primary concepts which form the basis of this approach focus on the understanding of *ethnospecific systems*, which are established on the accumulation of the past experience of many generations of indigenous people in their ecological and cultural setting. The objective of the approach is to analyse such dynamic concepts as beliefs, perceptions, practices and decision making processes which might be revitalised and integrated into the socio-economic development of various sectors of the communities involved. Accordingly, this *emic*-based approach extends the perspective on local peoples and their culture in a more holistic way. At the same time, this approach permits the analysis of the dynamic interface

and interaction between local and global systems of knowledge and technology, highlighting the potential of local knowledge and practices for sustainable community development.

In the field of applied anthropology, this approach focuses on the interaction between the local structures of perceptions and practices balanced against the outside forces of innovation, development and socio-cultural change. The development of a specific research methodology has emerged as a difficult requirement in efforts to establish a comprehensive body of indigenous people's knowledge, beliefs and practices in the field of Indigenous Knowledge Systems (IKS) and its sub-field of Traditional Ecological Knowledge (TEK). In the study, the analysis and comparison of local as well as regional indigenous knowledge and technology from the participants' *emic* point of view combined with the factors at the individual level should be raised to the level of the system to enable an actual comparative analysis to be made between variables related to both individuals and systems.

Unquestionably, the methodological implementation of the 'Ethnosystems Approach' in an endeavour to attain the goal of a description of the Indigenous Knowledge System of a particular population introduces a more dynamic character into the research is a useful tool to encapsulating the *emic* view of the approach into the analysis of the historical interaction processes between local and global systems. In this way it extends the research to include the component of patterns of human behaviour in the overall process. Consequently, important behavioural concepts are introduced into the scope of the Indigenous Knowledge which comprises the 'Participant's View' (PV), the 'Field of Ethnological Study' (FES) and the 'Historical Dimension' (HD), thereby substantiating the potential of the Ethnosystems Approach as an appropriate research methodology.

3.1.2 The Participant's View (PV)

The Participant's View (PV) includes the evaluation of world views, perceptions, attitudes, opinions and so forth of that participant as part of the fundamental structure of values, norms and belief systems which characterise particular cultures. It is associated with the anthropological concept of *emic* view of cultures from within and is therefore contrasted with the *etic* view from outside and forms the basic element of the local decision making process. While the target population's point of view of their own way of life, including their systems of management, use and conservation of natural resources, has become increasingly more important in the field of cognitive anthropology, it has also emerged as a major guiding principle in applied-oriented policy planning and implementation at the local level in the dynamic context of development and change (*cf.* Brokensha, Warren & Werner 1980; Warren, Slikkerveer & Brokensha 1995).

The important factors of the knowledge, practices and beliefs to be found among the local population can be studied and analysed by comparing them with their actual patterns of behaviour, in the context of interacting insider's and outsider's views. This generates a better understanding of the underlying determinants of human behaviour, which are important both to maintaining a local lifestyle and or the readiness of the people to adopt new methods and practices as part of the processes of development and change. In the study in Lembang, the respondents have been motivated to report their views of the use of medicinal, aromatic and aromatic (MAC) plants.

3.1.3 The Field of Ethnological Study (FES)

The 'Field of Ethnology Study' (FES) refers to a concept which was developed as a major principle in the 'Leiden Tradition' in Structural Anthropology during the 1930s. It developed from important ethnological fieldwork in Indonesia by Van Wouden (1935), who observed that besides the fairly diverse local cultural features in the Archipelago, a pan- Indonesian culture did exist differentiated by similar, comparative cultural characteristics such as regional language, kinship, social organization, pattern of woven cloths, perceptions and practices in agriculture, forestry and medicine (*cf*. De Josselin de Jong 1980; Schefold 1988). It refers to the subsequently introduced concept of 'culture area', in which certain cultural features are extended over a particular geographical region. Later this concept acted as the spur to comparative regional research among diverse ethnic groups within the same region. Viewed from this perspective, Indonesia, despite its wide variety of sub-cultures can be regarded as *one culture area*: the 'Indonesian Field of Ethnological Study'. Therefore, regardless of its diversity of sub-cultures, Indonesia can be considered one *culture area* namely: the Indonesian Field of Ethnological Study.

In the dynamic context of the processes of development and change, the benefit of regional comparative studies of sub-cultures in a larger culture area is that it produces a more realistic evaluation of cultures. Instead of normative comparisons with Western cultures, a fairly realistic study of the local cultures involved can be represented. The methodological advantage of using the concept of the 'Field of Ethnological Study' as part of the Ethnosystems Approach to carry out research in Lembang is revealed in the research strategy of studying of the four research communities as part of the more extensive *cultural area* of Lembang in Indonesia.

3.1.4 The Historical Dimension (HD)

The integration of the concept of 'Historical Dimension' (HD) – appropriate to any study of current situations – in the context of the 'Ethnosystems Approach' refers in particular to the historical analysis of complicated contemporary configurations, as well as to their religion, agriculture, natural resource management, conservation and medicine. Especially, in development research on trans-cultural settings of interacting inside and outside forces, contemporary-oriented approaches have been largely unsuccessfully in their attempts to untangle the dynamics of the origins and development of processes which have led to present-day complexes

In their attempt to understand the complex processes of development and change in various sectors of indigenous communities, anthropologists and historians have been working in cooperation to substantiate the 'Historical Perspective' more solidly. In their attempts the historically oriented methodology is complementary to the method of the ethnographic analogy (*cf*. Wigboldus & Slikkerveer 1991)[3]. A difficulty which is often faced is the problem of presenting complexes in cultural systems such as natural resources management. This can be identified largely because of the problem of the lack of appropriate evidence from the past which might explain the evolution of different ways in the exploitation of resources in the study area.

Up to now, comprehension of the interactive processes which have led to recent practices in the communication on MAC plants in Lembang has been hindered by a general lack of an adequate research method. Now it transpires that the Ethnosystems Approach is very

appropriate to this task as it permits a focus to be concentrated on the contemporary configurations and searches for ways to comprehend pre-contemporary processes in a retrospective mode. The operasionalisation of this approach in the study in Lembang is based on the comparative documentation of the knowledge, perceptions and practices at the local level, as these are identified in the analytical model of the study. The scope of the analyses of the factors which interact as determinants of the people's utilization of MAC plants eventually relates to the explanation and prediction of how such processes evolved in human-plant relations in the study area. Appropriate research methods and techniques encompass the collection of both qualitative and quantitative ethnobotanical data including the documentation of interacting determinant factors in relation to reported utilization of MAC plants in the four communities of Lembang.

3.2 Complementary Qualitative and Quantitative Surveys

3.2.1 Inventory and Qualitative Surveys

This study has utilised the descriptive and explanatory research method and the retrospective approach. The descriptive and explanatory study is used to obtain an objective insight into the process of communication behaviour on knowledge and practice of medicinal, aromatic and cosmetic (MAC) plants among the members of *arisan* in the community and its aim is to document, analyse and explain the underlying factors of such communication behaviour at the individual level. In this way, the study also analyses the use of the membership of an *arisan* as a means to acquire such specific knowledge about MAC plants with aview to their utilisation in households in Lembang, a sub-district in the regency of Bandung in the province of West Java. The research uses both complementary qualitative and quantitative methods for data collection and analysis.

In medical anthropology and ethnobotany, much attention is paid to health behaviour and the prevention of illness in the context of the local culture and community; and from the perspective of both *emic* and *etic* approaches. The conceptual model built on communication behaviour on MAC plant knowledge and practice is rather complicated, but it has a strong theoretical base which contributes substantially to the understanding of the interaction among various factors involved in the communication behaviour of *arisan* members on MAC plant knowledge and practice.

In this study, the data are collected using various research methods. The purpose of the qualitative approach is to identify important themes, categories, dimensions and interrelationships. These are used in the first stage of the data collecting process, before the quantitative questionnaire are being designed.

The methods used for the qualitative research include observation, in-depth interviews and open-ended interviews with key informants. Content analysis is carried out involving the coding (or indexing) of segments of texts which refer to the various topics and categories. Subsequently, segments of the same topic are sorted and compared with the interviews. Observations and focus group discussions (FGD) involving the participants are conducted in an effort to explore and elaborate on issues linked to communication on MAC plants.

In order to collect community-based information about socio-cultural conditions of the area and the communication about MAC plants, a preliminary study has been conducted by using the following techniques:

- Four Focus Group Discussions (FGD), involving housewives, teachers and employees who are *arisan* members, with a view to collect information on socio-cultural conditions related to MAC plant knowledge and practice.
- Ten in-depth interviews to probe knowledge of MAC plants and their use, home-remedies, traditional medicines and also the rural primary health care services.
- Institutional level information was also used to obtain data on availability, accessibility, affordability and acceptability of MAC plant knowledge and practice.

The quantitative method is a method to collect data by means of a survey carried out using a structured questionnaire. The related analysis uses a statistical procedure with a stepwise multivariate analysis to identify the relations between the factors at the individual level which influence the communication behaviour on MAC plant knowledge and practice by members of the *arisan*. The study population is composed of the spouses of the household heads who are members of the *arisan* during the twelve months preceding the actual execution of the research. The selected informants are the chairwomen of *arisan* associations, some officials of the Lembang District Office and a number of members of the *Pembangunan Kesehatan Masyarakat Desa* (PKMD) in the district of Lembang.

As the general aim of this study is to document, analyse and explain the role of various categories of factors which are involved in the complicated process of the utilization of MAC plants from the local people's perspective (*emic*), it is essential that the study of the significant 'invisible' factors of knowledge, perceptions and beliefs pays special attention. In the interaction between background factors and intervening factors in relation to the members' patterns of communication behaviour on MAC plant knowledge and practice, generally speaking these factors play a determinant role and this is later documented during the fieldwork of quantitative household surveys in the research area in Lembang.

Special attention is paid to the role of the *arisan* associations, since they are enabling the local people to exchange information on MAC plant knowledge and practice within these local institutions which eventually may improve the health situation of these members and their families. Hence, the above mentioned specific ethnoscience research approach known as the 'Ethnosystems approach' is introduced as it is capable to include the different categories of relevant factors into the analytical model (*cf*. Slikkerveer 1989; Leakey & Slikkerveer 1991; Slikkerveer 1999).

3.2.2 Quantitative Surveys in Four Communities

The design of the quantitative survey involves sampling, impersonal data collection, and statistical analysis. Household surveys usually draw their samples from large populations, also known as 'target populations'. By studying a properly selected representative sample, social scientists are able to make accurate inferences about the population at large. A random sample is selected by randomizing procedures, using tables of random numbers, which can be found in most textbooks on statistics. In random sampling, all members of the population have an equal statistical chance of being selected as a representative of that population.

Certain aspects of human life, however, are difficult to measure; they can be studied by in-depth observation to extrapolate the knowledge, practice, and belief systems by assuming that *emic* perceptions and interpretations are subjective. However, Bernard (1994) notes that the subjectivity of the research topic does not imply the subjectivity of the research method used to assess the topic. Furthermore, there are two distinct views about quantification in social research. This 'qualitative-quantitative' division is associated with underlying

differences in views of discipline, method and result. As Hahn (1999: 13) states, '*some social researchers regard qualitative information which examines concepts, values and the meaning of sociocultural life as the essence and foundation of anthropological knowledge*'. The primary goal is to find an explanation by creating a coherent description or 'making sense' of information. Yet, other social researchers view quantitative information and statistical analysis as the basic source of anthropological knowledge; although 'making sense' of information can also be a goal of quantified analysis. Many social researchers take the' middle of the road' position in this qualitative-quantitative division, and use both approaches in a complementary fashion, each in support of the other.

As the general aim of this study is to document, identify and understand the process of communication on MAC plant knowledge and practice as shown by *arisan* members, it seeks to link up with current methods and techniques developed and adapted to studies of behaviour. Hence, this approach involves the measurement of different categories of factors which are shown in these studies to influence or determine the related patterns of behaviour in a differential way.

As Kohn *et al.* (1996) state, the household survey serves as a device to obtain useful data, irrespective of the availability of adequate records. If the goal is to obtain information related to behaviour patterns of individuals, a survey is necessary. Although it may be possible to confirm the 'hard' socio-demographic factors of age, sex, education, marital status etc. empirically outside the household surveys, such 'soft' factors as knowledge, perceptions, beliefs and opinions are best obtained by means of quantitative household surveys.

Since the qualitative study indicates that the type of environment plays an important role in the communication on MAC plant knowledge and practice among *arisan* members; four research locations in the form of a *desa* or village are selected on the basis of the type of environment in which they are situated: rural and semi-rural; urban and semi-urban. Although the execution of the quantitative household surveys in four communities forms a major endeavour in the overall research process, involving a huge input from the research team, this phase in the research has provided important data collection for the final analysis which can be used to represent the overall situation in Lembang.

The quantitative study survey comprises two phases: the pre-testing of the questionnaire and conducting the actual household surveys. The pre-testing of the questionnaire is an attempt to determine whether the questions in the survey can be understood by the respondents and would result in reliable responses. Another purpose is to familiarise the interviewers with the interviews, the questions and the way in which the surveys should be conducted so that the proper answers can be obtained. The pre-test is conducted in two villages, namely *Kayuambon* and *Cibogo*, and involved a total of twelve respondents from the two villages. The interviewers formed four team members, each interviewing three respondents. The target group is composed of chairwomen of *arisan* associations, members of *arisan*, village government administrative officials, and members of the *Pemberdayaan Kesejahteraan Keluarga* (PKK) (Family Welfare Empowerment).

Apparently, the type of environment prevailing in the communities plays an important role in the communication on MAC plant knowledge and practice, hence the following quantitative surveys are carried out in four pre-selected communities, namely *Cibogo,* representing the rural environment; *Jayagiri* representing the semi-rural environment; *Gudangkahuripan*, representing the semi-urban environment; and *Kayuambon*, representing the urban environment.

The total number of respondents is 120, while each community allocated thirty randomly chosen respondents who all are *arisan* members, representing thirty households. The

interviewers had previously visited the location of the respondents, so that by the time the survey is carried out, the interviewer would not lose time. This approach would also enable them to return to the respondents in case that they may need additional information from these respondents.

3.2.3 Structure of the Household Questionnaire

The main objective of conducting the complementary qualitative and quantitative surveys is to confirm the essential findings of the qualitative and quantitative data in terms of measuring the spread of related factors and to assess the interactive process in relation to the reported communication behaviour on MAC plant knowledge and practice of the respondents/*arisan* members. The formal questionnaire consists of five main sections, based on the design of the conceptual model which is described in the next paragraph. Each questionnaire encompasses the following parts, structured for recording the various categories of factors related to the respondents:

- Section A: independent variables:	
A.1. predisposing factors, including:	- socio-demographic variables - psycho-social variables
A.2. enabling factors, including:	- socio-economic status variables
A.3. perceived need factors	- satisfaction about MAC plant knowledge in *arisan* variables
A.4. institutional factors:	- *arisan* association variables - *toga* programme variables
- Section B:	- intervening variables, including: - exchange of information on *toga* variables
- Section C:	- dependent variables: - communication on MAC plants variables
- Section D:	- additional questions on respondents' expectations and opinions.

The total number of questions in the above-mentioned sections A - D amounts to 102, each of which is numbered and provided with answer-categories, rank-ordered according to the experience obtained during the qualitative survey and the subsequent pre-testing of the draft questionnaire. Each set of answer categories also includes a category 'other', in order to allow for the collection of additional information on specific issues of the related questions. In Chapter V, there is a description of the household surveys in the four sample villages. The target population covers the entire distribution of communities in the research area from which a random sample is drawn from among all spouses of all household heads in order to achieve maximum representation of results.

3.3 Selection of the Analytical Model

3.3.1 Construction of the Analytical Model

On account of the specific features of the communication behaviour on MAC plants in developing countries, a multi-dimensional model is needed in order to describe, analyse and explain the complex processes of interaction among factors involved in the communicationbehaviour of *arisan* members on MAC plants in the specific context of the Lembang area.

In order to overcome the shortcomings which often arise from the study of a limited series of factors, an attempt is made to introduce more dimensions into the analysis by examining the role of various determinants of behaviour in terms of blocks of variables. Subsequently not only the direct relationship between independent and dependent variables is examined, but the interrelation and interaction between variables is considered in conjunction with communication. As mentioned above, a differentiation in the dependent variables is introduced in accordance with the social reality of different types of communication behaviour on MAC plants: knowledge and practice concerning health promotion and disease prevention, and knowledge and practice concerning the treatmen of illness. Consequently, in the analytical model, the dependent variable of communication on MAC plants is divided into a) communication on MAC plants for health promotion and illness prevention, and b) communication on MAC plants for treatment.

The model has been developed on the basis of national and comparative, international experience of the application of a general systems approach in order to ascertain the complex forces in behaviour, as in this case in specific communication behaviour of the members of the *arisan*.

In accordance with the above mentioned categories of independent, intervening an dependent variables, the analytical model is built up on comoarative blocks of variables as indicated below in Paragraph 3.3.3

3.3.2 The Multivariate Model of Communication Behaviour

The active communication process in Lembang relevant includes a reflection of the ‘back to nature’ movement, especially in healt-related matters. The process of interacting variables at the individual level of the respondents/*arisan* members is based on various categories of predisposing, enabling, institutional and intervening variables interacting with dependent variables encompassing the differentiation in communication behaviour. The purpose of an analysis of such interaction between background characteristics related to resulting human communication behaviour is to identify particularly significant factors as determinants. Each of these factors has the potential to show certain variability in their impact on the behaviour pattern reported over a period of twelve months preceding the surveys.

The separate analysis of each determining or independent variable in relation to the outcome or dependent variable requires the use of a fairly simple statistical technique, generally involving a two-way table. Such so-called ‘data matrix’ is constructed with objects as rows and variables as columns. If the various categories of factors in the analysis are grouped together as variables in data sets, the basic linear technique of simply bringing into direct relation the first and the second data set, is called a ‘bivariate analysis’. In the representation of the analysis in the model, the factors are redefined as variables.

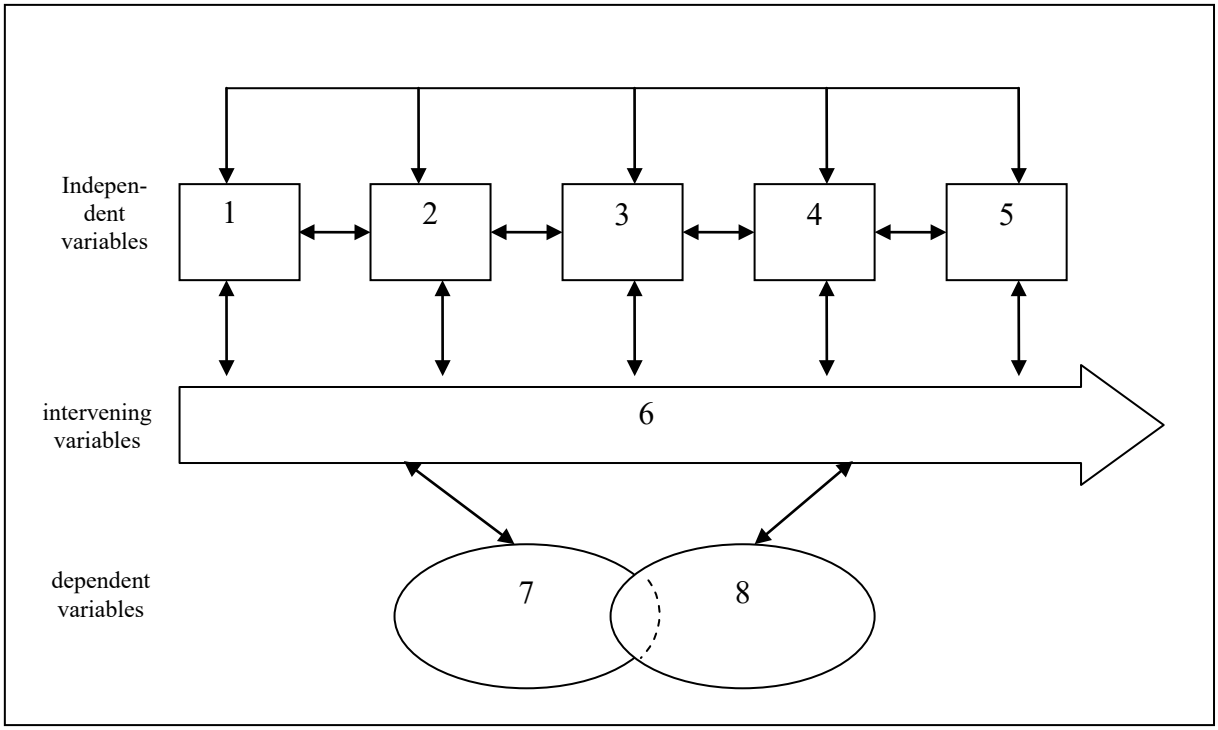


Figure 3.1: Conceptual model of relationships between independent intervening and dependent variables of communication on MAC plants in Lembang
(Source: Slikkerveer 1990; Agung 2005).

This technique could reveal possible interaction between one independent variable – for instance,'age' of the respondent – with one dependent variable – for instance, the reported communication behaviour on specific MAC plant knowledge or practice.

However, complications occur in the analysis when all independent and intervening variables are introduced together into the analysis. Also a problem may occur as a consequence of the interactive influence among and between the data sets of independent variables in relationship to their influence on the data sets of dependent variables. These problems have been solved by the development of multivariate analysis techniques.

Among the most common multivariate analysis techniques are the 'basic correlation analysis', used to measure the general relationships between variables, 'cluster analysis' to assess similarities or dissimilarities among variables, 'principal component analysis' to determine variance among variables, and 'regression analysis' to establish quantitative relationships among variables and prediction.

A great virtue of the regression analysis is that it also enables the prediction of values of the outcome*, i.e.* the dependent variables from a group of independent and intervening variables. Therefore, it is an appropriate tool to explain and predict behaviour as a dependent variable from a group of independent background, *i.e.* predictor variables. Consequently, these multiple regression models also include the analysis of interaction between and among blocks of variables. For the measurement of the predicting value of different sets (or 'blocks') of background variables in interaction with each other and with a set (or 'blocks')of intervening variables, the choice of a non-linear analysis has the advantage of being a technique which might lead to different solutions from different starting points (*cf*. Van der Burg 1983).

The study in Lembang applies a selected multivariate analysis as it is able to cover all the variables in the survey without discriminating between variables or 'blocks' of variables. Moreover, it also facilitates conclusions to be drawn on correlation, interaction and predictability using the canonical correlation analysis of the total number of variables. Since the aim of this study is to develop an explanatory model of communivation behaviour concerning the knowledge and practice of MAC plants, a multivariate analysis is used in order to examine the correlation among 'blocks' of independent background variables and 'blocks' of intervening variables in interaction with the 'blocks' of dependent communication behaviour variables of MAC plant knowledge and practice in the model. The general aim of this study is to analyse and explain the role of various categories which seem to be involved in the complicated process of communication behaviour on MAC plants in Lembang institutions, as well as to see how some of these variables can be managed though policy interventions and regulations. In this case, the most appropriate analytical model is the specifically at Leiden University developed multivariate model.

Recently, this specific multivariate model, known as the *Non-linear Canonical Correlation Analysis* (CANALS), has been further elaborated into the OVERALS analysis in order to focus on the interaction between two sets of variables, offers several advanced benefits over other models, such as:

- It is highly interactive, although it is not causality-based;
- It is able to discriminate between variables: a capacity to distinguish one variable which is more important than the other, enabling ranking or priority listing;
- It can categorise variables in terms of independent, intervening and dependent variables;
- Applied to quantification, it is able to transform subjective variables at the individual level to objective variables at the system level;
- In the conceptual frame work, this model reveals the so far 'invisible' socio-cultural factors as variables inherent in a highly interactive and multidimensional process rather 'visible' in the final analysis (*cf.* Agung 2005).

3.3.3 Blocks of Factors: Variables, Indicators and Categories

Defining the assignment of numerals to objects is considered rather comprehensive when the process of factors is measured. The operationalisation of communication on MAC plants is composed of a number of associations which indicate a concept, converting it into an operational definition known as a variable which can be measured.

The measurement techniques are then applied to units of its indicators and the related categories. If the operational definition indicates that the concept should be measured by a combination of various variables, for instance, 'socio-economic status' (SES), the measurement process is then also defined as the correlation among its components.

In the study of communication on MAC plants in Lembang, the various 'blocks', such as predisposing, perceived need, enabling, institutional, intervening and dependent factors, are operationalised in accordance with the previous steps mentioned in the measurement process of the Tables 3.1 – 3.8.[4]

In line with the previously mentioned Figure 3.1, the multivariate model of the study is constructed on eigtht categories or 'blocks' of factors, respectively:

Block 1 Predisposing factors (socio-demographic factors);

Block 2 Predisposing factors (psycho-social factors);

Block 3 Enabling factors (socio-economic status factors);

Block.4 Perceived need factors (satisfaction about MAC plants in *arisan* factors);

Block 5 Institutional factors (*arisan* association and *toga*);

Block 6 Intervening factors (exchange of information about *toga* factors);

Block 7 Communication on MAC plant knowledge and practice for health promotion and illness prevention factors;

Block 8 Communication on MAC plant knowledge and practice for treatment factors.

Block 1 and Block 2: Predisposing Factors

The factors concerned are socio-demographic and psycho-social factors of respondents at the individual level. The socio-demographic factors are composed of background variables such as 'age', 'formal education', 'religion', 'occupation', 'size of household' and 'marital status'. Previously, it was stated that the factor 'gender' was initially recorded, but had to be deleted from the analytical model, since the actual research is conducted among the partners of the household heads who are all women and also members of the *arisan* association in Lembang.

The same arrangement occurred in the predisposing socio-demographic factor of ethnicity since almost all members of the *arisan* association belong to the same Sundanese ethnic group in the research area. The assessment of variables in this category consists of the documentation of the so-called 'hard' background variables collected during the household surveys, and therefore their measurement does not require specific techniques of documentation.

Table 3.1 shows the composition of predisposing socio-demographic factors in Block 1 in terms of variables, indicators and categories of the model at the individual level. Table 3.2 shows the composition of the predisposing psycho-social factors in Block 2 in terms of variables, indicators and categories of the model at the individual level. Since the assessment of the variables in this category includes the documentation of 'soft' factors collected during the household surveys, their measurement needs specific techniques of documentation.

Table 3.1: Block 1: Predisposing factors: concepts, variables, indicators and categories.

Concepts	Variable	Indicator	Category
Socio-demographic characteristics at individual level	age	number of years	0-5; 6-10; 11-15; 16-20; 21-25; 26-30; 31-35; 36-40; 41-45; 46-50; 51-55; 56-60; 61-65; 66-70; 71-75; 76-80; 81+
	formal education	type of school	none; elementary s.; junior high s.; senior high s.; academy/univ.
	non-formal education	non-formal education	yes; no
	ethnicity	ethnic group	Sundanese; Javanese; *Batak; Padang*; other
	religion	type of religion	Islam; Protestant; Catholic; Buddhism; Hinduism; other
	profession	main profession	retired; housewife; civil servant; entrepreneur; other
	additional occupation	additional occupation	none; florist; printer; telephone-kiosk attendant; seamstress; merchant; handicraft; beautician; other
	membership	membership of sort of institution	none; *arisan*; library; PKK; other
	household size	number of HH members	real numbers

The qualitative part of the study is used to identify the margins, in order to achieve a non-normative but realistic validation of such cognitive phenomena within the domain of the communities concerned. This step is followed by the execution of a nominal distribution. Later, the total range of the variation of the variables is defined on the basis of cumulative scores of indicators, which permits a differentiation in levels to be made. Finally, all the answer scores are sub-divided into five equal answer categories, reflecting the actual distribution within the sample.

Table 3.2: Block 2: Predisposing factors: concepts, variables, indicators and categories

Concept	Variable	Indicator	Category
Psycho-social characteristics at individual level	knowledge of MAC plants for health promotion	level of knowledge	little knowledge; average knowledge; much knowledge
	knowledge of MAC plants for illness prevention	level of knowledge	little knowledge; average knowledge; much knowledge
	knowledge of MAC plants for remedies of treatment	level of knowledge	little knowledge; average knowledge; much knowledge
	belief in MAC plant for health promotion	level of belief	little belief; average belief; much belief
	belief in MAC plants for illness prevention	level of belief	little belief; average belief; much belief
	belief in MAC plants for treatment	level of belief	little belief; average belief; much belief
	opinion of role of *arisan* in MAC plants for health promotion	level of opinion	low; medium; high
	opinion of role of *arisan* in MAC plants for illness prevention	level of opinion	low; medium; high
	opinion of role of *arisan* in MAC plants for treatment	level of opinion	low; medium; high

This strategy facilitates the categorisation of data in a scale of generally three similar categories of measurement of levels, built up from cumulative answer scores (ΣM), ranging from ‘little’, through ‘average’ to ‘much’. This example shows that the level can be assessed by letting the respondent score his/her answer into one of these three categories. The superiority of this technique is that the knowledge level of respondents is measured on the basis of local - *emic* - parameters, and not on the basis of external – *etic* - parameters.

Block 3: Enabling Factors
These enabling factors describe characteristics which are related to the socio-economic status (SES) of the *arisan* member at the individual level. This status is established on the basis of various related indicators such as family income, type of house owned, area of land owned, type of vehicle owned, state of house, livestock possessed and household budget, which are subjected to a factor analysis in order to acquire the overall status of the surveyed households. Table 3.3 shows the composition of the enabling factors in Block 3 in terms of variables, indicators and categories of the model at the individual level.

Table 3.3: Block 3: Enabling factors: concepts, variables, indicators and categories.

Concept	Variable	Indicator	Category
Socio-Economic characteristics at individual level	socio-economic status (SES)	level of SES	poor; average; well-to-do

Block 4: Perceived Need Factors
These perceived need factors describe characteristics which are related to the perceived satisfaction of the *arisan* members at the individual level with the *arisan* activities in the exchange of information about MAC plant knowledge and practice.

Table 3.4: Block 4: Perceived need factors: concept, variables, indicators and categories.

Concept	Variable	Indicator	Category
Perceived satisfaction at individual level	satisfaction with *arisan* activities on MAC plants	level of satisfaction	little satisfaction; average satisfaction; much satisfaction

Slikkerveer (1990: 74) states that the perceived need factor is: '*a major determinant of behaviour'* and Koos (1954) indicates that socio-cultural determinants are strongly influencing the perception and interpretation of illness to varying degrees and this has subsequently been confirmed by extensive medical anthropological and sociological research. In accordance with this study, perceived satisfaction is defined as the observation and interpretation of the *arisan* institution activities which initiate the decision-making process of information exchange and communication on MAC plants. Table 3.4 presents the composition of perceived need factors in Block 4 in terms of variables, indicators and categories of the model at the individual level.

Block 5: Institutional Factors
These institutional factors represent characteristics which are related to the *arisan* association in the survey at the system level. The frequency of participation in the *arisan* activities could be expressed in terms of the geographical or financial accessibility of the *arisan* association. Slikkerveer (1990) states, that in general sociological theory, these concepts are known as 'availability' and 'accessibility' of services and in recent studies of developing countries they have been extended to include also functional and cultural dimensions (Slikkerveer 1990). Table 3.5 shows the composition of institutional factors in Block 5 in terms of variables, indicators and categories of the model at the system level.

Table 3.5: Block 5: Institutional factors: concepts, variables, indicators and categories.

Concept	Variable	Indicator	Category
Arisan association	frequency of *arisan*	frequency of *arisan* meeting in a month	Once; twice; three times; other
	kind of activities in *arisan*	kind of activities in *arisan*	Presentations; demonstrations; *arisan* lottery; other

Block 6: Intervening factors

These intervening factors represent characteristics related to external dynamic interventions at the local community level. Such dynamism is generally regarded as the external 'agents of change' which impact on factors at both the individual and system levels to influence or even create new behaviour which is different from the traditional ways of life.

Table 3.6: Block 6: Intervening factors: concept, variables, indicators and categories.

Concept	Variable	Indicator	Category
Intervening characteristics at the system level	exchange of MAC plants	knowledge of MAC plants	low; average; high

The influx of information through the mass media, printed as well as in electronic form, provide local people in Lembang with new perspectives on and knowledge of both traditional herbal medicine and modern medicine. Consequently, in the treatment of a sick household member the systems approach shows that communication in various medical systems can be regarded as a specific form of provider behaviour resulting from a complex pattern of behaviour and interaction where during the communication process specific knowledge is provided.

Block 7 and Block 8: Communication on MAC Plants for Health Promotion and Illness Prevention, and Communication on MAC Plants for Treatment Factors

Communication on MAC plants for health promotion and illness prevention, and for treatment factors are composed of the two related categories of characteristics in the model which are the result from the dynamic process of interaction between and among independent (predisposing, enabling, perceived need, and institutional) variables and intervening variables which are interacting with the variables of the reported communication behaviour on MAC plants in a differential mode.

These dependent variables also indicate the potentially corresponding changes from non-communication to communication on MAC plant knowledge and practice. As indicated above, the dependent variable of communication behaviour on MAC plants is operationalised by a sub-division into two categories: communication on MAC plants for health promotion and illness prevention, and communication on MAC plants for treatment, so that a clear and differentiated analysis and explanation of the resulting patterns of reported communication behaviour on MAC plants can be obtained. In combination, the dependent factors in Blocks 7 and 8 present the overall patterns of communication behaviour - as reported by respondents over the previous twelve-month period of time in the research area - on MAC plant knowledge and practice, not only for health promotion and illness prevention, but also for the treatment of illness.

Table 3.7: Block 7: Dependent factors of communication behaviour of MAC plants for healthpromotion & illness prevention: concepts, variables, indicators and categories.

Concept	Variable	Indicator	Category
Dependent factors of communication on MAC plants at the individual level	communication on MAC plant knowledge and practice	level of communication	'little', 'average', 'much'.

Table 3.7 presents the composition of dependent factors of communication behaviour on MAC plants for health promotion and illness prevention in Block 7 in terms of variables, indicators and categories of the model at the individual level.

Table 3.8: Block 8: Dependent factors of communication behaviour on MAC plants for treatment: concepts, variables, indicators and categories.

Concept	Variable	Indicator	Category
Dependent factors of communication on MAC plants at the individual level	communication on MAC plant knowledge and practice	level of communiction	'little', 'average', 'much'

Table 3.8 presents the composition of communication behaviour on MAC plants for treatment in terms of variables, indicators and categories of the model at the individual level. In the final analysis, the dependent variables of communication on MAC plants for health promotion and illness prevention, and the communication on MAC plants for treatment in Blocks 7 and 8 are joined to affirm the concept of integrated communication on MAC plants for health promotion and illness prevention and MAC plants for treatment.

The presentation of the results of the execution of Phase 2, including the preparation, exploration and the situational analysis, followed by the execution of Phase 3 concerning the qualitative study, is further explained in Chapter V.

In addition, the description of the quantitative surveys is presented in Chapter VIII. After the elaboration of the methodological inputs into the conceptual model of this study in Lembang, it is feasible to document, analyse and explain the relationships and interactions among the various blocks of independent and intervening variables in relation with the blocks of dependent variables of communication behaviour in the model.

First, however, the next Chapter IV presents a sociographic description of the research setting of the study in Lembang, West Java.

Notes

1. While the term factor mostly refers to a characteristic of individuals or systems, in this context it is often regarded to predispose, enable or intervene in human behaviour. The related variable or set of variables is assumed to be equivalent in the context of analytical or model-related methodologies, such as the socio-demographic factor of 'age' of a respondent transforms into the variable 'age' in the analytical model.

2. As Slikkerveer (2006: 24) indicates: '*The etic perspective relies upon the extrinsic concepts and categories that have meaning for scientific observers (e.g. per capita energy consumption)'.*
3. The complementarity of the historical and contemporary approaches to the reconstruction and understanding of agricultural agro-systems has been aptly demonstrated by Wigboldus and Slikkerveer (1991), who present their new approaches from Wageningen and Leiden in applying the ethnosystems methodology to the study of agricultural development in Kenya, East Africa. In this approach special attention is paid to processes and changes in land-use and agricultural production, plants, crops and cropping, tools and tillage, vegetation and soil types in conjunction with the indigenous agricultural knowledge systems. For a further assessment of the quantitative study and analysis of traditional agricultural systems in East Africa, see also Leakey and Slikkerveer (1991) and the INDAKS Report (1994).
4. The eight 'blocks' of factors represented by the concepts, variables and indicators have been formed in accordance with the specifications and definitions, as further elaborated in the Questionnaire (2005). Following the methodological achievements made in the quantitative approaches in ethnoscience with regard to the understanding of human behaviour, the multivariate model of the study in Lembang is built on eight categories or 'blocks', as indicated in Figure 3.1.

Chapter IV RESEARCH SETTING: INDONESIA AND LEMBANG

This chapter presents an overview of the Republic of Indonesia and the research area, Lembang, and its location within the province of West-Java. It contains a synopsis of the historical background of Indonesia, commencing from its ancient history, through the Dutch period up to and after independence.

Located in South-East Asia, its strategic position on a crossroads between two oceans, the Pacific and Indian and two continents, Asia and Australia, has inevitably influenced the social, cultural, political and economic life of the country. This overall approach tries to describe the unity of the Indonesian Archipelago, which is made up of various ethnicities and has a huge population. Importantly, the shift of the world's trade centre from the Atlantic to the Pacific Ocean, to the Pacific Rim countries, especially of those in South-East Asia, has also been taken into account (Naisbitt & Aburdene 1990).

The socio-graphy of Lembang is also described and this includes a description of the Sundanese people and their culture, followed by a description of the socio-cultural and economic profile of the Sundanese community in the area.

4.1 Indonesia: A Newly Developing Country

4.1.1 Historical Background

Indonesia is an archipelagic country made up of 17,508 larger and smaller islands, of which about 6,000 are inhabited. It stretches 5,000 km from east to west and over 2,000 km from north to south, making it the largest archipelago in the world. Its location in South-East Asia, at a crossroads between the Pacific Ocean and the Indian Ocean, and bridging two continents, Asia and Australia, has ensured it a strategic position and its geographical position has constantly influenced the socio-cultural, political and economic life of the country.

This archipelagic territory stretches along the Equator, from $6^0$08' North Latitude to $11^0$15' South Latitude and from $94^0$45' to $141^0$05' East Longitude and is divided into three groups. The first part is made up of the large islands of Java, Sumatra and Kalimantan and all the other smaller islands in-between located on the Sunda Shelf which extends from the coasts of Malaysia and Indo-China, where the sea-depth does not exceed 700 feet. The second part is the easternmost area; Irian Jaya, which is the western part of the island of New Guinea and the Aru Islands is located on the Sahul Shelf, which stretches northwards from the Australian coast. Here, the sea-depth is similar to that of the Sunda Shelf. The third section is situated between these two shelves and is made up of the island groups of Nusa Tenggara, Maluku and Sulawesi, where the sea-depth reaches 15,000 feet.

The Indonesian sea area is four times larger than its land area, which is approximately 1.9 million square kilometres (including an exclusive economic zone) and encompasses about 81 per cent of the total area of the country. Indonesia is one of the few countries which include water within the boundaries of their territory.

It consists of five major islands which are Sumatra, Java, Kalimantan, Sulawesi and Irian Jaya, the Indonesian part of the island of New Guinea and numerous smaller islands. The country is predominantly mountainous with approximately 400 volcanoes, of which 100 are still active. Various rivers water the country and serve as useful transportation arteries in certain islands. Among the most important are the Musi, Batanghari and Indragiri in

Sumatera; the Kapuas, Barito, Mahakam and Rejang in Kalimantan and the Memberano and Digul in Papua. In the most heavily populated island, Java, rivers such as the Bengawan Solo, Citarum and Brantas are essential to irrigation.

The land area is decked with tropical rain forests. As just said, Indonesia is predominantly mountainous with approximately 100 active volcanoes spread throughout the length and breadth of the country. A number of mountains are higher than 9,000 feet; of which the highest is the snow-covered Mandala Top, in the Jaya Wijaya mountain range in Irian Jaya.

The climate in Indonesia is tropical and characterised by two seasons, the dry and rainy, which alternate every six months. As a tropical country, it has an average humidity of between 70 – 90%.

In such a geographical diverse country, it is not surprising that about 583 vernaculars and dialects are spoken by different ethnic groups of the population including the Sundanese, Javanese, Batak, Acehnese and many more. In spite of this diversity, Indonesia has one national language, *bahasa* Indonesia, which is spoken all over the country. Although *bahasa* Indonesia has become the lingua franca, the various ethnic groups continue to speak their own local language and dialect.

Trade relations are established between South India and Indonesia at least a couple of thousands years ago, Sumatra, then called *Swarna Dwipa* (the Island of Gold), Java, later called *Java Dwipa* (the Rice Island), and *Crivijaya*, a Hindu Kingdom in South Sumatra all traded with Nalanda in Eastern India. Besides these economic relations, there are also religious or cultural exchanges. Later, diplomatic relations evolved and trade relations in which a wide range of goods are exchanged flourished. Simultaneously with the arrival of Indian merchants and priests, the Hindu religion and Buddhism spread peacefully and gradually throughout the Archipelago. During this early period, indigenous kings adopted the Hindu or Buddhist religions.

The Greek explorer and geographer Ptolemy of Alexandria wrote about Indonesia and described Java as a country with such marks of civilization as a good system of government and advanced agriculture. He even mentioned the batik printing process of cloth which the people already applied. Chinese chronicles mentioned the existence of diplomatic relations between Java-Dwipa and China (132 AD). Around AD 502, Chinese historical records mentioned the existence of a Buddhist kingdom in South Sumatra, most likely in the neighbourhood of present-day PaLembang. Another well-known Buddhist kingdom was that of the Cailendra in Central Java, and it was in this period (AD 750-850) that the famous Buddhist temple Borobudur was built.

Around about the same time, in West Java the Padjadjaran Kingdom of which Pakuan was the capital was founded by King Purana. Later, it was succeeded by the Kingdoms of Taruma Negara, Kawali and Parahyangan Sunda. In the eastern part of the island, the kingdoms in East Java are later succeeded by the realm of Majapahit under King Hayam Wuruk. What has been called the Majapahit Empire became the most powerful kingdom in the history of Indonesia. It had dependencies in territories beyond the borders of the present archipelago, in such places as Champa in the north-western part of modern day Vietnam, in Cambodia and the Philippines (1331-1364). King Hayam Wuruk, assisted by his premier Gajah Mada, succeeded in uniting the whole archipelago under the name of Dwipantara.

Furthermore, Muslim merchants from Gujarat and Persia visited the Archipelago to trade and during their commercial dealings they began to propagate Islam among the Indonesian people, particularly along the northern coastal area of Java. Later, the Sultan of Demak, who converted to Islam, spread Islam westwards to Cirebon and Banten and eastwards to the kingdom of Gresik. He eventually brought about the collapse of the powerful kingdom of

Majapahit. After it crumbled, Islam spread rapidly to other parts of the country. Thereafter, the descendants of the kings of Majapahit withdrew to the islands of Bali and Lombok, and afterwards they and their people, the eastern part of Lombok converted to Islam. In the west, Sunda Kelapa, which had become the capital of the kingdom of Padjadjaran, was conquered by Falatehan (1527), who hailed from the Islamic sultanate of Demak, and was renamed Jaya Karta, meaning 'the Great City'. Its present name, Jakarta, originates from this name.

Earlier, in 1511, in their pursuit of spices the Portuguese, who had just conquered the Islamic kingdom of Malacca, arrived in Indonesia. They are later followed by the Spaniards. Competitors in the quest for spices, the Dutch succeeded invading Kupang in western Timor (1651). However, the formal boundaries of the territories controlled by the Dutch and Portuguese were not settled until more than 200 years after the Dutch occupied Timor. In 1859, the Dutch signed a treaty with Portugal, in which it was decreed that the Dutch would occupy the western part and Portugal the eastern part of the island. Hence, Portugal secured full control over East Timor until it left the region (1975), after the hand- over to Indonesia.

Meanwhile, the arrival of Dutch ships in Banten in 1596 was also an event which would alter the face of the island of Java once and for all. It was a prelude leading to 350 years of Dutch domination. In a quest to achieve more efficient and better organised mercantile trade, especially in Indonesian spices, or even better, in order to create a spice monopoly, the Dutch established the *Vereenigde Oost Indische Compagnie* (the Dutch East India Company or VOC) in 1602. After the liquidation of the VOC in1799, the Dutch government exerted a firm hold on the vital territories of the country, in which people were forced to submit their agricultural produce to Dutch merchants. This was the moment in time which led to the actual establishment of Dutch colonialism in Indonesia. In the initial years of the VOC, it was Jan Pietersz Coen, Governor-General of the VOC, who chose Sunda Kelapa as its capital and renamed it 'Batavia'.

During the wars in eighteenth-century Europe, when Holland was occupied by France, what were then known as the Netherlands Indies fell under the government of the British East India Company from 1811 until 1816. Sir Thomas Stamford Raffles was appointed Lieutenant-Governor of Java and its dependencies. He introduced a new system of land tenure, replacing the detested VOC forced agricultural system, which decreed which crops were to be grown and submitted to the Government. Interested in the people and the culture, he also excavated *Borobudur* temple and other temples dating from the Hindu-Buddhist era. He also wrote his famous book 'The History of Java', in which he described the sophisticated level of civilisation and culture in Java. When the French occupation of the Netherlands ended with the fall of Napoleon, the British and Dutch signed a treaty in London (1814), in which it was agreed that Dutch colonial possessions dating from 1803 and thereafter should be returned to the Dutch Administration in Batavia. Eventually, the Indonesian Archipelago was recovered from the British by the Dutch in 1815. In order to fulfil the government demand that more be produced, in 1830 the Dutch introduced the Cultural System. Instead of taxes paid in money, it demanded the produce of one-fifth of a peasant's land; consequently the communities suffered the misery of its economic effects.

As time wore on the Dutch attempt to reinforce their colonial rule aroused widespread revolts among the Indonesian people eager to seize freedom. After long struggles, the nationalist movement succeeded in achieving the establishment of the *Volksraad* (People's Council), but this body was actually powerless as its status was purely advisory. Members were indirectly elected through regional councils; and some were nominated by colonial officials. Besides the *Volksraad*, there was another council, the *Raad van Indie* (the Council of the Indies), whose members were appointed by the Government. At this time, heedless of

the political restrictions, Ki Hajar Dewantoro founded the Taman Siswa Movement in 1922, an organisation to promote national education which became a driving force in struggle of the nationalist movement to gain independence.

After the fall of Singapore, the Japanese Armed Forces invaded the Netherlands East Indies, and the Dutch colonial army (the KNIL) surrendered in March 1942. Facing difficulties in the Pacific War which affected their supply lines and also led to increasing Indonesian discontent, the Japanese eventually allowed the Indonesians to fly their red and white national flag. This acknowledgement was followed soon after the recognition of the national anthem *Indonesia Raya* and of the national language *Bahasa Indonesia.* Bowing to the unceasing endeavours of the Indonesian leaders, the Japanese ultimately complied with their wishes and agreed to place the civil administration of the country in the hands of the Indonesian people which was an opportunity for the nationalist leaders to prepare for the proclamation of the independence of Indonesia. After the bombing of two Japanese cities, Hiroshima and Nagasaki, with the atom bomb the Japanese surrendered unconditionally to the Allied Forces. After a short time, the Indonesian national leaders Ir. Soekarno and Drs. Mohammad Hatta seized the opportunity to proclaim the independence of Indonesia on 17 August 1945, after the surrender of the Japanese to the Allies.

The 1945 Constitution was accepted on August 18, 1945 and is still in force today. The ideological and philosophical basis of the Republic of Indonesia is the *Pancasila*[1], the philosophical foundation of the Indonesian State, consisting of five inseparable and interrelated principles. It was inspired by the urge for unity, for the achievement of common goals and for democracy built upon the age-old Indonesian concepts of *gotong royong* (mutual cooperation), *musyawarah* (deliberation of representatives) and *mufakat* (consensus). The Indonesian coat-of-arms which was conceived at the same time consists of a golden eagle, called *Garuda* who figures prominently in ancient Indonesian epics. The eagle symbolizes creative energy and on a banner held in the eagle's talons is enshrined the motto *Bhinneka Tunggal Ika* (Unity in Diversity), expressing the idea, that despite their diverse ethnic and cultural backgrounds, the people of Indonesia are one nation.

Despite these highly symbolic gestures, Independence has still not been truly achieved; there were many threats to its existence. A contingent of the Allied Forces made up of British troops landed in Indonesia to disarm the Japanese and this opportunity was also seized by Dutch troops to land in Indonesia with the purpose of trying to recover control of the former East Indies. Since war had been joined against Dutch troops on January 4, 1946 the Republican Government moved from Jakarta to Yogyakarta. Trying to establish some order in the chaos of the immediate post-war world, the United Nations considered the war in Indonesia a threat to international peace and security and the issue of Indonesia was officially brought before the Security Council.

Subsequently, Indonesian and Dutch representatives met at Linggarjati in West Java. The discussions resulted in *de facto* recognition of the sovereignty of Indonesia by the Dutch, but only over Java, Sumatra and Madura. The state of war continued and on May 7, 1949 Mohammad Roem of Indonesia and Van Rooyen of the Netherlands signed an agreement to end hostilities, to restore the Republican Government in Yogyakarta, and to hold further negotiations at a Round Table Conference under the auspices of the United Nations. The Round Table Conference was held in The Hague from August 23 to November 2, 1949, under the auspices of the United Nations, and concluded with the agreement that the Dutch Government must recognize the sovereignty of the Republic of Indonesia. Therefore, on December 27, 1949 the Netherlands East Indies ceased to exist and became the sovereign Federal Republic of Indonesia with a federal constitution.

In fact, not everything had been settled and the question of the sovereignty over Irian Jaya, formerly Dutch NewGuinea remained an incessant source of conflict between the two countries for over thirteen years; on the basis of the New York Agreement in 1962, Indonesia assumed administrative responsibility for West Irian in May 1963. However, led by the president, Soekarno, the Indonesian government rejected the supervision of West Irian by the United Nations. After an election in 1969, a UN General Assembly resolution confirmed the transfer of sovereignty of West Irian to Indonesia and West Irian was renamed Irian Jaya in 1973.

Slightly over halfway through his term of office as president from 1959 to 1965, President Soekarno imposed a system of government which he called 'Guided Democracy', an authoritarian regime. Initially, his government had joined with the emerging Non-Aligned Movement but later moved towards the Socialistic Block. As the country fell into confusion it was involved in a military confrontation with its neighbour Malaysia and this embroilment only exacerbated frustration about domestic economic problems.

Then, in March 1966, on the pretext of securing the country against an alleged communist coup attempt, Soekarno had to transfer key political and military powers to General Soeharto. Soeharto's ensuing administration is usually referred to as the New Order Era. Although the country got back on to a more even keel, Soeharto enriched himself and his family through widespread corruption and was forced to step down in 1998.

