POVERTY ALLEVIATION
THROUGH RURAL INFRASTRUCTURE DEVELOPMENT
CASE STUDY : INDONESIA

T H E S I S

A Thesis submited in partial fullfilment of the requirements for
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DOUBLE DEGREE PROGRAM

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AND

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FACULTY OF SPATIAL SCIENCES
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ABSTRACT

Nowadays, poverty alleviation is the main discourse all over the world especially in developing countries, and Indonesia as well. Different countries may face a different intensity of poverty problems, and may have different policies and experience in reducing poverty incidence.

The poverty problem in Indonesia is largely a rural phenomenon in the sense that poverty incident has been higher in rural than in urban areas. It is noticeable that the most Indonesian poor live in rural area. Unfortunately, the rural poor are often confronted with disadvantages from remoteness, lack of education and health care, lack of access to basic infrastructure, unproductive jobs and lack of access to government public services and policies.

This thesis is discusses about poverty alleviation through rural infrastructure development. The focus this thesis is based on the theory of relationship between poverty alleviation and rural infrastructure development which was taken from several sources literatures. The objective of this thesis is to explore priorities and strategies for using rural infrastructure development to create employment and alleviate poverty. More specifically, this research is aimed at looking at the contribution of rural infrastructure development programs in poverty alleviation in Indonesia

From the literature study, the contribution of rural infrastructure in poverty alleviation on poverty alleviation is through the infrastructure investment on poverty reduction. How infrastructures provision can encourage job opportunity, empower community, enhance capacity building and create social protection in rural areas are the key to poverty alleviation.

Key word: Poverty alleviation, rural infrastructure, rural development and Indonesia

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IN THE NAME OF ALLAH, THE MOST GRACIOUS, THE MOST MERCIFUL.

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Nowadays, poverty alleviation is still the most important challenge faced by Indonesia as a developing country. That's why I chose it as the topic of my thesis. Specifically, I chose Poverty Alleviation through Rural Infrastructure Development because most of the Indonesian poor live in the rural area where agriculture is the main source of livelihood. It can use rural infrastructure development to support poverty alleviation in rural area. I hope this thesis will be useful for anyone interested in poverty alleviation, especially the government of Indonesia.

In this chance, I would like to thank DR. Justin R. Beaumont as my first supervisor from University of groningen, for discussing and reviewing my writing, for guidance, support and advice for improving my thesis, and also thank DR. Ir. Uton Rustan, MSc. and DR. Ir. Widiato, MSc. as my second supervisors fron Institut Teknologi bandung. I would like to express my gratitude to Prof. G.J.J. Linden as the Dean of this program, and to Drs. Chris Dokter as the psycologist who helped me out of my difficult situation and also to all my lecturers in ITB Bandung and RUG Groningen,

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SRI RAODA BUNA
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Chapter 1

INTRODUCTION

In this chapter an introduction to the thesis is explained by a brief explanation of the research design which consists of background, the purpose of this research and the structure of this thesis. This chapter will first present the current discourse about poverty and poverty alleviation, and several causes of poverty in Indonesia, and it further explains about how important rural poverty is to be encountered by rural infrastructure development.

1.1 BACKGROUND

1.1.1 Current Discourse

It is widely known that poverty is a global phenomenon. Different countries may face different intensity of poverty problems, and may have different policies and experience in reducing poverty incidence. Poverty is the cause of many problems of today. Poverty as we all know has many different causes and effects. Lack of income however, is the primary cause of poverty. During the crisis, inflation eroded incomes in Indonesia. In 1999, around 15 percent of the population lived below the poverty line of one dollar a day, and around 66 percent below the poverty line of two dollar a day (UNDP World Development Report, 2001).

Income levels, however, are just one single cause. Less often it was noticed that a lack of access to basic goods and services such as lack of key infrastructure was also a contributing factor, as well as a result of poverty. Lack of market access and access to employment centres reduce the income opportunity. Poor or difficult access to

villages means that the communities do not receive fair prices for their produce and they pay higher prices for their consumption. Since poverty has many different causes and effects, it can only be tackled in an integrated way.

Most of the poor people are living in rural area. Rural areas would have a high concentration of poverty given the existence of disguised unemployment in a big way in agriculture. Their income, spending and employment usually concentrate on staple food. They have limited land, schooling or other assets, lack of basic infrastructure and face many interlocking barriers to progress. Poverty and hunger have fallen massively, mainly due to rural and agriculture development.

1.1.2 Planning in Poverty Alleviation

In order to handle all the poverty problems, first of all we need to have a good planning and approach. One of the approaches is by known the theory of planning. Planning theories and practices have been developed from technical approach to more communicative approach. As the societies are dynamic and have their own values and norms, the technical approach is no longer succesful to solve a complex planning problem such poverty alleviation. On the contrary, the collaboration approach based on an institutionalized approach has emerged as a new trend of planning practice that can interlink economic, social-cultural and environmental issue of collective concern (Healey, 1997).

The effort to restore livelihoods and reduce vulnerability to poverty must proceed at a variety of levels. It must community-based initiatives with upstream support to assist all levels of Government in the planning and implementation of poverty reduction initiatives. These initiatives must address the multi-dimensional roots of poverty through the creation of economic opportunities, improvement in the delivery of social

services, empowering local society, as well as integrating good governance and participatory approaches to decision-making.

Different alternative options to deal with poverty exist and could complement each other. One option, emphasized in my research, is to ensure that the existing and future rural infrastructure availability to improve accessibility will maximize the impact on employment creation and poverty alleviation by optimizing the use of local resources including labour in the planning, design, implementation and maintenance of the infrastructure works. The provision of rural infrastructure has often been seen as a means to improve the access of the population to goods and services, and thus as a means to reduce poverty.

1.1.3 The Case of Indonesia

Rather than finding the approach and practice in planning, learning from other practices is one of the efficient ways to seek an alternative approach to poverty alleviation. It has been raised especially after the economic crisis period in 1997. Poverty has become an obvious phenomenon in Indonesia. The economic crisis of 1997-1998 had a devastating impact on both rural and urban communities across Indonesia. Many Indonesians saw their standard of living drop sharply, and the number of poor people living below the poverty line doubled over the cause of the crisis. It is especially because most cities suffer from serious problems such as lack of sufficient housing, shortage of energy, chaotic traffic, lack of clean water, pollution of air, water and land, and increased open and hidden unemployment.

Table 1.1 Increase in Poverty in Indonesia due to the Crisis

Due to unemployment In Million	Due to Inflation In Million	Total Increase in the Number of Poor In Million
12.3 (30.8% of total increase)	27.6 (69.2% of total increase)	39.9 (100%, equals 20% of total population)

Source: Lee, 1998, as compiled from IMF, 1999

The crisis drastically changed the pattern of income and expenditure for many households in Indonesia. Table 1 shows that on the one hand people had to cope with sharp price increase as a consequence of the depreciating Rupiah and high inflation, while on the other hand people found less job opportunities as a result of falling output and employment.

On 26 of December 2004 the largest natural disaster (earthquake) which struck Indonesia caused a devastating tsunami in Indonesia in the Province of Nangro Aceh Darussalam and North Sumatra. It is caused massive flooding, damages, loss of lives and all infrastructure services in the coastal communities of the region. The affected areas requirred emergency relief activities, establishment of temporary barracks, and are now entering the preparation effort to enable transition to the reconstruction phase. For rehabilitation and construction effort, it is very important to have a design more appropriately address the special needs in Nangro Aceh Darussalam and North Sumarta Province in the immediate term post disaster recovery and reconstruction period.

Table 2 shows the total estimated tsunami damages which is US$4.5 billion. The total estimated financial impact, measured at replacement cost, is Rp.41.4 trillion (US$4.5 billion), equivalent to 2.2 percent of national GDP or 97 percent of Aceh's GDP.

Table 1.2 Damage and Loss Assessment of Tsunami (US$ billion)

	Damage	**Losses**	**Total**
Housing	1.4	0.0	1.4
Transportation	0.4	0.1	0.5
Fisheries	0.1	0.4	0.5
Other	1.0	1.0	2.1
Total	2.9	1.5	4.5

Source: BPS Indonesia, 2005

Moreover, the vulnerability of the poor to economic shock and natural disasters must be reduced to enhance their well being and encourage investment in human capital and in higher risks and higher activities. Public policy reforms and investment in physical infrastructure will significantly contribute to the pursuit of socially inclusive development. The provision of basic infrastructure can substantially reduce the vulnerability of the poor people by helping them to cope with natural disaster.

1.2 PURPOSE

The main purpose of the research is to explore priorities and strategies for using rural infrastructure development to create employment and alleviate poverty in Indonesia. More specifically, the research is aimed at looking at the contribution of rural infrastructure development programs to poverty alleviation in Indonesia. In turn it will contribute in setting a better framework at the particular issue which might be used to support Indonesian strategies for alleviating poverty through rural

infrastructure development. This research is based on the concept of "Local Resource-Based Strategy": local level access planning, labour-based technology, small contracting and local level maintenance systems which were introduced by ILO (International labour Organization).

It will focus on the actual planning practice for infrastructure development in rural area, and analyze the document for the current thinking with policies related to rural infrastructure development planning, and it will be find out both the purpose to do the policies in current thinking and the different approach from the same problem in the previous policy. It will also identifies what could be learned for the future from past experiences, and to explain the policy and institutional context for future initiatives.

Finally, the result is important to enhance academic references discussing this issue in the Indonesian case because there are few studies on the Indonesian context. This study will also give an academic background whether or not infrastructure development planning can contribute essentially to poverty alleviation. Government will get benefits from this research because this result can be an academic basis in paying more attention on poverty alleviation, especially on rural poverty, as one of the national government policies now. It is important to know that the problem in poverty is not only about income poverty but also connected with all of human needs including infrastructure.

1.3 STRUCTURE OF THESIS

In order to meet the designated theoretical framework and to synchronize it with the proposed methodological steps, the thesis is divided into six chapters. Content of each chapter can be described as follows:

Chapter 1: **Introduction.** This chapter consists of background, research problems, objective, hypothesises, research questions. In this chapter an introduction to the thesis is explained, by a brief explanation of the background of this thesis. This chapter will first present the several causes of poverty in Indonesia, which further explain about how important rural poverty is to be encountered by rural infrastructure development.

Chapter 2: **Measuring Poverty and Poverty Alleviation through Infrastructure Development.** This chapter becomes the main body of the research in which theoretical formulation is synthesized. It will provide theoretical and empirical bases comprises concepts of poverty, Poverty Alleviation and rural Infrastructure development for employment creation and its relationship. It also explains the concept of "Local Resource-Based Strategy" which was introduced by ILO (International labour Organization) to alleviate poverty through rural infrastructure. It consists of local level access planning, labour-based technology, small contracting and local level maintenance systems

Chapter 3: **Research Methodology and Key Questions.** This chapter will present the research questions, the hypothesis and will explain about the research methodology as the underlying elements for doing an analysis.

Chapter 4: **Overview of Rural Poverty and Rural Infrastructure Development in Indonesia.** This chapter will describe a profile of rural poverty in Indonesia, the main issue of rural infrastructure in Indonesia and how it changes over time. And after that the current rural infrastructure condition in Indonesia will be described.

Chapter 5: **Analysis of Contribution of Rural Infrastructure on Poverty.** This chapter will briefly explain which formulated infrastructure policies contribute to the

rural development and poverty alleviation in Indonesia, as an answer to one of the research questions which presented in chapter 3.

Chapter 6: **Conclusion and Recommendation.** The last chapter consists of research findings as a conclusion and recommendation. It begins with the description of strategic issue in rural development in Indonesia, and the identification of the main constrain in rural infrastructure development, then it will explore the priority and strategic action in using rural infrastructure development to alleviate poverty. Finally it can determine the contribution of rural infrastructure to alleviating poverty in Indonesia.

Chapter 2, discusses the theoretical framework as the basis for coping with poverty alleviation through rural infrastructure development. It includes the definition and measurement of poverty, the scope of rural infrastructure and the relation between poverty alleviation and rural infrastructure development.

Chapter 2

MEASURING POVERTY AND POVERTY ALLEVIATION THROUGH RURAL INFRASTRUCTURE DEVELOPMENT

In this chapter, in order to approach and to understand the relationship between poverty alleviation and rural infrastructure development, the definition and measurement of poverty will be discussed. It will mainly examine three main definitions of poverty which is look by different perspective. To measure the poverty and poverty alleviation, some ways to count poverty are also included here. It also explains the concept of "Local Resource-Based Strategy" introduced by ILO (International labour Organization) to alleviate poverty through rural infrastructure. It includes the local level access planning, labour-based technology, small contracting and local level maintenance systems. Afterward, the discussion continues to the linkages between the rural infrastructure and poverty alleviation and the role of rural infrastructure to alleviate the poverty in rural area

2.1 DEFINITIONS OF POVERTY

Poverty is a multidimensional phenomenon and as a result it may be conceptualised and measured in different ways. Different people naturally have different ideas of what poverty means.

2.1.1 Definitions Based on Income or Consumption

Few economists would argue that human welfare can be adequately described by income alone. Yet, in practice, income or consumption is the most frequently used

proxy for welfare. The justification is that in market based economies lack of income is highly tolerated with other causes of poverty and is a predictor of future problems acceptable standard of living and that society lacks the capacity to make good the deficit.

Income is defined as a command over resources over time or as the level of consumption that can be afforded while retaining capital intact (Piachaud, 1993). People are classified as poor when their income or consumption is less than required to meet certain defined needs. For example, the World Bank Development Report uses two income cut-off points or poverty lines: those with an income per capita below US$ 370 per year, are categorised as *deemed poor*, while those with less than US$ 275 per year are *extremely poor*.

