

# POVERTY ALLEVIATION

CONCEPTS AND EXPERIENCES

Focused on Indonesian Cases



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**PPI Göttingen  
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# **POVERTY ALLEVIATION: Concepts and Experiences**

**Focused on Indonesian Cases**

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# **Foreword**

**Uwe Muuss**

Managing Director of CeTSAF, Georg-August University of Göttingen, Germany

This is to welcome you in Göttingen at the Georg-August University. It was with great pleasure when the Centre for Tropical and Subtropical Agriculture and Forestry – CeTSAF was asked to support the conference “International Seminar on Poverty Alleviation: Concepts and Experiences. Focused on Indonesian Cases”, organized by Indonesian Student Union in Göttingen.

For over than 40 years, CeTSAF has been active in the area of research and higher education both in the area of agriculture and forestry in the tropics and thus, in developing countries. One of the major strategic partnerships has been established with Indonesia, namely the Institut Pertanian Bogor (IPB) starting with the Master Program “Integrated Tropical Agriculture and Forestry” lasting from 1991 till 2001. During this period, 90 Indonesian scientists visited Göttingen and more than 100 German scientists visited the Indonesian partner. Many research projects developed based on the established personal and institutional contacts since then, one of which is the DFG-funded joint research project on the Stability of Rainforest Margins in Indonesia (STORMA).

Göttingen University is an excellent platform for such interdisciplinary research approaches as it hosts various disciplines related to rural development especially in the tropics and subtropics. In this regard, the chosen topic of this seminar fits very well as it addresses a multi-layered and complex problem, which can be discussed on the basis of multidisciplinary input, only.

CeTSAF wishes interesting sessions and valuable discussions during this seminar, which contributes on the academic level to the vision of poverty eradication. May this seminar also be the spark for new joint research projects between Germany and Indonesia.

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# **Preface from the Editor**

**Jutta Hebel**

Institute of Rural Development, Georg-August University of Göttingen, Germany

Poverty has been and is a major concern of many governments and societies in the initial stages of this new century. The UN Millennium Declaration, adopted by the world's leaders in 2000, committed countries to do all they could to eradicate poverty and to meet the target to halve by 2015 the proportion of people whose income is less than a US\$ 1 per day. Although a worldwide reduction of the percentage of poor among the world population has taken place, the growth of the world population has increased the number of the poor in absolute figures.

Poverty is not equally distributed around the globe, and some regions are particularly afflicted. On the one hand, the fight against poverty has been remarkable in some regions of the world, in particular in China and India. The reduction of poverty in China is a result of both continuous economic growth and different poverty reduction policies targeted to support rural areas. Nevertheless, the tremendous reduction of poverty reported from rural China is not a stable achievement as new risks emerge in urban areas and regional disparities grow. India's performance varies enormously across states. On the other hand, poverty increased in some regions of the world: in Africa, South Asia and Eastern Europe. South Asian countries – Indonesia included – were hit by the Asian crisis in 1997/98 and are recovering only slowly from the shock. Prior to the crisis, Indonesia – a newly industrialized country with rapid economic growth rates – experienced the expansion of its production, exports and private consumption. A net poverty reduction had taken place. The urban middle class had been enlarged and lifted to the consumption level of threshold countries. The Asian crisis caused a heavy setback in this promising direction.

As poverty is a long-lasting and persistent dilemma, the world does have knowledge on how to tackle the problem. Knowledge and poverty-alleviation projects provide additional insights as to how to meet the Millennium goals. The same holds true in the case of Indonesia. By drawing attention to Indonesian, we can go beyond making a mere statement as to the extent of poverty. Poverty is a multidimensional phenomenon. We can look for interesting points of departure in poverty-alleviation policies and ask what can be learned from the different projects. What can be and what has been done to improve the situation of the poor in Indonesia and to lift them out of poverty? Furthermore, helping the poor also contributes to society at large and to sustainable natural conditions of life. Therefore, an evaluation of the Indonesian concepts and policies applied in poverty alleviation enlarges the understanding of the recent developments in the country. Although a comprehensive poverty alleviation strategy might not be available – neither today, nor in the near future – various

interesting attempts and strategies have been, and are being undertaken. Which are the transferable lessons that can be learned from these strategies?

The contributors to the conference "*International Seminar on Poverty Alleviation: Concepts and Experience in Developing Countries*" and the subsequently published book address the problems of poverty and poverty alleviation primarily with respect to the Indonesian situation. The twelve chapters are organized in two parts, focussing on *concepts and policy evaluation* and on *strategies to alleviate poverty*, respectively.

The guidelines of the Indonesian policy to eradicate poverty are highlighted in *part one* by Mrs. M. E. A. Bey from the Indonesian Embassy. She emphasizes the general increase of poverty following the Asian crisis in 1997/98 and, in particular, the shocks to the urban population. The Indonesian government committed itself to poverty reduction policies in line with the international programs. The second chapter, written by Mrs. J. Hebel, is dedicated to theoretical and methodological considerations in the poverty debate. She accentuates the fact that in addition to aggregating and counting the poor it is necessary to disaggregate the group in order to fine tune poverty alleviation policies. The duration and depth of poverty are of great importance for policies. In addition, the concepts should assess the complexity of poverty and not only consider low income.

Some more specific aspects of Indonesia's poverty alleviation policies are presented in the following chapters. Mr. M. Afifi draws on the coral reef management and presents evidence from research on the effects of the Coral Reef Management Program (COREMAP). The aim of the program is to conserve nature and alleviate poverty by creating additional sources of livelihood. As can be seen by the results of the intervention, income diversification is a necessary precondition for nature conservation, but it does not suffice to prevent further degradation. Mr. D. R. Nurrochmat presents concepts and experiences from social forestry in Indonesia. Social forestry can be considered an applied welfare economics' measure, letting the poor benefit from the program as they are often the potential agents of forest degradation. Although poverty reduction was the main objective of the program, results from four forest villages show an increase in income but no clear reduction of poverty. Mr. Y. Subagyo emphasizes the contribution of livestock to poverty reduction in rural Indonesia. Livestock improves the livelihood of the poor in many ways, not only as a direct source of food and cash income, but also due to the interaction between livestock and agriculture. The role of livestock is of crucial value to the poor. Mr. I. F. Maharika addresses the problems of urban poverty which are often underestimated. He uses a more complex concept of poverty ("culture of exclusion"). Labelled "proto urban condition," the author displays how urban poverty in Indonesia is linked to the way of life in this country. Using three "icons," the author links poverty to the particular Indonesian way of life and argues in favour of a change that could include the marginalized poor population. The case of China is addressed by Mr. Yan Zhang. He describes three different phases of poverty alleviation policies in China: (1) a first phase of poverty relief through structural reform in rural areas (1978-1985), (2) a second phase of a well-planned and organized large-scale campaign (1986-1993), (3) and a third phase in which the key issues in poverty regions were tackled (1994-2000). He describes the major policy principles and measures of the Chinese government, emphasizing the switch towards a development oriented policy mainly targeting the poverty striven Western and Central regions of China.

*Part two* of the contributions focuses on the strategies to alleviate poverty. The six articles provide evidence taken from various case studies. Mrs. Marhawati Mappatoba and R. Birner describe the results of a project on nature conservation in villages belonging to Lore Lindu National Park, Central Sulawesi. Different agreements were made to balance and compromise the goals of nature conservation, on the one hand, and livelihood security for the rural poor, on the other hand. These agreements were locally negotiated and differ in form and issues. They are a good example of a participatory culture and authority devolution in natural resource management. Despite the remaining challenges, the projects offer valuable insights. Mr. L.M. Baga tells the story of a milk cooperative as an example of agribusiness cooperatives in Indonesia. The agribusiness sector experienced varying economic and political conditions. Milk cooperatives showed good growth and performance. The author describes the main factors that caused a rise in the standard of living of the farmers through milk cooperatives and to use it as a lesson to be learned. The farmers strengthened their power position by performing cooperative activities and, thus, contributed to the improvement of their livelihood. Empowerment problems are also an issue addressed by Mr. Suryo Woyono and Mr. Wahono. They describe three cases of integrated pest management based on participatory research. As can be seen on the basis of the cases, when given the opportunity, farmers are able to develop better insights with respect to the necessary technology. Organic farming yielded a better profit margin. Farmer participatory research (FPR), participatory technology development (PTD) and farming system research (FSR) all contribute to improving the livelihood of small farmers. Finally, this part of the book includes three contributions focussing on animal production and livestock. Mr. A. Sodiq focuses on animal production and emphasizes the role of small ruminants for increasing the farmers' income in poverty-stricken areas. There are a number of common problems such as poor quality in breeding or inadequate feeding which have to be overcome in order to improve the people's income. A number of efforts have to be made in order to alleviate poverty such as disease control, improved breeds, etc. Mr. Samadi also addresses the role of livestock in poverty reduction among smallholders. Livestock can be a manifold source of income, but many poor farmers and pastoralists rely on livestock and face problems such as scarcity of feed, health problems or poor breeds. Several strategies have to be implemented in order to improve livestock performance. If properly managed and efforts are made to solve some basic problems such as feeding and breeding, livestock turns out to be a valuable source of income generation. Poultry and sheep production have also been investigated as a strategy to reduce poverty. Mr. Winarto Hadi and Mr. A. Sodiq present information on the Livestock Development Planning System (LDPS) created by the FAO. They describe a poultry development breeding model which is targeted at the most deserving groups and encompasses steps to lead the participants out of poverty. Sheep development breeding programs are also in line with the LDPS. Both programs are implemented in view of income generation and poverty alleviation.

As can be seen on the basis of the various contributions, research and projects on poverty alleviation are manifold. The rural sector in which the world's poor try to make their living is of outstanding importance. Although the emerging new urban poverty should not be overlooked, the Millennium goal of poverty alleviation can only be achieved if the rural poverty in many countries of the developing world is successfully tackled.

# **Acknowledgement**

## **Samadi**

Chairman of Indonesian Student Union in Göttingen, Germany, 2003-2004

First of all, we would like to express our sincere thanks to Dr. Jutta Hebel at the Institute of Rural Development, Georg-August University of Göttingen for the editing of our proceedings and also to Dr. Uwe Muuss, the Managing Director of the Centre for Tropical and Subtropical Agriculture and Forestry (CeTSAF) – Georg-August University of Göttingen for his valuable support and good cooperation in publishing the proceedings.

We would like to extend our sincere gratitude to; the Ambassador of the Republic of Indonesia to the Federal Republic of Germany in Berlin, H.E. Mr. Rahardjo Jamtomo, the Ambassador of the Republic of Indonesia to Belgium and Luxembourg in Brussels, H.E. Mr. Sulaiman Abdulmanan and the General Consul of the Republic of Indonesia in Hamburg, Mr. I.B. Putu Djendra, the Integrationsrat of Stadt Göttingen, the International Office (AAA) of the University of Göttingen for both technical and financial supports, and also the Institute of Rural Development of the University of Göttingen for providing seminar facilities.

Our profound gratitude goes to the committee of the international seminar of Poverty Alleviation and to all the members of Indonesian Student Union in Göttingen. Without valuable assistance and good cooperation from all of you, this seminar would be difficult to be conducted. We wish also to express our thanks to Ms. Elodie de Lapeyre for the proof reading.

Last but not least, our warmest appreciation is due to all speakers and participants for their contribution to and attendance of our seminar and culture exhibition.

Thank you

# Opening Remarks

**H.E. Mr. Rahardjo Jamtomo**

Ambassador of the Republic of Indonesia to the Federal Republic of Germany  
On the Occasion of the International Seminar on  
Poverty Alleviation: Concepts and Experiences, Focussed on Indonesian Cases.

Mr. Samadi, Chair Person of the Indonesian Student Union in Göttingen,

Member of the Organizing and Steering Committee,

All Members of the Indonesian Student Union,

Distinguished Ladies and Gentlemen,

It is indeed an honour for me to give the opening remarks today in front of the distinguished participants on the occasion of the International Seminar on Poverty Alleviation: Concepts and Experience in developing countries, organized by the Indonesian Student Union. Allow me to take this opportunity to express my sincere appreciation to the organizer for arranging the Seminar. I believe that through this Seminar, we will be able to find common understanding, which in turn could further the efforts to find solutions to help alleviate poverty.

I think we are all aware that in doing so, problems constantly need to be overcome and that we should not be delayed for any reason. In line with the principle of equity, poverty alleviation is one of the most strategic efforts in the realization of a people-oriented economic system. In order to create such an economic system, action must be taken to keep families and groups of people who suffer from temporary destitution as the result of the economic crisis safe.

Poverty is a complex and multidimensional problem that requires a comprehensive understanding strategy. This strategy should be supported by a macro policy, such as the stabilization of prices and a growth policy favourable to the poor, agricultural development and the development of small and medium scale businesses, education and health as well as the development of rural areas.

To be fair, we have come a long way in our understanding of poverty. We now see that it arises from a social relationship of competition among individuals, groups and states in their pursuit of wealth and political power. As Lord Keynes once said "How

difficult it is for nations to understand one another even when they have the advantage of a common language". But unless we can go one step further, and realize that poverty cannot be eradicated by simply increasing economic growth, trade, consumption and the exploitation of resources, then the ideals we now hear being trumpeted will turn out to be nothing more than rhetoric. The path currently being followed by governments and many international institutions, in assuming that economic growth is the first priority, is actually leading away from the alleviation of rural poverty and environmental degradation, which is fundamental to addressing the inequality that is such a dangerous force in the world.

There has, too, been some evolution in the way the world approaches the social and economic disparities that bring it so much grief. It is increasingly being recognized that such problems are often linked in complicated ways to the manner in which societies deal with their natural resources - forests, soil, fresh water, seas - and to the impact of the globalised economy on those resources. Intergovernmental organizations have at last begun to acknowledge the essential role that environmental assets play in sustaining the rural areas where most of the world's poor people live. This necessary change in attitude was neatly captured by the UN Secretary-General, Kofi Annan, in his recent report on the implementation of Agenda 21: 'Reducing poverty and improving opportunities for sustainable livelihoods requires economic and social development, sustainable resource management and environmental protection.'

Ladies and Gentlemen,

Alleviating poverty is now on the top of the world agenda. I believe globalisation cannot be agreed upon by a large majority of the world without a significant change in the distribution of income and wealth. The poverty issue is obviously an ethical one but it has become a security one as well. We have seen how abject poverty accelerates conflicts and finally incites ethnic and religious hatred, how it fuels a violent rejection of the economic and social order on which our future depends.

Public support for global trade and investment also has decreased in recent years. Many people feel that trade has not brought extensive benefits, particularly for poor nations, and that the current trade system undermines democracy. To address both concerns, market democracies in both the industrialized and developing world must take the lead in suggesting reforms together.

But one subject on which there is a consensus is the importance of alleviating global poverty. All agree that something must be done to lessen the suffering of the poorest of the poor. Think about this when you go home tonight: half of the people on earth live on less than two dollars a day. A billion people live on less than a dollar a day. A billion people go to bed hungry every night and a billion on a half people – or a quarter of the people on earth - never get a clean glass of water.

Of course it is terrible that such a big portion of the world's population lives in abject poverty. But this is not a new problem. What is new is the world leaders' focus on trying to raise the living standard of the poorest of the poor. At the United Nations Millennium Summit in September 2000, global leaders committed themselves to a set of 'millennium development goals' to be achieved by 2015. These included reducing

the number of people living on less than \$1 a day to half the 1990 level, reducing child mortality and achieving universal primary education.

These all sound like worthwhile objectives - but they represent a lowering of horizons in terms of the kind of development that the third world can hope to achieve.

A few years ago, the aspiration was to bring developing countries up to a material level that was comparable with that in the West. It was seen as a reasonable goal that the billions of the people living in the South should have universal access to key utilities like electricity, water, roads and telephones. It was also thought that they should have a modern industrial sector - rather than relying on one or two primary commodities, such as coffee or copper - and access to the full range of consumer goods, such as cars.

Admittedly, much of the South failed to meet such objectives. Only countries that enjoyed rapid economic growth, such as South Korea and Taiwan, came close. But at least there was a consensus that such far-reaching development was the goal to aim for.

Today, the talk is of 'poverty eradication' or 'poverty reduction', rather than development in a broad sense. It seems to have become accepted that poverty will always exist - the aim of policy is merely to mitigate its worst effects.

The new approach to poverty is related to the popular notion of 'sustainable development'. Like the idea of poverty reduction, sustainable development represents a limitation on broader and more far-reaching ambitions for development in the third world.

Every sustainable development goal tends to be counter-balanced by some kind of reservation. The idea of trying to promote rapid economic growth for the benefit of humanity is entirely alien to the supporters of sustainability. Indeed, rapid development is viewed as the worst possible aspiration, most 'unsustainable', in fact.

No doubt the supporters of poverty reduction would counter that it is important to be realistic. They would say that, first the worst manifestations of poverty need to be alleviated, then it is possible to go further. A more ambitious approach, from their perspective, condemns millions of people to remain in the worst poverty.

But in reality, the opposite is true. Extreme poverty does not exist in isolation from the rest of society, instead, it is a manifestation of the broader lack of economic development. It is hard to see how extreme poverty can be overcome without raising the poorer countries as a whole to higher levels of economic development.

People in developing nations do not need empty rhetorical commitments to alleviate the most extreme manifestations of poverty. On the contrary, they desperately need a strategy that will develop the economic potential of their societies as a whole. The first step in achieving such an objective is to remove the mental shackles that limit the desire for economic growth.

Ladies and Gentlemen,

Poverty is an issue, which concerns all of us, which must be addressed in a comprehensive manner not only on the national level, but also on the global level. Concluding my short remark, I therefore would like to express my deep gratitude for your attention and interest in the issue and hope that this seminar will help forge a better understanding among the participants and lead to a close cooperation to alleviate poverty, our common enemy.

I would now like to wish you lively and constructive discussions and a successful seminar.

Thank you.





**PART I**

**POVERTY ALLEVIATION:  
CONCEPTS AND POLICY EVALUATIONS**



# **CHAPTER 1**

## **Policy to Eradicate Poverty in Indonesia**

**M. Estella Anwar Bey**

Head of Economic Affairs of the Embassy of the Republic of Indonesia to the Federal Republic of Germany

### **Introduction**

The goal of eradicating poverty has become the focus of the international community's concern following the UN Millennium Summit, which bound all nations, including Indonesia, to the agenda of reducing the poverty rate by 50% worldwide by 2015. In the 2000 UN Millennium Declaration, rich and poor countries committed themselves to doing all they could to eradicate poverty, promote human dignity and equality and achieve peace, democracy and environmental sustainability. World leaders promised to work together to meet concrete targets for advancing development and reducing poverty by 2015 or earlier.

The Millennium Development Goals, which were part of the Millennium Declaration, bind countries to do more in the attack on inadequate incomes, widespread hunger, gender inequality, environmental deterioration and lack of education, health care and clean water.

### **Policies to Alleviate Poverty**

From that point of view we have seen that, all countries, rich and poor, developed and developing countries, including Indonesia, realize and acknowledge how important it is to eradicate poverty and to promote people's welfare.

In Indonesia, the problem of poverty existed before the crisis and has grown in magnitude since the financial crisis in 1997. The poverty-oriented development program has been implemented since 1975/1976, when the success of Repelita I in speeding up economic growth also revealed serious income distribution inequalities. Whilst the economic and monetary crisis hit Asia as well as Indonesia in 1997/1998, the Indonesian economy collapsed and this resulted in serious unemployment figures in the larger cities and an increase in poverty. According to the data of the Central Bureau of Statistics (BPS), the poverty rate, which declined to 11% in 1997, increased dramatically to 39.5% in 1998. People estimated that the poverty problem

was critical, because the number of people living in poverty increased to the unbelievable number of about 79.5 million in the year 2000 compared to about 42 million previously.

Even though the majority of poor people in Indonesia live in rural areas and earn their living from the agriculture sector (2001: 70 % of the Indonesian population lived in rural areas and around 50 % of the national workforce earned a living from the agricultural sector), the urban areas have been hit harder than rural areas, with Java more severely affected than other areas. This is because urban areas are more connected with formal sectors, which suffered most. Urban poverty increased from 9.6 million (13.7%) in 1996 to 17.6 million (21.9%) in 1998 while in rural areas during the same period poverty increased from 24.9 million (19.9%) to 31.9 million (25.7%). The national workforce was also faced with an increase of unemployment. The statistics of unemployment increased rapidly; for instance, in 1997 the figure was 4.2 million or 4.7 percent. It then went up to 5.1 million or 5.5 percent in 1998. In 1999 the figure became 6 million or 6.3 percent.

According to the data from the Coordinating Board of National Planning (BKKBN), obtained in the beginning of 1998, the number of poor households reached about 21.3% or about 11.5 million from a total of 43.9 million Indonesian households at the time. The number of poor or vulnerable households also increased dramatically: the attendance figures of primary education (SD) and secondary education (SLTP) declined sharply from 79% to 54%. Furthermore, less people could afford to go to Public Health Centres (Puskesmas) or other health centres.

To overcome this crisis, in the beginning of 1998, the Government took measures and responsibility to continue the development of people's welfare. The policies adopted by the government to alleviate poverty are based on a human approach with emphasis on the fulfilment of basic needs, a prosperity approach through improvement and development of productive businesses, as well as the providing of social security and protection for destitute families. In line with these efforts, the government has carried out a number of short-term and operational development policies with the aim to help people whose standard of living has decreased drastically since the occurrence of the economic crisis.

In order to implement that program the Government was given the task to coordinate the cross-sectoral preparation and problem solving in order to achieve major results by the following ways:

- a. A high commitment among ministries and institution;
- b. A stronger coordination in overcoming problems on the planning levels as well as in implementation on the field;
- c. Handling the problems of a social economy among the poor, of their welfare as well as disasters in an integrated manner; and
- d. Integrating manpower and financial support to overcome social problems being faced in affected areas.

## **Support and empowerment of the poor people**

One of the government programs to eradicate poverty is to give a rice subsidy to poor households. This subsidy is given to nine (9) million households through 30,000 distribution centres, which generally are the local neighbourhood associations such as RT and RW. There was criticism at the start of the programs, because the distributed goods often did not reach the targets. In order to empower people who were affected by the crisis, the Government also developed two types of integrated policies to give a chance to those who were affected by the monetary crisis and those who do not have the opportunity to get a job in the current situation by:

- a. Implementing development programs for the transition from technology-intensive and capital-intensive projects to labour-intensive ones, such as road construction, and irrigation,
- b. Giving the chance to the poor living near forests to use the forest areas to get their living by planting crops there but without destroying other plantations,
- c. Giving those who were dismissed from work (PHK) the opportunity to get a job by creating Labour Intensive Programs managed by the Ministry of Manpower, Ministry of Agriculture, Ministry of Internal Affairs and Local Government,
- d. Giving the poor households aid such as food, education, and health facilities from 1996 onwards. They also obtained empowerment in the economy and received credit with low interest rates such as family welfare savings (Takesra-Tabungan Kesejahteraan Rakyat) and family welfare business credit (Kukesra),
- e. Giving bigger credit to farmers, for example the Farmer Credit Effort (KUT-Kredit Usaha Tani-KUT) and giving financial aid to the least-developed villages (Inpres Desa Tertinggal-IDT). The IDT has three goals: namely, to speed up the national movement for poverty eradication and ensure that it becomes a people's movement, to reduce inequalities of income and wealth, and to develop the people's economy.

The government also implemented the social safety net program for the low-income people. The priorities of the social safety net program are the creation of productive employment opportunities, the development of small and medium scale businesses and social security, especially in health and education sectors.

Other steps that have been taken are the providing of basic residential facilities, a program for the increase of farmers'/fishermen's income and providing of working capital for collective business groups. Regional government also obtained cooperation from the private sectors and non-governmental institutions. For the program of employment opportunities the government tried to accommodate the unemployed workforce, for example by implementing the program for the development of village supporting facilities (P3DT). Other programs, such that for the development of regional economy (PEMD) are expected to serve as the driving force of the economy in the provinces.

In implementing those policies, the Indonesian government received international support as well as financial assistance from partnering countries including the EU,

Germany and other international institutions. As agreed in Johannesburg, Doha and Monterrey, the EU committed itself to take concrete actions for promoting sustainable development such as providing water and sanitation as well as the protection of natural resources, the realization of the 0,7% target for ODA for developing countries, etc. They also established a special foundation for promoting economic development programs in developing and poor countries in the fields of health, education, economic liberalization, issues concerning poverty alleviation, capacity building, civil society & gender, etc. Therefore, would like to thank the Government of Germany for giving that support, which we highly appreciated.

## **Conclusion**

The Indonesian government committed itself to continue eradicating poverty and to improve its people' welfare. This policy is in line with the March 2002 Monterrey Consensus and the September 2002 Johannesburg Declaration on Sustainable Development. The government realizes the need of eradicating poverty and empowering the poor community. However, more participation of local people in government projects and policies is needed.

There are still many programs which should be created and implemented by respecting the need of poor people, such as the providing of micro-credit, nutritional improvement for school children, expanding basic health services and health care cadres like the midwife program (bidan), introduction of an educational system that promotes the teaching of skills to children which will enable them to enter labour markets with a better chance of earning good salaries, and so forth. Finally, all these efforts should be supported with as many incentives and as much assistance as possible.

# CHAPTER 2

## Poverty: Concepts and Analysis

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### **Abstract**

*Recent theoretical and methodological contributions question the mainstream poverty debate focussing on income poverty. Besides the aggregation of the poor, assuming a clear division between the poor and the non-poor, disaggregation is now a main concern. The durational aspect of poverty draws the attention to different groups of poor people. Long-term chronic poverty, transitional poverty, and vulnerability are of scientific and political interest. New concepts of poverty tend to understand poverty more as a multidimensional phenomenon not confined to low income. Yet more complex and multidimensional concepts challenge the usual methods of measuring poverty. The HDI and HPI are regarded as an important but unsatisfactory attempt to assess the complexity of poverty.*

**Key Words:** *Poverty concepts, measurement of poverty, income poverty, chronic poverty, human development, social exclusion*

### **Introduction**

During recent years, some major changes have occurred regarding the conceptualising and measuring of poverty. It became obvious in the course of time that an understanding of poverty and efforts to alleviate poverty require deeper insights both with respect to the aggregate groups that form the poor as well as the particular nature of poverty itself. Therefore, one of the first shifts that took place in poverty research was the recognition that the poor should not be regarded as an aggregate but rather what was necessary was to break the aggregate down (or disaggregate it) into the various groups in order to gain the necessary insights. A second change in poverty research was the development of a broader concept of poverty. Poverty research has now gone beyond the mere monetary or resource perspective to include the non-monetary dimensions of well-being. This trend in poverty research has increased the knowledge on poverty and provided fresh ideas concerning the analysis and measurement of poverty, but, at the same time, has left us with quite a number of new and demanding assessment problems. The aim of this



paper is to provide a brief overview of some recent changes in the concepts of poverty, in poverty measurement, and in the analysis of poverty.

## **Concepts of Poverty**

The conglomerated knowledge regarding poverty has increased significantly during the last 30 years (Kanbur 2003). The conceptual advances emphasize the necessity to not only amass the various groups of poor to form an aggregate in order to count the poor and measure poverty but to also disaggregate it once again in order to refine the understanding of the causes and nature of poverty.

### *Aggregating the Poor*

The mainstream poverty research has been dominated by an aggregation concept based on amassing the resources, or income of poor households or individuals falling below a defined poverty threshold to form an aggregate representing poverty. The attempts to count the absolute number of poor people within a society, to establish the ratio of poor and non-poor among the population, to describe poverty trends, and to make international comparisons require clear-cut, unambiguous criteria. Until recently, these steps were carried out by employing a definition of poverty based on monetary terms, and it was considered appropriate to use money-metric indicators in order to establish poverty.