Between 1998-2009, the country has had four presidents namely: B.J Habibie (1998-1999), Abdurrahman Wahid (1999-2001), Megawati Sukarnoputri (2001-2004) and Susilo Bambang Yudhoyono who has been elected for two terms (2004-present). The era after the fall of Soeharto is usually called the Reformation Era. During President Habibie's short administration, political prisoners were released and some controls on freedom of speech were lifted. Elections for the national, provincial and sub-provincial parliaments were also held.

Still the old colonial problems lingered on and August 30, 1999, the people of East Timor voted for independence in an UN-run popular consultation. Subsequently, in October 1999, the United Nations Transitional Administration in East Timor assumed responsibility for governing East Timor until it officially became an independent state in May 2002.

4.1.2 Socio-Economic Development and Globalisation

Though most people living in the rural areas in Asia are still partly subsistence oriented, at present peasants who are completely isolated from markets and allocate resources only for subsistence without paying any heed to price signals are very unusual in Asia. Even in remote villages, peasants are integrated into the market economy to the extent that market prices determine their farming decisions, just as they determine the decisions of modern business entrepreneurs (*cf.* Hayami & Kikuchi 1981). As a consequence, in the present era of globalisation they have to comply with the standards required of their produce. In most cases, markets for farm produce, in particular those for most highland crops are much commercialised, even if the crops are planted only in very small amounts by small farmers. This brush with the globalised world economy does not mean the farmers always rely on market transactions in their farming operations, because their activities are interdependent with other members of the same community. For instance, they often co-operate in farm operations to rationalized external production. One very good example is their co-ordination in the distribution of irrigation water. They also take collective action to supply public goods essential to the security and welfare of the community members because the market, especially for some resources such as labour and capital, remains undeveloped. Hayami and

Kikuchi (1981) claim that in a small rural community which is composed of small farmers the potential market size is too small for specialised agents to engage profitably in the marketing of various goods and services. The rational choice is to carry out transactions reciprocally within small groups of neighbours and relatives; hence scarce capital is mobilised in a community without relying on a formal financial market. In this respect a community is not only a place where people live, but it provides a co-operative, mutually dependent production system of traditional agriculture.

While the village people make their own adjustments, large companies are called upon to apply corporate social responsibility to help those who are financially vulnerable. By their actions, large companies such as the Martha Tilaar Group are helping small farmers to survive and to compete in selling their produce. A number of big corporations also make valuable contributions by building schools and establishing health services for people in the rural areas.

4.2 Lembang: Sociography of a Region

4.2.1 Geography and Ecological Diversity

The province of West-Java covers an area of 34,736 square kilometres; historically it is the home of the Sundanese people and their culture. The name *Sunda* is of Sanskrit origin and means 'pure' or 'white'. West Java consists predominantly of mountains and agricultural areas; much of its territory is known as the *Parahyangan* Highlands (*cf.* Turner 1995). The northern coast is flat and the southern coast is more rugged. The central area is mountainous and is dominated by some impressive volcanoes. The panorama provided by the Parahyangan Highlands is formed by volcanoes whose ancient eruptions brought disaster but also contributed to fertile soils.

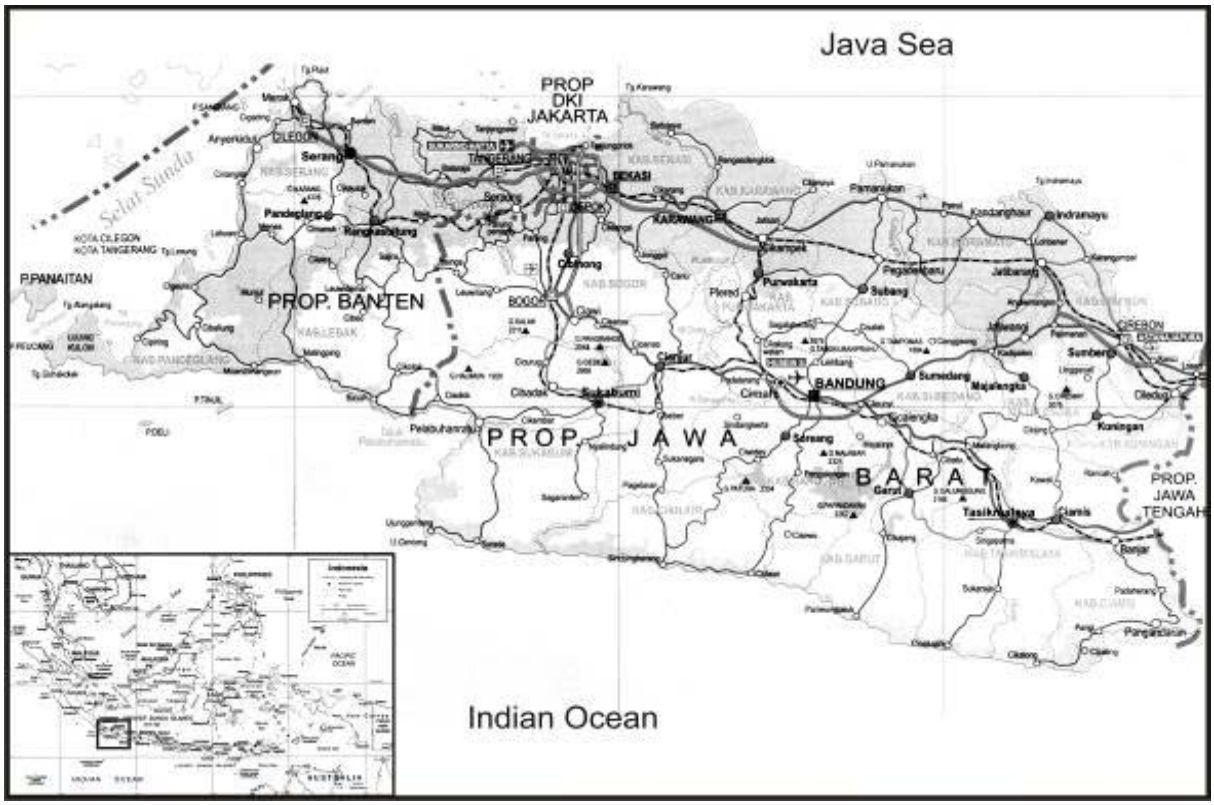
Some volcanoes in the region are still active and are favourite destinations for tourists. A number of volcanoes which are considered still active are Mount Ceremai, at 3,078m the highest mountain in the west; Mount Gede in the western part of the Parahyangan Highlands; the famous Mount Tangkuban Perahu just north of Bandung; Mount Papandayan with its spectacular sulphur-layer crater; and Mount Galunggung which erupted violently in 1982. Flowing between them is the Citarum River (*cf.* Roelcke and Crabb 1994).

The population of the province of West Java is 39,960.869; hence it is the most populous province in Indonesia with an average of 1150 people per square km (Socio-economic survey of West-Java, 2005). The capital city of the province is Bandung.

The area of the research setting lies in the Lembang sub-district (*kecamatan*), in which is part of the Bandung regency (*kabupaten*), in the Province of West Java. Geographically the Bandung regency lies between $6^{o}.41'$-$7^{o}.19'$ South Latitude and $107^{o}.22'$-$108^{o}.5'$ East Longitude. It is bordered on the north by the Purwakarta Regency, on the east by the Regencies of Sumedang and Garut, on the south by Garut and Cianjur Regencies, and on the west by the Cianjur Regency. Its geographical location has been an advantage to the development of the region, especially in the field of communications and transportation.

The Lembang sub-district is situated about 16 km north of Bandung, capital of the province, and about 200 km from the national capital, Jakarta. It lies approximately 1,300 - 2,084 metres above sea level. The temperature ranges between 15^{o}C - 27^{o}C, while the annual average rainfall is 2121 mm. (Central Bureau of Statistics Bandung Regency 2004).

During the Dutch colonisation, it was a favourite place for retired Dutch *ambtenaars*[2] because of its clean air, cool climate and beautiful scenery. Currently, the Lembang sub-district is being developed as a tourist resort, specialising in ecotourism[3] and agrotourism[4].



Map 4.1 The Province of West Java.
(Source: *Atlas Indonesia & Dunia*, 2000)

The Lembang sub-district is the most densely populated sub-district in the Bandung regency with 132,806 inhabitants.
This region is made up of approximately 4,140.483 ha of forest area and approximately 6,480 ha of rice-fields, vegetables and fruit plantations, residential areas, home-gardens and animal husbandry. The principal MAC plants cultivated in this region are ginger (*jahe*), alpine galangale (l*engkuas*), and saffron (*kunyit*).

4.2.2 *Tatar Sunda:* The People and Their Culture

The Sundanese ethnic group which lives in the Province of West Java, is the second-largest ethnic group in Indonesia. Although the Sundanese people live in the same island as the Javanese, they consider the part in which they are living a distinct cultural area and refer to it as *Tatar Sunda* or *Sunda.* They have a rich culture heritage and high traditional values. Their social behaviour is almost entirely based on the philosophy of '*silih asih, silih asah*, *silih asuh*' which literally means 'love, teach and care for each other'. Their preference for a harmonious way of life is expressed in the aphorism '*Herang caina beunang laukna*' which means 'Solving a problem, without causing a new problem', revealing the principle of mutual benefit. Behind their rich cultural traditions lie an interesting history which can be traced back to the fifth century AD and the Tarumanagara dynasty and has recorded trade links extending as far as China. A succession of Sundanese Kingdoms was followed by 350 years of Dutch colonization. It was during this time that Sundanese lands became an important source of spices, coffee, quinine, rubber and tea for export.

Evidence of the history of the Sundanese Kingdoms are two stone inscriptions near Cibadak (Sukabumi)), which mention the name of King Jaya Bhupati as the King of Sunda (AD 1030 – AD 1108). He resided in Pakuan Padjadjaran (near present-day Bogor). The only building left from that apparently glorious era is the small stone temple of Cangkuang in northern Garut. Actually, Padjadjaran or more completely Pakwan Padjadjaran was the name of the capital of the kingdom. Probably, the capital moved many times, from Galuh to Pakwan, then to Kawali and Saunggaluh, and later to Pakwan Padjadjaran. Hence, the period of the Sundanese Kingdom was identified with the name of the capital.

The Sundanese Kingdom reached its golden period when Padjadjaran was its capital but this was also the period which ushered in its down-fall. The manuscript of the Pararaton according to Brandes (1896), contains a description of the Sundanese Kingdom as an independent kingdom, the King (Sang Prabhu Maharaja) and his people (wong Sunda). This chronicle also recounts the Pasundan Bubat, the war between the Sundanese King and his retinue and the troops of the Majapahit Kingdom, which took place at Bubat, near the capital of Majapahit. According to Ekajati (1995), this incident flared up as a result of the deception perpetrated by Gajah Mada, the Prime Minister of Majapahit, in the arrangements for the marriage of a Sundanese Princess to Hayam Wuruk, the King of Majapahit. This tragic incident is recalled in both the *Kidung Sunda*, a Javanese manuscript (*cf.* Berg 1927) and the *Nagarakretabhumi*, a manuscript from Cirebon (*cf.* Atja & Rohaedi 1986). After its fall in 1579, the Sundanese Kingdom was divided into four independent regions: Sumedanglarang, Banten, Cirebon, and Galuh. Later, Sumedanglarang and Galuh united and became Priangan (Haan 1910, 1912), which was eventually named Tanah Sunda or Tatar Sunda or Pasundan. In line with its development, Priangan was always considered as the centre of Tanah Sunda (Pasundan 1925).

The term *Sunda* is also used in connection with its people, therefore an *urang Sunda* is a person who claims this denomination him or herself and is acknowledged by other people as being a Sundanese, a definition based on both hereditary and socio-cultural aspects. According to the above criteria, a person or group of people can be called Sundanese if their parents on either the father's or mother's side are Sundanese; or both are Sundanese, wherever they happen to be living and brought up. According to the second criteria, a person or a group of people is called Sundanese, when they are raised in a Sundanese socio-cultural environment, and fully comprehend and live in accordance to the Sundanese norms and cultural values. In this matter, the place of residence, the socio-cultural life, and the parents' attitude is considered important (*cf.* Warnaen *et.al.* 1987).

The Sundanese culture has its own specific characteristics, which distinguish it from other cultures and others which it shares with many other Indonesian peoples. Mutual cooperation or *gotong royong* is a prominent characteristic in Sundanese community life, as it is elsewhere in the Archipelago. Prior to a celebration, people always help and share in the preparations. They also voluntarily bring rice, wood or meat, and even help with the cooking. On a later occasion, this assistance will be reciprocated by helping those who have helped previously. There is also the well-entrenched custom of sending food to the neighbours on certain occasions (*eurihan*) (*cf.* INRIK 1995).

Map 4.2 Bandung Regency in the Province of West-Java.
(Source: Bandung Regency 2005)

As Gunadi (2007) indicates, like other Indonesians, most Sundanese are bilingual. They speak both, their vernacular, Sundanese, and the Indonesian national language. Generally, they prefer to speak Sundanese when among family members and friends, whereas *bahasa* Indonesia is used in the public sphere. Both of these languages belong to the Austronesian language family. Currently, most Sundanese people prefer to speak *bahasa* Indonesia since they regard speaking the vernacular as being not intellectual and inappropriate to present technological development. The result is, that the Sundanese language has become marginalized. Another obstacle is that the Sundanese language features an intricate system of levels to indicate degrees of respect and formality, which often prompts parents to forbid their children to speak in Sundanese as they are afraid of offending people since they are not able to converse appropriately as they have not mastered the different levels of formality or *undak-usuk-basa*[5].

4.2.3 Socio-Economic Situation and Social Institutions

With its 39,960.869 inhabitants (Socio-economic survey of West Java, 2005), the province of West Java has become the most densely populated of the thirty-three provinces in Indonesia. It has an area of 34,736 square km. The vast majority of Sundanese are Muslim, although a small number adhere to the Roman Catholic or Protestant denominations of Christianity. There are still many non-Islamic elements in Sundanese ceremonies and rituals, particularly those surrounding the growing of rice. Very probably they derive from the Hindu religion which preceded the spread of Islam or even from pre-Hindu Sundanese culture.

Most of the inhabitants are farmers and labourers working in various big and medium- sized industries spread over the area. This province is also well-known for its beautiful scenery and its cool climate. Hence, in the Lembang sub-district the regional government has worked on improving the growth of tourism in this area, emphasizing the development of ecotourism and agro-tourism. Larger and smaller size estates cultivating various fruits, flowers and vegetables have grown rapidly in this area as it is blessed with very fertile soil. Since the 1980s, Lembang has flourished as a resort for tourists with good hotels because of its proximity to the hot water springs at Maribaya and Ciater, the crater Tangkuban-prahu, and obviously its glorious scenery. As a consequence, service industries have flourished and provide most of the opportunities for local people to work in their own area. Tourists are flocking to Lembang which has earned a reputation as an agro-tourism resort. Therefore, various communities in the Sub-district of Lembang have recently been transformed into semi-urban communities.

As a sub-district, Lembang is the headquarters of various formal and informal social institutions in the area. In a community-based organisation, a distinction is made between indigenous community-based organisations and those initiated by the government. The groups of institutions initiated by the government are established by government decrees, issued by the Ministry of Home Affairs, whose aim is to have a universal pattern of community organisations all over the country. The lowest level of local government official is the village chief (*Kepala Desa*) or the head of the urban community (*Kepala Kelurahan*). The *Kepala Desa* is a local resident elected by villagers for a period of five years. This makes him a salaried employee of the local government and he is assisted by a government-appointed secretary and a treasurer from the same community. The *Kepala Kelurahan* or *Lurah* is appointed by the local government and might come from outside the *kelurahan*. The *Lurah* also has government-appointed staff to assist him in his work. The team is composed of the village/*kelurahan* government officials. Among the other institutions is a *Lembaga Ketahanan Masyarakat Desa* or LKMD (Village Community Resilience Council), consisting of a standard set of sections whose task is to help develop various aspects of community life. The LKMD members are appointed by the chief of the village/*kelurahan*. Sub-village/ neighbourhoods, such as *dusun, rukun warga* and *rukun tetangga* are headed by local residents, selected for their honorary positions by a combination of social prominence or social influence and consent of elders or heads of households. The head of *rukun tetangga* or *ketua rukun tetangga* (*ketua* RT) is elected by the households in the RT, which is a small specific cluster of households. All the head of RT of the location have to come together to elect the head of *rukun warga* or *ketua rukun warga* (*ketua RW*) as the head of the next higher level neighbourhood unit.

Other government-initiated community-based institutions or the formal social institutions are the Pemberdayaan *Kesejahteraan Keluarga* (PKK) (Family Welfare Empowerment), a women's organization and the youth organization *Karang Taruna*. Among the indigenous community-based organisations or the informal social associations which have emerged spontaneously out of shared concerns are *arisan*, cultural groups and also the more formal networks of religious institutions.

In spite of its changing lifestyle which is shifting in the direction of modernisation, the daily way of life of the people of Lembang still reflects some indigenous practice. The formal and informal social institutions frequently participate in social activities, reflecting the social cohesion of the community. Unquestionably, people living in rural areas possess a capacity for self-help and to assist in helping themselves they have their own community-based self-help organisations. Without the support of these, they would not have survived as self-help and self-reliance (*berdikari*) are their basic principles.

As a traditional community institution, *arisan* is an informal joint financial pool initiated for the purpose of fostering and maintaining ties and *esprit de corps*. It usually brings together close friends, neighbours, former classmates, alumni, colleagues, even relatives, who meet at regular intervals at an agreed venue and contribute to a joint revolving fund. Members of an *arisan* group, headed by a treasurer, draw lots at an *arisan* gathering to decide who will receive the money collected. Therefore, it is basically an association whose members are obliged to contribute a sum of money, to pay common or individual interest. As Kartohadikoesomo (1984) indicates, in the rural areas and communities of *Surabaya* and *Pasuruan* regions, the *arisan* associations have rules and purposes such as for payments for work which has been done, in the interest of a group of people or an individual, who are expected to pay for expenses of life-cycle celebrations, such as circumcision, marriage or death in the family.

Notes

1. *Pancasila* is made up of two Sanskrit words: *panca* means 'five', and *sila* means 'principle'. The ideological and philosophical basis of the Republic of Indonesia is *Pancasila*, consisting of five inseparable and interrelated principles, which are:
   (1) Belief in the one and only God
   (2) Just and civilized humanity
   (3) The unity of Indonesia
   (4) Democracy guided by the inner wisdom in the unanimity arising out of deliberations among representatives.
   (5) Social justice for the whole of the people of Indonesia
2. *Ambtenaars* are government officials who worked in government offices under the Dutch colonial government.
3. Eco-tourism is based mainly on geographic location. Tourist attention is focused on the relationships between local people and their environment, and the main activities include visits to local villages, livelihood systems and small-scale industries. In general, there is differential contact between tourists and the local population (Agung 2005)
4. Agro-tourism is characterized by visits to fruit or flower estates. The objective of the visitors is to pick, consume and buy the fruits cultivated at the estates.
5. *Undak-usuk-basa*, an intricate system of levels in the Sundanese language to indicate degrees of respect and formality. The Sundanese vernacular is extremely diverse, with various regional dialects. However, all are divided into different levels of formality depending on the social status of the person being addressed. Consequently, the words one uses when talking to one's father differ from those used when talking to a friend or to one's younger sister. Most people use only two levels, or perhaps sometimes three. However, some older people make use of four levels (Gunadi 2007).

Chapter V LIFE IN FOUR SUNDANESE COMMUNITIES IN LEMBANG

This chapter describes the results of both the qualitative and quantitative surveys in the four sample communities, in Lembang, commencing with general data of the study population and sample survey. This followed by a more detailed description of the geography, landscape and location of the four Sundanese communities, the socio-demographic and economic profiles which characterise the community life in the study area of the Lembang sub-district. In order to render the picture more complete, this chapter also presents the history of the emergence of the village (*desa*) in West Java, and the establishment of the modern village administration.

In order to further complete this description, specific characteristics of the study area are also presented, including a list of traditional Sundanese Medicinal, Aromatic and Cosmetic (MAC) plants, used as home remedies or as ingredietnts for the preparation of traditional herbal medicine (*jamu*) by the members of the community in the four Sundanese communities in Lembang

5.1 The Study Population and Sample Survey

5.1.1 Population Statistics

The Bandung Regency lies in the province of West Java and covers a total area of 3,073,70 km2. Geographically, Bandung Regency is located between $6^0$41'- $7^0$19' South Latitude and $107^0$22'-$108^0$5' East Longitude, and is approximately 16 km north of Bandung the capital of the province. According to the demographic report of the Central Bureau of Statistics of Bandung Regency (*Badan Pusat Statistik Kabupaten Bandung* 2005) the total population of Bandung Regency is 4,145,967 consisting of 2,087,556 males and 2,058,411 females. The Lembang sub-district has an area of 98,2654 km2 with a population of 132,806, composed of 65,783 males and 67,023 females, spread over sixteen villages (*desa*) (*BPS Kabupaten Bandung* 2005).

Gender and Age Composition

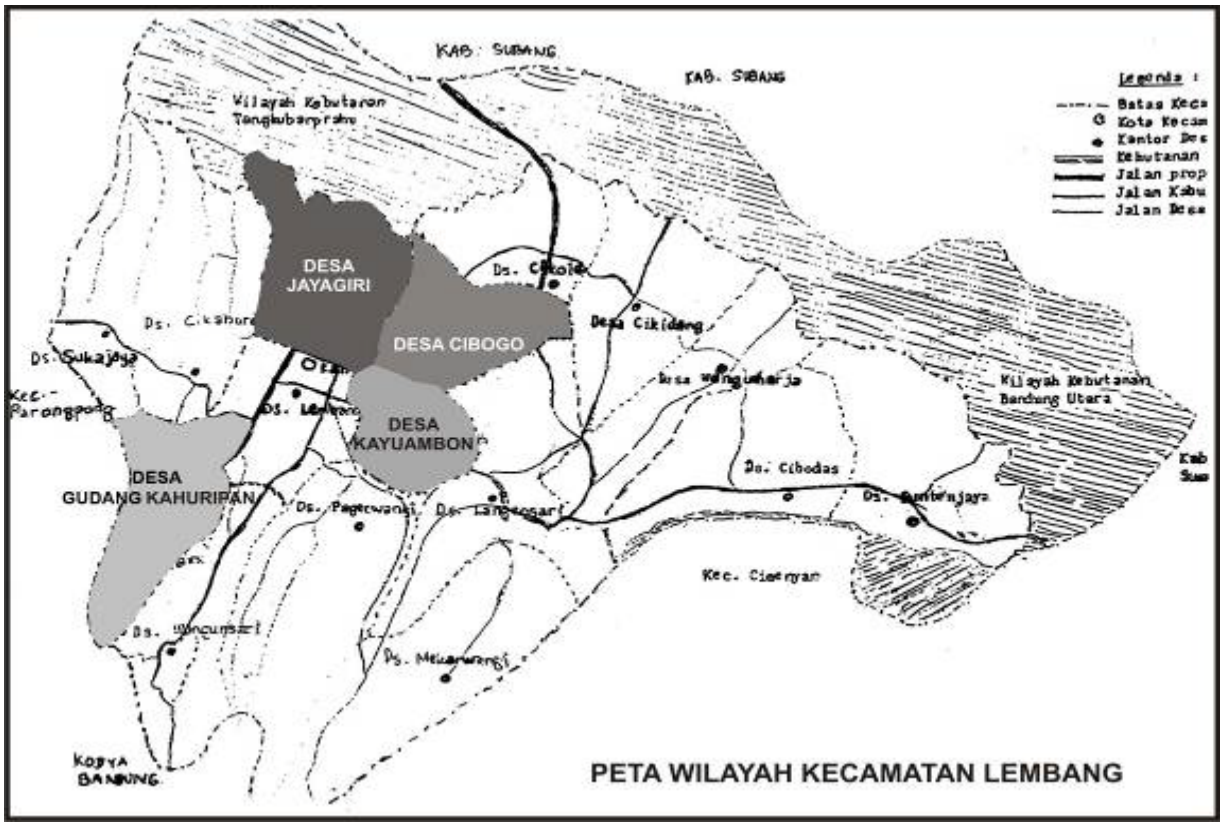
The distribution of gender over the total population of Lembang sub-district is 65,783 males (49.53%) and 67,023 females or (50.47%). The age composition of the total population of the sub-district of Lembang is revealed as pre-productive age 25.74% (0-14 years), productive age 58.12% (15-54 years) and non-productive age 16.14% (55 years and above).

Most of the population of Lembang sub-district has completed formal education as far as the end of primary level (finished primary school or *SD*). However, at the higher formal level of education, fewer members of the population have succeeded in finishing; a situation generally attributable to their economic circumstances.

The socio-demographic material has been obtained from official statistical sources and reports from the Central Bureau of Statistics, the National Social Economic Survey and the local office of the Lembang sub-district. The more specific data on relationships between knowledge, beliefs and practice of medicinal, aromatic and cosmetic (MAC) plants of the target group have been obtained by used of community-based and institution-based research. Community-based research was carried out using such techniques as observations, discussions and household interviews based on pre-coded questionnaires. While, the institution-based research relied on secondary data from local statistics and reports obtained at local institutions

and organisations. The results are mixed following the stages of the survey, as the study is built around complementary qualitative and quantitative surveys. The qualitative study is based on participant observation during repeated visits to the communities, combined with the conducting of open-ended interviews with informants, and discussions with *arisan* groups in different villages.

This blending of approach resulted in categories of surveys which have been used to collect the diverse categories of data but which also take account of the conceptual model of analysis. The categories of data include socio-demographic data of the four communities (base-line survey); data on communication behaviour of medicinal plants knowledge and practice as reported by respondents of the sample (survey on the communication on MAC plant knowledge and practice); background data of respondents, categories into predisposing, socio-demographic and enabling factors, perceived factors and intervening factors (household survey); data concerning the knowledge, belief and perceptions of the respondents, categorised into predisposing, psycho-social factors (awareness of MAC plants survey); and data regarding the various local institutions and organisations (institutional survey).



Map 5.1 Geographical locations of the four selected communities in the research area of Lembang sub-district.
(Source: Lembang sub-district office 2005)

On the basis of the qualitative information collected on the different characteristics of the respondents in the fieldwork area of Lembang sub-district, a simple random sample of the study population is carried out. To obtain a fairly equal base for comparison of the diverse data collected in the four communities, the sample strategy focused on a random selection of thirty households in each village. The partner of the household head who is also a member of

an *arisan* institution is the respondent of the survey. If there are no partners of the household head, the respondent selected is the woman in charge of the household. Accordingly, in the following sections, the four communities are described comparatively along the lines of the specific, model-related characteristics and factors including the predisposing socio-demographic and psycho-social factors (Blocks 1 and 2), the enabling socio-economic factors (Block 3), the perceived factors (Block 4) and the institutional factors (Block 5), contributing to the compilation of data on the various variables of the model.

From the collected qualitative data available about on a number of diverse characteristics of the respondents living in various areas in Lembang, it is decided to take a stratified random sample of the study population of the area. After the division of the entire population into sub-populations on the basis of the criterion of location, it is stratified into urban, semi-urban, semi-rural and rural communities, the elements for the sample are then chosen at random from the strata to secure optimal representation of the sample.

The geographical location of the four selected communities of the quantitative surveys in Lembang is shown on Map 5.1. Besides cartographical information, general data and a description is provided of each village, as it is situated in the wider context of its village groups in respectively rural, semi-rural, semi-urban and urban settings

Table 5.1 Distribution of total number of household heads (N= 11,772) and number of household members (N= 45,063), according to the 4 selected communities.

Village	Household heads		Household Members	
	N	%	N	%
Cibogo	2,916	24,8	9,280	20,6
Gudangkahuripan	3,214	27,3	12,109	26,9
Jayagiri	4,038	34,3	16,539	36,7
Kayuambon	1,604	13,6	7,135	15,8
Total	11,772	100,0	45,063	100,0

Source: Household survey (2005).

Table 5.1 indicates that the lowest number of household heads is recorded in *desa* Kayuambon (N= 1,604), followed in rank order by *desa* Cibogo (N=2,916) and *desa* Gudangkahuripan (N=3,214), while the highest number is found in *desa* Jayagiri (N=4,038), bringing the total number of household heads to almost 12,000 (N=11,772). This means that there are almost 12,000 housewives who are regarded as *arisan* members and who are therefore the target population of this survey. This also shows that the average household consists of four members. As is explained above, the sample strategy focuses on a random selection of thirty households in each village.

Almost all the inhabitants in the four selected communities are Sundanese and are adherents of Islam. The soil in the study area is fertile though most farmers here owned very small farmland of approximately 0.25 ha, in which they cultivated with mainly fruit trees and flowers. In fact they have earned this area an outstanding reputation for its horticultural produce.

Several types of rural organisations are found in the four selected villages. A number of these organisations have been established by the government, among them the *Pemberdayaan Kesejahteraan Keluarga* (PKK) (Family Welfare Empowerment), the youth organisation (*karang taruna*) and the village unit co-operatives (*Koperasi Unit Desa* or KUD).

Among the initiatives taken by the villagers themselves, the *arisan* or the rotating credit association, the *pengajian* (the Quran study group) and the *pencak silat* organisation (a kind

of martial art) are the most popular. Besides concentrating on these more specific forms of organisation, some general information is provided about other relevant characteristics of the village, such as the modern village administration and Garden for Medicine for the Family (*Taman Obat Keluarga* or TOGA).

5.2 Geography, Landscape and Location

5.2.1 Natural Environment and Use of Resources

The Sundanese communities in Lembang lie scattered over the lowlands and mountain slopes, surrounded by rice-fields, horticultural areas planted with vegetables and fruit trees and some parts with small animal husbandry and livestock enterprises.

During the qualitative study, a number of communities with *arisan* association activities have been visited intensively and observations were made in order to extrapolate a representative value for the selected communities. On a more formal level, consultations were carried out with administrations of the sub-districts, village leaders and *arisan* coordinators in the villages, resulting in four selected *desa* (villages) in the area according to the village settlement pattern: semi-rural, rural, semi-urban and urban, and the active participation of members of the *arisan* associations. The four selected communities are *Cibogo* (rural), *Jayagiri* (semi-rural), *Kayuambon* (urban), and *Gudangkahuripan* (semi-urban) (*cf*. Map 5.1).

Cibogo: a rural community
Desa Cibogo is located along the highway through Lembang, which commences at the Lembang marketplace and ends at the border of *desa Cikole*. The village area covers 195,342 ha. It lies 1,200 m above sea-level and the average temperature is 18.22^0C. The total number of households at the time of the survey is 2,916, consisting of 4,696 males and 4,584 females.

The health services available in this village include thirteen *posyandu* and one poly-clinic. There are also five birth attendants (*bidan*) available. The education facilities present in the village are two kindergartens, four primary schools and one *SLTA* (Senior High School) for the whole village.

Most of its inhabitants cultivate land owned by landlords. They grow vegetables: cabbage, *sawi* (mustard greens), tomatoes, string beans, chilies and fruit: bananas. Some of the population earns a living as vegetable vendors, farmers, hotel employees, and small-scale entrepreneurs. Interestingly, a number of the household heads worked outside *Cibogo* community, in other nearby villages, as government officials in the nearby Horticultural State Research Centre in *Cikole* for instance. A number of women are teachers and housewives who own a small shop (*warung*[1]) at home. However, they rarely have their own livestock[2].

Beside, that a number of *arisan* members are gymnastic instructors, seamstresses, merchants and some even become occasional vendors, especially of *lebaran* cookies during the fasting month of *Ramadhan*. Economically, the community of *Cibogo* is on a fairly average level, since their incomes do not depend on the household head only but are supported by other members of the household, so that they do not have any trouble in finding an appropriate income.

Although the respondents' knowledge of MAC plants is average, some of them actually use MAC plants on a daily basis to promote their health, as well as to prevent and cure certain illnesses. Their interest in MAC plants is visible in the rows of pots and plastic poly-bags filled with MAC plants in their small gardens or on the terraces/verandahs of their house.

When the plants they need are not available in their gardens, they are able to buy these at the traditional market.

Jayagiri: a semi-rural community

Desa Jayagiri is 974,447 ha. large and is the second largest in Lembang sub-district. It lies 7,200 m above sea level and the average temperature is 12^0 - 24^0C. The total number of households is 4,038, consisting of 8,268 males and 8,271 females.

In this community, there is a forest area covering approximately 527,750 ha large owned by the government, of which 527,750 ha is conservation forest. The people in this community also cultivate corn, cassava, tomatoes, *sawi*, potatoes, string beans, cabbages, broccoli and other vegetables which are sold in the nearby city. Besides that they also grow fruits such as banana and avocadoes.

The education facilities available here are four kindergartens, eight primary schools, three *SLTP* (Junior High School), one *SLTA* (Senior High School), and one religious school. This community also has the following health facilities: one *puskesmas*, eleven *puskemas pembantu*, two poly-clinics, two *posyandu* and two pharmacies. Three doctors and two dentists also have practices in this community.

The majority of the inhabitants work as casual labourers or farmhands on a farm; others are farmers, craftsmen, government civil servants, employees and a few are members of the armed force and the police and other such bodies. There are two neighbourhoods (*Rukun Warga* an administrative unit), *RW Gunung Putri* and *RW Pasir Ipis,* where a large number of the community's population raise dairy cattle. In fact, in *RW Gunung Putri* 80% of the community are diary farmers and the rest work as a farmhand or *tukang ojeg* (earning money by transporting people on a motorcycle). A number of the young people in the community have found employment there.

A family in this area usually owns one to three diary cows valued at approximately 8 million *rupiah* each. The milk is collected by a special cooperation of diary farmers and sent to Jakarta for further processing. Besides collecting milk from the dairy farmers, this cooperation also provided financial help by issuing the farmers with soft loans.

In the other part of the *Gunung Putri* area, the bulk of the population earns their living as farmhands. Here there is a fairly unique situation since none of the families resident there are the actual landholders. According to an informant, almost all the land around *Gunung Putri* is the property of one affluent person only who live in Jakarta. The arable land is rented back to the local people who then cultivate it. This man, whose name the informant do not know since all business is conducted through an agent, is respected by the community in *Gunung Putri* as he contributed generously when the community, on their own initiative, asphalted all the roads leading to this community.

In addition to working on farms or in the fields, the women in *Gunung Putri* spend their time every day cutting grass for the dairy cows or selling the cut grass to the owners of the cows. They also raise chickens since this is easy and cheap to do.

Unlike the other communities in the Lembang sub-district, *Jayagiri* functioned as a transit village[3], because it is very close to Bandung, the capital city of the province of West Java. Hence, lately most of the population of *Jayagiri* have left farming as their livelihood and prefer to earn money more easily by becoming vendors or *tukang ojeg.*

In the *Pasir Ipis* area, according to the informant, almost all the families own a motorcycle which is being used to run an *ojeg* business. As the market is oversupplied, the *tukang ojeng* rarely has customers and consequently most of them are not able to pay the installments on their motorcycles. The result is, that the motorcycle is repossessed by the dealer which leaves them unemployed. The people of *Jayagiri* prefer to use modern medicinal

treatment in case of illness and when indisposed go to a health centre, whether the *puskesmas* or *puskesmas pembantu*. Although, some of them used herbal medicine, they do not personally cultivate medicinal plants. They are actually acquainted with various medicinal plants such as *jahe, daun sirih, koneng gede*, *bratawali, hanjuang* and so forth and also knew how to prepare the ingredients. They are in the habit of using medicinal plants to promote their health and to keep them physically fit. When ill with certain minor ailments such as coughs and colds, they do sometimes take herbal medicine. However, in the case of serious illnesses, they seldom rely on medicinal plants but prefer to see a medical doctor.

Kayuambon: an urban community

Desa Kayuambon lies almost in the centre of the Lembang sub-district, and is also the location of the central market for the surrounding areas. It covers 180,210 ha. The total number of household is 1,604, consisting of 3,193 males and 3,042 females.

The health services available in this community are four maternity clinics, eleven *posyandu*, one poly-clinic and also four birth attendants. Besides these services, three medical doctors have opened their practices in this community. The education facilities in *Kayu Ambon* consist of three kindergartens, three primary schools and one senior high school.

Some of the people in *Kayu Ambon* work as farmers, cultivating corn and cassava, and vegetables such as cabbages, potatoes, *sawi*, tomatoes, string beans and chilies.There are also a very small number employed as coachmen of *delman* (horse-drawn buggies) which are usually available for hire at the market place.

The respondents who are all *arisan* members participated actively in the *arisan* programmes which can be seen by the large number of members present when there is a gathering. Most of them have joined more than one kind of *arisan*, such as:

- *Arisan PKK*, which is held once a month with such activities as the drawing of the *arisan* lottery, talks on education and actual topics, as well as a demonstration.
- *Arisan warga* (neighbours - RW and RT), which are held once each month or once each week. However, the gathering is actually held only once which is at the beginning of a new *arisan* round. At the first gathering, the *arisan* lottery draws only the member's names, so that all the members know when their turn will be to get the *arisan* pot. Beginning the next month the contributions will be collected by a person appointed by the board for this purpose and the *arisan* pot will be given directly to the next member according to the order on the list, until all the members have received their turns.
- *Arisan pengajian* (religious activities), this *arisan* is usually held once a week. The bulk of the activities consist of religious activities and demonstrations.
- *Arisan Opsih* (*Operasi kebersihan*, a programme to promote cleanliness in the area), this is held once a week, usually on Fridays. It has one additional activity which is the drawing of the *arisan* lottery.

In this community the respondents' knowledge of medicinal plants has been handed down from their ancestors who passed it down from generation to generation. They seldom discuss medicinal plants in *arisan* gatherings, unless someone has been ailing for quite a long period. The discussions in these *arisan* usually depend on the actuality of the topic, such as the rise in the price of food as a knock-on effect of the high price of oil, the election of the regional head, children's education and so forth.

Gudang kahuripan: a semi-urban community

Desa Gudangkahuripan covers 454,751 ha and its location borders on the capital of the Lembang sub-district. It also lies on the road between Bandung and the sub-district of *Subang*. The total number of households is 3,214, consisting of 5,921 males and 6,188 females. The health facilities available here are two maternity clinics, three family-planning clinics, fourteen *posyandu*, one *puskesmas pembantu* and one polyclinic. Two medical doctors have their practices in this community. The education facilities available are one kindergarten and six primary schools.

The inhabitants mainly earn their livelihoods from horticulture, cultivating corn, cassava, cloves, avocadoes and bananas. They also cultivate vegetables such as tomatoes, string beans, *sawi* and aubergines (*terong*). Some of the villagers own fish-ponds and sell the fish to the surrounding areas. A number of the people work in factories in this community. There are also a number of home industries in *Gudang kahuripan* which produce food and handicrafts. Others have found jobs as employees in hotels and other tourist-resorts which are scattered throughout Lembang, which has developed into a tourist area. There are also the usual sprinkling of government servants, vendors and entrepreneurs.

In this community a number of the inhabitants are not natives. Some of them have come from outside the village; some even from outside West Java. Those who do come from outside the village live there because their wives prefer to stay close to their families. Another reason which attracts outsiders to the village is that *Gudangkahuripan* is located nearby Bandung; the capital city of the province of West Java and the cost of living in the village is cheaper than in the city. Some are only temporary residents but others have settled there permanently. Many of them work as factory labourers, employees and government servants.

A large number of women in this area work; hence there are not many activities in this village. Among the existing RWs, of which RW 09 is the most active, only four have activities organised by women. RW 09 organised *arisan* gatherings, *Pemberdayaan Kesejahteraan Keluarga* (PKK) (Family Welfare Empowerment), and *pengajian*[4]. It also works to promote cleanliness in the area. The women in this area participate actively, since most of the inhabitants in RW 09 originated from this community. Unquestionably, the economic conditions, level of education, and environment have influenced the women's activities. Geographically, RW 09 is located on the border of the community and the nearby sub-district town, so that the standard of living of the community is more sophisticated and advanced compared to the others.

Most of the respondents know about communication on MAC plants and the preparation of the ingredients. This knowledge has usually been passed down from mother to daughter. They have also acquired MAC plants from such mass media as television programmes and articles in magazines or newspapers. Since they are members of one or more *arisan*, they agree, that sometimes they obtain formal information on the use of MAC plants at *arisan* meetings, and that there are also informal discussions about the use of MAC plant knowledge and practice among members, especially if one of the members has been ill and had chosen to use specif medicinal plants as treatment. However, in the case of illness, they often consider it more practical to go to the *puskesmas* or to the doctor. In fact, when they do opt for MAC plants, they choose to buy them as over-the-counter medicine since it is cheaper and easier to obtain. A large number of the women also cultivate MAC plants in their gardens, which they use in their cooking, for health promotion and as a beauty aid. They claim, that since the preparation of traditional herbal medicine is complicated, not so many women use medicinal plants for the treatment of disease or health promotion. Nevertheless, the women in *desa Gudangkahuripan* are hoping to obtain more information about communication on MAC

plants, either through the *arisan* or through the *Pemberdayaan Kesejahteraan Keluarga* (PKK) (Family Welfare Empowerment) activities.

5.3 Socio-Demographic and Economic Profile

5.3.1 Age, Gender and Household Composition

The total population of the four selected communities where a household survey is conducted is 45,063 inhabitants, consisting of 22,078 males and 22,085 females, and the research sample is composed of 459 individuals. Out of 11,772 household heads, a random sample is taken of 120 partners or housewives, who are all *arisan* members equally distributed over the four communities studied to ensure an adequate comparison of the collected data.

Age, Gender and Marital Status

Table 5.2 indicates, the age of almost a quarter of the respondents in the sample as the largest segment lies between 41-45 years (17.5%), while more than half (62.5%) is younger than 41 and about one-third (30%) is over 45 years.

As Table 5.2 shows, the age span of the *arisan* members is between 16-70 years, which also shows that old age does not stop an elder person from joining the *arisan*.

All are married women, of whom six (5%) are widows. This links up with the overall patrilineal social organisation in the province of West Java. The age distribution of the 120 *arisan* members of the sample is presented in Table 5.2

Table 5.2 Distribution of age of *arisan* members in the sample according to the 4 selected communities (N=120).

Age	Kayuambon		Cibogo		Gudangkahuripan		Jayagiri		Gen.Total	
	N	%	N	%	N	%	N	%	N	%
16-20	0	0	0	0	1	3.3	0	0	1	0.8
21-25	1	3.3	3	10.0	3	10.0	5	16.7	12	10.0
26-30	1	3.3	10	33.3	3	10.0	5	16.7	19	15.9
31-35	4	13.4	5	16.7	6	20.0	3	10.0	18	15.0
36-40	4	13.4	1	3.3	5	16.7	3	10.0	13	10.8
41-45	6	20.0	4	13.4	3	10.0	8	26.6	21	17.5
46-50	6	20.0	6	20.0	4	13.4	2	6.7	18	15.0
51-55	4	13.3	1	3.3	3	10.0	2	6.7	10	8.3
56-60	3	10.0	0	0	1	3.3	1	3.3	5	4.2
61-65	1	3.3	0	0	0	0	1	3.3	2	1.7
66-70	0	0	0	0	1	3.3	0	0	1	0.8
Total	30	100.0	30	100.0	30	100.0	30	100.0	120	100.0

Source: Household survey (2005).

Household Composition

The composition of the households in the sample shows, that on average a household in Lembang is composed of between two and five members. Larger households of more than six members living together are an exception; an indication of a successful family planning programme. The composition of the households in the sample according to kinship/non-kinship relations is shown in Table 5.3.

Table 5.3 indicates, that out of the household heads and their partners, almost one-fifth of the household members are in-living sons (19.2%) and almost even numbers are unmarried

daughters (17.9%). This is followed by a small number of in-living fathers (0.7%) and mothers (0.4%), and in-living mothers-in-law (0.7%), a smaller number of daughters-in- law (2.6%) and sons-in-law (2.8%) are members of the household group. This is the result of the fact that in the patriarchal society of *Sunda*, nowadays the young generation tends to have their own place rather than to live with their parents.

Among the household heads and their partners six (1.3%) are without a partner. A small number of other, more distant household members are also found in the sample households, as are a few non-kin members (0.4%) living in the same household. Figure 5.1 shows the age pyramid of the sample population according to gender, expressed in numbers.

Table 5.3 Household composition of 459 members of the 120 sample households (N=459).

Household members	Total	
	N	%
Household head	120	26.1
Partner	114	24.8
Father	3	0.7
Mother	2	0.4
Son	88	19.2
Daughter	82	17.9
Grandson	11	2.5
Granddaughter	6	1.3
Sister	1	0.2
Cousin (male/female)	1	0.2
Niece	1	0.2
Son-in-law	13	2.8
Daughter-in-law	12	2.6
Mother-in-law	3	0.7
Other kin (male/female)	2	0.4
Total	459	100.0

Source: Household survey (2005).

The pyramid is not representative of the general image of most developing countries which is often characterized by a wide base as the result of a relatively large number of children who are less than five years of age. This is because the family planning programme is successful in the provice of West Java.

Table 5.4 Formal education of *arisan* members in the sample according to the 4 selected communities (N=120).

Kind of formal	Kayuambon		Cibogo		Gud.kahuripan		Jayagiri		Gen. Total	
education	N	%	N	%	N	%	N	%	N	%
None	-	-	-	-	-	-	-	-	-	-
Elementary S.	10	33.2	5	16.7	7	23.3	4	13.3	26	21.6
Junior High S.	11	36.7	6	20.0	9	30.0	21	70.0	47	39.2
Senior High S	8	26.7	15	50.0	11	36.7	4	13.3	38	31.7
Academy/Univ.	1	3.4	4	13.3	3	10.0	1	3.4	9	7.5
Total	30	100.0	30	100.0	30	100.0	30	100.0	120	100.0

Source: Household survey (2005).

However, a fairly broad section can be seen among the productive members between 16 and 35 years of age (46.2%). The fairly even distribution between the number of males and

females as shown in the age-pyramid is remarkable. This is because women in Lembang Regency tend to get married when they are at least 16 years old.

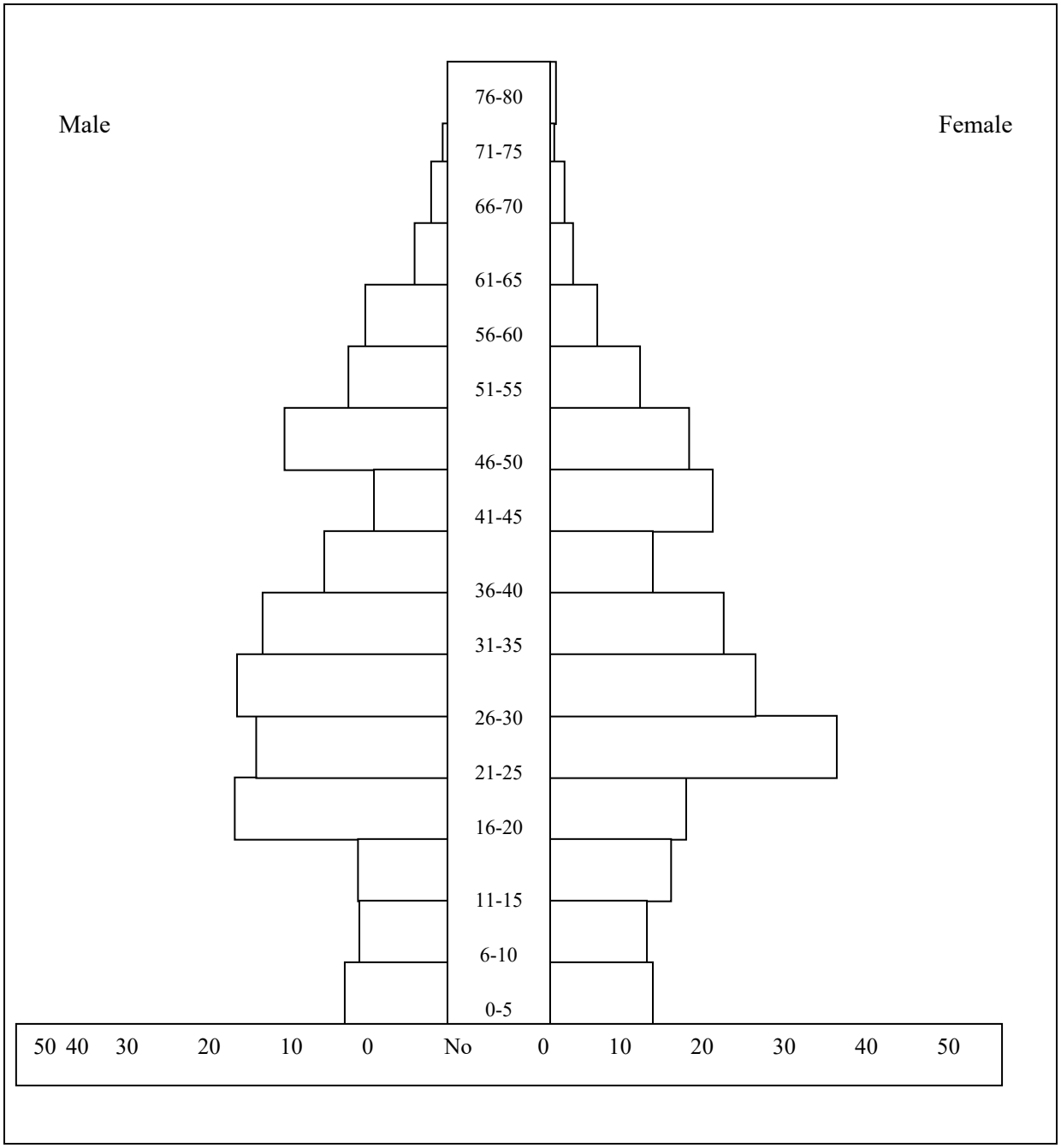


Figure 5.1 Age pyramid of the sample population according to gender, expressed in numbers (N= 459: 230 men and 229 women).
Source: Household survey (2005).

Table 5.4 indicates that more than one-third (39.2%) of the *arisan* members have received a Junior High School education (SLTP) and a slightly smaller number (31.7%) have attended Senior High School education (SLTA). One-fifth (21.6%) has had Primary School education

and a small number (7.5%) has graduated from a tertiary level academy. The Table also shows that most respondents (70.0%) in *Jayagiri* have attended Junior High School. Each community has at least one respondent (3.4%) who has graduated from an academy, with the exception of *Cibogo* which has four (13.3%) and *Gudangkahuripan* three (10%).

5.3.2 Occupation and Socio-Economic Status (SES)

Most married Sundanese women are housewives and occasionally help bolster their husbands' incomes by working in a part-time occupation. Since Lembang is an agricultural area, a large number of these women sell plants, vegetables and fruit. The Lembang fruit and vegetable market enjoys a high reputation as do the nurseries along the roadside on the way into the town.

As Table 5.5 shows, almost half of the respondents (42.5%) are housewives without a part-time occupation. While more than one-fifth (23.3%) are housewives who have an occupation with few contacts such as a seamstress, plant seller, printer or craftsperson. Housewives selling plants as a part-time occupation are usually the wives of farmers. Less than one-fifth of the respondents (15.0%) are housewives with a part-time occupation with many contacts such as a telephone-stall attendant, vendor and beautician, occupations which give them the opportunity to meet various kinds of people.

Table 5.5 Distribution of the main profession of *arisan* members in the sample according to the 4 selected communities (N=120).

