PLANNING FOR INDUSTRIALIZATION IN CENTRAL JAVA, INDONESIA: THE PROCESS, THE IMPACTS AND THE ALTERNATIVES

by:

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Drs., Diponegoro University, 1979
M.E.S., York University, 1989

A THESIS SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF DOCTOR OF PHILOSOPHY in

THE FACULTY OF GRADUATE STUDIES
School of Community and Regional Planning

We accept this thesis as conforming to the required standard

THE UNIVERSITY OF BRITISH COLUMBIA

May, 1993

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Date May 31st, 1993
Abstract

This study identifies the Indonesian policies that established large scale, export oriented and externally controlled (LEE) industrialization from the perspective of local people in the industrializing area, the planning that implemented these policies in Central Java and the ways in which the local people's lives are being affected. It identifies the links between the policy and the planning, and between the planning and the impacts. This study is based on data gathered from provincial, municipal and local planners, affected people, factory owners, and workers.

LEE industrial development has often been successful in terms of its contribution to Regional Gross Domestic Product (GDP) and to the creation of low wage employment opportunities. However, this success has been accompanied by significant economic, social and environmental impacts on local people. The economic impacts include loss of livelihood and jobs, and decrease of family income. The social impacts comprise the weakening of community cohesion and the disruption of the people's daily lives. The environmental impacts include floods, lack of clean water, water pollution, and air pollution.

The impacts of LEE industrialization have been documented by various studies including this one. What has not been adequately analyzed and documented is the process that produces the impacts. This study helps to fill the gap. It concludes that the impacts stem from the following factors. The national development emphasizes large scale and export oriented industrialization. The
top-down development planning ensures that this policy is supported at the provincial level regardless of local conditions, needs and priorities. The arbitrary nature of provincial decision-making provides for no popular input. Impact assessment studies fail to provide the information necessary for planners, decision-makers and ideally the local leaders about the likely impacts of industrialization. The way the responsible government agencies solve environmental problems tends to protect factory interests. The impacts are exacerbated by a lack of adequate monitoring and enforcement of environmental regulations.

The thesis concludes that substantive policy reform and process restructuring are required to achieve sound planning for industrial development. If quality of life is to be protected and enhanced, industrial policies should be reoriented to strengthening existing local economic activities; and planning restructured to enable local planners and affected people to be fully involved at all stages including impact management.
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Acknowledgements

My greatest indebtedness is addressed to my advisor and supervisor: Peter D. Boothroyd for his insightful feedback and unending academic and moral support. I am also very grateful to William E. Rees, Henry Hightower and Frank J. Tester who offered constructive criticism and valuable comments.

I am also obliged to a number of agencies and people in Central Java for letting me conduct the research. They include the Provincial Investment Coordinating Board, Provincial and Municipal Development Planning Boards, Provincial Department of Industry, the Provincial National Land Agency, Provincial Department of Manpower, Industrial Estates, selected factories, Genuk District, villages of Trimulyo, Tambakrejo and Muktiharjo and all resource persons who shared their data and time with me.

I would also like to thank Gary Towne and Meg Rakow for their editorial help and Karen Zeller for computer help. Thanks also to Faturrochman and Ngatno for their field research assistance, to my room-mate Yogi and his family for wonderful companionship, to my office-mates, John Curry and Linn Teetzel, and to Mozzafar Sarrafi for his collegiate support and artistic contribution to the maps.

Special appreciation is addressed to my wife, Aniek and my sons, Adi and Rian for their moral support, unending love and gracious patience during the months I was away from them, working on this dissertation.

My studies could not have been completed without generous financial support from CIDA through GTP-BAPPENAS.
To my parents, my wife: Aniek,
and my sons: Adi and Rian
without whose love, support
and tolerance, it could never
have been undertaken
Chapter One: Introduction

CHAPTER ONE

INTRODUCTION

"We must make Plans;
who looks not before,
finds himself behind"

-Publilius Syrus, 44 B.C.

Industrialization has been and remains an integral part of development policy in many developing countries. Encouraging industrialization is considered a means of stimulating economic growth, providing employment opportunities, raising the standard of living for the poor and eliminating regional disparities.

In Indonesia or many other countries, industrialization is understood by policy makers to mean large scale, export oriented and externally controlled (LEE) manufacturing. This study identifies the policies that established a LEE industrial growth centre in Central Java, the planning that implemented these policies, the ways in which the people's lives are affected and local people suggestions on how the planning processes can be improved.

This chapter begins with a theoretical overview regarding industrialization and growth centres. It is followed by a discussion on the problems of LEE industrialization in developing countries including Indonesia. The research questions and method are then defined. The final part of this chapter specifies the
thesis scope and presents an overview of the following chapters.

1.1 THEORETICAL OVERVIEW

Industrialization defined more generally as large scale, export oriented and externally controlled, has been the force for economic progress since the 18th century in Western nations and recently in East Asia. Many developing countries are attempting to follow a similar path. The path was most clearly formulated by Rostow (1962) as the "Stages of Economic Growth" consisting of the traditional society, the preconditions for take off, the take-off, the drive to maturity, and the age of high mass-consumption. Rostow suggested that development is a unidirectional process and that underdeveloped countries could follow in the path of industrialized nations, eventually reaching the post-maturity stage of high consumption.

While industrialization is widely supported, it means quite different things to different people. It can mean the development of labour saving but human-powered machinery or non-human (especially fossil fuel) powered machinery. It can be large scale or small scale. It can range from externally-controlled to locally-controlled. It can mean production for export or for local consumption. In Indonesia today industrialization has come to mean, specifically, large scale, export-oriented and externally-controlled, called for the purpose of the thesis LEE industrialization. This is the type of industrialization which has
been promoted by theorists and international development agencies in the post-war development period.