According to Hoeven & Anker (1994), within countries, income and consumption data have been used by the bank to distinguish between different groups of the poor such as:

- The *new poor*, is the direct victims of structural adjustment.
- The *borderline poor*, those on the brink of poverty line who are pushed under it by austerity measure.
- The *chronic poor*, who were extremely poor even before adjustment began.

In addition to calculating the headcount index or the proportion of the population below the poverty line, the Bank accesses the severity of poverty by calculating the poverty gap index or the ratio of the gap between the poverty line and the main income of the poor, expressed as the ratio to the poverty line.

2.1.2 Absolute and Relative Definitions of Poverty

Poverty has also been conceptualised in both the relative and absolute sense. This conceptualiation is generally based on whether relative or absolute standards are adopted in the determination of the minimum income required to meet basic needs. The relative conceptualisation of poverty is largely income-based. Poverty is a situation which a given material means of respectable life sustenance within a given society is hardly enough for subsistence in the society (Townsend, 1962).

If poverty is defined in absolute terms, needs are considered to be fixed at a level which provides for subsistence, basic household equipment, and expenditure on essential service such as water, sanitation, health, education and transport. The absolute definition is in common use by the World Bank and Governments. However, it does not describe the extent of income inequality within society nor the fact that needs is socially determined and changed overtime. The absolute definition has to be adjusted periodically to take account of technological development such as improved methods of sanitation.

The concept of relative poverty the more flexible and allows for minimum needs to be revised as standards of living in society alter. It reflects the view that poverty imposes withdrawal or exclusion from active membership of society: people are relatively deprived if they cannot obtain "……..*the condition of life that is the diets, amenities, standards, and service, which allow them to play the roles, participate in the relationship and follow the customary behaviour which is expected of them by virtue of their relationship of society"* (Townsend, 1993).

Other categories have been describe by Townsend (1997), Desai (1985) and Hagernaars (1986), which basically can be fit into one of following categories:

- Absolute poverty: poverty is having less than an objective defined and absolute minimum.
- Relative poverty: poverty is having less than most people have in other society.
- Poverty is the feeling of not having enough to get along. It may be absolute or relative poverty, or somewhere in between.

Other difference between the categories is that the third category defines poverty subjectively, while the first and the second define poverty as an objective situation.

2.1.3 Definitions Based On Social Indicators

Because many aspects of well-being cannot be captured adequately by income or consumption based measures, supplementary social indicators are sometimes used to define poverty, such as life expectancy, infant mortality, nutrition, the proportion of household budget spent on food, literacy, school enrolment rates, access to health clinics or drinking water. The idea is to have a standard scale so that different population groups may be compared. Such indicators are used to contrast the welfare of rural and urban population since they avoid the problem of rural-urban price differences.

Composite poverty indices which combine several weighted variables have been developed. For example, the UNDP's Human Development Index, aggregate income, literacy and life expectancy into a single measure of standard of living with the scale of values ranging from zero to one (Kabur, 1994). Other examples include the Physical Quality of Life Index (Morris, 1997), the Food Security Index and the Relative Welfare Index (Jazairy, Mohiddin & Panuccio, 1992), such measures are arbitrary and "aggregate what we should wish to disaggregate" (Streeten, 1994). They inevitably miss out important aspects of well being, since a limited number of

variables can be brought into calculation. Moreover, they view poverty from the perspective of external professionals rather than from that of the poor.

Poverty, in the context of this study, is defines in absolute terms. Needs are considered to be fixed at a level which provides substantial basic households equipment, and expenditure on essential service such as basic infrastructure. According to Townsend (1981), there are two essential questions regarding poverty: "who are the poor?" and "What level is poverty defined?" The conventional definition as presented above, according to Greeley (1994) refers to a national poverty line. This is measured either as a minimum flow of real income per capita, or as a bundle of basic needs, which may be quantified. Often this is also related to an indicator of quality of life for providing infrastructure.

An assessment of rural poverty in this study, using the difference in incidence between $ 1 per day and $ 2 per day headcounts as a proxy for vulnerability, reports that as much as 45 percent of the overall Indonesian population (ADB, 2005) may be vulnerable to a period shock. Although separate estimates on the size of vulnerable population in rural areas are not available, the extent of vulnerability is expected to be at least similar to if not higher than that in the rural population. The vulnerability in Indonesia live with risk as a part of their lives, and shock at the national or regional level can sink them into poverty at anytime.

2.2 MEASURING POVERTY AND POVERTY ALLEVIATION

Much of theoretical debate on poverty is about the measurement of poverty. Within the forthcoming of the United Nations Millennium Development Goals in 2000, poverty has become one of the main issues of development in the world, especially in

the developing countries. However, some of the problems and issues of poverty should be addressed such as the measurement of poverty and effectiveness of the poverty alleviation programs. Counting the poverty is usually useful for the country in order to achieve their goal in reducing poverty. It is important to know that the problem in poverty is not only about income poverty but also connected to all of human needs including infrastructure. There is some ways to count poverty that can be defined, which will be described below.

2.2.1 Basic Needs Approach

These basic needs can be translated into financial requirement for poverty line. The basic needs approach is the measurement on consumption related aspect of poverty based on poverty line. Poverty lines are expressed in terms of per capita consumption expenditure and also the minimum consumption of non food supplies, such as clothing and housing (Sharma, 2004). Basic needs refer to a social determination normative minimum for avoiding poverty, and the nutritional requirement for food health (Ravallion cited in Deaton, 2001). The minimum consumption was estimated based on the calorie requirement of 2100 kcal per capita per day (Maksum, 2004).

Related to the measure of poverty, the World Bank measures the poverty with the current US$ 1 per day (purchasing power parity) poverty count in the international stage using the household survey for domestic stage. However, the differences in the measurement of poverty by using survey and the growth by using national account have failed to explain the correlation between growth and poverty reduction (Deaton, 2001).

2.2.2 Income Inequality

Income has been the most consistent factor to be included in measurements of poverty. The study of distribution and extent of poverty usually start with the assumption of specific poverty line in terms of income. Index Gini Ratio is the methods to measure the inequality but not exactly to measure the poverty number. Although some people argued it as a simplicity approach, the measurement of poverty by using this method is useful to mention the poverty. The standard measure of inequality is the Gini coefficient, which varies from 0 (absolute equality) to 1 (high degree of inequality). The small Gini Index shows the smooth level of the gap from income distribution. High inequality shows the problem in income distribution that indicated the poverty in a country or region.

2.2.3 Poverty Gap Index

Poverty gap index was proposed by Foster, Greer and Thorbecke in 1994. The poverty gap index measures the depth of poverty in a country or region, based on the aggregate poverty deficit of the poor relative to the poverty line. Poverty gap index is always linked to another indicator. In general, this indicator in linked to many other sustainable development measures. For example: net migration rate, adult literacy rate, Gross Domestic Product per capita and population living below the poverty line in a dry land area. More specifically, the poverty measures are discussed in the two other methodology sheets, namely the Head Count Index and the Poverty Gap Index.

The head count index measure how widespread the poverty is. The poverty gap index measures how poor the poor are. Since the head count index is not sensitive to changes in the status of those already below the poverty line, it is inadequate in assessing the impact of specific policies on the poor. On the other hand, the poverty gap index increases with the distance of the poor below the poverty line, and thus

gives a good indication of the depth of poverty. A decline of poverty index reflects an improvement in the current situation.

2.2.4 Human Development Index

The Human development Index (HDI) measures the overall achievements in a country in three basic dimensions of human development namely longevity, knowledge and a decent standard of living. It is measured by the indicators of life expectancy, education achievement and adjusted income. HDI measures the level of a country's achievement in the context of human development. The UNDP calculates the HDI every year in its publication of HDI report. The improvement in the HDI has partly been due to the increase in the income component of the index such as the social indicators that are obviously still serious problems that faced by developing counties.

The HDI, as formed by Forsyth and Melissa, is an important attempt to broaden the range of indicators while retaining the advantages of quantification and international comparability. It was drawn on a bundle of indicators referring to the general standard of health, education and wealth, which may be used to indicate the general levels of development (Ravallion, 1992; Reardon & Vosti, 1995).

This measure not only poverty in the economic view but also the social condition in a single measurement. However, the HDI also has a weakness that is not exactly measuring the number of poverty. Furthermore, the indicator of social condition is not perfectly correlated with income in the short-run. For example, the change in life expectancy and illiteracy rate is slower than the change in annual income.

2.2.5 Human Poverty Index

The Human Poverty Index (HPI) measures poverty in developing countries by using some indicators as a variable. The global HPI is the combination of four measures: the probability of not living to age 40; the adult illiteracy rate; the proposition of the people without access to safe water; and the percentage of children who are malnourished (UNDP, 2004). The UNDP has also made efforts to broaden the measure of poverty through the HPI. In case of Indonesia, HPI includes the proportion without ready access to health facilities.

Generally, the change in the component of the HPI reflects the improvement in all of the HPI indicators related to the problem faced by the poor. However, the value of HPI does not really indicate the population in poverty. On the other hand, there should be a convention of the definition of HPI components, for example literacy rate, which is in relation to whether it is illiteracy of roman letters only or of types letter. So, the measurement of poverty by using HPI should use a fixed standard in order to find the data accurately (UNDP, 2004).

In this study, poverty is concerned with flows of income, where poverty is a low level of real income per head. Attempt to be more precise in identifying who is the poor referring to the national poverty line. This measure is either as a minimum flow of the real income per head, or as a minimum bundle of basic needs, which may be given quantitative values and aggregated in terms of a physical quality of life index which can bring about social equity.

2.3 RURAL INFRASTUCTURE DEVELOPMENT AND EMPLOYMENT CREATION: The Concept of Local Resource-Based Strategy

The choice of the infrastructure construction sector as a strategic point of entry and the catalyser for pro-poor growth is grounded on several factors was introduced by the International labour Organisation (ILO) . The reasons are: first, the infrastructure is crucial for investment and economic growth in other sectors. Second, the relative weight of this sector in the overall economy is quite high, especially in developing countries. For example, the infrastructure construction accounts for 3 to 8 percent of GDP (ADB, 2004). A large proportion of public investment, sometimes 70 percent goes to this sector (ADB, 2004). The World Bank estimates that every year, US$ 200 billon is spent on new infrastructure. Third, the range of technological options available for this sector is quite large. For example, the share of cost of equipment in total cost of unpaved road construction could be between 30 and 80 percent, while that labour could range from 10 to 60 percent (ILO, 2004).

The ILO has been introduced the Local Resource Based Strategy to increase the use of local resources (labour and material), planning on the basic of people's needs and productive job opportunities through infrastructure development and maintenance. The main activities will relate to this integration of the *Local Resource Based Strategies* for rural infrastructure provision into the government and donors supported capital investment programmes.

This Figure 2.1 below will explain the integration of four basic instruments of the local based strategy.

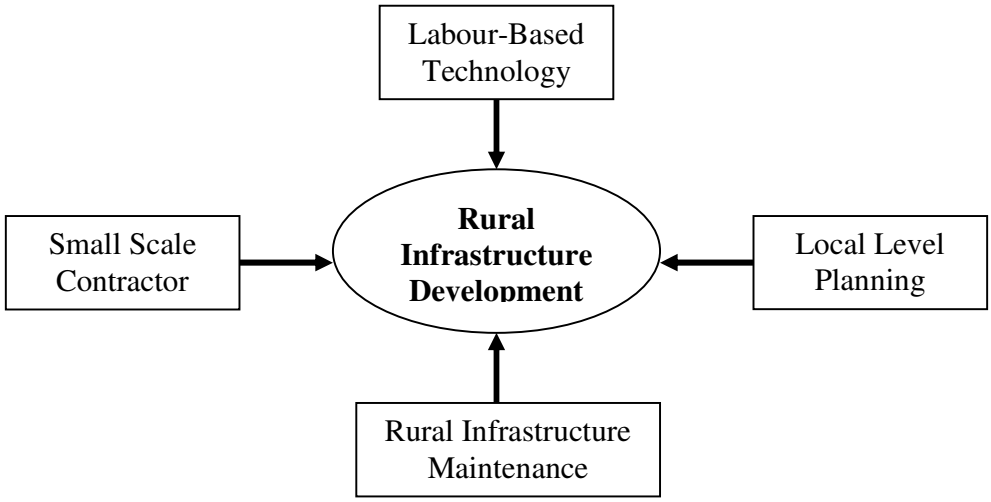

Figure 2.1 The integration of four basic Instruments of Local Resource Based Strategy

Source: The Labour-Based technology Source Book: A catalogue of key publication, Sixth (revised) edition, International Labour Organization (ILO), 2002

These four fields above, namely Labour-Based Technology, small scale contractors, local level planning and rural infrastructure maintenance, represent the total of the process of infrastructure provision from planning through to maintenance. As can be easily understood, this strategy is defined within a framework of employment creation, decentralization, the optimum use of local resources, a focus on local participation and the promotion of good governance. Also, the decentralization of responsibilities and authority, essential for local decision making and the development of good governance is a key factor in poverty alleviation strategies in rural infrastructure development.