Main	Kayuambon		Cibogo		Gud.kahuripan		Jayagiri		Gen. Total	
profession	N	%	N	%	N	%	N	%	N	%
Retired	2	6.7	-	-	1	3.3	1	3.3	4	3.3
HW without pto	16	53.3	5	16.7	20	16.7	10	33.4	51	42.5
HW with pto - few cont.	2	6.7	12	40.0	2	6.7	12	40.0	28	23.3
HW with pto - many cont.	3	10.0	8	26.6	4	13.3	3	10.0	18	15.0
Civil servant	1	3.3	2	6.7	-	-	1	3.3	4	3.3
Teacher	-	-	2	6.7	1	3.3	-	-	3	2.5
Entrepreneur	5	16.7	1	3.3	2	6.7	2	6.7	10	8.4
Priv.Corp.Empl.	1	3.3	-	-	-	-	1	3.3	2	1.7
Total	30	100.0	30	100.0	30	100.0	30	100.0	120	100.0

Source: Household survey (2005).
Note:
HW without pto = Housewife without part-time occupation
HW with pto – few cont. = Housewife with part-time occupation – few contacts
HW with pto – many cont. = Housewife with part-time occupation – many contacts

Only a small number are civil servants (3.3%) and teachers (2.5%). In *Kayu Ambon*, *Gudang Kahuripan* and *Jayagiri* especially there is a very small number of retired housewives (3.3%) but none has retired in *Cibogo*.
In Lembang, the *arisan* gathering is especially popular among housewives since it offers them an opportunity to obtain some cash when it is their turn to draw the lottery and also importantly to catch up on the latest information and gossip about their neighbourhood and surroundings.

Several among them have even joined more than two *arisan* as reported by respondents in *Kayu Ambon*. In the four Sundanese communities in Lembang several *arisan* have been set up privately by community members. The system is straightforward since no interest is calculated. Membership is limited to a small group and consists of neighbours and friends who know each other well. Each member of the arisan contributes a fixed amount of cash, which can vary between 10,000 rupiah – 50,000 rupiah, at the regular meeting and rotation is determined by lot.

Since they generally prefer to have a short *arisan* round, usually of one year; the members can be as many as twelve to fifteen members. These numbers mean that several members will have to contribute double to the *arisan*, which mean that they will automatically have the chance to draw the fund twice. If the lot fell to a member once, she will not participate in future draws but will continue to contribute until the last member has drawn the fund, after which the *arisan* is either dissolved or continued with a new round. Compared with officially organised groups, such as PKK, these *arisan* are small groups. Another remarkable feature of this phenomenon is the narrow spatial distribution of membership, as most of the members are close neighbours.

5.4 Modern Village Administration in Lembang

5.4.1 Village Administration

In West Java, as in other parts of Indonesia, the development of communities is based on village (*desa*) life. Other specific communities, especially government centres and commercial environments are added to the basic component which is developed and could eventually evolve into a city. In fact, the number of communities in West Java is fewer than the number of communities in Central or East Java and this can largely be attributed to the late development of the *desa* in West Java, but the cultural characteristics of these provinces which are rather different cannot be overlooked.

As Ekadjati (1995) explains, the establishment of a *desa* depended on the number of people living permanently in a certain location so that the principles of social life, culture and economy as a unity could be established autonomously. In West Java, these conditions are difficult to fulfil since the community members are generally swidden agriculturists[5] (*pahuma* or *petani ladang*) who farmed using the *huma* system. Members of these types of community perforce tended to move from one place to another, following the fields they used for the cultivation of their crops. Usually the area would be used only for the length of two harvests (two years). In the third year, they usually left the location and moved on to the next as the land had become infertile. They would look for new fertile land which could usually be found in the forest. Obviously, they had to open up and clear an area in the forest for their *ladang* or *huma*[6]. These clearings would be turned into non-irrigated agricultural fields for the next two years. This situation recurred every time they needed new fertile land. While working on their new fields, they would remain at the centre of their location, even though the distance from one *ladang* to another could be quite far away. In the general run of things, one *ladang* is cultivated by one family only and, as a result, there is almost no communication between the *ladang* peasants which obviated contact between the *ladang* peasants. Each *ladang* peasant tended to work to fulfil the individual family's basic requirements. Accordingly, they seldom interacted with each other, a situation which can still be seen in the *Kanekes* community (*Baduy*) in the area of south Banten. Until the middle of the last century, this ladang system is still common and new fields are being opened in the hinterland of West Java. At that time,

efforts are already being undertaken to improve the agricultural skills of the *ladang* peasants and to introduce the *sawah*[7] system to the local community. These endeavours are carried out cautiously employing a socio-cultural approach to help ease the transition.

Garna (1984) states that the initial stages of the process of establish a *desa* in the Sundanese community began with the emergence of an *umbulan* (a settlement consisting of one to three houses and their surrounding area). In the next stage this evolved into a *babakan* (a settlement consisting of four to ten houses). Later, the *babakan* developed into a *lembur* (a settlement consisting of ten to twenty houses). The next stage is a *kampung* (a settlement comprising more than twenty houses). Eventually, the *desa would be* established as the result of the growth of a group of *kampung*.

Preferring to work with the ladang agricultural system, the Sundanese people clung on to the *huma* system and it is not until the mid-nineteenth century that the system of irrigated rice-fields was introduced into the Sundanese community. Given this circumstance, the characteristic way of life in the *desa* was inclined to be homogeneous, that is agricultural. This homogeneity is in contrast to the characteristic of life in the cities which is heterogeneous. In the sixteenth century, the capital cities emerged as the centre of the government of such kingdoms as *Pakuan Pajadjaran* and there is a cluster of various port cities along the northern coastal area, among them Banten, Kalapa, Karawang and others. However, with the exception of Cirebon and Kalapa, which later became Jayakarta, then Batavia (and is eventually named Jakarta), the development of these cities was slow. The present characteristic heterogeneity in West Java emerged in the early twentieth century and has continued until the present time.

During the period of the Hindu influence (before 1579), the term *desa* is already known to the Sundanese community as it is mentioned in the *Prasasti Kawali* and the *Kropak* text 632. However, at that time the term *desa*, keeping close to the original Sanskrit sense, meant 'country' (*negara* or *neger*i), which is different from the present meaning. The term *desa* in its present sense emerged in the seventeenth century. Initially, a *desa* is formed on the basis of a traditional alliance and is usually known as a *desa adat* (traditional village) enshrining its own tradition. This history is reflected in the expression *ciri sabumi, cara sadesa,* meaning 'every village has its own tradition'. As a traditional village, it is an autonomous institution, meaning that it could regulate itself, fulfil its own needs and arrange its own domestic affairs.

Hence, Ekadjati (1995) notes, a *desa* is not only a social entity, it is also a legal and economic unity; in other words, a unity of human lives or a cultural unity. In the early nineteenth century, as the colonial government began to formulate its policy towards direct government of the indigenous people, it inevitably became involved in the village administration. As time passed, it gradually issued various rules and instructions which regulated the village government and its organization. These regulations are designed to bolster its own interests and benefit it directly. Among many notable regulations are those to reform the election of a village head, set out details of his functions and so forth. All these general rules about the village government were published in S*taatsblad* (Government Gazette) number 83 in 1906, better known as the *Inlandsche Gemeente Ordonantie* (Regulation on Native Communities).

The involvement of the colonial government in the traditions of the *desa* could be traced in the prohibitions, changes and sometimes in the maintenance of certain traditions. Hence, at that period a *desa* is the lowest government unit in the Netherlands *Indiesch* government structure (National Archives 1974). Currently, the position of *desa* as a part of the higher authority is still valid. Its position has been affirmed by a law passed in 1979, which still

holds the diversity and tradition of the *desa* in respect (*cf.* Ekadjati 1995). At present, the *desa* is a subordinate part of a *kecamatan* (sub-district).

In this community-based organisation, a distinction is made between the indigenous community-based institutions and those initiated by the government, which are established by government decree issued by the Ministry of Home Affairs. The purpose of this legislation is to obtain a universal pattern of community organization all over the country. The lowest level of local government official is the *Kepala Desa* (Village Chief) or the *Kepala Kelurahan* (Head of the Urban Village Unit. The *Kepala Desa* is a local resident elected by villagers for a period of five years. Upon his appointment, he becomes a salaried employee of the local government and is assisted by a government-appointed secretary and a treasurer chosen from his own community. The *Kepala Kelurahan* or *Lurah* is appointed by the local government and might come from outside the kelurahan. The *Lurah* also has government-appointed staff to assist him in his work. Together his team makes up the village/*kelurahan* government officials. Over and above these organisations is a *Lembaga Ketahanan Masyarakat Desa* or LKMD (Village Community Resilience Council) consisting of a standard set of sections whose task is to help develop various aspects of community life. The LKMD members are appointed by the chief of the village/*kelurahan* (*cf*. Ekajati 1995).

Meanwhile, sub-villages or neighbourhoods such as *dusun/rukun warga, rukun tetangga* are headed by local residents, selected to fulfil their honorary positions by a combination of social prominence or social influence and the assent of the village elders or heads of households. The *Rukun Tetangga* (RT) is a small, specific cluster of households from the same neighbourhood and the head of *rukun tetangga* (*ketua* RT) is elected by household heads in the RT. Later, all the *ketua* RT of the region will elect the head of *rukun warga* or *ketua* RW, the head of the next higher level neighbourhood unit. The *ketua* RT and *ketua* RW work voluntarily, since theirs are non-governmental positions. The duty of the *ketua* RT is to manage his *Rukun Tetangga* (neighbourhood), which involves organising government-sponsored and non-government activities and acting as mediator between the government and the community members. He can also may motivate the people in his RT to cultivate productive plants (bananas, papayas), MAC plants (for ingredients of *jamu*) and also to clean up public facilities utilising the spirit of *gotong-royong* (mutual cooperation).

Table 5.6 MAC plants used in Sundanese traditional herbal medicine, as documented in the study area of Lembang.

Sundanese/ Local name	Indonesian name	English name	Scientific name	Part used	Therapeutic use	Preparation	Freq. of Mention
Antanan Gede	*Pegagan*	Broken Copper Coin	*Centella asiatica* Urban	Leaf	Fever, as diuretic hypertension, measles	Boiled, pulverized, dried drink as tea, fresh as '*lalapan'*	68
Alpuket	*Alpukat*	Advocado	*Persea americana* Mill.	Leaf, fruit	Kidney stone, hypertension; smoothen and moisturize skin	Boiled, steeped, smashed flesh of fruit	12
Bratawali	*Brotowali*	Bitter Grape	*Tinospora crispa* (L.) Miers	Leaf, all parts	Diarrhoea, itchiness, jaundice	Boiled	84
Bawang bodas	*Bawang putih*	Garlic	*Allium sativum* L..	Tuber	Hypertension, cough, intestinal worms	Pounded chewed	83
Bawang beureum	*Bawang merah*	Shallot	*Allium cepa* L.	Tuber	Stomach filled with air, catch cold	Scraped, boiled	87
Balimbing	*Belimbing manis*	Star Fruit/ Carambola	*Averrhoa carambola* L.	Fruit, leaf	Hypertension, cholesterol, as diuretic	Scraped, pounded	78
Calincing	*Belimbing wuluh*	Small Sour Carambola	*Averrhoa bilimbi* L.	Fruit, leaf	Hypertension, cough, diabetes	Boiled	78
Cikur	*Kencur*	Greater Galingale	*Kaemferia galanga* L.	Rhizome	Cough, catch a cold, rheumatic pain	Pounded, boiled, eaten raw	65
Cecendet	*Ciplukan*	Morel Berry	*Physalis minina* Linn.	Roots	Intestinal worms, fever	Boiled	14
Cingcau	*Cincau*		*Cyclea barbata* Miers	Leaf, root	Stomach ache, fever, hypertension	Squeezed for the juice, steeped	18
Eurih	*Alang-alang*	Satin Tail/ Blady Grass	*Imperata cylindrica* L.	Roots	Kidney stone, diarrhoea, as diuretic	Boiled	5
Gedang	*Pepaya*	Papaya	*Carica papaya* L.	Fruit, seeds, leaf	Constipation, Mouth ulcer	Fruit is consumed Leaf, boiled/steamed	91
Hades	*Adas*	Fennel	*Foeniculum vulgare* Mill	Fruit	Cough (children), haemorrhoids	Pounded, boiled	85
Handeuleum	*Daun ungu*		*Graptophyllum Pictum* Griff.	Leaf	Constipation, haemorrhoids, rheumatism	Boiled, pounded	23
Jahe	*Jahe/Halia*	Ginger	*Zingiber officinale* Rosc.	Rhizome	Vomiting, sprain	Boiled, scraped	74
Jawer kotok	*Iler*	Mayana	*Coleus scutellarioides* Benth.	Leaf, stem, root	Haemorrhoids , leucorrhoea, fever, stomach-ache	Boiled	18
Jeruk nipis	*Jeruk nipis*	Lime	*Citrus aurantifolia* Swingle	Fruit	Influenza, fever, cough, asthma	Squeezed juice, drink	80
Jambu batu	*Jambu biji*	*Psidium guajava*	*Psidium gaujava* L.	Leaf	Diarrhea, diabetes	Pounded, boiled	85
Katuk	*Katuk*	Sweet Leaf Bush	*Sauropus androgynus Merr.*	Leaf	Breast milk production, fever	Boiled	41
Koneng	*Kunyit*	Turmeric	*Curcuma domestica* Vhal.	Rhizome	Improve appetite, diarrhea, asthma	Grated, boiled	62
Koneng gede	*Temulawak*	*Curcuma*	*Curcuma xanthorrhiza* D.Dietr.	Rhizome	Diarrhea, improve lactation	Boiled, steeped	34
Kalapa hejo	*Kelapa hijau*	*Coconut*	*Cocos nucifera L.*	Fruit	Poisened, lessen pains during menstruation, fever	Drink fluid of the coconut fruit	5
Ki urat	*Daun sendok*	Greater Plantain	*Plantago major* L.	Leaf, Root	Cough	Steeped	8

Sundanese/ Local name	Indonesian name	English name	Scientific name	Part used	Therapeutic use	Preparation	Freq. of Mention
Kumis kucing	*Kumis kucing*	Cat's Whiskers	*Orthosiphon Aristatus* Miq.	Leaf, flower	Rheumatism, kidney stone	Boiled, pounded	47
Lidah buaya	*Lidah buaya*	*Aloe vera*	*Aloe vera* L.	Leaf	Haemorroids, blister caused by a hot object, intestinal worms, constipation	Grated, eat flesh of leaf	2
Laja	*Lengkuas*	Greater Galingale	*Alpinia galanga* Willd.	Rhizome	Kind of skin fungus	Pounded	36
Panglai	*Bangle*	Purple Ginger	*Zingiber cassumunar* Roxb.	Rhizome	Constipation, Use after delivery	Steeped	20
Paria	*Pare*	Bitter Cucumber	*Momordica charantia* L.	Leaf, fruit, root	Intestinal worms, cough, diabetes	Steeped, pulverised	12
Peuteuy selong	*Petai cina*		*Leucaena leucocephala* deWit	Seeds, leaf	Intestinal worms, diabetes	Pounded, steeped	4
Surawung	*Kemangi*	Lemon basil	*Ocimum citriodorum*	Leaf	Mouth ulcer	Eat raw, steeped	2
Sembung	*Sembung*	False Ox-tongue	*Blumea balsamifera* (L) DC	Leaf	Rheumatism, colic, fever	Pulverised, steeped	2
Salam	*Salam*	k.o. Bay tree	*Eugenia polyantha* Wight.	Leaf	Diarrhoea, diabetes, scabies	Boiled, pounded	23
Saledri	*Seledri*	Celery	*Apium graveolens* L.	Leaf & stalk	Hypertension	Pulverised	37
Sampeu	*Singkong/ ketela pohon*	Cassava	*Manihot esculenta* Crantz	Leaf, cassava	Blister caused by a hot object, intestinal worms	Pulverised, boiled	2
Seureuh	*Sirih*	Betel	*Piper betle* L.	Leaf	Nose bleeds, halitosis, cough, leucorrhoea	Fresh, boiled	82
Waluh siem/ lejet siem	*Labu siam*	k.o. Squash	*Sechium edule* Sw	Fruit	Mouth ulcer, bleeding of gums	Cooked, eat raw	20

Notes

1 A *warung* is a small shop which sells such everyday necessities, as various vegetables, spices, sweets, cigarettes and over-the-counter medicine. The *warung* can occupy the front room or a small space on the veranda of the house. A number of housewives in the Lembang sub-district have opened a *warung* to earn some additional cash, without having to leave their children at home.

2 Farmers in these communities only tend the livestock since they do not own it themselves.

3 People called it a 'transit village' because they consider the village in which they live to be only a temporary place of residence. If there is a better job in another village they will move from the 'transit village'.

4 *Pengajian* is reading the Quran together by a group of Muslim women who usually meet once a week at the house of a member or at a nearby mosque.

5 Swidden agriculturists (*pahuma*) are peasants who are using the swidden or slash and burn method to open a new location for their rice -ields. The members of this type of community tend to move from one place to another, following the fields they use for cultivation of their crops. Usually the field is used only as long as two harvests (two years). In the third year, they usually leave the location since the land has become infertile. They will look for new fertile land which is usually found in the forest. Obviously, they have to open up a location in the forest for their *ladang* or *huma* which will be turned into non-irrigated agricultural field for the next two years. This situation recurs every time they need new fertile land.

6 *Ladang* or *huma* are non-irrigated agricultural fields or fields for dry rice cultivation.

7 *Sawah* are wet or irrigated rice-fields.

Chapter VI *ARISAN*, *GOTONG ROYONG* AND *TOGA*

This chapter presents a description of the *arisan*, a local association which is popular in many parts of Indonesia. It is found widely spread at all socio-economic levels, in almost every neighbourhood of urban and rural communities in Indonesia. The *arisan* which is found throughout Indonesia arranges regular social gatherings. Although *arisan* gatherings are actually held to bond friendships among their members, they often include a welfare component.

One of its main activities is the lottery of the savings obtained from the contributions of *arisan* members. This is an effective way of saving money through a rotating lottery which is usually drawn at the monthly gathering. The *arisan* is also a strategic means of indigenous communication and information exchange. Its meetings are often used as an occasion at which to exchange information with other members about almost everything, about actual events which have happened around them, education, nutrition as well as 'women's and family matters', namely the illness of family members, relatives or friends who have recovered from a serious disease after treatment with *jamu* or indigenous herbal medicine.

This chapter also describes the spirit of *gotong royong* which is exemplified in the *arisan* association. *Gotong royong* is a traditional Indonesian system of reciprocal time exchange and is an ancient segment of the social structure which is still widespread in communities throughout most parts of Indonesia.

6.1 *Arisan*: Traditional Community Association

6.1.1 The Traditional *Arisan* Association

As an informal local association[1], the *arisan* is popular in many parts of Indonesia and tends to become widely known as the women's 'lottery club'. Each month, a group of women will gather and contribute a certain amount of money, the sum of which has been previously agreed by all members of the group. Each participant or *arisan* member is required to contribute the same amount monthly until the *arisan* 'round' has been completed. As indicated above, each of the participant's names is written on a piece of paper which is rolled up and put in a bottle or glass. One or two names (depending on the size of group) are drawn each month.

The next month, the winner of the lottery is required to contribute the same fixed amount, but her name is withdrawn from the lottery until all other members have won or had a turn to be the 'winner', when the *arisan* 'round' ends and the participants can decide whether or when to start the next *arisan*. Hence, each month a lucky winner takes home a certain amount of money. Such events are usually preceded by a popular talk or a lecture about actual and common interests such as health care, education and the like, presented by a guest speaker. After the formalities, *arisan* members nurture their bond of friendship while taking refreshments like tea and cake, enjoying each other's company, catching up on local news and gossip, sharing their problems, chatting and making jokes until its time to leave.

In order to gain a clear understanding of the *arisan*, for instance, take an *arisan* group which meets once a month, with each member contributing 10,000 *rupiah*. If the *arisan* consists of fifteen members, at each meeting the pool will be 150,000 *rupiah*. At the first meeting, the members draw lots and one member wins the pool. The following month, the member who has previously won the lottery will host the meeting and once again each of the

fifteen members contributes 10,000 *rupiah*, afterwards lots are drawn among the fourteen members who did not win in the first month. Hence, a 150,000 *rupiah* pool is distributed each month during a period of fifteen months, at which point each member will have won 150,000 *rupiah* once and will have paid out a total of 150,000 *rupiah* in monthly contributions.

Handa & Kirton (1999), in a standard economic analysis, claim that the primary value of such a rotating and savings credit association (ROSCA) lies in the fact that everyone except the last winner in the cycle is actually borrowing money from the other members without paying interest, since the first winner borrowed 140,000 *rupiah* which will be paid back over fourteen months, the second winner borrows 130,000 *rupiah* to be paid back over thirteen months and so on. The lapse of time between *arisan* gatherings can be anything between once in a month, once a week, or even every three months, depending to the type of *arisan*.

In addition to this economic dimension of the *arisan*, which is generally considered as very important, largely because of its effective function for credit and saving - especially attractive at times of adversity and economic crisis where people have to struggle hard to earn enough money to pay the increased costs of food, fuel, school fees and other domestic needs – these local institutions fullfil a significant socio-cultural function in the community. Interestingly, an *arisan* meeting may also contain elements of indigenous knowledge and practices, derived from local wisdom and are still observed by the local communities, such as the *sumbangan*[2]. Also, the institution often ties large circles of neighbours to each other through various social celebrations. It also unites relatives living in different places who come to a monthly family gathering.

6.1.2 Recent Development of *Arisan in Lembang*

Most *arisan* groups in the research area of Lembang have adopted the second version. *Arisan* members meet at scheduled intervals, each contributing a fixed sum into a pool. Then, using a randomised mechanism, the winner is chosen and receives the pool, whereupon her name is eliminated from future draws. Subsequently, all members continue contributing a fixed amount of cash until each member of the group has won the pool. Afterwards, a new cycle may commence, or the group might break up.

Arisan can be found among traders in the market, among work colleagues or in organisations. They are often also held at official meetings arranged at the different hierarchical levels such as a *desa/kelurahan* (village) or a *dusun/lingkungan* (neighbourhood). There are *arisan* whose members consist specifically of either women or men only or have a mixed membership of women and men, depending on the type of *arisan*. There are various distinct types of *arisan*:

- *Arisan* organised by a *paguyuban* or association, whose members join voluntarily because of the similarities of their interests or backgrounds. An *arisan* usually has a chair lady, secretary and treasurer, but the person who keeps the *arisan* up and running is the treasurer who is usually the collector of the monthly *arisan* contribution.
- *Arisan* organised by an *RT/RW (*Neighbourhood or *Rukun Tetangga/Rukun Warga).*group, the lowest level in the government structure, consisting of a cluster of neighbouring households. The head of *RT/RW* is a non-government official, whose duty is to take care of his *RT/RW*, organise government-sponsored and non-government activities and to act as a mediator between the government and his community. He might also motivate people in his *RT/RW* to cultivate medicinal plants (TOGA) and productive plants (for example, bananas, papayas and the like) and clean up the public facilities by '*gotong- royong'* (by

mutual cooperation).The *RT/RW arisan* is usually organised by the wife of the *RT/RW* leader who is also the chair lady, assisted by a secretary and a treasurer.

- *Arisan* organised by government-related organizations. In rural areas this is usually the *Pemberdayaan Kesejahteraan Keluarga* (PKK) (Family Welfare Empowerment), popularly known by its abbreviation PKK.
- *Arisan* organised by the women's organisations attached to government institutions or ministries. Wives of functionaries are usually united in a women's association (*Dharma Wanita*), and one of their activities is organising their members (wives of the officials and staff).
- *Arisan Barang* (Goods) organised by a group whose members intend to purchase a certain sort of commodity which is too expensive for them to buy as an individual if they have to pay cash. This might be a washing machine, a refrigerator or even a piece of jewellery. The member who draws the *arisan* lottery will receive the utensil and the purchasing is arranged by the *arisan*.
- *Arisan Pasar*[3] is organised by vendors in a traditional market. They usually do not have a monthly gathering and the *arisan* money is collected every day by a collector. The lottery is mostly drawn every week and the money is most frequently used by the vendors as additional capital.

Figure 6.1 *Arisan* members at a monthly gathering in *Desa Jayagiri*.Drawing the *arisan* lottery.
(Source: Mila 2005)

- *Arisan* Saving is organised by members whose main purpose is to save an amount of money which will be used as an investment in their business. In this kind of *arisa*n the amount of money can reach millions of *rupiah*. Understandably this type of *arisan* is generally found among business-oriented women.

- *Arisan Keluarga* (*arisan* based on kinship) is organised by a group who are tied together by family relations. The main purpose is to enhance and maintain the family relations among all the members of the family, especially those who do not often meet regularly, even though they might live in the same region. On this occasion, the younger generation has the opportunity to meet the older generation; something which would never have happened if they had not joined the *arisan keluarga.* The amount of money is not important since the main reason for the gathering is to socialise with the whole family.

Currently, various types of *arisan* have emerged to meet new purposes, especially in large cities there are *arisan* for charity, where the pooled money is given as charity to a school or an orphanage which has been especially chosen for this purpose. There are even various extravagant *arisan*[4] of the elite.

6.1.3 *Arisan* to Integrated Microfinance

As a rule, there are various informal financial institutions for mobilising limited capital in rural communities and most community members have become used to being dependent on them to such an extent that the formal financial market still remains unfamiliar territory. Hence, the rural people tend to rely on informal credit such as loans from informal money-lenders or they borrow money from relatives or neighbours. As a back-up, there is also the *arisan* which is an informal credit association; a rotating savings and credit associations which is the most widespread institution for mutual saving and which can be found everywhere in rural and urban Indonesia.

The main characteristic of the *arisan* association is as a form of collective savings based on principles of trust and mutual cooperation or solidarity (*gotong royong*). It is important not to overlook the fact that the *arisan* also plays an important role in the economics of developing countries and has a significant capacity to adjust economic disparities. As said at each *arisan* gathering all *arisan* members have to contribute a fixed amount of cash to the pool, which will later be given to the member who draws the lottery. The winner of the lottery might possibly use this sum of money to pay for domestic necessities or even discharge debts, although some members might use it as additional capital to boost their small business. Joining an *arisan* for some members means that they will have an opportunity to come by some additional money. The money collected in the *arisan* is actually an interest-free loan. Since trust is the solid foundation of the institution, a member who has drawn the *arisan* pool is obliged to continue contributing money until the *arisan* 'round' is finished; when all members have had a turn to draw the *arisan* pool. If a member defaults, she will have to face sanctions and will not be allowed to join the *arisan* again in the next round. Obviously, in times of economic crisis, when people have to make great efforts to overcome economic difficulties, the *arisan* can become an important economic support especially for those with a very low income, living in either rural or urban areas.

As Slikkerveer (2007) states, in the 1990s, it is obvious that people with a very low income needed more than credit. They also required a variety of other financial services expanding the concept of micro-credit to microfinance, which includes a much more extensive area of products and services plus insurance. Accordingly, microfinance institutions began to offer their services to their clients on a group-based lending scheme, in which borrowers form groups to guarantee one another's loans. Usually, these groups meet regularly to arrange loan repayments and to deposit savings. In these microfinance institutions, loan cycles and repayment schedules for micro-credit are arranged in the short-term, usually

between three to six months, linking up with the character of micro- businesses enterprises which have a daily or a weekly cash income. The benefit here is that the interest rates on these loans for underprivileged women are always considerably lower than the rate charged by other credit sources or money-lenders. This important transition from credit unions to microfinance institutions has had two results:

Firstly, underprivileged people, especially women, have shown very good repayment rates. In fact, these rates have been better than those from the formal financial sectors in most developing countries.
Secondly, underprivileged people with very low income have been willing and able to pay certain interest rates which have made it possible for the microfinance institutions (MFIs) to cover their own costs.

Quite apart from this more formal organisation of microfinance, the presence of an informal or pre-co-operative microfinance group known as Rotating Savings and Credit Association (ROSCA) has been hailed and acknowledged in the developing world and is described by Bouman (1983) as 'the poor man's bank'. This is an institution in whcih money does not remain idle for long but changes hands rapidly, satisfying both consumption and production needs. Analysing his research in Yogyakarta, Lont (2005) defines the Rotating Savings and Credit Association (ROSCA) as an association formed on a basis of the desire of a number of participants who want to make regular contributions to a fund which is given in whole or in part to each contributor in turn. Nearly fifty years earlier, Geertz (1962) described an *arisan* in Mojokerto, in Eastern Java as an 'intermediate' institution developing within the peasant social structure, to complement/match up agrarian economic patterns with commercial ones thereby functioning as a link between peasant and trader attitudes towards money and its uses. The individuals in the ROSCA select each other, a factor which assures that participation is based on trust and social forces, plus a genuine commitment to participate properly.

Many communities in developing countries lack of funds to facilitate trade in locally produced goods and services. This problem might be solved by introducing a Micro-credit Programme. Unfortunately, this step cannot be taken without borrowing external funds to use as a loan base and the sticking point is that such funds demand a high rate of interest. Although the implementation of Revolving Savings and Credit Associations (ROSCA) could be a solution right on the doorstep, still local people do not have full access to the formal financial institutions ion the country.

One solution is to implement a Microfinance Programme through a Revolving Savings and Credit Association (ROSCA), a system for accumulating members' savings and redistributing them according to a particular method. ROSCAs are based on the ancient economic systems in many countries, among them India and China, where they have been in used for well over a thousand years. In Indonesia, the *arisan* system is a traditional savings collection and loan distribution system, although it is usually thought of as just a 'lottery club' for women. That is as maybe, but some simple modifications to this system can transform it into a ROSCA, in which relatively small amounts of savings are accumulated and lent out for productive enterprise activities at the local level.

Martowijoyo (2007) claims that although Indonesia is experiencing strict budget constraints, the old paradigm remains entrenched in the attitude of policy makers, in spite of the pressure of microfinance from the outside world which actually led to the participation of Indonesia in the *International Year of Microcredit* 2005. Therefore these local microfinance institutions (MFIs) have been left largely undisturbed, far from the interest of the government.

Disparagingly, Ismawan (2006) notes that the neo-liberal development approach, which advocates a high economic structure by creating some growth centres, has unfortunately created narrow and un-rooted economic structure in Indonesia. Hence, when the economic crisis hit Indonesia, it is the vast majority of economic players in the micro sector who had been ignored for many years, who became the pillars which allowed the people's economy to survive.

In addition, Slikkerveer (2007) notes that the overall problem which Indonesia is facing in its efforts to reach sustainable development is characterised by two interrelated dimensions: a societal dimension of the constrained building of an inclusive financial sector to reach the poor and excluded groups of the population and a scientific dimension of the constrained development of adequate human resources to supply government institutions and microfinance institutions (MFIs) with adequate manpower.

In the rather innovative vision of Slikkerveer (2009), the current problems of rural Indionesia of poverty and famine could be solved if a new cadre of integrated microfinence managers would be trained ad the advanced level, appropriately capable of extending integrated financial and social services to the poor and low income families.

Despite the efforts of the government, the state-owned *Bank Rakyat Indonesia* and private MFIs to provide various forms of financial services to the entire population the access of poor and deprived people in rural areas has not been improved and they shun the use of these formal institutions. The result is that the microfinance institutions (MFIs) have not succeeded in extending their financial services and the poor and very poor people have still failed to improve their livelihoods. Aggravating the situation, despite important advances, the construction of an inclusive financial sector which is urgently needed to improve the overall sustainable development of Indonesia has lagged behind. The sticking point is that both the expansion and adoption of services are undeniably limited by client remoteness, limited access and lack of financial education, but the greatest obstacle to progress has been the insufficient capacity at the management and staff level of government institutions and microfinance institutions (MFIs). This latter problem is recently identified as the *principal bottleneck* to suitable expansion of financial services throughout the country (*cf.* Slikkerveer 2007).

In Asia in general but particularly in Indonesia, most microfinance programmes usually remain commercially oriented implementing 'institution-building' and 'financial system approaches' which tend to restrict their activities to the provision of financial and commercial services. Therefore they ignore the micro-sector which could offer interesting possibilities. Some recent studies have shown, that for many generations, these local groups in Indonesia have been accustomed to approaching their existing traditional institutions and mutual aid associations, group lending and neighbourhood support at the community level, among which the *arisan* is a significant institution. In the informal sector, the *arisan* is the traditional microfinance institution (MFI) *par excellence.* As it is found throughout the nation, it can be called the Indonesian rotating savings and credit association (ROSCA).

Accordingly, embarking on the development paradigm of Indigenous Knowledge Systems and Development (IKSD), the concept of *Integrated Microfinance Management* has been constructed by Slikkerveer (2007) at the Leiden Ethnosystems and Development Programme (LEAD) of Leiden University, on the basis of these and related studies. In this new orientation in development cooperation, the local peoples' systems of knowledge and practice are used as a basis for a strategy of '*development from the bottom*' rather than '*development from the top*', in order to improve the participation of local community members, constructing a sound sustainable community development (*cf.* Warren, Slikkerveer & Brokensha 1995). As

Slikkerveer (2007) notes, integrated microfinance management refers to the integration of the above-mentioned traditional institutions and organisations to create a new form of microfinance institution (MFIs) in the hands of skilled managers who are able to develop and extend the financial services to the poor and in doing so, also include the essential social services of health care and education in their people-oriented packages. Pertinently, recent experience has shown that such extensions of services from the grassroots level do tend to increase the participation of local peoples and communities, paving the way for the development of the '*welfare approach*' in Indonesia in a special form; one well-adapted to the cultural context of traditional institutions and organisations which have served the local populations for so many generations in a sustained mode. Within this context, Slikkerveer (2007) points out the promising projects of the Martha Tilaar Group promoting the *Jamu Garden* and *Organic Farming* (*Kampung Djamu Organik* or KADO) do actually provide new opportunities to adapt and implement such integrated microfinance approaches, enabling local women and entrepreneurs to participate more actively in microfinance development in the rural areas of Indonesia.

As Slikkerveer (2007) argues, the complex relationship between microfinance and the three major Millennium Development Goals (2000) of poverty reduction, health and education, has now been recognized as first target of poverty reduction. The body of evidence for the impact of microfinance on poverty has now grown to such a level that it irrefutably proves that such microfinance works as a poverty alleviation mechanism for the poor: if the services target the poor and the institution is well-run. In fact, a growing body of knowledge supports the assertion that microfinance is a useful strategy for alleviating global poverty. Among these studies are those on local co-operative credit unions by FINRURAL (2003), UNPF (2005); UNCDF (2005), and on the need for building inclusive financial sectors by UNDESA (2005), UNCDF (2006) and CGAP (2007) which document the fact that microfinance has been shown to reduce poverty and realize human development goals in education, health and women's empowerment. Moreover, Agung (2005), Gheneti (2006) and Slikkerveer (2007) emphasise the need to develop an integrated management system to reinforce not only the financial, but also the social performance of these microfinance institutions (MFIs) for the underprivileged.

Turning to the *second* and *third targets* in the attainment of the Millennium Development Goals (MDGs), including health and education, recently there has been growing acknowledgment of the close link between poverty, poor health and inequality in education. When this claim is placed alongside the evidence of the broader impacts of microfinance, in these areas, it reveals the urgent need for the expansion of microfinance services to health and education for the poor as a primary strategy for meeting these particular Millennium Development Goals (MDGs). Moreover, the microfinance institutions (MFIs) themselves are now recognising that they are dependent on the health of their clients and their families; because women face the challenge of having to assume the triple roles of wife, mother and businesswoman.

Meanwhile, Ismawan (2006) notes that at present major microfinance institutions (MFIs) are conducting training programmes designed to prepare trainees to work with machinery and this type of training has contributed to the industrialization of microfinance, in which a significant growth of MFIs already has been recorded. At the moment, in the field of the integration of education and microfinance management, clearly microfinance in Indonesia still lacks a skilled workforce at all levels and a considerable effort will be required to increase the amount of scientific and managerial ability available to support all sorts of projects.

6.2 *Gotong Royong* and *Berdikari*

6.2.1 The Spirit of Gotong Royong

The original *arisan* in Indonesia is a local association composed of members of a community who meet regularly and contribute a fixed amount of money to fund the interest of the group or the individual, thereby personifying the spirit of *gotong royong*. The term *gotong royong* is rooted in the *Javanese* culture, which has been made popular by the political leaders of the country since the Revolution. Sarwono (1993) points out that *gotong royong* refers to social interaction based on reciprocity among members of a family or a community. It can occur spontaneously or it can be organised in the context of various events in family life or in larger community groups, as a expression of concern about other people.

As Kartohadikoesomo (1984) notes, in the rural areas or villages of the *Surabaya* and *Pasuruan* regions in East Java, the *arisan* association has rules and set purposes, with a view to pay for work which had been carried out, to assist in alleviating the burden of a group of people or of an individual, who have to pay for expenses of life-cycle celebrations such as circumcision, marriage or death in the family. Besides relieving the financial burden of these commitments, it is frequently used by village authorities as a means to mobilise the villagers to carry out government programmes, especially those designed to improve conditions in the village.

In addition, Geertz (1983) draws attention to the importance of *gotong royong* in Indonesian life and includes an extensive list of highly specific, often rather complex institutions for achieving cooperation in work, politics and personal relations, all rather vaguely gathered under culturally based and quite indefinite representations such as *rukun* (mutual adjustment), *gotong royong* (community self-help or mutual cooperation) and *tolong menolong* (reciprocal assistance) which indicates social interaction with a superior force. Meanwhile, Hahn (1999) notes that people show respect for those who place commitment to general village welfare above personal gain. By consequence, the spirit of *gotong royong* or volunteerism is promoted as a cultural value. Perhaps nowadays, as the political economy becomes more privatized, capitalistic and individualistic *gotong royong* has lost some of its force.

Earlier, Koentjaraningrat (1961) stated, that *gotong royong* was one of the socio-cultural ethics of Indonesia and could be considered to correspond to generalized reciprocity which is one aspect of social capitalism. Initially, this ethic seems to have developed from the cooperative method of working essential to wet rice production in Java. In his work, Bowen (1986) distinguishes three generalized types of *gotong royong* which can be found in both rural and urban areas in Indonesia as follows:

- *gotong royong* 'labour mobilised for direct exchange',
- *gotong royong* 'labour mobilised on the basis of subordinate political status' or more commonly referred to as *padat karya* (intensive work programmes), and
- *kerja bakti* (voluntary labour).

Werner (1998) stresses that *gotong royong* is an important aspect of village life in Indonesia and is a collective action which encompasses community-organised activities such as building and maintaining the infrastructure such as roads and bridges, community buildings and water supply systems as well as providing related public services.

Since Independence, this ethic of *gotong royong* has been used by various Indonesian governments to promote their national development programmes. In its efforts, it concentrated especially on two types of *gotong royong*: *gotong royong* 'labour mobilised for direct exchange' and *gotong royong* 'labour mobilised on the basis of subordinate political status' or *padat karya* (intensive work programmes) and *kerja bakti* ('voluntary' labour) in Indonesia. Koentjaraningrat (1996) claims, that generalised reciprocity, which is the third type of *gotong royong,* still survives as a strong social norm in Indonesia.

6.2.2 The Concept of *Berdikari*

As Slikkerveer and Slikkerveer (1995) describe, the changing values and attitudes towards traditional pharmaceuticals after Independence has encouraged an orientation towards and trust in their own culture among various groups in the population. Since modern medicines became costly, rural people returned to rely increasingly on the easily accessible, relatively cheap herbal medicines, found in their own familiar environment, which they use in general for health maintenance and the preparation of home-remedies.

Hence, the use of traditional herbal medicine derived from plants from their own surroundings is widely adopted and has evolved into a renewed cooperative movement which turned to the cultivation of medicinal herbs and plants largely for private use. It soon became a community activity at the grassroots level since it is easily built into the social system of *gotong royong* which has then been reintroduced by the former President Soekarno. Women particularly were very happy to participate in this active form of self-reliance or *berdikari* in family health, which is initially referred to as *'Apotik Hidup'* or a 'Living Pharmacy'. Given this situation, it is not surprising that in the course of the 1970s, '*Apotik Hidup*' has already enthusiastically been adopted in the early development stages of the *Pemberdayaan Kesejahteraan Keluarga* (PKK) (Family Welfare Empowerment). This programme began as a co-operative movement consisting of a local self-help activity movement among village women of Java. Later it was extended to other communities and urban neighbourhoods throughout the country (*cf*. Slikkerveer & Slikkerveer 1995).

At the beginning of the 1980s, when the World Health Organization (WHO) recommended each Member State of the United Nations to explore and utilise its natural medicinal resources in its *Global Strategy for Health for All by the Year 2000* (1981), the Government of Indonesia decided to implement and formally support the cultivation and use of indigenous medicinal plants and herbs in its efforts to increase the self-reliance or *berdikari* of communities, particularly those in the rural areas. Subsequently, the concept of *Apotik Hidup* of PKK is institutionalized in all villages and the name is changed to *Taman Obat Keluarga* (TOGA) or 'Family Medicinal Garden', an important pillar of the national policy of self-reliance in health and related areas of food, nutrition and environmental conservation (*cf.* TOGA 1983; Sutrisno 1984; Esche 1987).

Slikkerveer & Slikkerveer (1995) point out that this policy of self-reliance in health is based on the general concept of *berdiri atas kaki sendiri* (BERDIKARI), the motto of 'standing on one's own feet', which had characterized the development philosophy of the country since Independence. As the *Declaration of Alma Ata* of WHO/UNICEF (1978: 79) stresses in particular the self-reliance of communities and national authorities in Primary Health Care (PHC), initiatives were launched to encourage the population to assume responsibility for its own health.

The concept sets the parameters of the extent to which individuals are able to maintain their own health and solve their own medical problems using the available resources.

The revival of indigenous knowledge and the practice of traditional herbal medicine presented a suitable 'vehicle' for the implementation of the concept of self-reliance in health promotion and care throughout Indonesia, supported by Non-Governmental Organisations and community-based voluntary groups, associations and co-operatives. Under these circumstances, it is not surprising that the primary interest of the government in the promotion of herbal medicine has generally been focused on future self-reliance in the production of medicines, as part of the Primary Health Care delivery system.

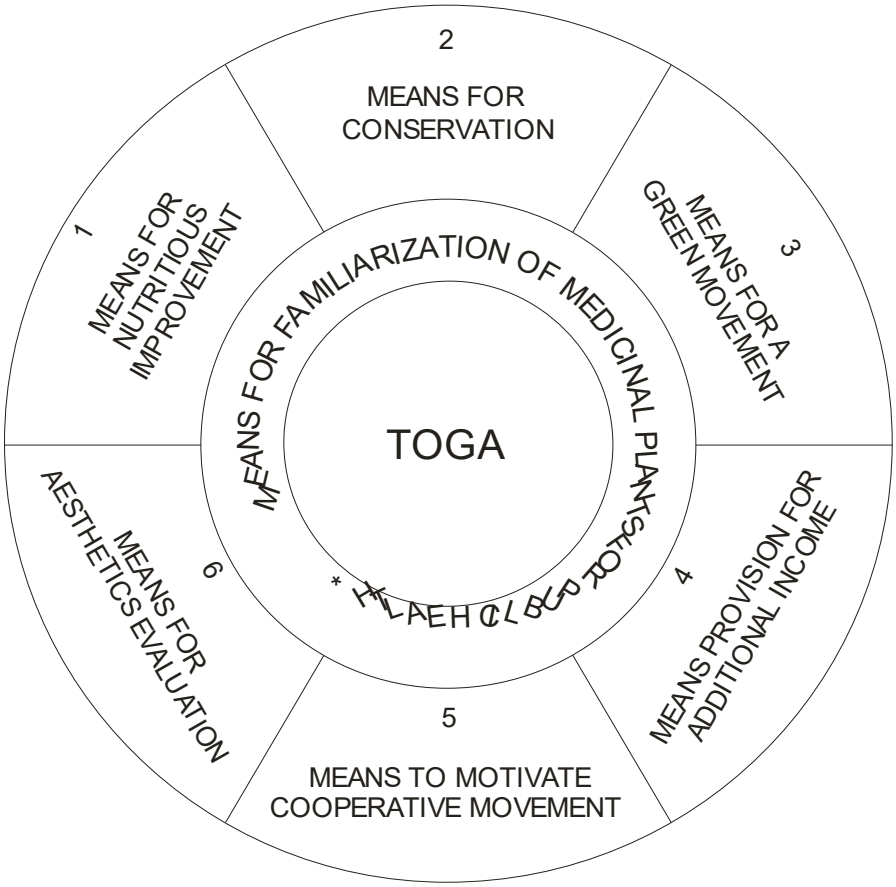


Figure 6.2 Scheme of the six activities of TOGA (translated)
(Source: TOGA Report 1981)

6.3 *Taman Obat Keluarga* (TOGA), Garden for MAC Plants

6.3.1 The Traditional Practice of *Taman Obat Keluarga*

Changes in the people's lifestyles have introduced alterations to the pattern of diseases. This situation requires an immediate response if a possible explosion of health problems such as heart diseases, cancer, HIV/Aids and so forth are to be overcome. The objective of health development is to encourage people's ability to live a healthy life and to overcome minor health problems on their own initiative by promoting health and championing illness prevention. To support this objective and improve the communication on medicinal plants, the

Indonesian government introduced and has since expanded *TOGA* or *Taman Obat Keluarga* (Garden of Medicine for the Family) in 1983.

Figure 6.3 A garden of MAC Plants in *Desa Cibogo.*
(Source: PKK)

TOGA has become a means to ensure the availability of medicinal plants which can be used for the health of the family by encouraging people to cultivate them themselves.

The community as an independent unit supplies the raw medicinal materials by cultivating them in their own *pekarangan* or home gardens, in a special area set aside for the purpose. In doing so, they observe standard operational procedures so that the products are internationally acceptable.

In order to increase the farmer's independence from formal health services, the cultivation of the medicinal plants should comply with specific requirements, such as the availability and easy proliferation of the plants in the area, and their utilisation for other purposes. At present, the mapping of the types of medicinal plants and their locations is being conducted by the Health DepartmentIt was the former President of the Republic of Indonesia, Soekarno, who reintroduced the movement of cultivating medicinal plants which had the advantages of being easily integrated into the social system of *gotong royong* and being broadly accepted as a renewed co-operative venture of cultivating medicinal herbs and plants largely for private use, which soon became entrenched as a community activity at the grassroots level. Given the significant involvement of women in this active form of self-reliance in family health, initially referred to as *Apotik Hidup* or 'living pharmacy', it is not surprising, that in the course of the 1970s, *Apotik Hidup* is accepted unhesitatingly in the early developmental period of the *Kesejahteraan Keluarga* (PKK) (Family Welfare Empowerment) (Slikkerveer & Slikkerveer 1995).

As Soemarwoto-Conway (1992) notes, home gardens can differ in size from a hundred to several thousand square metres and are found widespread in many parts of Indonesia. In these home gardens or *pekarangan*, which are small plots of land in front of or surrounding their houses, families cultivate medicinal plants and crops they require to take care of their specific needs. In the course of this process, the traditional herbal medicines have not only proved their usefulness to the population, they are also officially recognized by the government. This step means that they are promoted and the use of indigenous medicine is stimulated as an instrument by which to achieve better health for the entire nation.

Slikkerveer & Slikkerveer (1995) explain that *Apotek Hidup* refers to the said *pekarangan* in which medicinal plants used as ingredients in herbal medicine or home remedies are cultivated. Later, in 1983, the Indonesian government officially changed the name of the project to *Taman Obat Keluarga* (TOGA) or 'Garden of Medicine for the Family'. This designation had the advantage not only of describing a garden for medicinal plants with the emphasis on the plants peculiar properties, it also intimates the aesthetic arrangement of various medicinal plants in the garden. Previously, the government had also motivated families to plant home gardens with vegetables to supply the family with fresh food for their daily intake (Garden of Food for the Family or *Taman Gizi Keluarga*).

Although it still runs a strong campaign to stress the efficacy of indigenous herbal medicine and with this the concomitant promotion of TOGA, the government emphasizes that the tendency to use herbal medicines should not prevent people from visiting the *puskesmas* for Primary Health Care if they are suffering from some illness or disorder which does not seem to be responding readily to the herbal treatment. The recognition of the potential of indigenous herbal plants is indicated in the two objectives of TOGA which are the prevention of illness and the promotion of the state of health of the people.

Besides the two objectives, TOGA (1981) has several additional advantages shown in Figure 6.2 as follows:

- the improvement of the daily intake of nutritious substances from the fruits and roots of medicinal plants, such as *pare* (bitter cucumber), *lobak* (black radish), *tomat* (tomato), *bortol* (carrot), *seledri* (celery), *pisang* (banana), papaya (pawpaw), *sawo* (a very tasty fruit);
- the conservation and protection of particular species of medicinal plants;
- the promotion of a 'green movement' throughout Indonesia, including the cultivation of such trees as the *pulai* (*Alstonia scholaris*), the *asam* (*Tamarindus indica*), the *kedawung* (*Parkia biglobosa*) and the *jati* (*Tectona grandis*);
- the provision of additional income for rural families;
- the stimulus for the extra motivation for an extension of a co-operative movement, such as the *Koperasi Unit Desa (KUD)*, which embodies a sales cooperation of traditional medicines and simplisia at the village level;
- a re-evaluation of the aesthetics of family gardens (Slikkerveer and Slikkerveer 1995).

Honouring its acceptance of the *Declaration of Alma Ata* of Primary Health Care, the Indonesian government seeks to achieve the integration of traditional and modern medicine, also referred to as integrated medicine.

6.3.2 *Pemberdayaan Kesejahteraan Keluarga* (PKK)

The *Kesejahteraan Keluarga* (PKK) (Family Welfare Empowerment) is an organisation officially supported by the Ministry of Home Affairs, whose aim is to improve the social status of women in local communities.

Figure 6.4 A monthly meeting of the PKK in *Desa Kayuambon*.
(Source: PKK)

One PKK organisation usually covers an entire village and membership is compulsory for all women above the age of seventeen. Those women who are government officials themselves or the wives of officials are also obliged to join the PKK and assume responsibility as members of the steering committee.

Established in the late 1960s, the primary purpose of *Kesejahteraan Keluarga* (PKK) (Family Welfare Empowerment) at the time of its foundation was to improve family welfare through its programmes. The scope ot its remit actually covered ten primary needs of mankind, including the comprehension and implementation of the State philosophy, mutual cooperation, food, clothing, housing and domestic management, education and skill training, health, cooperation development, environmental conservation and health planning. Later, in the 1980s, its scope is enlarged to complement the new government structure therefore, in the rural areas at the sub-district level, the PKK is subsidised by the sub-district through the village government. It evolved into a vehicle by which the wives of the village leaders could improve the welfare of Indonesian families in their village.