The distinction between absolute poverty (defined as objective deficiencies regarding the basic conditions of physical existence) and relative poverty (falling below a socially defined level of an economic and social standard of living) is well-known. It is important to point out that the concept of absolute poverty should not be applied exclusively to developing countries, or vice versa. In many developing countries themselves – and in particular in the so-called threshold countries – there are regional disparities and high standards of living are achieved in some urban areas. Although absolute poverty might prevail, relative poverty may be a problem among the lower urban strata. Poverty is sometimes felt more severely in affluent societies than in those in which poverty is common and widespread.

Although assessing income poverty is still an important concern, poverty research has shifted its focus to new concepts and analysis methods.

### *Disaggregating the Poor*

Recent poverty research has tended to reverse the process and “disaggregate” the poor. One attempt has been to focus on the dynamics of poverty and to emphasize the distinction between chronic (or permanent, persistent) and transient poverty. The poor do not form a homogenous group whose only and primary problem is low incomes. As a consequence of recognizing the durational aspect of poverty, the researchers have begun to disaggregate the poor into diverse subgroups. Some groups may be “vulnerable” and experience various fluctuating periods of poverty and non-poverty. Poverty dynamics have a very important impact on national development strategies, the role of the state, and the level of support regarding poverty alleviation. The dynamics of poverty, as used here, refer to both absolute and relative poverty.

This conceptual shift requires at least a working definition of chronic poverty. In this context, we will use the definition recommended by Hulme and Shepherd in which they define chronic poverty as “occurring when an individual experiences significant capability deprivations for a period of five years or more” (Hulme and Shepherd 2003: 404f.). The delimitation of five years used in the definition is of course an arbitrary one. In addition to the definition, they suggest a five-tier categorization for studying and assessing chronic and transient poverty: (1) the *always* poor — those whose poverty score falls in all assessment periods below a defined poverty line; (2) the *usually* poor — those whose mean poverty score during all periods is less than the poverty line, but who are not poor in some periods; (3) the *churning* poor — with a mean poverty score around the poverty line; (4) the *occasionally* poor — whose mean poverty score is above the poverty line but have experienced a period of poverty; and (5) the *never* poor — with poverty scores in all periods above the poverty line (Hulme and Shepherd 2003: 405).

Chronic poverty can be associated with poor general living conditions (e.g., living in a remote area, a deficient infrastructure, detrimental circumstances) and/or rooted in certain characteristics of the afflicted households or individuals (e.g., ill-health, illiteracy and innumeracy, certain stages in their course of life). Exploring chronic poverty, recent research has (re-) discovered the problem of an intergenerational transmission of poverty, i.e., the likelihood that children from poor households will remain poor during their own lives (Harper and Marcus 2003). A debate on the culture of poverty, initiated by the anthropologist Oscar Lewis during the 50s and 60s, was already then concerned with the aspect of the social transmission of poverty by way of sub-cultural values and norms. Transient poverty, or various shifting periods of poverty and non-poverty can be induced by a number of different circumstances, and the transient poor may experience cyclical, seasonal, and/or episodic periods of poverty.

### *Multidimensional Concepts of Poverty*

As mentioned at the beginning, the focus in poverty research on income and other basic resources can at best only provide a limited insight into the situation and livelihood of people. Nobody wants to deny the value of money, but the aim of development policies and poverty alleviation is the enhancement of the quality of life. Two new approaches are now being discussed which attempt to broaden the perspectives of poverty and well-being: (1) the capability concept and (2) the concept of social exclusion.

Amartya Sen advocates the notion that income has merely an instrumental value for people and that real poverty is not income poverty itself, but rather capability deprivation (Sen 1999: 87-110). Capabilities, as Sen uses the term, refer to intrinsically important aspects of human life (those which people have reason to value), and to him overcoming poverty does not signify merely the usual goal of an increase in the living standard (i.e., income), although the two aspects are undeniably coupled. Sen’s perspective of capability-poverty requires a deeper understanding of what should be considered an intrinsically important aspect of human life. Different lifestyles are not the subject of interest but rather the denial of important freedoms and choices to individuals. Sen has developed a distinct vision of poverty that does not classify people as poor in the usual sense. Although Sen might still be an

outsider among his fellow economists, his influence on international organisations (such as the World Bank) should not be underestimated.

A second attempt to broaden the concept of poverty is the concept of social exclusion which has its roots in French social philosophy (Silver 1995). The term was coined during the 70s and was used originally by a number of international organisations such as the ILO. Social exclusion refers to a process of social disintegration and a progressive rupturing of the relationships between the individual and society. Social exclusion pertains to diverse dimensions: e.g., the exclusion from labour markets, land, security, goods and services, human rights, participation, and the benefits of development. Social exclusion can either be an attribute pertaining to individuals (the individual's experience of weak social relationships) or a property of societies (a structural property of the society, e.g., the segmentation of the labour market excluding specific social groups). The concept of exclusion regards poverty from a different perspective as new dimensions have been included and material poverty is only one particular form of exclusion.

Summarizing the debate on poverty concepts, it is clear that aggregating the various groups of the poor to explain and analyse poverty remains an important issue, but it has to be supplemented by new concepts in order to understand poverty better. Important implications for the measurement of poverty ensue from the new concepts.

### **The Measurement of Poverty**

The measurement of poverty is closely related to the concepts underlying it. The measurement requires lucid criteria and clear-cut thresholds to differentiate between the aggregates comprising the poor and the non-poor. This turns out to be much more complicated in the case of the new concepts. Therefore, when measuring poverty, the nature of poverty and more qualitative dimensions need to be assessed better.

#### *Monetary Measurement*

In the past, an enormous effort was made to establish poverty lines and count the poor. Poverty lines are a necessary precondition for monetary measurement, although they are arbitrary and based on a number of ambiguous decisions (e.g., on a basic food basket, prices, a percentage of median or mean incomes as a point of reference). They may refer to basic needs or to the average income level within a particular society.

Counting the number of poor people who live below the poverty line and defining the *headcount poverty index* (the proportion of the poor among the total population) are unchanging basic activities in poverty research and a precondition for all alleviation policies. The income available to households or individuals is the most widely used criterion. Because there are some inherent disadvantages in the *headcount index* of poverty (due to the bipolar classification method, improvements in the situation of the poor who live below the poverty line are not reflected in the index), the *poverty depth* (or gap) and the *poverty intensity* (or severity) are measured in addition. The poverty depth is the mean proportional deviation from the poverty line. The poverty intensity indicates the distribution of the income of those who live below the poverty line. Cross-sectional surveys provide aggregated income or consumption data, which

describe the national situation at a given period of time. The findings from various surveys are then compared and changes are interpreted to be poverty development trends. National surveys using nationally defined poverty lines are the basis of alleviation policies.

Due to their intrinsic nature, national definitions and surveys cannot be used to make international comparisons of poverty trends. Therefore, the international organizations have developed their own poverty lines. In 1990, the World Development Report on Poverty used a 1-\$-poverty line (1 US-Dollar converted into national purchase-power dollars) for the first time. A higher 2-\$-line (PPP) supplemented the first poverty threshold (World Bank 2001). Although the goal was to achieve more international comparability, the process of conversion into national dollars implies the use of national food baskets and prices. Although money-metric indicators seem to be the most appropriate method used in mainstream research, they sometimes conceal more than they reveal. Therefore, a minimum requirement that should be taken very seriously is the appeal to *look behind the averages* (Ravallion 2001).

### *The Measurement of Poverty Dynamics*

The dynamics of poverty challenge the cross-sectional measurement procedures, which perceive the poor as a mere aggregate or, to put it in other words, a black box. In addition to studying the dynamics or shifts in fortune, which lead the poor to enter and exit the poverty aggregate, the factors that are indispensable and must be scrutinized are the duration of an individual's or household's period of poverty as well as the particular groups that are affected most. Longitudinal studies are a necessary precondition that must be fulfilled in order to assess the five above-mentioned categories constituting the poor and non-poor.

### *The Measurement of Multidimensionality*

The multidimensionality of poverty presents an even greater challenge to poverty measurement than the above-mentioned factors. Well-being or social exclusion are far more complicated to measure than income. The challenge presented by the new concepts can only be met on the basis of more qualitative research. One attempt has been to give the poor a voice, an approach that is in agreement with more participatory approaches in poverty alleviation (Narayan et al. 1999). The measurement of well-being entails identifying which human needs are highly valued. It also implies ranking the intrinsically important needs.

Until now, the difficulties involved in a more comprehensive assessment of poverty and privation have been met by several basic indicators, e.g., the Human Development Index (HDI), the Human Poverty Index (HPI), and many others. All these indicators have a weak conceptual foundation and can be regarded as a compromise between measurability and the complexity of the concept. The HDI is a simple summary measure of three dimensions such as living a long and healthy life (life expectancy), being educated (school enrolment, literacy), and a decent standard of living (income). Despite many critical remarks, these indicators add valuable information to purely income-based poverty descriptions. When income poverty and the HDI or HPI are compared, discrepancies are displayed between and within countries, which reveal the importance of these indicators.

In summary, poverty research necessitates measurement efforts in line with the highly demanding multidimensional, dynamic, and participatory approaches submitted by theorists of poverty. Longitudinal studies and applied qualitative empirical research techniques have to supplement the typical quantitative and money-metric assessment of poverty.

### **Poverty Analysis**

The requirements for carrying out a national poverty analysis are, first and foremost, an understanding of the country's own concept of poverty and its definition of the poverty line. In addition, the assessment of basic data (e.g., household surveys) and methodological decisions (food baskets, prices, income definition, survey periods, survey levels, among others) has to be scrutinized. In general, national censuses and surveys provide the basic data for more detailed empirical research at the regional, village, or household levels. International organizations rely on the national surveys and inherent poverty lines and deficiencies continue to exist, even when they adjust the data. In view of the arbitrariness of many decisions, the information is a necessary precondition for understanding concepts, policies, and programs.

It is of interest that some of the basic insights derived from poverty research became part of the World Bank's strategy towards poverty reduction. A new anti-poverty framework (Poverty Reduction Strategy Paper) was announced in 1999 for the poorest and most indebted countries (HIPC). PRSP builds on five principles, namely the multi-dimensional nature of poverty and the participatory approach, and they are country-driven and results are the long-term oriented.

Worldwide analyses of poverty and projects on poverty reduction at all levels (e.g., macro-social analysis, project-level social analysis, social assessment) are no longer confined to an economic focus on growth, prices, and income distribution alone. Economic growth remains important, but it does not automatically improve the situation of the poor. Therefore, poverty analysis has become increasingly embedded in the broader concept of social analysis taking into consideration the multidimensional aspect of poverty and the interplay between people and institutions. Likewise, participatory approaches such as the participatory poverty assessment (PPA), introduced within the World Bank in 1992, emphasize the importance of involving local populations.

In summary, poverty analysis goes beyond income distribution and a mere aggregation of the poor. Understanding the social world is critical to any effort to reduce poverty, as was stated by the World Bank (World Bank 2002).

### **Summary**

During the last decades, remarkable new ideas and concepts have been introduced in the field of poverty research. Conceptual advances such as disaggregating the poor so that they are no longer regarded as a conglomerate and scrutinizing the many factors and combinations of factors that are the origin of poverty have improved the understanding of poverty. Many efforts to improve the measurement and analysis of poverty have been made, although there is still much left to be done in order to keep pace with the demanding conceptual work. One simple question is still difficult to answer: how many poor people are there in the world? This short

introduction could only mention a few of the new conceptual ideas. Counting the poor is a political issue and it depends largely on scientific and political perspectives, overstating or understating the significance of the facts. Reduced concepts – even - when treated as mainstream poverty research – weaken and distort poverty alleviation policies in the long run.

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## CHAPTER 3

# Coral Reef Management: Between Conservation and Poverty Alleviation

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### *Abstract*

*Indonesia's coral reefs are currently undergoing serious damage brought about by human activities including blast fishing, poison fishing, coral collecting, sedimentation, pollution and over-fishing, which are leading to their destruction. The implementation of a coral reef management program supplemented by the development of alternative livelihood sources has for purpose not only to stop further deterioration of coral reefs but also to improve the living standard of households. Although some kinds of business are encountering technical as well as non-technical problems, the business and financial scheme introduced by the program has helped some people escaping from the vicious circle of poverty. Meanwhile, the ecological condition of coral reefs in the research area has been worsening in recent years, mostly due to the El Niño phenomenon, which occurred in 1998. Since the phenomenon is beyond the control of man, it is difficult to assess the impact of the program on the natural ecology of coral reefs. However, since the implementation of the program, a reduction of detrimental tendencies can be observed as a result of the participation of the local people in the development of environmentally sound additional sources of livelihood.*

**Key words:** *alternative livelihood sources, business, household coral reef management*

### **Introduction**

Coral reefs are considered the most biologically productive and diverse of all natural ecosystems in the world. Shallow coral reefs occupy only 255,000 km<sup>2</sup> of the world's surface, but they support nearly 1 million plant and animal species (UNDP, 2002). The global potential for coral reef fisheries has been estimated at 9 million tons per year, while the total for marine fisheries of the world is about 75-100 million tons per year (Munro, 1994). This figure is impressive in view of the relatively small area of coral reefs compared to the world ocean area. Besides harbouring rich biodiversity, coral reefs provide an accessible site for small-scale fishing and help to protect coastlines from storm damage. Furthermore, the beauty of coral reefs is one of the most important tourist attractions in coastal areas.

Indonesia is known as being one of the richest countries in terms of coral reefs since about 29.4% (75.000 km<sup>2</sup>) of world's coral reefs including more than half of their genera and species are found in Indonesian ocean (COREMAP 1998). Indonesian coral reefs bring advantages valued at about USD 70,000 km<sup>-2</sup> yr<sup>-1</sup> including providing habitat for fish, protecting beaches against erosion, and attracting tourists (Sarwono, 1999). However, the condition of coral reefs in most parts of Indonesia has been very precarious due to their substantial deterioration during the last few decades. There are only 29% of the original coral reefs still in existence with more than 50% live coral cover (Cesar et al 1997)

Four groups of factors that influence the state and velocity of coral reef dynamics appear to be relevant. These include households' standard of life, government intervention, general socio-economic influences in Coastal Areas, and potential hazards (see appendix).

Low levels of income, as well as traditional lifestyle of households, are associated with a low level of knowledge, bad attitudes, and destructive practices (KAP) regarding coral reefs. It is assumed that the activities of households as mentioned above have caused severe damage to coral reefs within the last few decades. Some examples of destructive activities carried out by households are coral collectors, blast fishing, muro-ami, poisoning, anchor throwing, coral trampling by untrained divers etc.

In addition to the household situation, government intervention is an important factor, which also contributes to the household's KAP. In this respect, previous studies have indicated that government intervention in the form of public awareness campaigns, law enforcement, resource management, and attitude of local bureaucrats have neither improved the level of household's KAP nor influenced the households to change their destructive activities to sound environmental ones.

The general situation is being worsened by the current socio-economic trends affecting the areas in question as indicated by the high demand for marine products and inadequate alternatives to obtain a living in the area. Other social factors such as the construction of infrastructure in the coastal area and the tourist industry have increased pollution leading to the degradation of coral reefs either directly or indirectly. The development of harbours and streets, for example, has negative effects on the reef since the raw material for these projects is coral blocks that are taken from the sea.

Finally, other potential hazards causing the degradation of coral reef comprise increasing demand for lime, fertilizers and insecticides used in the agricultural industry, and natural causes such as storms, predators, and climate changes. The model shows that reef dynamics are very complex and there is a synergy among those aspects, which worsen the reef condition. The individuals and communities causing damage to coral reefs eventually experience disadvantages when they cannot further exploit the reefs. The recovery of reef condition takes a very long time (Hodgson, 1997). It means that if the ecosystem of coral reefs is destroyed, it will be difficult to recover and people will be unable receive or extract benefits from the resource. Moreover, considerable conflict will arise between those people who derive their living from the existence of coral reefs and their ecosystem (recreational and artisanal fishing, diving services, tourist industry in coastal area and glass bottom



boat services), and those people who exploit the resources of coral reefs by destructive practices. Hence, an effective management is needed to devise a framework within which man may live harmoniously with nature.

## **Coral Reef Management**

As can be deduced by the information above, the problems related to coral reefs are generally complex and multifaceted. To deal with those problems, a comprehensive and integrated approach and strategy, applying multidisciplinary theory and models, is needed. Therefore, coral reef management solutions require more than just knowledge of coral reef biology. The direct and indirect effects of human activities on coral reefs can also cause several types of socio-economic conflicts that must be taken into account in the management strategy (Hodgson, 1997).

Although many of the resources of coral reefs are highly productive and generated by living organisms that can reproduce themselves, they are easily over-exploited and would require some type of management if a sustainable yield is desired. Humans, particularly those in the areas concerned, tend to exploit some reefs more than others. This uneven pressure on coral resources can easily lead to over-exploitation such as over-fishing. Meanwhile, many human activities, often far from the ocean, can potentially damage coral reef ecology. Chemical pollution from industrial discharges, oil spills, toxic runoff from golf courses or farms, sediment pollution from poorly managed land clearing, nitrification from discharge of poorly treated human or livestock sewage are several important examples of causes of the damage (Hodgson, 1997; Jackson, 1995; McMannus, 1995 and Salvat, 1995)

Understanding this situation, the Government of Indonesia (GOI) has established a national program to improve the management of the nation's coral reefs and associated natural resources and ecosystems. The coral reef management program (COREMAP) is a national program aiming at protection, rehabilitation, and sustainable utilization of coral reefs and associated ecosystems of Indonesia. The rehabilitation is not related to replanting but to improving the environmental conditions of the reefs by minimizing the causes of degradation. The ultimate goal of the COREMAP is to reach the situation where the coral reefs and their associated ecosystems are in healthy condition due to the application of sustainable management practices by people who derive their livings from the reefs. Through the sustainable use of coral reefs it is expected that the lifestyle of communities should be improved (COREMAP, 1996).

The COREMAP program, with particular emphasis on community-based management, has been implemented in Lombok NTB formally since 1998 (Lombok is one of the two islands, which forms part of the province of West Nusa Tenggara and is located in the southeastern part of Indonesia). However, some activities in relation with coral reef management and poverty alleviation have been carried out since 1996. The components of the program include a local strategic plan for coral reef management, research and monitoring, alternative sources of livelihood development supplemented with a revolving loan fund, strengthened local institution capacity, public awareness programs, and improvement of public utilities.

Meanwhile, coral reef management planning consists of: *first*, the identification of zones for several purposes such as sanctuary, reserve, exploitation, and pleasure.

The zoning is intended to protect areas from destructive fishing practices, to increase the abundance and diversity of coral reef fish, and to ensure long-term fish yields from the island reef; *second*, the passage of the village (*desa*) resolution into a district (*kabupaten*) ordinance; *third*, the establishment of a development management mechanism; *fourth*, research and monitoring including the collection of baseline socio-economic and environmental data. This is intended to achieve the ultimate goal of the management including the improvement of both income in households and ecological condition of coral reefs.

Since most of destructive activities are carried out by poor people, to stop them doing such things and to improve their lifestyle the COREMAP program introduces and also develops alternative sources of livelihood. The program offers several courses and also provides small-scale loans to help people establishing new businesses or to enlarge existing environment-friendly businesses. The types of courses available are baking, diving, seaweed cultivation, duck raising, and English (for tour guides). The program attracts much participation from local people since the financial assistance in particular interests them. However, it is hard to determine whether the program is successful. Therefore, this paper is intended to assess the effectiveness of the program especially the development of alternative livelihood sources and the ecological condition of coral reefs.

## **Methodology**

This study has been undertaken in three villages in Lombok island West Nusa Tenggara. These villages include West Sekotong, Teluk Dalem, and Gili Air. The progress of the program is assessed by analysing three different types of business, which are run in conjunction with the project of development of alternative livelihood sources. In West Sekotong we take 12 people who run small trading businesses and who previously were coral collectors. Meanwhile, 20 people in Teluk Dalem, also former coral collectors, raise ducks. And 15 people in Gili Air cultivate seaweed. They were blast fishers. All of them have received financial support as well as guidance from the program.

The analysis of the businesses' growth is used to assess socio-economic consequences of the program. Four aspects of the businesses are used to assess their success. These include income, working hours, savings and pressure on coral reefs. Data were collected by observation, in-depth interviews and focus group discussions. Line transect is used to assess the ecological condition of coral reef by measuring the percentage cover of live coral in several sample stations in Gili Islands. This research was carried out in during 1998-1999.

## **Results and Discussion**

### ***Socio-Economic Consequences***

The development of businesses carried out by local people has for purpose to get rid of their destructive activities in the coral reef ecosystem. In addition, the introduction of this kind of business is endeavoured not only to increase the living standard of the people but also to stop them doing activities leading to destruction of coral reefs. Several implications of the development of alternative livelihood sources will be discussed in the following section.

### *Small Business Development*

The development of small businesses is the best choice given the specific conditions of the project site. People agree to participate on the condition that they will be supported by adequate capital. There are 12 people who receive credit ranging from Rp 50,000 (USD 25, USD 1 was equivalent to Rp 2000 in 1996) to Rp 300,000 (USD 150). They used to collect coral and sell it to miners in the village. In one day they could collect about 6 sacks of coral sponge and the price of a sack is between Rp 150-Rp 200. This means that during a day they could only earn about Rp 900-Rp 1200. They did this kind of job due to the absence of other alternative income sources.

With the credit received from the program they started to run small trading businesses. The commodities they sell include everyday necessities such as fish, rice, vegetables, sugar, coffee, cigarettes, and other foodstuffs. The working hours of respondents depend on the types of goods they sell. Participants who sell fish, for instance, work only about six hours daily since fish has to be sold immediately after landing since it goes bad rapidly. In contrast, those who have a kiosk work more than eight hours daily since they stay at home during the day waiting for customers. The working hours of participants actually increased compared to when the program hadn't been implemented yet. They work at least six hours daily running their businesses and the remaining time is spent in other activities in the primary sector such as land cultivation and fishing.

The income earned by participants increased after the implementation of the project. Most of them earned less than Rp 30,000 per month before they entered the program. Four months after the beginning of the program there was no participant earning less than Rp 30,000 per month, while they mostly earned more than Rp 60,000 per month.

The increase of income has stimulated the people to save a certain amount of their income. Almost half of them save sums between Rp 100 and Rp 500 everyday. They understand that saving is important as a precautionary measure against emergency situations. Furthermore, the repayment of credit is very good and it can be revolved further to two people and some of the participants actually receive more credit after a certain time.

The implementation of the program has had a positive impact on coral reef ecosystem. Local people have given up collecting coral reefs since they have a better source of income. Most of their time is used to run their business. They are also aware that the coral reef ecosystem plays a very significant role in the protecting of beaches against erosion and in preserving biodiversity. In addition, they disapprove of the destructive activities carried out by people and some of them will even admonish whoever tries to destroy coral reefs.

### *Duck Raising*

The participants of the program are former coral collectors. They were just ordinary peasants who came from inland without possessing any knowledge on marine life. They came to coastal areas to look for a job during the dry season at first since there were no jobs available in farming. They naturally had no skill in fishing and therefore could only work as collectors of sponge or of coral. Due to lack of skill their earnings are just enough to fulfil their basic needs. Therefore, the alternative source of livelihood, which will be developed should be linked to the culture of in-land people in order that they can do it well. Duck raising has been chosen since they are easier to rear than chickens or cattle and ducks are more resistant to disease. The participants were provided with training before they attempted to breed ducks.

The program provided ducks to 20 participants. Each participant received 33 mature ducks and money for cages and equipment. In addition, participants signed an agreement that they would give up coral collection and were prepared to pay back the credit. The repayments of the loans were revolved to help other participants who want to start businesses of their own.

After 5 months of intervention there were noticeable changes in the researched area. Coral collecting decreased drastically as indicated by the absence coral heaps ready for sale on the sides of the village streets. Now that the local people have stopped collecting coral and they would like to have financial assistance to improve their life standard by establishing other types of business.

However, the growth of the businesses was not satisfying. This was a result of the low rate of egg production due to the bad quality of ducks, lack of skill on the part of the farmers, and the expensiveness of duck feed. Hence, the income derived from the businesses by the participants was just enough to keep the farms going. Another implication of the duck raising projects was the reduction of working hours. The participants used to fish 6-9 hours daily and collect coral 2 hours daily whereas the duck raising took only 6-9 hours daily. However the participants reverted to fishing while their family members took care of their ducks. The involvement of family members in the activity is, however, a positive aspect since they usually collected coral during the whole day.

Participants are actually aware that the coral reef is a protected marine biota. More than half of them acknowledge that coral collecting is not allowed since it can destroy the ecosystem of coral reef and in the end erosion will be inevitable. Now, all participants have stopped collecting coral for several reasons. The main reason is that they receive assistance from project; another reason is that mining is prohibited; and the last is that the participants think that coral reefs should be protected to increase fish production and to prevent erosion.

### *Seaweed farming*

Seaweed farming is not a strange activity for participants in Gili Islands (Gili Air, Gili Meno and Gili Trawangan). They had been cultivating seaweed two years before they had to stop when El Niño occurred in 1998. They lost all their capital and they could not start up again. Most of them returned to their original jobs as either blast fishers or muro-ami fishers. With support from the program they started cultivating

seaweed again. They received assistance such as credit for 15 people in which each of them obtained Rp 250,000, and they took seaweed cultivation courses.

This type of business made little difference in their income. They earned just enough money to cater for their basic needs and they were not able to pay back their loans. The growth of seaweed was very slow since the surrounding physical conditions were not conducive. The water temperature was not stable and it was mostly too warm for seaweed. The working hours of participants were relatively few. Participants worked for three hours in the morning and two hours in the afternoon. In between they could do either fishing or other things in their free time. Normally, they should work about 8-9 hours during a daily since seaweed actually needs much care.

Participants were fully aware that coral reef are important in their roles as providing habitat of marine biota and preventing erosion on beaches. They also understood that tourist come to the islands because of the beauty of coral reef and underwater scenery around the islands. The development of tourism has brought about many advantages for local people involved in the tourism industry in particular. However, due to the scarcity of jobs they carry out destructive practices just to survive.

### ***Ecological Consequences***

The ecological condition of coral reefs in Gili Islands has deteriorated as indicated by the results of previous assessments using the trend of living coral cover during 1995-1999. Suharsono et. al (1995) found that 25% of the results were categorized as excellent (more than 75% reef cover), 25% were good (more than 50% reef cover), 12.5% were bad (more than 25% reef cover), and 37.5% were very bad (less than 25% reef cover). He noted also that coral cover on the offshore islands and patch reef ranged from less than 10% in areas devastated by blast fishing to more than 80% in relatively undisturbed areas.

By applying line transect method in 2 observation stations in Gili Air and 3 observation stations in Gili Trawangan, the author found that the live coral cover in Gili Air were categorized as very bad with 10% of reef cover. A form of soft coral included in other fauna dominated the live coral cover in the area. Meanwhile, the live coral cover in three different sites of Gili Trawangan varied from about 2% to 78%. Hard coral (non acropora) was a predominant form of live coral cover in the area.