2.3.1 Labour-Based Technology

Labour-based technology is *a construction technology which aims to apply a labour/equipment mix that gives priority to labour, but supplements labour with appropriate equipment where necessary for reasons of quality or cost. While producing or maintaining infrastructure to a specified standard in a cost-effective manner, people are employed with working conditions.*[1]

Labour Based Technology (LBT) is now well established as a viable option for building infrastructure in countries with low wages and high unemployment. The quality of output produced in rural road works, sanitation and water supply is usually indistinguishable from that produced by conventional techniques where the cost is competitive.[2]

The ILO promotes the use of LBT method as a regular component of recurrent public investment programmes for the infrastructure and construction sectors, and supports special training and awareness programmes. If a piece of infrastructure is to be constructed or maintained, a choice can be made to use labour equipment as the predominant input in the process. Any decision should be objective and will be depend on (i) the type of construction. (ii) the relative cost of labour and equipment (true and unsubsidised) in the country or locality where the work is to take place. (iii) the technical specifications for the completed works.

The term of labour based indicates that a flexible and optimum use is made of labour as the predominant resource, accompanied by the appropriate light equipment to

[1] The Labour-based technology Source Book: A catalogue of key publication, sixth (revised) edition, ILO, 2002.

[2] The Labour-based technology Source Book: A catalogue of key publication, sixth (revised) edition, ILO, 2002.

ensure cost-effective and the quality aspect in construction. LBT therefore implies a properly planned use of labour in an economically efficient, humanly fair, and hence sustainable manner. It must produce technically sound result and be socially and economically competitive with alternative equipment based methods.

The use of labour based methods also implies the increased use of associated local resources. These may include locally available materials, tools and equipment, skill and knowledge as well as finance. For example if in certain countries the agricultural sector is flourishing, it should be possible to tap into using the tools and equipment produced locally for agriculture, with perhaps some adaptation to make it suitable for use in labour based construction. This reinforces the amount of investments which remains in the country and often in the locality of the works, and reduces the dependence on costly imports.

2.3.2 Local Level Planning

Relevant to serious problems of unemployment and poverty in developing countries, the ILO has been involved in activities that contribute to the improvement of access to basic and socio economic goods, services and facilities as a means through which it can contribute to the reduction of poverty in rural areas. There is an inherent relationship between the lack of access to basic and socio economic needs and poverty. Goods, facilities and services are often not easily accessible to the rural population in many areas in many countries depriving them from employment opportunities, education, health care, safe water, market, etc. Unless a community has access to these facilities and services, it has a limited chance of getting itself out of poverty.

To improve rural access effectively, an appropriate local level planning tool has been evolved, which is simple and relatively cheap. With the ILO technical assistance, the

Integrated Accessibility Planning has been introduced, complementing the existing local level planning structure in directing investment resources, among other priorities, to those that improve rural access. It is involves the communities, local governments and local civic organisations to identify their access problems and to propose solutions for improved access to goods, services and facilities.

In response to the global economic trends and changes at the national levels, decentralisation policies have been pursued and accelerated in many developing countries. This has led to an increased vested responsibility at the regional and local level institutions for economic development and employment creation, thought not necessarily with the means to carry this out. Subsequently, the need for building the local capacity for planning, implementation and monitoring is critical if decentralisation is to effectively enable a more rational allocation of scarce resources according to real priorities.

2.3.3 Small-Scale Contracting

The development of a local contracting industry in developing countries, able to mobilise and effectively utilise local human and material resources, is seen as an important means to promote employment, improve efficiency, and at the same time an efficient way to develop and maintain infrastructure. An increased focus on labour based construction and maintenance techniques in the development of the local contracting industry may significantly improve the effectiveness and efficiency of the operations, and at the same time, increase the poverty alleviation effort through increased employment creation and income generation.

The ILO has been introduced the Small Scale Contracting approach, which includes trainings and capacity building at various levels to all partners involved, both public and the private sector, in LBT and in business and contract management. In seeking

to develop local capacity in the construction sector, for example, a contractor as well as consultant, it will be important to look at the environment in which they operate. This includes the capacity and ability of the client organisation to cope with their new and changing role as contract managers. For a small scale contractor, creating an enabling environment includes the removal of barrier to their entry into market, and to their growth and sustainability.[3]

2.3.4 Rural Infrastructure Maintenance System

Preventive maintenance comprises the repairs and inspection to prevent failures, while corrective maintenance covers the repairs after a part of the infrastructure has failed its function. An increased use of local resources could be the key to improving maintenance practices and systems. The development of appropriate rural infrastructure maintenance systems deserves a high priority. Implementation by the local authorities while engaging local petty contractors could further prove to be the most effective approach for ensuring the continued serviceability of infrastructure.

The impact and sustainability of rural infrastructure argued above, is partly based on the local participation during the planning and implementation. Therefore the use of local resources for maintaining this infrastructure should be seen as another key factor in providing sustainable access in rural areas.

Although it is impossible to prevent all failures, and corrective maintenance will always be necessary, proper maintenance schedules developed at the local level could monitor the condition of the infrastructure through inspection and identification of the priority task to minimise the total cost of keeping the infrastructure functioning. Strengthening the local capacity to undertake these activities will be crucial.

[3] The Labour-based technology Source Book: A catalogue of key publication, sixth (revised) edition, ILO, 2002.

2.4 LINKAGES BETWEEN RURAL INFRASTRUCTURE AND POVERTY ALLEVIATION

The important area for further investigation is the linkage between poverty alleviation and provision of rural infrastructure services. Infrastructure services are critical to the welfare of the rural people. They stimulate economic growth, build poor capabilities, facilitate their connection to political process, market and maintain social relations, and reduce vulnerability to risk and shock.

The government in many developing countries and Indonesia face severe budgetary constraints. Accordingly, it is important to access the relative contribution of physical infrastructure investment to poverty reduction. This brief proposes an analytical framework and reviews recent literature and econometric result on the link between physical infrastructure and poverty alleviation, with particular reference to the rural sector where the vast majority of the poor reside.

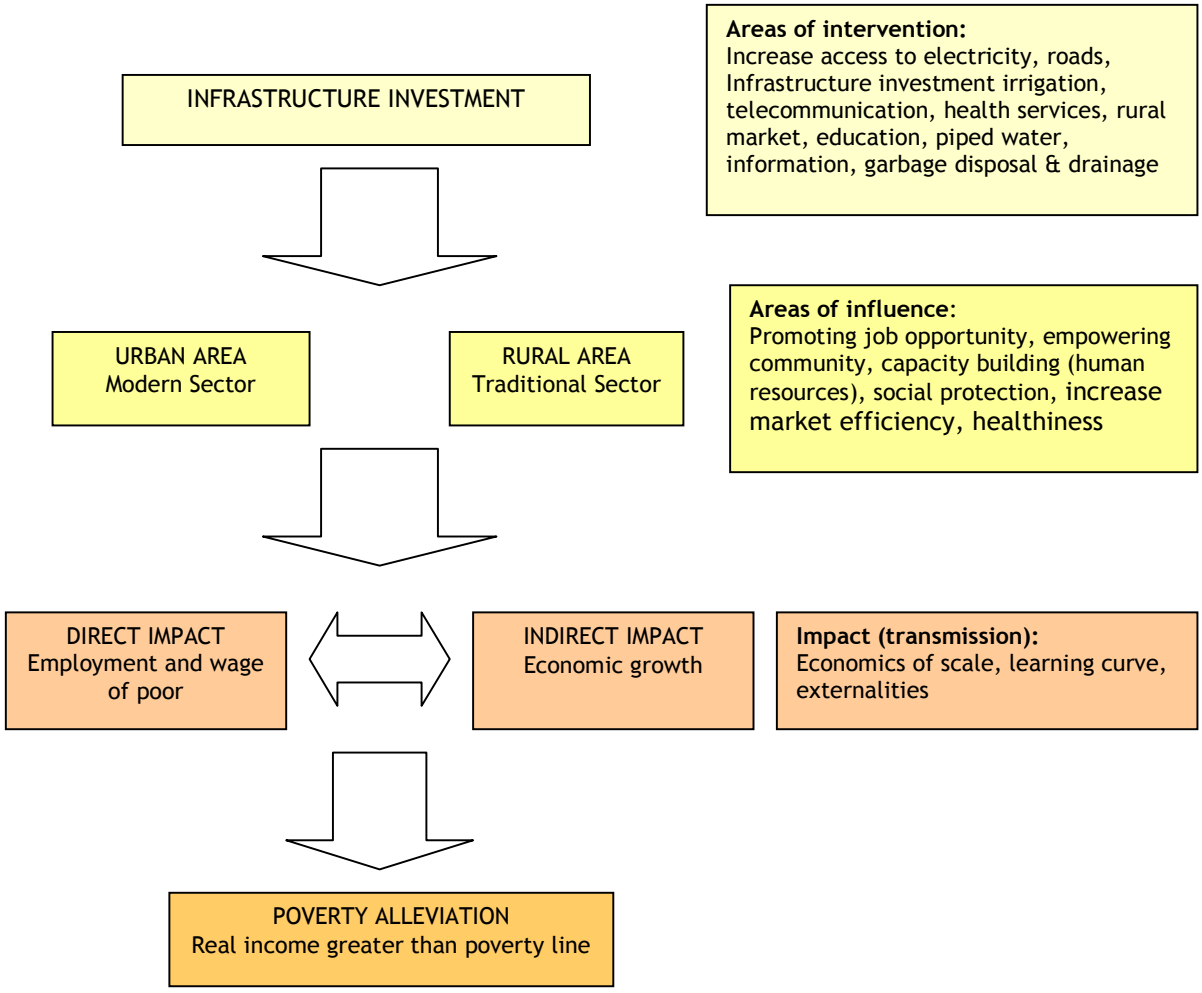

Figure 2.2 Link between infrastructure and poverty alleviation

Sources: Ifzal Ali & Ernesto M. Pernia (2003)

Figure 2.2 summarises the sequence from infrastructure investment (area of intervention) through these determinants (area of influence) to the poor's wages and employment (direct channel) on the one hand, and rural economic growth (indirect channel) that influences the supply and prices of basic goods on the other. The final link is the real income/consumption of the poor and consequently, poverty alleviation (area of concern). The various links can be illustrated, for example, a road investment

could result in an increase in agriculture productivity, non farm employment an productivity, directly raising the wages and employment of the poor, and hence their economic welfare. This is the direct income distribution effect. In addition, higher productivity and expanded employment lead to higher economic growth, affecting the supply prices of goods, and thus the poor's well-being. This is the indirect growth effect.

2.4.1 Rural Infrastructure Stimulation on Economic Opportunity and Growth

Whilst there is no consensus on the magnitude or the precise natures of the impact of infrastructure on growth, most of studies concur that infrastructure promotes growth with relatively high rates of returned compared with other forms of investment (World Bank, 1994; Ahmad & Donovan, 1992). In the rural context, infrastructure contribute to both agricultural and non agricultural growths, thereby generating economic opportunity for broad range of rural inhabitants, but most importantly the poor.

Agricultural productivity

The provision of rural infrastructure has been linked to agricultural growth and improved productivity in numerous studies. Improved access and density of roads has been shown to reduce transaction cost of accessing both inputs and outputs leading to increased agricultural outputs, increase crop area and yield (Binswanger et al., 1987). Both improved transportation and electrification are associated with an increased use of high yield varieties and an extension of an area under irrigation (Barnes & Binswanger, 1984). Transport and telecommunication services also promote communication and information flow among communities and between rural and urban centres, fixing information, and linking farmers to markets for goods and input supply as well as agricultural extension advice. This has resulted in reduced transaction cost and increases in agriculture productivity (Fan, Hazell & Thorat,

1999) through technological innovation, improved farming practice and diversification.

Non-farm sector

Infrastructure services have been shown to stimulate the non-farm sector and support the emergence of small business in rural areas which can be a significant source of employment and incomes for the poor. Water and sanitation services also give an impact on rural household income through improved health and reduced illness, which increases worker productivity and wage earning potential.

From the Economic opportunity point of view, the provision of essential infrastructure increases both agricultural and non-farm opportunities in rural areas. A lot of studies demonstrate that the provision of reliable energy supply and serviceable roads not only increases agriculture productivity, reduces the cost of inputs and outputs, encourages greater use of efficiency and generating technologies (Binswanger et al, 1987; Barnes & Binswanger, 1984), but also support the emergence of small businesses in rural areas, which can be a significant source of employment and income for the poor (Binswanger, Khandker & Rosenzweig, 1989; Lamach et al., 2000).

Income distribution

There is also some evidence which suggest that the benefit of infrastructure service for the poor by generating more equitable growth. This is further supported by the study of shared growth in South East Asia, which found that more equitable access to infrastructure service in rural and urban areas encountered growth with equity. Preliminary evidence shows that access to infrastructure can benefit lower income groups (Campos & Root, 1996).

Poverty is generally seen as the state of poverty continuing over a long period of time. In order to reduce this type of poverty, continuous intervention by the government is needed to raise the productivity of economic activities of the poor households (Lipton & Ravallion, 1995). The development of physical infrastructure increases agricultural production and the return on human and physical assets through the provision of public goods by the government. Infrastructure development is also believed to ultimately raise permanent household incomes. Consequently, infrastructure development has the effect to reduce poverty. Deno & Eberts (1989) found a significant increase in personal income when infrastructure was constructed. However, they conclude that most of the effects last less than one year. Thus, an appropriate strategy is to provide infrastructure because of the long-term expansion of service benefits and to view jobs and income generated during the construction phase as peripheral benefits.