Some of the proponents of LEE industrialization are the theorists who developed the concept of growth poles and growth centres such as Perroux (1955), Boudeville (1972), Hirschman (1958). The idea of growth poles, originally expressed by Francois Perroux (1955), was intended to convey a non-spatial polarization of the economy which had a great deal in common with problems of inter-industry linkages and multiplier effects. Perroux's concept of growth poles propelled by the industrial sector was eventually transposed onto geographical space and many regional planners set about identifying locations which could act as artificial growth points or growth centres. The growth centre was intended as a countermagnet to attract industrial investment (i.e., LEE investment) and to reverse rural-urban population flows (Weaver, 1991: 426). Boudeville (1972) elaborated Perroux's growth pole idea by suggesting the development of big industrial complexes with a bundle of activities agglomerated around a propulsive activity. Once growth centres had been officially selected, their rapid and sustained growth had to be generated through industrial estates which would attract public investment to reduce the costs to private capital.

The gist of the growth centre idea was that LEE investment and development in a few key places would stimulate the economies of the regions in which these centres are located (King, 1984: 75). In
addition, urban industrial growth could be diffused to the backward regions of a developing country by concentrating infrastructure and directly productive investments at selected points which had a potential for economic expansion (Friedman and Weaver, 1980: 126). Given limited resources, it was judged inefficient and ineffective to sprinkle developmental investments thinly over the broad expanse of the national territory. Thus, key urban centres should be selected for concentrated investment programmes that would benefit from economies of scale and external economic of agglomeration (Hansen, 1981: 32).

Hansen concluded that the growth centre was a form of centre-down development strategy or development from above as contrasted to bottom-up development strategy. The centre-down development strategy emphasises a few dynamic sectoral clusters and urban-industrial growth as the key to more generalized regional development (Hansen, 1981: 19).

Such strategies are still widely considered as prerequisites for further economic progress. However, in view of the results produced, increasing doubts are raised. What follows is a criticism of the development strategies outlined above.

In terms of backward linkages, growth poles have been considered unsuccessful as instruments of industrial development. Hansen (1980: 33) cites Gaile's 1973 review of seventeen different studies as demonstrating that spread effects generated by growth poles are less than expected, limited in geographical extent, or
Chapter One: Introduction

less than backwash effects. Nichols (1969) and Moseley (1973) testified that some trickle up to larger cities took place but that trickle down scenarios could not be relied upon. Pred's (1976) empirical studies show that spread effects from the centres of innovation to the immediate hinterlands were minimal in comparison to the linkages that connected the same growth centres with numerous distant places. In other words, the innovation diffusion process is highly discontinuous in spatial terms (Hansen, 1980: 33).

Coraggio's (1975) evaluation was that growth centre policy could not only do little to spread economic growth, but in fact actually thwarted it by implanting new points of capital expropriation and dominance in the dependent space economy.

Goldsmith and Hildyard (1991: 89), ecologists, raise their concerns regarding the impact of industrialization (i.e., LEE industrialization) on the agriculture sector. They claim that the emphasis on industrialization as the engine of growth in developing countries has been detrimental to agriculture. When the industrial process has momentum, it spawns rapid industrial and urban development causing more land to be taken out of production.

Landsberg (1979: 58) criticizes large scale and export-oriented industrialization as reinforcing the dependence of exporting economies on developed countries and on trans-national corporations. Export oriented industrialization increases the vulnerability of the domestic economy to international stability.
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Lansberg concludes (1979: 61) that although export oriented industrialization leads to growth in industrial production and the industrial work force, it will not lead to the creation of an indigenous, self-expanding capitalist economy. Such externally based development strategy is likely to produce increased poverty and suffering for workers and peasants in the Third World.

Nevertheless, even though problems of LEE industrialization in general and growth poles strategies in particular have been noted, developing countries including Indonesia still consider a strategy of industrialization largely through designated growth centres as the only course toward economic development.

1.2 RESEARCH PROBLEM

Historically, industrialization in Indonesia was given momentum when the New Order Government came to power in 1967. The adoption of more liberal economic policies and capital inflows produced rapid industrial growth. Industrialization was further accelerated by promulgation of the Foreign Investment Law of 1967 and the Domestic Investment Law of 1968.

The general pattern of Indonesia's long-term development and of its fifth and current five year development plan called "Pelita", (1989-1994) indicates that development is expected to bring about fundamental restructuring from an economy based on agriculture to one led implicitly by LEE industrialization (Department of Information, 1991: 71). Such restructuring is
considered to be the last stage of preparation before beginning the process of economic "take off". Since 1984, industrialization has been oriented toward exports (Ariff and Hill, 1985: 8; Kadarisman 1991: 8). This was the beginning of the promotion of LEE industrialization. The development of LEE industry is thus given a strategic role in motivating efforts to establish a firm foundation for long-term development. During the fifth "Pelita", the industrial sector was expected to grow at an average rate of 8.5 per cent annually. Encouraging industrialization is intended to increase national income and to generate business and employment opportunities (Kadarisman, 1991: 5).

The concept of LEE industrialization as the driving force inspires the regional government policies in pursuing their development goals. According to Governor's Decree no. 530/32 of 1987, industrial zones were designated for each municipal and regency government in Central Java. At the national level, Presidential Decree no. 53 of 1989 concerning industrial estates was promulgated. An industrial zone is an area determined by the government for various industries without any tie or under one management among them. All infrastructure and facilities are managed autonomously by each industry (Provincial Investment Coordinating Board, 1983: 28). An industrial estate is an area under single management that is devoted to industrial activity. The layout of the area has been regulated. Roads, disposal channels, tap water, electricity and other facilities are readily available
in keeping with an established plan (Provincial Investment Coordinating Board of Central Java, 1983: 28).

The aim of both regulations is to attract and facilitate foreign and domestic investors, and to accelerate industrial growth for national and export markets.

In Central Java, the industrial zone strategy was to complement the Regional Development Planning Board's designation of select major cities as growth centres propelled by the industrial sector. Figure 1.1 illustrates how Central Java province was divided by the Regional Development Planning Board into growth poles. Semarang, the province's capital, is a centre of growth pole #1.