The ecological condition of coral reefs in the island is worse compared to the result of the previous investigations and this is mostly due to the increase of seawater temperature influenced by the El Niño phenomenon that occurred in 1998. Nevertheless, some important observations can be made here about the implication of the program. The jobs created by project have apparently attracted much attention and participation from the local people because they can cater for their needs without causing damage to the coral reefs. The development of alternative sources for livelihood that depends on the willingness of local community as well as the availability of local resources has resulted a high level of participation from local people. The introduction of environmental-friendly alternative sources of income can reduce the threats to the coral reef ecosystem since people tend to lessen their destructive activities when they do not depend on them to make a living.

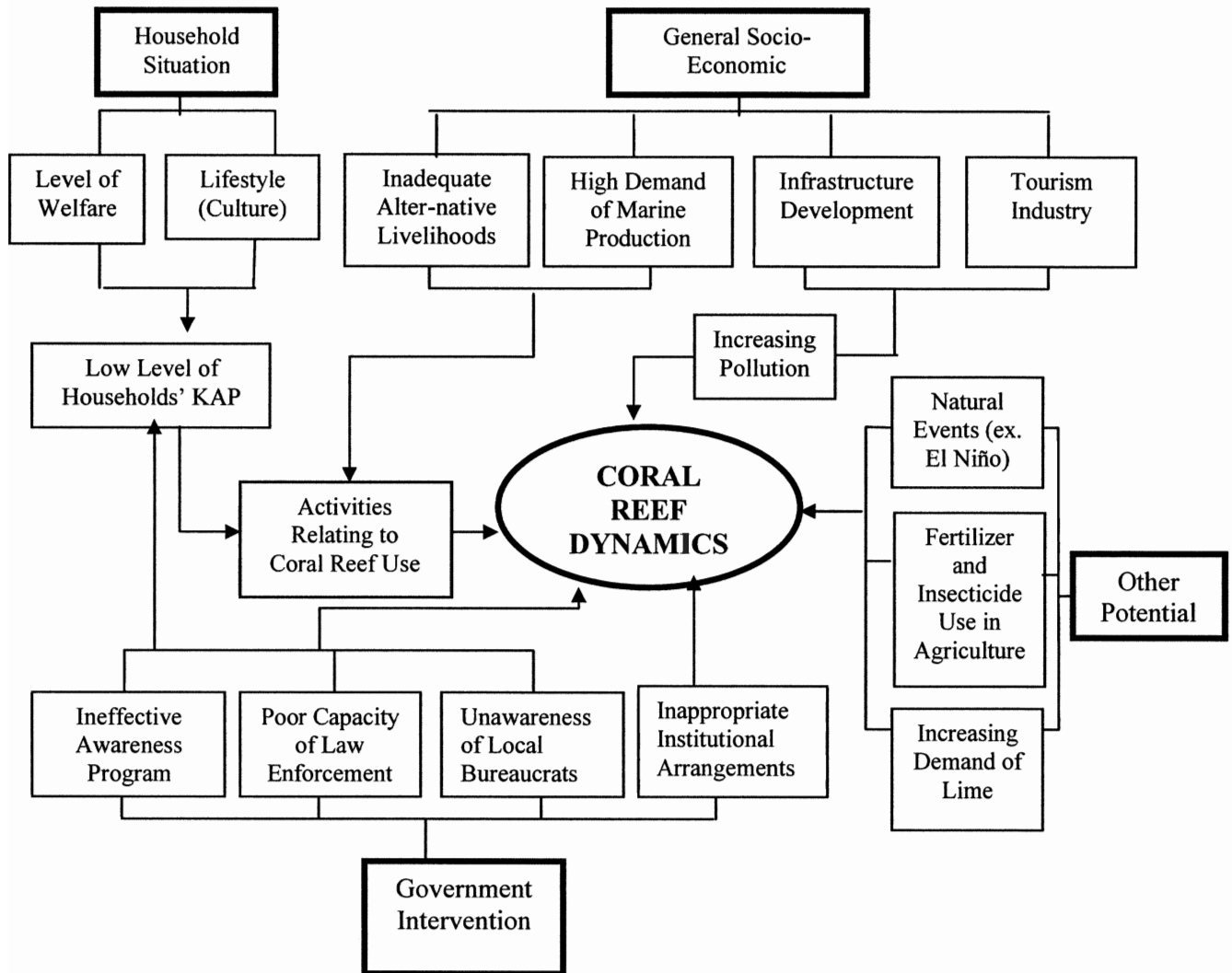
## Conclusion

The income, working hours, savings and lessening of pressure on the coral reefs caused by the creation of small trading businesses indicate positive tendencies comparing with the situation before intervention. In contrast, the income, work hour, and savings of people in the duck raising business and seaweed cultivation indicate negative tendencies. It means that the environmental conditions of the reefs introduced by creation of the three aspects of business after intervention are not much better than those before. Fortunately, all of the participants acknowledge that they have given up practicing destructive activities of coral reef so that the pressure on coral reef has significantly been reduced. The development of alternative sources of income is imperative to protect coral reef ecosystem from any destructive exploitation of its resources and to improve the standard of living of local people. However it must be planned properly to meet the needs and capacities of participants and followed by services such as guidance, technical and management skill training, and a credit scheme. In addition, people's awareness of the need to protect the valuable resource represented by coral reefs is a requirement to succeed in the coral reef conservation program.

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## Appendix: Factors Influencing Current Coral Reef Dynamics in the Research Area



## CHAPTER 4

# Social Forestry to Alleviate Poverty: Concepts and Experiences in Indonesia

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### **Abstract**

*A number of concepts have been introduced to alleviate poverty. Social forestry is one of these concepts aiming to reduce the poverty of people living in or near to forests. There are various terms for social forestry in Indonesia, such as prosperity approach, forest village community development (PMDH), and community forestry. One of the key aims of social forestry is to improve the livelihoods of people in rural communities. Social forestry can be looked upon as an important form of applied welfare economics. The poor people are targeted as project beneficiaries because they are often (potentially) the agent of forest degradation. It is assumed that forest conservation and management can be improved to the extent that the standard of living of the poor is raised through social forestry. There are two central objectives that should be met to raise the standard of living of the poor through social forestry. First, social forestry should involve the poorest of the poor as participants in the social forestry. Second, social forestry should provide adequate income support to the participants. Some reviews reported that the practice of social forestry is much more complicated than stated in the ideal concepts. The achievement of social forestry objectives varies from place to place due to the difference of socio-economic, cultural, and political environment. This paper examines some relevant concepts and practices of social forestry related to poverty alleviation in Indonesia.*

**Key words:** *Indonesia, Poverty, Rural Development, Social Forestry*

### **Social Forestry: A Relevant Concept to Alleviate Poverty**

Poverty is a serious problem in many developing countries including Indonesia. A lot of concepts have been introduced and numerous efforts have been made to solve the poverty problem. One of the most popular programs, which is aimed to alleviate poverty of the communities within and surrounding forests is social forestry. The key aim of social forestry is to improve the living standards of people in rural communities. Furthermore, Sharma (1996) stated that planning in any social policy - such as social forestry- can be looked upon as an important form of applied welfare



economics. The poor people are targeted as project beneficiaries of social forestry because they are often the agent of land and forest degradation and deforestation.

Some definitions of social forestry are important. Tiwari (1983), for instance, defines that social forestry is the science and art of growing trees and/ or other vegetation on all available land, in and outside forest areas and managing the existing forests with intimate involvement of the people and integrated into other operations, resulting in balanced and complementary land use with a view to provide a wide range of goods and services to the individuals as well as to the society. Beside social forestry there are various terms that have similar meaning. Kartasubrata *et al* (1995) mentioned at least five terms for the social forestry practices in Indonesia, that are "prosperity approach", "Pembangunan Masyarakat Desa Hutan (PMDH=forest village community development)", "Hutan Kemasyarakatan" (HK=community forest), "Perhutanan Social" (PS = social forestry) and "Kehutanan Masyarakat" (community forestry).

Social forestry has an ideal mission involving ecology, economy, and social aspects. As was stated by Perhutani (1988), the long-term objectives of social forestry are first, developing critical lands; second, performing active participation of local communities in forest development; third, increasing prosperity of local communities; fourth, conserving quality of environment and resources to meet the needs of people, and fifth, relieving pressure on forest resources. In the other words, the purpose of social forestry is to conserve forest resources while at the same time increasing prosperity of forest communities, assuming that forest conservation and management can be improved to the extent that the standard of living of the poor is raised through social forestry.

Poverty reduction is the most important objective of social forestry. Sunderlin (1997), refers to two central objectives that should be met to raise the standard of living of the poor through social forestry. First, social forestry projects should involve the poorest of the poor as participants in the social forestry project. Second, social forestry projects should provide adequate income support to project participants. However, not all social forestry programs are successful in meeting the objectives because some social forestry projects are conducted wrongly, without considering local capacity or lack of technical guidance before implementation.

## **Social Forestry Practices in Indonesia**

The earliest social forestry projects in Indonesia were conducted by Perhutani. Perhutani is a State Forestry Corporation, which manages Forest Plantation- mainly Teak (*tectona grandis*)- in Java. Perhutani introduced some kinds of social forestry practices both in and outside forests. The most common social forestry practice conducted inside forests is agroforestry. Agroforestry is defined as a land use system with specific production objectives, whereas social forestry is a forest management system with specific socio-economic objectives (Kartasubrata *et al*, 1995). Through agro forestry, participants are given temporary usufruct rights to plant crops between rows of reforestation trees on state land. In exchange for these usufruct rights, participants agree to protect reforestation trees and prevent unauthorized land use on their plots. Plots are generally awarded one to household and range from 0.25 to 1 ha in size. In Indonesia, agro forestry is usually conducted in Java while in the outer Java community forestry is more common. Besides social forestry practices inside forests such as agro forestry or community forestry, social

forestry has also been conducted outside forest areas such as through Village Community Development Program (PMDH).

Unfortunately most social forestry projects are focused mostly on technical concerns, such as silvicultural as well as production aspects. Socio-economic and marketing issues, for instance, have received little attention, whereas successful increase in production volume would not mean anything without success in product marketing. Usually rural people as well as social forestry participants have little understanding and lack of capacity in marketing. In the case of community forestry business of "Kemenyan" (*styrax sp*) in the North Tapanuli for instance, one may refer to the situation of the participants to be unable to respond to the market. The price of "Kemenyan" at the peak of an economic crisis drastically increased, while the supply of "Kemenyan" was still or even decreased (Nurrochmat, 2001). The marketing failure could also be observed in other places. Agricultural goods have a high risk of losing quality over time specially in cases of marketing failures. In Java, for instance, large stocks of agroforestry products could not be sold in time and then decreased in quality causing a loss of profit (Nurrochmat, 1999).

### Prosperity and Income Disparity

The portion of income from social forestry contributed to the total income of social forestry participants differs greatly from place to place. The income of social forestry participants from agro forestry depends on the cropping technique, weather conditions, size and quality of agro forestry plots and market price of the products. Besides these factors, time expenditure for agro forestry also influences to the income contribution. Nurrochmat (1999) reported that in some forest villages of Sragen, Central Java, there was an interesting tendency that the higher the main income the higher the income from social forestry. The following table 1 also indicates that social forestry contributes significantly (23% to 40%) to the income of participants in Sragen. The higher proportion of social forestry contribution may have two meanings: first, it may mean that the participants are more willing to take part in social forestry, or second, they may have limited or no other alternative income sources. Table 1 shows the portion of income generated by activities of social forestry by participants from four forest villages in the region of Sragen.

**Table 1. Contribution of the Income Sources to the Total Income**

Location	Annual Main Income (Rupiah)	Annual Add. Income (Rupiah)	Annual Soc Fors Income (Rupiah)	Total Annual Income (Rupiah)
Tangen	825,000 45%	305,000 17%	694,000 38%	1,824,000 100%
Bluntah	1,448,000 54%	152,000 6%	1,061,000 40%	2,664,000 100%
Banyuurip	1,101,000 40%	1,041,000 37%	644,000 23%	2,786,000 100%
Jenar	2,985,000 66%	290,000 6%	1,241,000 28%	4,516,000 100%

Source: Nurrochmat (1999)

As was explained above, one of the most important objectives of social forestry is to raise the standard of living of the poor and it should involve the poorest of the poor as

participants. The following table 2 shows the distribution and average Income Per Capita Income of social forestry participants in the region of Sragen.

**Table 2. Distribution and Average Per Capita Income of Participants in Social Forestry**

Location	Under Poverty Line ( % )	Higher than Poverty Line ( % )	Per Capita Income (Rupiah)	Prosperity Level
Tangen	75%	25%	441,000	Under Poverty Line
Bluntah	50%	50%	662,000	Higher than Poverty Line
Banyuurip	70%	30%	584,000	Higher than Poverty Line
Jenar	35%	65%	1,107,000	Higher than Poverty Line

Source: Nurrochmat (1999)

According to the concept of the poverty line introduced by Sajogjo, people are in the “under the poverty line” category if their per capita income is less than equivalent to 320 kgs of rice. According to price of the worst quality of rice which was Rp 1,800/Kg (in 1999), only social forestry participants in Tangen are under the poverty line. The average per capita income, however, could not reflect income distribution. Although the average per capita income is high, the above table shows that in fact most people are still live under poverty line. It means that social forestry could increase people's income, but not solve the problem of income disparity.

One such case occurred in the three forest villages in the region of Tebo, in the province of Jambi, Sumatra. Timber is the most important source of income for most of the the villagers who work in 100 hectares logging businesses (IPHH=Ijin Pemanfaatan Hasil Hutan). There is indubitable evidence that the average income of logging workers has increased but the disparity among people also increased. This means that most of the benefits from small scale logging businesses are received only by small groups of people. Table 3 shows how the difference between the “richest” and the “poorest” in the three forest villages is very important.

**Tabel 3. Range of Distribution of the Richest and the Poorest in the Forest Villages**

Village	Range of Income Distribution	
	Highest Annual Income (Rupiah/capita/year)	Lowest Annual Income (Rupiah/capita/year)
Suo-suo	50,136,000	151,818
Teluk Langkap	19,650,000	522,857
Muara Kilis	21,124,800	336,000

Source: primary data (own survey 2002)

A high disparity of income implies that the rich tend to raise their income much higher than the poor. There are some reasons that may explain a high disparity between the

rich and the poor. First, social forestry programs as well as IPHH are mainly conducted by local elites which have more access to capital or closer relations to local decision makers. Second, in some cases the rich spend more time working daily than the poor. This means that efforts to increase the productivity of the poor are needed. Similar to the case of IPHH in Jambi, it is important to note the difference in attitudes of rich and poor participants in social forestry in Java. The rich farmers usually are more adapted to their job than poor farmers whose behaviour is much closer to that of a labourer than that of a farmer because they do not own land. Poor farmers tend to spread their time and energy over a several income sources, inside and outside the agricultural sector.

It can be observed in Sragen for instance that the success of social forestry programs depends on local well-educated motivators such as the village teacher who has high social status and a close relationship both with village community and forestry officials. A village teacher, who usually is also a farmer, is an ideal choice as the leader of a farmers' group and could motivate and share his knowledge with his fellow members, not only in theory but also by his experiences in the field.

### **Concluding Remarks**

The most important aim of social forestry programs is to alleviate poverty among forest communities. Research showed that the per capita income of social forestry participants is now higher than the poverty line. The income distribution, however, is still unequal. A large percentage of participants in social forestry still had households that could be categorized as "poor", even with sharing income from social forestry.

The rich tend to raise their income much higher than the poor due to a better access to both capital and power sources. It is also observed that in some cases, the rich spent more time working than the poor. In the case of agro forestry projects, it is noted that prosperous farmers' behaviour is better adapted to their job whereas the poorer farmers, because they do not own land, tend to act more as ordinary labourers and also have several income sources, inside or outside the agricultural sector, among which their time and energy must be shared. Special care must be taken in maintaining a bias to the poor section of the community. The poor people should be encouraged to participate in the social forestry program and to look for a fair distribution of social forestry allotments. Intensive awakening programs should be implemented to motivate the poor people.

Social forestry cannot be a success without the participation of well-educated people, who because they have a high social status and are close to both farmers, forestry officials, or even decision makers can act as motivators. This person could be a village teacher with a good educational background who is at the same time a farmer, and thus able to give counsel not only from what he has learned but also from his own experiences.

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## CHAPTER 5

# Improving the Livelihoods of the Poor through Livestock Keeping in Indonesia

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### **Abstract**

*Despite Indonesia's ability to reduce the number of poverty-stricken individuals over the past two decades, the number remains high and constant. In 1999 approximately 23 % of the total population lived in the need of help and by the year 2002 an estimated 18% of the total population (30 million people) lived below the poverty line. Poverty in Indonesia is still commonly a rural phenomenon. This means that substantial inroads can be made upon poverty only if the livelihoods of the rural poor are improved. Poverty in Indonesia can be reduced in three main ways: by increasing food consumption or reducing expenditure on food through increased production of staple food, by stimulating demand for the labour or services of the poor through growth in the economy, and by promoting sustainable improvements to the livelihoods of the poor. Basing oneself on the above, livestock in Indonesia can help to reduce poverty, because Indonesia has many natural resources that can be used in farming. If livestock development is to contribute to the reduction of poverty, it must be structured to result in (1) a reduction in the cost of food, (2) an increase in the employment of the poor, or (3) an improvement in the livelihoods of the poor. Thus it can be concluded that livestock is an important component of the livelihood strategies of many poor persons in rural Indonesia, although they may face many constraints in rearing livestock.*

**Key words:** *Indonesia, livestock, poverty, rural poor*

### **Introduction**

An estimated 1.3 billion people live in poverty. In Indonesia in 1999 approximately 23 % of the total population needed aid and by the year 2002 an estimated 18% of the total population (30 million people) lived in poverty. Poverty in Indonesia is still largely a rural phenomenon. For this reason, livestock raising in Indonesia can be an alternative source of income for the poor, because the abundant natural resources in Indonesia can be used in this field. An illustration, the total population of ruminants at

present is 25.075.166 animal units and the total population of non-ruminants is 10.461.224 animal unit (BPS, 2002). There is large scope to develop farming in rural areas of Indonesia and thus reduce poverty there.

### **Basic Principles for Reduction of Poverty**

Before discussing the details of reducing poverty through livestock keeping in Indonesia, we have to know the meaning of poverty. One of the most popular definitions of absolute poverty is the inability to satisfy essential needs (IFAD, 2002). Although there are many dimensions to poverty and poverty alleviation, there is a general agreement that three main ways in which poverty may be reduced are to:

- a. Increase food consumption or reduce expenditure on food through increased production of staple food;
- b. Stimulate demand for the labour or services of the poor through growth in the economy; and
- c. Promote sustainable improvements to the livelihoods of the poor.

If farming is to contribute to poverty reduction, then it must be structured so that (1) the cost of food is reduced, (2) the rate of employment of the poor is increased, and (3) the livelihoods of the poor are improved.

#### *Increasing Food Consumption or Reducing Food Expenditure*

Rising incomes and growing urban populations in developing countries are creating a strong demand for animal products: consumption of meat and milk is set to increase by 52 % and 17 % respectively between 1990 and 2010 (Alexandratos, 1995). Livestock rearing has often been focused primarily on initiatives of national food supplies in order to meet this growing consumer demand. Such approaches have logically sought growth of wealthier livestock-keepers, who are more likely to adapt to technical innovations and also increase their levels of marketed production.

An increase in supply of livestock products that originates from wealthier producers will have an effect on the poor only if it results in the lowering of food prices, as this will then enable them either to save on food expenditure or to increase their consumption of food. However, we do not see this happening, for two reasons:

- a. Firstly, the poor purchase minimal quantities of relatively expensive livestock products, relying instead on home production (Fresco and Steinfeld, 1998). Earlier studies suggest that the poor typically spend less than 1 % of their income on livestock products (Janke, 1984). This means that the price of livestock products needs to fall considerably in relation to that of other food products before poor consumers can increase their consumption of livestock products or reduce food expenditure. However as we shall see next, such price falls are unlikely.
- b. Secondly, livestock product prices are predicted to rise, instead of falling, relative to the price of staple grain, despite increases in domestic production (Delgado et al., 1998). This is because the income elasticity of demand for livestock products compared to crop products is typically high in developing countries (Shapiro,

1991). As a result, demand for livestock products rises rapidly with relatively small increases in per capita income (Peters, 1996).

It is important to bear in mind that although higher livestock prices are bad news for consumers, who, in the case of livestock products are likely to be relatively wealthy-higher prices are likely to be good news for livestock producers, including those who are poor. If significant numbers of poor people undertake livestock rearing (which, as we shall later on, appears to be the case) then it is likely that on balance the poor gain, instead of losing, from higher livestock-product prices. Efforts to alleviate poverty might be more useful if focussed on strategies that allow poor producers to take advantage of the surge in demand for animal products. This approach is quite different from the ones that aim to attend to the needs of poor consumers by increasing national livestock product supplies from larger-scale farms. So, the most effective way of increasing poor people's consumption of livestock protein is likely to be not by increasing market supplies of products that the poor cannot afford to buy, but rather by increasing poor people's production of livestock for their own consumption.

#### *Increasing employment opportunities*

As in the case of food consumption, raising employment opportunities for the poor by developing the large-scale commercial livestock sector is probably limited. Instead, a greater impact is likely to be achieved through approaches that focus directly on poor livestock-keepers themselves.

#### *Sustainable improvements to the livelihoods of the poor*

Unlike production- or employment-oriented programmes that tend to seek growth in the large-scale commercial livestock sector, a livelihood-based approach works directly with the poor. The livelihoods of the poor are improved by strengthening their capacity to cope with and recover from stresses and shocks, and by maintaining or enhancing their capabilities and assets (Carney, 1998).

The potential for livestock development to improve the livelihoods of the poor depends on whether the poor rear – or wish to rear – livestock, and the contributions livestock makes to people's capacity to survive both now and in the future. To assess the likely value of livestock-based interventions to the poor, three important points must be known. These are: (1) the number of the poor people who rear livestock, (2) the various ways in which farming contributes to the livelihoods of the poor, and (3) the constraints that livestock rearing has on the poor.

#### **Importance of livestock to the poor**

Livestock keeping contributes to the livelihoods of at least 70 % of the world's rural poor (UNDP, 1997), so it represents one of the few means of using natural resources to contribute to their income. Livestock also plays a valuable role in agricultural activities. Draught power allows timely cultivation during short growing seasons, whilst animal manure and urine improve soil conditions for plant growth. More than half of the arable areas in developing countries is cultivated with the help of draught power, and over 70 % of total fertiliser applied to land is provided in the form of manure (Fresco and Steinfeld, 1998). These interactions between livestock and



agriculture raise the nutritional returns per unit area of land (Water-Bayer and Bayer, 1992). Many people now consider the exploitation of the symbiotic relationship between crops and livestock to be one of the main opportunities for improving the livelihoods of many of the world's rural poor.

Poor households typically have either very small landholding or no land at all. A common observation is that as farm sizes diminish, farmers are increasingly turning to livestock as their main source of income (Thomas-Slayter and Bhatt, 1994; UNDP, 1988; George *et al*, 1989).

### **Contributions of livestock to the livelihoods of the poor**

There are many contributions of livestock to the livelihoods of the poor in Indonesia, as is shown bellow:

- a. Livestock are often one of the most important household cash income sources for the poor, which, when derived from small animals such as goats or poultry, or from milk or eggs, can readily be sold in small, regular amounts (Qureshi *et al*, 1996)
- b. Livestock are one of the few natural capital assets owned by poor households, and can be crucial in maintaining household survival in time of crisis (Webb *et al.*, 1992). Livestock can be accumulated in good times and sold when the need arises, such as for school fees or health care, and are both inflation-proof and productive investment (Beck, 1994).
- c. Livestock are pivotal to the farming system practised by the poor, providing draught power and manure when the purchasing of substitutes in sufficient quantities is often impossible (Tiffen *et al.*, 1994).
- d. Livestock allow the poor to gain private benefit from common-property resources independent of private holdings, and utilise feed that has few alternative uses (Beck, 1995)
- e. Livestock support livelihood security by diversifying risk and acting as a buffer to failure in crop yields, particularly in drought-prone environments (Bende and Venkataram, 1994).
- f. Livestock are particularly important for women, for whom they represent one of the most widely held and important assets, and one of the most rewarding income-generating activities available (Itty, 1997).
- g. Livestock provide a multitude of other benefits including food; transport of water, produce and other goods to and from remote markets and fields; fuel for cooking and heating; reinforcement of social support networks that are so important for the poor in times of adversity; and fulfilment of cultural and religious roles.

### **Constraints of livestock-rearing on the poor in Indonesia**

The difficulties poor households experience in keeping livestock in Indonesia may be understood by summarising constraints at each stage of the livestock-keeping cycle:

### *a. Acquiring livestock*

Poor households may face difficulties in acquiring livestock in the absence of effective credit or distributive mechanisms (Kinsey, 1994).

### *b. Maintaining and retaining livestock*

Livestock kept by the poor are typically vulnerable to disease, because animal health services and inputs are not available, or do not cater for the needs of the poor, or are simply too expensive (Catley, 1997). Feeding may be problematic since poor livestock-keepers are often more dependent than others on (usually diminishing) common-property resources and have insufficient private feed resources or money to compensate for shortfalls (Scarborough et al., 1997). Access to water is more likely to be a problem in the remote and marginal environments where the poor are concentrated.

### *c. Selling livestock and their products*

Poor livestock-keepers may be hindered in their access to markets due to remoteness and poor infrastructure, or at a higher level by trade barriers (Holtzman and Kulibaba, 1995). The prices they receive may be lowered by subsidised livestock production from elsewhere or by lack of competition among purchasers (de Haan, 1992). Consequently, there is a range of possible interventions that could improve the contribution of livestock to the livelihoods of the poor.

## **Conclusion**

It can be concluded that livestock in Indonesia has a big potential for reducing poverty in rural areas. To make this activity successful three approaches to livestock development must be considered: (1) to focus on increasing market supplies of livestock products for consumption by the poor, (2) to increase the demand for labour and services of the poor by creating growth in the livestock sector, and (3) to enhance the contribution of livestock to the poor people's livelihoods.

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## CHAPTER 6

# Urban Poverty or Proto-Urban Condition Misunderstood?

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### **Abstract**

*Instead of engaging in the dispute between the pros and cons of various programs and projects for reducing poverty, this paper briefly explores the possibility to connect “the icon of urban poverty” to another frontier. Three icons of the Indonesian city context, rickshaw (becak), street stall (kaki lima) and scavenger (pemulung), are re-interpreted in order to represent what we call the proto urban condition. This condition, as city’s internal “emotion”, drives the city into its individual pattern of growth. The paper connects those three icons with a mentality of the urban Indonesian society: namely, the culture of exclusion. Besides lack of money, the poor also suffer from this attitude, which affects their possibility to have proper access and balanced power. We may forget, or have misunderstood that, to alleviate and eradicate poverty, the critical subject is not the poor, but the rich.*

**Key words:** *Urban poverty, proto-urban condition, Indonesia, culture of exclusion.*

### **Introduction**

Certain urban problems are derived from a malfunction of the exchange between the open dynamic city and the submerged proto urban condition (Bunschoten *et al* 2001). In dissecting urban poverty this paper takes a rather different perspective. Although many programs and projects have been launched in Indonesian cities to combat poverty, literature and public opinion reflected in the media consider them with little satisfaction. An intriguing question may be raised about whether the literature and media have failed to represent the fact of poverty alleviation or if the programs and projects have indeed failed (or partly failed). Governmental medias, reports and official speeches normally claim the success of the combat and publicize the “best practices” and success stories of their programs. The opposing media, such as from independent NGOs however express their dissatisfaction either through exposing various cases of mismanagement, flaws, and misconduct of the officers taking part in such programs or by resisting execution of the program with a counter program.