At present, the organisation operates under the leadership of the wife of the village head, since the government automatically nominates her head of the PKK. The PKK runs several major activities which can be divided into two categories: official programmes and autonomous activities. The official programmes are laid down by government policy and are related to welfare work for women and infants, including preventive inoculations for babies

and medical check-ups for pregnant women. Most members participate in these activities. Each PKK village is divided into *dusun*-level groups. The members who play the most active part are principally teachers and civil servants, ordinary village women often have no time because they are too occupied with domestic matters. The consequence of this situation is that activities are usually centralized at community level. The stated aim of PKK is to establish welfare/prosperous families, by such projects as skill-training (baking, cooking, sewing), savings (*arisan*), growing medicinal plants (TOGA), cultivation of vegetables and child care.

Although PKK is a non-political women's movement, it is supported by the village community and therefore its endeavours can and do contribute to positive social change. PKK regards a family as the smallest unit in society, therefore if a prosperous society is to be achieved, the foundation has to be the welfare of the family. The programme of the national government is passed down through provincial, district and sub-district levels, so the communities can select activities from the programme and submit a proposal. After approval a budget will be allocated and, if necessary, an expert will be sent to assist the specific PKK with the activities.

Another important segment of its work is the credit programme for women. The government provides PKK with an annual subsidy of Rp. 100,000 which is used to provide credit to members. Most of the borrowers are petty traders and the money is used as working capital for their trade. Petty trading is the most typical job opportunity open to the women in the village. They work as market agents, which includes such jobs as market vendors, peddlers and small grocers, alongside engaging in farming and household chores. The credit system helps women participate in the job market. Besides these activities directed by the government, PKK runs such autonomous activities as providing mutual help (*gotong royong*) and credit among the members. For instance, PKK collects a spoonful of rice from its members every day and uses this to build up a source for relief work. The amount of rice collected can be made available in the event of a death or hospitalisation. As is the age-old custom in Indonesia, women also help with village wedding ceremonies. It is not always obvious which activities are performed under the auspices of PKK and which are a continuation of tradition (*gotong royong*) in the rural community.

The achievements of the Indonesian Women's Welfare Movement are widely acknowledged nationally and internationally, by by such bodies as WHO, UNICEF and UNESCO.

Notes

1. The term 'local institution' is used interchangeably with 'local association' or 'local organisation'. As Uphoff (1993) notes, though there is a subtle distinction between the two concepts, this follows the practice of most social science literature. Uphoff (1993: 614) defines institutions as 'complexes of norms and behaviors that persist over time by serving collectively valued purposes', such as money, the law and marriage. While organisations are 'structures of recognized and accepted roles' such as PTAs, worker's unions, rotating credit associations. In some cases, the terms overlap, for instance, the army is an institution as well as a group of soldiers and the Parliament is a law-making institution as well as an association of law-makers. Further, Uphoff (1993) also argues that the distinction is a matter of degree, and organisations can eventually become more or less 'institutional'.
2. *Sumbangan* is a form of a donation (mostly voluntary, although sometimes it can be obligatory as well) of money or rice for a certain purpose.
3. Most of the participants in an *arisan pasar* (traditional market) are small-scale sellers. Generally, the members are from a level which has only a slight margin of economic safety. The *arisan*

contribution is collected every day. There are no meetings, a collector will come to collect the daily contribution. The lottery is usually drawn every week and the cash received will usually be used as capital. The participants in *arisan pasar* are usually not in a position to participate in a monthly *arisan*, at which the contribution is bigger. However, realising the opportunity to receive a large amount of cash which they would not otherwise be able to obtain, they do their best to participate in the *arisan pasar*.

4. An extravagant *arisan* is an *arisan* group, mostly found in urban areas, in which the purpose to which the cash obtained from the *arisan* draw is put is to purchase luxury goods such as expensive imported genuine leather handbags, shoes or even jewellery, etc. This *arisan* usually co-operates with a department store selling these items, so that all members buy the same item for the same price as long as the *arisan* round has not been completed.

Chapter VII MAC PLANT KNOWLEDGE AND PRACTICE

This chapter presents the history of *jamu* before and after Independence, supplemented by a description of traditional herbal medicine in Indonesia. As background material, it gives an explanation of the Sundanese cosmovision and philosophy of life; the way the Sundanese perceive and describe their relationships in this world, including the use of medicinal, aromatic and cosmetic (MAC) plants. This section will demonstrate that the concept of cosmovision is a valuable one in the study of indigenous knowledge and practice.

Currently, there are definite signs that the Sundanese philosophy of life seems to be influenced by nuances impinging on their ancient philosophy, since all-pervading modernisation is inevitably affecting the body of knowledge, some parts of which have not been proof against the internal and external pressures exerted by of the dynamic phenomena in their culture. It is important to the Sundanese people to retain a firm hold on the values bequeathed to them by their ancestors or *karuhun*, which are still considered an effective way of dealing with the challenges of present-day life.

The Sundanese philosophy of life can be said to encompass five categories but having made the statement, this categorisation does seem rather artificial, since there are inter-relationships between the categories and consequently people are experiencing their lives in and between these five categories.

The chapter continues with a description of indigenous Sundanese medicine, *ubar kampung*, as well as of traditional healers and traditional birth attendants. Finally, descriptions of MAC plants for health promotion, illness prevention and treatment conclude this chapter.

7.1 *Jamu*: Traditional Herbal Medicine

7.1.1 The History of *Jamu* in Java

The modern medical world acknowledges Hippocrates as the first recorded individual person to use the peculiar properties of specific plants for medication but, on the basis of archaeological evidence there are others who claim that the Egyptians were the first to use plants as therapeutic agents. In Indonesia, the people have been using indigenous herbal medicine since time immemorial, passing down this knowledge from generation to generation to improve their health and to prevent and treat diseases. Herbal medicine is usually prepared as a home remedy. In the course of history, the use of indigenous medicine in Indonesia has experienced ups and downs; responding to the shifts in culture. Although it is ignored, or perhaps precisely because of this, by the Dutch government, Indonesian indigenous herbal medicine survived Dutch colonialism and developed into a clear body of knowledge of health and healing relying on the rich natural environment which surrounded it. Long before the Dutch government imposed its rule on them, the Indonesian people had shown absolute trust in the efficacy of indigenous medicine.

Indigenous herbal medicine or *jamu* is a concoction, usually prepared from various parts of MAC plants such as the leaves, bark, roots and flowers. Its purpose is to be an aid to traditional healing taking a holistic approach and without chemical materials as additives (*cf.* Afdhal & Welsch 1988, Beers 2001, Slikkerveer 2003). Its great popularity is attributable to its efficacy proven in its long-standing use for health promotion, prevention and treatment of diseases. It is considered a tonic for both body and soul. Indonesia is made up of more than 300 major ethnic groups, each possessing its own collection of traditional recipes, preferred

ingredients and methods of use for the varied herbal preparations. If they are needed, the various herbal materials will be mixed together by a household member or used by a traditional healer (*dukun*) for the treatment of patients. Pertinently, some herbal medicines have been generally known in their respective communities for centuries. However, the more elaborate mixtures and concoctions have traditionally been regarded as privately owned knowledge, inherited only by members of the family of a traditional healer (*dukun*), members of the royal courts or by a very small number of trusted ordinary people.

As *jamu* is seen as an indigenous element of Indonesian culture and hence strongly associated with Indonesian tradition, it has become an important symbol of national identity. The fact that *jamu* can compete successfully on the national market seems to be mainly attributable to the people's belief in its efficacy. Afdhal and Welsch (1988) state that Indonesia has begun to modernise rapidly, and in the wake of this change, the term *jamu* has increasingly become associated with the rapidly growing variety of powders, creams, pills, capsules and cosmetics packaged and manufactured both in small-scale home industries and by large factories using increasingly sophisticated equipment. Nevertheless, rural communities continue to rely a great deal on locally prepared *jamu* made from MAC plants.

Perhaps it is not surprising that women play an important role in the production, distribution and consumption of *jamu,* which is closely associated with family-health care, particularly in Javanese society. It is considered the domain of women since it is they who usually prepare the *jamu* for the family. Apart from the ready-made *jamu* which is easy to obtain since it is sold in shops and stalls, there is also the freshly prepared *jamu*, which is mostly sold by a *jamu gendong*. It is the custom of these *jamu gendong* to prepare their product early in the morning and then they will carry what they have compounded in a deep, round basket strapped to their backs, heavy with bottles filled with dark coloured liquid[1]. In the early morning, these Javanese *jamu* sellers are a common sight in almost every town or city in Indonesia. They either sell their *jamu* drinks door-to-door to regular customers, or by the side of the road, or from stalls in the market. This *jamu* is consumed by people from every level of the society: *becak* drivers[2], food vendors in the markets, labourers and office employees (*cf.* Sarwono 2000, Beers 2001, Lyon 2003).

The taste of *jamu* drinks is usually bitter, reproducing the pungency and bitterness of the herbs, roots and barks which are the major ingredients. The majority of the *jamu* drinks sold by the *jamu gendong* are for health promotion or are remedies for such common illnesses as diarrhoea, colds, coughs and muscle-aches. As they grow older, these women stop being *jamu gendong* but they usually continue their involvement in *jamu* by beginning their own *jamu* business or at least preparing *jamu* as home remedies for the family (*cf.* Munawar *et al* 1993, Sarwono 2000, Beers 2001, Lyon 2003).

It is highly likely that very few Indonesians actually know the various ingredients by name or even the source of the recipes for the *jamu* they regularly consume. Obviously, the most important characteristic of *jamu* is that it usually consists of plant ingredients such as bark, roots, leaves, wood and flowers. But *jamu* might also contain or consist of other ingredients, principally minerals. It seems that the emphasis on the herbal nature of *jamu* seems to be closely linked to two popular images: the potions sold by *jamu* sellers on the street and the even more impenetrable concoctions prepared by the traditional healers (*dukun*). A mark of its importance is that the use of *jamu* is regulated under Indonesian law *'UU no.7, 1963'*, concerning pharmaceuticals which are legally defined as '*Obat asli* Indonesia': that is as medicine (*obat-obat*) obtained directly from natural materials available in Indonesia, processed in a simple manner on the basis of experience and used in traditional (medical) treatment.

Ancient prescriptions using compounds of herbal medicine can be found written on *lontar* leaves[3] by ancient wise healers in different parts of the Archipelago, but mainly in Bali. Attracted by these ancient medical texts a number of Dutch scholars took an interest in and made collections of Indonesian medicinal plants, documenting some of their medicinal uses in a general way. However, at the time of the Japanese invasion, it has to be said that the European medical community is not very convinced and believing in the efficacy and superiority of chemically based pharmaceuticals. Dutch physicians in Indonesia were becoming increasingly disinterested and even suspicious of herbal medicines. Regrettably, the majority of Western-trained Indonesian doctors seemed to share the attitudes of their European colleagues towards *jamu*, albeit a small number of Indonesian doctors were using herbal medicines in their clinics and private practices before the Japanese invasion (*cf.* Sastroamodjojo 1967).

According to Agoes (1996), the oldest publication about Indonesian medicinal plants was written by J. Bontius in 1685 and was entitled *De Indiae Utriusquere Naturali et Medica* and G.E. Rumphius (1741) who wrote *Herbarium Amboinense* or *Het Amboinsche Kruidboek,* which provided the basis for all future studies of the flora of the Moluccas as well. A little later, the Englishman W. Marsden described the tradition of using plants for medication by the people in South Sumatra in his book *History of Sumatra* (1783). In 1786, Hornsted wrote about plants with peculiar properties which were found in the island of Java, elaborated by ethnological data about its people by Hasskarl in 1845. Visual evidence for the use of jamu can be found in the reliefs on the Buddhist *Borobudur* and the Hindhu *Prambanan* temples which depict healers with their patients administering herbal medicine. In Bali, inscribed stones, earthen pots, mortars and *lontar* leaves are evidence that traditional herbal medicine was known there in ancient times. Literary testimony is provided by the *Serat Centhini* (Book of *Centhini*), an eighteenth-century treatise found in Central Java, containing numerous pieces of advice about the treatment of various ailments and how to deal with sexual problems. It includes a collection of famous *jamu* recipes which can be used as remedies (*cf.* Beers 2001).

In 1847, Bosch, then Head of the Health Bureau, had issued instructions that indigenous *jamu* should be used for the treatment of community diseases at that time. The ingredients are parts taken from wild plants obtained in the mountains and sold in traditional markets. Kloppenburg-Versteegh (1933) published the *Atlas van Indische Geneeskrachtige Planten*, a collection of hundreds of Indonesian medicinal plants and their utilisation in original Indonesian herbal prescriptions which are still used by most *jamu* manufacturers.

At the Indonesian Medical Association congress held in Solo (1940), an appeal was already made to Indonesian doctors to investigate traditional medicine or *jamu*. On that occasion, a *jamu* exhibition was also held by the *Taman Ibu* in Yogyakarta. This was an organisation which promoted the use of *jamu*.

The Second World War was an era of severe hardship for the Indonesian people and obviously to a greater need for the services of the Indonesian medical community. Although there was an enormous need of more medical services, the supplies of imported drugs ran out and there was no hope of replenishing the stocks of even the most basic and standard pharmaceuticals. Trying to deal with the situation, towards the end of the Japanese occupation the Japanese government encouraged Indonesian manufacturers of traditional herbal medicine to produce and to expand their production. All these efforts proved pretty insignificant in view of the overwhelming scarcity, since these manufacturers produced only few of the drugs which were usually imported. Consequently, faced with a lack of the essential pharmaceutical ingredients and the increasing demands for medicine, Indonesian physicians turned to the only available medicine: *jamu*, especially freshly prepared *jamu*.

Though forced to rely on indigenous Indonesian medicine with preparations made from local materials, only a small number of Indonesian doctors had had any significant experience of using these medicines in their individual medical practices. A few more physicians had no more than a vague idea of which plants to use, in what proportions it should be mixed with other ingredients or what the prescribed dosage was. Hampered by their limited experience and lack of information, only a few Indonesian doctors knew how to prescribe traditional herbal medicine even for less serious illnesses, such as scabies, worms, septic sores and fevers. Obviously, this situation had its origins in the Dutch colonial period, when Indonesian doctors were trained to be members of a modern, Western-oriented medical profession. It was also a reflection of the general disinterest of the contemporary Dutch authorities in *jamu*, since almost nothing of a practical nature had been published which could help physicians to select and prescribe herbal medicines (*cf.* Sastroamidjojo 1967).

During the Japanese period (1942-1945), the Japanese government shows ample interest in the subject and issued recommendations for the use and development of the *obat rakyat* (medicine for common people), especially *jamu* or traditional herbal medicine. After being summoned by the Japanese government, pharmaceutical manufacturers agreed to pay more attention to traditional herbal medicine for the people. In 1944, the 'Committee for Indigenous Indonesian *Jamu*' was established, and the chairman of the 'Indonesian Medical Association' was assigned to give directions and maintain cooperation with the *jamu* producers. This committee was later renamed the 'Bureau for Storage of *Jamu* Ingredients'. The relationship between producers of *jamu* and its consumers had a positive effect, and when the government made an appeal for people to be more concerned about the low level of popular health at that time, they responded by voluntarily registering their 'personal prescription' to be examined and evaluated by the 'People's Health Bureau'.

Accordingly, at the end of 1944, the newspaper *Asia Raya* printed the herbal medicines selected as (1) medicine for the treatment of dysentery: coffee beans and *papaya* leaves, *Makasar* seed, *gambier*, lime and turmeric; (2) medicine for the treatment of malaria: *sambiloto* leaves, *lampes* leaves and *pegangan* leaves. Another mixture contained *ketapang* leaves and *pule* leaves; (3) medicine for the treatment of influenza: powdered *ketapang* leaves and *sembung* leaves; (4) medicine for the treatment of pneumonia: *sembung* leaves, *teter* fruit and coffee beans; (5) medicine for the treatment of thoracic TBC: betel leaves, flowers of *belimbing wuluh* and cloves; (6) medicine for the treatment of scabies: turmeric, coconut oil and cassava starch: (7) medication for intestinal worms: *waluh* seeds.

7.1.2 Revitalisation of *Jamu* since Independence

In the era of Independence, the first President of the Republic of Indonesia, Soekarno, paid a great deal of attention to the development of traditional herbal medicine. He even introduced Chinese traditional healers (*sinshe*) who were specially invited to treat his kidneys. During that era, his policy of self-reliance (*berdikari*) meant that it was hard to obtain modern medicine. On the plus side, it did give producers and scientists the opportunity to look for its substitutes to expensive modern drugs. Later, the Ministry of Agriculture established a Centre for Medicinal Plants (*Balai Tanaman Obat-Obat*).

Meanwhile, it was Grevenstuk (1949) who wrote a report on *List of Plants with Peculiar Properties* containing a list of plants with peculiar properties which could be used to substitute imported medicine, such as: (1) *Johar* (*Cassia siamea*) which produces *Chrysarobine*; (2) *Kecubung* (*Brugmansia* spec) as a substitute for *Atropa belladonna*; (3) *Upas raya* (*Stychnos tiute*) as a substitute for *Strychnos nuxvomica* which can produce

Strychnine; (4) *Kembang sungsang* (*Gloriosa superba*) which can produce *Colchicine*; (5) *Kendali* (*Isostoma longiflora*) which produces Lobeline; (6) *Lidah buaya* (*Aloe* Spec) to obtain extract of *Aloe,* and (7) *Sidaguri* (*Sida rhombi folia*) which contains Ephedrine (*cf.* Agoes 1996).

Further, Agoes (1996) notes that in 1963 the Health Ministry established an institution to develop the utilisation of indigenous medicine (*Badan Perencanaan Penggunaan Obat Asli*). Meanwhile, a high health functionary tried out '*Jamu* goes to *puskesmas*' and the government introduced the *Apotik Hijau* (Green Apothecary), which later was replaced by *Taman Obat Keluarga* (Family Medicine Garden) or TOGA, the beginning of the revival of *jamu*.

As Nugroho (1992) and Beers (2001) point out *jamu* is a complex subject and it can be categorised into three distinct types depending on the structure, user and function of the product. These categories are:

The *first category* of *jamu* is produced on the basis of its structure: including drinks, decoction, ointment, powders, *lulur*[4] (herbal paste for exfoliation), lotions, creams and oils. As Lyon (2003) has pointed out, *jamu* in modern packaging can be found in the form of conventional tablets or capsules, tonics, and in sachets (*jamu bungkus*). Beers (2001) discovered that *jamu* is most popularly used in the form of drinks and decoctions usually sold by the *jamu gendong* and *jamu* in powdered form sold at stalls. *Jamu*, as aromatics and cosmetic are found in the form of oils, lotions and *lulur*.

The *second category* of *jamu* is based on its users: men, women and children. *Jamu* is consumed by people of different age groups and from different socio-economic levels.Although not proven statistically, the majority of users are probably women, since *jamu* is not used only to cure illnesses, but also to maintain health, fitness, beauty and youth. Especially, in traditional Javanese families, *jamu* is introduced to girls before they reach adolescence and have their first menstrual period. Hence, *jamu* accompanies women throughout their life-cycle through puberty, adulthood, pregnancy, post-natal, child-rearing, up to old age. (*cf.* Sarwono 2000; Beers 2001; Lyon 2003). Javanese men are also avid users of *jamu,* especially to keep their fitness, strength and as an aphrodisiac (*cf.* Beers 2001; Lyon 2003).

The *third category* of *jamu* is based on the function of *jamu* used for health promotion, illness prevention, treatment, besides maintaining beauty and youth. It is particularly used in the treatment of various illnesses such as kidney stones, cervical cancer, diarrhoea or even weight loss. *Jamu* maintains good health and beauty by stimulating the circulation of the blood and heightening metabolism. It relieves aches and pains by reducing inflammation and soothes digestive problems. It also alleviates particular malfunctions in the body, such as infertility or even unpleasant body odour (*cf.* Sarwono 2000; Beers 2001; Lyon 2003).

At present, the pharmaceutical manufacturers are also witnessing a revival in natural products following some disappointing results from rational drug design research and bio-technology, irrespective of the increase in the demand from clients and patients for prescribed and over-the-counter plant-based medicines (*cf.* Farnsworth *et al* 1985; Principe 1991).

The current increasing sense of apprehension about modern chemical medicine in many Western countries has caused a global reorientation towards the use of natural products, which brings in its train a growing interest in the use of herbal medicine. This increasing interest does not restricted to the material efficacy of plant-based medicine only; it extends to the understanding and application of the underlying traditional philosophies of nature and the environment as well. Slikkerveer (2003) states that among the various considerations of such a reorientation are the re-evaluation of natural products are the failure of modern pharmaceutical drugs to cure various diseases, the reduced risk of side effects, the generally

lower costs, the local availability of several plant resources, and the culturally appropriate use of specific plant remedies in traditional communities.

Linking up with the growing interest of health care institutions in Western countries in alternative medicine, Freeman and Lawlis (2001) note that these activities lead up to a world-wide process of integration into a pluralistic health care system, which will develop even more over in next decades. In this context, Slikkerveer (2003: 38) states that: '*the contribution of traditional medicine as innovative wisdom to science and technology has to be further documented and analysed, especially in view of the current threat of its extinction as part of the rapidly vanishing indigenous culture around the world*'.

7.2 The Sundanese Cosmovision and Philosophy of Life

7.2.1 Sundanese Cosmovision: Legacy of the *Karuhun*

According to Tengan (1991), a people's world-view is a culturally constructed world, issuing forth from discourses between man and his natural environment which is taken as a model for the structuring of society and as a basis for ethical and moral values. He emphasizes, this cosmological vision is not static but resembles a never-ending process of reciprocal adaptation between cosmological beliefs, environmental conditions and the patterns of society.

On the other hand, Suseno (1997: 84) defines that: '*A world-view is the frame of reference in relation to which man comprehends the various elements of his experience*'. Suseno, who has studied the *Javanese* world-view, elaborates the characteristic of the *Javanese* worldview which regards the world as a coherent unity and thus does not divide the world into several unrelated areas. The *Javanese* worldview is not abstract knowledge but an element in his quest to find a successful way of life. The significance of their world-view for the Javanese is its pragmatic value: by means of it they search to achieve a particular psychological condition, especially that of inner peace, composedness and balance of mind.

In his attempt to explain this phenomenon, Haverkort (1995: 456) states that: '*The concept of cosmovision thus refers to the way a certain population perceives the world or cosmos: It includes the assumed interrelationship between spirituality, nature and mankind. It describes the roles of super powers, the way natural processes take place, the relationship man-nature and it makes explicit the philosophical and scientific premises on the basis of which intervention in nature (as is the case in agriculture and health care) takes place*'. Obviously, this definition shows that the concept of 'cosmovision' in particular refers to beliefs and cosmologies which have an effect on the use of natural resources and human intervention in the natural environment.

In a later work, Haverkort *et al*. (2003) note that most indigenous knowledge systems are established on the comprehension that the living world is composed of three worlds: the human (social) world comprises the social life of the people in all its dimensions; community life, family ties, ethnic groups and traditional leadership and organisation. The natural (material) world implies nature in all its forms, including agriculture, as well as the natural phenomena. The spiritual world can be made up of diverse spirits; ancestral spirits or gods, often assigned various function and tasks. In fact, these worlds are interrelated: some of natural places are regarded as sacred; a specific site where certain spirits can communicate with humans through animals and habitats. Jointly these thoughts shape the worldview or cosmovision which explains the role of the supernatural powers, the perceived relationship between the humans and nature and the way natural processes occurr. On the basis of these

perceptions people organise their lives and determine the extent of their involvement in nature as well as their religious activities. Consequently, the local capacity to use the local resources is significantly determined by this worldview. Current insights have attracted attention to the abilities and opportunities of rural people to improve their livelihoods in a systematic way on the basis of their local resources.

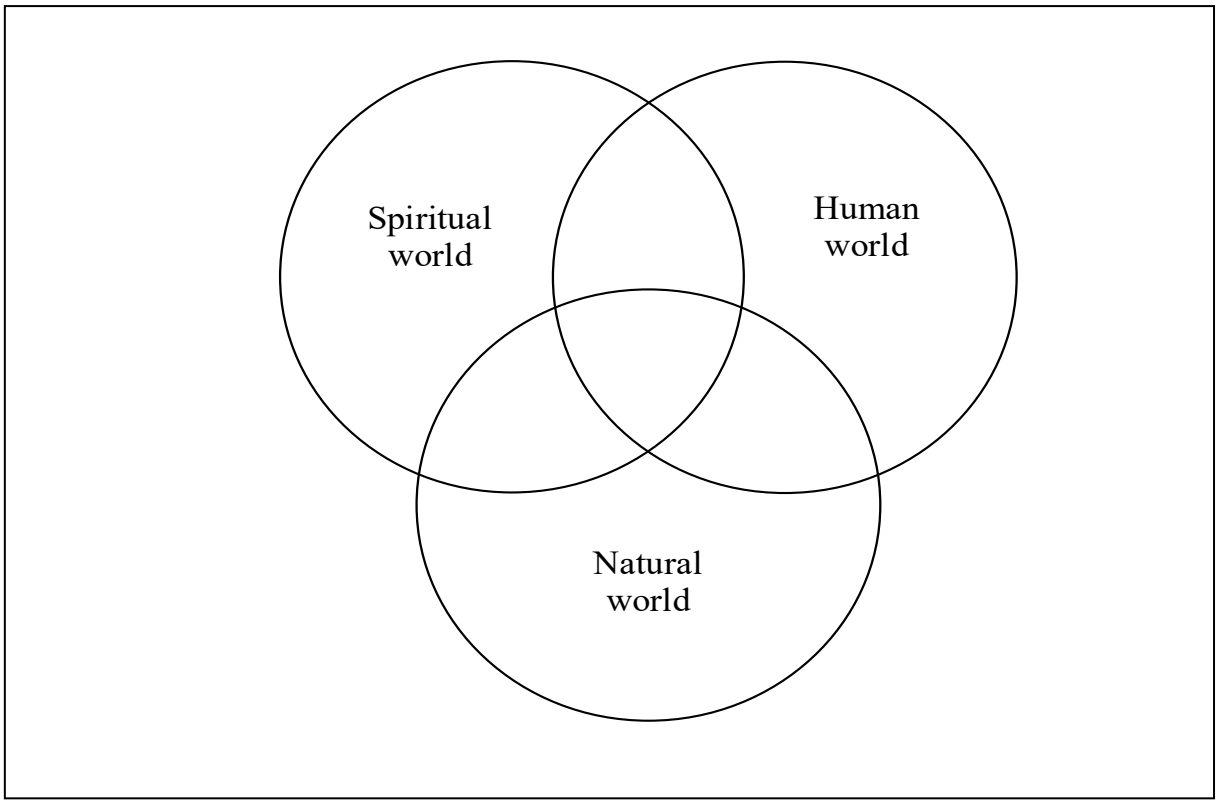


Figure 7.1 Schematic representation of Indigenous Cosmovision encompassing three worlds: the human world, the spiritual world and the natural world. (Source: Haverkort *et al.* 2003)

Linking up with the interrelationship of sustainability of agricultural practices and the management of natural resources on the basis of indigenous cosmology and perceptions, Adimihardja (1992) gives an explanation of the *Kasepuhan* community on the Mount Halimun. They live in small groups and their main source of livelihood is swidden agriculture (*huma*). To eke out their agricultural yields, the *Kasepuhan* community also gathers forest products to supplement the rice grown in wet fields and cultivates small gardens. In such a situation, it is not surprising that the *Kasepuhan* have a long tradition of preserving and sustaining the forest. This tradition is illustrated by the fact that the *Kasepuhan* community regards the forest and their swidden agriculture as a unity. They interpret the word *'huma'* as *'imah'*, which means 'home'. Therefore, Adimihardja notes (1992: 33) that: *'The 'home' is not only for sleeping but also serves as the main source of their spiritual and physical life'* and *'The destruction of the forests means destruction of their homes, and this means destruction of the* Kasepuhan *as a community'.* The preservation of the forest must be seen from the point of view of the *Kasepuhan*'s perception of the forest, which is divided in three distinct types, namely (1) ancient forest, (2) exploited forest and (3) sacred or holy forest. The

latter type of forest cannot be exploited or cultivated without the permission of the leader of the community, who can only give consent after having consulted the ancestors, thereby ensuring the conservation of the forest.

Since worldviews are often expressed by people in rituals, the study of rituals is important to cosmovision research. As Douglas (1970) indicates, rituals in the sense of being means of communication should be regarded as transmitters of cultures. In his interpretation, Turner (1967) considers rituals to be a process of formal behaviour which refers to belief in mystical beings or power. Rituals, such as those performed before ploughing the land, express worldviews as well as functioning as the philosophical basis for technological development. The agricultural system of the *Kasepuhan* is also pervaded with traditional rules and acts which give rise to respect for the environment. So as to survive, Adimihardja (1992: 34) indicates that: '*The activity of swidden agriculture is bound up in a system of beliefs oriented towards ancient values. In order to avert disaster and to ensure protection from the ancestors, each stage of swidden farming is accompanied with a ceremony*'.

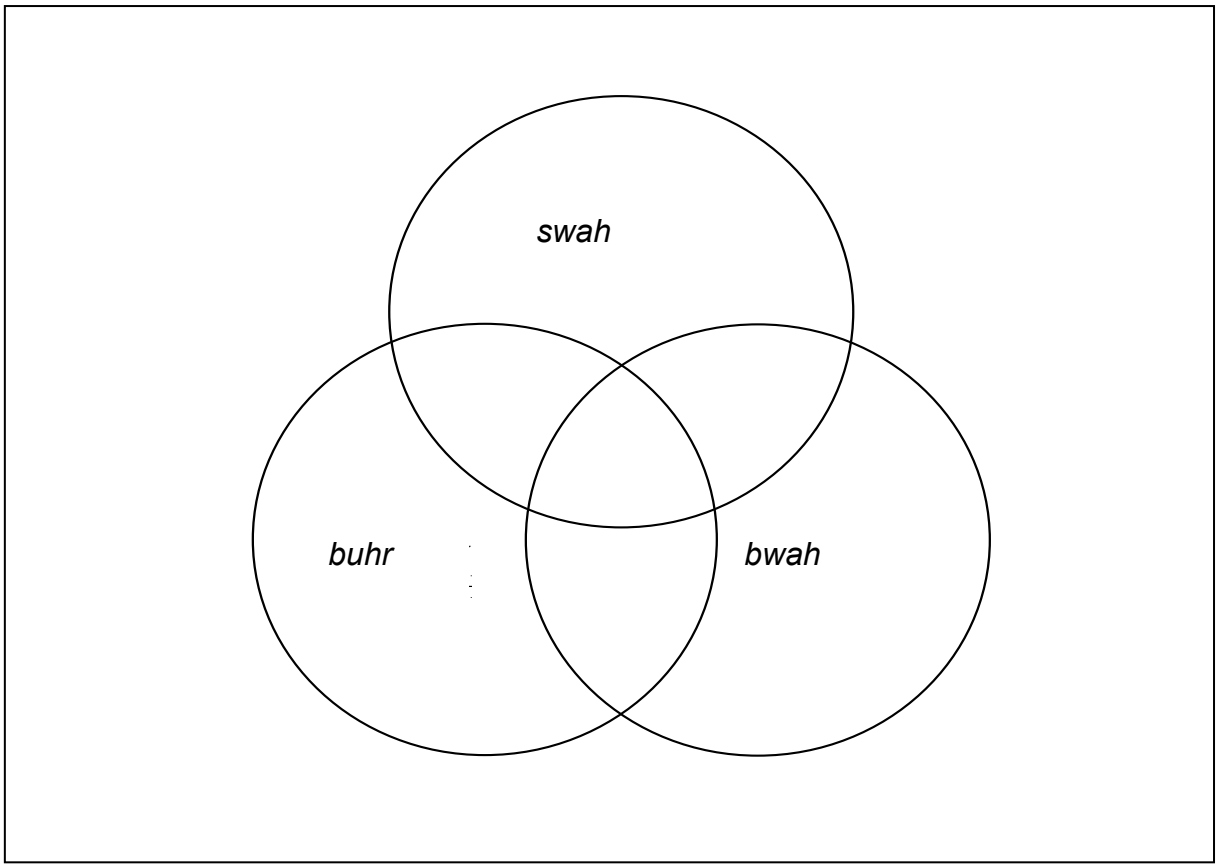


Figure 7.2 Schematic representation of the Balinese cosmovision *Tri Loka*, encompassing three worlds: the underworld of demaons *buhr*, the world of humans *bwah*, and the world of the spirits *swah*. (Source: Agung 2005)

Apparently, Starkenburg (1998) indicates that the underlying cosmology often maintains the sustainable aspects of natural resource management, for which previous studies have provided ample evidence. The rules and values link distinct aspects of people's lives. The consequence

of this interrelationship is that it is complicated to study one part of a society in isolation and therefore a dissimilar way of looking at that society is required.

Within the Indonesian context, Agung (2005: 288) in his pioneering study of the conservation of bio-cutural diversity in the island of Bali, presents a schematic representation of *Tri Loka*, the Balinese cosmovision, encompassing three worlds: the underworld of demaons *buhr*, the world of humans *bwah*, and the world of the spirits *swah*.

Similarly, the Sundanese people have their own cosmovision or worldview. The Sundanese cosmovision acknowledges the existence of *Sang Hyang Tunggal*, the creator of the *Alam Niskala* (Supernatural Realm) and the *Alam Sangkala* (Real Realm). As having a cosmology of which is a belief-based is a complex process, therefore an ethnic group which possesses a belief is considered one with great culture. In fact, human culture already possesses universal elements since human beings or ethnicities who own a culture ought to have systems of religion, community, knowledge, language, arts, and systems of livelihood and tools to deal with life.

Unquestionably, the Sundanese already possess these seven elements.The worldview described in the book of *Jatiraga* (*Kitab Jatiraga*) and those of the *Baduy* people are genuine viewpoints of the Sundanese people, free of outside influence of if there is evidence of any such influence it is trifling (*cf.* Ekajati 2005).

Every ethnic group has its own cosmovision, which characterises its response to the challenges it is force to encounter by nature. Gradually, the cosmovision which derives from the people themselves evolves into a belief. Eventually this belief transforms into guidelines of life. As it does in the case of the Sundanese people, who seek a union with nature, and makes nature as part of their life, hence it should be guarded carefully. In his analysis of this manuscript, Ekajati (2005) states, that it describes Sundanese cosmology as encompassing three realms namely: *buana sangkala* (the actual realm), *buana niskala* (the supernatural realm) and *buana jatiniskala* (realm of the genuine supreme supernatural). *Bumi sangkala* (the actual realm) is the tangible world where the physical (*raga*) and psychical (*jiwa*) reside. It is composed of the people, the fauna and flora and other visual objects, both dynamic and static. Elevated above this nitty-gritty world is the *buana niskala*, the supernatural world where spirits are depicted only in people's imagination as gods and goddesses and various other kinds of supernatural beings. *Buana niskala* covers both 'paradise and hell'.

The Sundanese cosmovision describes the universe from the point of view of the Sundanese community and naturally as the Sundanese community, as every other society, is in a constant state of flux, its worldview changes as well. The result is that diverse Sundanese cosmovisions can be identified. Each appropriate to the changes in the community. The manuscript of Sundanese cosmovision is a reflection or depiction of the people and the level of spirituality of each realm. It also gives a description of the position of each of them, not only at macrocosmic level (which is related to the issue of *Sang Hyang Tunggal* and *Jatiniskala*), who created the boundaries but is unaffected by them. It also portrays the inhabitants of what is called the *bumi niskala*. However, this manuscript does not reveal the existence of a realm inhabited by the spirits of people prior to their birth on earth *(bumi sangkala*). *Jatiniskala* resembles the space and time of the Sole Essence; *Jatiniskala* creates himself as *Sang Hyang Tunggal* with whom people are already acquainted. *Sang Hyang Tunggal* arises from 'the non-being' simultaneously with the emergence of strong will, speech and power from the 'non-being' (*cf*. Ekajati 2005).

In the same exposition of the manuscript, Ekajati (2005) explains that the concept of the Ancient Sundanese Cosmology is intended not only to inform people about the structure of the entire globe, also it has another purpose which sets a goal, so that a person's life will have

a clear ultimate objective, which is a happy and peaceful life in the Everlasting *buana niskala* and *buana jatiniskala*.

The cosmology of the *Baduy* is said to have arisen prior to what is called 'being is non-being' ('*ada' adalah 'tidak ada*'). Accordingly, the *Baduy* community has named the 'non-being' '*awing-awang uwung-uwungan*' which is the absolute cosmos. In the present Sundanese language it is also known as '*Ayana Aya, Ayana Euweuh; Euweuh teh Aya, Aya teh Euweuh*', a saying which is almost without any sense and meaning.

The 'emptiness' which is meant by the cosmology of the *Baduy* community arises from three *batara* (gods) namely *Batara Keresa*, *Batara Kawasa* and *Batara Bima Maha Karana*. These three *batara* (gods) are actually united or one and in this single form is known as *Sang Hyang Tunggal* (the Supreme One). *Keresa* is the will, sense and inner-self. *Kawasa* is the authority, power and strength. *Maha Karana* is the prime reason which contains speech, mind and words. Therefore, *Sang Hyang Tunggal* is the Sole Entity of the previous Entity. Who emerges from 'non-being' to become 'being'. This was also the beginning of everything or the emergence of *buana sangkala* and *buana niskala*.

Furthermore, the book of *Jatiraga* (*Kitab Jatiraga*) contains an elaboration of this philosophy, explaining that the only 'being' which cannot be approached by Man is the realm of 'emptiness' which is called the realm of 'non-being', where *Sang Hyang Tunggal* resides. According to the cosmology of the *Baduy*, when the will emerges so does the mind (speech, logos) and the energy (strength, power, deed). All the three of them are united or exist in the *Sang Hyang Tunggal*. The construction of the Sundanese world began with the first empirical existence which is the emergence of *Sang Hyang Tunggal,* since *Sang Hyang Tunggal* emerges from these three potentials which are *Keresa, Kawasa* and *Karana* (the will, power and reason).

From what has been said above, it is apparent that this world emerges from an 'emptiness' ('non-being'), this 'emptiness' emerges because from within itself. It then creates *alam Niskala* and *alam Sangkala*. All of these indicate that what is 'being' emerges or originates from 'emptiness' (non-being) and 'emptiness' itself is actually what is real and exists (absolute existence).

7.2.2 Sundanese Philosophy of Life

Warnaen *et al*. (1987) have stressed that it is important for the Sundanese people to have a firm foundation based on the values bequeathed to them by their ancestors (*karuhun*). These ancestral values are still considered effective in meeting the challenges of modern life. The division in Sundanese philosophy into five categories seems rather artificial because of the existing inter-relationships between the five categories. The five categories are the philosophy of Man as an individual, of Man and his social environment, of Man and nature, of Man and his relation with God, and of Man striving for physical and spiritual achievements. The philosophy of Man as an individual about loyalty, for instance, is related to norms in the social environment and in Man's religious view of life, not to mention Man's purpose towards accomplishing his spiritual achievement.

In 'Man as an individual', according to the Sundanese philosophy of life, heredity is a dominant factor; their judgement of an individual is based on his origin (*bibit*).In this context, it is imperative that parents, tutors and the government are honoured; therefore Sundanese people have been taught to trust and obey the advice of all of them since childhood. Disobedience will bring misfortune and bad luck.

This view of life is not static. The Sundanese people believe in *uga*, that socio-political changes will occur in the future conform to the prophecy of their ancestors. This belief in the goal (*tujuan*) of a prophecy is called *uga* and is connected with important changes in a country or region. It can also mean until an appointed time for fulfilment by the ancestors. According to the dictionary of the Sundanese language (1980), *uga* is a prophecy related to important changes in a country or region; of the arrival of the time for fulfilment, pre-determined by the ancestors. This definition underlines that the *uga* is a prophecy (*tujuman*) which is expressed in words containing aspects of symbols (*siloka*). Like most prophecies, the *uga* can have multiple interpretations, especially when the words of the *uga* are interpreted literally. Hence, its effect is dependent on an individual's conviction about the prophecies contained in the *uga*. Such a situation often creates frustration if the long-awaited prophecy has not yet materialized. Those people who firmly belief in the *uga* use it as a prophetic ideology in their efforts to understand what is happening in a particular era. For these people, the *uga* signifies expectations of changes which will lead to welfare, happiness and peace in life. As a prophecy, the words of the *uga* tend to be expressed in secular terms. Therefore, the *uga* is more a reflection on the philosophy of Man as an individual, Man and his social environment, and Man and nature (*cf.* Warnaen *et al*.1987).

In **'**Man and his social environment', the Sundanese have been taught to adapt themselves to the social environment and local culture. As in 'Man as an individual', the Sundanese people believe that the socio-political changes occurring in a country in the future will have actually already been predicted long ago by their ancestors (*karuhun*). This belief in *uga* is the belief in fulfilment of prophecies made by their ancestors and is elicited by important changes in the country or region. Therefore, the *uga* is a prophecy (*tujuman*) related to the social and political life of the Sundanese. In their relationships among individuals, various *uga* indicate that the Sundanese people should not display rowdy behaviour in their social environment. They should also behave modestly, be honest and broad-minded. In the spirit of the *uga*, the ideal characteristic of a leader is a democratic spirit (*cf*. Warnaen *et al.* 1987).

Moreover, Sundanese people, like all other peoples, desire welfare, health and long-life, meaning prosperity, ample food and clothing; they also crave honour which means being a loved and honoured person; they wish for equality with other nations; to become a *negara kertarahardja*, meaning a welfare nation, peaceful and orderly, ruled by a democratic and intelligent leader. Naturally, as human beings they are apprehensive of misfortunes; disease and death; disasters and expulsion; ridicule and humiliation andso forth. Sundanese people believe that all the things they desire can only be achieved by their strict adherence to the Almighty and to their religion. They believe in the so-called *pamali*, *pantang*, *tutonden*, *uga* and *tolak bala*, obeying rules, *panutan*, and other virtues. In spirit, they should be courageous, prefer to die than to be humiliated or act against their conscience.

Concerning relationships among individuals, there are indications in various *uga* indicating Sundanese people should not behave rudely or coarsely in their social environment. Their conduct should be unpretentious. They should be honest and broad-minded. In their daily life, their behaviour should be modest; not showing off, not offending other people, behaving correctly, fulfilling promises and being thrifty as well as prudent in the use of their wealth and fortune (*rezek*i).

In their relationship with their natural environment, Sundanese thought encompasses the real and unreal nature. As stated above, most of the words in the *uga* are used symbolically, when they relate to water, earth, trees, mountains, and diverse names indicating linkage with their natural environment. Being a traditional agricultural community, the Sundanese people are live close to nature and they are often called mountain people (*urang gunung*). The

various expressions used in the *uga*, are reflections of the relationship between 'Man and nature'. Man is very much influenced by nature; this is reflected in the names of villages and towns which are often called after the names of trees, rivers and animals. The natural environment is what gives the people their livelihood. In this sense, Man is exploiting nature. Aware of this unavoidable necessity, they make efforts to maintain and conserve nature by adhering to the concept of *leuweung larangan*[1] and the various sacred rituals to honour the earth, mountains, forests and the rest of the natural world around them. These endeavours to maintain natural conservation are usually described as 'traditional wisdom' or 'local wisdom' (*cf.* Warnaen *et al*. 1987).

As an agricultural community, Sundanese people are familiar with nature and this familiarity is shown in their economic life. Nature supplies Man with land to be utilised for their livelihood, includes both the various cultivated plants and those growing wild in the forests. Therefore, the Sundanese regard their social environment and their natural environment not as something which should be subjugated but something which should be honoured, befriended, taken care of and preserved. Besides their relationhip with the natural world around them, the Sundanese believe that beyond actual nature there is another nature, the supernatural world (*alam gaib*). The relationship between Man and the supernatural world is seen in the use of the calculation of time, diverse rituals such as life-cycle rituals and ceremonies honouring the dead.

'Man and his relationship with God', this relationship has existed since ancient time in the Sundanese community. Formerly, the belief of the Sundanese community in the Almighty, derived from the people's daily experiences in life, such feelings of grief and happiness. They believed in the existence of a supernatural Substance who protected all human beings and their environment. Therefore, when diverse new religions arrived, they felt that their advent simply complemented their knowledge of the Divinity. Currently, most Sundanese adhere to the Islamic religion. In general, they are a devout people, who always pray for the guidance of God in performing their activities and they pray to God for the fulfilment of their desires. Their religious feelings are also expressed in their attitude to children. A child is invaluable and should be properly taken care of, since it has been entrusted to them by God. They also believe that every child is born with his or her own luck or fortune, hence they should not worry about a child's future although they have many children (*cf.* Warnaen *et al* 1987).

'Man strives for physical and spiritual achievement'. As the *uga* are related to prophecies (*tujuman*) concerning the social and political life of the Sundanese, discussions about secular matters are dominant. The *uga* gives prophecies about various socio-political changes, devoutly believed to have been initiated by their Sundanese ancestors. These changes can be good or bad as is expressed in the *siloka nagara kartarahardja* (symbols of a thriving and prosperous country). Hence, the expectation of the people striving for their physical progress and achievement is reflected in the *uga*. In line with their efforts in striving for physical progress and achievement, the *uga* is also a reflection of Man's striving for spiritual achievement.

Consequently, frustrations often arise among those people who still strongly believe in the fulfilment of the *uga*, which nevertheless has not yet come to pass. This also means that their spiritual achievement has not yet been fulfilled. However, this does not detract from their belief in the *uga*; as a matter of fact, they normally argue that 'the time has not yet arrived' (*encan waktuna*). Subsequently, they will wait patiently for 'the time' to come, as has been promised by their ancestors (*karuhun*). Moreover, an affluent life is not complete if it is not in equilibrium with spiritual achievements which can only be obtained if the heart is peaceful, free and not possed solely by thoughts of wealth. Losing something should not be regarded a

matter for anguish since to the Sundanese, happiness in life is not assured by well-being only, but also by a peaceful heart and spiritual satisfaction (*cf*. Warnaen et al 1987).

At the time Warnaen *et al.* (1987) wrote, they stated that there was a significant shift in the philosophy of life about 'Man as an individual' in people's views about teachers (*guru*), the government, parents, and place of birth. Thoughts were shifting about facing ordeals and sufferings, about people who had done wrong and about their pursuit of knowledge. Attitudes towards modesty and wealth were altering. Their original opinions were being modified which meant they no longer accepted everything as fate. People who had done wrong should be forgiven, but they should not escape punishment. Knowledge should be pursued to attain a better life; however, courtesy and humility were still highly prized virtues. Ideas about wealth changed: a person will not be hindered by a desire for riches, but with the proviso wealth should be used wisely.

Sundanese people have always considered health essential to in their life. This is implied in the Sundanese expression *saur sepuh, anu utama badan walagri sarta cageur*, *leuwih tibatan kakayaan* (Meaning: 'elder people say that physical health is more important than wealth'). This is also implied in the ideal characteristics of the Sundanese which are said to be *cageur, bageur, bener, pinter, singer*. Meaning that ideally, every Sundanese should be healthy, mentally and physically, kind and honest, as well as clever and agile.

Lubis (2000) points out that it is remarkably that the word *cageur*, which means physical and spiritual health, is mentioned first. Health is also regarded as an inseparable part in a person's life-cycle from foetus to birth until death. Consequently, even before a baby is born in the Sundanese tradition there are various rituals and taboos which should be carried out during the mother's pregnancy for the sake of the baby's health. For example, the expression *nurut buat* implies that the parents' behaviour during pregnancy will affect the baby therefore the father of the baby is not allowed to slaughter an animal or participate in cock-fights. These traditions show that the Sundanese community already possesses a traditional health culture, beginning in pregnancy until birth.

Sundanese can suffer various diseases and sometimes it is hard to pin down a definition. Lubis (2000) draws attention to the fact that the name of a disease might differ from one region to another. Smallpox (*cacar*), for instance, should be named *panyawat sae* (beautiful illness) since most of the Sundanese still believe that the strength of mind and concentration can bend whatever object to a strong will. However, even a strong will needs support and the Sundanese community uses medicine made from MAC plants, such as *koneng* (*Curcuma domestica* Vhal.), *cikur* (*Kaemferia galang* Linn.), *daun singkong* (*Manihot utilissima* Pohl.), *calincing* (*Averhoa bilimbi* L.) and many more. With the passing of time, the influence of Islam has gradually decreased the influence of animism and Hinduism in the medical treatment of sick people. This change can be clearly seen in the chanting of mantra by the traditional healer, in which the name *Hyang* has been changed into the name of God or the name of one of the Islam prophets.

7.3 *Ubar Kampung*: Traditional Sundanese Medicine and Healers

7.3.1 MAC Plants for Promotion, Prevention and Treatment

Ubar kampung or *jajamu* is indigenous herbal medicine of the Sundanese people in West Java. *Ubar Kampung*, which literarly means 'herbal medicine from the village', has been traditionally consumed by village people in the Sunda Region, used from generation to generation. Its existence is as old as Sundanese civilisation itself. The Sundanese

communities, particularly in rural areas, still believe in the efficacy of herbal medicine, that certain plants have a capacity to assist human health, especially those used by traditional healers in their treatment of patients. Their confidence in plants or herbs to promote good health can also be seen in their habit of consuming the freshly picked leaves of certain plants or herbs as salad (*lalab*) in their daily meals. As one of the traditional medical systems of Indonesia, *ubar kampung* or traditional Sundanese medicine is easy to obtain, cheap and has been proven to be very helpful for promotive, preventive and recuperative care in therapeutic uses.

In this context it is important to bear in mind that health promotion refers to actions taken to improve the health, but not those done as compensation for poor health. In this grouping, health is in a perceived positive state and *jamu* is used to highlight or enhance this status. In this context, Slikkerveer (2003: 42) states, that '*Jamu is used not only as a remedy, but also more regularly for health promotion to preserve a healthy body.'* Illness prevention is considered an advantage in medicine in which preventive measure can be taken to decrease the possibility of illness. In this category *jamu* can be taken on a regular basis or at the first signs of any symptoms.

Jongsma (1995) has noted that generally in West Java, the traditional birth attendant (*dukun* bayi) uses turmeric (*Curcuma domestica* Val.) and ginger (*Zingiber officinale* Rosch) as ingredients for medicines for maternal health care. The majority of the medicines are made from the rhizomes, roots, leaves and other parts of medicinal plants, although the medicine might also contain minerals (for example, kitchen cinders) and animal substances (such as eggs). To obtain an optimal result, the medicine is usually a combination of several kinds of plants, both medicinal and non-medicinal. Once the baby is born, various medicinal plants are usually used in postnatal care, for instance *koneng gede* (*Curcuma xanthorrhiza* Roxb.), *Kunir* (*Curcuma domestica* Val.), *sereh* (*Cymbophogon citrates* Stapt.), *jahe* (*Zingiber officinale* Rosc.), *Antanan* (*Centella Asiatica* L.), *jawer kotok* (*Coleus atropurpureus* Bent), *akar cau ambon* (*Nusa Paradisiaca* L.) and others. Jongsma (1995) categorised herbal medicines used in maternal health care into four distinct groups, as follows:

- Herbal drinks (prepared from fresh materials); the ingredients are cleaned, cut into small pieces, mixed, dried in the sun and ground up. A certain amount (usually 1-2 spoons) of the mixture is put into a glass and hot water is added.
- Herbal drinks (industrially manufactured): the contents of a packet (sachet) are emptied into a glass and mixed with hot water. Honey or sugar is added to reduce the bitter taste. Sometimes an egg is added too.
- Herbal mixture (meals): the ingredients are mixed and sometimes dry fried.
- Herbal ointments: prepared from various plants, roots and other ingredients. The ointments are rubbed on the body and are usually applied simultaneously with massage.