1.2.1 Quantitative Achievement

LEE industrialization as a strategy for economic development in Indonesia has been successful in terms of its contribution to Gross Domestic Product (GDP) and to production of exports. The national growth rate of the industrial sector from "Pelita" I to "Pelita" IV was at 12.9 per cent, 13.7 per cent, 12.9 per cent and 13.2 per cent respectively, well above the national economic growth rates (Department of Industry of Central Java, 1990: 1). The contribution of the industrial sector to Gross Domestic Product during these periods was 8.9 per cent, 11.5 per cent, 13.7 per cent and 18.4 per cent (Department of Industry of Central Java, 1990). Owing to such statistical success, Indonesia has been categorized
Figure 1.1
Central Java Growth Pole #1
Centered on Semarang
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as the seventh Tiger of Asia and a newly-industrialized country (NIC)\(^1\). In Central Java, a province with the least foreign investment of all provinces in Java (the special territory of Yogyakarta is an exception in the case of Central Java), the contribution of industrial sector to regional GDP has been monumental and increased from 21.23 per cent in 1986 to 23.61 per cent in 1990 (Central Java Statistics, 1990: 13). The small amount of investment in Central Java is attributed to industrial infrastructure being less available than in to other provinces noted above.

Rapid growth of the LEE industrial sector has also occurred in other ASEAN countries such as Thailand, Malaysia and the Philippines. As noted by Thomas et al. (1991: 3) and Limquece (1990: 43), industrialization has led to a high per capita income in those countries. Ariff and Hill (1985: 1) examined the five ASEAN countries industrialization performance and found that the industrialization path to development produced very rapid rates of economic growth, measured in terms of Gross National Product (GNP).

1.2.2 Problems with Industrialization in the ASEAN Context

The "progress" as noted above has been achieved at great social and environmental cost. Various scholars have found many

\(^1\) Rachbini article entitled "Kembali pada Basis Ekonomi Rakyat" (Back to People Base Economy) quotes Time Magazine (September 14, 1992) as declaring Indonesia as the seventh Tiger of Asia. *Kompas Daily Newspaper*. January 6, 1993.
social problems associated with industrialization in Thailand, Malaysia and the Philippines. These include labour exploitation, pollution, lack of opportunity for the uneducated and unskilled, erosion of traditional values, decline in family functions, weakening of family ties, overcrowded cities, urbanization, and the production of unnecessary or dangerous products (Komin, Kasim and Carino, 1991). Thomas (1991: 2) who focused his study on the largest metropolitan centres in five ASEAN countries (Indonesia, Malaysia, the Philippines, Singapore and Thailand), also found various social and environmental problems emanating from industrialization. He listed these problems: widening gap in income between the country's wealthy and the poor citizens, the exploitation of workers, loss of sense of community, weakening of family ties and decline of quality of life.

Douglass (1992: 12) suggests that industrial growth centre in ASEAN countries has not only exacerbated rural-urban disparities but has also caused chronic problems such as traffic congestion, severe water, land and air pollution, land subsidence, intense land-use conflicts; etc.

A case study on one industrial growth centre in Ungaran Regency\(^2\), Central Java, Indonesia conducted by Wolf (1986: 152) showed that workers remitted a relatively small proportion of their

\(^2\) Regency refers to the third level of government, below the provincial government and above the district level. While the official name is Semarang Regency, Ungaran Regency is purposely used here to distinguish it from the Semarang Municipality.
weekly salaries to their families. Their daily contribution to the family economy was indirect in that they decreased the amount of support they required from their families. Wolf noted that commuting workers only contributed 2.5 per cent of their wages to their family's income, migrant workers 6.3 per cent and local workers 17.5 per cent. Because of such low wages, Wolf concluded, poor families were subsidizing industrial development by sending their daughters to work in the factories. Indeed, low wages are always promoted as a comparative advantage to the foreign investors.

Weber (1992) suggests that the present minimum wage in Indonesia cannot meet the minimum physical needs of workers. In Jakarta, it is estimated the minimum wage fulfils 31 per cent of minimum physical needs. In West Java 15 per cent is covered. Thus, the industrial worker is categorized as the poorest of the poor, a group consisting of twenty seven million people in Indonesia.

Wolf also concluded that export oriented factories recruited large number of workers, thus integrating local workers into a web of dependency tied to the international market. A workers' fate,

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3. Most workers are female, young and single and are dependent on their parents. Worker income is usually included in the family or parent income.


(i.e wage level, job security and other benefits) is determined by the volatility of the fluctuating international market. Lay offs and change of the wage system often occur when the factories are affected by a world recession. Wolf (1986: 137) also testified that working conditions in the factories were bad. Workers are not equipped with the glasses required to protect their eyes. Workers also complained about temporary hearing problems after their shift, due to the loud noise.

1.2.3 Problem Statement

In conclusion, various studies done on LEE industrial development currently practised in the Asean context have demonstrated negative impacts on workers and local people. What are inadequately analyzed are the processes, including the designation and design of growth centres, by which LEE industrialization policies become implemented and the consequences of the processes for local people. We have known for some time what is happening, but not in detail how it comes to happen and is allowed to happen; therefore what needs to be done is to improve planning so that people's lives can be truly helped to be better.

1.3. PURPOSE AND OBJECTIVES

The purpose of this thesis is to respond to our inadequate understanding the impacts of planning itself by analyzing the dynamics of planning of an industrial growth centre in Semarang,
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Central Java. To do this, the thesis documents the history of the policies that established LEE industrialization, the planning that implemented these policies, including feasibility studies and Social Impact Assessment (SIA), the ways in which the local people's lives are affected, and the local people's suggestions on how the planning process can be improved. On the basis of this research, the thesis suggests ways in which industrialization policies should be reformed and development planning should be restructured.

The original contribution of this thesis is to show how the impacts of industrialization can be traced through the planning process from the macro level to the local level and from the formulation of objectives to monitoring and impact management.