Rather than engaging in that dispute, this paper rather attempts to discuss, metaphorically, a tectonic force, that is the reason why urban poverty may appear as a stubborn problem in Indonesian cities. This is what we call proto urban conditions<sup>1</sup>. This force must be understood since any intervention in the city— urban poverty alleviation for instance— can potentially collide with, or at least, run in a different direction from this condition.

This paper is intended to show one aspect of this force using three “icons” of urban poverty in the Indonesian city context. Like an icon in a computer, it is not the real entity (program or data file) but only a link, a representation, an interface. This paper, instead of linking those icons to the problem of how to eradicate urban poverty, links them to another theme: namely, representing our culture of exclusion. “Our”, here, refers to urban authorities, the private sector as well as “rich” individuals; or myself as a scientist, of course, included. This way of life, as will be shown later, is perhaps hindering the process of poverty eradication and alleviation we are discussing. Gaining access and power, which are the first step towards the eradication of poverty of money, is being made difficult for the poor because of this problem. To open the way for progress, we must start, not with the poor, but with the rich.

### **Defining Urban Poverty and the Indonesian Case**

Poverty is generally distinguished into two types namely absolute poverty and relative poverty. Absolute poverty refers to the lack of basic necessities and the inability to afford them. The UN-ESCAP (Economic and Social Commission for the Asia and Pacific) defines it as “the cost of the minimum necessities needed to sustain human life.” The World Bank currently regards people earning less than US\$ 1 a day (in 1993 purchasing power parity) to be absolutely poor. This poverty can be found not only in rural areas, where people’s earnings are limited to their agricultural products, but also in the city. The World Bank estimates that nearly 25% of the urban population in developing countries, meaning about 330 million people, lives in absolute poverty.<sup>2</sup> The most suitable course of action for this type of poverty would be to eradicate it completely from our planet. The second type of poverty refers to the relative condition of poverty that may vary from region to region, city-to-city as well as country-to-country. Having no telephone line in New York can be considered as poverty but it would seem luxurious if applied to an Indian or Indonesian family. Referring again to the UN-ESCAP, relative poverty is defined as “the minimum economic, social, political and cultural goods needed to maintain an acceptable way of life in a particular society.” Moreover, referring to the standard of the European Union, the relatively poor population is defined as “persons, families and groups of persons whose resources (material, cultural, social) are so limited as to exclude them from the minimum acceptable way of life in the member state in which they live.” For this particular type of poverty, we could not eradicate but alleviate it (UN-ESCAP 2000).

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<sup>1</sup> Proto urban condition is used by CHORA project (under the school of Architecture Association in London) to express that a city has “emotions,” see Raoul Bunschoten, Takuro Hoonisho, Hélène Binet (2001) p.21.

<sup>2</sup> Ron Shiffman, “Urban Poverty - The Global Phenomenon of Poverty and Social Marginalization in our Cities: Facts and Strategies,” <http://www.picced.org/lowres/poverty.htm>.

We should also consider that poverty is not only a case of lack of money, but also of lack of access and power. Poverty of money, of course, is always the most tangible form and is relatively easy to detect. Some measurements such as poverty lines and Gini-coefficients are widely used to assess absolute and relative poverty in terms of incomes and affordability. However, poverty of money is much more a symptom of poverty rather than the cause. In most cases, the poor are not without an income. They face problems on the ability to accumulate assets and wealth (UN-ESCAP 2000). Accessibility and empowerment hence are the key point to break the vicious circle of poverty. Poverty of access may be in the form of inability for people or a group of people to have bank credit, proper information, as well as other proper urban services and utilities. Public transportation for instance is almost always the only means of mobility for these groups of people. When a city does not pay enough attention to providing an adequate service, people will surely suffer from a lack of transport. Affordable access to water and electricity supplies are a basic need for the urban population especially for those living in the poor, densely populated, informal neighbourhoods. The Second Asian and Pacific Region Water Utilities Data Book, a report by the Asian Development Bank (October 1997), shows that the poor actually pay more to have the above-mentioned services compared to those who are in "formal" neighbourhoods, and are able to afford public services (Asian Development Bank 1997).<sup>3</sup> The other aspect, marginalization, is one of the major themes of poverty. In many developing countries where democracy and participation are lacking, power is centralized either to governmental institutions or to the market. Common people only have the ability to challenge the ones in power through certain limited mechanisms, which in many cases are not adequate to cope with the pressure of the powerful. New measurements of these poverties are being made, such as UNDP's Human Development Index. In this particular index, Indonesia, sadly, is ranked 110<sup>th</sup> in 173 countries, below Vietnam and other ASEAN countries except Cambodia.

Regarding poverty alleviation in Indonesia, my intention is not to consider it in this country as wrong or having failed. Rather, I intend to show that one aspect may be left uncovered. Let me illustrate how poverty is fought and how many programs have been set to that purpose.

After the crisis of 1998, the program of Social Safety Net, known as JPS (Jaringan Pengaman Sosial) was launched ([www.jps.or.id](http://www.jps.or.id)). It was aimed to give aid to the poor of both urban and rural areas especially for (a) food security (b) social protection, especially for health and education (c) creation of employment, and (d) generating economic activities. The rice subsidy (Operasi Beras), fuel subsidy (Operasi BBM), and urban labour-intensive works (Padat Karya Perkotaan) were also launched rather sporadically but essentially along with the JPS program. New arguments have emerged since then. The pro-JPS argument was that the JPS was needed in order to compensate the shock created by the crisis. The contra-argument was that the poor, due to a lack of control and mismanagement, did not receive the subsidies in their

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<sup>3</sup> This compilation reports that Bandung's poor people who buy water from informal vendors pay 50 times more than the population getting water from the city's water distribution network (6,05 US\$ in comparison to only 0,12 US\$ for 10m<sup>3</sup>/month cost of water in a month). Although the rate is far lower in Jakarta than in Bandung, the poor there still pay 1,97 times more than the supplied families (0,31 to 0,16). [http://www.unescap.org/huset/urban\\_poverty/poorpaymore.htm](http://www.unescap.org/huset/urban_poverty/poorpaymore.htm).

totality. Some other projects, many of them following the World Bank or any other supranational schemes, have also been launched. Integrated urban development has been launched for many cities including the well-known Kampung Improvement Project (KIP). The project has successfully been implemented since 1969. Jakarta and other big cities launched integrated housing development programs through building flats and providing affordable credit for housing (notable as Perumnas and KPR). The program of Mega Cities covers various attempts to strengthen public services such as transportation, water management, and providing electricity (energy).<sup>4</sup> Recently, the government set up a national committee for poverty alleviation (KPK - Komite Penanggulangan Kemiskinan Nasional). It is intended to promote (a) higher environmental utilization and supply for housing demand and better sanitation (b) entrepreneurship and local economies empowerment and (c)



**Figure 1. Becak drivers' demonstration in Jakarta, in 26 November 2000.**

Source:

[www.umwaelzung.de/aarchiv/aaktu\\_0112180.html](http://www.umwaelzung.de/aarchiv/aaktu_0112180.html)

social and community participation. The other program called Urban Poverty Alleviation Project or P2KP (Proyek Penanggulangan Kemiskinan di Perkotaan) has been in action in 58 cities and towns in 6 provinces on the north coast of Java since 1999. It will end in 2004. The second project will last from 2003 to 2008 and will cover 79 cities in 13 provinces in southern part of Java, Nusa Tenggara Barat, and Kalimantan (except East Kalimantan).<sup>5</sup>

Such well-designed programs, however, do not go without criticism and failure. Lea Jellinek has pointed out that the JPS Program “could destruct creative power, innovation, cooperation, and work hard ethos that have been developed among people to help them combat poverty.” Mubyarto, one of most prominent authorities on grassroot economies, expresses disagreement on the politics of rice, which for him makes farmers poorer and poorer.<sup>6</sup> Many NGOs and intellectuals sharply criticize numerous cases of mismanagement involved.<sup>7</sup> Here, however, there is no need or space to give the details about the criticism mentioned above. But one thing is sure and that is that the disjunction lies not in the way of how we deal with the program, the choice of strategies et cetera, but hypothetically, is in the way we discern the “force of the city.” Now let me show how poverty is “signified” in urbanity. It is signified since the form of poverty that I am discussing here does not necessarily mean actual poverty (in terms of money). In other words, it is merely an image, an icon of poverty, that does not necessarily represent the “fact of poverty” itself. Those icons of poverty may become a signifier – a representation – of our other problem: namely, the culture of exclusion.

<sup>4</sup> Mega cities Project <http://www.megacitiesproject.org/network/jakarta.asp>

<sup>5</sup> The speech of Soenarno, the minister of Housing and Community Infrastructure, 8 July 2003.

Source: Urban Poverty Project (Proyek Penanggulangan Kemiskinan Kota, <http://www.p2kp.org>).

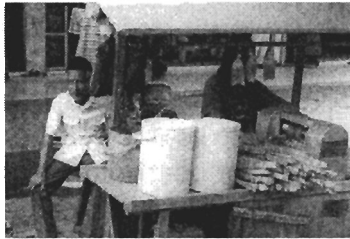
<sup>6</sup> The original comment is: “JPS justru bisa merusak daya kreasi, inovasi, kerjasama dan semangat kerja keras masyarakat untuk bangkit”

([http://www.komnas.go.id/indonesia/warkat\\_warta/edisi05\\_th2/kw\\_bingkai.html](http://www.komnas.go.id/indonesia/warkat_warta/edisi05_th2/kw_bingkai.html)). Mubyarto wrote the comment on JPS in Kompas 3 July 2001. The original title is “JPS Kebablasan” (JPS too far away).

<sup>7</sup> See [www.jps.or.id/informasi.html](http://www.jps.or.id/informasi.html)

## Representing the Proto Urban Condition

Becak (rickshaw), street peddler, and scavenger are the three most important “icons” of urban poverty. We will discuss these typical cases a little bit more.



**Figure 2. Photograph of a food stall**

Source: [http://intranet.usc.edu.au/wacana/indobase/egh\\_images/air\\_tebu.jpg](http://intranet.usc.edu.au/wacana/indobase/egh_images/air_tebu.jpg)

*The Operation of Becaks is still prohibited in Jakarta!*

The above quotation is a message contained on blind briefs that were circulated among people and becak drivers in Jakarta in May 2002. Although it was an unofficial message, it was enough for the *tramtib* (a unit of an urban authority responsible for public order) to launch several operations to eradicate becaks. Since declaring Jakarta free from becaks (based on the urban government decision on banning the becak No. 11/1988 and renewed by the High Court ruling No 3047/K/Pdt/2001) the urban authorities launched continuous operations to eradicate them, from persuasive operations to violent ones. Many reasons were given to ban the operation of becaks in Jakarta. Urban authorities find that they clash with Jakarta’s image as the capital city of Indonesia, are the source of traffic jams as well as being an “inhumane” mode of transportation. In recent days, only several hundreds becaks, operating clandestinely in some areas such as the north and outskirts of Jakarta, are left. Some drivers, under coordination of the Urban Poor Consortium, founded an association of becak drivers and sued the urban government in order to resist the ruling and the policy. So far, these actions have had little influence to keep this mode of transportation from disappearing in Jakarta.<sup>8</sup>

*Street stalls not allowed here!*

This is the message found on prohibition placards commonly found in many open spaces owned by exclusive estates. The reason for this prohibition is sometimes very simple: namely, to keep the grass in the open spaces from being damaged. It is becoming fashionable that real estates offer various kinds of “beautiful atmospheres” in order to attract tourism. The environment of famous cities (Amsterdam, London, Kyoto, Vienna etc.), as well as other famous neighbourhoods/settings on television or in films (“Beverly Hills”, for instance), is duplicated to create an attractive atmosphere. For the real estate businessmen, the presence of food stalls of “bakmi goreng” or “chicken satay” or “pecel lele” is regarded as “unsuitable” for the “Western” and exclusive style of this environment. The presence of any type of informal street seller (Fig. 2 as an example) causes worries as it is suspected to be the cause for a lowering of the reputation of those elite real estates and thus reduce their marketability (Cowherd 2002).<sup>9</sup> This puts one in mind of a word: ‘*kampungan*’, which

<sup>8</sup> <http://www.urbanpoor.or.id>. The renewed conflict between *tramtib* and drivers occurred on 2 August 2003 resulting in the death of one driver, Press Release Urban Poor Network (Jaringan Rakyat Miskin Kota) and Sebaja (Association of Becak Drivers in Jakarta).

<sup>9</sup> Robert Cowherd, in his dissertation shows how Mr. Ciputra, the owner of Ciputra Group one of the biggest real estate companies, Jayaland, and the president of REI (Association of Real Estate in Indonesia) dismissed the American designer Kaplan-McGlaughin-Diaz’s (KMD) proposal, which



connotatively means to lead a traditional and peasant life, and is associated with other words such as rural, poor, unsuitable for urban life style, kampung, an urban village, déclassé. In fact the history of street vendors, as Jellinek and Abeyasekere have lengthily illustrated, cannot be separated with the founding of the city (Jellinek 1991, Abesayekere 1989).<sup>10</sup>

### *No Entry for Scavengers!*



**Figure 3. Caricature of a scavenger family selling used goods for a living; the mother is saying, “Not bad, today’s pick is enough for two days’ food”.**

Source: [www.voctech.org.bn/virtual\\_ib/swisscontact/Sampah/image137.gif](http://www.voctech.org.bn/virtual_ib/swisscontact/Sampah/image137.gif)

This is a message written on placards which are normally pinned down at the entrance of enclosed or semi enclosed communities or neighbourhoods, or even in a well established urban kampung. This type of placard is commonly found in many neighbourhoods to protect them from the “danger” that the presence of scavengers in their quarters brings. It is widely believed that scavengers collect not only garbage but also valuables left unattended at home or in the garden. Some communities also worry that scavenging is only a cover for theft or robbing. The caricature explains the other side of story (Fig.3). Through scavenging a family may earn some money by selling the reusable garbage as second hand goods.

From those three examples, a range of levels of society – the government, the private sector as well as the ordinary people – see the “icon of poverty” as a problem. Becak drivers, kakilima sellers, and scavengers are on the lowest rung in the social ladder of employment. Experts and officers normally categorize them as “informal”, needing to be “formalized”. Urban designers, planners and architects do not take them into account in their planning. Or if incorporated, they are merely categorized as formal sellers, who look like informal sellers. But let me describe them rather differently. In some big cities in Germany like Berlin, Hamburg and Düsseldorf we can see a transportation system that is based on a similar system as that of manned peddle vehicles called Velotaxi. With lightweight and modern, well-equipped becaks, it is one of the alternatives for short distance transportation, although now it is mainly for leisure (<http://www.velotaxi.com>). Food stalls or other “light structures”, “do it yourself” constructions, “removable structures”, “temporary used architecture” are exploited in many developed countries as one of the alternatives for providing space. Research and development on the area is widening and intensify to find light, strong and easy to handle materials for construction. In the Hanover World Exposition 2000, the Japanese introduced temporary buildings of

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employed “the traditional Indonesian form” for his real estate project in Tangerang. The reason was simple: “it is not marketable” (Robert Cowherd, 2002, p.307-8).

<sup>10</sup> It is still quite different from the notion of kampung in Malaysia. In recent years, with the work of LAT, the well-known cartoonist in Kuala Lumpur, *kampung* gained much more respect in the way it has intrinsic values, tradition, and culture of the Malaysian (<http://www.lathouse.com.my>). In Indonesia, this kind of attitude, from my experience, has not really been developed except with the work of Rano Karno with his “Si Doel Anak Sekolahan” (<http://www10.telkom.net.id/karnosfilm/halb.htm>). The serial film is successful both in terms of business and cinema.

which 90% was made of recycled paper. Frei Otto has developed a tensile structure for the München Olympia Stadium that extends and resembles the logic of a simple temporary tent. Scavenging is also one of the methods of waste management. Many countries have successfully managed it as integrated waste management of the city and also an income generation for the scavengers. In Germany, there is a *Sperrmüll* and *Recycling Hof* that allows people to re-use unnecessary goods and reduces the “throwing away mentality” of the consumer society.<sup>11</sup>

The point is, in these illustrations, *becaks*, *kalikimas* and scavengers, are not always on the lowest rung of the social ladder of status. The experts and politicians drive and lift them up into meaningful, even “futuristic” alternative technologies. People learn and experience the “good side” of them rather than living with the bad image of that “profession” in their minds. But more important is its relation with a culture of improvisation. Ipsen illustrates that with limited resources and under bad conditions certain societies have the ability to improve their living, as long as they live in a flexible and conducive environment (Ipsen, 1990). Our attitude concerning the icons of poverty and our urban culture shows our tendency to block, to choke, to obstruct the poor in their effort to develop and improve their life from the early beginning. Urban law and regulation (as an expression of urban planning), real estates’ prohibitions, as well as communities’ placards produce “structural” exclusion of the culture of improvisation of the poor. Spatial planning as an act of improvement in this case contradicts itself. Indeed this way of life is the opposite of a planning culture, but developing a positive attitude toward this culture of improvisation through eradicating our culture of exclusion is perhaps the only way to help the planning to work. From this point of view, *becaks*, street stalls and scavenging are viewed as a possible way to improve themselves into a more suitable urban situation. It is our duty to give them a conducive and flexible environment as well as proper attention by improving the technology and systems available to them. And it is false to think that they do not need technology!

What I am going to describe through those two different pictures is that there are two different attitudes involved in the discussion on the icon of urban poverty. The situation in Indonesian cities on one hand and the situation in Germany on the other as an example of the “idealized type” show us the behaviour of the government (politics), the private sector (market), and individuals (society) concerning those aspects. The first tends to “marginalize” and the other to “internalise” them in the system and values. What the author means is that our city has its own proto urban condition, own emotion, own forces “internalising” or “marginalizing” within the city “system.”<sup>12</sup> The poor are in a critical position: excluded by our urban system and culture. We need technology, marketing techniques, public relations and other means to balance this force to make the situation better.

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<sup>11</sup> Klaus Töpfer, Executive Director of United Nations Environmental Programme (UNEP) in his speech on the XXI World Congress of Architecture, UIA Berlin 2002, uses the term “throwing away mentality”. For further elaboration on the congress report see UIA Berlin 2002 e. V (eds.) *Resource Architecture*, Basel (and others), 2002.

<sup>12</sup> It is interesting if we go further in analysing the seemingly lenient, but rigid political culture of urban authorities. The analysis will connect this attitude to the history of colonialism as indicated by Ryan Bishop, John Phillips and Wei Wei Yeo, (eds.) in *Postcolonial Urbanism, South Asian Cities and Global Processes*, New York, London, Routledge, 2003, particularly on the term *empirical* that coins imperial and empirical, p.19-22. But this is another chapter for further research.

Our criticism of poverty alleviation programs in Indonesia mentioned in this paper has nothing to do with some dualities – high or low technology, capitalism or socialism, rich or poor countries, good or bad programs et cetera – that normally colour the analysis. It rather deals with our understanding, or to be precise, lack of understanding on certain aspects; namely, internal forces of the city and its society. Multidimensionality of poverty (represented by those “icons” of poverty and their double interpretations explained above) could prove that we all have poverty. Although the poor suffer from a lack of money, their most important problem is the lack of power and access.

### **Epilogue: Letter to Urban Planners and Architects**

The role of urban planning and architectural design has its own ability to influence this proto urban condition, as the CHORA states, “Tools and other methods can be used either to see those conditions or to give intervention, to influence the behaviour of the city.” (Bunschoten *et al* 2001). However, besides developing those tools and methods, the most important is to change our attitude towards poverty alleviation. Changes should be made at least in the following respects:(a) instead of proposing urban planning and design as an “engineering” proposal, we should make “nurturing” urban societal changes since the former tend to “marginalize” people. The term nurturing indicates a slower process, an endogenous rather than exogenous force of the community, and adherence to raise consciousness rather than surgical projects and programs. (b) In cities, some processes of “informalization” as well as “ruralization” are needed rather than pursuing the formalization of all of urban life. All new designs and plans should consider them as one of embedded aspects of the city development.<sup>13</sup> (c) In all urban interventions, whether spatial or law enforcement, we should consider that the rich may also have little understanding or still believe in the “myth” of the poor. The straightening out of those misunderstandings and the eradication of prejudices are needed to reach a more suitable urban condition. And (d) we need to ensure other expertise – together with spatial arrangement and urban management – we could enhance their technology to match the future of our cities.

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<sup>13</sup> About informalization see Habitat Debate, December 2001, Vol. 7 No. 4 gives more details in this direction, see particularly “Letters” and Fernando Murillo “SMEs: The Informal Safety Nets”, *Habitat Debate*, December 2001, Vol 7 No. 4. From the historical perspective of Jakarta, see Abesayekere, 1989. “Ruralization” means that we should also consider an insertion of a village-like environment such as urban agriculture, animal husbandry etc. Technology plays an important role in realizing this idea as an answer for limited land supply (but not space!).

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# CHAPTER 7

## Poverty Alleviation in China: Progress, Policies and Implications for Developing Countries

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### Abstract

*Poverty alleviation lies at the heart of most mainstream developing goals, such as the Millennium Development Goals (MDGs) by the UN and the Unfinished Agenda by IFPRI. Notwithstanding the positive trend, alleviating and eliminating poverty remains a long-term historical task in a global perspective. There is still a range of commonly accepted options for poverty reduction, including diversifying the income base through non-farm jobs, investing in agricultural research and transferring technology, allowing markets to function freely, providing food subsidies, making credit available to the poor; investing in infrastructure building and promoting sustainable use of the natural resource base (IFPRI, 2001).*

*China is widely recognized for its achievements in reducing absolute poverty since the adoption of a broad program of rural economic reforms beginning in 1978. The Chinese government has a strong commitment to poverty reduction, its effective poverty reduction policies and programs, and the sustained dramatic reduction of absolute poverty over the last twenty years of reform, are exemplary by any standards. This paper is divided into the following three sections: the first one provides a general picture of poverty reduction, the main courses of the poverty alleviation in China will be described including three phases (rapid progress, temporary setback and resumed progress). The second section will illustrate main current policies of the Chinese government to alleviate poverty including the difference between the national and international poverty lines; it will also discuss the policy choices for poverty alleviation in the 21<sup>st</sup> century of China. The third section will be a summary of China's anti-poverty process, its experiences and lessons.*

**Key words:** *Poverty alleviation, China, policies, poverty line*

### Introduction

Poverty alleviation lies at the heart of most mainstream development goals, such as the Millennium Development Goals (MDGs) of the UN, whose first goal is to eradicate extreme poverty and hunger; and the unfinished agenda by IFPRI, in which reducing famine and poverty in the 21<sup>st</sup> century is highlighted among all the discussed issues.

Notwithstanding the positive trend, alleviating and eliminating poverty remains a long-term historical task in a global perspective.

China, as one of the largest developing countries, has seriously been bedevilled by poverty for quite a long time. With the great efforts of Chinese government, however, a huge progress has been achieved in poverty alleviation since the late 1970s, which is prominent in Asia and the Pacific region. The number of poor people in China fell precipitously from 250 million in 1978 to 50 million in 1997. A reduction in poverty on this scale and within such a short time is unprecedented in history and is considered by many to be one of the greatest achievements in human development in the twentieth century. Institutional reforms and other policies, promotion of equal access to social services and production assets, and public investments in rural areas all contributed to this success.

To illustrate the progress and policies in the process of China's poverty reduction we will not only summarize the course taken by China itself but also reveal some implications for developing countries, particularly for Asia and the Pacific region. This paper is divided into the following four sections: the first one provides a general picture of poverty reduction, the main courses of the poverty alleviation in China will be described including three phases. The second section will illustrate main current policies of Chinese government to alleviate poverty; it will also discuss the policy choices for poverty alleviation in the 21<sup>st</sup> century in China. The third section will summarize China's experiences and lessons during its anti-poverty campaign. The last section focuses on the implications of China's experiences in the poverty alleviation in developing countries, particularly Asia and the Pacific region.

### **Course of Poverty Alleviation in China**

Since the end of the 1970s, the Chinese Government has implemented a nationwide large-scale program for development-oriented poverty relief in a planned and organized way. This program has gone a long way toward alleviating poverty. The 20-year history of the anti-poverty campaign can be divided into three phases:

#### *Phase One (1978–1985): Poverty relief through Structural Reform in Rural Areas*

Before 1978, the number of Chinese living below the poverty line determined by the Chinese government exceeded 250 million and accounted for 33 per cent of the total rural population. Although this serious poverty situation had many causes, the major one was the restraint on the output from the land stemming from low enthusiasm for production in the people's communes; in other words, the operation system in agriculture is not suitable for development. Thus, a reform in the system was seen as the main measure for poverty reduction.

The reform had two parts. First, the land-ownership structure—the collective cultivation system in the People's communes — was replaced by the household responsibility system, which linked each household's income to its output. This change aroused the peasants' enthusiasm; productivity was released and output increased (Lin, 1992). Second, with the liberalization of agricultural market prices, the system of markets for agricultural products was rebuilt. Township enterprises were boosted because of the huge amount of capital invested by industrial and trading enterprises. With these changes, the land received full exploitation and rational use.

The national economy developed quickly. The increases in agricultural prices (by 15 per cent to 35 per cent for the main farm products), restructured agricultural industry towards high added-value output. Rural labourers were employed or got jobs in the non-agricultural sector. The poor population benefited from these changes, and many peasants living under the poverty line shed their poverty and backwardness. Between 1978 and 1985, the total population living below the national poverty line declined from 250 million to 97 million, and the incidence of poverty declined from 33% to 9.2% (The World Bank, 1996). Human poverty was also reduced in accordance with income poverty reduction. For example, infant mortality per 1,000 live births continued to decline from 52 in the late 1970s to 50 in the mid-1985 (Zhang, 1996).

#### *Phase Two (1986–1993): A Well-Planned and Organized, Large-Scale Campaign*

By the mid-1980s, most rural areas had obtained economic development rapidly with their own regional advantages. Nevertheless, due to social, economic, historical, natural, geographic and other restrictions, the gap between less-developed areas and other parts of China, especially the well-developed coastal areas, had expanded. The problem of uneven development in rural areas began to surface. Along with gradually increasing per capita income in Chinese rural areas, a large portion of the population had low incomes. Many of these people could hardly support themselves. They usually lacked food to eat, clothing to wear and houses to live in. As a result, the progress in poverty reduction was reversed. The incidence of rural poverty rose to 12.3% from 10.4%. Urban poverty rose from 0.2% in 1988 to 0.4% in 1990. And the adult illiteracy rate also rose from 23.5% in 1982 to 26.8% in 1987 (SSB).

The poor population was concentrated in certain areas, mostly in the economically less-developed middle and western parts of China. Moreover, many of these areas were the old revolutionary base areas and minor, remote and frontier areas. Whether the situation of the poor areas could be changed within a short period, and the poor given enough to eat and wear, had a very important bearing on the Chinese reform and opening, steady politics, the unity of nationalities, social stability and long-term coordination of national economic growth. Therefore, the Chinese government made a series of important decisions regarding the problem of poverty in rural areas.