As Adimihardja (1991) points out, the socio-cultural and psychological aspects of herbal treatments must not be ignored. Most importantly, indigenous herbal medicines are not used in the similar way to cosmopolitan medicines. The ceremonies and rituals which are part and parcel of a herbal treatment can also give a comforting or psychologically pain-relieving effect which will be lost in a cosmopolitan treatment.

The implementation of the National Health System in Indonesia resulted in the decentralisation of Maternal and Child Health Care from urban to rural areas. Maternal and Child Health (MCH) services are available at the referral hospital in the capital of each province and regency, whereas in the various smaller cities the Maternal and Child Care is

included in every *puskesmas* which is under supervision of the Maternal and Child Care of the regional hospital, which is itself under the supervision of the MCH service at the referral hospital in the capital of the province.

At community level, services, including MHC, are provided by the *posyandu*. The main objective of these health services, *puskesmas* and *posyandu* in rural areas is to provide appropriate medical care (curative as well as preventive) to rural communities. Other advantages of setting up public health care facilities in rural areas are to reduce the financial burden of obtaining specialist help, to create a balance in medical facilities between urban and rural areas and to relieve the city hospitals which in the past tended to be crowded with villagers suffering from minor problems.

7.3.2 Traditional Healers and Traditional Birth Attendants (TBAs)

In various developing countries, traditional healers and traditional birth attendants are a vital link in the sequence of health human resources providing primary health care. Regardless of the establishment of health centres, in times of sickness and childbirth the majority of people still turn to these traditional healers and birth attendants. Hence, it is imperative that a proper interest should be shown in the activities of these traditional practitioners.

Indigenous healers of South-East Asia still retain a considerable number of followers, even in areas where modern health facilities have become available. Their advantage is that they provide culturally significant clarification and interpretation of the illness experience as well as providing culturally approved treatment. Consequently, people have the option of either going to a modern medical doctor or indigenous healer when in need of help in the event of illness. Such people command respect because as Kalangie (1980) states, the curing skills of these healers have mostly been attained by being passed down from generation to generation. A process in which, the hot-cold dichotomy[5] is central to the work of most of them. Koentjaraningrat (1979) and Geertz (1960) have both pointed out that most traditional healers in South-East Asia are experts who are particularly recognised for one kind of skill: magic charms, herbal medicine, massage, bone-setting or dental treatment. In each community there are several experts to whom members can come for help in case of illness. A *dukun* is a traditional healer who is considered to have all kinds of skills though it is rare for them to go into a trance nor are they possessed when performing their healing sessions.

Geertz (1960) notes that some of the *dukun* are possessed healers but the so-called specialists are not. It is a very specialised profession and only a limited number of people are believed to be competent to this kind of profession. The reputation of indigenous healers usually depends on how they have become healers. In order to become a practitioner, the healer has to accumulate the essential profound empirical knowledge about sickness and their cures. The dissimilarities in the supernatural relations produce different types of healers, akthough all healers claim to own these relations. There are no formal institutions for traditional healers in South-East Asia; hence the training of healers takes the form of an extended apprenticeship to a skilled and experience practitioner (*cf.* Jaspan 1969; Koentjaraningrat 1979; Suparlan 1978). Besides learning under a *guru* or teacher, some indigenous healers establish relationships through supernatural aides or through dreams and visions as well as by fasting and meditating. This gives them the inner strength and their ineffable skills necessary to help patients. As Jaspan (1969) demonstrated, the support of supernatural helpers: the Almighty, saints and spirits of dead healers is considered vital to indigenous clinical practice, for without it there can be no healing. Kleinman (1980) noted

that the healer's ability to communicate with the spiritual world raises the patient's hopes of a cure and lends credibility to the healer's models.

In general, Geertz (1960) and Koentjaraningrat (1979) have both pointed out that traditional healers are engaged in some other occupation besides to medicine. They might be blacksmiths, *dalang* (the puppeteer in the *wayang* performance), farmers, civil servants, religious teachers or indeed many other professions. Nowadays, a healing practice can bring some money or material rewards but initially healers were unwilling to accept payment for their medical services because in the traditional system they are not supposed to benefit from the medical help they have offered.

As Adimihardja (1991) states, the Sundanese view of the universe consists of four basic elements: fire, earth, water and air. These elements are regarded as existing in a harmonious equilibrium. Therefore, any disturbance to this balanced state will definitely affect human life. This worldview is carried over into the concept of health and illness as well, and the vision of the human body is that it is composed once again of four essential elements which are soul, mind, heart and flesh. These elements should also remain in equilibrium. When the Sundanese express their concept of health, they use the words '*damang'* and '*cageur'*, which are usually used to indicate the state of their health. As '*damang'* in the meaning of 'healthy' (*sehat*) refers to physical health, '*cageur'* refers to a state of physical as well as mentally and socially desirable condition which is achieved neither by increasing happiness nor by reducing anguish; it is solely attaining a specific state of tranquillity or peacefulness.

Another fundamental concept in the Sundanese perception of health and illness is the balance between 'hot' and 'cold' substances in the human body. In this theory, 'hot' and 'cold' represent two opposite conditions which should be maintained in equilibrium. Illness is thought to occur when the sense of balance of these opposing elements is interrupted. Foods, body fluids (blood and phlegm), diseases and treatments are classified according to their 'hot' or 'cold' qualities. An individual might be exposed to the elements 'hot' and 'cold' in three ways: (1) by the consumption of certain foods and beverages, but the actual temperature of these foods and beverages is mostly not important; (2) by exposure to the elements such as sun, water, wind. This is exemplified by the term *masuk angin* which literally means 'the wind enters'. This is used to denote illness caused by exposure to cold or wind; and (3) by blood, for example, after childbirth (*cf.* Adimihardja 1991).

In addition, Laderman (1983: 35) points out that the practical application of this theory is the aim to reinstate the physical balance by the use of certain foods, sometimes jointly with a ritual offer (*sesajen*) which will reduce the excess element or increase the deficient element. Beliefs about the postpartum period are alike in all the theories of the humours[5] as the new mother is perceived to be entering into a 'cold' state, since childbirth is followed by loss of blood, considered the 'hot' body fluid. Therefore, 'cold' foods are prohibited in the diet of the new mother. This 'cold state' will last until forty days after the delivery, after which she will be given her ceremonial discharge from this state. During the pregnancy itself women avoid consumption of 'hot' foods, since heat is regarded as unfavourable for the foetus. Another fear is that the consumption of 'hot' foods during pregnancy might stimulate a spontaneous abortion. Remarkably, the *tape peuyeum*, which is a mildly alcoholic kind of food made from glutinous rice prepared with yeast and regarded as very hot is consumed by women, with the aim of cleaning the womb of 'dirty' blood after giving birth. In the rural areas of West Java, a sick person is still usually treated with home-made remedies or *ubar kampung* concocted from medicinal plants. If the home-remedy did not show any improvement, the patient might seek treatment from a traditional healer, usually an elderly person and considered to be wise and experienced in the use of traditional medicine. In the Sunda Region, this traditional healer can

be called *Anu Tiasa, Sesepuh, Dukun* or *Panarosan*, and is usually also the head of *adat* (culture) or head of an ethnic community or group practising traditional medicine. The traditional birth attendant, who helps in childbirth and gives treatment to mother and child after birth, is known as *paraji* or *indung beurang*. In the next important life-cycle ritual for a boy, circumcision is performed by a male-healer known as *bengkong* or *dukun sunat.* Usually the healers give their patients medicine derived from medicinal plants on the basis of knowledge they received from their ancestors.

As Adimihardja (1992) observes, people in West Java still believe in traditional healers, like the *bengkong* or *dukun sunat* for the circumcision of their child. Besides performing a circumcision, the *dukun sunat* also frequently performs a ceremony called *helaran* or carnival which is held at the time of circumcision (*sunatan*) to ensure that all goes well (*nyalametkeun*) at the circumcision ceremony. Actually, the main purpose is to protect against the malevolent presence of evil spirits which might possibly disturb the circumcision.

In the firmly female sphere, the traditional birth attendant or *dukun bayi* (*paraji or indung* beurang), who are generally elderly women, are regarded as specialists in matters of pregnancy and childbirth by their community. Importantly, they also live in the community they serve and share the same social and cultural background; in fact they are no different from the other members of an average rural family. According to the Sundanese view, a childbirth may disturb the equilibrium between 'hot and 'cold' substances in the body, hence the birth of the baby and the subsequent loss of blood (the hot body fluid), is seen as the entering into a 'cold' state by the new mother. Therefore, the birth attendant (*dukun bayi*) advises 'hot' foods and drinks to restore the equilibrium in the woman's body. Moreover, as Laderman (1983) notes, pregnant women mostly desire sour foods and eat them without harm, hence sour fruits and vegetables are thought to be 'cold'. Adimihardja (1991) states that food plants which are classified as 'hot' are used to normalise a 'cold' state of the body and those which are classified as 'cold' to relieve a 'hot' state of the body. During the pre-, peri-, and post-natal care, it is the *dukun bayi* who usually provides the general health care. During her treatment, the *dukun bayi* massages the patient and gives her herbal medicine to drink. The massage and herbal treatments form the main components in both maternal and general health care. In some cases, the *dukun bayi* also executes a female circumcision (*sunatan*). Just as all Muslims, Indonesian Muslims practice female circumcision as well. Generally, a *dukun sunat* or *bengkong* conducts the circumcision when a baby-girl is about forty days old.

Currently, there is also a *bidan,* a government midwife who has graduated from a school for midwives (*Sekolah Kebidanan*) before she is assigned to a certain area by the government. In spite of this, most *bidan* (midwives) are not part of the community they serve and their education and standard of living often exceed those of most of the local inhabitants. Because of this distance, the *dukun bayi* (traditional birth attendants) are often consulted in preference to, or in combination with the *bidan,* since *dukun bayi* offer services which *bidan* do not include in their duties, such as massages and herbal treatments.

Notes

1 *Jamu* drinks are prepared from herbal materials such as leaves, bark, roots and flowers. All the ingredients are ground or pounded then added to a simmering pot of water. Afterwards the liquid is strained and put into bottles or containers. The concoction of herbal ingredients usually causes the *jamu* elixir to become dark yellowish in colour.

2 *Becak* drivers are the propellers of a *becak*, which is a vehicle converted from a bicycle by adding two wheels and a seat in front for carrying (at the most) two passengers. It is for hire and it will

carry passengers and goods from one place to another. The passenger seat is equipped with a folding hood to protect the passenger from the sun and the rain, including plastic sheets which can be rolled down to protect the customer from an occasional tropical downpour.

3 In this context, *lontar* leaves are the classical palm-leaf manuscripts from Bali (Agung 2005).

4 *Lulur* is *jamu*, in the form of herbal paste used for exfoliation to obtain a clean, smooth and healthy skin.

5 The humoural medicine is an ethnomedical system of classical Greek and Persian humoural pathology which conforms to an equilibrium model. *Foods, medicinal remedies, and other substances are believed marked both by (usually) unchanging Hot and Cold metaphorical qualities, and by fluctuating thermal temperatures that reflect environmental exposures of the moment. Health is thought to depend on maintenance in the body of a temperature balance, an equilibrium constantly threatened by the metaphorical and thermal forces to which it is exposed. An excess of metaphorical and/or thermal hot or cold insults, which upset this equilibrium, leads to illness, which is treated by therapies that conform to the 'principle of opposites', that is a Hot remedy for cold illness or a Cold remedy for hot illness. This ethnomedical system, widely known as the 'Hot-Cold syndrome', the 'Hot-Cold dichotomy', or, more appropriately, 'humoral pathology'.* [The capitalized first letter of words indicates humoural values and the lower-case letters indicates thermal temperature]. (Foster 1995: 355).

Chapter VIII PATTERNS OF COMMUNICATION BEHAVIOUR ON MAC PLANTS

This chapter presents the quantitative analysis of the data collected during the household surveys and obtained from *arisan* members who are the spouses of the household heads in the four sample communities in the research area of Lembang. Following the lead given by the recent developments in quantitative ethnoscience, this study has documented and studied the various categories of factors as determinants of human communication behaviour. The socio-demographic factors of the objective data, which are considered 'hard' factors, such as 'age', 'marital status', 'occupation', 'education', 'ethnicity' as well as the psycho-social factors of the subjective data, which are considered 'soft' factors, such as 'belief', 'knowledge', 'perception' and 'opinion' are included in the analysis.

The household surveys conducted after the qualitative surveys show that the local people in the district of Lembang certainly possess knowledge of medicinal, aromatic and cosmetic (MAC) plants, which they tend to use in the preparation of home remedies for the treatment of common illnesses. All the data are electronically analysed using the Statistical Program for Social Sciences (SPSS), Version 15.0. Scores in the household surveys are established on the basis of experiences reported over the twelve-month period prior to the execution of the household surveys.

This chapter also contains the analytical process carried out using the conceptual analytical model in which the interaction between the predisposing, enabling, perceived need, institutional and intervening variables is analysed in interaction with the dependent variables of communication behaviour on MAC plant knowledge and practice for health promotion and illness prevention, and communication behaviour on MAC plant knowledge and practice for treatment. Responses from all the 120 questionnaires are entered into the data-base and a series of steps are taken to prepare the final analyses.

The first step involves a quantitative analysis containing a bivariate analysis as a starting point for the subsequent, more complicated correlation and regression analyses. In the cross-tabulations of the following independent and intervening variables distributed over the two dependent variables of the communication behaviour on MAC plant knowledge and practice, the dependent variables are stated in diverse scores of communication behaviour on MAC plants for health promotion, illness prevention and for treatment, as reported over the preceding period of time of twelve months to the execution of the household surveys, as reported by the respondents in the four sample communities.

However, not all relationships between the two sets of variables are statistically significant as confirmed by the *Pearson Chi-Square*; hence a multivariate and a multiple regression analysis are both executed to achieve a better understanding of the coherence among all related variables of the model.

After this first step, the second step in the analysis measures the comprehensive influence of all independent and intervening factors on the dependent factors in their interaction among and between each other. This is carried out by using the specific multivariate analysis called OVERALS, which facilitates the identification of the specific determinants of communication behaviour on MAC plant knowledge and practice in health promotion, illness prevention and treatment. Moreover, this analysis renders it possible to appraise the relative influence of the various variables in the patterns of reported communication behaviour of the respondents/ *arisan* members.

Finally, the multiple regression analysis is executed in order to affirm the linkage among groups of variables - which are represented as the 'blocks' in the model - by revealing the related calculated regression values. After this analysis had been completed, the purpose of the analysis is to add to the explanation, understanding and prediction of the values of the comprehensive interaction process of communication on MAC plants for health promotion, illness prevention and for treatment among the respondents from the four communities in the research area of Lembang. This chapter finishes with an interpretation and a discussion of the results of the analysis in relation to the structure of the analytical model.

8.1 Bivariate Analysis of Communication on MAC Plants

8.1.1 Preparation of Analysis: Data Sets and Variables

The previous chapters are describing the patterns discovered in the study of communication behaviour on MAC plants by the people in Lembang, which includes a description of the interacting process of the different factors. In the process, both socio-demographic and psycho-social factors are combined with the intervening factors in order to demonstrate the discriminating coherence with the dependent factors of communication behaviour on MAC plants for health promotion and illness prevention, and for treatment, as reported by the respondents in the surveys.

During the qualitative surveys, the research has documented the fact that the people in the research area in their efforts to seek health care, are using both home remedies made from MAC plants for health promotion, illness prevention, and treatment, as well as available modern health services. Observations in *arisan* meetings confirm that *arisan* members take such opportunity to seek or exchange information about the use of MAC plants, especially when they are concerned about treating a sick member of the family or when they just want to keep their family in good health.

The outcome of the qualitative survey shows that such factors as 'age', 'level of education' and 'occupation' as well as the people's 'knowledge about MAC plants' are influencing their communication behaviour on MAC plants for health promotion, illness prevention, and for treatment.

In order to confirm the results of the qualitative survey more significantly, additional analyses are essential to substantiate the relevance of the factors concerned and their interactions with other factors. Deeper understanding of the influence exerted by the various factors is enhanced by examining the reported scores obtained in the analyses of the patterns of the communication behaviour on MAC plants. Therefore, the quantitative surveys are also contributing to the specification, operasionalisation and measurement of these complex factors from the respondents' point of view, using a number of relevant indicators. These inicators are translated into a series of related questions, with aview to reach a maximum level of assessment.

The first step in the process is the execution of the bivariate analysis which leads to a better understanding of the impact of the weight of the independent factors in their interaction with the two dependent factors of communication on MAC plants.

As explained in Chapter III, at the analytical level, these factors are redefined as variables in the subsequent analyses and introduced as such into the analytical model. After the theoretical orientation, outlined in Chapter II and the preceding analysis of human-environment relations and interactions resulting from the so-called 'knowledge-belief-practice' complex of human behaviour, the analyses eventually focus on gaining an

understanding of the complicated relations and interactions between the various 'blocks' of variables in the analytical model (*cf*. Slikkerveer 1999; Toledo 2000). Before the quantitative analysis can be executed, however, the pre-coded answer categories of the structured questionnaires are included in the first data entry, and used for the quantitative analysis by SPSS 15.0. This task requires some corrections to be made after preliminary tests on consistency are performed, so that the regrouping of the answer categories can be inserted into the data-set. Using this point of departure, the original responses referred to responses in the data set after the second entry, which naturally be included the corrections[1].

Responses from all the 120 questionnaires are entered into the data-base and a series of steps are taken to prepare the data for the final analysis. Preliminary tests are made to check the consistencies and corrections. Answers which seemed to yield the same results are regrouped and the various categories obtained inserted into the data-set. For instance, when a respondent who answered 'Don't know' to the question 'Do you acquire knowledge on MAC plant from the TV?' and another respondent who answered 'No' in the literal sense, both of these responses mean that neither of them had not taken any effort to acquire knowledge on MAC plants from the TV. Variables which include 'marital status', 'religion', and 'ethnicity' are excluded from the data-set, since all the respondents in the survey are the spouse of a household head, with the natural exception of the six respondents who are widows.

The respondents all adhere to the same religion, Islam, showing no differentiation in the answer categories in this question and all respondents belong to the same 'ethnicity' which corresponds with the villages in which they are living. The variable 'place of work' again yields the same answers as in the variable 'place of birth', which therefore did not need to be included in the analysis. The original data consists of the answer scores to 107 questions which are reduced to the selected seventeen variables, of which a number are recalculated into five-answer categories[2]. These variables, including the labels assigned to them, are described below.

It is possible through a series of steps, including the frequency of the data-sets, the determination of the single responses for multi-answer questions, the re-grouping of questions and labelling, and the final calculation of the factors into model-based variables, to conduct the first step of the bivariate analysis, embarking on the complex analysis necessary to assess the relative influence of predisposing, enabling, perceived need, institutional and intervening variables on the dependent variables of communication behaviour on MAC plants, sub-divided into communication on MAC plants for health promotion and illness prevention, and communication on MAC plants for treatment. The manner in which the construction of the communication behaviour on MAC plants variable is executed is explained below. For the multivariate analysis, structured in line with the analytical model of the study, the total number of answer scores of 107 questions on related issues is reduced to the selected seventeen variables, and (where applicable) provided with the recalculated five-answer categories. The seventeen variables are described together with the appointed labels.

Subsequent steps are taken to prepare for the performace of the next analysis, including the first and second data entry, the frequencies of the data sets, the determination of single responses to multi-answer questions, the regrouping of questions and labelling, and the final calculation of factors into the model-based variables, which means that the bivariate analysis is the first statistical method to assess the influence of the predisposing, enabling, perceived need, institutional and intervening factors on variables of communication behaviour on MAC plants.

Regarding the conventional factors, such as 'sex' and 'ethnicity' which are discussed in Chapter V, it is found that there are no differentiations in relation to the the communication

behaviour on MAC plant knowledge and practice in the analysis, since all *arisan* members are female and come from the same Sundanese ethnic group. Whereas, the basic goal of the bivariate analysis is to give a broad overview of the direct relations between the fifteen independent and the two dependent variables, the subsequent multivariate analysis (OVERALS) focuses more explicitly on the internal interaction between the independent and intervening variables in relation to the dependent variables. The multivariate analysis is followed by the multiple regression analysis, assessing the values of the correlations between the various 'blocks' in the model.

In the following paragraphs, a detailed description is presented of the analyses contributijng to the assessment of the interaction of the seventeen variables which are identified in the two data-sets, as follows:

Set 1: Independent variables:
Predisposing factors: socio-demographic variables (5)
Predisposing factors: psycho-social variables (4)
Enabling factors: socio-economic status variable (1)
Perceived need factors: perceived need variable (1)
Institutional factors: institutional variables (3)
Intervening factors: intervening variable (1)

Set 2: Dependent variables:
Communication behaviour on MAC plant knowledge and practice for health promotion and illness prevention variable (1)
Communication behaviour on MAC plant knowledge and for illness treatment variable (1)

The total number of answer scores to the 107 questions on related issues is reduced to the seventeen variables selected as they are described below under the labels assigned, and used in both the bivariate and the multivariate analysis, and structured according to the conceptual model of the study. The reduction is carried out in accordance to the operationalisation of factors into variables which are constructed of a number of related characteristics, previously described in Chapter III.

The housewives who are also *arisan* members in the sample survey (N=120) are selected as respondents. Since all of them are females, the variable 'sex' is deleted from the final analysis.

The 'place of birth' and 'place of work' of almost all the respondents are the same as the place in which they are residing at the time of interview; hence the variables 'place of birth' and 'place of work' are deleted from the analysis.

Since all the respondents, with the exception of the six widows, are the spouses of household heads, the variable 'marital status' is also deleted from the final analysis.

The variable 'non-formal education' is deleted, since only a few respondents had received any non-formal education.

Almost all the respondents belong to the Sundanese ethnic group, so the variable 'ethnicity' is likewise deleted from the final analysis. As all the respondents profess Islam; the variable 'religion' is similarly deleted.

The total number of seventeen variables, grouped into the above-mentioned eight categories of both data-sets, - recalculated when necessary – are labelled as follows:

Socio-demographic variables:
Variable 'Age' (label 'Age'). No recalculations are made. The original responses are used in the analysis: '16-20', '21-25', '26-30', '31-35', '36-40', '41-45', '46- 50', '51-55', '56-60', '61-65', '66-70'.
Variable 'Formal education of the housewife' (label 'Edu'). No recalculations are made. The original responses are used in the analysis: 'elementary school', 'junior high school', 'senior high school', 'academy/university'.
Variable 'Occupation' (label 'Occup'). A regrouping of the 'main occupation' and 'additional occupation' is carried out, to create eight categories, based on the original responses, giving the following categories: 'retired', 'housewife without part time occupation', 'housewife with part time occupation-few contacts', 'housewife with part-time occupation-many contacts', 'civil servant', 'teacher', 'entrepreneur', private corporation employee'.
Variable 'Membership of any sort of institution' (label 'Memins'). No recalculations are executed. The original responses are used in the analysis: '*arisan*', '*arisan & pengajian*', '*arisan & pkk & pengajian*'.
Variable 'Number of household member' (label 'Numhhm'). No recalculations are made. The original responses are used in the analysis: 'one', 'two', 'three', 'four', 'five', 'six', 'seven'.

Psycho-social variables:
Variable 'Knowledge level on MAC plants' (label 'MACpknow'). A regrouping of the answer categories is done on the basis of the original responses, leading to the following five categories: 'very little knowledge', 'little knowledge', 'average knowledge', 'much knowledge', 'very much knowledge'.
Variable 'Opinion of the role of the *arisan* in MAC plants' (label 'Opinarol'). A regrouping of the answer categories is made, on the basis of the original responses, creating to the following five categories: 'very low, 'low, 'average, 'high, 'very high'.
Variable 'Belief in MAC plants' (label 'BelMACpkp'). A regrouping is made in the answer categories, on the basis of the original responses, leading to the following categories: 'very little belief', 'little belief', 'average belief', 'much belief', 'very much belief'.
Variable 'Need of MAC plants' (label 'Need Mack'). A regrouping is made of the answer categories, on the basis of the original responses, leading up to the following five categories: 'very little need', 'little need', 'average need', 'much need', very much need'.

Enabling variables:
Variable 'socio-economic status' (label 'SES'). A regrouping of the answer categories is made, on the basis of the original responses, leading up to the following three categories: 'poor', 'average', 'well-to-do'.

Perceived need variables:
Variable 'Satisfaction with activities of the *arisan*' (label 'Satisfac'). A regrouping is made in the answer categories, on the basis of the original responses, leading up to the following three categories: 'little satisfaction', 'average satisfaction', 'much satisfaction'.

Institutional variables:
Variable 'Frequency of *arisan* meeting per month' (label 'Freqam'). This variable referred to the actual 'frequency of *arisan* meeting per month' which the respondents attended as members. No recalculations are carried out. The original responses are used in the analysis: 'once', 'twice', 'three times'.

Variable 'Attendance at *arisan* presentations about MAC plants' (label 'Attpresa'). This variable referred to the actual 'attendance at *arisan* presentations on MAC plants' of which the respondents are members. No recalculations are carried out. The original responses are used in the analysis: 'none', 'once', 'twice', 'three times'.
Variable 'Participation in *arisan* activities' (label 'Parca'). A regrouping of the answer categories is done, on the basis of the original responses, leading to the following five categories: 'very little participation', 'little participation', 'average participation', 'much participation', 'very much participation'.

Intervening variables:
Variable 'Exposure to medicinal plants knowledge from the media (label 'Expomed').A regrouping of the answer categories is made, on the basis of the original responses, leading to the following categories: 'low exposure', 'average exposure', 'high exposure'.

Dependent variables:
Variable 'Communication on MAC plant knowledge and practice for health promotion and illness prevention' (label 'Cpromprev'). A regrouping of the answer categories is done, on the basis of the original responses, leading to the following three categories: 'little communication', 'average communication', much communication'. The original responses encompassed answer categories to questions asking about the actual communication behaviour on MAC plant for health promotion and illness prevention of household members, carried out by the respondents during the previous twelve months. These categories are designed to score on a scale from 'very little communication' to 'very much communication' of MAC plants, in accordance with the local vision of the respondents from 'little communication', 'average communication' to 'much communication' of MAC plant knowledge and practice in the study area.

Variable 'Communication on MAC plant knowledge and practice for treatment (label 'Ctreatm'). A regrouping of the answer categories is done on the basis of the original responses, leading to the following categories: 'little communication', 'average communication', 'much communication'. The original responses encompassed the answer categories to questions asking about the actual communication behaviour on MAC plants as remedies for treatment of the respondents during the previous twelve months. These categories are designed to score on a scale from 'very little communication', to 'very much communication' of MAC plants, in accordance with the local vision of the respondents also ranges from 'little communication', 'average communication' to 'much communication' of MAC plants in the study area.

The bivariate analysis using cross-tabulations of the distribution of the independent variables (15), consisting of predisposing, enabling, perceived need, institutional and intervening variables over the two dependent variables includes a total of 30 cross-tabulations presented in combination in Tables 8.1 – 8.5 below. In general, the overall distribution of predisposing, enabling, perceived need, institutional and intervening variables over the reported communication behaviour on MAC plants for health promotion and illness prevention and the communication on MAC plants for treatment shows a tendency in the previous twelve-month period before the survey with from fewer than one-tenth (0.8 %) to more than one-tenth (10.8%) of the respondents reporting 'little' to 'much' communication on MAC plants for health promotion and illness prevention, and fewer than one-tenth (0.8%) to more than one-fifth (24.2%) of respondents reporting 'little' to 'much' communication on MAC plants for

treatment. More than three-quarters of respondents (88.3%) reported 'average' communication on MAC plants for health promotion and illness prevention, while more than half of respondents (75.0%) reported 'average' communication on MAC plants for treatment in the study area of Lembang.

In the determination of the statistical significance to discover whether there is a systematic relationship between two variables, the calculated value of the *Pearson Chi-Square*, based on the criterion of 95%, a value of .05, is indicated for each variable in Tables 8.1 - 8.5. Since the *Chi-Square* only helps to decide whether the variables are related on the basis of statistical calculations and does not indicate how strongly the variables are related, the *Cramer's V* for each variable is also mentioned.

Although a significance is basically regarded as an expression of the degree of the probability that a recorded association between variables could not have emerged by chance, the analysis of the research findings is extended beyond the bivariate analysis of cross-tabulation of variables into the multivariate and multiple regression analysis with the objective of providing more information and insights into the coherence between all variables in the model. By using such a classification of values of the chance of deviation, a more differentiated assessment of the relationship among variables could in some cases be achieved[3].

8.1.2 Dependent Factors

The overall analysis shows that the assessment of the dependent factors of the communication behaviour on MAC plant knowledge and practice for health promotion, illness prevention and for treatment is fairly complicated. The dependent variables in the model are executed for scores of respondents reported over the twelve-month period of time prior to the household survey in the four sample communities.

Owing to the complexity of the dependent factor of the communication behaviour on MAC plants, more related variables had to be measured to be able to achieve what is possibly the most realistic assessment of the respondents' reported behaviour. Whereas empirically observed scores of the communication behaviour on MAC plants during the twelve-month period would have been ideal, the retrospective measurement of the factors of their communication behaviour through household surveys is subject only to a certain margin towards 100 % accuracy and an interpretation which doe not surpass 10%, rendering this methodology suitable to the analysis of data collected in the research area. Although these limitations also appear in the measurement of other psycho-social factors in the analysis, it is the participant's individual view which is not only relevant to the reported patterns of behaviour, but is also essential to the role of the various categories of background and intervening factors. Previously is mentioned the sub-division of the concept of 'communication on MAC plants' into two more explicit but closely related factors of 'communication on MAC plants for health promotion and illness prevention' and 'communication on MAC plants for treatment' respectively is also identified and confirmed during the qualitative surveys in the research area. Subsequently, a number of related variables for both dependent factors are introduced and the 'supporting' questions in the structured questionnaire, which are regrouped during the preparation of the analysis of the answer categories on the basis of the original responses of respondents.

Communication on MAC plants for health promotion and illness prevention
The actual measurement of the variable 'communication on MAC plants for health promotion and illness prevention' is developed from the qualitative surveys and encompasses the documentation of the degree of communication on MAC plants perceived by the respondents themselves. All reported answers from the household surveys which are initially distributed equally over a scale ranging between the reported margins from 'little communication on MAC plants' to 'much communication on MAC plants' so as to include the above three answer categories of (1) 'little', (2) 'average' and (3) 'much' respectively.

The construction of the dependent variable communication on MAC plants for health promotion and illness prevention relied heavily on several factors indicated in both the qualitative and quantitative surveys. First, the reported degree to which the respondents had been implementing the MAC plants by using the appropriate properties to keep physically fit and healthy is determined. This involved the level of knowledge, belief and perceived need of MAC plants of the respondents. The next step is to consider the availability of the MAC plant and the time the plant is collected. The concoction is prepared from parts of MAC plants according to instructions, so that the medicinal properties will be optimally used. The concoction can be administered by drinking or by application on the skin.

Communication on MAC plants for treatment
Similarly, the actual measurement of the variable 'communication on MAC plants for treatment' is developed from the qualitative surveys and encompassed the documentation of the degree of communication of MAC plants perceived by the respondents themselves. All reported answers from the household surveys are initially distributed equally over a scale ranging between the reported margins of, at one end of the scale 'little communication on MAC plants' and 'much communication on MAC plants' at the other, so as to include the above three answer categories of respectively (1) 'little', (2) 'average' and (3) 'much'.

The practices considered to be related to the 'communication on MAC plants for treatment' in the research area, and introduced as such as 'supporting variables' in the questionnaires, covered a number of steps. First the respondent identified the illnesses of the sick member of the household. Whereupon, on the basis of the acquired knowledge of the properties of MAC plants a concoction is prepared according to the instructions from ingredients consisting of parts of MAC plants. The prepared concoction is then used as a remedy for treatment and could be administered by drinking or used topically.

8.1.3 Predisposing Factors

The predisposing factors consist of a group of variables in the analytical model which are presumed to interact with communication on the MAC plants of respondents differentially at the individual level. Below, the background variables of respondents who are *arisan* members are listed and these include two categories: socio-demographic variables such as 'Age', 'Education', 'Occupation', 'Membership of any institution' and 'Number of household members' and psycho-social variables such as 'Knowledge level of MAC plants', 'Opinion of role of *arisan* in MAC plants'; 'Belief in MAC plants' and 'Need of MAC plants'.

Table 8.1 shows the distribution of the relevant predisposing variables over the reported scores of the communication behaviour on MAC plants for health promotion, illness prevention and treatment in the four sample communities (N=120). As can be seen from the *Pearsons Chi-Square* values, not all the bivariate relationships in this category of variables are significant.

Age

Table 8.1 shows, that there are weakly significant relationships between the variable 'age' of respondent and the communication on MAC plants for health promotion and illness prevention using a *Pearson Chi-Square* of .028 and there are non-significant relationships between the variable 'age' and the communication on MAC plants for treatment using a *Pearson Chi-Square* of .490.

Remarkably, in the four middle categories of 31-35, 36-40, 41-45 and 46-50 years of age (resp. 11.8%, 15.4%, 9.5% and 11.1%), all respondents reported 'much' communication on MAC plants for health promotion and illness prevention, while in the categories of 26-30, 31-35, 36-40 and 41-45 years (resp. 27.8%, 29.4%, 23.1% and 23.8%), the communication on MAC plants for treatment tended to show almost a quarter of all respondents reported 'much' communication on MAC plants for treatment.

Education

In table 8.1 the distribution of the variable 'education' shows that there are non-significant relationships between the educational level of the respondent and both types of respectively the communication on MAC plants for health promotion and illness prevention and the communication on MAC plants for treatment using *Pearson Chi-Squares* of respectively .798 and .736.

However, Table 8.1 shows that the relationship between formal education and communication on MAC plants for health promotion and illness prevention in which the highest score (92.6%) is found in the category of 'Elementary school' with 'average' communication on MAC plants for health promotion and illness prevention. While the highest score (28.9%) is found in the category of 'Senior high school' with 'much' communication on MAC plants for treatment.

Occupation

Table 8.1 shows that there are non-significant relationships between 'occupation' of the respondents and both types of reported communication behaviour on MAC plants for health promotion and illness prevention and communication behaviour on MAC plants for treatment using *Pearson Chi-Squares* of respectively .706 and .759. Occupations such as private corporation employee, teacher and retired people indicate that a quarter to half of the respondents (resp. 50%, 25% and 25%) reported 'much' communication on MAC plants for health promotion and illness prevention, while in the same categories, the communication on MAC plants for treatment shows an almost similar result (resp. 50%, 25% and 50%) of respondents reported 'much' communication on MAC plants for treatment, with the exception of the category 'retired'.

Membership of sort of institution

As shown in Table 8.1, the distribution of the variable 'membership of sort of institution' of the respondents over the reported communication behaviour on MAC plants for health promotion and illness prevention and communication on MAC plants for treatment shows non-significant relationships with communication behaviour on MAC plants for health promotion and illness prevention using a *Pearson Chi-Square* .141 and a weakly significant relationship with communication behaviour on MAC plants for treatment using a *Pearson Chi-Square* of .396. As regards the variable 'Membership of sort of institution', both the categories '*Arisan*' and '*Arisan +Pengajian*' shows (resp. 92.0% and 94.3%) that more than three-quarters of respondents reported 'average' for MAC plants for health promotion and

illness prevention. While the category '*Arisan*' reveals that 32.0% of the respondents reported 'much' communication on MAC knowledge for treatment and the category '*Arisan+Pengajian*' shows that 80.0% of the respondents reported 'average' communication on MAC plants for treatment, revealing a shift in reported scores from communication behaviour on MAC plants for health promotion and illness prevention to communication behaviour on MAC plants for treatment in these categories.

Number of household members

Table 8.1 shows that there are non-significant relationships between 'number of household members' and both types of reported communication behaviour on MAC plants for health promotion and illness prevention, and communication behaviour on MAC plants for treatment, using *Pearson Chi-Squares* of respectively .479 and .841. As regards the variable 'Number of household members', the categories 'Seven' and 'Six' members of households shows that more than a quarter (resp. 50% and 33.3%) of respondents reported 'much' communication on MAC plants for health promotion and illness prevention, while the same categories tended to display a similarity since more than a quarter (resp. 50% and 33.3%) of respondents reported 'much' communication on MAC plants for treatment, revealing a consistency in the reported scores for the communication on MAC plants for health promotion and illness prevention and communication on MAC plants for treatment.

Knowledge level of MAC plants

Table 8.1 shows a very strongly significant relationship between 'knowledge level of MAC plants' and reported communication behaviour on MAC plants for health promotion and illness prevention using a *Pearson Chi-Square* of .001, revealing that this variable is highly significant in the communication on MAC plants for health promotion and illness prevention. The highest score is observed in the category 'very little' (97.4%) 'Knowledge level of MAC plants, revealing 'average' communication on MAC plants for health promotion and illness prevention. However, the relationship with reported communication on MAC plants for treatment is strongly significant using a *Pearson Chi-Square* of .009. The scores for the communication on MAC plants for treatment are highest at the category 'Little' (90.3%) 'Knowledge level of MAC plants', revealing a shift in reported scores from communication on MAC plants for health promotion and illness prevention to 'average' communication on MAC plants for treatment in these categories.

Opinion of role of arisan in MAC plant knowledge

Table 8.1 shows a very strongly significant relationship of opinion of role of arisan in mac plant knowledge with reported communication on MAC plants for health promotion and illness prevention using a *Pearson Chi-Square* of .000. Also, the same Table 8.1 shows that the relationship between 'Opinion of role of *arisan* in MAC plants' and the reported communication on MAC plants for treatment is strongly significant using a *Pearson Chi-Square* of .007. In relation to communication on MAC plants for health promotion and illness prevention, the highest score is observed in the category of 'Very little' (96.8%) 'Opinion of role of *arisan* in MAC plants' revealing 'average' communication on MAC plants. The scores for communication on MAC plants for treatment are highest in the category 'Average' (88.4%) 'Opinion of role of *arisan* in MAC plants' revealing 'average' communication on MAC plants for treatment.

Belief in MAC plant knowledge

Table 8.1 shows a very strongly significant relationship with reported communication on MAC plants for health promotion and illness prevention using a *Pearson Chi-Square* of .000. While the relationship with the reported communication on MAC plants for treatment shows weakly significant relationship using a *Pearson Chi-Square* of .088. In relation to the communication on MAC plants for health promotion and illness prevention, the highest score is reported in the category of 'Very little' (100%) 'Belief in MAC plants' revealing 'average' communication on MAC plants. Similarly, the scores for the communication on MAC plants for treatment are highest in 'Very little' (85.7%) 'Belief in MAC plants', revealing a shift in reported scores from 'average' communication on MAC plants for health promotion and illness prevention and communication on MAC plants for treatment in these categories.

Need of MAC plant knowledge

Table 8.1 shows a very strongly significant relationship with reported communication on MAC plants for health promotion and illness prevention using a *Pearson Chi-Square* of .000, while the relationship with the reported communication on MAC plants for treatment appears weakly significant using a *Pearson Chi-Square* of .041.

In relation to the communication on MAC plants for health promotion and illness prevention, the highest score is reported in the categories 'very little' (100.0%) and 'average' (100.0%) 'need for MAC plants', both revealing an 'average' communication on MAC plants for health promotion and illness prevention. While the scores for communication on MAC plants for treatment are reported to be highest in the categories 'very little' (75.0%) 'need of MAC plants' and 'average' (94.1%) 'need for MAC plants', revealing a shift in reported scores from 'average' communication on MAC plants for health promotion and illness prevention and communication on MAC plants for treatment in these categories.

Table 8.1 Distribution of predisposing variables over communication on MAC plant knowledge and practice for health promotion, illness prevention and treatment as reported by the respondents/*arisan* members in the four sample communities (N=120).

Variable	Communication on MAC plant knowledge & practice for health promotion & illness prevention ('Chpipv')								Communication on MAC plant knowledge & practice for treatment ('Ctreat')							
	Little		Average		Much		Total		Little		Average		Much		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Socio-demographic variables																
Age ('Age') (% within 'age')																
16-20 years	-	-	1	100.0	-	-	1	100	-	-	1	100.0	-	-	1	100
21-25 years	-	-	12	100.0	-	-	12	100	-	-	11	91.7	1	8.3	12	100
26-30 years	-	-	17	94.4	1	5.6	18	100	1	5.6	12	66.7	5	27.8	18	100
31-35 years	-	-	15	88.2	2	11.8	17	100	-	-	12	70.6	5	29.4	17	100
36-40 years	-	-	11	84.6	2	15.4	13	100	-	-	10	76.9	3	23.1	13	100
41-45 years	1	4.8	18	85.7	2	9.5	21	100	-	-	16	76.2	5	23.8	21	100
46-50 years	-	-	16	88.9	2	11.1	18	100	-	-	14	77.8	4	22.2	18	100
51-55 years	-	-	11	100.0	-	-	11	100	-	-	10	90.9	1	9.1	11	100
56-60 years	-	-	1	20.0	4	80.0	5	100	-	-	1	20.0	4	80.0	5	100
61-65 years	-	-	2	100.0	-	-	2	100	-	-	1	50.0	1	50.0	2	100
66-70 years	-	-	2	100.0	-	-	2	100	-	-	2	100.0	-	-	2	100
(Pearson Chi-Square .028/Cramer's V .028)									(Pearson Chi-Square .490/Cramer's V .490)							
Education ('Edu') (% within 'Edu')																
Elementary School	-	-	25	92.6	2	7.4	27	100	-	-	22	81.5	5	18.5	27	100
Junior High School	1	2.2	41	89.1	4	8.7	46	100	1	2.2	33	71.7	12	26.1	46	100
Senior High School	-	-	32	84.2	6	15.8	38	100	-	-	27	71.1	11	28.9	38	100
Academy/University	-	-	8	88.9	1	11.1	9	100	-	-	8	88.9	1	11.1	9	100
(Pearson Chi-Square .798/Cramer's V .798)									(Pearson Chi-Square .736/Cramer's V .736)							
Occupation of housewife ('Occup') (% within 'Occup')																
Retired	-	-	3	75.0	1	25.0	4	100	-	-	2	50.0	2	50.0	4	100
Without part time occupation	1	2.1	39	83.0	7	14.9	47	100	-	-	33	70.2	14	29.8	47	100
Parttime occupationFew contacts	-	-	26	92.9	2	7.1	28	100	-	-	24	85.7	4	14.3	28	100
Parttime occupationMany contacts	-	-	22	100.0	-	-	22	100	1	4.5	16	72.7	5	22.7	22	100
Civil servant	-	-	3	100.0	-	-	3	100	-	-	3	100.0	-	-	3	100
Teacher	-	-	3	75.0	1	25.0	4	100	-	-	3	75.0	1	25.0	4	100
Entrepreneur	-	-	9	90.0	1	10.0	10	100	-	-	8	80.0	2	20.0	10	100
Private corporation employee	-	-	1	50.0	1	50.0	2	100	-	-	1	50.0	1	50.0	2	100
(Pearson Chi-Square .706 / Cramer's V .706)									(Pearson Chi-Square .759/Cramer's V .759)							
Membership sort of institution ('Memsins') (% within 'Memsins')																
Arisan	-	-	23	92.0	2	8.0	25	100	-	-	17	68.0	8	32.0	25	100
Arisan + Pengajian	1	2.9	33	94.3	1	2.9	35	100	1	2.9	28	80.0	6	17.1	35	100
Arisan + PKK + Pengajian	-	-	50	83.3	10	16.7	60	100	-	-	45	75.0	15	25.0	60	100
(Pearson Chi-Square .141/Cramer's V .141)									(Pearson Chi-Square .396/Cramer's V .396)							

Table 8.1 (Cont'nd) Distribution of predisposing variables over communication on MAC plant knowledge and practice for health promotion, illness prevention and treatment as reported by the respondents/*arisan* members in the four sample communities (N=120).

Variable	Communication on MAC plant knowledge & practice for health promotion & illness prevention ('Chpipv')								Communication on MAC plant knowledge & practice for treatment ('Ctreat')							
	Little		Average		Much		Total		Little		Average		Much		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Number of HH members ('Numhhm') (% within 'Numhhm')																
Two	-	-	12	92.3	1	7.7	13	100	-	-	9	69.2	4	30.8	13	100
Three	-	-	33	94.3	2	5.7	35	100	1	2.9	28	80.0	6	17.1	35	100
Four	1	2.4	35	85.4	5	12.2	41	100	-	-	29	70.7	12	29.3	41	100
Five	-	-	21	91.3	2	8.7	23	100	-	-	19	82.6	4	17.4	23	100
Six	-	-	4	66.7	2	33.3	6	100	-	-	4	66.7	2	33.3	6	100
Seven	-	-	1	50.0	1	50.0	2	100	-	-	1	50.0	1	50.0	2	100
(Pearson Chi-Square .479/Cramer's V .479)									(Pearson Chi-Square .841/Cramer's V .841)							
Psycho-social variables																
Knowledge about MAC plants ('MACpknow') (% within 'MACpknow')																
Very little knowledge	-	-	38	97.4	1	2.6	39	100	-	-	30	76.9	9	23.1	39	100
Little knowledge	1	3.2	29	93.5	1	3.2	31	100	-	-	28	90.3	3	9.7	31	100
Average knowledge	-	-	33	84.6	6	15.4	39	100	1	2.6	29	74.4	9	23.1	39	100
Much knowledge	-	-	6	60.0	4	40.0	10	100	-	-	3	30.0	7	70.0	10	100
Very much knowledge	-	-	-	-	1	100.0	1	100	-	-	-	-	1	100.0	1	100
(Pearson Chi-Square .001/Cramer's V .001)									(Pearson Chi-Square .009/Cramer's V .009)							
Opinion about arisan's role in MAC plant knowledge ('Opinarol') (% within 'Opinarol')																
Very little role	1	3.2	30	96.8	-	-	31	100	-	-	23	74.2	8	25.8	31	100
Little role	-	-	24	92.3	2	7.7	26	100	-	-	20	76.9	6	23.1	26	100
Average role	-	-	41	95.3	2	4.7	43	100	1	2.3	38	88.4	4	9.3	43	100
Much role	-	-	6	85.7	1	14.3	7	100	-	-	5	71.4	2	28.6	7	100
Very much role	-	-	5	38.5	8	61.5	13	100	-	-	4	30.8	9	69.2	13	100
(Pearson Chi-Square .000/Cramer's V .000)									(Pearson Chi-Square .007/Cramer's V .007)							
Belief in MAC plant knowledge ('BelMACpk) (% within 'BelMACpk')																
Very little belief	-	-	21	100.0	-	-	21	100	1	4.8	18	85.7	2	9.5	21	100
Little belief	-	-	51	96.2	2	3.8	53	100	-	-	42	79.2	11	20.8	53	100
Average belief	1	6.7	14	93.3	-	-	15	100	-	-	12	80.0	3	20.0	15	100
Much belief	-	-	19	67.9	9	32.1	28	100	-	-	17	60.7	11	39.3	28	100
Very much belief	-	-	1	33.3	2	66.7	3	100	-	-	1	33.3	2	66.7	3	100
(Pearson Chi-Square .000/Cramer's V .000)									(Pearson Chi-Square .088/Cramer's V .088)							
Need of MAC plant knowledge ('NeedMACk) (% within'NeedMACk')																
Very little need	-	-	8	100.0	-	-	8	100	-	-	6	75.0	2	25.0	8	100
Little need	1	2.1	44	93.6	2	4.3	47	100	1	2.1	35	74.5	11	23.4	47	100
Average need	-	-	34	100.0	-	-	34	100	-	-	32	94.1	2	5.9	34	100
Much need	-	-	19	67.9	9	32.1	28	100	-	-	16	57.1	12	42.9	28	100
Very much need	-	-	1	33.3	2	66.7	3	100	-	-	1	33.3	2	66.7	3	100
(Pearson Chi-Square .000/Cramer's V .000)									(Pearson Chi-Square .041/Cramer's V .041)							
Gen. Total	1	0.8	106	88.3	13	10.8	120	100	1	0.8	90	75.0	29	24.2	120	100

Table 8.2 Distribution of socio economic status variables over communication on MAC plant knowledge and practice for health promotion, illness prevention and treatment as reported by the respondents/*arisan* members in the four sample communities (N=120).

Variable	Communication on MAC plant & practice for health promotion & illness prevention ('Chpipv')								Communication on MAC plant knowledge & practice for treatment ('Ctreat')							
	Little		Average		Much		Total		Little		Average		Much		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Socio-Economic-Status ('SES')(% within 'SES')																
Poor	-	-	38	95.0	2	5.0	40	100	1	2.5	34	85.0	5	12.5	40	100
Average	1	1.6	56	87.5	7	10.9	64	100	-	-	47	73.4	17	26.6	64	100
Well-to-do	-	-	12	75.0	4	25.0	16	100	-	-	9	56.3	7	43.8	16	100
(Pearson Chi-Square .229/Cramer's V .229)									(Pearson Chi-Square .083/Cramer's V .083)							
Gen. Total	1	0.8	106	88.3	13	10.8	120	100	1	0.8	90	75.0	29	24.2	120	100

Table 8.3 Distribution of perceived need variables over communication on MAC plant knowledge and practice for health promotion, illness prevention and treatment as reported by the respondents/*arisan* members in the four sample communities (N=120).

Variable	Communication on MAC plant knowledge & practice for health promotion & illness prevention ('Chpipv')								Communication on MAC plant knowledge & practice for treatment ('Ctreat')							
	Little		Average		Much		Total		Little		Average		Much		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Satisfaction towards arisan's activities ('Satisfac') (% within 'Satisfac')																
Little satisfaction	-	-	2	66.7	1	33.3	3	100	-	-	2	66.7	1	33.3	3	100
Average satisfaction	1	1.4	65	91.5	5	7.0	71	100	-	-	57	80.3	14	19.7	71	100
Much satisfaction	-	-	39	84.8	7	15.2	46	100	1	2.2	31	67.4	14	30.4	46	100
(Pearson Chi-Square .385/Cramer's V .385)									(Pearson Chi-Square .450/Cramer's V .450)							
Gen Total	1	0.8	106	88.3	13	10.8	120	100	1	0.8	90	75.0	29	24.2	120	100

Table 8.4 Distribution of institutional variables over communication on MAC plant knowledge and practice for health promotion, illness prevention and treatment as reported by the respondents/*arisan* members in the four sample communities (N=120).