The general purposes noted above can be elaborated into five operational objectives, which are:

1. to identify the nature of national and regional policies that promote LEE industrialization from the perspective of local people in the industrializing area
2. to analyze the planning processes to date for the industrial growth centre.
3. to assess the impacts of the industrial growth centre resulting from imposing these processes on the local people.
4. to identify the degree of involvement or lack of involvement of the affected people in the planning process.
5. to analyze the consequences of involvement or lack of involvement of the affected people in the development project
6. to identify people's ideas for developing an alternative approach for industrial development

1.4 RESEARCH METHOD


The research strategy was to do a case study employing a modified participatory research approach. This strategy helped to answer the research questions listed on page 19 and 20. A modified participatory research enabled me to understand the implications of the project from the people's point of view and to develop an approach for improving the current planning process. This research used a single case design with multiple units of analysis. The case study analyzed an industrial growth centre in Semarang, the capital of Central Java. Semarang, Indonesian's fourth largest city, was designated as a growth centre for neighbouring regencies. It has three industrialization zones: the district of Genuk on the east, the district of Tugu in the west and Plamongan sari on the southeast (see figure 1.2). The Genuk Industrial zone chosen as a case study consists of 800 hectares covering four villages: Tambakrejo, Trimulyo, Muktiharjo and Gebang sari (figure 1.3). Initiated in 1981, this industrial zone currently comprises a hundred factories and three industrial estates. The units of
Figure 1.2
Semarang Industrial Zones

Figure 1.2:
Semarang Industrial Zones

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+++= district boundary
----- = village boundary
----- = road
analysis were the following:

i) initiating agencies at the provincial and municipal levels. They include the Regional Development Planning Board, Municipal Development Planning Board, Investment Coordinating Board, Provincial Land Agency, Department of Industry at the provincial level, and Bureau for Population and Environment;

ii) local governments which consist of Head and staff of District, and Head and staff of Villages;

iii) affected communities in the chosen area consisting of local leaders, industrial workers (local and in-migrants), tambak (pond-aquaculture) owners, dry-rice field owners and fish gleaners. The villages studied included Trimulyo and Tambakrejo, which were most impacted by industrial activities;

iv) factory owners

b. Research Questions

The research questions fell into three categories: questions about planning processes, about the impacts of the project on local people, and about the people's ideas for improving the planning process. These following questions were used as guides to research and were elaborated into focused interviews, open-ended interviews and focus group discussion.
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Research questions regarding the policy and planning processes

1. What were the national and regional policies established the LEE industrialization?

2. How were the development objectives of the industrial growth centre formulated?

3. What kinds of feasibility studies were carried out and how were they applied to public planning? Did SIA/ EIA as environmental and social feasibility studies address the fundamental issues?

4. Who (in terms of their educational background and present status) were involved in the decision-making and in formulating the development objectives?

5. What kind of public participation, if any, was carried out? How was it conducted and who were involved in that process? Were local people given the opportunity to reply to the proposal?

6. How was the compensation decided; what was its mechanism and was there any enforcement imposed by the project proponents to accept the compensation?

7. What kind of impact management, if any, was promoted by the project proponents? Were local people involved in impact management?

Research questions regarding the impacts on local people.

What were the kinds and extent of impact (livelihood, family
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income, job creation, local value-added, community cohesion, disruption of day-to-day activities) of the process of industrial development for local people?

Research question concerning people's idea for improving the planning process
How do people think about these processes? What are their ideas for improving the process?

c. Partners and Respondents

My field research partners were local leaders regarded as the principal sources of information related to the area studied. They were chosen based on their position as chair of neighbourhood or household association and as informal leaders. Through personal observation and focus group discussions, I, along with local leaders, formulated problems, identified issues, determined the interviewees (industrial workers, tambak and sawah owners, and fish gleaners) and discussed the findings.

There were two categories of respondents. The first was planners, decision makers and local government officials who were considered as sources of information regarding the official planning process. These respondents were selected on the basis of their jobs which led to their involvement in the planning process of industrial zone. The second group were the industrial workers (local and in-migrant workers) and local people who are directly
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affected by the development project. They were chosen based on my personal observation and local leaders' recommendation. The composition of research partners and respondents was as follows:

1. the research partners were local leaders from among the local people for example informal leaders in the village such as religious leaders, chairs of household associations (Rukun Tetangga or RT), chairs of neighbourhood associations (Rukun Warga or RW), and other influential people. Of thirty (30) local leaders chosen, eighteen (18) people came from the Village of Trimulyo and twelve (12) persons from the village of Tambakrejo;

2. planners and decision makers were persons from the initiating agencies involved in decision-making of the project. The number of persons interviewed in this category totalled fourteen (14) persons;

3. local government representatives were the head and staff of districts and the head and staff of villages. Six (6) people were interviewed;

4. industrial workers meant those working in the industrial activities, mainly in-migrants and local workers. The number of in-migrant workers interviewed from both villages was thirty (30). The number of local workers from both villages was twenty five (25);

5. other local people who, because of their occupation, were directly affected by the industrial activities were also
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interviewed. They included eighteen (18) tambak owners, seven (7) dry-land owners and eleven (11) fish gleaners. In total, I interviewed ninety one (91) local people for the research.

6. five (5) selected factory owners

The names of partners and respondents have been kept anonymous throughout the text. A list of their names is provided in Appendix 1. Local officials and local leaders, and some staff members of involved agency are identified by their positions.

d. Research Variables

The research variables were divided into four parts: planning process, socio-economic impacts, environmental impacts and people's ideas for improving the planning process.

The planning process variables listed below are considered important in the stages of planning.

Planning process:

1. The process of problem identification and goal formulation
2. Types of feasibility studies done
3. Types of people involved in decision-making (their education background)
4. Nature of public participation
5. Type of compensation
6. Impact management
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The followings are socio-economic and environmental variables categorized as significant impacts based on observation and discussion with local leaders.