- In 1984, the central government issued *A Notification on Changing the Situation of Poverty Areas in A Short Period*, demanding great attention from governments at all levels, effective measures and positive attitudes. It required that governments at various levels should devote heavy efforts to solving the poverty problem in over a dozen areas and to the strengthening of internal vigour in economic development.
- In 1986, the task of helping the old revolutionary bases, minority nationalities and remote and frontier areas to get rid of their poverty and backwardness was proposed as an important issue in the Fourth Session of the Sixth National People's Congress and incorporated in the Seventh Five-Year Plan (1986–1990).
- In June 1986, the Chinese government established the Leading Group for Economic Development in Poor Areas under the leadership of the State

Council. It was renewed in 1993 as the Leading Group for Economic Development and Poverty Alleviation (LGEDPA) at the State Council. The Leading Group was responsible for organizing, leading, coordinating, supervising and examining the economic development of poverty areas.

The Chinese government launched the work with a well-organized and large-scale plan for helping the poor and economic development. It moved the anti-poverty effort into a new historical period.

*Phase Three (1994–2000): Tackling the Key Issues Confronted by Poverty Regions*

Between 1986 and 1993, the poor population in rural areas was reduced from 125 million to 80 million, down by 3.2 percent annually; as opposed to the 9.4 percent annual drop between 1979 and 1985 (World Bank, 1996). Although rural areas were growing economically, the gap between the east and the west grew larger and the poor population became more concentrated in the middle and western parts of China. In 1994, Chinese central government defined 592 counties as state-determined poverty counties based on the criterion that the annual per capita income at county level was below 400 yuan; nearly 87 percent were in the central and western regions (SSB, 1995).

With the deepening of reform and economic growth in rural areas and the gradually diminishing poor population, the types of poverty and the reasons for it changed greatly. First, poverty incidence resulting from the agricultural system fell. Second, the poor population concentrated more in the south-western part of China (lacking soil), the loess plateau in the north-west (with a serious water shortage), the Qinba poor mountain area (less land, poor transportation and serious soil erosion) and the Qinghai-Tibet Highland area (a cold zone). These geographical features of poverty became more and more evident. The main causes of poverty were serious natural conditions, weak capital endowments and the backwardness of social growth.

- These changes prompted a change in the form of aid to the poor. Development-oriented projects replaced the earlier combination of system reform, economic growth and project development. Thus, in areas where poverty mainly resulted from geographical features, the work on reducing poverty and backwardness would be conducted only through specific projects, with no mistaking what they aimed at. This meant that, before the development problems of less-developed regional economies had been settled, the central task was to provide the poor with enough to eat and wear. In 1994, the Chinese government launched and implemented the State Eight-Seven Plan for tackling the key problems in poor areas. It aimed, within the following seven years and with the help from all walks of life, to enable the 80 million poor in rural areas to dress warmly and eat their fill. The Plan defined 592 poverty counties as the focal points; they accounted for over 72 per cent of the total poor population in the country. This was the first programmatic document with specific targets, objectives, measures and a time limit. With its implementation, the speed of reducing the population in poverty accelerated greatly.

To sum up so far, after 20 years' work against poverty, more than 200 million poor people in rural areas now had enough to eat and wear, which made their long-term



dream come true. This was a record never seen in either Chinese or world history. With the world's population of poor people increasing by nearly 10 million annually, it was exceptional that China performed so well. Despite the achievement of poverty reduction, there were still apparent inequities between rural and urban populations, between rich coastal areas and poor interior areas, between men and women, between minorities and majorities. The anti-poverty task is far from finished; great efforts still need to be made.

### **Main Policies of Poverty Alleviation in China**

The Chinese Government has formulated a set of policies for development-oriented poverty alleviation that conforms to the reality in China. The main policies of poverty alleviation are illustrated as the following:

#### *Defining the Standard of Poverty in Conformity with the National Conditions*

In terms of the poverty-stricken areas in China, the underdevelopment is mainly reflected in the following: the weak infrastructure, the rapidly growing population, the low level of education, the poor public health and other basic social services, the poor agricultural production conditions, low revenue, and seriously inadequate public input.

Other than the international standard used by the World Bank, which takes \$1 per person per day as the poverty threshold, the national poverty line that the Chinese government has adopted is different. China has used the following different criteria in different periods to define the poor: (1) between 1978 and 1985, rural people who lived below 120-150 yuan were poor; (2) between 1986 and 1992, rural people who lived below 200 yuan were poor; (3) in 1993, the poverty line was 300 yuan; (4) in 1994, the poverty line was 450 yuan; (5) in 1995, the poverty line was 530 yuan (Pan et al., 1995; Zhang, 1997); and (6) in 1998, the poverty line was 635 yuan (LGPR, UNDP and World Bank, 2000). China's poverty line was drawn according to calculations of the minimum subsistence level. That level equalled the annual cost of a subsistence food basket containing grain, vegetable oil, vegetables, pork, and eggs, and providing 2,150 calories daily per person. The poverty lines used in the last 3 periods are more scientific than the other three because they were designed by including both a food poverty line and a non-food poverty line based on the survey conducted by the State Statistics Bureau concerning changing prices and farmers' livelihood, namely the subsistence food basket was corrected with the additional cost of essential non-food items (Ying, 1997).

China's standard of poverty is the standard of the lowest expense to maintain one's basic subsistence. Since the World Bank and the Chinese government use different national poverty lines to measure the number of rural poor, the numbers that the Chinese government provides differ from the estimates of the World Bank.

#### *Defining the Key Poverty-stricken Counties to be aided*

To use poverty relief funds to effectively aid the poor, the Chinese Government has formulated the standard of the key poverty-stricken counties to be aided by the state. The standard in 1994 was less than 450 Yuan in per-capita net income in 1992. According to this standard, 592 counties in 27 province level units were listed as the

key poverty-stricken counties to be aided in the 8-7 Plan. The state has driven forward the solution to poverty in the rural poverty-stricken areas across the country through concentrated and effective aid to the impoverished counties. The state has explicitly demanded that all aid-the-poor funds must be used in the poverty-stricken counties.

#### *Putting the Stress on the Central and Western Regions*

It is an important strategic measure to favour the central and western regions in China's policy. China's rural poor are mostly concentrated in the central and western regions. The Government started to adjust the regional structure of the allocation of the state poverty relief funds in 1994 and to formulate preferential policies to actively promote a horizontal union between the eastern and western regions, and the aid-the-poor cooperation between similar departments of different institutions. The state has arranged preferential construction projects of infrastructure facilities, ecological environment and resource development in the western region, steadily increasing its investments and its financial transfer payments to the western region.

#### *Increasing Capital Input for Poverty Reduction*

Over the past 20 years, the special aid-the-poor funds arranged by the Government have constantly increased. The accumulative total of such funds have reached over 168 billion yuan. Local governments have also increased the aid-the-poor funds according to the proportion of supportive funds set by the Central Government. The special aid-the-poor funds of the Chinese government mainly include two categories: financial and credit funds. China's preferential policies for the development-oriented assistance to the poverty-stricken cover two aspects-helping the poor households to solve the problem of food and clothing, and supporting the economic development of the poor areas.

#### *Carrying Out the Responsibility System*

The central Government established a Leading Group to be responsible for this work and the local governments also established organizations. China practices the level-by-level responsibility system. The principal leaders of the provinces are required to personally supervise the work and assume overall responsibility. The Central Government issues the relief funds in one lump sum to the provincial level, all of which are to be arranged and used on a provincial level.

#### *Strengthening the Building of the Primary Organizations*

The rural primary organizations in China are important. The Chinese Government has put special emphasis on improving the rural organizations at the village level in its poverty reduction drive. In the past year, the Chinese Government has vigorously carried out the direct election system of villagers' committees in rural areas. Village affairs, such as revenue and expenditure, the distribution and use of the poverty relief funds, and the conclusion and alteration of contracts are left open to the villagers for their examination and supervision.

Alleviating and eliminating poverty remains a long-term historical task for China. In order to quicken the pace of solving the problem of poverty, the Chinese Government

officially issued the Outline for Poverty Alleviation and Development of China's Rural Areas (2001-2010), setting out the objectives, tasks, guiding ideology, and policies and principles for the work in this regard in the coming ten years. The development-oriented poverty alleviation drive in rural China early in the 21st century is a rare historical opportunity, but it still faces serious challenges and problems. The Chinese Government will adopt the following ways and means in its poverty alleviation work up to 2010(Li, 2002):

- (a) Continuing to put the stress on crop cultivation, aquaculture and poultry raising, and efforts will be concentrated on helping the poor people to develop special, competitive products in this field.
- (b) Promoting the industrialized operation of agriculture.
- (c) Increasing budgetary funds and loans for poverty alleviation.
- (d) Improving the basic production and living conditions of the poor areas.
- (e) Improving the science-technical and cultural qualities of the masses in the poor areas.
- (f) Encouraging economic organizations with diverse forms of ownership to assist the development of the poor areas.
- (g) Mobilizing the whole society to assist the development of the poor areas.
- (h) Promoting international exchange and cooperation in development-oriented poverty relief.
- (i) Standardizing the work of development-oriented poverty alleviation.

### **Major Experiences and Problems of Poverty Alleviation in China**

In carrying out its poverty alleviation plan, China has had a big success. The main experiences can be listed as follows:

#### **Insisting on the Policy of Development-oriented Poverty Alleviation**

Providing development-oriented aid to the poor is a big reform. Adhering to this policy means centering efforts on economic construction, supporting and encouraging cadres and ordinary people in poor areas to improve their production conditions, exploit local resources, develop commodity production, and strengthen their ability to accumulate funds and develop by themselves. Combined with the development-oriented aid, the poor areas can get sustainable development, and enhance their ability to make further progress.

#### *Aiding the Poor with Technology and Education*

The Chinese Government has provided special funds for aiding the poor with technology and encouraged institutions of higher learning and scientific research to promote advanced practical agro-techniques in poor areas, and has organized scientific and technological personnel and research institutions to teach in poor areas or promote agro-techniques in poor townships or villages.

## *Mobilizing all Social Sectors to Participate in the Fight against Poverty*

In accordance with the actual conditions of the poor areas, governments have played an active part in the development-oriented poverty reduction drive. They have drawn up specific implementation plans for their own technological aid projects, employing a series of favourable policies to help poor areas to develop. The poor areas themselves have put energetic efforts into the poverty reduction work in specific areas. Social organizations, non-governmental organizations and private enterprises have actively initiated or participated in a wide spectrum of aid-the-poor activities.

### **Regional Cooperation**

China has adopted the idea of getting the more-developed provinces and municipalities in the east to support the development of their western counterparts. Such cooperation between the eastern and western regions focuses on improving the production conditions and ecological environments in the poor areas as well as solving the food and clothing problem in these areas.

### *Aiding the Poor by Migration and Resettlement*

The state encourages and supports poor peasant households to move out of areas with extremely difficult living conditions to more favourable areas, which is a new way to solve their food and clothing problem. To increase the chances of employment and the income of workers in poor areas, the state encourages and organizes the transfer of labour to more favourable areas favourable. Such labour transfers will not only increase the employment and income of workers from the poor areas, but, more importantly, it will also enable these people to learn new technologies, life-styles and working methods.

### *Combining Poverty Reduction with Environmental Protection*

While developing the poor areas, the Chinese Government pays close attention to the protection of the ecological environment. Poverty reduction by reliance on science and technology has helped to change the previous way of production by indiscriminate means at the expense of the ecology in poor areas.

### *Promoting International Exchange and Cooperation*

The Chinese Government carries out its aid-the-poor program mainly by its own efforts, at the same time paying attention to exchange and cooperate with the international community. The Chinese Government believes that promoting such exchanges and cooperation will not only help speed up the solving of the food and clothing problem of its own poor population, but it will also help raise the general level of China's aid-the-poor work by learning from the experiences and successful methods in aiding the poor of the international community.

However, besides its experiences, China's poverty reduction efforts also teach us several lessons: growth does not always bring a good poverty alleviation performance; slow agricultural growth brings slow progress in poverty alleviation; without timely public intervention, the close relationship between the participatory growth and rapid poverty reduction cannot be sustained; political commitment to

poverty reduction must be combined with financial commitment at all times and the government should always endorse education-for-all and health-for-all policies.

### **Implications for Poverty Alleviation in Developing Countries**

On the whole, China's program for poverty alleviation is successful and prominent not only in Asia and the Pacific region but also all over the world. Poverty alleviation is complex, and its solutions rest with its causes, no solutions can be derived before these causes are examined. From China's experience, some implications for future fights against poverty in developing countries can be derived:

- (a) It had been proved by China's practice that it is necessary to make institutional and technical innovations in developing countries in order to quicken the process of poverty alleviation.
- (b) It is important to fully use the market mechanism in order to allocate the aid-the-poor resources efficiently and fairly. In addition, more attention should be paid to the transmission mechanism of aid-the-poor resources in order to reduce the leakage in any intermediate links.
- (c) The Government should pay special attention to the weak groups, such as ethnic minorities, the poverty-stricken disabled persons and poverty-stricken women, etc.
- (d) It is very necessary to improve the international cooperation through international meetings and training programs in order to share experience and to collaborate to fight against poverty.
- (e) It is useful to consult experts to monitor and evaluate the process, policies and the implementation in poor regions. In addition, the government should promote new scholars to participate in this work by financing small-sized investigations and research projects.
- (f) The developing countries, especially in Asia and the Pacific region, should mobilize the whole society to assist the development of the poor areas and to promote international cooperation, especially, to appeal for developed countries' aid for reducing poverty.

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**PART II**  
**STRATEGIES TO ALLEVIATE POVERTY**





## CHAPTER 8

# Community Agreements on Nature Conservation as a Poverty Alleviation Strategy:

Case Study in the Villages of Lore Lindu National Park,  
Central Sulawesi, Indonesia

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### **Abstract**

*Negotiated agreements between local communities and state agencies concerning the management of natural resources in reaching sustainable rural development have gained increasing importance in recent years. This approach has been identified as a promising strategy to overcome shortcomings of conventional participatory approaches, such as the neglect of power relations and conflicts of interests. The pressure of a growing population (birth rate and migrants) is blamed as being the driving force for local people to encroach on the protected areas surrounding the national park. This is due to the fact that a large number of poor people depend on the forest for their livelihood. For them, nature and the forest may serve as safety nets although it proves difficult to significantly increase their income. Taking the case of community agreements on conservation in the area of the Lore Lindu National Park as an example, the paper analyses such agreements from "the perspective of economic analysis". Following this point of view, the problems of nature conservation arise due to negative external effects that are associated with the use of natural resources. The empirical analysis shows that the agreements differ considerably, depending on the value orientation and objectives of the NGOs promoting the agreements. The paper shows that this model offers useful insights into the logic behind the different agreements promoted by three different NGOs. Finally, it concludes that community agreements on conservation represent compromising approaches for a better standard of living of the poor villagers through institutional arrangement involving local people in park management. Nevertheless, the internal differences within local communities represent a challenge to this approach.*

**Key words:** *Poverty, sustainable protected area, negotiated agreements, Indonesia*

## **Introduction**

In the Lore Lindu National Park (LLNP) of Central Sulawesi, the intensive park management program has not been successful yet, because the capacity of the state to enforce the regulations pertaining to protected areas is proved to be limited. In the wake of the economic and political crisis that struck the country in 1998, small peasants, poachers, and illegal loggers have increasingly encroached on the park by illegally converting parts of it into plantation. Therefore, the prevailing assumption is that the way to reduce the pressure on the park is to institute collaborative management among people in the vicinity of the park and the park authorities. In this national park, different non-governmental organizations (NGOs) have been promoting the establishment of community agreements on conservation (*Kesepakatan Konservasi Masyarakat-KKM*). These approaches can be defined as:

“Negotiated agreements between community representatives and the National Park Management, which constitute part of a co-management strategy, and are expected to find a balance between the goals of nature conservation and the objectives of the local communities to secure self-determined sustainable livelihoods”

Against this background, the agreements aim to solve the problem of conflicting interests, thus reducing the major threats to the LLNP. At the time we are writing, efforts to establish community agreements have been conducted in approximately 40 of the 60 villages located close to the Park, and 8 agreements had been recognized by the park authority (BTNLL). What makes these agreements particularly interesting is the fact that these organizations with different visions have played a pioneering role in promoting them.

Dedicated community leaders and a Park management with a strong vision to promote harmony between nature conservation and the local communities have made the community agreements possible. The research took place within the Indonesian-German research program STORMA (Stability of Rainforest Margins in Indonesia) and was funded by the German Science Foundation (DFG) and the German Agency for Technical Cooperation (GTZ-TOEB).

## **Concept of External Effects**

From the perspective of environmental economics, problems of nature conservation arise due to negative external effects that are associated with the use of natural resources. External effects are defined as actions of economic agents that affect the production or consumption possibilities of others in a way that is not captured by the market-mechanism. The conversion of tropical rainforests to agricultural production, for example, causes negative external effects because it reduces biological diversity. The costs arising to the society and future generations caused by reducing biological diversity are not considered in the farmers' decision to convert tropical rainforest. The environmental economics literature proposes three classical solutions to the problem of externalities: (1) state regulations that restrict the actions leading to external effects, (2) Pigou taxes that internalise the costs caused by the external effects, and (3) bargaining between the party causing the external effect and those affected by it (Coase 1960).

Protected areas, so far the globally most important approach in nature conservation, are a prime example of the first solution: state regulations. From the perspective of environmental economics, regulations are generally considered as less efficient than taxes or the bargaining solution, because they create no incentive to reduce the externality further than the limit stated by the regulation and they do not usually achieve the required reduction of the negative environmental effects with the lowest possible costs. Taxes, the second solution to external effects mentioned above, are hardly applied in nature conservation. The enforcement problems of this solution would probably be similar or even more important than those arising in the case of state regulations. Collecting taxes from a high number of partly or even largely subsistence-oriented farmers is obviously difficult.

Negotiated agreements on nature conservation represent the third solution to externalities mentioned above: the bargaining solution proposed by Ronald Coase in 1960 in his paper on "The problem of social cost," which is according to Posner (1993: 195) "widely believed to be the most frequently cited article in all of economics." As a starting point of his analysis, Coase (1960: 2) emphasized the reciprocal nature of externality problems:

"To avoid the harm to B would inflict harm on A. The real question that has to be decided is: should A be allowed to harm B or should B be allowed to harm A? The problem is to avoid the more serious harm."

With regard to nature conservation, this aspect is crucial. Taking the example of rainforest conversion, one has to acknowledge that "to avoid the harm to B", which is in this case the society suffering from reduced biological diversity, "would inflict harm to A". In this case, A stands for the farmers, who would suffer an income loss, if they were not allowed to use the land for agricultural production.

## **Research Area and Methods**

The research was conducted in the Lore Lindu National Park, which, due to its rich biodiversity and its high endemism, was declared one of the seven most important national parks in Indonesia. Moreover, it has been nominated as a world heritage site, designated as a UNESCO Biosphere Reserve, and recognized as a Center for Plant Diversity, and one of the Global 200 Eco-regions (Olsen and Dinerstein, 1998). The park is surrounded by 120 villages in the six sub-districts in which it is located, 60 of which are located close to the Park, some are enclaves inside the Park.

In line with the research objectives, combinations of empirical research methods have been applied. First, interviews were held with the three NGOs and representatives of the Park Management in 2002. The author also selected six villages for further research. Second, interviews of community leaders were made in six villages, who were identified using the "snow-ball system", i.e., by asking initial respondents to name other persons involved in the process of establishing the agreements. Third, in view of the increasing literature focusing on the challenge of involving disadvantaged groups in participatory processes, as indicated above, we also conducted a survey in a random sample of 10 % of the households. The sampling frame included only households whose members do not have official functions in the village (n=200), because the aim was to collect information on knowledge, participation and perceptions of the "common villager".

## Population Growth as a Driving Force of Poverty?

Population pressure is seen as the underlying cause of deforestation according to the neo-Malthusian approach. The growing population needs more food, fuel wood, timber and other forest products. However, this is still a debatable and weak argument. In contrast to neo-Malthusian views, Boserup (1965) appeared to be more optimistic about the effect of population pressure on natural resources management. It was predicted that population pressure will induce households to develop efficient manners in managing natural resources, such as reducing the fallow period; an intensified use of labour and capital per unit land; and the development and adoption of labour-intensive technologies and institutional changes.

In the area of LLNP, the population has grown rapidly due to natural growth and immigration, which was predicted as being a main factor contributing to deforestation and degradation of natural resources. Based on SCP (Site Conservation Planning) results of LLNP in February 2001, TNC found that the major pressure on park resources was exerted by the population which settled around the area and which depended very much on these resources (timber, rattan and opening new land). It was supposed that in last two decades the migration rate increased because of land availability especially in mixed population villages (Birner and Mappatoba, 2002).

Through the interview with the village leaders in 2002, it was found out that in the past, the local people in the vicinity of the park benefited from an abundance of land resources, under the collective regime of land ownership. The arrival of migrants, particularly from South Sulawesi at the end of the 1980s for starting cocoa cultivation initiated changes in the land tenure system. This was supported by the indigenous people's habit of selling their land in order to get large amounts of cash money for covering the "*budget of customary events*" such as funeral and marriage events. Normatively, a norm of intra ethnical land transactions must be a framework, but in fact it does not work, since there is no significant number of wealthy indigenous households, which tend to purchase land, in contrast with the migrants, who already have cash to purchase land at any time. In line with this situation, Acciaioli (1998) states that the migrants from South Sulawesi, particularly the Bugis people, are one of the most active ethnic groups in seeking for economic opportunities.

It is understandable that the number of migrants has been growing as the economic elite through a process of land accumulation as well as accumulation of surplus produced by cocoa plantation. After selling out their land, where do the local people go? In the villages surrounding the park, non-farming activities are practiced less often; there is no income source except agriculture. At the same time, the local people are facing a land scarcity situation, since most of their land has been transferred; they have lost the basic element of socio-economic security on a substantial scale with the consequence being decreasing economic opportunity. Once these migrants (Bugis) have land ownership, there is no chance for other ethnic group members to get access to it; the former never sell a piece of land. In case a Bugis household needs a substantial amount of money, the land is pawned exclusively to another Bugis household, this gives the first household an opportunity to get the pawned land back at the end of the pawning period. In spite of holding the largest cocoa plantations on average, they also control the local market of cocoa. It is clear that under the boom of cocoa in Central Sulawesi Province, the local people are

experiencing less socio-economic security, while the migrants particularly the Bugis ethnic groups are experiencing more of it (Sitorus, 2002).

In line with the stunning market price of cocoa, cocoa plantation is an indicator of socio-economic welfare in this study area. The local people, of course, are eager to cultivate cocoa extensively as the migrants do, but have a big problem concerning land scarcity. To cope with this situation, the local people turn to forested lands as the best alternative; they encroach on the park and cultivate cocoa. Such encroachment brought the local people into land disputes with the authorities of the park. On the other hand, the migrant Bugis households are concerned with the laws of land acquisition; they avoid grabbing land inside the LLNP, as purchasing land is more efficient to them than grabbing. Nevertheless, Sitorus (2002) shows that the migrant Bugis also have illegal cultivations inside the park that they bought from the local people. It seems that encroachment is an alternative way to obtain land for the poor local people. The standard of living of the local people in the abundance of natural resources around them was studied in the Storma Household survey, which shows that poverty level in the vicinity of the park, ironically, has reached 60 % of the sample households (Teunnis, forthcoming). Therefore, in this paper, community agreements on nature conservation show the importance of involving the local people in park management, and also act as a strategy of poverty alleviation.

### **Strategies Applied in Establishing the Agreements**

The agreements in the villages surrounding the Lore Lindu National Park are promoted by NGOs that differ in their objectives and value orientations. Among organizations dealing with issues of nature conservation and rural development, one can typically distinguish three different value orientations, or ideologies (compare Wittmer and Birner 1999, Dauvergne, 1994): (1) the “eco-populist” or “indigenous rights advocacy” orientation, which characterizes the NGO YTM, (2) the “conservationist” orientation, which underlies the strategy applied by TNC, and (3) the “developmentalist” orientation, which forms the basis of the strategy of CARE International.

#### *Approach of the Advocacy NGO*

The Advocacy NGO promoted the first community agreement on conservation in a village located inside the Park, where the population of this village was supposed to be resettled for conservation purposes. The process of establishing the agreement, which was a pilot case that provided an important opportunity for learning and gaining experience, lasted approximately two years. The establishment of agreements was facilitated in two other indigenous villages, whose goal was to develop models and methodologies for community agreements on conservation. This approach was an important part of a strategy of the villagers to regain traditional resource use rights inside the park. The agreement included a commitment to keep rules on conservation, enforced and sanctioned by traditional village institutions. Important components of establishing an agreement are community mapping and policy dialogue.

### *Approach of the Conservation NGO*

The Conservation NGO started to promote community agreements in connection with the development of a zoning and management strategy for the Park. This initial plan was to promote agreements that specify the provision of development services by government agencies and other organizations in exchange for a commitment by the communities to implement a jointly developed management plan concerning the Park. However, after further discussions, which took into account the result of SCP (Site Conservation Planning), a direct link of development activities with conservation in the agreements was considered to be problematic. As in the case of the Advocacy NGO, the agreements promoted by the Conservation NGO grant community authorities permission to manage resources inside the Park to which they hold indigenous rights, subject to a jointly developed management plan under control of the Village Conservation Council (*Lembaga Konservasi Desa - LKD*).

### *Approach of the Rural Development NGO*

The Rural Development NGO program in the park concentrated on the promotion of agricultural and rural development in 22 villages where poverty levels were particularly high. This NGO assisted farmer groups, for example, regarding the establishment of cacao plantations with soil erosion techniques, construction of fishponds, and improvement of marketing facilities. This NGO promoted community agreements as an accompanying measure for its development program. This agreement has been interpreted as a prerequisite to the success of the NGO's development activities. One could also interpret the agreement as an implicit contract, according to which the community commits itself, in exchange for receiving development assistance, to follow certain rules of conduct, such as the national park regulations.

A challenging task in establishing agreements is to involve the community in the negotiation process. Under the usual village conditions, it is very unlikely to involve all villagers in the process of drafting the agreement, especially in large villages. Therefore, communication and creation of awareness and knowledge about the agreements within the communities is an important task. The result shows that in cases where the level of participation in the agreements (for these three NGOs) is high, the awareness of households about the agreements is higher (Mappatoba, forthcoming).

### **Contents of the Agreements**

These agreements differ with regard to the form and issues covered. Concerning form, level and detail, the agreements promoted by Development NGO were relatively simple, in contrast those of the Conservation NGO, which are very detailed with regard to conservation objectives. In the agreements promoted by the Advocacy NGO, community mapping is the most important. The issues of community mapping and land rights inside the park were recognized by the park authorities both for the agreements promoted by the Advocacy NGO and that of the Conservation NGO. However, in the agreement of the Conservation NGO, the extent of land rights inside the park was not specified. According to the interview of village landholders, it will be defined in the participatory planning based on the interests and conditions of the village. Therefore, this agreement refers to a monitoring and evaluation plan. For

example, in one village, issue of land rights inside the park (287.21 ha) is already defined; this land will be contributed to the poor farmers, based on a commitment between local people representative by LKD and the park authority (BTNLL). In the form of the agreements, the status of land inside the park was clearly stated as belonging to the community; therefore, no sale is possible for that land.

### Community Agreements as a Poverty Alleviation Strategy

The interviews revealed a variety of problems that the community members perceive concerning the Park. Table 1 lists the answers to the question regarding the disadvantages perceived by the interviewed persons for themselves or their community in the Park (open question format). Almost 80 percent of the respondents named at least one problem.