2.4.2 Rural Infrastructure Enhances Capabilities

The provision of rural infrastructure service has an important implication for the health and education of the rural poor. The most well known link may be the impact of safe water and sanitation on reducing the incidence of sickness and deaths from diarrhea (Kless, Godinho & Lawson, 1999). Improved access to infrastructure services can also save significant amounts of time as rural households, especially woman and young girls, spend a large part of their day on collecting water and firewood. Easy access to portable water and energy results in time savings that can be used for productive, reproductive and educational or leisure activities.

Likewise, electricity can build human assets by providing light in the evenings to study. It can provide access to information and networks through the use of radios. It can improve health care by providing energy for lighting, diagnostic services, instrument sterilization, and vaccine presentation in village hospitals and maternity

clinics. Electricity service can also help in protecting the natural assets, by preventing the natural degradation through deforestation for fuel.

2.4.3 Rural Infrastructure Facilitates Empowerment

Infrastructure can play an important role in empowering people, linking isolated communities to the rest of the world, giving the poor community greater access and influence over political and local decision making processes. Markets work much better when information is widely available. Rural infrastructure services such as roads, radio and telephones can directly improve communications and enhance the poor access to other regions. Electrification is also important for broadening access to electronic communications and radio, which are like many windows opening up to the outside world. They bring with them outside influences, new ideas and stimuli, correcting information and result in profound change in mental attitudes (Poliquen, 2000).

Another potentially significant contribution of infrastructure service to empowerment occurs in the process of delivery by building capacity, introducing transparency and accountability, and promoting inclusiveness. The needs for basic infrastructure in rural communities is a powerful tool for initiating collective actions, mobilising entire communities and in the process of consensus building and implementation, developing skill and building human assets and social capital. In the most effective programs this process has allowed groups and individuals to develop skill which they apply to other activities

Reliable access to affordable rural infrastructure service gives a great opportunity to the rural people to access markets and social services, and it is essential for rural growth and poverty alleviation (World bank, 1994; Ahmad & Donovan, 1992). Infrastructure services stimulate economic growth, contribute to build poor people

capabilities, facilitate their connection to the political process, markets and social relations, and reduce their vulnerability to risk and shock. Many infrastructure services are intermediate inputs that enable the poor in rural areas to generate income, access health, education and financial services, and build social capital.

There is a large volume of empirical research verifying that infrastructure development in rural areas will contribute to the development of regional economy (Antle, 1983; Lipton & Ravallion, 1995). Jiminez showed that 1 percent improvement to irrigation, paved roads or the density regional roads generated 1.62 percent, 0.26 percent improvements in agricultural productivity respectively. Access to high quality roadways and transport systems can help increase the level of agricultural production technologies, stabilize the provision of financing and increase production. Lipton and Ravallion (1995), called this the direct effect on poverty alleviation brought about by the provision of infrastructure. Improvements to paved roads and transportation system in the local regions helped to improve employment mobility for the farmers. Increased employment mobility can provide the farmers with expanded opportunities to earn higher wages and to diversify economic activities, ultimately leading to a significant increase in income. Lipton & Ravallion (1995) said that the development of infrastructure increases the mobility of information, goods, services and employment and alleviates poverty. They called this contribution to poverty alleviation an indirect effect.

2.4.4 Rural Infrastructure Reduces Vulnerability.

Vulnerability is a particular serious dimension of poverty that can result in total destitution. The poor often live in the rural towns and villages and are the first one to be hit by natural disasters. Their village are isolated, making access to medical support difficult in time of crisis. As well as being the most exposed to risk of shock,

the poor are the least prepared to deal with consequences because they operate at low to non existent safety margins.

Natural disasters

The provision of basic infrastructure can substantially reduce the vulnerability of the poor people by helping them to cope within natural disasters. Properly designed infrastructure, banning construction in hazard zone and establishing robust design standards can help to mitigate the impact of natural disasters, although at considerable cost. Other mitigation measures, such as good drainage, well maintained road network, and telecommunications, to assist with relief and food redistribution efforts, go a long way toward alleviating problems of flooding, drought, famine and earthquakes. By opening the rural communities to the outside world, and providing access to modern technologies, they also indirectly serve to reduce weather related uncertainties (mainly rainfall), plant diseases, pets and other harvest risks.

Economic shocks

Basic infrastructure services can ameliorate the effects of economic shock on the poor communities. Good transport facilities are integral to stabilizing food price fluctuations. Economic shock can be particularly costly for infrastructure, because by delaying expenditure, it increases costs and results in fewer funds for direct poverty alleviation.

From all those discussions above it is clear that to understand the problem of poverty, the definition and the measurement of poverty should be explained. In order to alleviate the poverty through rural infrastructure development, the scope of rural infrastructure and the characteristic of rural poverty should be examined. All should be taken into account to know the role of rural infrastructure and the relationship between poverty alleviation and rural infrastructure development.

Chapter 3

RESEARCH METHODOLOGY AND KEY QUESTIONS

To start using the research methodology, first we have to know what the research questions is. The research process developed based on three main activities, which are data collection, research procedures, and method of study analysis. Derived from the theoretical framework as explained in chapter two, these activities are conducted following several methodological steps. Data collection and literature review are done simultaneously, while research procedure is divided into four steps.

3.1 RESEARCH QUESTIONS

I develop this research based on some research questions as follows:

- What are the main issues concerning rural infrastructure in Indonesia?
- To what extent do formulated infrastructure policies contribute to the poverty alleviation in rural area in Indonesia?
- What are the priorities and strategies of rural infrastructure to alleviate the poverty in rural area in Indonesia?

Those research questions will guide this thesis. Moreover, this study will try to prove two hypotheses as the derivation of those research questions:

- Although there are a lot of poverty alleviation programs carried out in Indonesia, but the poverty alleviation in Indonesian did not work as expected.
- It needs a good strategies and new thinking about policies to bring people out of a poverty situation.

3.2 DATA COLLECTIONS AND LITERATURE REVIEW

Due to the time constraints, it is impossible to conduct field research which will take a long time. The research methodology that is possible to be used in this research is literature study and document analysis. The literature here is the literature related to the planning system and to the poverty alleviation and rural infrastructure development. It includes be books, magazines, articles, journals, newspapers, etc. The sources will include the World Bank Development Reports, World Bank Working Papers, in particularly these related to the Rural Development Report.

In order to achieve the research's goal and objective the research will focus on the theoretical formulation of poverty and rural infrastructure development. The research is conducted by means of document analysis, which will analyze all the document related to the poverty alleviation and infrastructure development programs and policies in Indonesia such as Renstra (Rencana Strategis) or Strategic Development Planning Document, both previous and current Policy documents, an annual report of the National Socio-Economic Survey (*Survey Sosial Ekonomi Nasional* – SUSENAS), the poverty figure which is published by the Central Bureau of Statistics (*Badan Pusat Statistik* – BPS), Infrastructure investment, and all survey document reports published by the Asian Development Bank, World Bank, NGOs etc which are related to poverty alleviation and rural infrastructure development.

The case study will give example of practices and experiences about how some poverty alleviation program addressing the poverty problem in Indonesia. Then, the effectiveness of policies applied shall also be discussed and several lessons learned will be drawn. Both theoretical and case studies are used in order to achieve the research question and research objective. Finally, general concluding remarks about the subject and recommendation will be delivered.

3.3 RESEARCH PROCEDURES

To fulfil the research objective, answer the research questions, and build a conclusion and recommendation, there are four main procedures that are established:

- First, to build clear understanding and definitions of the poverty and poverty alleviation. It also clearly describes the rural infrastructure development. In this step, the important aspects of the poverty alleviation and its relation to rural infrastructure are described. The aim of this procedure is to have the clear basic information and definition about the poverty alleviation through rural infrastructure development. The information and definition include the important tools of measuring the poverty and the role of rural infrastructure to alleviate the poverty. It will establish basic aspects that will be described in the circumstance of Indonesian case in the next procedures. The data collection used secondary data from literature review.
- Second, to describe the profile of rural poverty in Indonesia, how it changes over time and what the current rural infrastructure condition in Indonesia is. It also describes an overview of the issues, and strategies in poverty alleviation which have been done, to identify the goal oriented, actors and institutional linkages.
- Third, to analyse the infrastructure policies contributed to poverty alleviation programs and rural development in Indonesia, by using a narrative-descriptive analysis which means selectively picking and mixing the data gathered from literature to describe and narrate the current landscape of infrastructure policies contributed to the rural development and poverty alleviation in Indonesian
- Fourth, after doing the analysis, a conclusion and recommendation are constructed by a comprehensive analysis to explore the priorities and strategies for using rural infrastructure development to alleviate poverty in Indonesia

3.4 METHOD OF STUDY ANALYSIS

The analysis method of research used is focused synthesis. It is like literature review using the existing literature, which can be dependent on previous research, and use the material sources such as newspaper, people and expert opinions (Majchrzak, 1984).

The approach of this study deals with policy and poverty alleviation programs at the national level, which are essential at regional/local levels. The policies are particularly on the institutional, political, and social aspects decisions are made. Therefore to answer all the research question it is not only to answer *who, what*, and *how* questions, but also why referring to the past, as the fundamental, rational, and conceptual bases which shape poverty alleviation programs and policies in Indonesia.

This thesis involves less statistical data. The emphasis is on the qualitative data. The empirical perspectives are investigated in chapters four, and five. In the process of investigation, there are some steps to be done. The first step is the compilation and collection of data. The second step is exploring the data that has been collected. The third step is doing the data analysis where the data that have been explored are analyzed by the theoretical perspective of chapter two and empirical perspective in chapters four and five. The conclusion and recommendation will be given in chapter six.

In order to fulfil the data needed, the resource data are founded by using the internet facilities and some references from the library provided in RuG University. The resource of the data emphasis on scientific texts is provided by the university and research centres, the government site and other institutional (study group on poverty, association of planner) related to this research.

Chapter 4

RURAL POVERTY ALLEVIATION IN INDONESIA

This chapter will first present an overview of the rural poverty situation in Indonesia, continued by describing the overview of Indonesian rural infrastructure policy, and finally describe the condition of rural infrastructure in Indonesia after the crisis period.

4.1 RURAL POVERTY IN IDONESIA

During more than 30 years in power, the reduction of absolute poverty was one of the most significant achievements of the New Order Government. The problem of poverty is characterised by poor health, lack of basic education and skills, insecurity, inadequate access to land and other assets, vulnerability to economic shocks, natural disaster, social conflicts and other risk.

According to the data from the Central Bureau of Statistics, Indonesia, in the mid 1970s, more than 50 million people, or around 40 percent of the population were living below the poverty line. In the late 1980s and the early 1990s, poverty incidence has been reduced to below 30 million or less than 20 percent of population. In 1996, a year before the beginning of the economic crisis, the poverty level has been reduced to an estimate of 22.5 million people or around 11 percent of the population[4]. The New Order success in reducing poverty was attributed to rapid economic growth, especially from the mid 1980s, after the government undertook a series of structural

[4] The data based on Central Bureau of Statistic Indonesia, 1999.

adjustment policies, including privatisation and economic deregulation, combined with rural development and employment programmes (Booth, 2000).

In sharp contrast to these trends, the Indonesian economic crisis that began in the late 1997 was accompanied by a widespread social distress in many parts of the country. A fall in GDP was accompanied by massive job losses, as bankruptcies and cutbacks in production multiplied. This led to a sharp rise in open unemployment and underemployment. As a result, there was a significant increase in the number of people living below the poverty line and a marked deterioration in income distribution.

According to the data from the Indonesian statistics in the UNDP (2004), Indonesian standard of Gini Coefficient remained steady over the recent decades (1970-2004) in the range between 0.30 and 0.38. The economic crisis in 1998 has no significant impact on the change of the Gini Coefficient in Indonesia. The Gini Coefficient during the crisis of 1998 was 0.32, close to the historic average since the 1980s (Asra, 2002). On the other hand, the trend of poverty in Indonesia shows a similar change to the trend of the Gini Coefficient in the similar periods as can be seen from the figure below.

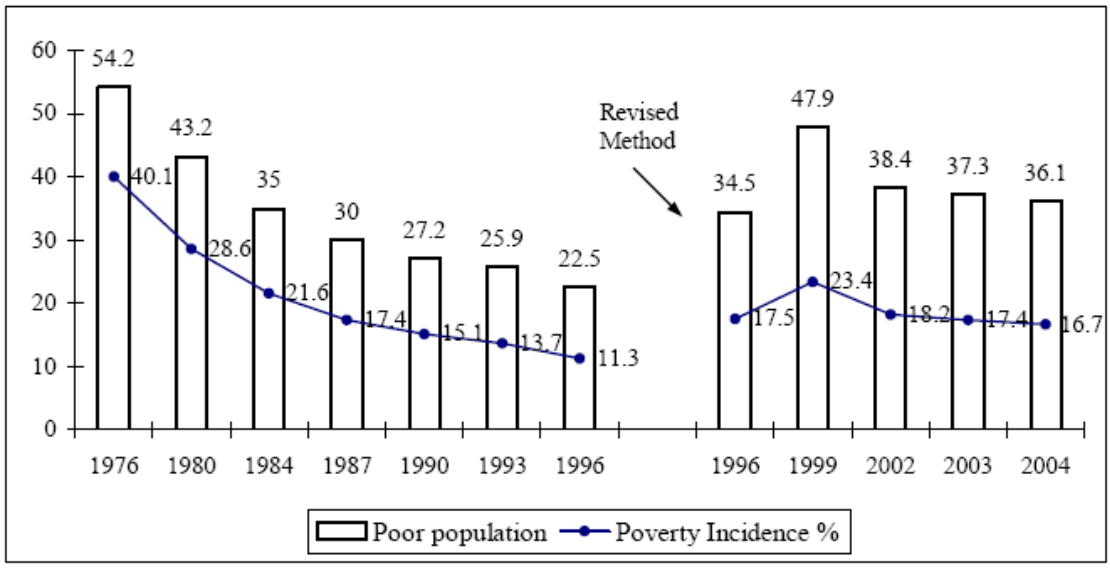

Figure 4.1 Trends of Poverty incidence and Poor Population in Indonesia

Source: SUSENA, in Maksum, 2004

As the consequence of the crisis, poverty also increased significantly in Indonesia. The main source for assessing poverty in Indonesia is the National Socio Economic Survey (Survei Sosial Ekonomi Nasional or SUSENA), which include detailed information on household consumption expenditures. SUSENA data shows the increasing number of poor people from 22.5 million in 1996 to 47.9 million in 1998 and in 2004 decreased to 36.1 million. There were two different results of poverty in 1996 because the official measurement of poverty changed the method. The government added more indicators to measure poverty, for example the change in the definition of basic education and the shift in consumption patterns. As a consequence, by using the new method, the poverty number increased from 22.5 million to 34.5 million in 1996.