Socio-Economic Impacts on the Local People:
1. Livelihood
2. Family Income
2. Job Creation
3. Local Value-Added
4. Community Cohesion
6. Disruption of Day-to-Day Activities

Environmental Impacts on the Local People
1. Floods
2. Lack of Clean Water
3. Water Pollution
4. Air Pollution
5. Noise

People's Idea for Improving the Process
1. Satisfaction with Process
2. People's Ideas for Improving the Process
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e. Types and Sources of Data Used in Research

Primary Data

- Data regarding the impacts of the industrial development gathered from industrial workers and local people.
- Data related to the process of planning gathered from the members of initiating agencies, local governments and local leaders.
- Data related to the people's ideas on planning process as solicited from local leaders.

Secondary Data

- Data related to the project published by initiating departments and executors of feasibility studies.
- Data related to the area such as demography and geography published by the Bureau of Statistic and local government.
- Data regarding the impacts of the development project, as compiled through the results of studies done by consulting firms and one research institute.

f. Data Collection Techniques

Participatory research by using a case study requires sources of evidence. In this case, they included a document analysis, focused interviews, personal observation, focus group discussions and open-ended interviews. The document analysis was employed to obtain secondary data from the initiating departments and other related agencies, the Bureau of Statistics and local government.
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Sources of evidence that were reviewed were documentation and archival records.

The documentation consisted of study reports, clippings of newspapers and other articles appearing in the mass media. The study reports detailed data regarding the impacts of the project on local people. One research institute provided an Environmental Information Report (EIR)\(^7\) on the industrial zone, three consulting firms performed two industrial estates and one factory within the industrial zone. One consultant completed an evaluation environmental report (EER) on a factory. Archival records included data regarding geographical and demographic characteristics of the area.

Those involved in the decision-making process regarding the project also participated in focused interviews. The personal observations aimed at building rapport with the people and developing a research design. Personal observation is meant personal contacts during the period of observation in which the researcher could naturally cooperate with people and obtain reliable data. Focus group discussion was intended to obtain the key persons' ideas on the planning process. Open-ended interviews were administered to key persons and members of the affected

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\(^7\) Although the terms of Environmental Information Report (EIR) and Evaluation Environmental Report (EER) sound awkward; they are translated respectively from the Indonesian term "Penyajian Informasi Lingkungan" for EIR and "Penyajian Evaluasi Lingkungan" for EER and are commonly used by Canadian EIA experts such as Conover and Hanson (1985). Chapter five discusses the procedure of Indonesian EIA.
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communities. This type of interview was chosen to obtain insights into specific matters such as satisfaction with planning process and economic, social and environmental impacts. The summary of information sought and research methods used is as follows:

Table 1.1

<table>
<thead>
<tr>
<th>Information Sought</th>
<th>Research Methods Employed</th>
</tr>
</thead>
<tbody>
<tr>
<td>The process of planning for the industrial growth centre, Gross Domestic Product</td>
<td>Secondary data gathered at related agencies</td>
</tr>
<tr>
<td>Description of impacted villages</td>
<td>Village monographs</td>
</tr>
<tr>
<td>Issues and problems of the industrial growth centre</td>
<td>Personal interaction with local leaders and focused group discussion</td>
</tr>
<tr>
<td>Selection of interviewees</td>
<td></td>
</tr>
<tr>
<td>People's ideas on improving the planning process</td>
<td>Open-ended interviews</td>
</tr>
<tr>
<td>Economic, social and environmental impact of industrial development</td>
<td>Document analysis of study results</td>
</tr>
</tbody>
</table>

g. Techniques of Analysis

Data were analyzed according to several classifications. For instance, planning process aspects included pre-planning, execution and impact management. Socio-economic impacts consisted of livelihood, family income, job creation, local value-added, community cohesion, and disruption of day-to-day activities, etc.
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Analytic and comparative descriptions were employed. Analytic description was to build an explanation of the case and to provide examples of similar social and environmental impacts occurring in other industrial zones. Comparative analysis was intended to contrast actual impact with the predicted impact forecast by the EIA/SIA and other feasibility studies.

1.5 THESIS SCOPE

The research scope was limited in several ways. Firstly, the research identified the nature of national and regional policies that promoted LEE industrialization from the perspective of affected people in the industrializing rural area. The research did not address in detail the perspective on industrialization from the national and regional levels. Secondly, this research explored the planning process of an industrial growth centre in a specific area. This research regarded the industrial zone as an important element of growth centre practice that has caused significant impacts on local people. Thus, the research did not address other planning processes such as industrial infrastructure development, urban infrastructure and inter-regional industrial development. Thirdly, the research evaluated the impacts of industrial development in the growth centre on local people (economically, socially and environmentally) and on the contribution of industrial sector to regional gross domestic product. Thus, the research did not address backward and forward impacts in detail.

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1.6 AN OVERVIEW OF CHAPTERS

The following chapter (chapter two) reviews the development policy mechanism within which Indonesian industrial policy had been made. This chapter traces the roots of the Indonesian industrial development which inspired the creation of industrial zones designated as growth centres. The chapter begins with discussion on how the development policy mechanism works by analyzing the structure of the government, which reflects a top-down approach, and by reviewing the emerging concept of bottom-up development. The industrial zones policy, under the existing development mechanism, is then discussed. The end of this chapter reviews the controversial debate over the type of industries being developed: the choices are whether to build a manufacturing or agricultural base.

Chapter three provides a historical background of industrial zones policy in Central Java, showing the intention of the government to accelerate economic growth through the creation of growth centres. This is followed by a discussion of the planning process of these zones including coordination among related agencies. The current development of industrial zones are studied with regard to the siting of industrial estates is further reviewed. The end of the chapter provides a discussion of current and future problems faced by the Genuk area in terms of the
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carrying capacity and carrying capability⁸.