**Table 1. Perceived problems concerning the Park\***

Perceived problem	The Advocacy NGO (n=91)	The Conservation NGO (n=85)	The Development NGO (n=24)
Land shortage for children	62	62	30
Community has land rights inside the Park	55	53	8
Rattan needed as an income source	51	39	17
Shortage of timber for house construction	28	34	8
Restrictions on fire wood collection	29	41	4
Restrictions on catching birds	24	21	4

\* Percentage of respondents in the household sample who mentioned any one problem  
Source: own survey (2001/2002)

The goal of the Community Agreement on Nature Conservation is to facilitate communication between government and local communities about solving problems in relation with LLNP. In this paper, we focus on how far this agreement can be used as a village strategy in managing the park in order to alleviate poverty in the local communities.

The long-term success of the community agreements will certainly depend on the possibilities of overcoming the above-mentioned problems. In villages aided by the Development NGO, the lower percentage of the interviewed community members perceived problems concerning the Park is due to the fact that this village has access to quite extensive forest resources outside the Park. According to their legal status, part of these forests can be converted into agricultural land. The agreements promoted by other both NGOs address especially the second most important problem perceived by the households, as they acknowledge customary land rights inside the Park. While these lands can be used for the collection of non-timber forest products, in general, the management plans do not foresee the cultivation of these



lands. Meanwhile, statistics on the average landholding sizes, reported in socio-economic conditions, are necessary if this problem is to be taken care of.

The traditional rights of communities inside the park, which the LLNP authorities recognized in the agreement, can be used by the local people based on their traditional land tenure system as proposed by the Advocacy NGO. Such examples of land tenure system, where the indigenous people had categorized forest land which comprises of: *wanangkiki*, is virgin forest, *wana*, are forest zones which have never been exploited and are zones for the habitat of endemic fauna (anoa, babi rusa, etc.), *pangale*, are primary and secondary forests which are prepared for planting, *pahawa pongko*, is forest which has been exploited around 25 years ago (exploited forest), *oma*, is a forest which used to be exploited by planting cocoa, coffee and other perennials, and *balingkea* is land used previously for crops that are harvested before a year; in their customary land rights

The local knowledge of the indigenous people recognizes all types of land, based on their experience, as their customary land right. Therefore, these agreements clearly state that no sale of land inside the park is allowed. How far can this agreement be used as a village regulation in managing the park, especially in the future? The answers of households in the survey are varied, as shown below.

**Table 2. Views about future regulations of the community agreements**

Explanation of participants	Advocacy NGO (%)	Conservation NGO (%)	Development NGO (%)
We depend on the availability of land for our children in the future	34.07	25.88	-
The government should offer alternative agricultural land in case of land scarcity	13.19	2.36	-
As long as clear law enforcement is applied as mentioned in the agreements	28.58	40.00	16.67
Too much restriction on land sale	5.49	25.88	-
No knowledge about it	6.59	2.35	-
No answer	12.08	3.53	83.33

Source: own survey (2002)

Regardless of the above answers, one has to take into account that in general community obedience of regulations depends very much on the transparency of the regulation implementation for all. Otherwise, the authority of Village Customary Institution (*Lembaga Adat Desa -LAD*) would be decreased and finally could be lost completely, particularly in a mixed population. The response of the households is similar in all villages, except in villages aided by the Development NGO, since the agreement does not cover the land rights inside the park.

As described in Table 1 and 2, the root of the poverty problem of the local people in the vicinity of the park is land scarcity. Even though the poorer people have the use of agricultural land; for example through the project of land distribution or in extreme cases by the extending of agricultural land; encroaching on the park lands will continue if their habit of selling land is not eradicated. Thus we can argue that the discussed strategies will be no help in improving the livelihood of the people in the areas if certain changes are not made. Therefore, an approach that strictly forbids land sale is needed. Based on the historical references to land scarcity of the local people in the vicinity of the park, community agreements on nature conservation could be categorized as poverty alleviation strategies, since the agreements contain the relevant issues about the land regulation, such as the ones that follow:

- Local people, for their own consumption, can harvest all types of forest products in the customary area inside the LLNP such as timber, rattan, firewood, etc.
- All types of indigenous rights inside the LLNP belong to the communal right systems. Therefore, the Lembaga Adat Desa is responsible for land cultivation system under coordination of BTNLL authority.
- In case of any land distribution for the poor farmers inside the LLNP, this land can not be transferred to another person, but it can be used for the next generation under control of the customary village institution.

The leaders of LAD say that although the agreements are really important for the local people, and large efforts were made in establishing them, nobody can tell what will happen in the future, especially if the market for forest products becomes more promising and if the government doesn't apply clear regulations. It is not easy to obey the rules in a community if the neighbouring villagers can cut rattan and timber for sale. Therefore, the initiation of a co-management approach for the LLNP is really valuable. At present, these three NGOs together with BTNLL and other landholders are very concerned about this.

## **Conclusions**

The case study shows that the agreements on nature conservation have a considerable potential for improving nature conservation and possibly to reduce the poverty of local communities, since all the rights of local people inside the park are under the communal system. The agreements constitute an interesting and constructive example of authority devolution in natural resource management, and can serve as a model for other regions. As the agreements are locally negotiated, they can take the specific ecological, socio-economic and cultural conditions at the local level into account. Due to their voluntary character, they can reduce conflicts and disadvantages of state regulations, which are inherent in the "command-and-control approach" to protected area management. However, the empirical study shows that there are still some challenges, especially in assuring the participation of households with low levels of social and political capital.

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## CHAPTER 9

# Agribusiness Co-operatives as Countervailing Power for Strengthening Agribusiness System in Indonesia

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### Abstract

*A huge resource availability is not a guarantee that agribusiness could be successfully developed in Indonesia. Although most of the Indonesian manpower is employed in this sector, the Indonesian government pays little attention to improving the agribusiness sector as a whole. When the economic crisis struck, agribusiness became a national economic rescuer. However, farmers' welfare in Indonesia is still unsafe. Co-operative movements are actually hoped for to be a countervailing power for helping farmers and strengthening the agribusiness system. However, there are a very limited number of successful agribusiness co-operatives in Indonesia. One of them is milk co-operatives.*

*This paper discusses the role of milk co-operatives as a countervailing power for farmers, so that their standard of living is improved through milk production as well as better marketing strategies. Indonesia has noted that the 1980s were the golden period in milk co-operative movements. Within this period there was a significant improvement of milk agribusiness, not only in milk production but also the number of milk cow breeders, and even the number of milk co-operatives. After this period, the achievements became less spectacular. Therefore, in order to formulate appropriate strategies for further development one needs to note the key factors of success. The best would be to learn the lesson available from these successes so that the agribusiness can be developed and the standard of living of the farmers is raised.*

**Key words:** *Agribusiness system, milk co-operative, co-operative entrepreneur, countervailing power*

### Introduction

Agribusiness in Indonesia is actually very important in terms of economic development due to the abundance of resources available, increasing foreign exchange, and also an equal dimension of development because of strong backward and forward integration of the sector. Furthermore, agribusiness products are very

closely related to the food security issue, rural development, and its ability to absorb most of the Indonesian workforce. It was proven that even during the crisis, the agribusiness sector still had a positive growth, absorbed unemployment from other sectors and also supplied substitutes for imported food.

Unfortunately, agribusiness so far has been a sacrificed sector. At the end of the New Order (*Orde Baru*) era, it was obvious that the national development policy tended to take interest in only a small number of capitalists who ran their businesses unfairly (Chaniago, 2001: 63-65). Except for agribusiness, which was run by big companies, it seemed that there was no serious attention paid to developing this sector. Thus, the fate of millions farmers was unsafe. Many farmers were still trapped in the valley of poverty, which caused social-economic imbalances among the Indonesians. The development of agricultural production by millions of farmers was sacrificed by a few capitalists who controlled the market.

Even though there have been 3 government changes during the last 5 years, none of them focused their attention on farmers' welfare by developing agribusiness as a whole system. AFTA, which began in 2003, is causing a deterioration of the condition of the Indonesian agricultural sector. More and more similar agricultural products imported from neighbouring countries have entered the local market, as if the government was unable to help local farmers. Therefore, Indonesian farmers should make an effort to safeguard their own businesses. No matter how large the farm is, it is small comparing to other trading businesses. Experiences in many developed countries indicated that farmer co-operatives were an effective instrument in striving for the farmers' interests. By forming co-operatives, farmers would have a countervailing power in the unfriendly business environment.

Nevertheless, there is still a big problem in Indonesia. For the last three decades, there have been an excessive number of interventions of the government in rural co-operative development, which caused the dependency of such rural-agribusiness co-operatives on government programs. This phenomenon has caused pessimistic views among many Indonesians toward the "strength" of co-operative institutions. However, facts show that there were a small number of agribusiness co-operatives, which have had a high growth and good performance in Indonesia. The milk co-operatives are an exception. Thus this paper is devoted to determine the influencing factors cause the raising standard of living of farmers through milk co-operatives. The fact that milk is an exotic and relatively hard to develop commodity in tropical countries like Indonesia is interesting from the point of view of this paper.

### **The Agribusiness System and the Role of Co-operatives**

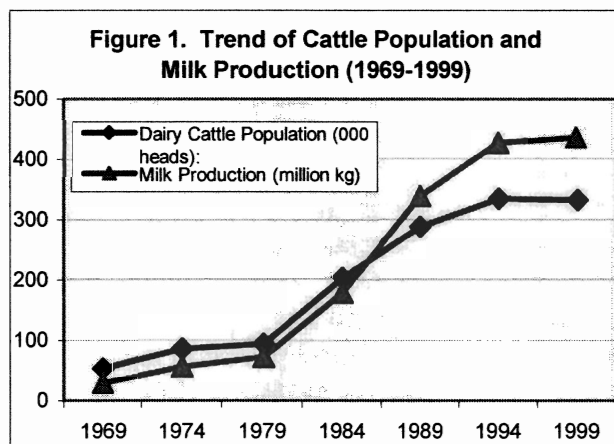
Agribusiness is defined as the "sum total of all operations involved in the manufacture and distribution of farm supplies; production operation on the farm; and the storage, processing and distribution of farm commodities and items made from them." (Davis and Goldberg, 1957). With regard to this definition, the agribusiness system consists of; (1) a downstream agribusiness sub-system, which connects to the supply of input factors, (2) an on-farm agribusiness sub-system, which produces agribusiness products; (3) an upstream agribusiness sub-system, including processing and marketing of the agribusiness products; and (4) a supporting service sub-system (Saragih, 1998: 86). Accordingly, the development of the agribusiness system is the development of all these subsystems simultaneously and consistently.

In developing countries, however, the role of supporting service subsystems (SSS) is very important, due to the weakness of other sub-systems. In Indonesia, the governmental role is very dominant in conducting SSS for agribusiness development. Unfortunately, this support is partitioned into several institutions (Baga, et.al. 1999), which causes a weak coordination and even a cannibalisation among sub-systems. With such conditions, the government has become a source of problems, rather than solving them. (Saragih, 1998: 48).

Essentially, the farmers themselves should do the SSS by cooperating among themselves. By forming co-operatives, farmers can improve their bargaining position by developing more profitable input and output markets, improving production and market efficiencies, getting better at risk handling, and also insuring the business continuity as well as increasing farmers' income (van Bekkum and van Dijk, 1997: 21).

### Success Story of the Milk Agribusiness

Introduced by the Dutch in 17<sup>th</sup> century, milk is actually an exotic commodity for Indonesians, both in production as well as consumption. So the development of milk agribusiness was very slow until Indonesia gained its independence in 1945, even until the end of 1970s. However, since 1978 there was a very significant growth (Figure 1). The milk cow population as well as the milk production increased drastically. Even in the 1980s there was a significant increase in productivity of milk cows, which was indicated by an increase in milk production. The milk cooperatives have played a very important role in bringing these changes.

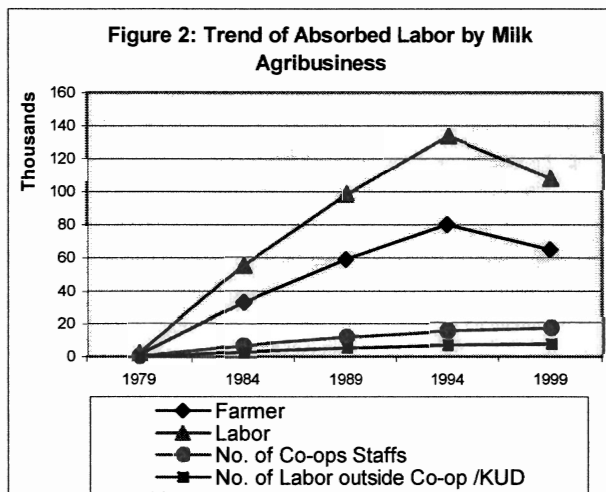


The creation of milk co-operatives in Indonesia was not without participation from veterinarians. The first milk co-operative in Indonesia was GAPPSIP, which was founded in 1949 by Dr Soejono and Dr Hutabarat in Pangalengan-Bandung. Unfortunately, in 1963 it was closed due to bad economic conditions at that time. In 1962 Dr Memed Adinata established the Co-operative of SAE Pujon-Malang, and in 1969 Dr Daman Danuwidjaja founded KPBS-

Bandung. Besides, there were several other milk co-operatives that emerged in those two suitable areas. However, milk-cooperative agribusiness was still growing very slowly due to problems in marketing. In the 1970s there was a promotion of milk drinking for better health and which was followed by the emergence of 7 milk-processing industries (MPIs) in Java. Since then the milk consumption by Indonesians increased. However, the milk-marketing problem of farm products still existed because MPIs preferred to use imported milk, which was cheaper and was of better quality. Thus, Indonesian milk farmers were in a difficult situation. MPIs controlled not only the milk price, but also the purchasing volume and time. On holidays, for examples, MPIs were unwilling to buy farmers' milk, which caused much

spoilt milk, which had to be thrown away. The farmers involved in milk production were still trapped in poverty.

The turning point of milk agribusiness development in Indonesia was in 1978. The leaders of several milk co-operatives led by the Chairman of KPBS, Dr Daman Danuwidjaja, made proper use of the formation of Co-operative Department in that year. An institutional approach was adopted and the communication between government and co-operative movements was improved. Furthermore, Daman initiated the first workshop among milk co-operatives in July 1978, which was fully supported by the government. The workshop recommended the creation of a BKCSI (Coordination Board of Indonesian Milk Co-operatives) and also encouraged a more active role from the government in developing the national milk agribusiness system. Critical problems of milk co-operatives were gradually solved through government policies and rules, such as controlling of the imported-milk quota as well as the milk price, providing good feed and also importing special milk-cows. (Djohan, 1996: 139-140). The price of Indonesian milk increased from Rp 60-105 per liter into Rp. 165-185 per liter according to farmers' normal cost of living at that time.



In the second workshop in 1979, BKCSI was changed into GKSI (Indonesian Milk Co-operative Union), which is at a secondary-national level of milk co-operatives, and Dr Daman Danuwidjaja was appointed as the chairman. The GKSI made many innovations in improving the milk agribusiness system through co-operative movement. As seen in Figure 1, the growth of in the number of milk cows and their production has increased about 40 times. This increase was due to a larger number of farmers interested in the milk cow business. The agribusiness system

also absorbed more manpower (Figure 2). This means that milk business promises a higher income to its workforce. With this achievement, Daman was promoted to Director General of Livestock at the Ministry of Agriculture in 1982-1988 (Syarif, 1997, 88).

Due to his efforts, in 1992 there was an agreement of three ministers (Minister of Agriculture, Minister of Industry and Minister of Co-operative Businesses), which then was strengthened by Inpres No. 2/ 1985 and aimed at seven departments co-operating as a team called TKPN (Coordination Team for National Milk Development). The duty of TKPN is to control the development of the milk business, both product and consumption aspects. The Director General of Livestock was unofficially appointed as the chairman of the team. This position made it possible for Daman to create inter-sectorial innovations in terms of milk agribusiness development based on small breeders through co-operative institution. Compared to the time of GKSI formation, the number of milk co-operatives had increased from 27 into 198 in 1989. The Indonesian milk agribusiness became attractive not only for farmers, but also large private companies.

Nevertheless, as seen in figures 1 and 2, in 1994, there was another turning point in the milk agribusiness that was marked by the decreasing of milk cow population-growth as well as milk production, also the decreasing number of farmers and employment in this agribusiness system. It might have happened due to the decreasing role of TKPN after Daman Danuwidjaja was no more involved in that institution.

### **Important Lessons**

There are some important lessons to be learnt from the experience of milk agribusiness, which might be useful for development of other types of agribusiness in Indonesia. These conclusions are that:

1. Even though providing an exotic commodity that is relatively hard to produce in the tropical country of Indonesia, the milk agribusiness has experienced growth and improvement. Therefore, it can be deduced that other tropical commodities could also be produced, if the industry is managed seriously, by building co-operatives as countervailing power against unfair competition.
2. Agribusiness development needs to be strengthened by performing co-operative activities that not only develop the farming sub-system in rural areas, but also reach the policy makers, who influence the performance of SSS, so as to improve agribusiness as a whole system. It is important to have secondary co-operatives, which act both at regional and national levels.
3. Coordinative agencies among government institutions, such as TKPN, are essential to improve the performance of SSS with the help of the government. Therefore, it is very important for co-operative movements to have an access to such agencies.
4. It is also important to have a person who is able to lead the movement and play a role of co-operative entrepreneur (CE), who can make innovations to develop agribusiness systems through a co-operative mechanism. It is not necessary to have a large number of CEs, but they are nevertheless essential. Besides having knowledge and skills in the field of the new commodity to be developed, the CE should also be a co-operative person, who understands the co-operative mechanism as being a unique organization, who also has a high confidence that co-operative could play an important role in helping the poor people to improve their standard of living.
5. In the case of Indonesia, where the agribusiness development policy is still partitioned into many institutions, the CE should have leadership skills as well as ability to lobby the policy makers, in order for the government to create solid and effective SSS. Without these, a capitalist could easily 'buy' the government policies and rules so they might benefit only that person, even if that means the sacrifice of a million farmers.
6. Even though the need for such CEs is now not so pressing, regeneration processes of CEs are essential and should be accurately programmed. By having these CEs in a second layer, hopefully, none of the ground covered will be lost and sustainable improvements could even be achieved.



## **Concluding Remarks**

Agribusiness development in Indonesia without a solid SSS may cause cannibalisation among the sub-systems. In such conditions poor farmers are always the victims. The role of co-operative institutions, which were so far secluded by government intervention, should be an awakening that would bring a strengthening of SSS. The existence of CEs is therefore essential, although they are not needed in large numbers, but they should be highly qualified for their important role. In addition, the regeneration program of CEs should be well developed so that achievement will continue increasing. Otherwise, the improvement in the agribusiness system that was achieved by co-operative movements will be easily destroyed or even taken over hostilely by capitalists only interested in their own profit. If that happened, the bargaining power of farmers would be lost and their welfare would be marginalized, so that farmers could not escape poverty

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# CHAPTER 10

## Participatory Research in Integrated Pest Management:

A Medium for Empowering Small Farmers in Indonesia

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### Abstract

*This paper describes the role of participatory research of integrated pest management (IPM) in empowering small farmers in Indonesia. Conventional technology development during the green revolution era and its dynamic and recent developments in farmer's education in Indonesia, such as IPM farmer's field school are discussed, including their disadvantages for the poor farmer. Furthermore the paper elaborates on the development of a new approach of technology development i.e. participatory research of IPM (PR-IPM), including its variants such as participatory technology development (PTD) and farmer participatory research (FPR). In addition, the cases of implementation of PR-IPM in three locations in i.e. Karawang, Cirebon, and Bogor, which all are in West Java Indonesia, and related problems are also illustrated. Finally, horizontal and also vertical scaling up and the future prospect of PR-IPM in empowering small farmers are discussed.*

**Key words:** *participatory, small farmers, technology development, integrated pest management*

### Introduction

Agriculture in the 70-80s was developed basing itself on the paradigm of the green revolution; with the main goal being rice self-sufficiency. In that period, technology in agriculture, like other policies were centrally planned, and disseminated among the farmers by the Training-Visit (T-V) approach, which is a linear-vertical communication approach. Technological packages, which normally consisted of seeds of high yield varieties (HYV), fertilizers and pesticides was massively handed out by an extension network combined with government-lent credit.

Such cases of technology development and dissemination brought disadvantages such as the dependency of farmers on technology, problems of availability of

technology, and preferential treatment for the irrigated paddy fields. Meanwhile, there were some environmental, economic and social impacts of the green revolution in Indonesia. Declining agro-biodiversity and the loss of local crop varieties are evidence of how the approach brought the degradation of natural resources. The livelihood of farmers became more difficult to sustain due to the lack of alternative cash crops, and the dependency of farmer on external inputs such as synthetic fertilizers, HYV seeds and pesticides. From the social point of view, the indigenous knowledge and technology, community institutions and other forms of social capital that show the social cohesiveness and reciprocity tended to decrease.

Technology development is a crucial stage in the empowering of the small and poor farmers. Unless the poor have the power to participate in deciding which technology to use, they are unlikely to benefit from it. Better farming technologies will benefit farmers who are active partners in setting priorities for both research and extension most (IFAD, 2002). Moreover, the role of farmers in research is mostly neglected, even their experience is not considered as knowledge (Cardoso *et al*, 2001).

One of the relatively new approaches in developing technology in agriculture is participatory research. Several activities of PR in integrated pest management (IPM), have been carried out in Indonesia. This paper describes the features of participatory research in IPM, cases, advantages, implementation in Indonesia, and its future prospects. Most of the materials used in this paper are based on the experience of the authors and supported by literature study as a second source.

### **Conventional Agricultural Technology Development and Dissemination**

During the green revolution era, agricultural technology was developed at both the international (such as IRRI) and national levels (research institute and universities). Next, technology was formulated or packaged by technical agencies, and then was disseminated to the farmers by extension services through the T-V System (Training and Visit). Extension workers were trained regularly and afterward visited the key persons of farmers' groups to disseminate the training result. The T-V method is mainly based on the approach of ToT (Transfer of Technology) that was greatly supported by the World Bank, and in combination with packaged credit (Norton, Ragotte and Gapud, 1999).

Despite of its ability to disseminate the technology massively and rapidly, the ToT approach has its disadvantages: 1) Each step is rigidly carried out by separate institutions- 2) There is a very limited involvement from the farmers in determining the technology, which was set by the elite of intellectuals who determined the research according their own agenda 3), Research has no relation with the actual agricultural problem 4), The feedback mechanism is inversed 5), There is a time lag between the emergence of the actual problem and the development of appropriate technology 6), The elite farmers are favoured and the poor farmers have no access to technology. Moreover Becker (2000) *in* Thiele and van de Fliert, (2001); and Matteson (1994) *in* van de Fliert (2002) noted that such content-oriented linear systems fail to face the complex and multi dimensional problems of the farming system, and meanwhile there is frustration because the conventional research has limited ability to engage the poor farmer.

## **Integrated Pest Management in Indonesia: The Establishment of the Farmers Field School (FFS)**

In 1986 Integrated Pest Management (IPM) was first officially introduced in Indonesia by presidential decree (Inpres no 3. th 1984). The emergence of IPM was immediately followed by the ban of 57 brands of toxic and resurgence-inducing insecticides. The new era of plant protection policies arose. Some forecasting and monitoring institutions were established, thousands of new positions in agriculture as pest observers were set up. Relating to the methodology of extension, IPM brought the new thing. The 1000 pest observers were trained in the closest universities to up grade their technical skills, and as practical work they had to organize the farmers field school (FFS). Up to now 1 million farmers, mainly rice farmers, have been trained in IPM (Pontius *et al.*, 2001)

IPM was disseminated massively by means of FFS, which was substantially different from previous conventional T-V methods. FFS was carried out *on the field* in one growing season, with weekly meetings. The participants were trained to observe plant pests, natural enemies, plant growth and other environmental factors, then analyse, make conclusions and determine the appropriate action. The principle of FFS-IPM is interactive horizontal communication, and adult education, learning on the field. The farmer learns to discuss, analyse, express opinion, and take action rationally based on the best knowledge they have. Therefore that kind of extension can be considered as empowering the poor farmers. On the other hand FFS promotes a basis of critical thinking in farmers, which facilitates forthcoming participatory research.

FFS-IPM did so not only in integrated pests management but also in crop production and agriculture in general. The important thing is that FFS-IPM also applied some elements of participatory research such as how to make field observations and comparisons. However due to time limitations and the rigid time schedule of FFS, the research ability and technology development has not got enough attention yet. The next problem is how the technology of IPM will be developed and whether the farmers, especially the small ones, will be able to participate in the development of technology. The crucial questions of the dependency of small farmers on technology and the lack of access of some remain unsolved. Small farmers still have little access to technology and information after finishing the FFS-IPM program. Participatory research in IPM could be seen as a medium to continue the empowerment effort of small-poor farmers.

### **Participatory Research as a New Approach in Technology Development for the Poor Farmers**

According to Biggs (1989) in van Veldhuizen et al (1997) types of participation of farmers in agricultural research can be grouped as

- Contractual: scientists make a contract with the farmers to provide land or services
- Consultative: scientists consult farmers about their problems and then develop solutions

- Collaborative: researchers and farmers collaborate as partners in the research process
- Collegial: farmers make their own research and researchers strengthen it.

Participatory methods in problems of diagnosis, planning and evaluation were greatly developed after the establishment of PRA (participatory rural appraisal), PLA (Participatory Learning and Action) and PME (participatory monitoring and evaluation system) (Anandyajayasekaram *et al*, 2002). They are widely used because of their ability to provide access to poor people compared to previous extractive methods. Moreover, in another direction, *i.e.* in technology development, participatory research developed that so-called farmer participatory research (FPR) and participatory technology development (PTD).

Research in technology development involving farmers has different terms, which were developed by different approaches. These types of PR are: Farming System Research (FSR), (participatory) action research, farmer participatory research, On-Farm Client Oriented Research (OFCOR) and participatory technology development (PTD). Action research was popular during the last 30 years in social science, it is based on the concept that research and social changes should be carried out at the same time. Participatory Action Research (PAR) is one form of action research in which there is a process through which, "members of a group or community identify a problem, collect and analyse information, and act upon the problem in order to find a solution." (Selener, 1997). Action research is based on the paradigm of an action-reflection cycle: planning, acting, observing and reflecting (Mc Niff 1998 *in* Röseberg, 1998). One other well-known form of action research in agriculture is farmer participatory research (FPR).

FPR differs from FSR (farming system research) in that FPR uses the collaborative and collegial type of participation, while FSR normally applies the contractual and consultative type (Bellon, 2001). FPR is the common form of participatory research in the agricultural field and is applied by projects supported by international agencies like CIAT, CMMYT, FAO, CIP, or ICRAF (Bellon, 2001; Fujisaka, 2000; van den Berg *et al*, 2001).

Another new approach of participatory research in agriculture is participatory technology development (PTD), in a way an integral part in developing Low External Input and Sustainable Agriculture (LEISA) (van Veldhuizen *et al.*, 1997). This approach is mainly based on the joint activities between farmers and researcher/extension services in each step of farmer's research, such as problem identification, topic selection, research planning, designing research, evaluation and dissemination. PTD differs from other participatory research in the following ways: PTD regards indigenous knowledge/technology as an idea in LEISA, considers it important to join the research-extension agencies with the farmers, and finally has a framework to combine the indigenous technology and scientific technology.

### **Cases of Participatory Research on IPM in Indonesia**

In Indonesia participatory research in IPM is facilitated by several parties such as the FAO Program for Community IPM, and some non-governmental organizations (NGO) like Nastari in Bogor West Java, Mitratani in Yogyakarta, and Gita Pertiwi in Solo

Central Java. The forms of participatory research are also varied, and sometimes are mixtures between FPR and PTD.