The other measures used to reflect income inequality is the World Bank's creation. The World Bank classifies the overall population into three groups of population

according to their income: 40 percent of the population with low income, 40 percent of the population with middle income, and 20percent of the population with high income. The inequality in income distribution is measured by calculating the percentage share of income earned by the lowest 40 percent. The income inequality is categorised high if the lowest 40 percent of the population earn less than 12 percent of the total income, inequality is moderate if they earn between 12-17 percent and inequality is low if they earn more than 17 percent of the total income.

However, it fails to explain poverty in pre and post crises in Indonesia, although the index in post crises period was lower than the pre-crises index (comparing between 1993 and 2002), but the poverty below poverty line and the population in poverty were higher in that period.

Table 4.1 Trends of Poverty in Indonesia, 1990-2000

Indicators	1990	1993	1996 (1)	1996 (2)	1999	2000
Poverty below poverty line (%) (PO)	15.08	13.67	11.34	17.55	23.43	18.2
Poverty Gap Index (P1)	2.71	3.85	1.7	1.75	4.33	3.01
Severity Index (P2)	0.72	1.11	0.41	0.42	1.23	0.79
Poverty Gap Ratio (P1/P0 * 100)	17.97	28.16	14.97	9.97	18.48	16.54

Source: IMDG report, UNDP, 2004

As can be seen in table 3 above, the poverty gap index in Indonesia rose significantly during the crisis and then it decreased smoothly. These trends indicated that the proportion of people living in poverty has fallen to almost the pre-crisis level. However, although the poverty gap ratio in 2002 was lower than that in 1993 based on figure 3, the poverty number in 2002 was still higher than the poverty number in 1993.

The rural areas in Indonesia are home to the largest segment of the population and the poor. The number of the poor in 2004 was about 24.7 million, or one fifth of the rural population (Maksum, 2004). According to the data from the Central Bureau of Statistics Indonesia (2004), most of the Indonesian poor 78 percent live in rural areas and they depend on the agricultural sector for their main livelihood. Agricultural sector dominates the national employment scene with 41 million workers, of whom 80 percent are attached to the informal economy. Most striking, 87 percent of the poor live in households in which the head of household has a primary education or lower, only 5 percent of the poor have a secondary education or better. For 60 percent of the poor, agriculture provides the main source of income; 75 percent of the poor live in the rural areas. Most of the poor (61 percent) live in Java. The poorest regions, all rural, are scattered and include parts of the Eastern Islands (Papua, East Nusa Tenggara, Maluku and West Nusa Tenggara), and also in other areas (South East Sulawesi, East Java, East Kalimantan and Central Java). It means that there is a disparity between urban and rural areas.

Table 4.2 Number of Poor people in Indonesia divide by Urban and Rural Areas

Year	Rural	Urban	Rural + Urban	Percentage of Total Population
1976	35.5	18.7	54.2	40.1
1990	17.8	9.4	27.2	20.1
1996	15.3	7.2	22.5	11.3
1998	31.9	17.6	49.5	24.2
2000	26.4	12.3	38.7	18.9
2002	25.1	13.3	38.4	18.2
2003	24.4	12.9	37.3	17.4

Source: Central Bureau of Statistics Indonesia, 2004

Therefore, the poverty problem in Indonesia is largely a rural phenomenon in the sense that poverty incidence has been higher in rural than in urban areas. Explanation accounting for the largely poor people in rural areas can be found in the literature. Booth (1992) & Firdausy (1994), for instance, pointed out the following five factors responsible for the incidence of rural poverty: (i) Limited access to economic resources, such as agriculture land, capital, employment opportunity and the agricultural technology; (ii) Social and cultural factors, such as lack of education and skills, and the large size of household; (iii) Disadvantaged geographical areas (infertile agricultural land); (iv) Personal or physical factors (e.g. women and age); and (v) lack of access to government public services or policies.

4.2 INDONESIAN POLICY ON RURAL INFRASTRUCTURE

The policy on rural infrastructure development which has been implemented so far in Indonesia focused more on the physical sides and the policy is sometimes too general and less focused. This show as that there are poor relations between the procurement of infrastructure devoted to the disadvantaged people and the attempts to alleviate poverty. Some policies that have been outlined by the government concerning the strategy of poverty alleviation in connection with the procurement of infrastructure are, among others, stated in the macro operational policies in economy, namely *policies of infrastructure development* which support social and economic activities of the disadvantaged people. In the national development programme, the improvement for basic capabilities of the disadvantaged families and communities is made through widening of access to various services in education, health, job opportunities, capitalisation, infrastructure and other services. Here, the types/dimensions of poverty play a central role in determining the infrastructure needed. The target can be achieved through direct and indirect routes. It is expected

that the infrastructure can help reducing the poverty by reducing the cost of living, increasing income, and stabilizing the income/expenditure of the poor.

Rural infrastructure development mentioned in the National Development Programme is the *Regional Development Upgrading*. One of the aims of this Regional Development planned to be achieved in five years time is the development upgrading of potentials of the regions. This will be carried out in regional economic development, rural and urban development, development for underdeveloped and border areas and housing development. It includes space and land layouts management in order to support the national economic recovery, to strengthen the continuous development platform and to accelerate interregional economic growth distribution. Several programs will be carried out in order to achieve the aims of the regional development above. These programs can be categorised into four groups, namely regional autonomy development, regional development acceleration, the improvement of people empowerment and accelerated management for certain territories[5].

The regional development acceleration programme is divided into two programs: *Rural Development Program* and *Underdeveloped Are Development Program.* The goal of the rural development program is to improve the welfare of the rural society, to accelerate the rural economic activities which are based on fairness and to accelerate industrialisation in the rural area. The targets are to improve the income of the rural society, to create jobs, to provide foods and other materials in order to fulfil the demand for consumption and production needs, to create links between rural and urban economies, to strengthen local economic management and to improve the capacities of the economic organisations and institutions in rural areas[6].

[5] Act no. 25 year 2000 on PROPENAS (National development program)
[6] Act no. 25 year 2000 on PROPENAS (National development program)

The underdeveloped areas development program aims at improving the accessibility of underdeveloped areas to production factors and physical infrastructures that support the acceleration of underdeveloped areas, developing the capability of human resources as well as strengthening social institutions including the traditional institutions and their traditional wisdoms. The targets of this program is to improve the economic and socio cultural capacities of the underdeveloped areas, so that there will be a link connecting them to the development of other areas[7].

Although the regular bottom up development planning has been implemented since the mid 1980s, the fact shows that infrastructure development has not significantly contributed to overcome access problems of the rural community, especially in the eastern part of Indonesia. The main important factor is not about the amount of investment provided, but more about the process to identify the priority activities to overcome actual access problems.

Many infrastructure developments proposed in bottom up planning documents are not the real actual needs of the community, especially those who live below poverty line in remote areas. Actually, the planning mechanism is quite ideal. It starts from the village (Desa) level, up to sub-district (Kecamatan), district (Kabupaten/Kota), provincial, and National level. The primary problems is about the instrument used to formulate the priorities, mainly at the village, sub-district and district level, where the financial decision is made.

[7] Act no. 25 year 2000 on PROPENAS (National development program)

4.3 RURAL INFRASTRUCTURE DEVELOPMENT CONDITION IN INDONESIA: Infrastructure Development Program after the Crisis

Indonesia is among the hardest hit in the current Asia economic crisis. Based on the World Bank and IMF estimates[8], the short-term economic prospects are not encouraging. The Gross Domestic Product (GDP) was estimated to have declined by 15.6 percent in the 1998/99 financial year. The construction sector suffered the most 40 percent decline, financial service decline by 27 percent and the trade, hotel and restaurant sector decline by 21 percent. Only the agricultural and mining sector have not been severely affected, although non-oil export earnings fell by 8.8 percent, notwithstanding severe depreciation of the Rupiah.

The social effect of the financial crisis in Indonesia has been serious and the World Bank estimates suggest that the impact has resulted in an increased in absolute levels of poverty from 10 percent in 1997 to 14-20 percent in 1998. The Social Monitoring and Early Response Unit (SMERU) estimates the decline in absolute poverty to have increased from 11 percent to 13.8 percent by 1999.

With a contracting economy, labour demand has decline with highly visible lay-off in the construction and manufacturing sectors. In 1998, Bappenas estimated that around 6 million persons (more or less 7 percent of total labour force) were laid-off, the greater part of which, 1 million, came from the construction sector (25 percent of the construction labour force was laid-off). Conflicting estimate by SUSENA for 1997 indicated that 9 percent decline is in the construction sector; combined with the decline of 13 percent in industry, and 27 percent is in the electricity sector[9]. These

[8] IMF (1999), World Bank Economic Outlook, IMF, Washington; World Bank (1998), World Bank Development report, World Bank, Washington.

[9] Conflicts in estimates in part derived from "conventional" definitions of employment, which exclude those not "seeking work". Estimates by Iftikhar Ahmed and Shafiq Dhanani ("Indonesia's Recovery: Employment Optimism or Statistic Illution?", Occational Discussion paper series no. .

impacts were absorbed into the agricultural sector. Some 4.5 million have been reabsorbed into agriculture, equivalent to a 15 percent growth in the agriculture workforce.

The decentralisation process toward district and provincial autonomy is underway and has been the effect of the law no. 22 year 1999 and no. 25 year 1999. This process has changed the landscape of governance and more importantly the role of the central and the local government in locating their development budget and earning their revenues. The local government has now more right to allocate the budget according to their own development needs but at the same time they have more responsibility to local stakeholders. Therefore, the accountability and transparency of development programmes are necessary to guarantee the social and economic sustainability of the region. With more than 300 districts and cities as well as the establishment of new provinces, this process is an extremely difficult task for both the local and central governments. Decentralisation requires a slow process of transformation from the blue print approach to a specific approach reflecting local development needs and from the central budget allocation to decentralised fiscal mechanism. Local capacities to manage such changes are therefore an absolute necessity.

Apart from the local government own revenue, in the decentralised system, the central government requires the allocation of the local government grants through two mechanisms, namely general budget allocation (DAU: Dana Alokasi Umum) and specific budget allocation (DAK: Dana Alokasi khusus). In the past, the budget allocation from the central government was channelled through the central government contribution using presidential instruction for use in a specific purpose. Pre-decentralisation trend of the local government revenue can be seen in figure 4.2. below.

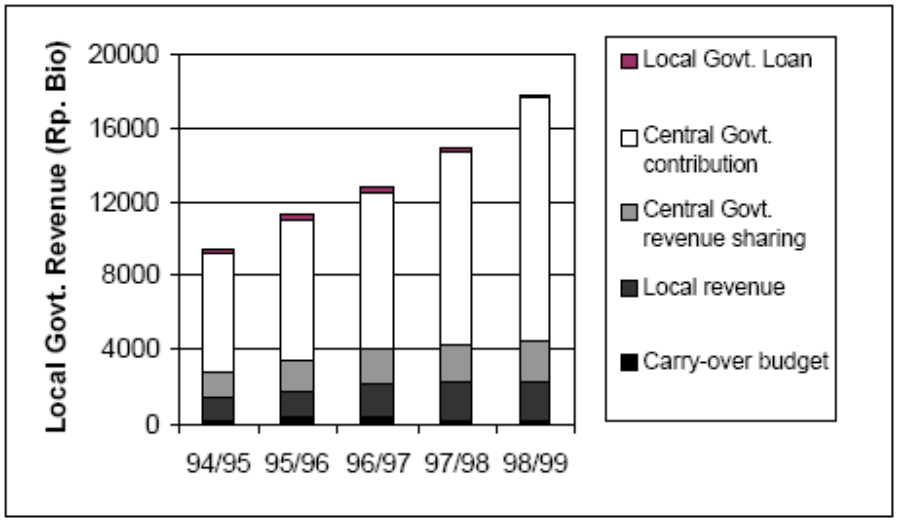

Figure 4.2 Local Government Revenue

Source: Profile of Local Government Finance, National Development Planning Agency, 2001

Figure 4.2 shows that despite the increasing local government revenue, the major source of revenue is still the central government contribution. The absolute level of local revenue remains at the more or less constant level and this means that the proportion of the local revenue level is decreasing.