Chapter four discusses the economic, social and environmental consequences of industrial activities in Genuk. It begins with description of the contribution by the industrial sector to the regional GDP, and then is followed by a discussion of the economic impact on local people, for example the loss of livelihoods and jobs, decreasing family income and limited local value-added. In terms of the social impacts, community cohesion and disruption of people's daily activities are carefully examined. Environmental impacts which drew much attention because of complaints by local people are then reviewed. The study is supplemented by examples of similar environmental pollution occurring at other industrial zones.

Chapter five provides a comparative analysis of predicted and actual impacts. This chapter basically reviews the assessment done by some feasibility studies in the periods before, during and after the industrial zone began operations. The conclusions on the actual impacts are mostly derived from direct observation and information from affected people.

Chapter six analyzes people's perspectives on the industrial

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⁸ According to Indonesian Act no. 10 of 1992 concerning Population Development and Development of Prosperous Family, carrying capacity of nature refers to the ability of nature and all its substances and resources to sustainably support human life and the life of other living organisms. Carrying capability of social environment is the capability of human beings and different groups of people to live together in a society in harmony, compatibility, balance, congeniality, order and safety.
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zone planning process. These people include the heads of district and villages, local leaders and affected people. The perspectives drawn include people's views on the way decisions are made, and people's ideas of how to deal with current industrial problems. The former was raised mostly by formal leaders (the heads of district and villages) and to a lesser extent by informal leaders, while the latter was expressed by informal leaders and affected people.

The final chapter reviews the findings of this study, evaluates planning implications and suggests further research agendas. This chapter critiques the current type of industrial development chosen (large scale, export oriented and non-locally controlled) and the existing planning process as one that exacerbates the impact of industrialization. To conclude, the dissertation suggests reconsidering the chosen model of industrial development and restructuring the existing planning mechanism to consider existing local economic activities particularly agriculture and pond-aquaculture. By integrating with an agricultural base, industries could strengthen the existing local economy, such as tambak, sawah and even cottage industries.
In Indonesia, industrialization is driven by public policy as a means to accelerate economic growth. To understand how industrial policy is made, it is worthwhile to review the structure of the government within which development policies, including industrialization, are determined. The development policy mechanism in Indonesia reflects the structure of the government, which flows from the upper levels down to the lower levels. It is essentially centralized and top-down in character, even though efforts to combine it with bottom-up directives have been made. The focus of this chapter is to discuss the roots of LEE industrial development policy which inspired the creation of industrial zones. The industrial zone concept has been claimed as an original concept by...
Chapter two: The Development Policy

the government of central Java.

2.1 The Structure and Organization of the Government

At the national level, the president is assisted by ministers who conduct executive functions of the government. In enactment of laws and in the budgetary process the president consults with the People's Representative Council or DPR (MacAndrew, 1986:21). Central government ministers are appointed directly by the president. The central government is also supported by a number of non-departmental agencies including the Ministry for Environment, the National Development Planning Board (BAPPENAS), the Ministry for Population, and National Family Planning Coordinating Board (BKKBN), etc. The structure of central government is illustrated in Appendix 3.

At the regional level, Indonesia is divided into twenty seven provinces which in turn are divided for administrative purposes under the Central Department of Home Affairs into four levels: provincial, regency or municipality, district and village. Each province is headed by a governor who is appointed by the president on the advice of the Provincial People's Representative Council (DPRD). This council works with the governor in preparing legislation and the provincial budget. One important agency at the provincial level is the Provincial Development Planning Board that advises the governor on planning, and co-ordinates and supervises
all planning efforts in the province. This board, established in 1974, is functionally placed under the authority of the governor (den Ham, 1989: 218). In 1980, these provincial planning boards were supplemented by boards at the municipal and regency levels, called BAPPEDA Tk II in assisting the head of regency/mayor in coordinating development projects and programmes. Central government departments also have representative offices (kanwil) in each province which look after centrally administered programs. These "kanwil" report to the governor as well as to their central government departments. Each province also has offices (dinas) that provide services within a province in a variety of areas including public works, agriculture, health and education. "Dinas" reports to the governor and consults with its "kanwil" partner.

At the second level of provincial government, the province is divided into a number of regencies and municipalities (kabupaten and kotamadia). The structure of government at this level is patterned on the structure at the provincial level with a head of regency or municipality (mayor), regency or municipality people's representative council, regency or municipality development planning board, representative of central department (Kantor Kabupaten or Kotamadia) and offices (dinas kabupaten or kotamadya) providing services in various field. Head of regency and Mayor are appointed for a five-year renewable term by the governor on the advice of People Representative Council at regency/ municipal
Chapter two: The Development Policy

The third level is called the district (kecamatan). The head of district is a civil servant appointed by the Head of regency/ Mayor. Branch offices of some provincial government departments such as health, agriculture, information are also established at this level. Their activities are coordinated by the Unit for Coordinating Development Activities (UDKP), set up for coordinating of district development activities.

The village, headed by a village headperson is the fourth level of provincial government. In the urban areas, village headpersons are civil servants and appointed by the regency or municipal head (mayor), whereas in the rural areas, village headpersons are elected by villagers. There is also a Village Security Institution (LKMD) set up to advise the village headperson on development planning. A village is divided into neighbourhood associations (RK or RW) which in turn are divided into households associations (RT). The heads of the RK/RW and RT are elected by the local people. The structure of the provincial government is illustrated on the following page.
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Figure 2.1
Organization of Provincial Government in Indonesia

2.2 Development Policy Mechanisms

The structure of local government described previously generally reflects a heavily bureaucratized top-down decision
making system, where power lies in the hands of the top official at the various levels of government: governors in the province, regency/ municipal heads, district heads and head of village. Theoretically, the purely top-down model was applied only until the end of the first Five-Year Development Plan. This model has a fixed pattern of work and does not have the flexibility to adapt policy to local conditions or to the special problems and specific needs of diverse social groups. Such problems are exacerbated by the fact that development is usually carried out without knowledge of the needs of the people concerned. Consequently, it has been found by previous researchers such as Thomas (1991) and Pinney (1983) that many projects were environmentally harmful, located in the wrong spot, physically substandard and inappropriate to the needs of the intended beneficiary groups. In rural areas, there were major discrepancies between project objectives and results (Thomas, 1991: 11). These discrepancies manifested themselves in a number of ways: indifference of many villagers to project objectives; a tendency for project benefits to accrue to the wealthier members of the community, thus, further widening the poverty gap; and difficulties in extending core government services to the rural population at large.