### *Case of Karawang*

In Karawang, West Java Indonesia, the best case of FPR development is in farmers' groups in the Sub district of Tempuran. The research was done with two farmers' groups in two villages initially, thereafter spread out to 10-farmers group in 7 villages. The members of the farmers' groups in the area are generally characterized by low land holding (<0.75 ha) and there is no personal land ownership. Nastari, a small-farmers aiding NGO based in Bogor, facilitated the farmer's research in two villages. In the early steps, the Faculty of Agriculture of Bogor Agricultural University supported the activities.

Common pests in rice production between 1990 and 2000 were found to be the white rice stem borer (*Scirpophaga innotata* Wlk) and the brown plant hopper (*Nilaparvata lugens* Stal). The list of other associated problems is the increasing price of seeds, fertilizers, and pesticides. The farmers, together with Nastari, determined the research topics according to the problems they had to face. The farmers' research topics in the two villages were mainly the development of non-chemical control of the two main pests, the optimising of fertilization, and the study of organic fertilizers and rice varieties. In 1995 (dry season), Nastari and participating farmers developed an integrated farming program that consisted of many experiments including non-pesticide agriculture in order to improve farmers' income and benefits. One example of the experiments conducted by FPR in Karawang is showed in Table 1.

**Table 1. Comparison of two different pest management techniques in Karawang, 1995 (dry season). (Prices in Rupiah)**

	IPM	Conventional
Location	Lemah karya 3 rep (1 ha)	Lemah karya 3 rep (1ha)
Varieties	IR 64	IR 64
Seeds	Rice: IR 64 = 15.000	Rice: IR 64 = 15.000
Fertilizer	Urea (180 kg)= 81.000 TSP (100 kg) = 48.000	Urea (200 kg) = 90.000 TSP (100 kg) = 48.000
Pesticides	0	Carbofuran (1box) = 30.000 Mipcin (3 can) = 22.000 Azodrin (1 can) = 25.000
Cost	144.000	230.000
Labour	150. 000	150.000

Variable Cost	294.000	380.000
Yield	3154 kg	2998 kg
Total Revenue	3154 kg x Rp 420 = Rp 1.324.680	2998 kg x Rp 420 = Rp 1.259.160
Gross Margin	Rp 1.180.690	Rp 979.160
Other output	ARAH (alat peramalan Hama <i>Pest forecasting</i> )  Power Gun (rat control by fire blower)  Regular farmer meeting	No technologies improvement

Source: *Nastari Project Report of Program Dana Kebajikan, 1996 (unpublished).*

The two farmers' groups also carried out the research to assess the new program package from the government at that time, i.e. the application of piled urea. By basing themselves on the results of their experiments, one group accepted the package, whereas the other found it unsuitable for use.

Ten years of learning and of FPR resulted in several technological outputs, the farmers' groups network, and also the establishment of group funding institutions. New technology used in the two villages are: the simple forecasting of *S. innotatta*, mass rearing of parasitoids (*Trichogramma* spp, *Telenomus* sp, and *Tetrastichus*) as important natural enemies of rice pests, development of botanical pesticides, microbial insecticides (*Beauveria bassiana*), and also organic fertilizers. Non technological outputs of this FPR are the strengthening of the farmers' groups network in that area, helping to spread the use of technology in the area, better access to information and credit, and the new critical way of thinking of farmers resulting in the empowerment of relatively poor farmers. Some government policies were disadvantages for these poor farmers and were not environmentally sound which resulted in strong criticism and the rejection of these policies.

#### *Case of Cirebon*

The project was carried out in Bojongnegara-Ciledug Cirebon West Java. There were 26 participating shallot farmers with an average land holding of 0.25 ha. Shallot IPM Researchers of Bogor Agricultural University and Nastari aided the PR jointly. The District of Cirebon is well known as being the centre of production of shallot in West Java. Farmers in this area are greatly dependent on pesticides; they apply pesticides at two days intervals. Participatory research was conducted after the pilot project of FFS-IPM of shallot that was in action during the wet season of March-April 1998.

The methodology used is based on PTD. Researcher Teams and farmers did the problem identification, topic selection, designed the experiments, evaluation and dissemination. The twisting disease caused by a fungus *Fusarium* spp. is considered to be the most destructive disease in the end of the wet season. Research conducted

by Tondok (2002) concluded that the causal fungi are *Fusarium oxysporum* that differ in morphology and protein pattern from *Fusarium oxysporum* f.sp. *cepae*. They call the disease *moler* because the infected crops show the following symptoms: twisting, yellowing and elongation, followed by wilting. The research topics were: development technology of twisting disease control by means application of sheep dung fertilizer in addition of lime. There are two types of treatments: the conventional one (fungicide spray), and the organic one (fertilizer and lime). Each treatment consists of three blocks (as replication) with a block size of ca. 75 m<sup>2</sup>. Conventional plots were sprayed every two days with fungicide, and the organic plots were not sprayed by any fungicides but were applied with sheep-dung fertilizer at the rate of 0.5 kg/m<sup>2</sup> at the planting date. Evaluation was made on the cumulative number of diseased crops, and the fresh weight of harvested bulbs. There is no special control of other pests such as armyworm *Spodoptera exigua*. The result of participatory research is shown in Table 2.

**Table 2. The Application of Sheep-Dung Fertilizer to Control Twisting Disease of Shallot in Cirebon, West Java (1998). (Prices in Rupiah)**

	Conventional	Sheep-Dung Fertilizer
Fungicide	Mancozeb each two day (20 x)	None
Organic Fertilizer	No	1 kg/m <sup>2</sup>
Synthetic Fertilizers	Urea: 2.25 kg/plot SP 36: 1.125 kg/plot KCl: 3 kg/plot	Urea: 2.25 kg/plot SP 36: 1.125 kg/plot KCl: 3 kg/plot
Weeding	Manual	Manual
Cumulative number of crops with twisting diseases	7.67 %	3.33 %
Seeds Bulb	450,000	450,000
Fungicides	155,500,-	0
- Synthetic Fertilizer (Urea, SP 36, KCl, ZA)	11,653,-	11,653,-
- Organic fertilizer	0	2,000,-
Weeding	6,000	9,000,-
Tillage	75,000,-	75,000,-
Sowing	15,000,-	15,000,-



**Table 2. Continued**

Variable Cost	712,623, -	562,653, -
Yield (kg Fresh Bulb)	199.9 kg	191.3 kg
Total Revenue (Rp 6000 /kg)	1,199,400, -	1,147,800, -
Gross margin	486,777, -	585,147, -

It has been proven by the joint experiment that sheep-dung fertilizer application could suppress the twisting disease from 7,67 % to 3,33 % but conventional treatment produces more bulbs. The discussion among farmers analysed this fact as being due to the presence of other diseases i.e. leaf blotch, even in low percentages (under 2 %) and that fungicide application suppresses the disease. The other disadvantage of organic fertilizers was that it made weeds grow faster therefore more time was taken to control them, consequently the cost of weeding rose. According to the literature many fungicides have a plant growth promoting effect, therefore fungicide application can directly increase the yield without suppressing the disease. Even though the treatment produced less yield compared to conventional plot, the gross margin was still higher, therefore it was concluded that the application of the sheep dung fertilizer is profitable.

The result of the research was exciting for the participating shallot farmers. Previously they had never applied organic fertilizers in shallot cultivation, because it was their opinion that organic fertilizers in shallot cultivation would attract termites. Even though the experimenting groups decided to use organic fertilizers because of its ability to control the twisting disease, the farmers wanted to go through the same experiment once more in a more severely infested area and in bigger plots as they still did not fully believe the effect of sheep dung was strong enough to stop the more severe attacks of the twisting disease. The group would also carry out other forthcoming experiments to optimise the use of synthetic fertilizers.

*Lesson Learned.* The farmers and research team learned how important the site selection for the disease controls was. Materials available locally were proven to be an important source in controlling disease. The PR strengthened research, analysis and the decision-making ability of participating farmers. It was also a model of cooperation between farmers, a NGO, and a university in developing IPM technology.

#### *Cases of Bogor*

*Activities:* The Farmer Participatory Research was conducted in Cigudeg–Bogor in 2000, with an experimenting farmer group consisting of 12 farmers. Experimenter-farmers from other areas (Karawang, Subang and Sukabumi) helped with the program and Nastari provided field help. The objectives of the program were to develop low external input and sustainable agriculture (LEISA), especially on fertilizer and pesticide uses. The program also provided a medium of sharing for farmers and strengthened helpers' capacity on LEISA approach. The detail of research is based on the problem that was identified before (increasing input price and lack of potential rice cultivars). Farmer meetings took place before research, a potential role for each

farmer and local resources available to be developed were discussed to find a way to deal with the problems.

The research was conducted in a participatory approach and was conducted on farmers' fields. The experiment site was divided into 3 plots for treatment, each consisting of 3 varieties of plants and double-fertilizer treatments. The first plot was the organic plot (using organic fertilizer, no pesticides, varieties: Ciherang, Muncul and Memberamo); the 2<sup>nd</sup> plot was the conventional one (using synthetic fertilizers, pesticide use allowed, Varieties: Ciherang, Muncul and Memberamo).

Organic fertilizer was made from a mixture of organic materials i.e. rice hulls, fine rice scales, grass and sheep dung. To accelerate the decomposition process of this mixture, a type of bacteria found in goat rumen was added. Observations on plant pests and insects (both pest and predator) and plant growth and production were made every two weeks and were followed by discussions on the ecosystem. Farmers and helpers observed the agro ecosystem together. The topics discussed during the meetings of the farmers were the influence on insects by fertilizer application and the different observations made in different plots.

*Results.* There was no difference in the number and species of insects in each plot as well as on the rice growth (number of productive tillers). Nevertheless, the response of crops between blocks was quite different. The conventional treatment made the leaves greener two days after fertilizer application, whereas on the IPM plot, the same condition was depicted only one week after. On the eight days after application, the performance of rice crop was not significantly different. Even though pesticide application is allowed on the conventional block, the pesticides were not applied on all the plots until harvesting time.

The total rice production on the conventional block was 288 kg / 322 m square, whereas on the organic block it was 245 kg/471 m square. The organic plot had a better production on Ciherang cultivar. On the Muncul and Membramo the conventional block got a better yield than organic treatment. In the farmers' meeting, the production of Muncul and Membramo was an interesting topic of discussion. According to this discussion, the better production of Muncul and Membramo was caused by the position of the plots, which were found on lower altitude than other plots. These plots benefited from a spill over of water containing fertilizers from farms found on a higher level. This raised the amount of fertilizers in the lower plots causing them to thrive. The dissolved fertilizers were also the reason why the conventional block leaves turned green faster than the organic one.

**Table 3. Comparison of Organic and Conventional Rice Cropping System in Bogor, 2000.**

	Conventional	Organic
Cultivar and & total area	Ciherang ; 201 m2	Muncul ; 225 m2
	Muncul ; 45 m2	Ciherang ; 115 m2
	Membramo ; 76 m2	Membramo ; 131

	Total = 322 m2	Total = 471 m2
Variable Cost	128.700	Rp. 61.000
Production	288 kg	245 kg
Total revenue (in Rp. 1450/kg rice)	417,600	355,250
Gross margin	288,900	294,250

Source: Nastari Project report, 2002

The yield of both blocks showed no significant difference and farmers said that they agreed replace the synthetic fertilizers and use the local organic materials. The meeting also discussed and evaluated the economic comparison between treatments. Table 2 demonstrates that the gross margin was higher on the organic plot, because the production cost was lower due to the lower input. Therefore, participating farmers and all of the involved parties in the evaluation meeting, concluded that the organic approach is better than the conventional practices. In addition, the farmer also concluded that organic practices should be implemented gradually, not like the above experiment in which agronomical practices were abruptly changed to the organic method.

*Lesson.* It is possible to get a better yield of rice even without pesticide application in rice cultivation. The organic practices give the farmer a better margin of profit than conventional practices. The organic method should be implemented gradually and in appropriate amounts. Moreover, the plot design must consider the water flow to avoid interaction between plots. In social terms, the advantage also re-emerging is the social relation among farmers within the farmers' group. On evaluation, the farmers said that before they conducted the experimentation, farmers worked individually and there was little sharing amongst them, yet during the experimentation, relationships among farmer tended to be more solid.

## Discussion

### *From the farms*

Cases of participatory research of IPM show that it can facilitate farmers to determine and set the required IPM technology on a local scale. The processes and results were similar both in the rice-based cropping system (Karawang and Bogor) and the shallot-based cropping system (Cirebon). The effectiveness of PR-IPM in developing technology for farmers is due to the fact that farmers generally believe their own experience more. The survey conducted by Trinidad *et al.* (1999) showed that shallot farmers in Cirebon-West Java (70%, n=66) and Pangalengan-Bandung-West Java (84%, n=58) stated that they were determined to decide pesticide use themselves, by basing themselves on their own experience. Actually there are farmers' experiments even without external intervention that in scientist point of view lack experimental design, sampling methods and documentation (Bellon, 2001). The role of NGOs and university researchers in the three cases is to systemize the experiments using documentation, and to stimulate discussion and analysis within the experimenting groups.

PR cases in Karawang and Bogor used the FPR approach, while in Cirebon PTD was applied. The difference is clear; in Cirebon only one factor was different, while in the two other areas a set of factors were different, and those were typical of FPR. In PTD experimental design is strictly statistically controlled. The difference in methodologies was also in making the different analyses. For analysis, PTD has more powerful determining factors compared to FPR. However in conducting research, farmers very often rather need problem solving than statistical reliability.

In all three locations, the appropriate site selection is important for PR IPM to make the result acceptable by the farmers and also by scientific principles. In the case of irrigated rice fields like those in Bogor, the plot design should take into consideration the water flow and slope to avoid some plots affecting the results in others. In the case of Cirebon the site should have a high level of infestation to make reliable comparisons between the treatments.

NGO or researchers helped the three experimenting groups of farmers toward the LEISA development. The reason for doing this is the fact that most participating farmers are small farmers, which is indicated by an average land holding about 0.25 ha, 0.75 ha, 0.75 ha in Cirebon, Bogor and Karawang respectively. The farming system in Cirebon can be described as high external input agriculture, indicated by the extremely high use of pesticides (two days interval spraying). The LEISA form seems to be more appropriate for most small farmers in developing countries. For those reasons, the PR-IPM has a principle: to use materials available locally, which are cheap and do not require so much specialization.

#### *From the relationship*

The three cases show how the farmers actively participated in the research process from problem identification to making conclusions. Unlike the conventional approach, that use formal, vertical communication and in which the farmers' role is to adopt the technology, the PR was based on horizontal communication model and put the farmers in the role of generators of knowledge, researchers and users. In each discussion during the research process, the helper (outsider) participated on an equal position with the farmers. These helpers tried to reduce their domination in order to give farmers more space to explore and express themselves. These cases put the PR in the *collaborative* or *collegial* category, according to the type of farmer participating in research (Biggs in Bellon, 2001). These cases also bring the PR into the interactive participation category, referring to the type of participation by Pretty (1995).

The PR IPM creates an intimate and strong researcher- farmer- extension-worker triangular relationship. These cases provide a means for all scientists in different disciplines to work in that specific area. The feedback mechanism from farmers to researchers and extension workers is more rapid in this approach compared to traditional ToT. In PR farmers' roles vary from *analyst* and *evaluator* who validate the technology to *researcher* who determines and tests the technology in the field in applied research. Feedback is also important to sharpen the basic research, which is a domain of technical research (van de Fliert and Braun, 2002). The extension worker also needs feedback to improve the extension method.

There is a long history of participation in agricultural development, and a wide range of development agencies, both national and international, have attempted to involve people in some aspect of planning and implementation. Two overlapping schools of thought and practice have evolved. One views participation as a means to increase efficiency, the central notion being that if people are involved, then they are more likely to agree with and support the new development or service. The other sees participation as a fundamental right, in which the main aim is to initiate mobilization for collective action, empowerment and institution building.

Cases of PR-IPM show that it can be a means to empower small farmers in analysing, researching, and critical thinking. Another important ability is to develop technology locally. In July 1999, there were meeting between 10 self organized and conducted experimenting groups in Karawang. The result of technology was shared. Each group made a presentation, which was discussed by other participants, like in a scientific seminar. These discussions often caused surprise among the unfamiliar scientists.

Through collegial research and participatory learning, farmers and scientists acquired common understanding and values, selected methods to suit their needs, were more disciplined, worked in other fields, and were not intimidated by the complexities and uncertainties of dialogue and action with a range of non-scientific people. The values, methods and behaviour of the scientists on the PR-IPM imply a new role of professionalism; it is called by Pretty a 'new professionalism'. The old (normal) professionalism, by contrast is a single-disciplinary work, largely remote from people, are insensitive to diversity of context, and are concerned with generating and transferring technologies (Pretty, 1997).

Due to the historical and close relationship between its staff and the experimenting farmers, the Centre for Integrated Pest Management of Bogor Agricultural University conducted several farmers' meetings, in 1994, 1998, and 2000. One important features of this meeting is the farmers' presentations, in which the experimenting farmers came from all over Indonesia (mainly from Java and Sumatra) and presented the results of the experiments and discussed various topics i.e. pest management science, agronomy, soil science and socio-economics with other farmers and university scientists. The presented topics varied between the varieties being screened, rat control, botanical pesticides, pest-disease forecasting, fertilizing application techniques, pesticide-induced toxicities of farmers and other such topics. The proceedings in these farmers' seminars are also available in this university centre. Conclusions made from this meeting are that farmers can develop their own technology. In addition of encouraging interaction between farmers, NGOs and universities are important in supporting sustainable agriculture.

### **Concluding Remarks and Future Prospects**

From single factor experimentation, it is possible for the farmers to develop their own analysis to broader factors. The activities after experimentation are continuing to involve other farmers in farmer meetings. From one farmer group, which is concerned with pest management, to the farmer network that discusses and makes alternative efforts for irrigation in entire areas in one village, is how the horizontal scaling up developed. Nowadays, the sharing process among farmers is not restricted to one district; Nastari, a small farmer-aiding NGO also facilitated the

sharing of knowledge between farmers across the district. The objective of the effort is to discover the local potency of each farmer and to develop as many alternative technologies as possible. In each location where farmer groups conduct their activities, it is possible to find new unique experiences. Related to the scaling up process, developing farmers' meetings, cross learning and learning networks in the area are some of the efforts made to support the empowerment of small-scale farmers.

The topics of discussion also evolved, from cultivating practices to agricultural issues of a higher level, such as the district government rule or agricultural policies at a national level. This evolution is called vertical scaling up. The integration of those scalings up will determine the local agriculture system in specific areas that depend on the agro-ecosystem. There are three points to develop the local food system i.e. developing the sustainable agriculture system (including the local market), reconstruction of the local livelihood assets, and a policy reform related to agriculture (Witoto, 2002).

The role of PR IPM in developing technology and agriculture management on a local scale is clear. But on a national level the research agenda including IPM is still determined by Ministry of Agriculture and to a certain extent also by the National Research Council with very limited and unreliable feedback from farmers. How the farmers can participate in the setting of priorities at a national and provincial level is still a big question and there is no solution as yet. The PR approach should be transformed into a farmer movement, from the local level to the district level well as at the national level. Formulating the involvement in research activities at a national/regional level is not an easy thing because of the institutional constraints and also because of the unconducive attitude of researchers. Norton *et al* (1999) proposed a model of 'Participatory IPM' and recommended that the members of farmers' groups be on a national research board in determining research priorities in IPM and agriculture in general. In addition, they suggested a baseline survey and participatory appraisal to determine the research agenda. Representatives of farmers' groups in Indonesia should be included at the national, provincial as well as district levels. These district or provincial councils are essential for the solving of common important problems in the designated districts. The allocation of resources and research will not satisfy the needs of farmers unless small farmers are encouraged to participate in the setting of research priorities at a national level.

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# CHAPTER 11

## The Role and Strategy of Small Ruminants Industry in Poverty Alleviation and Development in Indonesia

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### Abstract

*Indonesia is situated roughly between 6 and 11 degrees north and 95 and 140 degrees east. The temperature stays within the constant range of 23-31°C daily in the low plains and 18-27°C in the inferior plateau, Indonesia being a tropical country. Indonesia is one of the biggest developing countries in the world. However, most of the small ruminant production in Indonesia is economically underdeveloped. Large-scale development of small ruminant rearing has an important role in effectively increasing farmers' income in poverty-stricken areas, transferring rural surplus labour, promoting the internal structural adjustment of agriculture, developing product processing and marketing businesses, and protecting the ecosystem. At present, poverty-stricken areas share common problems in the rearing of small ruminants, such as poor quality in breeding, inadequate feeding and management, a lagging processing industry and small-scale industrialisation. The following sectors in development work should be paid special attention to: selection of indigenous breeds, crossbreeding improvement, large-scale small ruminant rearing, improving feeding and raising the quality of management. Key production traits that should be considered for improving small ruminants' productivity are adaptability and productivity conditions, reproductive rate, growth rate and carcass value. The objectives of this paper are to review the role of small ruminants and to discuss the development strategies that may have specific applications in the Indonesian situation.*

**Key Words:** *Indonesia, small ruminants, poverty-alleviation, development strategy*

### Introduction

Indonesia, an archipelago of over 13000 islands covering 5600 km from east to west and 1600 km from north to south, has a total land area of around 1910000 km<sup>2</sup>. The major islands are Sumatra, Kalimantan, Java, Sulawesi, the Nusa Tenggara Islands, Maluku and Irian Jaya. The island of Java is relatively small (6-7 percent of the total land area), but it is the most densely populated both in terms of people and livestock. On Java, livestock and poultry represent 70-80 percent of the national livestock population (Djajanegara, 1999)

Small ruminants like sheep and goats are important for a larger part of the tropical rural population (Tawfik, 2001) and especially for Indonesia (Sabrani and Knipscheer,

1982). The majority of goats in Indonesia are concentrated on the Island of Java (Dirjen. Peternakan, 2003) with the major breeds being the Kacang and Peranakan Etawah goats (Djajanegara and Setiadi, 1991; Edey, 1983; Sodiq and Abidin, 2002). There are two distinct types of sheep in Indonesia: thin-tailed and fat-tailed, with some strain differentiation within each (Edey, 1983; Iniguez et al., 1993; Bradford and Inounu, 1996; Sodiq and Abidin, 2002; Sodiq and Tawfik, 2003). In the past some temperate sheep breeds such as Merino, Suffolk, Suffas, Dorset and, more recently, the Barbados Blackbelly, St.Croix-Virgin Island white hair sheep, were introduced to Indonesia (RIAP, 1990; Utoyo, 1995). The most numerous group in the thin-tailed category is the Javanese Thin-tail (JTT) (RIAP, 1990). The JTT sheep has some other strains, such as the Garut and Priangan sheep (Iniguez, 1990; Iniguez et al., 1993). Nearly ninety nine percent of small ruminants are found in the hands of small holders in villages (Soedjana, 1993) and they are kept primarily for meat production [16] and the number of goats raised per farm is relatively small (Soedjana, 1993); about two to ten heads (Sodiq et al., 2001; Adjisoedarmo, 1991). The common productive systems for small ruminants in Indonesia are (1) cut and carry, where forage and other feeds are brought to continuously housed animals (Djajanegara and Setiadi, 1991; Sodiq et al., 1988; Sodiq, 2000); and (2) grazing under trees, in crops, along roadsides, in temporarily idle croplands, etc. (Bradford, 1993)

### **The role of the small ruminant industry**

The small ruminant population in Indonesia represents the largest population of small ruminants in South East Asian countries (Utoyo, 1995; Adjisoedarmo, 1991), and there are many farming families involved in their raising (Wahyuni and Suparyanto, 1991; Priyanto et al., 1991; Devendra, 1993). This suggests that small-ruminants fit well within the farming systems in the rural sector. Most importantly, goats raising can provide ready cash as liquid assets to meet unexpected household needs of farmers, presents insurance against crop failure, and is a method of investing labour (Djajanegara and Setiadi, 1991; Atmadilaga, 1991). The contribution of rearing small ruminants to the total farming income is substantial, and was about 17.1%, 26% and 14.8% for the three categories of lowland, rubber plantations and upland areas respectively. The important implication of these figures is that goats provide a means to improve the income of poor and destitute farmers (Sabrani and Knipscheer, 1982; Adjisoedarmo, 1991).

In connection to poverty alleviation and economic development (Zhanyuan et al., 2001), the following advantages are brought by the goat rearing industry: (a) it is an effective way to increase farmers' income in poverty-stricken areas, (b) it is a realistic way to re-employ of surplus rural labour in these same areas, (c) it promotes economic growth, and (d) it helps to adjust the agricultural structure and to protect the ecology in poor areas.

Livestock contribute to the livelihoods of the poor as (LID, 1999): (a) they often are one of the important cash income sources for the poor, (b) they are one of the few natural capital assets owned by poor households, (c) they are essential in the farming system practised by the poor, (d) they allow the poor to gain private benefit from common property resources independent of private land holdings, and use feeds that have few alternative uses, (e) they diversify risk and act as a buffer failures in crop yields and increase security, (f) they are particularly important for women, and (g) they provide a multitude of other benefits.

Investment in livestock has been prominent among the many tools used by rural people in the developing world to reduce risks and alleviate poverty. Investment in livestock is also used as a security against rapid inflation, as well as against natural disasters such as droughts and floods (RDV, 2001; Dolberg, 2001). The Provincial Development Program of Central Java Province, Indonesia, introduced a new loan-in-kind project on small ruminant farming. The project could be used to introduce new technologies and also increase farmers' incomes (Adjisoedarmo, 1991)

### **Development strategies in the small ruminants industry**

Poverty and inequity are problems that are constantly faced by the government, private sectors, and communities (CPA, 2003; Pradhan et al., 2000). Poverty is related to other factors. There are two main approaches in the process of poverty alleviation: (a) increasing income by enhancing productivity of the poor community, (b) reducing expenses on basic needs such as access to economic activities. The key strategies in poverty reduction are (a) creating job and business opportunities for the poor, and (b) community empowerment. In relation to the targeting science, there are four important global priorities that have been identified to reduce hunger and poverty [34]: (a) focus technology through participatory research and development, (b) introduce technologies to increase labour productivity in low potential areas, (c) promote technologies to increase land and labour productivity in areas of high potential, and (d) encourage the development and use of biotechnology.

The following are some approaches used in the process of poverty alleviation through livestock breeding (LID, 1999): (a) better disease control, (b) new production resources including animals on credit and fodder plants, (c) higher productivity through the use of improved breeds, feed processing and different production techniques, (d) improved storage and processing of livestock products, (e) access to markets through a governmental livestock-marketing corporation, development of livestock abattoirs, investment in infrastructure, and (f) information on improved production and marketing techniques.

The mechanism of the strategy should reflect the importance of the smallholders' system as a basis of the production system (Djajanegara and Setiadi, 1991; Adjisoedarmo, 1991). There are a number of important development strategies. These include considering genetic improvement (Tawfik, 2001; Edey, 1983; Bradford, 1993; Peacock, 1996), clear production objectives, developing the avenues of production that are consistent with sustainability, continuing research and validation of research results (Soedjana, 1993; Bradford, 1993; Devendra and McLeroy, 1982; Koemono, 1991).

The following points could be taken into account concerning the improvement of the management system for smallholders in rural areas (Chaniago, 1993; Anggraeni et al., 1995; Adjisoedarmo, 1991; Sodiq, 2000, 2001; Sodiq et al., 1988; Sodiq and Tawfik, 2003): (a) subdivision of animal sheds to enable better management of the different classes of stock, (b) improvement of management during the perinatal period is another area which would not need extra cash input, (c) pharmaceutical remedies for the various health problems, and (d) training and provision of knowledgeable extension personnel. The improvement of the management system refers to the key production traits (adaptability and productivity conditions, reproductive rate, growth rate and carcass value).