Variable	Communication on MAC plant knowledge & practice for health promotion & illness prevention ('Chpipv')								Communication on MAC plant knowledge & practice for treatment ('Ctreat')							
	Little		Average		Much		Total		Little		Average		Much		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Frequency of arisan meeting per month ('Freqam') (% within 'Freqam')																
Twice	1	1.4	61	87.1	8	11.4	70	100	-	-	52	74.3	18	25.7	70	100
Three times	-	-	45	90.0	5	10.0	50	100	1	2.0	38	76.0	11	22.0	50	100
(Pearson Chi-Square .672/Cramer's V .672)									(Pearson Chi-Square .454/Cramer's V .454)							
Attendance at presentations on MAC plant knowledge ('Attpresa') (% within 'Attpresa')																
None	1	1.1	86	91.5	7	7.4	94	100	1	1.1	72	76.6	21	22.3	94	100
Once	-	-	20	87.0	3	13.0	23	100	-	-	18	78.3	5	21.7	23	100
Twice	-	-	-	-	3	100.0	3	100	-	-	-	-	3	100.0	3	100
(Pearson Chi-Square .000/Cramer's V .000)									(Pearson Chi-Square .042/Cramer's V .042)							

Table 8.4 (Cont'nd) Distribution of institutional variables over communication on MAC plant knowledge and practice for health promotion, illness prevention and treatment as reported by the respondents/*arisan* members in the four sample communities (N=120).

Variable	Communication on MAC plant knowledge & practice for health promotion & illness prevention ('Chpipv')								Communication on MAC plant knowledge & practice for treatment ('Ctreat')							
	Little		Average		Much		Total		Little		Average		Much		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Participation in arisan's activities ('Partca') (% within 'Partca')																
Very little participation	-	-	7	100.0	-	-	7	100	1	14.3	6	85.7	-	-	7	100
Little participation	-	-	76	93.8	5	6.2	81	100	-	-	64	79.0	17	21.0	81	100
Average participation	-	-	3	75.0	1	25.0	4	100	-	-	3	75.0	1	25.0	4	100
Much participation	1	4.2	20	83.3	3	12.5	24	100	-	-	17	70.8	7	29.2	24	100
Very much participation	-	-	-	-	4	100.0	4	100	-	-		-	4	100.0	4	100
(Pearson Chi-Square .000/Cramer's V 000)									(Pearson Chi-Square .000/Cramer's V .000)							
Gen. Total	1	0.8	106	88.3	13	10.8	120	100	1	0.8	90	75.0	29	24.2	120	100

Table 8.5 Distribution of intervening variables over communication on MAC plant knowledge and practice for health promotion, illness prevention and treatment as reported by the respondents/*arisan* members in the four sample communities (N=120).

Variable	Communication on MAC plant knowledge & practice for health promotion & illness prevention ('Chpipv')								Communication on MAC plant knowledge & practice for treatment ('Ctreat')							
	Little		Average		Much		Total		Little		Average		Much		Total	
	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
Exposure from the media ('Expomed') (% witin 'Expomed')																
Low exposure	1	1.5	64	95.5	2	3.0	67	100	-	-	54	80.6	13	19.4	67	100
Average exposure	-	-	39	86.7	6	13.3	45	100	1	2.2	33	73.3	11	24.4	45	100
High exposure	-	-	3	37.5	5	62.5	8	100	-	-	3	7.5	5	62.5	8	100
(Pearson Chi-Square .000/Cramer's V .000)									(Pearson Chi-Square .062/Cramer's V .062)							
Gen. Total	1	0.8	106	88.3	13	10.8	120	100	1	0.8	90	75.0	29	24.2	120	100

8.1.4 Enabling Factors (SES)

In the analysis, the category of 'enabling factors' is constructed on the basis of a factor analysis executed on a series of related factors such as family income, financial resources, property of land, house and domestic animal resources, cost of livelihood, and social status, making it possible to reach a classification of three levels: 'poor', 'average' and 'well-to-do' by which to assess the individual communication on MAC plants in *arisan*.

The final calculation on the basis of a factor analysis of these various related factors pertained to the variables Socio-Economic Status (SES), divided into three socio-economic classes: 'poor', 'average' and 'well-to-do'.

Socio-Economic Status (SES)
Table 8.2 shows that there are non-significant relationships between the variable 'Socio-Economic Status' and the communication on MAC plants for health promotion and illness prevention using a *Pearson Chi-Square* of .229. While there are weakly significant relationships between the variable 'Socio-Economic Status' and the communication on MAC plants for treatment using a *Pearson Chi-Square* of .083. The highest score is reported in the category of 'poor' (95.0%) 'Socio-Economic-Status', revealing 'average' communication on MAC plants for health promotion and illness prevention. While the scores for the communication on MAC plants for treatment are highest in the same category, 'poor' (85.0%) 'Socio-Economic-Status', revealing a shift in reported scores of 'average' communication on MAC plants for health promotion and illness prevention to communication on MAC plants for treatment in this category.

8.1.5 Perceived Need Factors

The categories of 'perceived need factors' include the variable 'satisfaction with the activities of the *arisan*'. Table 8.3 shows there are non-significant relationships between the variable 'satisfaction with the activities of the *arisan* about MAC plants' and both types of reported communication on MAC plants for health promotion and illness prevention, and the communication on MAC plants for treatment using *Pearson Chi-Squares* of respectively .385 and .450. The highest score is reported in the category of 'average' (91.5%), 'satisfaction with the activities of the *arisan*', revealing 'average' communication on MAC plants for health promotion and illness prevention. The scores for communication on MAC plants for treatment are highest in the same category 'average' (85.0%) 'satisfaction with the activities of the *arisan*', revealing a shift in reported scores of 'average' communication on MAC plants for health promotion and illness prevention and communication on MAC plants for treatment in this category.

8.1.6 Institutional Factors

The category 'institutional factors' includes the variables 'frequency of *arisan* meetings per month', 'attendance at *arisan* presentations about MAC plants', and 'participation in *arisan* activities'. Table 8.4 shows the distribution of the bivariate relationships with the two dependent variables of communication on MAC plants for health promotion and illness prevention, and communication on MAC plants for treatment.

Frequency of arisan meeting per month
Table 8.4 shows that there are non-significant relationships between 'Frequency of *arisan* meeting per month' and both types of reported communication on MAC plants for health promotion and illness prevention, and the communication on MAC plants for treatment using *Pearson Chi-Squares* of respectively .672 and .454. The highest score is reported in the category of 'Three times' (90.0%) 'Frequency of *arisan* meeting per month' which shows 'average' communication on MAC plants for health promotion and illness prevention. The scores for the communication on MAC plants for treatment are highest in the same category, 'Three times' (76.0%) 'Frequency of *arisan* meeting per month', shows 'average', revealing a shift in reported scores of 'average' communication on MAC plants for health promotion and illness prevention and communication on MAC plants for treatment in this category.

Attendance at arisan presentations about MAC plant knowledge
Table 8.4 shows that there are most strongly significant relationships between 'Attendance at presentations about MAC plants' with reported communication on MAC plants for health promotion and illness prevention using a *Pearson Chi-Square* of .000, the relationship with the reported communication on MAC plants for treatment is very strongly significant using a *Pearson Chi-Square* of .042. The highest score is reported in the category of 'Twice' (100.0%) 'Attendance at *arisan* presentations about MAC plants', revealing 'much' communication on MAC plants for health promotion and illness prevention. The scores for the communication on MAC plants for treatment are highest in the same category 'Twice' (100.0%) 'Attendance at *arisan* presentations about MAC plants', revealing a consistency in reported scores of 'much' communication on MAC plants for health promotion and illness prevention to 'much' communication on MAC plants for treatment in this category.

Participation in arisan activities
Table 8.4 shows that there are most strongly significant relationships with both reported communication on MAC plants for health promotion and illness prevention and communication on MAC plants for treatment using *Pearson Chi-Squares* of respectively .000 and .000. The highest score is reported in the category of 'Very much' (100.0%) 'Participation in *arisan* activities', revealing 'much' communication on MAC plants for health promotion and illness prevention. While the scores for communication on MAC plants for treatment are highest in the same category 'Very much' (100.0%) 'Participation in *arisan* activities', revealing a consistency in reported scores of 'much' communication on MAC plants for health promotion and illness prevention and communication on MAC plants for treatment in this category.

8.1.7 Intervening Factors

Table 8.5 gives an overview of the distribution of the intervening variable 'Exposure to MAC plants from media' which tended to have an impact on both the communication on MAC plants for health promotion and illness prevention and the communication on MAC plants for treatment.

Table 8.5 shows that there are most strongly significant relationships between 'Exposure to MAC plants from the media' and reported communication on MAC plants for health promotion and illness prevention using a *Pearson Chi Square* of .000, while the relationship with reported communication on MAC plants for treatment is weakly significant using a *Pearson Chi-Square* of .062. The highest score is reported in the category of 'Low' (95.5%)

'Exposure to the media', revealing 'much' communication on MAC plants for health promotion and illness prevention. The scores for communication on MAC plants for treatment are highest in the same category, 'Low' (80.6%) 'Exposure to the media', revealing a shift in reported scores of 'much' communication on MAC plants for health promotion and illness prevention and communication on MAC plants for treatment in this category.

In general, the cross-tabulations of the direct relationships between variables, as presented in Tables 8.1-8.5, reveal the strongly significant relationships between the predisposing, enabling, perceived need, institutional and intervening variables, and the dependent variables. The next section examines how variations in communication on MAC plants for health promotion and illness prevention and the communication on MAC plants for treatment can be explained in more detail in terms of the correlations and interactions among all variables and 'blocks' in the analytical model.

8.2 Multivariate Analysis: OVERALS

8.2.1 OVERALS Canonical Correlation Analysis

OVERALS is an explanatory analysis technique. Stability of OVERALS results can be obtained using the 'Boothstrap method' (*cf.* Van der Burg & De Leeuw, 1988). In general, the *eigenvalues* (and the canonical correlation coefficients) are very stable, if the sample size is not too small. Van der Burgh, Noordenmeer & De Haes (1944) state that confidence intervals for Component Loadings are larger than *eigenvalues* but still stable. This analysis is carried out using the canonical correlation coefficients and component loadings in the description of the analysis results.

OVERALS explores the internal interactions between the independent, intervening and the dependent variables. Thereafter, the multiple regression analysis is used to examine the values of the correlations between the various 'blocks' of the model. In other words, it assesses the interactions between the seventeen variables in the two data-sets.

The results of the above-mentioned bivariate analysis of cross-tabulations between the quantitative data from the household surveys suggest certain relationships between predisposing, enabling, perceived, institutional and intervening factors and the dependent factors of the communication behaviour on MAC plant knowledge and practice. The model is adapted to transcultural health care utilisation behaviour in Sub-Saharan Africa by Slikkerveer (1990; 2001), providing the basis for the present analytical model of advanced multivariate analysis of communication behaviour on medicinal plants knowledge behaviour: the Non-linear Canonical Correlation Analysis, OVERALS.

The non-linear canonical correlation analysis renders it possible to determine the coherence between categories of independent and intervening variables and dependent variables of communication on MAC plants for health promotion and illness prevention, and the communication on MAC plants for treatment in Lembang and subsequently interprets this coherence by incorporating it into the final explanatory model.

This method can be regarded as a factor analysis of two sets of categories of variables in which the variable from the first set should have a maximum correlation with the variable from the second set. The correlation between the two variables is called the canonical correlation (r).

The OVERALS programme for the quantitative data of the household surveys is implemented in the canonical correlation model of the communication on MAC plants for health promotion and illness prevention and of the communication on MAC plants for

treatment for the seventeen variables, grouped into eight 'blocks' as described in Chapter III (Figure 3.1). The canonical correlation analysis of the two sets, 1 and 2, of the variables via alternating least squares not only has the advantage of specifying the number of sets with variables in each set, but also the number of dimensions or solutions. The plot resulting from the projection of variables in the canonical space indicates the category quantifications and the category co-ordinates. Similar to the situation in the multiple regression and canonical correlation analyses, OVERALS focuses on the relationship between the two sets of variables. The OVERALS analysis consists of a list of variables, listing the 17 variables used in the analysis, the number of categories which each variable possesses, as well as their ordinal or single nominal scaling levels. The list of variables and their labels, as described in the previous section, can be grouped into the following 'blocks' of the model: *Block 1* consisting of socio-demographic variables: 'Age' (label 'Age'), 'Education' (label 'Edu'), 'Occupation' (label 'Occup'), 'Membership of sort of institution' (label 'Memins') and 'Number of household members' (label 'Numhhm'). *Block 2* consisting of psycho-social variables: 'Knowledge level of MAC plant' (label 'MACpknow'), 'Opinion of role of *arisan* in MAC plants' (label 'Opinarol'), 'Belief in MAC plants' (label 'BelMACpk'), 'Need of MAC plants' (label 'NeedMACk'). *Block 3* encompasses enabling factors: 'Socio-economic status' (label 'SES'). *Block 4* consists of the perceived need factors: 'Satisfaction with *arisan* activities' (label 'Satisfac'). *Block 5* contains the institutional factors: 'Frequency of *arisan* meetings per month' (label 'Freqam'), 'Attendance at *arisan*'s presentations about MAC plants' (label 'Attpresa'), and 'Participation in *arisan* activities' (label 'Partca'). *Block 6* consists of the intervening factors: 'Exposure to MAC plants from the media (label 'Expomed'). Finally, *Blocks 7 and 8* include the dependent variables, respectively 'Communication on MAC plants for health promotion and illness prevention' (label 'Cpromprev') and 'Communication on MAC plants for treatment' (label 'Ctreatm').

The calculated correlations, represented as component loadings in Table 8.6, show that both dimensions did indeed confirm a significantly high correlation between Set 1 of independent and intervening variables and Set 2 of dependent variable not only for the communication on MAC plants for health promotion and illness prevention but also for the communication on MAC plants for treatment (resp. -.901 and .214 *versus* -.638 and -.635). Four strong factors influence the communication behaviour on MAC plants for health promotion and illness prevention and for treatment in the first dimension: namely, 'Belief in MAC plants' (-.599), 'Knowledge about MAC plants' (.-502), 'Participation in *arisan* activities' (-.448) and the intervening factors 'Exposure to the media' (-.533). These variables are related to the knowledge and communication on MAC plants. Knowledge about MAC plants and belief in MAC plants plus the need of MAC plants exert quite a strong influence on the communication on MAC plants for health promotion, illness prevention and for treatment. This high correlation in the component loadings also bolsters the close linkage relationship between the knowledge, belief, perception and opinion on the communication on MAC plants for health promotion, illness prevention and for treatment in the study area.

Most component loadings in the first dimension confirm the results of the bivariate analysis, indicating that variables with a significant relationship to be those strongest in the solution. Among the predisposing variables of the analytical model, the variables 'Belief in MAC plants' and 'Knowledge level of MAC plants' are identified as strong (*Pearson Chi-Square* .000 and Component loadings on Dimension 1 = -.599 & *Pearson Chi-Square* .000 and Component loadings on Dimension 1 = -.502).

Table 8.6 Distribution of the component loadings (c) for both dimensions between the first set and the second set of the total number of 17 variables in the survey (N=120).

Set	Variable	Dimension	
		1	2
1	Age (a,b)	-.369	.032
	Educ (a,b)	-.094	.027
	Occup (c,b)	.205	-.056
	Memins (c,b)	-.008	.238
	Numhhm (d,b)	-.206	.100
	MACpknow (a,b)	-.502 (5)	-.082
	Opinarol (a,b)	-.402	.427 (2)
	BelMACpk (a,b)	-.599 (3)	.204
	NeedMACk (a,b)	-.330	.216
	SES (a,b)	-.230	-.255
	Satisfac (a,b)	.136	-.086
	Freqam (d,b)	.038	.102
	Attpresa (d,b)	-.402	.149
	Partca (a,b)	-.448 (6)	-.363 (3)
	Expomed (a,b)	-.553 (4)	307 (4)
2	Cpromprev (a,b)	-.901 (1)	.214
	Ctreatm (a,b)	-.638 (2)	-.635 (1)

a = Optimal Scaling Level: Ordinal
b = Projections of the Single Quantified Variables in the Object Space
c = Optimal Scaling Level: Single Nominal
d = Optimal Scaling Level: Numerical

The institutional variables 'Attendance at *arisan* presentations about MAC plants' and 'Participation in *arisan* activities' are identified as strong (*Pearson Chi-Square* .000 and Component loadings on Dimension 1 = -.402 & *Pearson Chi-Square* .000 and Component loadings on Dimension 1=-.448).

Furthermore, the intervening variable, 'Exposure to MAC plants from the media', is also identified as strong (*Pearson Chi-Square* .000 and Component loading on Dimension 1 = -.553). In the second dimension, of all independent variables, the variable 'Opinion about the role of the *arisan* in MAC plants' is the strongest in the solution (Component loadings on Dimension 2 = .427).

8.2.2 Projection of Variables and Objects in the Canonical Space

In order to gain a better understanding of the complex coherence between all seventeen variables, a graphic representation of all the variables already described can be constructed by placing the final projections of the correlations as points on the canonical space, as shown in Figure 8.1 below (Component Loadings). The plot of all seventeen variables, which includes the two dependent variables 'Communication on MAC plants for health promotion and illness prevention' (Cpromprev) and 'Communication on MAC plants for treatment' ('Ctreatm') and the fifteen predictor variables, are projected onto the canonical space represented in Figure 8.1. This figure shows the divergence between 'Communication on MAC plants for health promotion and illness prevention' ('Cpromprev') and 'Communication on MAC plants for

treatment' ('Ctreatm') and therefore strongly supports the initial methodology of dividing these two, shown earlier in the qualitative surveys.

The dependent variable 'Communication on MAC plants for health promotion and illness prevention' ('Cpromprev') expresses the strongest coherence with the independent variables in the second Dimension, while 'Communication on MAC plants for treatment' ('Ctreatm') emerges most strongly in the first dimension. The plot also exposes the significance in the first Dimension of variable 'Participation in *arisan* activities' ('Partca'), which represents respondents who participate actively in *arisan* activities. As explained earlier, 'Belief in MAC plants' ('BelMACpk') and 'Exposure to MAC plants from the media' ('Expomed') exert an enormous influence on the communication on MAC plants in Lembang, since they are the initial determinants of the degree to which the community is made aware of the significance of communication on MAC plants for health promotion, illness prevention and for treatment. Moreover, knowledge of particular plants which are useful to a particular need is within their reach in their immediate environment.

From the projection of the OVERALS canonical correlation analysis presented in Figure 8.1, it is clear that there is a very strong coherence between the psycho-social variables 'Knowledge level of MAC plants knowledge' ('MACknow'), 'Belief in MAC plants' ('BelMACpk') and the dependent variable 'Communication on MAC plants for health promotion and illness prevention' ('Cpromprev'). Meanwhile, the intervening variable 'Exposure to MAC plants from the media' ('Expomed') shows strong coherence with the dependent variable 'Communication on MAC plants for health promotion and illness prevention' ('Cpromprev'). The plot also reveals that the variable 'Participation in *arisan* activities' ('Partca') expresses strong coherence with 'Communication on MAC plants for treatment ('Ctreatm').

The comparison of the projections of variables in Figure 8.1 and objects in Figure 8.2 on the canonical space confirms the existence of a strong interaction and prediction in both dimensions between the location of the objects of two comparable sub-groups in the sample survey in relation to their scores as variables of the related communication behaviour on MAC plants for health promotion and illness prevention, and communication behaviour on MAC plant for treatment in the study area of Lembang.

Consequently, Figure 8.1 reveals that the independent variables 'Age' ('Age'), 'Education' ('Edu'), 'Occupation' ('Occup'), 'Membership of sort of institution' ('Memins'), 'Number of household members' ('Numhhm') and 'Satisfaction with *arisan* activities' ('Satisfac') do not show significant interactions with 'Communication on MAC plants for health promotion and illness prevention' (Cpromprev') and 'Communication on MAC plants for treatment' ('Ctreatm') in the First Dimension.

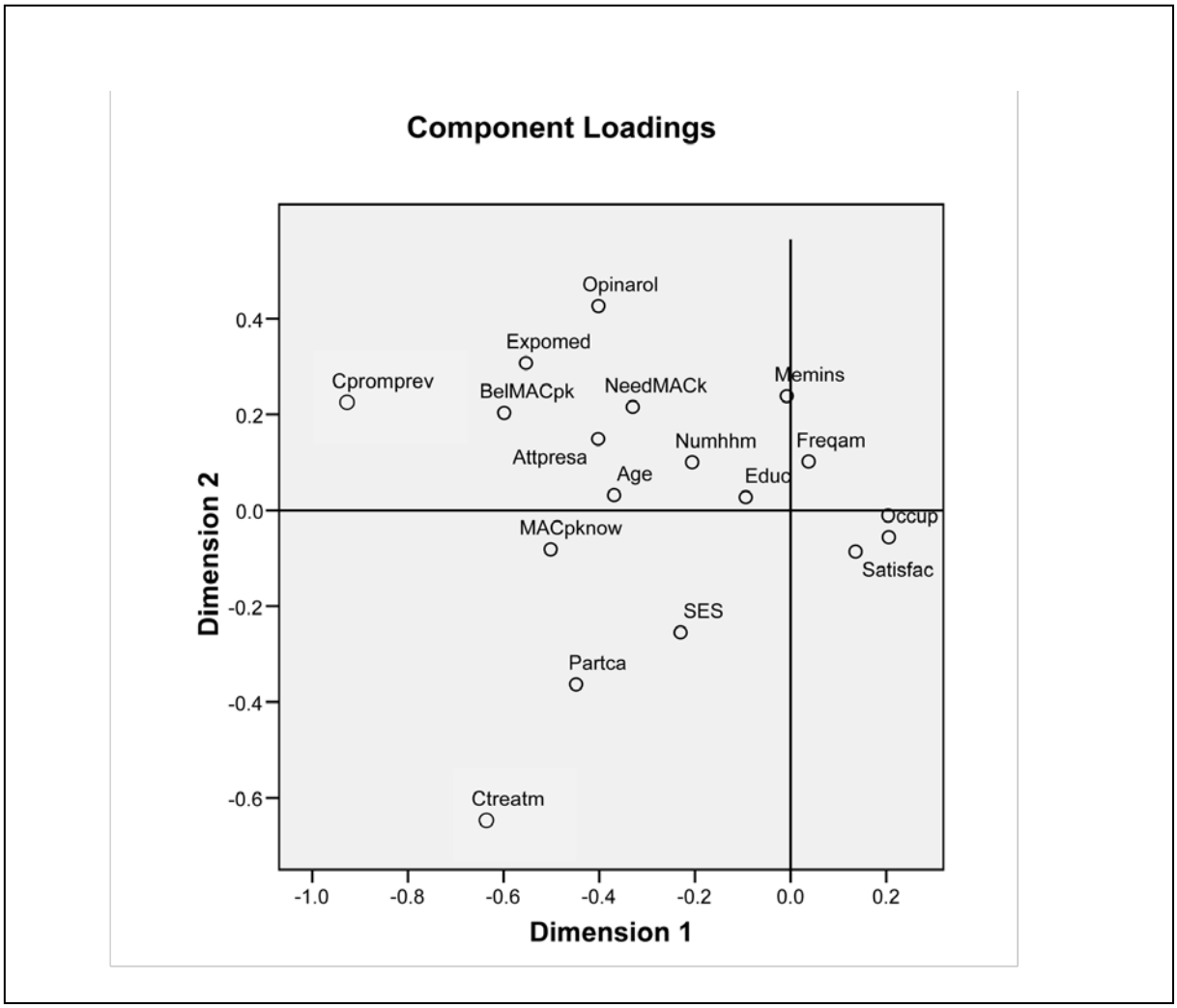


Figure 8.1 OVERALS analysis of communication on MAC knowledge for health promotion, illness prevention & communication on MAC plants for treatment in Lembang. Projection of the 17 optimally scaled variables of set 1 and 2 on the canonical space (variables are labelled).

Simultaneously, there is no significant interaction between the independent variables 'Education' ('Edu'), 'Age' ('Age'), and 'Membership of sort of institution' ('Memins'), 'Social-economic status' ('SES') and 'Frequency of *arisan* meeting' ('Freqam') in the Second Dimension on 'Communication on MAC plants for health promotion and illness prevention' ('Cpromprev') as well as on 'Communication on MAC plants for treatment' ('Ctreatm').

After the determination of the significant interaction of the independent variables in Set 1 with the dependent variables in Set 2 in both the First and Second Dimension, it has become possible to project the objects or individuals in the sample survey onto the canonical space as shown in Figure 8.2. In this figure the position of each respondent is the projection of each individual (n=120) as a function of their scores in all the 17 variables in the analytical model.

The plot reveals that the projection of the variables in Figure 9.1 and the projection of objects onto the canonical space in Table 9.2 contribute to the confirmation of the strong

relationship existing between communication behaviour on MAC plants and communication behaviour on non-MAC plants in Lembang.

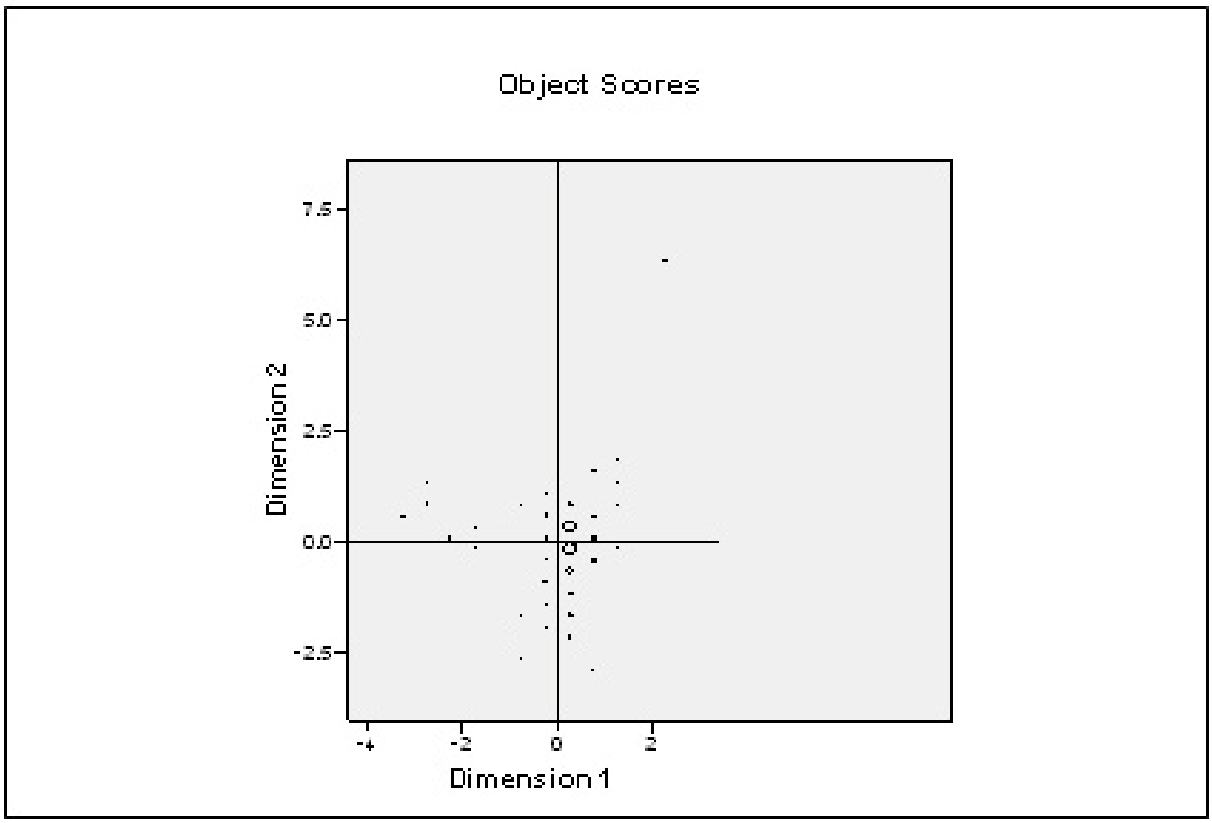


Figure 8.2 Projection of respondents in the sample surveys as objects on the canonical space, specified according to their relevant variables in the sample surveys.

8.3 The Analytical Model: Multiple Regression Analysis

8.3.1 Calculation of Multiple Correlation Coefficients

The last two sections are dealing with both the bivariate and multivariate analyses, in which all the variables in Sets 1 and 2 from all the blocks are treated without discrimination. It is possible to determine the correlation and interaction and to analyse the predictability of the variables using the canonical correlation analysis. The section below is intended to extend the multivariate analysis in order to see the cohesions which exists between the various blocks to make a larger contribution to the development of the final analytical model, since this is the ultimate goal of the study.

Following the two preceding sections dealing with the bivariate and multivariate analyses, all variables in the survey are treated without discriminating between categories or blocks of variables.

The component variables in each of the blocks which are analysed, as explained in Chapter III, are represented in the list of variables. The list of variables and their labels, as described in the previous section, can be grouped into the following 'blocks' of the model:

Block 1 comprises socio-demographic variables: 'Age' (label 'Age'), 'Education' (label 'Edu'), 'Occupation' (label 'Occup'), 'Membership of sort of institution' (label 'Memins') and 'Number of household members' (label 'Numhhm'). *Block 2* includes psycho-social variables: 'Knowledge level of MAC plants' (label 'MACpknow'), 'Opinion about the role of *arisan* in MAC plants' (label 'Opinarol'), 'Belief in MAC plants' (label 'BelMACpk') and 'Need of MAC plants (label 'NeedMACk'). *Block 3* is composed of the enabling factors: 'Socio-economic status' (label 'SES'). *Block 4* consists of perceived need variable: 'Satisfaction with *arisan* activities' (label 'Satisfac'). *Block 5* includes institutional factors: 'Frequency of *arisan* meetings per month' (label 'freqam'), 'Attendance at presentations about MAC plants' (label 'Attpresa') and 'Participation in *arisan* activities' (label 'Partca'). *Block 6* comprises intervening factors: Exposure to MAC plants from the media (label 'Expomed').

Finally, *Block 7* and *Block 8* include the dependent variables, respectively 'Communication on MAC plant knowledge and practice for health promotion and illness prevention' (label 'Cpromprev') and 'Communication on MAC plant knowledge and practice for treatment' (label 'Ctreatm').

In order to determine the coherence between all the six independent blocks and also with the two dependent blocks of the model, the analysis is carried out by means of a multiple regression analysis. This is carried out on the basis of the calculation of multiple correlation coefficients with optimal scaling from the OVERALS. In order to calculate the multiple correlation coefficients ®, the formula used is pd = (2 x Ed)-1 where Ed= Eigenvalue (*cf*. Van der Burg 1983). The *eigenvalues* are the result of the summary of the analysis on the OVERALS results between the variables of the related blocks. The calculated multiple correlation coefficients are presented in Table 8.6 showing the correlation coefficients ® between the various blocks 1, 2, 3, 4, 5, 6, 7 and 8 of the model.

The calculated multiple correlation coefficients shown below in Table 8.6 reveal that there is a relatively very strong coherence between the blocks in the model, confirming the interaction between the blocks with each other as well as between them and the communication on MAC plant knowledge and practice for health promotion and illness prevention and the communication on MAC plant knowledge and practice for treatment blocks as already indicated in the bivariate and multivariate analyses and in preliminary findings of the qualitative surveys.

The results of the calculations recorded in Table 8.6 therefore showing the strongest coherences in both Dimensions are between socio-demographic and psycho-social Blocks 1 and 2: 1 & 2 (respectively r1 = .622, r2 = .490), socio-demographic and institutional blocks: 1 & 5 (r1 = .534) and socio-demographic and intervening blocks: 1 & 6 (rl = .516). The coherences explain the prediction of both communication on MAC plants for health promotion and illness prevention and the communication on MAC plants for treatment resulting from the overall inter-linkage existing between the blocks of the independent and those of the dependent variables. Strong coherence is also observed between psycho-social and institutional blocks: 2 & 5 (r1 = .574), psycho-social and intervening blocks: 2 & 6 (r1 = .604).

Table 8.7 Calculated multiple correlation coefficients ® between the 8 blocks of the model

Block ←-> Block	Dimension	Calculation (ED)	Multiple correlation coefficients ®
1 < ------ > 2	1	(2 x .811) – 1 =	.622
	2	(2 x .745) – 1 =	.490
1 < ------ > 3	1	(2 x .707) – 1 =	.414
1 < ------ > 4	1	(2 x .725) – 1 =	.450
1 < ------ > 5	1	(2 x .767) – 1 =	.534
	2	(2 x .634) – 1 =	.268
1 < ------ > 6	1	(2 x .758) – 1 =	.516
1 < ------ > 7	1	(2 x .726) – 1 =	.452
1 < ------ > 8	1	(2 x .654) – 1 =	.308
2 < ------ > 3	1	(2 x .732) – 1 =	.464
2 < ------ > 4	1	(2 x .646) – 1 =	.292
2 < ------ > 5	1	(2 x .787) – 1 =	.574
	2	(2 x .678) – 1 =	.356
2 < ------ > 6	1	(2 x .802) – 1 =	.604
2 < ------ > 7	1	(2 x .809) – 1 =	.618
2 < ------ > 8	1	(2 x .742) – 1 =	.484
3 < ------ > 4	1	(2 x .618) – 1 =	.236
3 < ------ > 5	1	(2 x .613) – 1 =	.226
3 < ------ > 6	1	(2 x .606) – 1 =	.212
3 < ------ > 7	1	(2 x .599) – 1 =	.198
3 < ------ > 8	1	(2 x .627) – 1 =	.254
4 < ------ > 5	1	(2 x .624) – 1 =	.248
4 < ------ > 6	1	(2 x .659) – 1 =	.318
4 < ------ > 7	1	(2 x .558) – 1 =	.116
4 < ------ > 8	1	(2 x .558) – 1 =	.116
5 < ------ > 6	1	(2 x .767) – 1 =	.534
5 < ------ > 7	1	(2 x .778) – 1 =	.556
5 < ------ > 8	1	(2 x .713) – 1 =	.426
6 < ------ > 7	1	(2 x .736) – 1 =	.472
6 < ------ > 8	1	(2 x .623) – 1 =	.246

The values in the calculation are the *eigenvalues* on the first and second dimensions of the solution in OVERALS between the various 'blocks' of the model.

The strong coherence between Block 2 and Block 7 indicates that the prediction of communication on MAC plants for health promotion and illness prevention in the first Dimension is strongly dominated by psycho-social variables (rl = .618), while the coherence between Block 2 and Block 8 indicates in the first Dimension again confirms that the prediction of the communication on MAC plants for treatment is strongly dominated by the psycho-social variables (rl = .484), thereby revealing their moderately strong contribution to the overall outcome on communication on MAC plants for health promotion, illness prevention and for treatment in the *arisan* in Lembang. Strong coherence is observed between institutional and intervening blocks: 5 & 6 (rl = .534). The strong coherence between Block 5 and Block 7 indicates that the prediction of the communication on MAC plants for health promotion and illness prevention in the first Dimension is strongly dominated by institutional variables (r1 = .556).

A similar domination, though to a lesser degree, is observed between Blocks 6 and 7 with intervening variables (r1 = .472), proving its domination over the relative prediction of the

communication on MAC plants for health promotion and illness prevention in the first Dimension. Subsequently, a relatively weaker cohesion is observed between Blocks 3 and 8 with enabling variables (r1=.254) offering a relatively weaker domination over the predictive outcome of communication on MAC plants for treatment of socio-economic status at the community level.

8.3.2 The Final Model of Communication on MAC Plants within the *Arisan*

So far, Chapter VIII is showing the entire process of data entry and analysis using bivariate and multivariate and multiple regression analyses, in which the calculation of the multiple correlation coefficients reveals the relative coherence existing between all the independent blocks of variables at one end, and their coherent relationships between the dependent blocks at the other. Since the objective of the study in Lembang includes the development of an explanatory model of the communication on MAC plant knowledge and practice in the *arisan* institution with predictive value, the multivariate analysis of the various relevant variables is used to examine the relations between the various blocks of predisposing, enabling, perceived need, institutional, and intervening variables and to determine the interaction with the variables of the communication on MAC plants for health promotion, illness prevention and for treatment in the model. The above-mentioned multiple regression analysis renders it possible to determine the relative importance of each of the six blocks of variables to the dependent blocks of communication behaviour on MAC plants for health promotion and illness prevention and the communication on MAC plants for treatment, by calculating the related multiple regression coefficients (r1 and r2). In the relationships between the various blocks of the analytical model, this reveals not only the actual, overall interaction among these blocks of variables, but also their contribution to the prediction of the communication behaviour on MAC plant knowledge and practice for health promotion, illness prevention, and for treatment.

It is possible to understand the importance of the major roles which the various variables are playing in determining the overall communication on MAC plants behaviour in Lembang, initially by the determination of relationships in the Pearson Chi-Squares in the bivariate analyses. It shows a number of variables with significant relationships with the communication on MAC plants for health promotion, illness prevention and for treatment, inferred from the answers of the respondents in the four sample communities in Lembang. Furthermore, the Component Loadings confirm the determinant roles of the various variables analysed in Chapter III.

Earlier, a description of the calculated multiple correlation coefficients to the final analysis by the determination of the various blocks of variables is presented which strongly influence and provides a worthwhile contribution to the possible prediction of the communication on MAC plants for health promotion, illness prevention and for treatment in Lembang.

The relative cohesions are now represented graphically in the conceptual model which is initially visualised during the qualitative study and explained in Chapter III. The arrows represent the inter-relationships existing between the various blocks and the calculated multiple correlation coefficient are included in the model to show the relative cohesions which exist within the independent Blocks 1 to 6 and the dependent Blocks 7 to 8 figuratively.

Figure 8.3 shows the final model of the communication on MAC plants for health promotion, illness prevention and treatment in the *arisan* in Lembang, encompassing the 8 blocks of the independent, intervening and dependent variables, in which the major calculated

multiple correlation coefficients are presented, each indicating the relative value of the interaction between the blocks. On the basis of the multiple correlation coefficients mentioned above in Table 8.6, the values in the model not only confirms the relatively strong coherence between the six blocks of independent variables, but also demonstrates the highly predictive value of these blocks of variables for the communication on MAC plants for health promotion, illness prevention and treatment.

The highest contribution to the prediction of communication on MAC plants for health promotion and illness prevention is provided by Block 2, the predisposing, psycho-social variables (rl = .618), and the highest prediction of communication on MAC plants for treatment is also provided by Block 2, the predisposing, psycho-social variables (rl =.484).

The final model also shows high correlation values between Block 1 of predisposing, socio-demographic variables and Block 6 of the intervening variables 'Exposure to MAC plants from the media' of (rl = .604).

Similarly, a high correlation exists between Block 1 of the predisposing, socio-demographic variables and Block 2 of predisposing, psycho-social variables (rl = .622).

There is likewise a high correlation between Block 1 of the predisposing, socio-demographic variables and Block 5 of the institutional variables (rl = .534).

The model also shows a high correlation between Block 5 of the institutional variables and Block 6 of the intervening variables 'Exposure to MAC plants from the media' (rl = .534).

Finally, Figure 8.3 shows a high correlation between Block 5 of the institutional variables and Block 7 of the 'communication on MAC plants for health promotion and illness prevention (rl = .556).

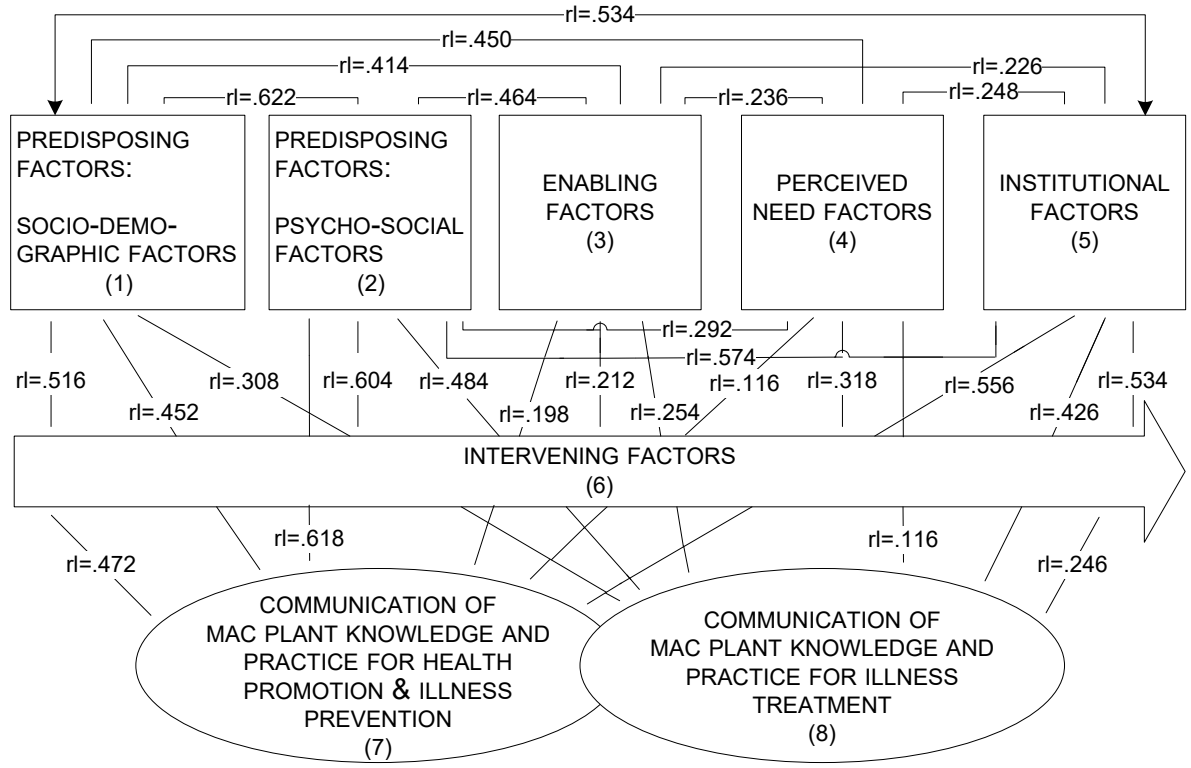


Figure 8.3 The final model of communication behaviour on MAC plants for health promotion, illness prevention & treatment within the *arisan* in Lembang, in which the major calculated multiple correlation coefficients are indicated separately.

8.4 Interpretation of the Results of Analysis

In the first part of this chapter, the bivariate analysis of the data confirms the description of the significance of the socio-cultural background of respondents who are members of *arisan* as a determinant of communication behaviour on MAC plants for health promotion, illness prevention, and for treatment. It begins with an analysis, carried out by examining the various factors initially formulated from a preceding qualitative survey carried out in the research area. This analysis has made it feasible to determine the variables which exerted a significant influence on communication behaviour on MAC plants. The results of the bivariate analysis contribute to an understanding of both the communication on MAC plants for health promotion, illness prevention, and the communication on MAC plants for treatment in the four sample communities in Lembang.

The results of the canonical correlation analysis strongly indicate that the variables on 'Knowledge level on MAC plants', 'Belief in MAC plants' and 'Attendance at *arisan* presentations about MAC plants' are accurate predictors of the communication on MAC plants for health promotion, illness prevention and for treatment. The analysis also confirms the tendency of people in Lembang to use MAC plants for health promotion, illness prevention and for treatment, and as is observed during the qualitative surveys in Lembang.

The results of the bivariate analysis are reinforced by the multivariate analysis (OVERALS) as significant relationships are considered in the coherences between the independent and dependent variables, revealing their strong influence on the communication on MAC plants for health promotion, illness prevention and for treatment. The significance of such psycho-social variables as 'Knowledge level of MAC plants', 'Opinion of role of *arisan* in MAC plants', 'Belief in MAC plants' and 'Need of MAC plants' also reveal their significant relationships and interactions. 'Knowledge level of MAC plants' has to be significant, since the correct identification of MAC plants and their useful parts, as well as the method of their preparation and administration must be known in order to obtain good results

The significance of such socio-demographic variables as the 'Age' of the respondent is considered in its relationship to the communication behaviour on MAC plants, according to the respondents' answers. The age categories '26-30', '31-35', '36-40', and '40-45' years are all falling in the category of 'much use' of communication on MAC plants for health promotion and illness prevention.

In addition, all the independent and dependent variables, projected onto the canonical space emphasise the strength of the interaction between them. At the same time, the projection also indicates the directions in which category quantifications of the variables are increasing. Strong coherence is observed between the socio-demographic and psycho-social variables, in which those of 'Opinion of role of *arisan* in MAC plants' and 'Belief in MAC plants' plus 'Need of MAC plants' in general, in interaction with the 'Communication on MAC plants for health promotion and illness prevention'. These results indicate and emphasise the significant role in the configuration of knowledge, opinion, belief and need as 'soft factors', while the 'Knowledge level of MAC plants' also influences the communication behaviour significantly, as explained above. Participation and intervening variables are other variables which emerged strongly in the projection, confirming their prominent role in both the communication on MAC plant knowledge and practice for health promotion and illness prevention, as well as communication on MAC plant knowledge and practice for the treatment of illness.

Finally, the coherences between the blocks of both independent and dependent variables confirms the inter-relationship between these blocks and the close linkage relationship

existing between the two categories of communication behaviour, which can be interpreted as merging to form the unique pattern of behaviour of the communication on MAC plant knowledge and practice in the *arisan* in Lembang.

Notes

1. As the 'original responses' refer to responses in the data set after the secondary entry, *i.e.* including the corrections, special attention is paid to the determination of single responses to multi-answer questions. This is attained by carrying out a recalculation of the answer categories.
2. The determination of the single response is executed as follows: on the basis of the frequencies of the categories, a weight from 1 to 5 is assigned to each answer category of all the questions (these include the new assigned categories).
   A category received a weight of 1 if the frequency of the answer categories to all questions is very high, and 5 if that frequency is very low, for example, a respondent scored high on a category if only a few respondents named the same category, and a respondent scored low on a certain category if many other respondents named the same category. Hence, the range of scores found in the sample in fact determined the range of the weights given. For each question, the sum of the appointed weights of the categories is calculated.
   The sum totals are recalculated at a ratio 'x' stands to 'y' as '3' stands to 'the actual highest sum score of a question' (.). The recalculations are introduced into the following categories:
   - 1: 'very little' (0 to 1)
   - 2: 'little' (1 to 2)
   - 3: 'average' (2 to 3)
   - 4: 'much' (3 to 4)
   - 5: 'very much' (4 to 5).

   Since it is decided to give all the categories a weight in relation to the frequency and to recalculate according to the ratio described above, the new single categories of the multi-answer are representations of the degree of a characteristic, for instance, 'Knowledge level of MAC plants', of a single respondent in relation to the other respondents in the sample.
3. As the use of the *Pearson Chi-Square* test could result in a dichotomy of 'significance' versus 'non-significance' of associations among variables, the implementation of a classification of values of the chance of deviation could sometimes be reached by a more differentiated assessment of the relationship between variables. In such cases, the categories of values of the chance of deviation include: > .15 - 'non-significant'; .15 to .10 -'indication of significance'; 10 to .05 - 'weakly significant'; .05 to .01 - 'strongly significant'; .01 to .001 - 'very strongly significant'; and < .001 - 'most strongly significant'.

Chapter IX CONCLUSIONS AND IMPLICATIONS

9.1 Conclusions

The threat of extinction hanging over ecosystems and species has been arousing growing concern among people all over the world and conservationists have been busy raising public awareness of the likelihood of substantial species losses in the coming decades. Less spectacular but no less serious is the threat of the loss of languages and cultures around the globe. The traditional knowledge of indigenous people which is replete with local wisdom and world views has been particularly menaced by the encroaching external forces of development and globalisation. Global socio-economic development and change have certainly put the traditional ways of life under pressure and sometimes even deprived the indigenous peoples of their livelihood.

The general aim of this study is to document, study and analyse the communication behaviour of members of a local institution *arisan* on MAC plant knowledge and practice from the *emic* point of view in the context of the ongoing process of globalization, and to gain a deeper insight into the interaction among various categories of factors and their influence on communication behaviour. It is hoped that this study will contribute to predictive value which can be used in policy planning and implementation *in the field of exchange of information and communication.* The research focuses on the assessment of the 'knowledge-belief-practice' complex of local communities and their indigenous knowledge systems as they have evolved over many generations in the study area of Lembang.

In other words, this study embarks on finding an answer to the basic question:

What are the characteristics of the members of a local institution arisan who are showing a particular form of communication behaviour on local knowledge and practice of medicinal, aromatic and cosmetic (MAC) plants in the Sunda Region of West Java, Indonesia?

Such expression of communication in the form of *gunem catur* refers to informal group discussion which is typical for the cultural area of the Sunda Region of West Java. On the basis of the implementation of a specifically selected research methodology, the major results derived from the specific objectives of the study in Lembang can be summarised as follows:

Firstly, a description of the research setting is presented on the basis of qualitative research in the form of the sociography of Lembang in the Sunda Region of West Java, in Indonesia as a developing country in South-East Asia. This part of the study is presented in Chapter IV. Here, a short overview is presented of the research setting in Lembang, encompassing Indonesia as a young South-East Asian nation and Lembang, a sub-district in the province of West Java, as one of the largest and fertile provinces in Indonesia, famous for its agriculture produce and manufacturing industries. The sociography also includes the historical background to health care in the area and the use of herbal medicine among the people today, besides presenting the ecological setting of the research location. Relevant background information is also provided to the economic activities and the traditional social association *arisan* at the community level.

Secondly, the dual theoretical approach towards the study of communication behaviour of actors within groups and associations is presented in Chapter II. Here, communication within

local institutions generally is shown to emphasise information-sharing and mutual understanding among its members, which is in line with both the theory of ideation and the convergence theory. As mentioned above, this important dual theoretical orientation selected for this study in Lembang, combines the diffusion of ways of thinking by means of social interaction in local communities with information-sharing, mutual understanding and mutual agreement as an imperative in any collective or group section which eventually may ntroduce social change. In addition, a distinction is made between *indigenous*, or *local* communication, largely operational in developing countries, and *modern* or *global* communication, largely operational in Western countries.

Thirdly, special attention is drawn to the *arisan* association, and in particular its socio-cultural role in indigenous communication on MAC plant knowledge and practice among its members. This is part of the description of *arisan* within the context orf *gotong royong* and *TOGA* in Chapter VI. It is shown, that many local communities suffer from a lack of capital with which to launch small enterprises but this problem can be solved easily by introducing a microcredit programme. Unfortunately, such programmes often involve borrowing external funds to use as a loan base and these usually come at a high rate of interest. Although the implementation of Revolving Savings and Credit Associations (ROSCA) could be a solution right on the doorstep, still local people do not have full access to the formal financial institutions ion the country. In Indonesia, at the moment this vehicle is implemented in the *arisan* association, a traditional savings collection and loan distribution system which has long been practised as a visible form of the *gotong royong* principle, meaning that it involves not just money but also encompasses other purposes such as helping to rebuild a house in the village, buying a motorcycle so that a member of the family can have a job as *ojeg* driver to earn some money, and a host of others.