The "bottom-up" planning procedures introduced in the early 1980s provide an opportunity for the formulation of proposals for development projects and programs at the village level (Den Ham
Chapter two: The Development Policy

and Hady, 1978: 74). In theory, ideas for development projects are to be proposed by the household association (RT) and the neighbourhood association (RW/RK) and discussed by the Village Security Institution (LKMD). The proposals would then be forwarded to the regency or municipality. All proposals from the various villages are supposed to be thoroughly discussed, screened and sorted out in a meeting of the Unit for Co-ordinating Development Activities (UDKP). This is chaired by the district head, guided by the regency or municipal development planning agency (BAPPEDA Tk II), and attended by all village heads and the branch offices (Dinas). It is the task of BAPPEDA Tk II to facilitate the integration of inputs from above and below, thereby taking into account the needs and potential, constraints and priorities of their areas (den Ham, 1989: 219).

The priority of proposals are based on the political document pertaining to the desired future development (pola dasar) and its concrete expression, the five year regency/ municipal level development plan (REPELITADA). The prioritized proposals from the regency/ municipal are to be forwarded to the forum of regency or municipality development planning agency and the sectoral agencies.

1. An NGO activist has interpreted the idea of promoting bottom-up planning as a way to give more room for public participation in the development process. This idea came up in 1983 after the government faced financial problems such as the world recession, the fall of oil prices and the high cost of investment capital. Ismid Hadad. "Development and Community Self-Help in Indonesia". Prisma Journal. 28. June 1983. p.3
in the regency or municipal. Sectoral agencies also have the opportunity to add their own proposals. After being approved by the Regency or Municipal People's Representative Council, proposals are submitted to the provincial level and reviewed by the Provincial Development Planning Agency in collaboration with sectoral agencies. Those proposals are then finally submitted to the National Development Planning Agency in co-operation with the relevant ministers who decide which projects will be implemented in the next financial year.

The industrial zone is a component of a public policy made through the top-down mechanism, appeared between 1983-1987, even though this was a period when bottom-up planning had been introduced. The industrial zone regulation was promulgated through governor's decree of Central Java in 1987 and each lower level government (regency and municipality, district and village) had to abide by the decision. The industrial estate was regulated at the national level through Presidential Decree in 1989. Again, the lower levels of government at the province, regency and municipality, district and village must comply with the regulation.
2.3 Limits of Existing Development Policy Mechanisms

As discussed earlier, the industrial zone in Central Java was not been promoted through a bottom-up planning process. It is also worthwhile to review the limits of the bottom-up approach in the context of industrial zone planning at the monitoring stage. At the local level, the participation of the people is limited to members of the Village Security Institution (LKMD), usually composed of formal (head and staff of village) and informal leaders (religious leaders, teachers and other influential people).

It seems that LKMD does not really represent villagers' interests. LKMD replaced a traditional institution of public decision making in rural areas called rembug desa (village consensus). The LKMD is chaired by the Head of Village who very often directs the institution's programs according to the interests of the central and regional government rather than giving priority to villagers own activities. Such circumstances are contrary to the initial function of LKMD as a forum for community participation in development planning and implementation in the village level. In the context of industrial zone planning, many environmental complaints raised by local people went unanswered because the Head of Village and LKMD regarded industrial activities as government

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2. This was acknowledged by district official A of Genuk where the industrial zone studied is located. He said that, in the context of industrial zone, he had to follow the upper level government's decision. Interview on June 29, 1992.
At the district level, the head of the district chairs and directs the Coordinating Development Activities (UDKP). Heads of district tend to formulate the proposals in such a way that they suit existing sectoral top-down planning schemes (Den Ham and Hady, 1978: 76). The majority of proposals forwarded by the LKMD will have been changed at both the district and the regency or municipality levels. The LKMD ends up providing villagers with things other than those requested. Decision makers at the upper levels continue to have difficulty understanding the full nature of local problems and the factors influencing decision making at the village level.

At the provincial level, the Development Planning Board (BAPPEDA) which is supposed to be a "master" in the field of regional development in its area does not have any legal right to determine the use of funds or to develop programs suited to regional priorities. The sectoral agencies automatically use the funds to finance the development programs that have been selected by their own departments through technical guidelines and implementation guidelines. BAPPEDA, emerging long after the other development institutions, is considered to lack of the experience in dealing with regional planning. Thus, the service agencies and departments are reluctant to place all of their development activities under local BAPPEDA supervision and coordination. This
lack of confidence cannot be separated from the "headquarters knows best" attitude of the services agencies in the central government i.e. that of central government departments towards the provincial governments (Soetrisno and Mubyarto, 1978: 41). In short, as noted by den Ham (1989: 219) development planning in Indonesia is still dominated by a top-down approach.

The weaknesses of BAPPEDA were apparent in dealing with the industrial zone policy in Central Java. This board designated major cities such as Semarang, Surakarta, Cilacap and Pekalongan as growth centres to be propelled by industrial activities. It seems that this board merely denoted the physical locations; the Investment Coordinating Board then played the most important role in conducting the feasibility studies, coordinating the team members, and providing results of the assessment for the governor's decree. Who was actually the "master" agency responsible for overall planning was unclear. When environmental problems began occurring and many people began asking about the monitoring program, the Investment Coordinating Board referred to the BAPPEDA as the responsible agency, despite the fact that the BAPPEDA does not have any impact management and monitoring programmes. The attitude of superiority at the upper levels of government was manifest in the fact that BAPPEDA and other related agencies failed

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3. Interview with a staff member of planning section at the Provincial Investment Coordinating Board (BKPMD), on May 19, 1992
to include local government such as the heads of district and villages, and local people in determining the site of industrial zones.