There are two main approaches in goat raising improvement strategies (Peacock, 1996): (1) The improvement of existing systems of goat production, (2) employment of stocking-restocking people who do not own goats. Supplying goats to people who do not currently own them is a very attractive donor-assisted project to make an immediate and significant impact. There are two main approaches. Firstly, extending goat ownership within a community, which often concerns mostly the poorest members, by providing finance, normally in the form of credit for purchase of goats, either local or improved. Second, restocking farmers who have lost their goats, and thus their livelihood, during a draught, disease epidemic or warfare. This model has been applied on goat and sheep farming in Central Java (Adjisoedarmo, 1991; Sodik et al., 1997, 1998) with the focus on transfer of technology and increasing income of the small ruminants owner in rural areas.

## Conclusion

In connection to poverty alleviation and economic development, key production traits for improving small ruminants' productivity should be considered. Selection of indigenous breeds, crossbreeding improvement, large-scale small ruminant rearing, improving feeding and raising the quality of management are important aspects for development strategies of small ruminants in Indonesian.

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## CHAPTER 12

# The Role of Livestock in Poverty Reduction of Small-holder Farmers

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### **Abstract**

*It is well known that smallholder farmers and pastoralists in many parts of the world always face the problems of nutritional shortages, poor health, low education and a cycle of poverty. Statistically, more than two-thirds of the world's rural poor rely on livestock for their livelihoods. Livestock could also generate an income for smallholder farmers. However, inappropriate management of livestock can also impoverish people by degrading land and water resources. For this reason, it is really important to introduce knowledge on how to raise and manage livestock properly to small-scale farmers in order to eliminate poverty. Scarcity and low quality of feed, health problems, poor breeds, and inappropriate management of livestock are major constraints faced by most of smallholder's farmers in many areas of developing countries. Because of these limiting factors, the animals have difficulties to grow optimally and produce milk, meat and eggs, and this finally leads to a decline in the farmers' income. Various attempts and strategies should be undertaken to solve these problems. Improvement of native pastures and cultivated forages, increasing of the quality of crop residues such as rice straw, the utilization of agro-industrial by-products such as molasses and using of non-conventional feed resources are several strategies that could be implemented to overcome the shortages of animal feed in small farms. Increasing animals' resistance to diseases and developing vaccines against protozoan parasites could be used to reduce and control tropical livestock diseases. Introducing higher yielding breeds is also a crucial factor in achieving high productivity and reproduction rates of animals. Other factors such as housing and stall-feeding also should be considered by smallholder farmers to produce animals that perform optimally. The purpose of this review is to introduce several strategies that can be implemented by smallholder farmers to improve the performance of their livestock. These methods could be used to alleviate poverty of smallholder farmers by increasing their incomes.*

**Key words:** Livestock, poverty, smallholders and alleviation

## Introduction

Poverty could be defined as a phenomenon relating to shortage of food, lack of shelter, not being able to go to doctor when sick and not being able to read because of an unsatisfactory level of education. According to World Development Report on Poverty and Development (2000) poverty encompassed not only material deprivation (measured based on income and consumption levels) but also minimal achievements in education and health. The standard of poverty varies in time and place. However, the World Bank uses a poverty line (less than \$1 per day of purchasing power) as reference. It has been estimated that in 1998 three quarters of the world's poorest people (1, 2 billion) had consumption levels below \$1 per day and lived in rural areas. The majority of these people relied on agriculture for their livings and two-thirds of them depended on livestock as their livelihoods, and raised, managed and marketed their enterprise in a traditional way.

Agriculture including livestock breeding plays an important role in the eradication of poverty by contributing to economic growth in terms of its benefit to the poor, as livelihood for hundreds of millions of the world's poorest people and also as provider of staple foods for the poor (World Development Report, 2000). Ramsay and Andrews (1999) suggested that livestock provide not only food for their owners but also produce several products such as milk, meat and eggs, which can separately be sold by the owners to generate additional income. Besides, livestock make a great contribution in terms of cash income through the sale of live animals. Draught power, manure (as fertilizer or fuel), feathers, hides and horn are other beneficial products of livestock also contributing to farmers' incomes. Sere and Steinfeld (1996) classified three types of livestock production systems in the world namely pastoral farming, mixed farming with arable cropping and peri-urban/landless production (extensive, mixed and intensive). However, the majority of farm animals are kept in extensive and mixed-crop livestock systems in which smallholder farmers raise the animals. In this system, the farmers have only a small number of animals and keep animals as a means of low-input capital formation. In addition, major constraints such as lack of adequate nutrition, health, breed and management of livestock are other problems faced by most of smallholder farmers.

Nutrition, which is one of the most important factors in animal production system, has a big role to support the growth of animals through contributing of energy and protein. However, forage, crop residues, food waste and agro-industrial by product, which are used as feed by small-holder farmers, are deficient in terms of metabolisable energy and digestible protein for animal production. Feed which livestock scavenge on the streets and graze along roadsides or on the compounds of public buildings such as schools contain a high amount of fibre and only a small amount of protein. In addition, carrying capacity and quality of natural pasture are also limiting factors to high yield production animals of smallholder farmers. Low quality and quantity of animal feed results in a decline of animal production. Devendra (1992) stated that shortage of concentrated, dry and green fodder for meeting the requirements are problems faced by smallholder farmers in developing countries.

Little or no veterinary care in the traditional system results in a high mortality rate of animals and a marked increase in susceptibility of animals to diseases. Kusina *et al.* (1998) reported that bad health management of smallholder farmers in Zimbabwe lead to mortality rates in excess of 40 %. Various factors such as lack of health



knowledge, malnutrition, parasites and digestive disorders also caused a decline in animal productivity. Low productivity and low reproduction rates of animals on small farms could also be caused by genetic factors. Selection of local breeds and crossbreeding with improved breeds can be used to improve the genetic performance of the animals.

The objective of this review is to look for various strategies helping to solve the constraints of raising livestock on small farms in which feeding, health, genotype and management are major impediments to the development of livestock mainly in the humid and sub humid tropics. Therefore, a higher performance of animals, which can make a great contribution to farmers' incomes, could be achieved.

## **Feed Improvement on Small Farms**

Livestock, including ruminants such as cattle, sheep and goats, and poultry such as chickens and turkeys need adequate feed to fulfil their requirements for growth, production and reproduction. Many metabolic processes within the animals' bodies, including maintenance of body functions, construction of body tissues, synthesis of products such as meat, are constantly happening. Eggs, milk and energy could only be produced if animals have adequate feed in the form of energy, protein, fat, vitamins and minerals. However, feeding and nutrition represents the major constraint to animal production for smallholder farmers mainly in humid and sub humid tropics. Inadequate application of the principle of feeding and nutrition faced by smallholder farmers also leads to a serious problem in the animal raising system. Devendra (1992) stated that both incomplete use of available feed resources and poor a feeding system contribute to low productivity of animals. The feed value in the tropical and subtropical regions changes with the seasons, for example, the quality of feed is poor during the dry season. Malnutrition has been commonly accepted as the most prominent limiting factor in livestock production. Therefore, the shortage of feed supply may be solved through the use of other sources of feed. The available feed resources for animal production can be classified into four categories: forages, crop residues, agro-industrial by-products and non-conventional feed resources (Devendra, 1992).

### *Forages*

Forages relate to herbaceous materials such as grasses, legumes and fibrous crop by-products are the main components of livestock feed. However, the quality of the forages varies greatly between seasons; in the wet season the quality decreases. In addition, they are characteristically of low quality and productivity due to less favourable conditions of growth, such as lack of rainfall, infertile soils and a bad climate. Therefore, these natural pastures cannot support optimal animal growth. In east Java (Indonesia), availability of metabolism energy (ME) in forage fed to animals was only one-third (Zimmelink et al., 1992). Improvement of native communal pastures could be undertaken either by introducing better species or by planting more of the adapted legumes. Mixtures of *Bracharia decumbens*, *Paspalum plicatulum*, *Setaria anceps* with *Centrosema pubescens* and *Macropitilium antropurpureum* are widely used to improve the productivity of communal grazing grounds. Humphreys (1984) stated that there are some strategies that could be used to exploit pastures optimally, such as rotational grazing, moveable electric fencing and seasonal fertilizers.

### *Crop residues*

As the plants mature, the components of the cell wall and silica are increased. On the other hand, there is a decrease in the amount of protein and soluble carbohydrate. Leng (1990) stated that crop residues left after harvesting consisted mostly of cell wall constituents with high amounts of silica, low amounts of protein (< 80 g/kg DM CP) and were deficient in soluble sugars and starches (usually < 100 g/kg DM). Another disadvantage of crop residues is low digestibility related to a high lignin content and cellulose breakdown by rumen microbes is limited (dry matter digestibility 35-50%).

Considering the various constraints limiting the production of livestock due to crop residues, efforts should be made to solve these problems. There are some methods that could be used, such as chemical, physical and biological treatments and the use of supplementation. Ammonisation of crop residues has been paid great attention to because it can provide several advantages. It is suggested that the level of addition of ammonia should be 3% of dry matter and the moisture level should be 40%. Xiong Yiqiang (1987) stated that ammonisation of crop residues such as rice could increase body weight of steers from 935 g/d to 1226 g/d.

Biological treatment such as ensilage and enzyme treatment of crop residues could also improve the nutritive values of crop residues by attacking the lignocellulose's structure. Supplementation of crop residues with minerals, vitamins and sources of nitrogen and energy could result in the improvement of the micro ecological rumen and subsequently increase feed intake, body weight and growth rate (Lu Dexun et al, 1990)

### *Non-Conventional Feed Resources*

The non-conventional feed resources (NCFR) are types of feed that have not been traditionally used for animal nutrition. These include a variety of feeds of animal and industrial origin and new sources of feed such as palm press fibres, single cell proteins and agro-industrial by-products. Most of NCFR, which are usually designated as waste, have an economic value by using and converting them through animals into valuable products that can bring benefits to the human population. Preston (1991) states that sugarcane has economic potential for use as animal feed and by-products of the sugar industry such as molasses could be used as multi-nutrient block licks. Rozany investigated the effect of rubber seed meals on the performance of native chickens (1990). The result of the experiment is shown in table 1.

**Table 1. Effects of dietary Rubber Seed Meal (RSM) Levels on Feed Composition, Body Weight Gain and Feed Conversion of Native Chickens.**

Performance	Treatments			
	Control	10% RSM	20% RSM	30% RSM
Feed Consumption (g)	2508	2485	2496	2723
Body Weight Gain (g)	611.50	528.10	434.30	455.50
Feed Conversion	4.11	4.63	5.76	5.98

Source: Rozany (1990).

## Animal Health

In many tropical and sub-tropical countries, where animals are still kept in extensive production systems, health is one of the crucially limiting factors in animal production. Decreasing productivity and reproductive rate due to animal diseases are a permanent risk on small farms. As a result, livestock keepers, who mostly depend on animal husbandry, might lose their incomes. In addition, people are also in danger of consuming contaminated animal products. Livestock keepers, therefore, should have general knowledge of animal health such as the aetiology and epizootiology of diseases, potential vectors, transmission patterns of the potential pathogens (viruses, bacteria, fungi, protozoa and parasites).

Weiser (1994) classified important animal diseases on small farms according to epizootiological complexes based on information given by livestock keepers in the Buthana (Table 2).

**Table 2. Important animal diseases sorted according to epizootiological complexes.**

Disease Complex	Disease
Contagious disease	Rinderpest
	Contagious bovine pleuropneumonia
	Contagious caprine pleuropneumonia
	Haemorrhagic septicaemia
Soil-born disease	Pest of small ruminants
	Anthrax
Vector-borne diseases	Black quarter
	Trypanosomiasis
Parasitic diseases	Heartwater
	Helminthiasis
	Mange
	Dermatophytosis

Source: Weiser (1994).

The concept of animal health to prevent diseases should be considered by livestock keepers. It has been known that the failure of animal production in the tropics is due

to the introduction of breeding programs without considering animal health programs. There are two methods that can be applied to control the animal diseases, namely traditional and modern methods. Weiser (1994) mentioned that traditional methods of disease control consist of herd management, herd mobility, use of special organic and inorganic preparations such as plant extracts and special grasses, and practices such as removal of ticks. Meanwhile, a modern method that can be used to control animal diseases is prophylaxis, such as vaccination and therapy (diagnosis and treatment).

Through improvement and management of animal health, reducing of productivity and reproductivity could be overcome. In addition, introduction of autochthonous breeds of animals, which have higher levels of resistance to diseases in the tropical environment, also plays an important role in animal production. By understanding all the conditions above, the income of livestock keepers can finally substantially increase.

### **Breeding Programs for Smallholder Farmers**

It is predicted that the demand for meat and other livestock product in developing countries will increase sharply over the next 20 years. According to the international food policy research institute (IFPRI's), by 2020 the consumption of meat and milk in developing countries will increase drastically by 100 million tons to 223 million tons compared to the recent years. Meanwhile, in developed countries the consumption of meat and milk will increase only by 18 million tons. However, due to genetic limitations and small-scale of livestock-owning people, animals in those regions might not be able to fulfil the need for animal products such as meat, eggs and milk. To solve the shortage problem of animal products in developing countries, efforts to improve the productivity of livestock has been undertaken. For many years now, major efforts have been made to promote rapid increase in tropical livestock productivity but have failed because of a lack of knowledge. In addition, introduction of exotic breeds from Europe has caused some problems of climatic stress. Pearson de Vaccaro (1990) stated that imported animals from temperate countries are exposed to diseases, and show low growth, high mortality and poor fertility rates.

Improvement of the genetics of animals in the tropics can be achieved by applying methods such as selections, including individual selection, pedigree selection, selection on the basis of collateral relatives and progeny tests. Artificial insemination (AI) could also be used to improve local breed by crossing native breeds with European breeds. According to Vinson and Pearson (1981), milk production in North America was increased by about 1 % per annum due to the use of AI. In addition, embryo transfer has been widely used. This new technique consists of the removal of an embryo from the oviduct or uterus of a donor animal. There are some advantages in making embryo transfers, such as using superior females to supply additional ova and improvement of genetics resulting in an increase in production. In addition, identical twins could be produced by embryo transfer by removing two, four or eight cell embryos to yield multiples. Pollak (1988) has developed a new sophisticated method to predict breeding values, which is known as BLUP (best linear unbiased prediction). By using this method, unbiased comparisons can be made between the breeding values of non-contemporary animals. Genetic engineering by modification of the functions of animals to make them better adapted and more productive also becomes an important point for future improvement of animal genetics.

Even though many methods could be applied to improve the genetic pattern of animals, indigenous breeds are still likely to be most suitable in the tropical region. This is because they are acclimatized to the local environment, are efficient in their use of local low nutrient feeds and are more resistant to tropical diseases.

## **Conclusion**

The contribution of livestock to economic growth especially in low-income countries such as sub-Saharan Africa and some Asian and South American countries is relatively high. However, from the point of view from productivity and reproductivity, the animals kept in these regions are still far from optimal expected growth. For example, developing countries, where more than two-thirds of world livestock are found, produce less than 40% of the world's livestock products and a quarter of the cow milk. This condition is caused by the ignorance of smallholder farmers about proper animal husbandry. Climatic factors, shortage of nutrition, diseases and poor husbandry management also contribute the low productivity of animals in developing countries. As a consequence, livelihoods and incomes of small-scale farmers and pastoralists in these regions are low. Efforts should be made to solve this problem. Improving the quality of animal feed, protecting animals against diseases, raising animal with high adapted genetics, using adapted genotypes and improving the production system are factors that could help small-scale farmers to improve animal production. If all the above mentioned strategies are applied properly, it is expected that small-holder farmers in developing countries can not only generate an acceptable income but also help overcome the energy and protein deficiency.

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# CHAPTER 13

## POULTRY AND SHEEP FOR SMALL FARMERS: A DEVELOPMENT MODEL AS TOOL IN POVERTY ALLEVIATION

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### **Abstract**

*The development of poultry production in relation to poverty alleviation has been investigated and applied in some countries. The five most important essentials of the development model are: (1) the beneficiaries, (2) competition with the commercial sector, (3) enabling environment, (4) movement out of poverty, and (5) sustainability. The main elements in the enabling environment for the smallholder poultry model are to allow for the establishment of institutions that work to ensure: (1) access to poultry production and health services; (2) access to feed; (3) access to improved breeds (hens); (4) access to credit; and (5) access to marketing facilities. Basically, an evaluating program involving direct participation of end-users would consist of: (1) A central nucleus flock, to produce selected rams for breeding, preferably located at a research centre or a government multiplication centre, and (2) Base flocks where rams from the nucleus will be distributed. These would consist of small farmer (smallholder) flocks, commercial producers or government multiplication centres. A multidisciplinary team of scientists should be part of the village breeding monitoring team, which would test new technologies to improve production. The Livestock Development Planning System (LDPS) produced by the FAO as a personal computer-based planning and training tool is very useful for the development program of poultry and the sheep production system.*

**Key Words:** *Breeding, development, poultry, sheep, small farmer, poverty alleviation*

### **Introduction**

Poverty is still largely a rural phenomenon. This means that substantial inroads on poverty can be made only if the livelihoods of the rural poor are improved (LID, 1999). There are five main farm household strategies that could contribute to improve farm household livelihoods and allow them to escape from poverty: intensification of existing production patterns, diversification of agricultural activities, expanded operated farm or herd size, increased off-farm income and complete exit from the agricultural sector (Dikson et al., 2001). One of the key strategies for poverty reduction in Indonesia is creating job and business opportunities for the poor (CPA, 2003). Livestock are often one of the most important household cash income sources

for the poor and contribute to the livelihoods of at least 70% of the world's rural poor (LID, 1999).

Livestock development covers a wide range of planned dynamic processes such as increasing benefits, as various advantages can be attained from farm animals, and by engaging people in economic activities in the livestock subsector (Atmadilaga, 1991). The raising of the native breeds of chicken has been the backbone of the business that supplies chicken meat and eggs in Indonesia (Djajanergara, 1999; Djajanergara and Diwyanto, 1995). In many instances, small ruminants such as sheep fulfil a number of functions in the farming system and are often overlooked as a means to accumulate cash and to store capital (Sabrani and Knipscheer, 1982; Adjisoedarmo, 1991). Because of poverty, a high population density and many landless people, a special effort is required to reach these people. One of the efforts made in the livestock sector is the development and breeding model especially in the poultry and sheep production under village production system.

### **Poultry development (breeding) model**

Poultry farming is a dominant feature of rural life throughout Asia. Poultry is often the only livestock owned by poor farmers; chickens reproduce relatively quickly and cheaply and are easily managed in rural communities by women and children (Hoffmann, 2002). The development of poultry production has been practiced in some countries as a tool for poverty alleviation, especially under village production system. The rural chicken-production system is used as a food security in African households (Kitalyi, 1998). In Bangladesh, poultry is used as a tool in poverty eradication and promotion of gender equality (Fattah, 1999; Dolberg, 2001)

The experience of the rural poultry improvement programme in the Gambia and the semi-scavenging model for rural poultry in Bangladesh indicate that with an appropriate approach and technology, rural poultry farming can be transformed from a subsistence to a semi-commercial production system (Kitalyi, 1998; Fattah, 1999). Progress and prospects for genetic improvement of egg and meat production in relation to poultry breeding have been described (Fairfull et al., 1998) and the analysis of determinants for success and failure of village breeding programmes has been reported (Sölkner et al., 1998). The Livestock Development Planning System (LDPS) produced by the FAO is very useful software to assess various livestock development programmes or projects on different scales (farm, region and country). The LDPS is a computer-based planning and training tool designed for livestock development planners. It aims at supporting decision-making in planning of livestock development including the development of poultry production.

The efforts to establish poultry as a source of income and a tool for poverty eradication have been made in the shape of eight technologies (Fattah, 1999; Dolberg, 2001): key poultry rearers, model rearers, pullet rearers, mini poultry farmers, chick rearers, mini hatchers, egg collectors, and poultry workers. The five most important concepts in smallholder poultry farming (Fattah, 1999; Dolberg, 2001) are: (1) The *beneficiaries*, the target group, must be the *poorest* segment of the village population and in particular women; (2) The *comparative advantages* of village poultry keeping must be sufficient to reduce the cost per egg produced so that the price becomes lower than in commercial egg production; (3) There must be an *enabling environment*, i.e. all input supplies including micro-credit and services shall



be available in time in the village; (4) The concept must encompass not only the poultry component as *the first step out of poverty*, but the possibilities and the opportunities for the beneficiaries to take the next step must be built into the enabling environment; and (5) *institutional self-sufficiency* that is consistent with the overriding goal of poverty alleviation must be reached in the quickest possible way. The main elements of the conducting environment for the smallholder poultry model must allow for the establishment of institutions that work, to ensure: (1) access to poultry production and health services; (2) access to feed; (3) access to improved hens; (4) access to credit; and (5) access to marketing facilities. In Malawi, the model is composed of key rearers with 5 HYV (high yielding variety) hens and three local breeds, model breeders with 10 HYV parent hens, feed sellers and vaccinators as one enterprise, and egg sellers.

### **Sheep development (breeding) model**

The feeding and management system must match the genetic potential of the general breeding strategy (Bradford, 1993). Methods available for genetic improvement are: (a) selection between and within local available breeds, and (b) development of improved types of animals by crossbreeding or gene migration (Edey, 1983; Iniguez et al., 1993; Wiener, 1994; Sakul et al., 1994). Breeding strategies in sheep production in the humid tropics such as Indonesia have been reported by some researchers (Bradford, 1993; Iniguez, 1990; Iniguez et al., 1991; Subandriyo and Kevin, 1996; Subandriyo and Djajanegara, 1995; Hardjosubroto, 1995; Adjisoedarmo, 1997; Adjisoedarmo et al., 1997; Sodik and Tawfik, 2003; Sodik and Tawfik, 2004). In general, their concept of breeding plans is summarised in three parts: (1) Evaluation and improvement of local breeds (2) Nucleus structure, and (3) Gene migration (crossbreeding).

#### *(1) Evaluation and improvement of local breeds*

Evaluation and improvement of local breeds is the first step to follow in a breeding program (Iniguez et al., 1993; Iniguez, 1990; Iniguez et al., 1991; Adjisoedarmo et al., 1997). Local breeds usually display considerable variation for most production traits so there is good potential for selection. The selection program was used to create genetically improved Javanese Thin Tailed sheep (Adjisoedarmo et al., 1997). A researcher (Noor, 2001) used selection to improve birth and weaning weights of Javanese Fat Tailed sheep. The screening should consider some traits: (a) Selection of wool-free animals, (b) Selection of twin-producing ewes if the environment allows for this level of proliferation, for instance by selection of ewes that have produced at least five lambs in three lambings in two years, and (c) Selection for desirable characteristics and against undesirable defects. The study should take into consideration: (a) Lambing dates, (b) Litter sizes, born and weaned, (c) Ewe body weight at mating, lambing and weaning, (d) Wool scores at birth and at adult age, (e) Lamb birth and weaning weights, (f) Lamb mortality, and (g) Post-weaning growth up to three months after weaning.

#### *(2) Nucleus structure*

Selection programs involving direct participation of producers (end-users) would consist of: (a) A central nucleus flock, to produce selected rams for breeding, preferably located at a research centre or government multiplication centre, and (b)

Base flocks where rams from the nucleus will be distributed. These would consist of smallholder flocks, commercial producers or government multiplication centres. The number of animals in the nucleus should be defined on the basis of the number of participants, or, more properly, the total number of animals in the whole program. For instance, a nucleus flock of 400 ewes with an average litter size of 1.54 and with a capacity to lamb at a rate of three lambings in two years can produce at least 260 ram lambs per lambing (assuming 0.85 fertility). Of those there will be a reduction of 20 percent due to pre-weaning mortality and culling for defects, leaving about 210 rams to be tested for post-weaning growth (until three to four months after weaning). Here a culling rate of 40 percent could be applied resulting in about 125 faster growing ram lambs. The top ten best ram lambs will be kept, while 60 to 80 could be distributed as ram lambs to be sold. If two rams are to be used on each farm comprising 20 to 30 breeding ewes, then 30 to 40 farmers could be part of the breeding program. The nucleus will produce its own breeding rams and replacement ewes. The Participating (Base) flocks would comprise performance-monitored farms, involving mainly groups of farmers such as those of the Outreach Research Project (ORP) of the Small Ruminants Collaborative Research Support Program (SR-CRSP) in North Sumatra. In this project, farmers can participate in an on-farm research framework aimed at testing different technologies to improve sheep productivity.

### *(3) Gene migration*

Crossbreeding uses differences between breeds and has been widely used in sheep breeding in many countries (Rae, 1982). In order to avoid losses in adaptation of the local breeds, crossbreeding should be aimed at introducing desirable genes without losing the local adaptability. It may also be used for the creation of new types of animal, synthetic or new breeds, which will combine desirable features of the parental breeds.

Sheep development breeding programmes or projects on different scales can be applied by using the Livestock Development Planning System (LDPS) from the FAO. The main features of the LDPS are the spreadsheet-based application with some calculation routines (Louis-Gilles Lalonde and Takuo Sukigara, 1997): the demand driven routine, the herd growth routine, the resource driven routine, and the feed resource inventory. Community breeding programs for small ruminants have been reported (Iniguez, 1998), and special software can be used for breeding management in goat breeding businesses (Ribeiro et al., 1998). There are several points that should be noted (Subandriyo and Kevin, 1996) in the breeding strategies of sheep production: breeds introduction or evaluation, records to keep, selection criteria and role of government.

### **Conclusion**

The poultry and sheep production in Indonesia can be implemented as a source of income generation and exertion in the poverty alleviation. Some experiences and findings such as technology and methodology could be taken into account in relation to the development and breeding model based on the present poultry and sheep production system

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## Conclusion

The contributions of the book provide an insight into the various attempts and concepts of poverty alleviation. Which lessons can be learned from the diverse projects?

Although most of the contributors to the book understand the concept of poverty as deficient income among farm households, some authors use a broader concept of poverty. Explicitly or implicitly, various aspects of a better livelihood are included, and poverty is considered to be a multidimensional phenomenon. The broader view is in line with the more theoretical debate on poverty and the concept of international organizations such as the World Bank.

As can be seen from the various papers, a comprehensive concept of poverty alleviation is still not in sight. Poverty exists in rural and urban areas, among agricultural smallholder and livestock-rearing households and amongst herders and pastoralists. The reasons for poverty are manifold and, accordingly, the attempts to overcome vulnerability and poverty have to be diverse as well. But as demonstrated in the papers on various projects, there is a common understanding that the poor are self-determined individuals striving with all of their means to achieve a better livelihood and cope with risks and shocks. This view includes an understanding of the dynamics of poverty and takes into account not only the entries into, but also the exits from poverty. The empowerment of poor people is on the agenda. This non-deterministic perspective is a basis for the prospects of future poverty alleviation.

The different papers address numerous ways of how to tackle the problem of poverty. The strategies of poverty alleviation are diverse. We can no longer expect that enhancing economic growth will solve the problem by way of a simple trickle down effect. It is the merit of this book that it informs the reader on a wide range of positive projects helping farmers to be lifted out of poverty by strengthening their own efforts and resources. Although lessons cannot be transferred one by one to another social and regional context, quite a number of the insights presented here could contribute to an innovative approach in development policy.

The Editor

**Jutta Hebel**



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