How did local government spend their budget? Did they spend it wisely? What will be the situation after the decentralisation? These questions are posed for various reasons. Decentralisation is the new system for Indonesia, and the local capacity is an important element in the success of the process. Local development needs have to be identified and clearly addressed by the local governments, so that programmes and projects can stimulate local economic development which in turn increase the local revenues through taxes and duties. Another reason is the fact that the central government allocation is still playing an important role and therefore the fiscal

decentralisation mechanism needs to be carefully monitored and continuously improved. The focus on rural development is also another reason why it is interesting to see how the local government reacts to the decentralisation process. A current Bappenas study[10][11] and studies elsewhere have demonstrated that rural economy is a vital element in sustaining economic development of the region and nation-wide. Rural economy was proven robust against economic crisis and is expected to do so in the future. How would the local governments allocate their budget to promote and to facilitate rural economic development is of the interest of the central government and development economists.

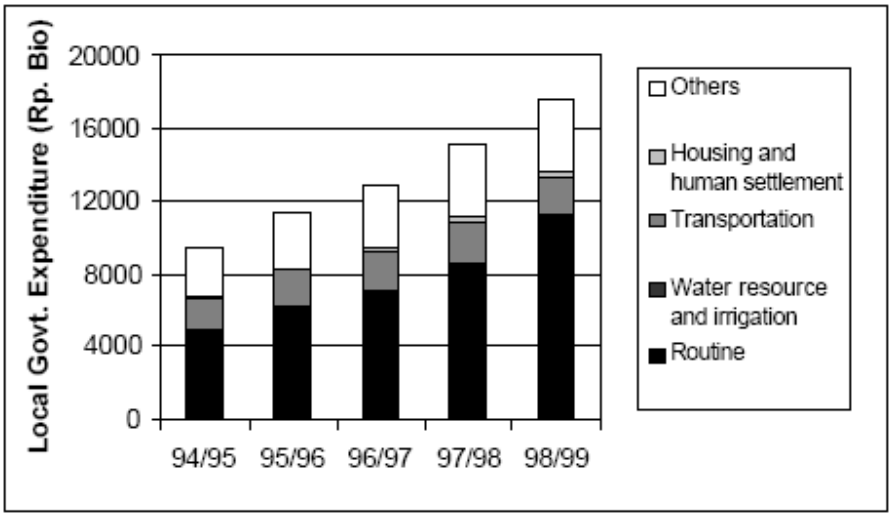

Figure 4.3 Local Government Expenditure

Source: Profile of Local Government Finance, National Development Planning Agency, 2001

In a Jakarta seminar[12], an issue of rivalry between the development budget and the routine budget was raised. The routine budget reflects the funds required to perform

[11] Result of PARUL (Poverty Alleviation through Rural and Urban Linkages), PEL and other studies to review P3DT programme.

[12] Seminar proceeding and discussion result of "Strategi Pemenuhan Kebutuhan dan Penentuan Prioritas Pengembangan Infrastructur Wilayah", Hotel Bumi Karsa, Jakarta 26 ovenber 2001.

the government management role[13] and the development budget is the budget allocated for programme implementation through projects. Figure 4.3 above demonstrates that the previous allocation was expected to be the short-term future trend, especially with regard to the infrastructure sector.

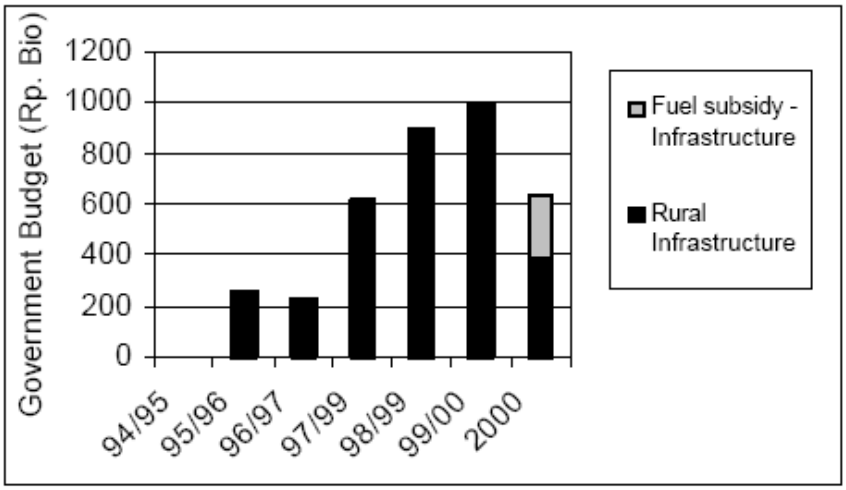

Figure 4.4 Central Budget Allocation for Rural Infrastructure Development Projects

Source: Profile of Local Government Finance, National Development Planning Agency, 2001

One would expect that if local the governments responded to local development needs, the local development budget will be allocated in larger portion to development budget and not the other way around. Most of funds went to routine budget[14]**.** Infrastructure budget is mainly for water resources, irrigation, and transportation, housing and human settlement was no exception. It has a decreasing

[13] In the infrastructure sector, term "routine budget" is associated with "routine maintenance". In government account however, routine budget is used for government management, overhead, and depreciation of government assets, travel expenditure and expenses for the major/local parliament.

[14] Budget for loan repayment is included in both routine (1 percent) and development budget (marginal).

percentage of local budgets. In the year 2001, in South East Sulawesi for example, 80 percent of provincial budget was used for routine budget, leaving 20 percent for development budget (5 percent was used for transportation sector)[15]. The dependency of the local government on the central government budget has also supported with the fact that the central government has a major programme of rural infrastructure development through the World Bank support: P3DT[16] programme and P2D[17] programme. In addition, the rural infrastructure was supported by the fuel subsidy reallocation programme. While a long-term sustainability of such programme is to be promoted, it seems that the programmes have created a certain dependency of the rural infrastructure programme on the central government. An incentive to develop a sustainable rural infrastructure development has not been taken effect and this will be the biggest challenge to similar future programme.

P3DT project started in 1995/1996 which means to supporting poverty alleviation programme through a construction or rehabilitation of infrastructure in poor areas in order to expand employment opportunity. In 1995/1996 and 1997/1997 the number of villages receiving the support were 2.050 and 2.627 villages respectively. In 1997/1998 it increased to 4.986 villages and then 6.122 villages at the sub-district level with 250 sub-districts as the programme recipients[18].

A review of P3DT programme shows that the strength of the programme lies in its transparency, accountability, fiscal decentralisation process, the empowerment and learning capacity of the local organisations, the use of local material, regional approach, the presence of multiplier effect, the provision of basic infrastructure and

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[15] Local Government Finance, national Development Planning Agency, 2001

[16] P3DT: Program Pembangunan Prasarana Desa Tertinggal or Least Developed Village Infrastructure Development Programme

[17] P2D: Program Pengembangan Desa or Rural Development Programme

[18] Bappenas, 2001, Data on Poverty Alleviation Programme 1994-2000

the formation of capital[19]**.** However, it also identified some of the problems such as its nature of blue print approach and low monitoring and management, lack of monitoring for the consultant, sustainability of communicating consulting, and the lack of community contribution for community work.

Other important issues are the need of integration and project selection, appropriate design and the need of supervision during construction, sustainability in operation and maintenance, mitigation of social problems, support to activities which improve positive impacts and recognise its influencing factors[20]. How effective such central government support to encourage the local government to develop future rural infrastructure programme is still unknown, but there are always a worries that the local government do not have enough initiative to consider rural infrastructure as their responsibility.

Example Condition of province

The study results by the ILO in five provinces in Indonesia[21] at the three levels of governments (province, district/kabupaten, and subdistrict/ kecamatan) are shown in table 4.3 and table 4.4. below. The provinces and its conditions are as follows:

[19] Yayasan Desa Mandiri, 2000, Independent Monitoring of Village Infrastructure Project: Pola Swaskelola (Loan IBRD 4100-IND), Final report.

[20] PCI, 1999, Benefit Evaluation Study for the First Rural Area Infrastructure development Project (OECF IP-473), Final report and Interim report 5 (Post Implementation period: FY 1996/1997.

[21] The selected of the province is representing from five main islands in Indonesia.

Table 4.3 Regional Basic Data

Province	No. of District	No. of Sub-District	No. of Village	Area (km2)	Population (000 pers)	Household (HH)
Papua	13	173	3,255	394,800	2,220	7,513
South East Sulawesi	5	67	1,270	38,140	1,781	2,728
East Kalimantan	26	87	1,090	211,440	2,689	N/A
West Java	26	543	6,682	43,177	43,089	45,620
South Sumatra	10	110	2,583	112,471	7,859	N/A

Source: Basic Development Data, National Development Planning Agency, 2001

Table 4.4 Social and Economic Condition

Province	GRDP per capita (000Rp/year/pers)	Population Density (Pers/km2)	% of poor people	Local Revenue (Mio Rp)	Local Government Buget (Mi0 Rp)
Papua	65,085	5,62	16,76%	16,295	646,323
South East Sulawesi	8,094	46,70	10,78%	17,205	226,917
East Kalimantan	54,631	12,72	13,50%	40.075	574,36
West Java	70,547	997,96	10,55%	519,214	2,860,624
South Sumatra	25,622	69,88	18,72%	62,933	723,610

Source: Basic Development Data, National Development Planning Agency, 2001

The tables above show that the provinces which were represented by the five main islands in Indonesia namely Papua, South East Sulawesi, East Kalimantan, West Java

and South Sumatra as the basic of ILO study consist of various types of region. Papua and East Kalimantan have a vast area of coverage whereas West Java has relatively developed its economic condition but with much higher population density. Despite the large area, Papua, East Kalimantan and South East Sulawesi have a small number of districts, sub-districts and villages compared to West Java. South Sumatra more or less lies between the two extremes. The case study has provided a valuable knowledge of the current situation in Indonesian rural infrastructure development. It is expected that such variation will provide a better understanding of regional, economic and social disparities of Indonesia.

In the next chapter 5, analysis of the contribution of rural infrastructure development to poverty alleviation in Indonesia will be conducted.

Chapter 5

ANALYSIS OF CONTRIBUTION OF RURAL INFRASTRUCTURE DEVELOPMENT ON POVERTY ALLEVIATION IN INDONESIA

This chapter will briefly explain to which the formulated infrastructure policies contribute to the rural development and poverty alleviation in Indonesia, as an answer to one of the research questions presented in chapter 3. It begins by describing the strategic issue in rural development in Indonesia, and identifying the main constraints in rural infrastructure development. In turn, it will explore the priority and strategic action in using rural infrastructure development to alleviate poverty. Finally it will determine the contribution of rural infrastructure in alleviating poverty in Indonesia.

5.1 STRATEGIC ISSUES IN RURAL DEVELOPMENT

All rural communities are concerned about economic and community development. However, the goal of the development programs and policies vary widely. In some rural places, development strategies aim at stimulating economic and community growth to address problems associated with population and employment decline. Elsewhere, growth is not the objective. Instead, the community may desire to improve wages and standard of living by changing the nature of employment, or by enhancing infrastructure and public service.

5.1.1 Geographical, Social and Economic Disparities

Indonesia is a country with enormous geographical, social and economic disparities. The vast country of more than 238 million living in around 17.000 islands with large differences in natural environment, wealth and human capital has resulted difficulties in managing infrastructure development. The terms 'need of local community' varies significantly from one place to another. Even the national agenda of poverty alleviation should have a different approach from one region to another due to the level of poverty and ways to address the issue.

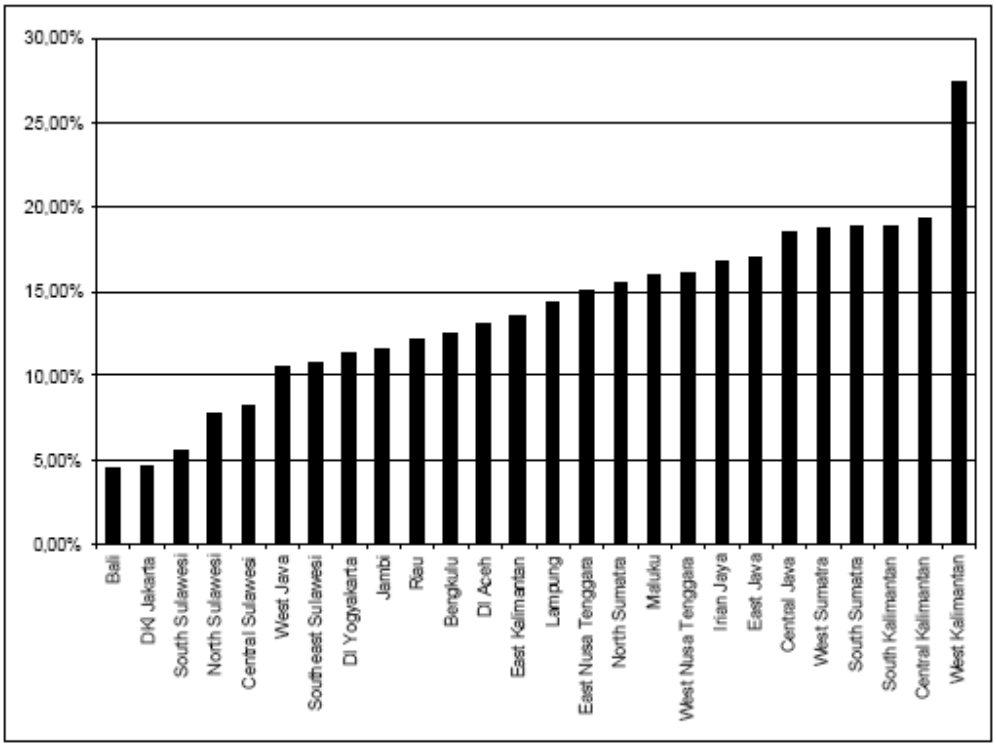

Figure 5.1 Percentage of Poor People to The Total Number of Population in The Province

Source: Basic Development Data, National Development Planning Agency, 2002

Figure 5.1 above shows, poverty level[22] varies from less than 5 percent service-based province of Bali, to more than 25 percent natural resource-based province of West Kalimantan.