Fourthly, the impacts of the major dimensions of globalisation on both the the biological and cultural MAC plant diversity at community level are assessed in Chapter II as part of the process of interaction beteen localisation *and* globalisation of Knowledge. Remarkably, the study of Traditional Ecological Knowledge (TEK) indicates that such a system of knowledge and belief, explaining the relationship of human beings with the universe, is thought to consist of three domains of traditional ecological knowledge: biodiversity, cultural diversity and those local institutions related to nature and culture. The qualitative study shows that the main factors which related directly to the use and practice of MAC plants in the village are still rooted in this complex system of traditional ecological knowledge (TEK). The qualitative study also yielded documentation which reveals that traditional ecological knowledge (TEK) and the philosophy of life also consist of impressive local contributions to the conservation of biocultural diversity, most apparent at community level in the cultivation of various MAC plants, the conservation of forest gardens and the compensation of nature when useful plants and trees have to be harvested by the people.

In addition, Chapter II documents that since health care is becoming more expensive, which means that a growing number of people do not have the financial means to allow them to access to the modern health care system, they have to rely to a growing extent on traditional medicine. In line with the Recommendation of the International Conference on Primary Health Care of the WHO/UNICEF in Alma Ata (1978), confirming that proven traditional remedies should be incorporated in the national health care services, and with the purpose to improve the health care system in the country, the research confirms that also in

Lembang, the Indonesian government has officially incorporated the use of herbal medicine in its health policy.

As regards the conservation of MAC plants, however, the inherent danger of the growing use of traditional herbal medicine is that this rising demand is threatening the extinction of a number of MAC plants. Alarmingly, this part of the study documented the indisputable fact that at the moment, there is there is a crisis looming in biodiversity, stretching the length and breadth of Indonesia. The principal reason is the ongoing rapid destruction of the environment in the name of socio-economic development. The result is an extremely tangible loss of biodiversity in terms of diminishing genes, species and ecosystems. Among the villagers apprehension about the impact of the globalisation process on the rich cultural diversity in terms of the threat of loss of related indigenous systems of language, knowledge, beliefs and practices is growing.

At community level, diminishing biodiversity is reported in the loss of agro-ecosystems as fertile ancestral farmland is sold off mainly to the government and privately based industry to be used for the development of tourist resources and real estate. This huge shift has brought extreme changes in the employment available to the villagers. These enforced adaptations also usher in great social upheavals; former landowners are now forced to work as displaced 'share croppers' and 'dairy-cow share breeders' on what was once their own land. The growing loss of local wisdom is most conspicuous at the community level, as reported during the household surveys. The view expressed by the respondents about the impacts of global development planning, tourism and overuse of resources is that these are identified as major outside interventions instigated by the government to serve national economic purposes. These forces are generally perceived to be a serious threat to the survival of traditional local institutions, community norms and values, getting in train the erosion of their traditional ecological knowledge (TEK), wisdom and beliefs. These dominant influences are experienced locally as the opening of the door to undesired changes in the traditional way of life. Not all is lost, as some of the Sundanese population fortunately still holds fast to their local wisdom and by so doing are helping to safeguard the loss of species of plants and rain forests.

External pressures, among them centralised development planning, excessive use and extraction of natural resources and exploitation of the indigenous knowledge of local people, have mounted and now loom as a significant influence. They are at their most harmful in the way they deprive the local communities and ecosystems of their traditional surroundings. The worst offenders are commercially driven deforestation, environmental degradation, over-use of resources, illegal trade in timber and exotic animals, influx of tourism and more subtly, the gradual loss of language and culture. People are not unaware of what is happening around them and proactively, to overcome these deprivative conditions, new ways are being explored to find a solution in the direction of sustainable development. Indigenous communities are not stuck-in the mud nor are they opposed to change. On the contrary, they are dynamic and open to adaptation as long as they can keep their independence and feel they can control the process of change. Since local people often perceive their land as sacred, control over it and its resources has always been an essential factor in their traditional relationship with environment and the sort of use management and conservation resources associated with this attitude. At present, in a number of ways the rapid emergence of a global economy has obstructed the ability of most indigenous people to adapt to the changing environment. To regulate and control the use of local natural resources for national development purposes, the planning of most centralist governments has been imposed at local levels; accompanied by the hoary adage 'for the greater good'.

Fifthly, an *emic* perspective is provided on life in four communities in the Sunda Region of West Java, located in rural, semi-rural, semi-urban and urban areas of the study area, on the basis of largely qualitativ surveys. This part of the study embodies the general background of the reseqrch, presented in Chapter V. The complementary qualitative and quantitative surveys in the study area have provided such relevant information about the study population and sample survey of the four selected communitys, each representing a differentiation in environmental setting. They are: *Cibogo* (a rural community), *Jayagiri* (a semi-rural community), *Gudangkahuripan* (a semi-urban community) and *Kayuambon* (an urban community). This information is fleshed out with a description of the major foundations of the people's traditional way of life which includes the modern village administration, the formal administration at the community level. Also is recorded the Sundanese cosmovision which encompasses three realms namely *buana sangkala* (the real realm), *buana niskala* (the supernatural realm) and *buana jatiniskala* (realm of the genuine supreme supernatural).

Sixthly, a description is given of the arisan members' indigenous knowledge and practice of MAC plants in the region, based on the underlying Sundanese cosmovion. In addition, an assessment of the Indonesian health policy is given with regard to the actual use of traditional medicinal plants in Primary Health Care. This description is presented in Chapter VII. Here, it is shown that Indonesia is facing failing government resources for health, as the result of rapidly changing socio-economic and political situations. Although, a wide range of medical systems such as Primary Health Care (PHC), traditional birth attendants and indigenous herbal medicine are available to provide the population with health care. In addition, it has to cope with rising expectations and demands for more services from a more enlightened and affluent general public. During the past decades, it has made many fruitful endeavours to enhance community actions for health with the full involvement of communities, political leaders and NGOs at various levels of health care delivery. Among the successful community health development programmes are such as the Integrated Health Package Programme or *Posyandu* in Indonesia, and the Village Health Volunteer Schemes and the Basic Minimum Needs programmes in Thailand. However, these programmes have been at the crossroads, as the result of decentralisation and changes in health care management.

In addition, the health reform process is proceeding rapidly, usually urged by a desire to improve equity and quality of care, to expand coverage and reduce cost, as well as to decentralise health care management and increase community participation. As part of the political and civil service reforms, decentralisation of health systems became the most common form of reforms. However, the central government did not decentralise certain functions like drug selection, drug quality and drug pricing policies, human resource recruitment and deployment, etc. It has to consider an appropriate mix of centralised and decentralised functions, responsibilities, and authority to meet its best policy objectives.

Seventhly, the complicated process of interaction among the various factors in determining the communication behaviour on MAC plants by the members of *arisan* in Lembang through the implementation of a special analytical multivariate model is documented, analysed and explained in Chapter VIII. Following the qualitative survey, in which special attention is paid to the methodology of the Ethnosystems approach which paves the way for the study of local structures from an *emic* point perspective: the 'participants view (PV) of local phenomena is used to assess variables at the individual level; the perspective of the 'field of ethnological study (FES) to interpret these phenomena comparatively within the cultural area concerned and the 'historical dimension' (HD). This probing investigation helped enormously to explain

current configurations against the background of long-term processes. This approach assisted specifically to identify, examine and explain the role of 'invisible' factors in the emerging patterns of the communication on their MAC plants behaviour of respondents. Here, an analyisis is presented of the complicated process of interaction between the various factors and their role in the determination of the communication behaviour on MAC plants in the *arisan* in Lembang, based on the special analytical multivariate model.

After the execution of a number of test cases and related adaptations in the questionnaire, the quantitative household surveys are conducted among the four sample communities in the years 2005-2007. By using pre-coded structured questionnaires containing 107 questions related to a total of fifteen variables, the comprehensive data-set has been completed on the basis of participant observations, measurements and scores of various categories of factors involved in the local people's patterns of communication on MAC plants. After completing the data collection and verifying process in the four communities of the sample survey, the resulting data-set proved to be very rewarding and interesting, leading to the next successive steps in the analysis and interpretation of results. By using the structured questionnaires, the surveys eventually paved the way for the completion of a data-set of a total of 120 respondents, all of them *arisan* members.

Following the control, sorting and categorisation of the collected field data, a series of advanced quantitative analyses are carried out in three steps in order to assess the interaction between the various independent and intervening factors in relation to the dependent factors of communication on MAC plants behaviour.

The *first step* is a bivariate analysis using cross-tabulations of subsequent independent and intervening variables distributed over dependent variables of communication on MAC plants behaviour. The different scores for the communication on MAC plants behaviour, as reported by the respondents over the twelve months previous to the surveys in the four sample communities, are distributed over the different categories of independent, institutional and intervening variables. As a preparation, the calculations of relevant variables on the basis of a data-set of the above factors is eventually applied to the analysis of eight predisposing, one perceived, one enabling, two institutional and one intervening factors in relation to two behaviour variables of the communication on MAC plants.

The *second step* in the analysis reveal the overall differential influence of all independent and intervening factors on the dependent factors in interaction with and between each other. The use of the specific multivariate analysis, called OVERALS, made it possible to measure the relative influence of the various categories of factors on the overall patterns of communication on MAC plants behaviour by carrying out a multivariate analysis to determine the interaction among all variables, followed by a multiple regression analysis to measure the coherence among categories of variables, thereby contributing to their predictive values. The resulting correlations in the first dimension underscore and strengthen the conclusions from the bivariate analysis. These include confirmation of the strong correlation of variables related to the close linkage relationship between MAC plant knowledge and practice as phenomena reveal in the knowledge, belief and behaviour of the *arisan* members in the sample surveys. The bivariate analysis had already yielded the identification and description of the significant background variables which tend to influence the patterns of behaviour in a differential way, among these the crucial role of the use of MAC plants.

Attention then turned to the institutional variables, the location of the communities in the sample survey dominated the patterns of communication on MAC plants behaviour, confirming the findings that respondents living in the rural and semi-rural communities scored a higher communication on MAC plants as remedies for treatment than those living in semi-

urban and urban communities. Conversely, respondents living in the semi-urban and urban communities tended to score a higher communication on MAC plants for health promotion and illness prevention than those living in the rural and semi-rural communities.

In the analysis, the intervening variables tended to influence the communication on MAC plants behaviour as the result of the impact of external MAC plants obtained by exposure to the mass media. This interesting configuration of interacting variables is also reflected in the projection of all relevant variables in the canonical space.

Finally, the *third step*, executing the subsequent multiple regression analysis, is appropriate for measuring the coherence among all eight categories or blocks of variables leading to the final for this study in Lembang. that the initial conceptual model of the study (*cf.* Figure 3.1) had been successfully developed into the final multivariable model of communication on MAC plants (*cf*. Figure 8.3). This model made it possible to determine the correlations and interactions between all the categories or blocks of the variables in the model and to contribute to their predictive values. In this way, the above-mentioned stepwise approach in the analyses did indeed lay the basis for the construction of the model of the communication on MAC plants behaviour for health promotion and illness prevention, which has been shown to make a solid contribution to the prediction of the communication on MAC plants for remedies to be used as treatment. Certainly, the above-mentioned multiple regression analysis did enable the determination of the relatively importance of each of the six blocks of variables in relation to the dependent blocks of communication behaviour on MAC plant knowledge and practice through the calculation of the related multiple regression coefficients.

Consequently, among the most important conclusions of the multivariate analysis is, that in the village communities in the research area of Lembang, the communication on MAC plants correlate strongly with the knowledge of MAC plants obtained by attendance at the *arisan* association.

9.2 Implications

In addition to the above-mentioned overview of the important findings of the study in Lembang, some of the major implications should be formulated not only on the theoretical and methodological levels but also on the practical level.

9.2.1 Theoretical Implications

The theoretical implications of the results of this study in Lembang support the development in communication behaviour among *arisan* members on MAC plants as an important way to encourage self-determination (*kemandirian*) in health, healing and the growth of industries of herbal medicine using domestic natural materials and resources. Importantly, herbal medicine is relative cheap, culturally appropriate and the use of ethnomedicine generally causes little side effects. In Indonesia, the use of MAC plants has been passed down from generation to generation, to be used in health promotion, illness prevention and for treatment. Currently, in Indonesia, there are approximately 7,000 kinds of MAC plants. Developing TOGA will further improve the self-determination of a community in its efforts to overcome health problems. This in no way obviates its other aim which is to reduce the people's dependence on chemical/ pharmaceutical medicines. Among the various advantages of TOGA are their contribution to the maintenance and improvement of health, the treatment of symptoms of

ailments and improvement in family nutrition. Priority should be given to those MAC plants which are frequently used as home remedies to treat the family and for medical treatment of an area overwhelmed by a illness. The added advantage that various MAC plants are also useful as cooking spices, vegetables or edible fruits and these attributes obviously improve the people's health and well-being, should not be overlooked.

For the newly developing field of study of communication behaviour – specifically on local MAC plants - the results indicate that there is a pluralistic configuration of various communication systems operational in the Sunda Region of West Java, in which the indigenous system of information exchange and communication is not only operational in the rural communities, but also rather functional within local instititions, such as the *arisan*, specifically among women groups in the area. In this context, the envisaged integration between traditional and modern information and comunication systems will provide new ways of reaching members of local communities in the rural areas of the island. The important dual theoretical orientation of ideation and convergence, selected for this study in Lembang, which combines the diffusion of ways of thinking by means of social interaction in local communities with information-sharing, mutual understanding and mutual agreement as an imperative in any institution that eventually may introduce social change, has not only been confirmed by the study results, but also contributed to the deeper understanding of the communication process in the research area.. In addition, the distinction made between *indigenous*, or *local* communication, largely operational in developing countries, and *modern* or *global* communication, largely operational in Western countries has enabled the research to analyse the situation in Lembang as a dynamic process of interaction between global and local systems of communication in the area.

It is also hoped that the result of this study in Lembang will also contribute to the growing body of knowledge by reconfirming that not only small-scale, often traditional communities with continued and unchallenged occupation of their environments over many generations have accumulated detailed and accurate traditional knowledge and wisdom about their ecosystems, but also that these communities have been shown to use their knowledge systems in their local institutions and associations as to be able to manage and conserve their MAC plants in a sustainable way. Therefore, the results also support the international ideas about global biocultural diversity which point out that human relationships with the environment at the community level constitute a highly complex and diverse process which requires deeper comparative documentation and analysis.

In this context, the recent attention for the social aspects of local institutions such as arisan paves the way for the development of a new strategy of integrating these local institutions into a kind of service centers at the community level, where in addition to the financial services, also other services, as envisaged recently by Slikkerveer (2007) in his concept of Integrated Microfinance Management (IMM) could help to reduce poverty in the rural areas of Indonesia, including helath, education and socialization.

The methodological implications of the results of this study include an affirmation of the success of the use and adaptation of a multivariate model of the communication on MAC plants behaviour on the basis of the development of the 'ethnosystems approach' to the study and analysis of Indigenous Knowledge Systems (IKS), developed by the LEAD Programme of Leiden University (*cf*. Slikkerveer 1983, Leakey & Slikkerveer 1989, Slikkerveer & Dechering 1995, Slikkerveer 1999). The complementary qualitative and quantitative surveys in the sample communities in Lembang shows that the current, limited benefit of the existing research methods and techniques can be overcome by the implementation of the more *emic*-oriented, interactive ethnosystems research methodology. The quantitative approach permits

the exploration of documentation, analysis and understanding of the complex processes involved in communication on MAC plants behaviour which is under increasing outside pressure from globalisation in the study area and has also contributed to the predictive value of important determinants in the overall process which could lead to a reorientation towards alternative strategies to try to convey or reduce the ongoing biodiversity crisis in this part of the world.

9.2.2 Practical Implications

The results of this study in Lembang strongly underscore the proposition, that at community level, people's knowledge of MAC plants are beneficial to the overall process of sustainable community development, including health care, and that the facilitating local institutions such as *arisan* should be further strengthened to extend their facilities for the exchange of information and communication on the MAC plant knowledge and practice for health promotion, illness prevention and treatment of illness.

The communication on herbal medicine in formal health care should be supported by proper regulations. Such support should pertain to public awareness programmes in thye various media and at schools in order to extend communication on the significant MAC plant knowledge and practice.

Realizing their great significance, as is also underscored by the present study in Lembang, the Ministry of Health has announced plans for the development of TOGA in remote regencies in Indonesia, a move which also involves the local government, since people living in remote areas have minimum accessibility to health care. Provided that the integrated development of TOGA has been proven successful in the improvement of the self-reliance of a community, it schould also become part of communication programmes and projects in rural areas. From the community's point of view, MAC plant knowledge and practice can also become a source of income. The national capability to produce MAC plants should be improved to anticipate an increase in the demand for herbal medicine. Unfortunately, the supply of raw materials is not assured and the quality has not yet been standardised, since most plants are picked directly in the wild and so far have not yet been cultivated to a sufficient extent. Here the above mentioned considerations on careful conservation of the biocultural diversity of MAC plants should also become part of the related exchange and communication programmes.

Furthermore, communication on indigenous knowledge in local institutions is recommende as to further contribute to the creation of more environmentally and socially sustainable forms of development. As indigenous knowledge can function in certain ways as a positive factor in development endeavours, these positive factors should provide the frame of reference required when mobilising people to participate actively in development-oriented communication efforts. These positive factors emerging from this study of the communication process at community level should also be disseminated more extensively and be constantly reinforced in the area. Since local wisdom and experience tend to survive as part of the indigenous knowledge of a community, in which arisan play an important role as facilitating local institution for communication, it should all be taken into consideration in future national policy making and planning.

Eventually, indigenous knowledge and wisdom as the major subjects in communication behaviour on MAC plant knowledge and practice among members of local institutions will survive in the West Java and the other islands of Indonesia as part of the culture of the local communities, not only because of their sustainability and practicality, but also because of their

underlying traditional cosmovisions and supporting institutions and associations. such as the *arisan* in Lembang which provide a unique system for information and communication on numerous aspects of life in the Sunda Region of West Java and elsewhere in Indonesia.

The *arisan* in Lembang provide a unique institution for the exchange and continuation of indigenous communication on numerous aspects of life in the Sunda Region of West Java, in which the knowledge and practice of MAC plants will remain a key factor for the continuation and improvement of the local peoples' health and well-being for many generations in the future.

Appendix

MAC Plants used in Sundanese traditional herbal medicine, as documented in the study area of Lembang.

Centella asiatica Urban
Antanan gede
Photo by Cakgoeng

Imperata cylindrica L.
Eurih
Photo by Cakgoeng

Tinospora crispa Diels
Andawali/Bratawali
Photo by L. Leurs

Persea americana Mill
Alpuket
Photo by Google search

Averhoa carambola L.
Balimbing
Photo by Cakgoeng

Averhoa bilimbi L
Calincing
Photo by Cakgoeng

Allium sativum L.
Bawang bodas.
Photo by Cakgoeng

Allium cepa Linn
Bawang beureum
Photo by Cakgoeng

Kaemferia Galanga Linn.
Cikur
Photo by Cakgoeng

Phylais Minima Linn
Cecendet
Photo by Google search

Aloe Vera L.
Lidah Buaya
Photo by Cakgoeng

Foeniculum vulgare Mill.
Hades
Photo by L. Leurs.

Graptophylum pictum Griff.
Handeuleum
Photo by Janoe

Zingiber officinale Rosc.
Jahe
Photo by Cakgoeng

Coleus scutellarioides Benth.
Jawer kotok
Photo by L. Leurs

Citrus arantifiola Swingle
Jeruk nipis
Photo by Cakgoeng

Psidium guajava Linn.
Jambu batu.
Photo by Cakgoeng

Curcuma domesticaVal.
Koneng
Photo by Cakgoeng

Curcuma xanthorhiza Roxb.
Koneng gede
Photo by Google search

Orthosiphon aristatus Bl. Miq.
Kumis kucing
Photo by Cakgoeng

Plantago major Linn.
Ki urat
Photo by Cakgoeng

Sanopsus androgynus (L) Merr.
Katuk
Photo by Siti

Cocus nucifera Linn
Kalapa Hejo
Photo by Google Search

Alpinia galanga Stuntz.
Laja
Photo by Cakgoeng

Zingiber cassummunar Roxb
Panglai
Photo by Google search

Momordica charantia Linn
Paria
Photo by Cakgoeng

Leucaena leucocephala de Wit
Peuteuy selong
Photo by Google search

Blumea balsamifera D.C
Sembung
Photo by Janoe

Piper betle L.
Seureuh
Photo by Cakgoeng

Eugenia polyantha Wight
Salam
Photo by Cakgoeng

Apium graveolens Linn.
Saledri
Photo by Cakgoeng

Sechium edule Sw.
Waluh Siem/Lejet Siem
Photo by Cakgoeng

Manihot esculenta crautz.
Sampeu
Photo by Google search

Ocimum basilicum.
Surawung
Photo by Google search

Carica papaya L..
Gedang
Photo by Google search

Cyclea barbata Miers
Cingcau

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Summary

This study has been carried out in Lembang, a sub-district situated in the Sunda Region of West Java, a province of the Republic of Indonesia, well-known as the 'Emerald of the Equator' ('*Zamrud Khatulistiwa*'), a metaphorical name given to this fascinating area rich in tropical green rain-forests along the Equator. The general aim of the research is to document, study and analyse the communication behaviour on medicinal, aromatic and cosmetic (MAC) plant knowledge and practice among members of *arisan* associations for health promotion, illnesses prevention and treatment. Following the Ethnosystems Approach, the research has been carried out from an *emic* point of view in the context of the current re-orientation towards indigenous knowledge systems and development in Indonesia.

While in general, most research in the new field of *health communication* focuses its attention on the results of communication activities in intervention programmes, aimed at behavioural change for the improvement of the health and well-being of specific target groups, this study seeks to document and understand the actual patterns of behaviour of actors who communicate and exchange particular information among themselves within local institutions of the *arisan* in Indonesia. In this context, this study aims to find an answer to the central question:

What are the characteristics of the members of a local institution 'arisan' who are showing a particular form of communication behaviour on local knowledge and practice of medicinal, aromatic and cosmetic (MAC) plants in the Sunda Region of West Java, Indonesia?

Such particular expression of communication in the form of *gunem catur* refers to informal group discussion which is typical for the cultural area of the Sunda Region of West Java. In order to reach the general aim of the study, seven specific objectives are formulated, *i.e.:*

- *Firstly,* to give a description of the research setting or sociography of Lembang in the Sunda Region of West Java, in Indonesia as a developing country in South-East Asia.
- *Secondly,* to present the dual theoretical approach towards the study of communication behaviour of actors within groups and institutions, where also a distinction is made between *indigenous*, or *local* communication, largely operational in developing countries, and *modern* or *global* communication, largely operational in Western countries.
- *Thirdly*, to draw special attention to the *arisan,* in particular its socio-cultural role in indigenous communication on MAC plant knowledge and practice among its members.
- *Fourthly*, to assess the impacts of the major dimensions of globalisation on both the biological and cultural diversity of MAC plants at the community level.
- *Fifthly*, to provide an *emic* perspective on life in four communities in the Sunda Region of West Java, located in rural, semi-rural, semi-urban and urban areas of the study area, on the basis of largely qualitative surveys.
- *Sixthly*, to provide a description of the arisan members' indigenous knowledge and practice of MAC plants in the region, based on the underlying Sundanese cosmovision. In addition to the description of traditional herbal medicine – *jamu* – the Sundanese cosmology has to be described, followed by an assessment of specific traditional medicine in the research area, known as *ubar kampung*. In this context, an overview of the Indonesian health policy with regard to the actual use of medicinal plants in Primary Health Care is given as part of this specific objective.

- *Seventhly*, to document, analyse and explain the complicated process of interaction among the various factors in determining the communication behaviour on MAC plant knowledge and practice by the members of *arisan* in Lembang through the implementation of a special analytical multivariate model.

Indonesia is a country which has a long tradition of community-based groups, the majority of which are informally organized along traditional customs. Much of the daily life of ordinary Indonesians is built up around indigenous associations which facilitate intense social interactions. One common association is the *arisan,* which can be found in almost every part of the country, specifically in Java. The formation of this kind of associations is a very common practice in Indonesia and is found widespread throughout the country, in towns and in the countryside at almost all socio-economic levels of the society. It is a social activity which has long been pursued in Indonesia as a form of *gotong royong* (mutual cooperation).

A huge number of ethnic groups in the rural areas of Indonesia depend on indigenous communication, as most of them are still beyond the reach of modern communication systems and the larger part of their communication is conducted in their local language. In knowledge-sharing, family members are the primary information source. Specific aspects of knowledge, covering a wide range of daily affairs can be found throughout the communities. Specifically, knowledge about the healing power of plants plays an important role in health and healing. Unfortunately, the passing on of knowledge about local plants by the elder generation is now generally becoming less frequent and in some cases even on the wane, although the present generation still possesses a wide range of specific traditional medical knowledge. In the current period of increasingly rapid change, the younger generation tends to be less interested in the environment as it is more concerned with modern issues. This lack of interest is seen as a process strengthened by the media such as radio and TV which promotes more, albeit different, knowledge. Local institutions generally emphasize information-sharing and mutual understanding which is in line with the convergence theory. In the Sunda Region, a form of indigenous communication still exists known as *gunem catur* where the local culture is providing a context for development and change, while at the same time maintaining a certain degree of continuity.

A sub-field of ethnobotany, economic botany has concentrated largely on the economic value of useful plants such as cocoa, tobacco, and maize. By contrast, the related fields of ethnobotany and ethnomedicine have been engaged in the study of medicinal, aromatic and cosmetic (MAC) plants and herbs and their role in traditional medicine. In most developing countries the compilation of local classifications of medicinal, aromatic and cosmetic (MAC) plants is increasing as a result of not only a current re-appraisal of the industrial use of medicinal plants in the production of medicines and cosmetics, but also because of the growing interest of the general public in natural medicine.

From the ethnobotanical and ethnomedical perspective, the growing interest in MAC plants is expressed in a number of indigenous classifications of useful plants in Java and Bali which embarks on the *emic* view of indigenous plants, belief and use, vital to the understanding of the position of medicinal plants in local health care improvement and forest conservation in Indonesia. Although there is currently an expanding production and consumption of Western pharmaceutical medicines in Indonesia, there is also an increase in the large-scale local industrial production of traditional herbal medicine, called *jamu*. While both systems seem to co-exist in harmony, and complement each other, certain friction is sometimes also emerging between the traditional and modern health care systems as the result of the interaction of different, sometimes opposing geographical, economic and socio-cultural

factors. A wide range of medical systems is available to provide the population with different forms of health care. Traditional Medicine (TM), Primary Health Care (PHC), and Traditional Birth Attendants (TBA) all are part of the Indonesian plural medical configuration.

In such form of medical pluralism, members of society can choose which system they consider as best for them to approach. The subsequent utilization of more than one medical system is referred to as '*healer shopping*', when clients and patients use different medical systems for one disorder at the same time. Currently, people in the Western world are also becoming interested in ethnomedical systems as a result of their disappointment in the incapacity of modern medicine to cure all diseases, the impersonal treatment and the exceptionally high costs of the dominant biomedical system. As a result, many people have reoriented their view on such 'alternative' therapies as homeopathy, herbal medicine, natural healing and holistic health care.

Today, an increasing number of countries in the region of South-East Asia, including Indonesia, is facing decreasing government resources for health care because of rapidly changing socio-economic and political circumstances. As a result of the rapidly growing population as well as the lower socio-economic status of a large proportion of the population, the five major challenges which the government faces in health development in the twenty-first century are the elimination of the differences in health status, the creation of conditions which promote health and the promotion of cooperation and partnerships, the safeguarding of basic health services for all, especially the poor and vulnerable groups, the upholding and enforcing health ethics, and placing health at the centre of socio-economic development.

The health sector reforms initiated in the 1990s in many countries, including Indonesia, were characterized by greater concern for the demand which has grown largely because of the extensive political and economic changes during the past two decades. Among these changes are the transformation from a centrally planned to a market-oriented economy, reduced state intervention in the national economy, less government control and more decentralization. Although governments in many countries have willingly embraced globalization, only certain social groups profit from the escalation in commerce and financial investment associated with liberalisation policies.

Since health is a shared responsibility, the creation of the strategy of *Healthy Indonesia 2010* forces the Ministries of Health and Social Welfare to build collaborative relationships with others: all strata of the community, all related government departments and agencies as well as the private sector. In their effort to achieve *Healthy Indonesia 2010,* these ministries have also been obliged to act in order to attain the goals in a proactive and progressive way. By consequence, modern health development in the Province of West Java is integral to the National Health System, which is based on local needs and problems.

Unquestionably, modern health care is very important in building a better future; and physical and mental health is essential to people living in developing countries. It is also a human investment in national development programmes. Two important health care strategies are *Community Health* and *Primary Health Care* (PHC). Although the former WHO's global strategy of '*Health for All by the Year 2000*' failed to be successful, it is still an inspirational goal for health care development and it is believed that this strategy can still be realized by revitalizing the concept of Primary Health Care (PHC).

In spite of the success of some of the recent approaches and strategies which were intended to integrate traditional and modern medical systems, at present a large number of people living in the rural areas still have no access to adequate health care, which is often based on the incorporation of traditional healing and midwifery. Largely as a result of the artificial division which sometimes opposes biomedicine and ethnomedicine, the desired

integration is still faced with several theoretical and methodological complications which need further study and analysis.

The qualitative research in Lembang demonstrates that traditional medicinal practices which implement well-tested and effective methods are rooted in the socio-cultural background of the community and can be defined as 'appropriate technology in health care', since the necessary materials are directly found in the environment of the community and are easily available, often cheap and easy to use. The Sunda Region has a long heritage of traditional medicine which has been used in the local health care of the people from time immemorial. In spite of the influx of modern medicine, traditional medicine is still widely popular and provides a very large component of the present plural medical system. Accordingly, encouraged by WHO, the government has decided to integrate traditional medicine into their modern health care system. Also, the government has recognised the great potential of plant-based traditional medicine and has taken steps to promote it as part of their national health care system.

In addition, traditional medicine care is directly linked to biocultural diversity conservation, because many medicinal plants are found in habitats which are endangered by current forms of land use. At this critical point, it is a matter of urgency to further legitimize and promote the traditional ways of plant-based healing and to make people aware that continued access to plant-based medicines will largely depend on forest conservation.

For thousands of years, people in the research area have used plants as a means of healing and still continues to rely on them for their health care. Traditional healers usually apply medicinal plants and herbs in their treatment of patients. As there is a growing demand for medicinal plants most of which are found in the forests, it is expected that in the future, the use of medicinal plants in the area will further increase, not only as the result of population growth, but also because of the WHO policy recommendations on Traditional Medicine and Primary Health Care. In addition to the use of plants for medicine, they have also been used for other purposes, including food, building materials, decoration and fuel, as such increasing the demand for local plant resources.

In the Sunda Region, as elsewhere in Indonesia, traditional herbal medicine is part of the cultural heritage which has been handed down over many generations in the area. More recently, the use of medicinal plants as well as the cultivation of medicinal plants for the entire family (*Tanaman Obat Keluarga* or TOGA) has contributed to the increase in the knowledge of medicinal plants among the local people. Today, people's food may come from anywhere in the world and modern information technology brings the world into peoples' homes, opening up their horizon and subjecting their emotional life to a wide range of influences. Notwithstanding these advantages, the human impact on local ecosystems and their plant resources must be kept in mind. At present, the range of plants locally available is already being reduced, as they have fallen victim to intensive plant collection, commercial agriculture, deforestation and habitat depletion, and the continuous expansion and industrialization of towns. By consequence, there are only a few truly pristine habitats left in the country.

The valuable knowledge and wisdom of indigenous people about MAC plants has accumulated over many generations as part of the indigenous culture, and include traditional methods and practices of sustainable use and conservation of the biocultural plant diversity. These Ethnobotanical Knowledge Systems (EKS), however, have until recently largely been ignored.

Most rural people have expressed, that they do not agree with the restrictions placed on their daily life and livelihood, especially those concerning their crops cultivated on

'abandoned land', even though the government regards such areas as if they were public domain. Most rural people in the area with a low income have been collecting MAC plants for many generations in a sustainable way in order to generate some extra income by selling the plants directly at markets or to producers of herbal medicine as a means to earn some extra money. In this way, the conservation of biodiverse habitats has been practiced where humans interact wisely with the environment and its resources, specifically in places where the existing ecosystems are regarded as invaluable and as sacred places for reasons which have nothing to do with monetary rewards.

In contrast to the Western tradition, in which natural resources are considered to be commercial property and therefore are subject to private or public ownership, in many indigenous cultures, the Earth is perceived as available in the sacred and not in the secular sense. Moreover, indigenous cultures place an emphasis on the local peoples' obligation to protect the Earth, not because of its usefulness to the people, but because of its sacredness. By consequence, conservation is considered a religious task, even though at the same time it also fulfils ecological and cultural purposes. Recently, however, much of indigenous knowledge systems have become under threat of disappearance, often as the result of changes in the lifestyle of traditional communities in response to the rapid changes in the modern world, especially in the field of information technology. The latter often cause disruptions in the traditional channels of oral communication. Exogenous communication has introduced a threat to the traditional channels of oral communication, and this interruption is hindering the process of transfer of important knowledge from the elders to the younger members of the community.

One of the main objectives of this study is to identify to what extent indigenous communication on MAC plant knowledge and practice is taking place within local institutions such as *arisan* in Lembang. By consequence, this study focuses on the documentation, analysis and understanding of the communication process within the *arisan* institution, leaving the impact of such communication behaviour of *arisan* members on the actual practice of use of MAC plants outside of its scope.

The Sundanese people have used medicinal, aromatic and cosmetic (MAC) plants in their daily lives from time immemorial, and at present a large, culturally diverse range of plants and experience has evolved. Unfortunately, however, now a process of steady loss of this invaluable knowledge is emerging, especially with regard to the local peoples' utilization of MAC plants for their health and healing purposes.

Since the aim of this study is to document, study and explain the process of communication behaviour concerning MAC plant knowledge and practice within the traditional information system of the *arisan* among the members at the community level, an analysis is made of the role of various categories of factors which are involved in this complicated process, in which particular attention is paid to the 'invisible' factors which seem to play a determinant role leading to different local patterns of communication behaviour on MAC plants for health promotion, illness prevention and treatment.

As communication has its roots in peoples' need to share and transmit information, knowledge, ideas and experience, where another important role refers to the creation of an accessible environment in which such information can be shared and understood and discussed by the audience, the research also seeks an in-depth understanding of these needs, beliefs, taboos, attitudes, lifestyle, and social norms of all participants involved.

Furthermore, as the comprehension of the local people's knowledge and practices of MAC plants is based on the full insight into their indigenous beliefs, cosmologies and perceptions of nature and culture, appropriate parameters have been developed to identify and

analyse the often 'invisible' factors which are determining their patterns of communication behaviour. In this context, it is rewarding to observe, that over the past decades, the recognition has grown of the important role which indigenous knowledge and practice are playing not only in local processes of decision-making, but also of communication and information exchange.

In addition, indigenous knowledge systems as a body of local knowledge, perceptions, ideas, beliefs and practices which has been transferred over many generations in a particular community or area, have provided new, promising initiatives for sustainable community development. Although initially, indigenous knowledge has mainly been identified as Traditional Medicine (TM), and as Traditional Ecological Knowledge (TEK), it is now widely accepted that the concept of indigenous knowledge extends to local in-depth knowledge, wisdom and experience in health, ecology, agriculture, and biocultural diversity conservation. Similarly, indigenous peoples' knowledge and use of plant resources has been the subject of a number of studies in the field of medical anthropology and ethnobotany which have investigated various factors which determine peoples' health and illness behaviour. These studies have made use of the specific *Ethnosystems Approach* in combination with an advanced multivariate analysis model which has been developed at Leiden University.

The results of this study in Lembang are showing that the *ethnosystems approach* is also a highly appropriate methodology for studying such complex processes of indigenous communication behaviour in the Sunda Region of West Java.

This study encompasses the explanatory research method and retrospective approach. The descriptive study is used to gain an objective insight into the communication behaviour on (MAC) plant knowledge and practice of *arisan* members in the community. The study also analyses the use of *arisan* as a means to transfer knowledge and practice on MAC plants and their utilization in the households in Lembang, a Sub-district of Bandung in the Province of West Java. The study uses the complementary qualitative and quantitative methods for data collection and analysis.

Despite the scant attention which has recently been paid to the way in which such traditional knowledge has been accumulated and shared in local communities, indigenous communication is one of the processes which are essential to ensure the continuity and dissemination of knowledge and the culture in which it is firmly embedded. It appears that every community has developed unique, complex ways for the transfer of information from person to person. Such indigenous communication invariably includes the transfer of useful information as well as of other messages such as entertainment, news and other types of social changes. Indigenous communication occurs in many different settings such as the talk at home and at the well, in the fields and on the road, in the tea house and coffee shop, and at the market, where people meet and speak with each other.

The major methodological challenge in the present study is posed by the quest in what way such research endeavour should be executed in order to acquire an analytical insight into the local peoples' communication behaviour concerning the exchange of MAC plant knowledge and practice within the local institution of *arisan*. Two relevant methodologies have paved the way for such a venture: the above mentioned *Ethnosystems Approach* to study indigenous knowledge systems, and the advanced analytical models of multivariate analysis of human behaviour as developed at Leiden University. These two methodologies have been adapted and operationalised for the execution of the explanatory study in Lembang, since recent experience with the use of these models indicates that the results do indeed contribute to a deeper insight into different processes and the related factors as variables in the analytical model. After adapting and operationalising the conceptual model for the specific research

objectives, the complementary qualitative and quantitative data collections have been conducted in the field among the people of the sample communities in the research area in Lembang. Embarking on the above mentioned substantial theoretical and methodological orientations, and the description of the socio-cultural background in which the research is carried out, the present study provides the following results as to realise the objectives as follows:

As regards the *first objective* to give a description of the research setting or the sociography of Lembang in the Sunda Region of West Java, in Indonesia as a developing country in South-East Asia, the general description in Chapter IV on the research setting of Indonesia and Lembang is highlighting the distinctive geography, population and culture of the research area, also known as *Tatar Sunda*. Here, a short overview is presented of the research setting in Lembang, encompassing Indonesia as a young South-East Asian nation and Lembang, a sub-district in the province of West Java, as one of the largest and fertile provinces in Indonesia, famous for its agriculture produce and manufacturing industries. The sociography also includes the historical background to health care in the area and the use of herbal medicine, *jamu*, among the people today. Besides, the ecological setting of the research location is also described. Relevant background information is also provided to the economic activities and the traditional social association *arisan* at the community level.

The *second objective* of this study to present the dual theoretical approach towards the study of communication behaviour of actors within local groups and associations, where also a distinction is made between *indigenous*, or *local* communication, largely operational in developing countries, and *modern* or *global* communication, largely operational in Western countries, is achieved in Chapter II. Here, communication within local institutions is generally shown to emphasise information-sharing and mutual understanding among its members, which is in line with both the theories of *ideation* and *convergence*. This important dual theoretical orientation selected for this study in Lembang, combines the diffusion of ways of thinking by means of social interaction in local communities with information-sharing, mutual understanding and mutual agreement as an imperative in any collective or group section which eventually may introduce social change. In addition, a distinction is made between *indigenous*, or *local* communication, largely operational in the rural areas, and *modern* or *global* communication, largely operational in the urban areas.

The *third objective* to draw special attention to the *arisan* institutions, particularly its socio-cultural role in indigenous communication on MAC plant knowledge and practice among its members is realized in Chapter VI. In this chapter, it is shown, that these local institutions in addition to their economic functions, also facilitate among its members many socio-cultural tasks, including the local communication and exchange of different types of information and communication within such culturally homogenous collectives. Such exchange of information also includes communication on MAC plant knowledge and practice. In addition, it is shown that many local communities suffer from a lack of capital with which small enterprises could be started, but that this problem could be solved by introducing microcredit programmes. Unfortunately, such programmes often involve borrowing external funds to use as a loan base and these usually come at a high rate of interest.

Although the implementation of *Revolving Savings and Credit Associations* (ROSCA's) could be helpful, still local people do not get full access to the formal financial institutions in the country. In Indonesia, at the moment this instrument is applied in the *arisan*, which also

facilitates savings and loan distribution, and already for a long time has been functioned as a visible form of the *gotong royong* principle. This principle means a way of mutual aid that not just involves money but also encompasses other social objectives such as helping to rebuild a house in the village, buying a motorcycle so that a member of the family can get a job as *ojeg* driver to earn some money, and a host of others functions.

The *fourth objective* regarding the impacts of the major dimensions of globalisation on both the biological and cultural MAC plant diversity at community level is realised in Chapter II. This Chapter provides an assessment of this process as part of the overall process of interaction between localisation *and* globalisation of Knowledge. Remarkably, the study of Traditional Ecological Knowledge (TEK) reveals that such a system of knowledge, explaining the relationship of human beings with the universe, is thought to consist of three domains of traditional ecological knowledge: biodiversity, cultural diversity and those local institutions related to nature and culture. The qualitative study shows that the main factors which related directly to knowledge and practice of MAC plants in the village are still rooted in this complex system of traditional ecological knowledge (TEK). The qualitative study also confirms that traditional ecological knowledge (TEK) and the local philosophy of life also encompasses impressive local contributions to the conservation of biocultural diversity, most apparent at community level in the cultivation of various MAC plants, the conservation of forest gardens and the 'compensation' of nature when useful plants and trees have to be harvested by the people.

The *fifth objective* to provide an *emic* perspective on life in four communities in the Sunda Region of West Java, located in rural, semi-rural, semi-urban and urban areas of the study area, on the basis of largely qualitative surveys is achieved in Chapter V. This part of the study embodies the specific background of the research in Lembang. The complementary qualitative and quantitative surveys in the study area have provided such relevant information about the study population and sample survey of the four selected communities, each representing a differentiation in environmental setting. They are: *Cibogo* (a rural community), *Jayagiri* (a semi-rural community), *Gudang Kahuripan* (a semi-urban community) and *Kayuambon* (an urban community). This information is presented in the description of the major foundations of the local people's traditional way of life which includes the modern community administration.

The *sixth objective* to provide a description of the arisan members' indigenous knowledge and practice of MAC plants in the region, based on the underlying Sundanese cosmology, is met in Chapter VII. In addition to the description of traditional herbal medicine – *jamu* – the Sundanese cosmology is described, encompassing three realms, namely *buana sangkala* (the real realm), *buana niskala* (the supernatural realm) and *buana jatiniskala* (realm of the genuine supreme supernatural). Special attention is paid to the history and revitalization of traditional herbal medicine - *jamu* – since independence. Also, the role of *ubar kampung*, the specific traditional Sundanese medicine is described as it is partly in the development process of integration into the national health care system. In this context, also an overview of the Indonesian health policy with regard to the actual use of medicinal plants in Primary Health Care in the country. In this context, this chapter also gives an assessment of the Indonesian health policy with regard to the actual use of medicinal plants in Primary Health Care. Here, it is shown that Indonesia is facing diminishing government resources for health, as the result of the rapidly changing socio-economic and political situation. Although a wide range of

medical systems such as Traditional Medicine (TM), Primary Health Care (PHC), traditional Birth Attendants (TBAs) and indigenous herbal medicine (*jamu*) remain to be available to provide the population with complementary health care. This part of the research concludes with particular attention for the position of indigenous plants for promotion, illness prevention and treatment, and the crucial role of traditional healers and Traditional Birth Attendants (TBAs) in the provision of Primary Health Care (PHC) to the local population in the region.

Finally, the *seventh objective* to document, analyse and explain the complicated process of interaction among the various factors in determining the communication behaviour on MAC plant knowledge and practice by the members of *arisan* in Lembang through the implementation of a special analytical multivariate model is realized in Chapter VIII. Following the qualitative survey, special attention is paid to the methodology of the 'Ethnosystems Approach' which paves the way for the study of local structures from an *emic* point of view. This approach encompasses the 'participants view (PV) of local phenomena which is used to assess variables at the individual level; the perspective of the 'field of ethnological study (FES) to interpret these phenomena comparatively within the cultural area concerned and the 'historical dimension' (HD). This method is enormously useful to explain current configurations against the background of long-term processes.

The 'Ethnosystems Approach' renders it in particular possible to identify, examine and explain the role of 'invisible' factors in the emerging patterns of communication behaviour on MAC plant knowledge and practice, as reported by the respondents/members of the *arisan* for the preceding 12 months of the survey. Following the control, sorting and categorisation of the collected field data, a series of advanced quantitative analyses are carried out in three steps in order to assess the interaction between the various independent and intervening factors in relation to the dependent factors of communication behaviour on MAC plants. These three steps are as follows:

The *first step* is a bivariate analysis on the basis of cross-tabulations of subsequent independent and intervening variables distributed over the dependent variables of communication behaviour on MAC plant knowledge and practice. The different scores for the communication behaviour on MAC plants, as reported by the respondents over the twelve months preceding the surveys in the four sample communities, are sub-divided into 2 sub-categories. These are communication behaviour on such knowledge and practice for, on the one hand, health promotion and illness prevention, and on the other hand, on illness treatment. The results of the bivariate analysis are presented in the cross-tabulation in Chapter VIII.

The *second step* in the analysis shows the overall differential influence of all independent and intervening factors on the dependent factors in interaction with and between each other. The use of the specific multivariate analysis, called OVERALS, renders it possible to measure the relative influence of the various factors on the overall patterns of communication behaviour on MAC plant knowledge and practice by carrying out a multivariate analysis. Such analysis allows determining the interaction among all variables. The resulting correlations in the first dimension underscore and strengthen the conclusions from the bivariate analysis. These include confirmation of the strong correlation of variables related to the close linkage relationship between MAC plant knowledge and practice as phenomena revealed in the knowledge, belief and behaviour of the *arisan* members in the sample surveys. The bivariate analysis had already indicated the identification and description of the significant background variables which tend to influence the patterns of behaviour in a differential way, including the knowledge of MAC plants.

The institutional variables concerning the organisation and the location of the communities in the sample survey dominate the patterns of communication behaviour on MAC plants, confirming the findings that respondents living in the rural and semi-rural communities score higher in communication behaviour on MAC plants as remedies for treatment than those living in semi-urban and urban communities. Conversely, respondents living in the semi-urban and urban communities tend to score a higher communication on MAC plants for health promotion and illness prevention than those living in the rural and semi-rural communities. In the analysis, the intervening variables tend to influence the communication behaviour on MAC plant knowledge and practice as the result of the impact of external MAC plant knowledge obtained by exposure to the modern media. This interesting configuration of interacting variables is also reflected in the projection of all relevant variables in the canonical space, represented in Figure 8.2.

The *third step* of the analysis, which encompasses the execution of the subsequent multiple regression analysis, is appropriate for measuring the coherence among all eight categories or 'blocks' of variables leading to the final overall analysis of this study in Lembang. The results presented in Chapter VIII confirm that the original conceptual model of the study (*cf.* Figure 3.1) has been successfully adapted and developed into the final multivariate model of communication behaviour on MAC plant knowledge and practice of *arisan* members in Lembang (*cf*. Figure 8.3). This model renders it possible to determine and measure the correlations and interactions between all the categories or 'blocks' of the variables in the model and to contribute to their predictive values. In this way, the above-mentioned stepwise approach in the analyses does indeed provide the basis for the construction of an important general model of communication behaviour on MAC plants for health promotion and illness prevention, which is shown to provide a solid contribution to the prediction of the communication on MAC plants for remedies to be used as treatment of illness. Certainly, the above-mentioned multiple regression analysis does enable the determination of the relatively importance of each of the six 'blocks' of variables in relation to the two dependent 'blocks' of communication behaviour on MAC plant knowledge and practice through the calculation of the related multiple regression coefficients.

Consequently, among the most important conclusions of the multivariate analysis is, that in the communities in the research area of Lembang, the communication behaviour on MAC plants of *arisan* members correlate strongly with the knowledge of MAC plants obtained by their membership and regular attendance at the gatherings of the *arisan* institutions.

Finally, the implications of the study in Lembang can be sub-divided in three categories; *theoretical, methodological* and *practical* implications.

As far as the *theoretical implications* of the research is concerned, the results indicate that for the developing field of study of communication behaviour – particularly on local MAC plants - the dual theoretical approach towards the study of communication behaviour of actors within groups and associations is providing the appropriate orientation for the research in local associations and institutions. Here, communication within local institutions such as *arisan* emphasising information-sharing and mutual understanding among its members is in line with both the theories of ideation and convergence. This important dual theoretical orientation selected for this study in Lembang, which combines the diffusion of ways of thinking by means of social interaction in local communities with information-sharing, mutual understanding and mutual agreement as an imperative in any collective or group section which eventually may introduce social change, has contributed to the deeper understanding of

the process of indigenous communication behviour in the research area. In addition, the distinction made between *indigenous*, or *local* communication, largely operational in developing countries, and *modern* or *global* communication, largely operational in Western countries, has enabled the research to analyse the situation in Lembang as a dynamic process of interaction between global and local systems of communication in the area.

The *methodological implications* of the results of this study include an affirmation of the success of the use and adaptation of a multivariate model of the communication behaviour on MAC plants knowledge and practice on the basis of the development of the 'Ethnosystems Approach' to the study and analysis of Indigenous Knowledge Systems (IKS), and more specifically Etnobotanical Knowledge Systems (EKS), developed by the LEAD Programme of Leiden University. The complementary qualitative and quantitative surveys in the sample communities in Lembang shows that currently the problem of sometimes rather limited benefit of the existing research methods and techniques can be solved by the implementation of the more *emic*-oriented, interactive ethnosystems research methodology. The quantitative approach allows for the appropriate documentation, analysis and understanding of the complex processes involved in communication behaviour on MAC plant knowledge and practice which is under increasing outside pressure from globalization. This approach has also contributed to the predictive value of important determinants in the overall process of communication behaviour under specific circumstances.

The *practical implications* of the study evolve from the perspective of the various communication systems operational in the Sunda Region of West Java, and in which the indigenous systems of information exchange and communication are not only operational in the rural communities, but also rather functional within local institutions and associations, such as the *arisan* in Lembang. Specifically among women groups in the area, the integrative approach of traditional and modern information and communication systems has developed, which will open up new ways of reaching members of local communities in the rural areas.

In this context, promotion and support of communication on indigenous knowledge in local institutions and associations is strongly recommended as to further contribute to the creation of more sustainable and environmentally-friendly forms of socio-economic and cultural development. As indigenous knowledge can function in certain ways as a positive factor in development programmes, these positive factors should provide the frame of reference required when mobilising people to participate actively in development-oriented communication efforts through their local institutions. The positive factors emerging from this study of the communication process at community level should also be disseminated more extensively and be constantly reinforced in the research area. Since local wisdom and experience tend to survive as part of the indigenous knowledge system of the community, in which *arisan* play a key role through communication behaviour of their members, all this should be taken seriously into consideration in future national policy planning and implementation regarding the exchange of information and communication of both global and local knowledge, experience and practices.

Eventually, indigenous knowledge and experience as the major subjects in the local communication behaviour on MAC plant knowledge and practice among the members of local institutions will survive in West Java and the other islands of Indonesia as part of the culture of the local communities, not only because of their sustainability and practicality, but also because of their underlying traditional cosmovisions and their supporting local institutions and associations.

This particular form of communication behaviour in the Sunda Region, known as *gunem catur* as the bearer of the cultural heritage of this culture area of West Java, deserves not only the special attention of scientists, scholars, students and the general public, but also from the policy planners and administrators in their efforts to achieve sustainable community development of the region.