Figure 5.2 depicts the relation between proxy incomes per capita shown by GDRP per capita against the percentage of poor people in the province. The result shows that there is no significant relation between the regional wealth and the poverty level. Although this has mainly attributed to the economic structure of the region, the fact that a rich region is not always associated with the low poverty level has made it difficult to address the issue of poverty alleviation.

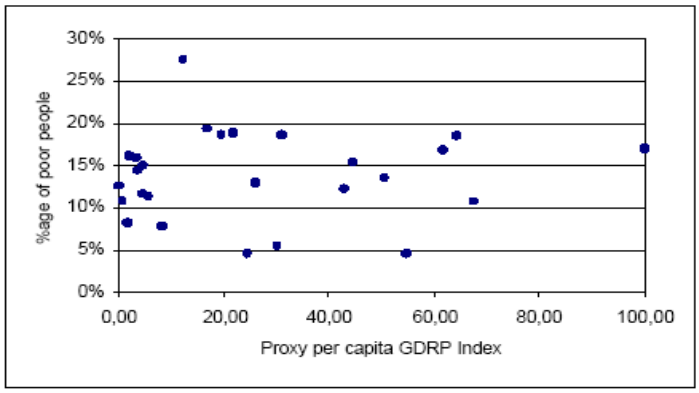

Figure 5.2 Relation between Proxy Income Per Capita and Percentage of Poor People In The Region

Source: Basic Development Data, National Development Planning Agency, 2002

With the decentralisation process underway, such as disparities are even more difficult to address because each of more than 300 districts has its own characteristic. In many cases, it can find that even in a province, there are districts with large differences.

[22] It is widely accepted that the definition of poverty may different between one organization to another.

5.1.2 Rural Development and Indigenous People

Previous ILO mission report on West Papua (Irian Jaya) has also identified that it is essential to recognise the right of the indigenous people in the development process. The individual and collective proprietary right (Hakko Aleut) to land and natural resources within their traditional territories is based on the customary laws. Therefore, they consider it proper, just and fair and the proprietary rights in these traditional areas are respected by both the government and private sector[23]. While the ILO mission specially addresses the issue of the indigenous Papuan, the issue is not unique to Papua or Irian Jaya, but also applies to other regions throughout Indonesia.

In the context of rural development, the recognition of such traditional rights should be integrated into the planning, implementation and evaluation cycle[24]. Most problems are related to, but not limited to, land acquisition and the right to access natural resources within the traditionally owned property. Only by incorporating their rights, will rural development respond to and benefit the local community. The previous approach of rural infrastructure development has not addressed such an issue in a proper way, and thus has created problems during and after the construction period.

Many local cultures, wisdom and technologies need to be examined and assessed. Most of them have positive contributions to the identification and implementation of development needs of the region, but some of them should be treated carefully. In areas where land cultivation is a culture, the concept of participation for public facilities and asset ownership of community facilities are relatively easy to understand. However, for communities where the traditional ways of life is through

[23] Nayangan, Domingi, ILO-INDISCO Exploratory Mission report on the Development Concern of Indiginous People in Irian Jaya, Indonesia, Oktober 2001.

[24] ILO convention 169 on Indigenous and Tribal People.

collecting forest products or fishermen's village, such a concept is sometimes difficult to accept.

5.1.3 Decentralisation, Fiscal Policy and Local Governance in Rural Infrastructure Development

Decentralisation has been the jargon of the Indonesian development programme since the issuance of law no. 22 year 1999 on the regional autonomy and law no.25 year 1999 on fiscal decentralisation and profit sharing scheme of natural resources revenue. Fiscal decentralisation means more rights and responsibilities for the local government to the development budget. Although major sources of funds come from the central government through general budget allocation and special budget allocation, the utilisation of such budget will solely depend upon the decisions made by the local government agencies and local parliaments. This means that there should be enough capacity to manage, plan, distribute and evaluate the use of public money in order to provide transparent and accountable development programmes. The local government is becoming more important with various stakeholders bringing in the system such as local NGOs, community groups, universities as well as local businessed. The currently issued law on consumer's rights and law on construction services have supported the transparency and accountability of the government's spending on infrastructure development programme.

In reality, however, such governance still has to find ways to operate. The empowerment of local parliaments need to the addressed cautiously. They need to be assisted with adequate data and technical knowledge in order to provide a sound and reliable recommendation. Local NGOs, community groups and local universities need to acquire technical knowledge on infrastructure aspects whereas local construction industries need to provide a better business practice based on performance and merit

system. Such effort should be continuously pursued by the local government in rural infrastructure development in order to achieve the development objectives.

5.2 RURAL INFRASTRUCTURE DEVELOPMENT AND POVERTY ALLEVIATION

Currently, almost 70 percent of infrastructure investment in Indonesia is financed by the government or public utilities from their own resources or from low interest borrowings, 3 percent from aid, and the balance is from the private sector[25]. As stated in the previous chapter, the Indonesian government faces severe budgetary constrains. Accordingly, it is important to access the relative contributions of physical infrastructure investment to poverty alleviation. This brief proposes an analytical framework and reviews recent literature result on link between physical infrastructure and poverty alleviation, with particular reference to the rural sector where the vast majority of the poor reside.

Typically, the incidence of rural poverty is inversely related to the size of landholding, decreasing from landless to sub-marginal, marginal to small, the share of wage income being the highest among the landless, sub-marginal and marginal farmers, and the share of crop income increasing progressively from sub-marginal to large farmers. Wage income depends on agricultural productivity and employment, as well as non-agricultural employment and productivity. Crop income is largely determined by agricultural productivity. Agricultural and non-agricultural productivity contribute to economic growth, particularly in the rural sector.

[25] DFID, 2002, Making the Connection: Infrastructure for Poverty Reduction, London.

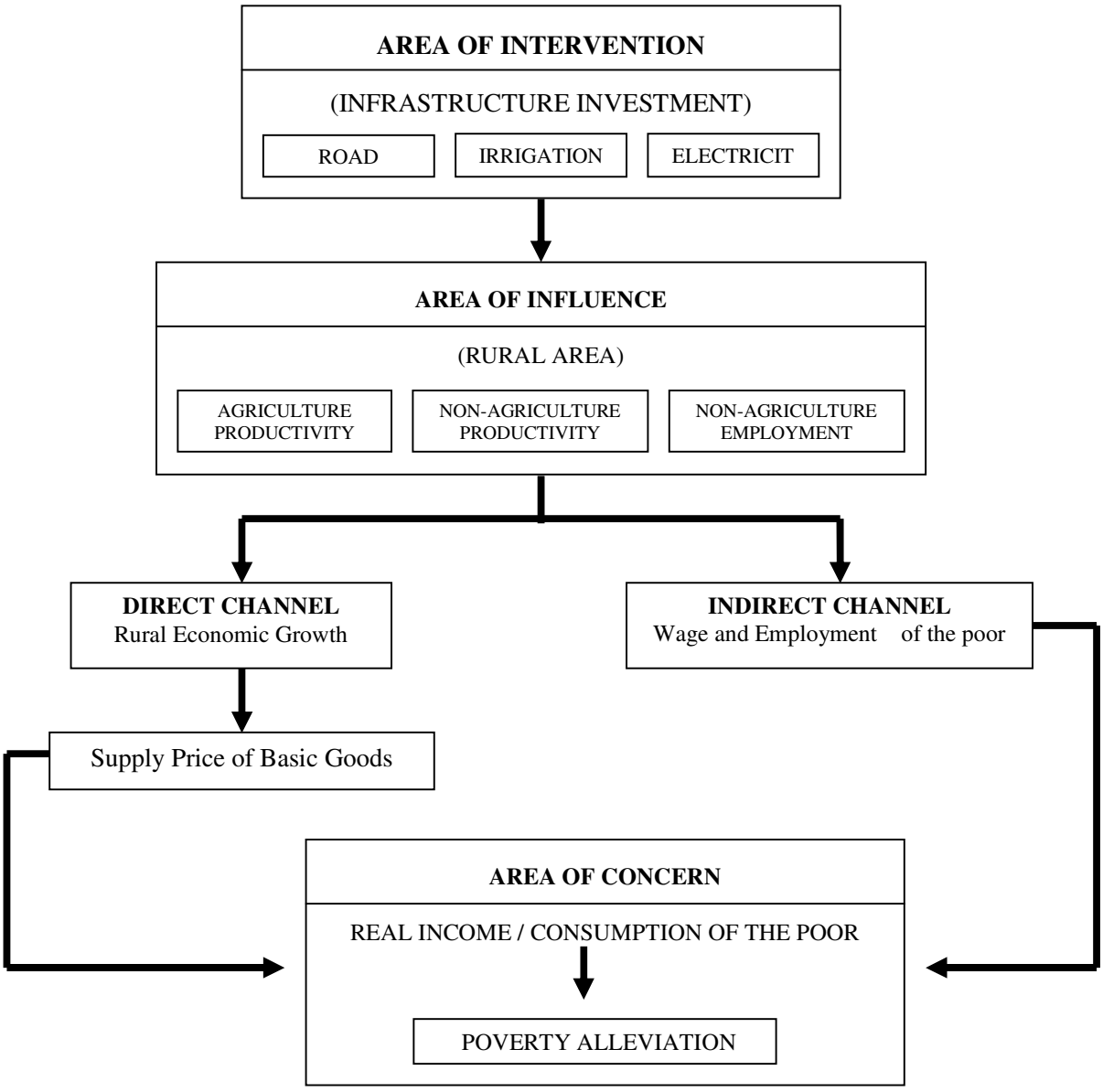

Figure 5.3 Analytical Framework of Poverty Alleviation through Rural Infrastructure

Figure 5.3 above shows the analytical framework of poverty alleviation through rural infrastructure from infrastructure investments (area of intervention) through these determinants (area of influence) to the poor's wages and employment (direct channel) on the one hand, and rural economic growth (indirect channel) that influences the supply and price of basic goods on the other. The final links are to real income/consumption of the poor and consequently, poverty alleviation (area of concern).

The various links can be illustrated with examples. For example, a road investment could result in an increase in agricultural productivity, non-farm employment and productivity, directly raising the wages and employment of the poor, and hence, their economic welfare. This is the direct income distribution effect. In addition, higher productivity and expanded employment lead to higher economic growth, affecting the supply and prices of goods, and thus the poor's well-being. This is the indirect growth effect. Similar link can arise from irrigation and electricity investment as shown in figure 5.3.

Rural infrastructure like roads, irrigation and electricity among others, provides the necessary prerequisites for growth of non-farm activities besides farm production. Significant linkages among production, consumption and labour activities in rural economies have been amply documented in the development literature (e.g. Hazel & Haggblade, 1993). Agricultural productivity improvement triggers growth in secondary and tertiary sector through input, output and consumption linkages, thereby resulting in higher labour productivity and wages. Thus, the growth process underpinned by rural infrastructure development, serves as the crucial pull-up factor for mainstreaming the rural poor, enabling them to take advantage of the growth and diversification of agriculture and non-farm opportunities.

5.3 TOWARD PRIORITY AND STRATEGY IN POVERTY ALLEVIATION THROUGH RURAL INFRASTRUCTURE DEVELOPMENT

5.3.1 Identifiying Main Constraints

Most local government believes that rural infrastructure plays an important role in supporting the regional socio economic development. However, there are several problems associated with developing sustainable rural infrastructure as describe before. Some are related to geographical and labour condition, but many of the problems are affiliated with local government capacity to manage rural infrastructure on their own. Based on the five provinces mentioned in the previous chapter, there are several main constraints in rural infrastructure development that have been identified.

Table 5.1 Summary of Main Constraints In Rural Infrastructure Development

Main Constrain	Description	Papua	Southeast Sulawesi	East Kalimantan	West Java	South Sumatra
Geographical Condition	Geographical difficulties		X	X		X
Labour Condition	Limited skill of labourer and low productivity	X	X	X	X	X
	Low wage level and or high living cost	X	X	X		
Government Management Capacity	Lack of institutional / educational support	X	X			
	Difficulties to integrate infrastructure plan-programme	X	X	X	X	X
	Lack of Government Capacity to manage rural infrastructure development	X	X	X		
	Lack of reliable infrastructure data			X		
	Lack of awareness and low attitude toward the importance of rural infrastructure	X			X	X
	Too many general contractors and lack of specialized contractors	X	X	X	X	X

	Low quality of infrastructure work		X	X		
Government finance	Limited government budget for rural infrastructure				X	X
	Budget available for maintenance	X	X	X	X	X
	Dependency on central government budget				X	
	Availability of local material / technology and high cost construction	X	X	X		
Private sector and construction industry structure	Limited private sector working and investment capital	X	X	X	X	X
	Private sector management and technical skills	X		X	X	X
	Availability of a proper sub-contracting scheme.		X			
	Low quality and lack of experience of small scale contractors	X	X	X		X
	Low quality of infrastructure work		X	X		
	Lack of business opportunity and information disclosure to participate	X		X		
	Packaging of projects – large package is freferred		X			X
	Availability of local materials/technology and high costs of construction	X	X	X		
Community involvement	Difficulties of community to maintain rural infrastructure – too complicated and coverage is too wide		X	X		
	Ownership of rural infrastructure asset –related to local culture	X	X	X	X	X

Table 5.1 shows the common constraints/obstacles experienced in the rural infrastructure development which are also common problems and may be found elsewhere in Indonesia:

- Lack of skilled and thus productive workers
- Difficulties in integrating rural infrastructure programmes due to lack of planning, implementation and monitoring instruments

- Difficulties in managing large numbers of contractors which attributed to a loose system of entry into construction business
- Budget availability for maintenance
- Lack of access to working and investment funds for private sector
- Low managerial and technical skills for local firms
- Lack of ownership for community facilities and low participation for public infrastructure

While the above list provides common constraints/obstacles, the table also shows that some areas like Papua and West Kalimantan are having difficulties in allocating their maintenance budget. On the contrary, only West Java has raised an issue of dependency on the central government budget. South East Sulawesi surprisingly enough, has focused its problem in other aspects except in financing aspect of rural infrastructure development. It is important to note, however, that South East Sulawesi Province is known to be one of the poorest regions in Indonesia. In Papua, there is a need to have access to appropriate tools technology.

5.3.2 Priority and Strategic Actions

Priority and strategic action are very much related to the ways to remove constraints/obstacles and reduce the problems. Some of them fall within the domain of infrastructure development programme but some others are beyond the capacity of local stakeholders to overcome them.

Table 5.2 Priority and Strategic Action for Rural Infrastructure Development

Main Constrain	Description	Priority and Strategic Action
Geographical Condition	Geographical difficulties	Provide improved access through infrastructure and service
Labour Condition	Limited skill of labourer and low productivity	Skill training and productivity training, including the use of appropriate tools and technology
	Low wage level and or high living cost	Improve wage standard, require Central Government approval
Government Management Capacity	Lack of institutional / educational support	Improve coordination among government institution through coordination framework and strengthen education/training facilities
	Difficulties to integrate infrastructure plan-programme	Equip local government with planning instrument, guidelines and manual
	Lack of Government Capacity to manage rural infrastructure development	Improve staff of local government capacity through training and education
	Lack of reliable infrastructure data	Provide assistance for the development of rural infrastructure database system
	Lack of awareness and low attitude toward the importance of rural infrastructure	Awareness rising and improve profile and important rural infrastructure
	Too many general contractors and lack of specialized contractor	Reform in local construction industry and provide assistance for certification, require central government regulation and provincial government approval
	Low quality of infrastructure work	Improve supervising and maintenance system
Government finance	Limited government budget for rural infrastructure	Improve budget allocation procedure, equip with budget allocation tools for prioritization
	Budget available for maintenance	Improve budget allocation procedure, equip with budget allocation tools
	Dependency to central government budget	Improve budget allocation procedure, equip with budget allocation tools
	Availability of local material / technology and high cost construction	Government subsidies and/or incentives for locally produced material and local construction technology
Private sector and construction industry structure	Limited private sector working and investment capital	Provide access capital, related with regulations in the banking sector in relation with construction industry
	Private sector management and technical skills	Technical and management training for private sectors in the construction industry
	Availability of a proper sub-contracting scheme.	Reform in contracting procedure , require central government intervention in tendering
	Low quality and lack of experience of small scale contractors	Technical and management training for small scale contractors
	Low quality of infrastructure work	Improve supervision and maintenance system
	Lack of business opportunity and information disclosure to participate	Improved access to information and participation for NGOs, community groups,

		local education / training institutions, and business society to infrastructure development plans/programmes
	Packaging of projects – large package is preferred	Reform in contracting procedure, require central government intervention in tendering
	Availability of local materials/technology and high costs of construction	Government subsidies and/or incentives for locally produced materials and local construction technology
Community involvement	Difficulties to local community to maintain rural infrastructure – too complicated and coverage is to wide	Classification and differentiation between community and public works, and depending on the priority
	Ownership of rural infrastructure asset related to local culture	Improve local participation in the development cycle of rural infrastructure

The priority of strategy of every region is different, However, we still have to explore the type of infrastructure needed in a certain region. The need assessment analysis is thus required. In relation to the development planning process, the bottom up planning approach fulfills such an analysis. As opposed to the top down approach that placed the central government as the centre by assuming that they know everything the local government needs. The bottom up process requires collecting the public interest in infrastructure. If the government investment on infrastructure is based on public needed, the outcome and the impact of infrastructure development could increase.

The opportunities for influencing the rural infrastructure investments with each instrument are numerous:

- At the planning stage one can ensure that contemplated investments actually respond to the real needs of the population. This applies at the macro level where public investment can be directed towards employment intensive infrastructure development, as well as at micro level where a participatory planning process could provide local planners with a simple but effective tool for assessing the actual needs of the population.

- In the implementation of the infrastructure works, there are numerous opportunities to maximize the use of local resources without compromising cost, quality or timing by the use of efficient labour based methods.
- During the actual execution of the works, small local contractors can be involved, thus developing the private sector and local skills.
- Finally, to ensure sustainability of the facilities provided, there is the an opportunity to develop effective, locally based infrastructure maintenance systems.

Over recent years there has been a move on the part of donors and financing institutions to put poverty alleviation at the forefront of their operation. This implies their concern to direct investments toward the root causes of poverty. In practice this means providing income to those without it and access to basic service and complements this recent trend.

5.4 PROVISION IN RURAL INFRASTRUCTURE: Contribution to Poverty Alleviation

The provision of infrastructure has often been seen as a means to improve the access of the population to goods and services and thus as a means to alleviate poverty. However, the experience in the different parts of the country over the years has shown that the provision of the infrastructure itself is necessary. The important thing is the manner in which infrastructure is provided, making use of the resources or assets that rural communities have.

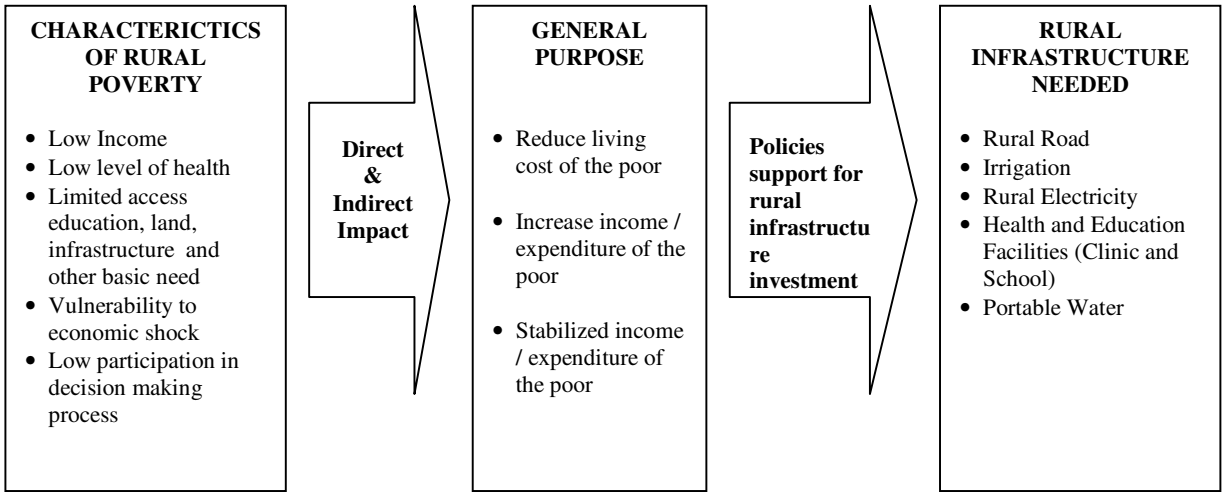

Figure 5.4 Analytical Framework for Determining Infrastructure Needed to Support Poverty Alleviation Program in Rural Area

Figure 5.4 is useful in helping identify the possible path of the impact of investment in infrastructure and poverty alleviation. However, we still have to explore the type of infrastructure needed in a certain region. The need assessment analys is thus required. The priority need of every region is different. Some regions may consider building roads important, while the other may choose irrigation facility. The social planner should inquire the need of each region to increase the effectiveness of the infrastructure development.

When there are adequate rural infrastructures such as roads, irrigation, and electricity, farmers can obtain the benefit from it and can contribute to both agricultural and non-farm growth, thereby generating economic opportunity for a broad range of rural inhabitants. In turn it will contribute to support poverty alleviation through rural infrastructure development.

In chapter 6, the conclusion and recommendations of this thesis will be presented.

Chapter 6

CONCLUSIONS AND RECOMMENDATIONS

This chapter contains the core results and further discussions of the study. This chapter can be summarized as providing the answers to research questions and the conclusion of the study. The conclusion of the thesis is taken from the entire content of the thesis, but primarily from chapters 2, 4 and 5.

6.1 CONCLUSION

This thesis talks about poverty alleviation through rural infrastructure development. The focus of this thesis is based on the theory of relationship between poverty alleviation and rural infrastructure development which was taken from several sources of literature. The linkage between poverty alleviation and rural infrastructure development infrastructure can stimulate economic opportunity and growth, can enhance capabilities, can facilitate empowerment and reduce vulnerability.

Besides that theory, there is another theory which could generate employment creation to alleviate poverty in rural areas, namely the concept of Local-Based Strategy. Those two theories can answer the research questions.

As mentioned in chapter 1, the purpose of this thesis is to explore the priorities and strategies for using rural infrastructure development to alleviate poverty in Indonesia. Based on the data and analysis, it is noticeable that the most Indonesian poor (78

percent) live in rural areas and depend on the agriculture sector as their main livelihood. Unfortunately, the rural poor are often confronted with disadvantages from remoteness, lack of education and health care, lack of access to basic infrastructure, insecure and unproductive jobs, and lack of access to government public services and policies. Thus, poverty reduction policies and programs must give a strategic focus to rural development, and must create more opportunities for people to find work in rural areas to promote economic growth; in turn it will alleviate the poverty.

6.1.1 Priorities and Strategies in Poverty Alleviation in Indonesia

In order to achieve poverty alleviation target based on the national development programme, the strategic issue to be overcome in promoting opportunities are mainly related to the lack of access to employment and factor of production. Lack of access to employment is influenced by the level of education and heath, while lack of access to factors of production include the access to working capital, market and assets ownership. Access to market and service for the poor can be improved through improving and developing road infrastructure. The important consideration on this issue is how to ensure that the provision of roads and other infrastructure will be an actual benefit for the poor.

It is necessary to concentrate on a more general framework in the poverty alleviation strategy. The strategy now is to influence the overall policy and implementation of rural infrastructure work. The proposed strategy is concerned with the fact that the infrastructure implemented should be sustained, thus ensuring not only short-term employment benefits, but also long-term potential for the improvement of access, employment opportunity, the development of skill, and hence the poverty alleviation.

Indonesian strategies in poverty alleviation takes into account main priorities: (i) Reinforcing good governance and the rule of law; (ii) Increasing the capacity of regional government in a framework of decentralisation; (iii) Alleviating poverty through the provision of basic services and increasing employment particularly in rural area; (iv) Reducing the social unrest.

In line with its vision and strategy of policy and institutional reforms, the Government has adopted a policy of reorienting public sector expenditures from general consumptive subsidies to targeted interventions aimed at the poor.

6.1.2 Contribution of Rural Infrastructure to Alleviate Poverty in Indonesia

Infrastructure has been defined in terms of physical facilities and services flowing from those facilities. Therefore, the impact of the infrastructure investment on the poverty alleviation can be traced from how the availability of infrastructure can help the poor to get opportunity in directly or in directly raising their income. Figure 5.3 exhibits the contribution of infrastructure investments (area of intervention) through these determinants (area of influence) to the poor's wages and employment (direct channel) on the one hand, and rural economic growth (indirect channel) that influence the supply and price of basic goods on the other hand. The final contribution is to real income/consumption of the poor and consequently, poverty alleviation (area of concern).

In conclusion to this thesis, the research questions posed in chapter 3 now have been answered

6.2 RECOMMENDATIONS

In order to deal with the problems on rural infrastructure development, several recommendations are proposed:

- *The need to establish a future direction of rural infrastructure development programme.* In previous years such a programme has not been the mainstream policy of government both at the central and local level. Not every agency related to infrastructure or rural development considers rural infrastructure as the main focus of their programme. That is the reason why it is not easy to predict the future direction of rural infrastructure development program. So far, the local government relies heavily on the central government to develop rural infrastructure programs, which ideally should not be the case in the future.

- *Future rural infrastructure programme should be integrated to rural development programme*. The current rural development program focuses on rural industrialisation and the empowerment of rural community toward transparent and accountable governance, while infrastructure development programs focus on the maintenance and physical development. The future direction of rural infrastructure programme should be in line with a long term social as well as economic development context.

- *Framework to share responsibility of various stakeholders in rural infrastructure development*. With the decentralisation process underway, the responsibility of rural infrastructure development is taken by various stakeholders, not only at the local level but also in the central government. The Central Government Agencies, the National Development Planning Agency, the Coordinating Ministry of Economic Affairs are responsible to transfer the rights, and capacity to manage infrastructure development including technology and knowledge. The State Ministry of the Acceleration for the development of Eastern Indonesia plays an

important role in developing programs for Eastern Indonesia. At the local level, both provincial and district governments should share their rights and responsibilities. Local NGOs and community groups will have shared responsibility to ensure that rural infrastructure programs are implemented transparently and are hold financially and technically accountable. Local trainings/education should incorporate and disseminate the knowledge of rural development.

Finally, I hope this thesis will contribute to the setting of a better framework of the particular issue which might be used to support Indonesian strategies for alleviating poverty through rural infrastructure development.

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