The *arisan* in Lembang provide a traditional institution for the promotion and continuation of such indigenous communication behaviour with regard to numerous aspects of life in the Sunda Region of West Java, in which the knowledge and practice of MAC plants will continue to play a key role in the improvement of the local peoples' health and well-being and in the sustainable conservation of the rainforest for many future generations in this remarkable culture area.

Samenvatting

Deze studie is uitgevoerd in Lembang, een Sub-district in de Sunda regio van West Java, een provincie van de Republiek Indonesië, bekend als de "Gordel van Smaragd" (‘*Zamrud Khatulistiwa’*), een metaforische naam voor dit fascinerende gebied dat rijk is aan groene tropische regenwouden langs de Evenaar. Het algemene doel van het onderzoek is het documenteren, bestuderen en analyseren van communicatiegedrag over kennis en gebruik van medicinale, aromatische en cosmetische (MAC) planten onder de leden van arisan verenigingen t.b.v. gezondheidsbevordering, ziektepreventie en behandeling. In overeenstemming met de ‘Ethnosystems Benadering’ is het onderzoek uitgevoerd vanuit een emic perspectief in het kader van de huidige heroriëntatie t.a.v. inheemse kennissystemen en ontwikkeling in Indonesië.

Hoewel over het algemeen het meeste onderzoek in het nieuwe studieveld van gezondheids-communicatie gericht is op de resultaten van communicatieactiviteiten van interventie-programma’s die gericht zijn op gedragsverandering t.b.v. verbetering van gezondheid en welzijn van bepaalde risicogroepen, tracht deze studie het actuele gedragspatroon te documenteren en te begrijpen van actoren die onder elkaar specifieke informatie communiceren en uitwisselen binnen locale instituties van *arisan* in Indonesië. In dit verband probeert de studie een antwoord te vinden op de centrale vraag:

Wat zijn de karakteristieken van de leden van een lokale institutie ‘arisan’ die een bepaalde vorm van communicatiegedrag vertonen over lokale kennis en praktijken van medicinale, aromatische en cosmetische (MAC) planten in het Sunda gebied van West Java, Indonesië?

Een dergelijke uitdrukking van communicatie in de vorm van *gunem catur* verwijst naar informele groepsdiscussie die typisch is voor het cultuurgebied van het Sunda Regio van West Java. Teneinde het algemene doel van deze studie te bereiken zijn een zevental specifieke doelstellingen in deze studie geformuleerd, *i.e.:*

- *Ten eerste*, het leveren van een beschrijving van het onderzoeksgebied of de sociografie van Lembang in de Sunda Regio van West Java in Indonesië, als een ontwikkelingsland in Zuid Oost Azië.
- *Ten tweede*, het aangeven van de duale theoretische benadering t.a.v. de studie van communicatiegedrag van actoren binnen groepen of instituties, waarbij ook een onderscheid wordt gemaakt tussen inheemse, of lokale communicatie, zoals dat zich voornamelijk in ontwikkelingslanden voordoet, en moderne of globale communicatie, die grotendeels in Westerse landen operationeel is.
- *Ten derde*, het vestigen van speciale aandacht op de *arisan*, met name op haar rol in de inheemse communicatie over lokale kennis en praktijken van medicinale, aromatische en cosmetische (MAC) planten onder haar leden.
- *Ten vierde*, het verschaffen van een inzicht in de effecten van de belangrijkste dimensies van globalisering op zowel de biologische als de culturele diversiteit van MAC planten op dorpsniveau.
- *Ten vijfde,* het weergeven van het *emic* perspectief op het leven in vier dorpen in de Sunda Regio van West Java, die gelegen zijn in rurale, semi-rurale, semi-urbane en urbane gebieden van de studielocatie, op basis van voornamelijk kwalitatieve surveys.

- *Ten zesde*, het geven van een beschrijving van de kennis en praktijken van de *arisan* leden m.b.t. de MAC planten in de regio, gebaseerd op de onderliggende Sundanese cosmologie. In aansluiting op de beschrijving van traditionele kruidengeneeskunde - *jamu* – wordt de Sundanese cosmologie beschreven, gevolgd door een overzicht van de specifieke traditionele geneeskunde in de regio, bekend als *ubar kampung*. In dit verband wordt ook een inzicht gegeven in het Indonesische gezondheidsbeleid t.a.v. het actuele gebruik van medicinale planten in de eerstelijns gezondheidszorg (PHC) als onderdeel van deze specifieke doelstelling.
- *Ten zevende*, het documenteren, analyseren en verklaren van het gecompliceerde proces van interactie tussen verschillende factoren die bepalend zijn bij het communicatiegedrag t.a.v. kennis en praktijken van MAC planten door leden van een *arisan* in Lembang, door toepassing van een speciaal multivariaat analytisch model.

Indonesië is een land dat een lange traditie kent van lokale gemeenschappen, waarvan het merendeel georganiseerd is volgens traditionele gewoonten. Veel van het dagelijkse leven van de gewone Indonesiërs is opgebouwd rond inheemse verenigingen die intense sociale interacties mogelijk maken. Een algemene vereniging is de *arisan*, die kan worden gevonden in bijna elk deel van het land, vooral in Java. De vorming van dit soort verenigingen is een zeer gangbare praktijk in Indonesië, die wijdverspreid door het hele land wordt aangetroffen, in steden en op het platteland op vrijwel alle socio-economische niveaus van de samenleving. Het betreft een sociale activiteit die al lange tijd in Indonesië bestaat als een vorm van *gotong royong* (onderlinge samenwerking).

Een groot aantal etnische groepen op het platteland van Indonesië is aangewezen op inheemse communicatie, aangezien de meeste van hen nog steeds buiten het bereik van de moderne communicatiesystemen verkeren, en waarbij het grootste deel van hun communicatie wordt gevoerd in hun locale taal. Bij het uitwisselen van kennis zijn familieleden de belangrijkste bron van informatie. Specifieke aspecten van kennis, die een breed scala van de dagelijkse gang van zaken betreffen kunnen in de hele gemeenschap aangetroffen gevonden. In het bijzonder speelt kennis over de geneeskracht van planten een belangrijke rol in ziekte en gezondheid. Helaas wordt het doorgeven van kennis van de lokale planten door de oudere generatie nu over het algemeen steeds minder en is in sommige gevallen zelfs aan het afnemen, hoewel de huidige generatie nog steeds over veel specifieke traditionele kennis beschikt. In de huidige periode van steeds snellere veranderingen vertoont de jongere generatie de neiging om minder geïnteresseerd in het milieu te zijn, aangezien zij meer met moderne vraagstukken bezig zijn. Dit gebrek aan belangstelling wordt gezien als een proces dat versterkt wordt door de media zoals radio en TV, die meer, maar andere kennis bevorderen. Lokale instituties benadrukken over het algemeen uitwisseling van informatie en wederzijds begrip die aansluiten bij de convergentie theorie. In het Sunda gebied bestaat nog steeds een vorm van inheemse communicatie, die bekend is als *gunem catur* waarvoor de lokale cultuur in het kader voorziet voor ontwikkeling en verandering, terwijl tegelijkertijd een zekere mate van continuïteit behouden blijft.

Een sub-veld van de etnobotanie, economische botanie, heeft zich grotendeels gericht op de economische waarde van nuttige planten, zoals cacao, tabak en maïs. Daarentegen zijn de aangrenzende studievelden van etnobotanie en etnogeneeskunde betrokken bij de bestudering van geneeskrachtige, aromatische en cosmetische (MAC) planten en kruiden en hun rol in de traditionele geneeskunde. In de meeste ontwikkelingslanden neemt de samenstelling van lokale classificaties van geneeskrachtige, aromatische en cosmetische (MAC) planten toe als gevolg van niet alleen de huidige herwaardering van het industriële gebruik van

geneeskrachtige planten in de productie van medicijnen en cosmetica, maar ook vanwege de groeiende belangstelling van het grote publiek voor natuurlijke geneeswijzen.

Vanuit etnobotanisch and etnomedisch perspectief gezien komt de groeiende interesse in MAC planten tot uitdrukking in een aantal inheemse classificaties van nuttige planten in Java en Bali, dat uitgaat van de *emic* visie op inheemse planten, geloof en gebruik die van vitaal belang is voor het begrip van de positie van geneeskrachtige planten voor de verbetering van lokale gezondheidszorg en behoud van het regenwoud in Indonesië. Hoewel er momenteel van een groeiende productie en consumptie van Westerse farmaceutische geneesmiddelen in Indonesië sprake is, vindt er ook een toename plaats van de grootschalige industriële productie van traditionele kruidengeneesmiddelen, *jamu*. Hoewel beide systemen naast elkaar in harmonie lijken te bestaan, en elkaar aanvullen, komt bepaalde wrijving soms ook voor tussen de traditionele moderne gezondheidszorg als gevolg van de interactie tussen verschillende, soms tegenstrijdige geografische, economische en sociaal-culturele factoren. Een breed scala van medische systemen is beschikbaar om de bevolking van verschillende vormen van zorg te voorzien. Traditionele Geneeskunde (TM), Primary Health Care (PHC), en de traditionele vroedvrouwen (TBA) vormen allemaal een onderdeel van de plurale Indonesische medische configuratie.

In een dergelijke vorm van medisch pluralisme kunnen leden van de samenleving kiezen welk systeem zij als het beste beschouwen om te benaderen. Het daaropvolgende gebruik van meer dan één medisch systeem wordt aangeduid als *'healer shopping'*, wanneer cliënten en patiënten tegelijkertijd van verschillende medische systemen gebruik maken voor eenzelfde aandoening. Op dit moment raken mensen in de Westerse wereld ook steeds meer geïnteresseerd in alternatieve geneeswijzen als gevolg van hun teleurstelling in het onvermogen van moderne geneeskunde om alle ziekten te genezen, de onpersoonlijke behandeling, en de buitengewoon hoge kosten van het dominante biomedische systeem. Als gevolg daarvan hebben veel mensen zich geheroriënteerd op dergelijke 'alternatieve' therapieën zoals homeopathie, fytotherapie, natuurgeneeswijze en holistische gezondheidszorg.

Een groeiend aantal landen in de regio van Zuid-Oost Azië, waaronder Indonesië, wordt thans geconfronteerd met afnemende overheidsmiddelen voor de gezondheidszorg door de snel veranderende sociaal-economische en politieke omstandigheden. Als gevolg van de snel groeiende bevolking, evenals van de lagere sociaal-economische status van een groot deel van de bevolking zijn de vijf grote uitdagingen, waarmee de regering in de ontwikkeling van de gezondheid in de eenentwintigste eeuw wordt geconfronteerd het wegwerken van de verschillen in gezondheidstatus, het scheppen van voorwaarden om de gezondheid verbeteren, het bevorderen van samenwerking, het behoud van de basisgezondheidszorg voor iedereen, vooral voor de arme en kwetsbare groepen, de handhaving van de ethiek in de gezondheid en het plaatsen van gezondheidszorg in het centrum van de sociaal-economische ontwikkeling.

De hervormingen van de gezondheidssector, die in de jaren 1990 in veel landen werd geïntroduceerd, waaronder Indonesië, werden gekenmerkt door meer aandacht aan de vraag te besteden, die grotendeels is toegenomen vanwege de uitgebreide politieke en economische veranderingen in de afgelopen twee decennia. Onder deze veranderingen vallen de transformatie van een centraal geleide naar een marktgerichte economie, verminderde interventie van de staat in de nationale economie, minder controle van de regering en meer decentralisatie. Hoewel de regeringen van veel landen globalisering hebben verwelkomd, profiteren slechts bepaalde groepen in de samenleving van de groei in de handel en de financiële investering die gepaard gaan met de politiek van liberalisering.

Aangezien gezondheid een gedeelde verantwoordelijkheid is, dwingt de opzet van de strategie van *Healthy Indonesia 2010* de Ministeries van Volksgezondheid en Sociale Zaken

om samenwerkingsverbanden met anderen aan te gaan: alle lagen van de gemeenschap, alle betreffende ministeries en agentschappen, en de particuliere sector. In hun poging om *Healthy Indonesia 2010* te bereiken, zijn deze ministeries ook verplicht om zich in te zetten om de doelstellingen op een proactieve en progressieve manier te bereiken.

Bijgevolg is moderne ontwikkeling van de gezondheidszorg in de Provincie West Java een integraal onderdeel van het nationale gezondheidssysteem, dat is gebaseerd op lokale behoeften en problemen.

Ongetwijfeld is de moderne gezondheidszorg zeer belangrijk voor de opbouw van een betere toekomst, en is lichamelijke en geestelijke gezondheid essentieel voor mensen die in ontwikkelingslanden wonen. Het is ook een menselijke investering in nationale ontwikkelingsprogramma's. Twee belangrijke strategieën voor de gezondheidszorg zijn *Community Health* en *Primary Health Care* (PHC). Hoewel de voormalige wereldwijde strategie van '*Health for All by the Year 2000'* van de WHO mislukt is, vormt het nog steeds een inspirerende doelstelling voor de ontwikkeling van de gezondheidszorg en is men van mening dat deze strategie nog kon worden gerealiseerd door revitalisering van het concept van Primary Health Care (PHC).

Ondanks het succes van sommige van de recente benaderingen en strategieën die waren bedoeld om de traditionele en moderne medische systemen te integreren, heeft een groot aantal mensen op het platteland nog steeds geen toegang tot adequate gezondheidszorg, die vaak gebaseerd is op de integratie van traditionele geneeskunde en verloskunde. Grotendeels als gevolg van de kunstmatige scheiding die soms tussen de medische biologie en ethnogeneeskunde bestaat, wordt de gewenste integratie nog steeds geconfronteerd met een aantal theoretische en methodologische complicaties die verdere studie en analyse nodig hebben.

Het kwalitatieve onderzoek in Lembang toont aan, dat traditionele medische praktijken die goed geteste en effectieve methoden toepassen, geworteld zijn in de sociaal-culturele achtergrond van de gemeenschap en omschreven kunnen worden als 'aangepaste technologie in de gezondheidszorg', omdat het benodigde materiaal direct in de omgeving van de gemeenschap en gemakkelijk beschikbaar zijn, en vaak goedkoop en gemakkelijk te gebruiken. De Sunda Regio heeft een lange traditie van traditionele geneeskunde die gebruikt is in de lokale gezondheidszorg van de mensen sinds mensenheugenis. Ondanks de toestroom van de moderne geneeskunde is de traditionele geneeskunde nog steeds zeer populair en vormt een zeer groot deel van het huidige plurale medische systeem. Bijgevolg, heeft de regering, aangemoedigd door de WHO, besloten om de traditionele geneeskunde te integreren in de moderne gezondheidszorg. Ook heeft de regering het grote potentieel van op planten gebaseerde traditionele geneeskunde erkend en maatregelen genomen om het te bevorderen als onderdeel van hun nationale stelsel van gezondheidszorg.

Daarnaast is de traditionele geneeskunde rechtstreeks verbonden met het behoud van bio-culturele diversiteit, omdat veel geneeskrachtige planten worden aangetroffen in leefmilieus die bedreigd worden door de huidige vormen van landgebruik. Op dit kritieke punt is het een zaak van urgentie om de traditionele manieren van op planten gebaseerde genezing verder te legitimeren en te bevorderen, en om mensen ervan bewust te maken dat voortdurende toegang tot plantaardige geneesmiddelen grotendeels zal afhangen van het behoud van de bossen.

Voor duizenden jaren hebben de mensen in het onderzoeksgebied planten gebruikt als een geneesmiddel en doen zij daarop nog steeds een beroep voor hun gezondheidszorg. Traditionele genezers passen gewoonlijk geneeskrachtige planten en kruiden toe in hun behandeling van patiënten. Aangezien er een groeiende vraag is naar medicinale planten waarvan de meeste in de bossen worden gevonden, wordt verwacht dat in de toekomst het

gebruik van medicinale planten in het gebied verder zal toenemen, niet alleen als gevolg van de bevolkingsgroei, maar ook vanwege de beleidsaanbevelingen van de WHO t.a.v. Traditionele Geneeskunde en Primary Health Care. In aanvulling op het gebruik van planten voor de geneeskunde, worden deze ook gebruikt voor andere doeleinden, zoals voor voedsel, bouwmaterialen, decoratie en brandstof, waardoor de vraag naar lokale planten toeneemt.

In de Sunda Regio, zoals elders in Indonesië vormt de traditionele kruidengeneeskunde een onderdeel van het culturele erfgoed, dat over vele generaties in het gebied is overgeleverd. Meer recentelijk heeft zowel het gebruik van medicinale planten, alsmede de teelt van medicinale planten voor de hele familie (*Tanaman Obat Keluarga* of TOGA) bijgedragen aan de toename in de kennis van geneeskrachtige planten onder de lokale bevolking. Momenteel kan voedsel voor mensen van overal ter wereld komen en de moderne informatietechnologie brengt de wereld in de huizen van de mensen, waardoor hun horizon verbreed wordt, en hun emotionele leven aan een breed scala van invloeden wordt onderworpen. Ondanks deze voordelen moet ook gedacht worden aan de menselijke invloed op de lokale ecosystemen en hun plantaardige middelen. Op dit moment wordt de omvang van de lokaal beschikbare planten verlaagd, omdat zij slachtoffer zijn geworden van het intensief verzamelen van planten, commerciële landbouw, ontbossing en uitputting van het leefmilieu, en de voortdurende expansie en industrialisatie van de steden. Bij gevolg zijn er slechts nog een paar echt ongerepte leefmilieus in het land overgebleven.

De waardevolle kennis en wijsheid van de inheemse bevolking over MAC planten is over vele generaties opgebouwd als onderdeel van de locale cultuur, en omvatten traditionele methoden en praktijken van duurzaam gebruik en behoud van de bioculturele diversiteit. Deze ‘Ethnobotanical Knowledge Systems’, EKS (‘Inheemse Kennissystemen van Planten’) werden tot voor kort echter grotendeels genegeerd.

De meeste mensen op het platteland hebben tot uitdrukking gebracht, dat ze het niet eens zijn met de beperkingen die op hun dagelijks leven en hun levensonderhoud zijn opgelegd, met name t.a.v. hun gewassen die op 'verlaten land' zijn geteeld, hoewel de regering dergelijke gebieden als publiek domein beschouwt. De meeste mensen op het platteland in het onderzoeksgebied met een laag inkomen hebben MAC planten over vele generaties op een duurzame manier verzameld om wat extra inkomsten te genereren door planten direct op markten of aan de producenten van de fytotherapie te verkopen. Op deze wijze werd het behoud van biodiverse leefmilieus toegepast, waar mensen op een verstandige manier met het milieu en de bronnen omgaan, specifiek op plaatsen waar de bestaande ecosystemen als waardevol en als heilige plaatsen beschouwd worden om redenen die niets met financiële beloningen te maken hebben.

In tegenstelling tot de Westerse traditie, waarin de natuurlijke hulpbronnen worden beschouwd als commercieel eigendom en daarom onderworpen zijn aan privaat of publiek bezit, wordt de Aarde in veel inheemse culturen beschouwd als beschikbaar in de heilige en niet in de wereldlijke zin. Bovendien leggen inheemse culturen de nadruk op de verplichting van de lokale bevolkingverplichting om de Aarde te beschermen, niet omwille van het nut ervan voor de mensen, maar vanwege de heiligheid ervan. Bij gevolg wordt natuurbehoud beschouwd als een religieuze taak, hoewel het tegelijkertijd ook voldoet aan ecologische en culturele doeleinden. De laatste tijd, echter, zijn veel inheemse kennissystemen met uitsterven bedreigd, vaak als gevolg van veranderingen in de levensstijl van traditionele gemeenschappen in reactie op de snelle veranderingen in de moderne wereld, vooral op het gebied van informatietechnologie. Het laatste veroorzaakt vaak verstoringen van de traditionele kanalen van mondelinge communicatie.

Exogene communicatie is een bedreiging geworden voor de traditionele kanalen van mondelinge communicatie, en deze onderbreking belemmert het proces van overdracht van belangrijke kennis van de ouderen aan de jongere leden van de gemeenschap.

Een van de hoofddoelstellingen van deze studie is om na te gaan in welke mate inheemse communicatie over kennis en praktijken van MAC planten plaats vindt binnen de lokale instituties zoals de *arisan* in Lembang.

Bijgevolg tracht deze studie zich te richten op de documentatie, analyse en begrip van het communicatieproces binnen de *arisan* institutie, waarbij de impact van dergelijk communicatiegedrag van de leden van de *arisan* op de werkelijke praktijk van gebruik van MAC planten hier buiten beschouwing wordt gelaten.

De Sundanese bevolking heeft geneeskrachtige, aromatische en cosmetische (MAC) planten sinds mensenheugenis in hun dagelijks leven gebruikt, en op dit moment is er een groot, cultureel divers scala van planten en ervaring opgebouwd. Helaas ontstaat er nu echter een proces van gestaag verlies van deze waardevolle kennis, vooral met betrekking tot het gebruik door lokale bevolking van MAC planten ten behoeve van hun gezondheid en behandeling van ziekte. Aangezien het doel van deze studie is om het proces van communicatie-gedrag te documenteren, te bestuderen en te verklaren met betrekking tot kennis en praktijken van MAC planten onder de leden van de *arisan,* is een analyse gemaakt van de rol van de verschillende categorieën van factoren die betrokken zijn bij dit gecompliceerde proces, waarin bijzondere aandacht wordt besteed aan de 'onzichtbare' factoren die een beslissende rol lijken te spelen bij het tot stand komen van verschillende patronen van communicatiegedrag over kennis en praktijken van MAC planten voor gezondheidsbevordering, ziektepreventie en behandeling.

Zoals communicatie haar wortels heeft in de behoefte van de bevolking om informatie, kennis en ervaring te delen en door te geven, waarbij een andere belangrijke rol verwijst naar het scheppen van een toegankelijke omgeving waar die informatie kan worden gedeeld en begrepen en besproken door de toehoorders, beoogt het onderzoek ook een inzicht te verkrijgen in de behoeften, overtuigingen, taboes, opvattingen, levensstijl en sociale normen van alle betrokken deelnemers.

Aangezien het begrip van kennis en praktijken van de lokale bevolking m.b.t. MAC planten gebaseerd is op het volledig inzicht van hun inheemse geloof, cosmologiëen en percepties van natuur en cultuur, zijn bovendien aangepaste parameters ontwikkeld om de dikwijls 'onzichtbare' factoren die hun patronen van communicatiegedrag bepalen te identificeren en te analyseren. In dit verband is het goed om vast te stellen, dat gedurende de afgelopen decennia de erkenning is toegenomen van de belangrijke rol die inheemse kennis niet alleen speelt in de lokale besluitvormingsprocessen, maar ook van communicatie en uitwisseling van informatie.

Daarnaast hebben inheemse kennissystemen als een orgaan van lokale kennis, opvattingen, ideeën, overtuigingen en praktijken die overgedragen zijn over vele generaties in een bepaalde gemeenschap of gebied, in nieuwe, veelbelovende initiatieven voor duurzame ontwikkeling van de gemeenschap voorzien. Hoewel aanvankelijk inheemse kennis vooral bekend is geworden als ‘Traditionele Geneeskunde’ (Traditional Medicine, TM) en als ‘Traditionele Ecologische Kennis’ (Traditional Ecological Knowledge, TEK), is het nu algemeen aanvaard dat het concept van inheemse kennis zich uitstrekt tot lokale diepgaande kennis, wijsheid en ervaring in de gezondheidszorg, de ecologie, de landbouw en het behoud bioculturele diversiteit. Evenzo is inheemse kennis en gebruik van planten het onderwerp van een aantal studies geworden op het gebied van medische antropologie en etnobotanie die

verschillende factoren hebben onderzocht die het ziekte- en gezondheidsgedrag van mensen bepalen. Deze studies hebben gebruik gemaakt van de specifieke 'Ethnosystems Benadering' in combinatie met een geavanceerde multivariaat analyse model dat is ontwikkeld aan de Universiteit Leiden.

De resultaten van deze studie in Lembang tonen ook aan, dat de 'Ethnosystems Benadering' een zeer geschikte methode is voor het bestuderen van dergelijke complexe processen van inheemse communicatie in de Sunda Regio van West Java.

Deze studie omvat de verklarende onderzoeksmethode en retrospectieve benadering. De beschrijvende studie wordt gebruikt om een objectief inzicht te krijgen in het communicatie gedrag over MAC planten kennis en praktijken van *arisan* leden in de gemeenschap. De studie analyseert daarbij ook het gebruik van *arisan* als een middel om kennis en praktijken over MAC planten over te dragen, evenals het gebruik daarvan in de huishoudens in Lembang, een Sub-district van Bandung in de Provincie West Java te krijgen. De studie maakt gebruik van de complementaire kwalitatieve en kwantitatieve methoden voor de verzameling en de analyse van gegevens.

Ondanks de geringe aandacht die de laatste tijd is besteed aan de wijze waarop deze traditionele kennis is bijeengebracht en in lokale gemeenschappen uitgewisseld, is inheemse communicatie één van de processen die essentieel zijn voor de continuïteit en de verspreiding van kennis en cultuur waarin deze is ingebed. Het blijkt, dat elke gemeenschap unieke, complexe manieren voor de overdracht van informatie van persoon tot persoon heeft ontwikkeld. Deze inheemse communicatie bevat steevast de overdracht van zowel nuttige informatie, alsook van andere berichten zoals entertainment, nieuws en andere vormen van sociale veranderingen. Inheemse communicatie vindt plaats onder veel verschillende omstandigheden, zoals gesprekken thuis en bij de waterput, in de velden en op de weg, in het theehuis en de coffeeshop, en op de markt, waar mensen elkaar ontmoeten en met elkaar spreken.

De belangrijkste methodologische uitdaging in de huidige studie wordt gesteld door de zoektocht naar de wijze waarop een dergelijke onderzoeksinspanning uitgevoerd moet worden, teneinde een analytisch inzicht te verkrijgen in het communicatiegedrag van de lokale bevolking m.b.t. het uitwisselen van kennis en praktijken binnen de locale institutie van *arisan*. Twee relevante methoden hebben de weg vrijgemaakt voor een dergelijke onderneming: de hierboven genoemde 'Ethnosystems Benadering' van de studie van inheemse kennissystemen en de geavanceerde analytische modellen van multivariate analyse van menselijk gedrag, zoals die ontwikkeld zijn aan de Universiteit Leiden. Deze twee methoden zijn aangepast en geoperationaliseerd voor de uitvoering van het verklarend onderzoek in Lembang, aangezien de recente ervaring met het gebruik van deze modellen aangeeft dat de resultaten inderdaad tot een dieper inzicht bijdragen in verschillende processen en de daarmee samenhangende factoren als variabelen in het analytisch model. Na de aanpassing en de operationalisering van het conceptueel model voor de specifieke doelstellingen van het onderzoek zijn de complementaire kwalitatieve en kwantitatieve dataverzameling uitgevoerd in het gebied onder de mensen uit de steekproef van de dorpen in het onderzoeksgebied van Lembang. Uitgaande van de bovengenoemde grondige theoretische en methodologische oriëntaties, en de beschrijving van de socio-culturele achtergrond waarin het onderzoek is uitgevoerd voorziet de huidige studie in de volgende resultaten om de doelstellingen te realiseren:

Wat betreft de *eerste doelstelling* om een beschrijving te geven van het onderzoeksgebied of de sociografie van Lembang in de Sunda Regio van West Java in Indonesië als een

ontwikkelingsland in Zuidoost Azië, richt de algemene beschrijving in Hoofdstuk IV de aandacht op de bijzondere geografie, bevolking en cultuur van het onderzoeksgebied, ook wel bekend als *Tatar Sunda*. Hier wordt een kort overzicht van het onderzoeksgebied gepresenteerd, dat Indonesië als een jonge natie in Zuidoost Azië omvat, en Lembang beschrijft als een Sub-District van de Provincie West Java dat een van de grootste en meest vruchtbare provincies in Indonesië is, beroemd om zijn landbouwproductie en industrieën. De sociografie omvat ook een historische achtergrond van de gezondheidszorg in het gebied en het gebruik van kruidengeneeskunde onder de hedendaagse bevolking. Daarnaast wordt ook de ecologische achtergrond van het onderzoeksgebied beschreven. Relevante onderzoeks-gegevens worden ook verstrekt over de economische activiteiten en de traditionele instituties van de *arisan* op dorpsniveau.

De *tweede doelstelling* van deze studie om de duale theoretische benadering van de studie van communicatiegedrag te presenteren van actoren binnen locale groepen en instituties, waar ook een onderscheid wordt gemaakt tussen inheemse of locale communicatie, die voornamelijk operationeel is in ontwikkelingslanden, en moderne of globale communicatie, die voornamelijk operationeel is in Westerse landen, wordt gerealiseerd in Hoofdstuk II. Hier wordt aangetoond, dat communicatie binnen locale instituties over het algemeen informatie-uitwisseling en wederzijds begrip onder de leden omvat, dat aansluit op de theorieën van *ideation* en *convergence*. Deze belangrijke duale theoretische oriëntatie die voor deze studie in Lembang is geselecteerd, combineert de verspreiding van manieren van denken door middel van sociale interactie in locale gemeenschappen met informatie-uitwisseling, wederzijds begrip en wederzijdse instemming als een noodzaak in elke collectieve groepssectie, die uiteindelijk sociale verandering kan introduceren. In aansluiting daarop wordt een onderscheid gemaakt tussen inheemse of locale communicatie, die voornamelijk operationeel is in de rurale gebieden, en de moderne of globale communicatie die voornamelijk in de urbane gebieden operationeel is.

De *derde doelstelling* om de speciale aandacht te richten op de *arisan* instituties, in het bijzonder op de cruciale sociaal-culturele rol in inheemse communicatie over kennis en gebruik van MAC planten door de leden, wordt gerealiseerd in Hoofdstuk VI. In dit hoofdstuk wordt aangetoond, dat deze locale instituties in aansluiting op hun economische functies ook onder hun leden vele sociaal-culturele taken faciliteren, waaronder de locale uitwisseling van verschillende soorten van informatie en communicatie binnen dergelijke cultureel homogene collectiviteiten. Dergelijke uitwisseling van informatie omvat ook communicatie over kennis en praktijken van MAC planten. In aansluiting daarop wordt aangetoond, dat vele locale gemeenschappen lijden aan gebrek aan kapitaal waarmee kleine ondernemingen opgestart kunnen worden, maar dat dit probleem opgelost zou kunnen worden door de introductie van microfinancieringsprogramma's. Helaas betreffen dergelijke programma's het lenen van fondsen van buiten om als basis van leningen te gebruiken en deze omvatten gewoonlijk hoge rentetarieven.

Hoewel de toepassing van zgn. *Revolving Savings and Credit Associations* (ROSCA's) mogelijk een oplossing zouden kunnen bieden, krijgt de lokale bevolking geen volledige toegang tot formele financiële instituties in het land. In Indonesië wordt dit instrument op het ogenblik ingevoerd in de arisan, die ook spaargelden en leningen faciliteert en reeds lange tijd gebruikt zijn om als een zichtbare vorm van het *gotong royong* principe te functioneren. Dit principe betekent een vorm van onderlinge hulpverlening, die niet alleen maar geldleningen betreft, maar ook andere sociale doelen omvat, zoals het helpen bouwen van een huis in het

dorp, het kopen van een motorfiets, zodat een lid van het gezin een baan kan krijgen als *ojeg* bestuurder om geld te verdienen, en een reeks van andere functies.

De *vierde doelstelling* van het documenteren van de gevolgen van de belangrijkste dimensies van het globaliseringproces op zowel de biologische als culturele diversiteit van MAC planten op dorps niveau wordt gerealiseerd in Hoofdstuk II. Dit hoofdstuk verschaft een inzicht in dit proces als onderdeel van het algehele proces van interacties tussen *localisation* en *globalisation* van kennis. Het is opmerkelijk, dat de studie van 'Traditionele Ecologische Kennis' (TEK) aantoont, dat een dergelijk kennissysteem, dat de relatie van mensen met hun universum verklaart, beschouwd wordt als uit drie domeinen te bestaan: traditionele ecologische kennis: biologische diversiteit, culturele diversiteit en die lokale instituties die verbonden zijn met natuur en cultuur. Het kwalitatieve onderzoek toont aan, dat de belangrijkste factoren die direct verband houden met kennis en praktijken van MAC planten in het dorp nog steeds geworteld zijn in dit complexe systeem van Traditionele Ecologische Kennis ('Traditional Ecological Knowledge', TEK). De kwalitatieve studie bevestigt ook, dat traditionele ecologische kennis (TEK) en de locale levensfilosofie evenzo indrukwekkende locale bijdragen levert aan het behoud van bioculturele diversiteit die vooral op dorpsniveau duidelijk wordt in de teelt van verschillende MAC planten, het behoud van tuinen in het bos en de 'compensatie' van de natuur wanneer nuttige planten en bomen door de bevolking geoogst worden.

De *vijfde doelstelling* om een emic perspectief te presenteren van het leven in vier gemeenschappen in de Sunda Regio van West Java, die gelegen zijn in rurale, semi-rurale, semi-urbane and urbane gebieden van het onderzoeksgebied wordt bereikt in Hoofdstuk V op basis van hoofdzakelijk kwalitatieve studies. Dit onderdeel van de studie omvat de specifieke achtergrond van het onderzoek in Lembang. De complementaire kwalitatieve en kwantitatieve studies in het onderzoeksgebied hebben tot relevante informatie geleid over de studiepopulatie en steekproef van de vier geselecteerde gemeenschappen, die elk een differentiatie in het milieu vertegenwoordigen. Het zijn *Cibogo* (een rurale gemeenschap), *Jayagiri* (een semi-rurale gemeenschap), *Gudang Kahuripan* (een semi-urbane gemeenschap) and *Kayuambon* (een urbane gemeenschap).

Deze informatie wordt gepresenteerd in de beschrijving van de belangrijke grondslagen van de levenswijze van de locale bevolking die ook de moderne gemeenschapsadministratie omvat.

De *zesde doelstelling* om een beschrijving te geven van de inheemse kennis en praktijken m.b.t. MAC planten in de regio van de leden van de *arisan*, gebaseerd op de onderliggende Sundanese cosmologie wordt gerealiseerd in Hoofdstuk VII. In aansluiting op de beschrijving van traditionele kruidengeneeskunde – *jamu* – wordt de Sundanese cosmologie gedocumenteerd, die de drie levenssferen omvat, *i.e. buana sangkala* (de natuurlijke sfeer), *buana niskala* (de bovennatuurlijke sfeer) en *buana jatiniskala* (de sfeer van het ware bovennatuurlijke). Bijzondere aandacht wordt geschonken aan de geschiedenis en de revitalisering van traditionele kruidengeneesmiddelen - *jamu* - sinds de onafhankelijkheid. Ook wordt hier de rol van *ubar kampung*, de specifieke traditionele Sundanese geneeskunde in het ontwikkelingsproces van integratie van het nationale gezondheidssysteem beschreven.
In dit verband wordt ook een overzicht gegeven van het huidige gezondheidsbeleid van de Indonesische Overheid met betrekking tot het actuele gebruik van medicinale planten in Primary Health Care in het land. In aansluiting hierop wordt aangetoond, dat Indonesië

geconfronteerd wordt met afnemende middelen van de overheid voor gezondheidszorg als gevolg van de snel veranderende socio-economische en politieke situatie. Hoewel een breed scala van medische systemen zoals 'Traditional Medicine' (TM), 'Primary Health Care' (PHC), 'Traditional Birth Attendants' (TBAs) en 'Indigenous Herbal Medicine' (*jamu*) beschikbaar zijn om de bevolking van complementaire gezondheidszorg te blijven voorzien. Dit deel van het onderzoek sluit af met aandacht voor de positie van inheemse planten voor promotie, preventie en behandeling, en de cruciale rol van traditionele genezers en traditionele vroedvrouwen in de verlening van eerstelijns gezondheidszorg aan de locale bevolking in de regio.

Ten slotte wordt de *zevende doelstelling* van het uitvoeren van een analyse van het ingewikkelde proces van interactie tussen de verschillende factoren die het communicatie-gedrag m.b.t. MAC planten kennis en praktijken van de leden van de *arisan* in Lembang door toepassing van een speciaal analytisch multivariaat model in Hoofdstuk VIII gerealiseerd. In vervolg op het kwalitatieve onderzoek waarin speciale aandacht wordt gegeven aan de methodologie van de 'Ethnosystems Approach' die de weg baant voor de bestudering van locale structuren vanuit een *emic* perspectief. Deze benadering omvat de visie van de participanten ('Participants View', PV) van locale verschijnselen die gebruikt is om variabelen op het individuele niveau te beschrijven; het antropologisch studieveld ('Field of Ethnological Study', FES) om deze verschijnselen te interpreteren en te vergelijken binnen het betreffende cultuurgebied; en de historische dimensie ('Historical Dimension', HD). Deze methode is enorm nuttig voor het verklaren van de huidige configuraties tegen de achtergrond van langdurige processen.

In het bijzonder maakt deze 'Ethnosystems Approach' het mogelijk om de rol van 'onzichtbare factoren' te identificeren, te onderzoeken en te verklaren in de gerapporteerde patronen van communicatiegedrag m.b.t. kennis en praktijken van MAC planten, zoals gerapporteerd wordt door de respondenten/leden van de *arisan* over de voorafgaande 12 maanden van het onderzoek. Na de controle, het sorteren en het categoriseren van de verzamelde veldwerkgegevens zijn een reeks geavanceerde kwantitatieve analyses in drie stappen uitgevoerd teneinde de interacties tussen de verschillende onafhankelijke en interveniërende factoren in relatie tot de afhankelijke factoren van communicatiegedrag van kennis en praktijken m.b.t. MAC planten nader te onderzoeken. Deze drie stappen zijn als volgt:

De *eerste stap* in de analyse omvat de bivariate analyse op basis van kruistabellen van de onafhankelijke en interveniërende variabelen, die verdeeld zijn over de twee afhankelijke variabelen van communicatiegedrag van kennis en praktijken van MAC planten. De verschillende scores voor het communicatiegedrag m.b.t. MAC, zoals gerapporteerd door de respondenten over de aan het onderzoek voorafgaande 12 maanden in de vier gemeenschappen van de steekproef zijn onderverdeeld in twee sub-categorieën. Deze zijn communicatiegedrag m.b.t. dergelijke kennis voor enerzijds gezondheidsbevordering en ziektepreventie, en anderzijds voor behandeling van ziekte. The resultaten van de bivariate analyse worden gepresenteerd in de kruistabellen in Hoofdstuk VIII.

De *tweede stap* in de analyse vertoont een algehele differentiële invloed van alle onafhankelijke en interveniërende factoren op de afhankelijke factoren in onderlinge interacties met en tussen elkaar. Het gebruik van de multivariate analyse, bekend als OVERALS maakt het mogelijk om de relatieve invloed van de verschillende factoren te

meten op het gehele patroon van communicatiegedrag m.b.t. kennis en praktijken van MAC planten door uitvoering van een multivariate analyse. Een dergelijke analyse stelt in staat om de interactie te bepalen tussen alle variabelen. De resulterende correlaties in de eerste dimensie onderstrepen en versterken de conclusies van de bivariate analyse. Deze omvatten de bevestiging van de sterke correlaties van variabelen betrokken bij de nauwe relatie tussen kennis en gebruik van MAC planten als verschijnselen die naar voren komen in kennis, geloof en gedrag van de *arisan* leden in de steekproefonderzoeken. De bivariate analyse had al aangegeven de identificatie en beschrijving van de significante achtergrondvariabelen die de gedragspatronen neigen te beïnvloeden op differentiële wijze, waaronder de cruciale rol van kennis van MAC planten.

De institutionele variabelen m.b.t. de organisatie en locatie van de gemeenschappen in het steekproef onderzoek domineren de patronen van communicatiegedrag m.b.t. MAC planten, en bevestigen daarmee de resultaten dat respondenten die in de rurale en semimurale gemeenschappen wonen, een hogere score vertonen in communicatiegedrag m.b.t. MAC planten als remedies voor de behandeling, dan de respondenten die in de semi-urbane en urbane gemeenschappen wonen. Tegenovergesteld hebben de respondenten die in de semi-urbane en urbane gemeenschappen wonen de neiging om een hoger communicatiegedrag te scoren m.b.t. MAC planten voor gezondheidsbevordering en ziektepreventie dan de respondenten die in de rurale en semi-rurale gemeenschappen wonen. In de analyse vertonen de interveniërende variabelen het communicatiegedrag m.b.t. MAC planten kennis en praktijken als gevolg van externe kennis van MAC planten verkregen door blootstelling aan de moderne media. Deze interessante configuratie van interacterende variabelen wordt weerspiegeld in de projectie van alle relevante variabelen in de canonische ruimte, zoals weergegeven in Figuur 8.2.

De *derde stap* in de volgende multipele regressie analyse is uitgevoerd om de samenhang tussen alle acht categorieën of ‘blokken’ van variabelen te meten die naar de uiteindelijke algehele analyse van deze studie in Lembang leiden. De resultaten die in Hoofdstuk VII worden gepresenteerd bevestigen, dat het oorspronkelijke conceptuele model van de studie (*cf.* Figuur 3.1) met succes aangepast en ontwikkeld is tot het uiteindelijke multivariate model van communicatiegedrag m.b.t. kennis en praktijken van MAC planten van de *arisan* leden in Lembang (*cf.* Figuur 8.3). Dit model maakt het mogelijk om de correlaties en interacties te bepalen en te meten tussen alle categorieën of ‘blokken’ van variabelen in het model en een bijdrage te leveren aan de betreffende voorspellende waarden. Op deze wijze voorziet de bovengenoemde stapsgewijze benadering in de analyse van de basis voor de constructie van een belangrijk algemeen model van communicatiegedrag m.b.t. MAC planten voor remedies die als behandeling van ziekte gebruikt kunnen worden.
Zeker maakt de bovengenoemde multipele regressie analyse het bepalen van het relatieve belang van elk van de zes ‘blokken’ van variabelen in relatie met de twee ‘blokken’ van afhankelijke variabelen van communicatiegedrag m.b.t. kennis en praktijken van MAC planten mogelijk door middel van de berekening van de multipele regressie coëfficiënten.

Bij gevolg geeft één van de belangrijkste conclusies van de multivariate analyse aan, dat in de gemeenschappen in het onderzoeksgebied van Lembang het communicatiegedrag m.b.t. MAC planten van leden van *arisan* een sterke correlatie vertoont met de kennis en praktijken van MAC planten die deze leden door hun lidmaatschap hebben verkregen, en met name door het regulier bijwonen van bijeenkomsten van de *arisan* instituties, waar de informele discussie groepem, *gunem catur*, plaatsvinden.

Tenslotte kunnen de implicaties van het onderzoek in Lembang in een drietal categorieën onderverdeeld worden: *theoretische, methodologische* en *praktische* implicaties.

Wat de *theoretische implicaties* van het onderzoek betreft, tonen de resultaten aan dat voor het zich ontwikkelende studieveld van communicatiegedrag – in het bijzonder m.b.t. MAC planten – de duale theoretische benadering van het onderzoek naar communicatiegedrag van actoren binnen groepen en associaties de geschikte oriëntatie verleent voor het onderzoek in locale associaties en instituties. Hier sluit communicatie binnen locale instituties zoals de *arisan* in Lembang, die de nadruk leggen op het uitwisselen van informatie en onderling begrip onder de leden, aan bij de theorieën van *ideation* en *convergence*. Deze belangrijke duale theoretische oriëntatie die voor deze studie in Lembang is geselecteerd, die diffusie van manieren van denken door middel van sociale interactie in locale gemeenschappen combineert met het uitwisselen van informatie en wederzijds begrip als een voorwaarde in elke collectieve groep sectie, die uiteindelijk tot sociale verandering zou kunnen aanzetten, heeft bijgedragen tot een dieper inzicht in de processen van inheemse communicatiegedrag in het onderzoeksgebied. In aansluiting hierop heeft het onderscheid, dat gemaakt wordt tussen inheemse, of locale communicatie, zoals dat voornamelijk voorkomt in ontwikkelingslanden, en moderne of globale communicatie, zoals dat vooral in Westerse landen wordt aangetroffen, het onderzoek in staat gesteld om de situatie in Lembang als een dynamisch proces van interactie tussen locale en globale systemen van communicatie in het onderzoeksgebied te analyseren.

De *methodologische implicaties* van de resultaten van deze studie zijn een bevestiging van het succes van het gebruik en de aanpassing van een multivariaat model van communicatiegedrag over kennis en praktijken m.b.t. MAC planten op basis van de ontwikkeling van de 'Ethnosystems Approach' van de studie en analyse van de inheemse kennissystemen, en meer specifiek 'Etnobotanische Kennis Systemen' (EKS), zoals die ontwikkeld is door het LEAD-programma van de Universiteit Leiden. De complementaire kwantitatieve en kwalitatieve onderzoeken in de gemeenschappen van de steekproef tonen aan, dat thans het probleem van het soms nog beperkte voordeel van bestaande onderzoeks-methoden en technieken opgelost zou kunnen worden door toepassing van de meer emic-gerichte, interactieve Ethnosystems onderzoeksmethodologie. De kwantitatieve benadering maakt de juiste documentatie, analyse en begrip mogelijk van communicatiegedrag over kennis en praktijken m.b.t. MAC planten, die steeds meer onder druk van buitenaf komt te staan van globalisering. Deze benadering heeft ook bijgedragen tot de voorspellende waarde van belangrijke determinanten in het algehele proces van communicatiegedrag in specifieke omstandigheden.

De *praktische implicaties* van deze studie komen voort uit het perspectief van de verschillende communicatiesystemen die in de Sunda Regio van West Java functioneel zijn, en waarin de inheemse systemen van informatie-uitwisseling en communicatie niet alleen operationeel zijn in de landelijke gemeenschappen, maar ook tamelijk functioneel binnen locale instituties en associaties, zoals *arisan* in Lembang. Speciaal onder vrouwen groepen in het gebied heeft de integratiebenadering van traditionele en moderne informatie- en communicatiesystemen zich ontwikkeld, die nieuwe wegen zal openen om leden van locale gemeenschappen op het platteland te bereiken.

In dit verband wordt bevordering en ondersteuning van communicatie m.b.t. inheemse kennis in locale instituties en associaties aanbevolen, teneinde een bijdrage te leveren aan het scheppen van meer duurzame en milieuvriendelijke vormen van socio-economische en culturele ontwikkeling. Indien lokale kennis op een bepaalde manier als een positieve factor

in ontwikkelingsprogramma kan functioneren, dan zouden deze positieve factoren het referentiekader kunnen leveren dat nodig is om mensen te mobiliseren om actief deel te nemen in ontwikkelingsgerichte communicatie via hun lokale instituties. De positieve factoren die uit deze studie van communicatieprocessen op gemeenschapsniveau naar voren komen, zouden ook verder in het onderzoeksgebied verspreid en voortdurend versterkt moeten worden. Aangezien locale wijsheid en ervaringen de tendens vertonen om te overleven als onderdeel van het inheemse kennissysteem van de gemeenschap, waarin *arisan* een sleutelrol vervullen door het communicatiegedrag van hun leden, zou dit alles serieus in overweging genomen moeten worden in toekomstige planning en toepassing van nationaal beleid met betrekking tot de uitwisseling van informatie en communicatie van zowel globale als locale kennis, ervaring en praktijken.

Uiteindelijk zullen inheemse kennis en ervaring als de belangrijke onderwerpen in het locale communicatiegedrag m.b.t. kennis en praktijken van MAC planten van de leden van locale instituties in Java en de andere eilanden van Indonesië kunnen overleven als onderdeel van de cultuur van de lokale gemeenschappen, niet alleen vanwege hun duurzaamheid en praktische uitvoerbaarheid, maar ook vanwege hun traditionele onderliggende cosmovisies en locale instituties en associaties. Deze bijzondere vorm van communicatiegedrag in de Sunda Regio, bekend als *gunem catur* als de drager van de culturele erfenis van dit Sundanese cultuurgebied van West Java verdient niet alleen speciale aandacht van wetenschappers, geleerden, studenten en het algemeen publiek, maar ook van de beleidsmakers en administrateurs bij hun pogingen om duurzame ontwikkeling van gemeenschappen in het gebied te verwezenlijken.

De *arisan* in Lembang voorzien in een traditionele institutie voor de bevordering en voortgang van dergelijk communicatiegedrag m.b.t. talrijke aspecten van het leven in de Sunda Regio van West Java, waarin de kennis en praktijken van MAC planten een sleutelrol zullen blijven vervullen in de verbetering van de gezondheid en welvaart van de lokale bevolking en in het duurzame behoud van het regenwoud voor de vele toekomstige generaties in dit opmerkelijke cultuurgebied.

Curriculum Vitae

Siti Chaerani Djen Amar was born on April 21, 1941 in Bandung, West Java and received her Doctoranda (BA) degree from the Department of English, Faculty of Letters, Universitas Padjadjaran in 1970. She received her Master of Arts degree in 1992 in Library and Information Studies, from Loughborough University of Technology, United Kingdom.

Siti Chaerani Djen Amar started her career as a Lecturer at the Faculty of Communication Science, Universitas Padjadjaran in 1976.

She took actively part as Supervisor in the students' thesis writing in the Master Degree on Medical Anthropology and Ethnobotany of the TWINMAP Programme, a long-term Cooperation Programme between Universitas Padjadjaran and Universiteit Leiden.

Since 2009, she is participating in the Netherlands-Greek-Indonesian Joint Project on the curriculum development of a New Master Course on *Integrated Microfinance Management and Development in Indonesia* (IMM), in which Universiteit Leiden (UL), Universitas Padjadjaran (UNPAD), Gema PKM and the Mediterranean Agronomic Institute of Chania (MAICH), are collaborating.

Siti Chaerani Djen Amar joined the Leiden Ethnosystems and Development Programme (LEAD) of Leiden University in 2004 within the framework of the UNPAD-UL Cooperation Programme. During her PhD research in Bandung and in Leiden, she worked with Prof. Dr. L.J. Slikkerveer, Director of the LEAD programme, and gave regular lectures in the Post-Graduate Course on 'Ethnobotanical Knowledge Systems' (EKS) at the Leiden University Branch of the National Herbarium of The Netherlands. She conducted her PhD fieldwork in Lembang, West-Java in 2006-2007.

In the context of the LEAD Programme, she has contributed to several International Workshops in bandung and in Leiden, and to *the International Exhibition on Jamu: Medicinal Plants for Health an d Conservation in Indonesia*, held respectively in Bandung (Indonesia), Leiden (The Netherlands), and Singapore.

Presently, Siti Chaerani Djen Amar is the Chairperson of the *Budaya Mukti Foundation* in Bandung, which cooperates with the Erasmus Taalcentrum/Nederlandse Taalunie for the teaching of the Dutch language and the introduction of Indonesian people to the Dutch culture. In addition, she is also active in teaching the English language.

Her ongoing interest in communication behaviour on the knowledge and practice of Medicinal, Aromatic and Cosmetic (MAC) plants at the community level has motivated her to undertake the PhD study in this interesting interdisciplinary field of Communication and Ethnobotany, which she seeks further to pursue for the years to come.