2.4 The Industrialization Policy in a Series of Five Year Development Plans (PELITA)

The New Order government which came in power in 1967 adopted more liberal economic policies. This economic policy shift facilitated Indonesian industrialization, characterized by the rapid import and dissemination of foreign technologies and products (Hall, 1984). The early years of the New Order government marked a remarkable change in policy towards foreign investment and industrialization became an integral part of Indonesian's economic recovery and growth. Rapid industrialization was further encouraged by the promulgation of the Foreign Investment Law Number 1 of 1967, which was followed by Domestic Investment Law Number 8 of 1968. Political stability, macro economic orthodoxy, and large capital inflows have produced rapid industrial growth.

Hall (1984: 11) recorded stages of Indonesia's industrialization policy as set out in each five year-development plan (PELITA) as follows.

The first five year development plan gave priority to the development of industries supporting the agricultural sector through forward and backward linkages. The second plan emphasized
greater support for indigenous entrepreneurs (pribumi) and weak economic groups, plus a wider range of consumer goods and crude processing material. The third plan emphasized the processing of raw materials into finished products, and sought to increase employment and equity. The fourth plan projected manufacturing as the fastest growing sector. It was stated that since this Pelita, the industrialization has been oriented toward export. The fifth five year development plan, presently nearing completion (1989/90 - 1993/94), projected that industrial development would bring about fundamental changes in Indonesia's economic structures with non-agricultural sectors having an increasing share in national production (Department of Information, 1991: 71). It also stated that industrial development should stimulate the establishment of a stronger and more balanced economic structure with an advanced industrial sector sustained by a viable agriculture sector. The industrial process should establish industry as the driving force for greater economic growth.

It is clear that large scale, export oriented industrialization has been promoted since the fourth five year development plan. Ariff and Hill (1985: 23) suggest that the policy reform toward LEE industrialization in Indonesia can be mainly attributed to the decline of petroleum prices. In addition, external forces such as the remarkable success of four ASIAN NICs (South Korea, Hongkong, Taiwan and Singapore) and direct foreign
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investment have been contributing factors to LEE industrialization.

The types of industrial development being built have been intensively debated between government planners on the one hand, and the academic community on the other. The government planners have preferred to promote manufacturing-based industries (large scale and export oriented) in order to achieve high rates of economic growth. It was noted by Hill (1984: 11), that the share of manufacturing in the GDP was one of the lowest in the region, and manufacturing exports were still very small. However, the policy to encourage manufacturing industries oriented toward export has been challenged by several leading Indonesian economists. Mubyarto (1990: 99) suggests that the current main-stream economic policy victimizes agricultural development. The agricultural sector, as the backbone of local economy, is not given enough attention. According to him, industrial development should not occur for the sake of encouraging industries, but as a way to support the local economy, thus; a more appropriate form of industrialization would be agricultural based-industry and plantations. A similar view has been stated by Hainsworth (1992: 51), a Canadian economist who is an expert on Indonesia, saying that the role of industry as a leading sector of the economy is generally expected to grow at the expense of agriculture, both in terms of its contribution to GDP and in terms of its share of national employment. Hainsworth (1992: 69) further suggests that an industry first or "big push" approach
to promoting economic development is not necessarily the sole or optimal strategy to follow, especially for a resource-rich nation such as Indonesia. Another leading Indonesian economist, Gunawan Sumodiningrat (1990: 56), suggests that industrialization should be organized to support agricultural development, not the other way around as currently being applied. Soehoed (1988: 47), former Minister of Industry from 1978 to 1983, considers a rapid shift from import substitution to export orientation unrealistic. Industrial development at the first three "Pelita", he testified, was emphasized on producing basic necessities oriented toward the domestic market and was very protected. It would be inconceivable to expect that these products can be quickly redirected to export. Soehoed (1988: 49) further suggests that copying Japan, Korea and Taiwan model would not be right for Indonesia. What we (Indonesia) need, according to him, is to increase domestic purchasing power by improving efficiency in agriculture and public works. This will expand the domestic market and enable exports to grow in a more natural way.

Nevertheless, the government planners believe that manufacturing industries oriented toward export are the best choice to accelerate economic growth. The "industry first" policy has been followed by the government of Central Java, in responding to the sluggish economic growth rates experienced during its first and second phases of the five-year development plan. Thus, the Central
Java government introduced a policy referred to as the industrial zone, by which the potential regencies and municipalities were designated to establish industrial zones as growth centres. The next chapter will discuss the dynamic planning process for an industrial zone in Semarang, the capital of Central Java appointed as a growth centre for its neighbouring regencies and hinterlands.
...industrialization is seen as the only means to escape neo-colonial dependency and graduate to the status of a modern, independent nation.

Hainsworth, 1990

In accordance with development planning at the national level, Indonesian provincial governments have launched a series of five-year regional development plans called "Repelitada". During the three stages of five-year development plans (1969-73, 1974-78 and 1979-83), the increases in Regional Gross Domestic Product in Central Java province were always lower than the national average for growth rates. Perceptions of sluggish economic growth led the government planners to take steps to accelerate the industrialization program. This chapter begins with a discussion of industrial zone policy, then continues with a description and analysis of the planning process for industrial zones including current developments and the problems that can be seen to have arise. The information presented in this chapter was gathered
through two methods. Firstly, analysis of documents provided by initiating agencies, and secondly focused interviews with people involved in the planning process.

3.1 Industrial Zones: National and Regional Policies and Practices

In 1977, JICA (Japan International Cooperation Agency) economists conducted a "Java Regional Study" and estimated that to achieve an annual economic growth of 6.50 per cent in the third five year development plan (Pelita III), investments of Rp 2.7 trillion at 1978 constant prices would be required (Investment Coordinating Board: 1983: 10).

Central Java's economy remains dominated by the agriculture sector, despite its declining role in the contribution in Regional Gross Domestic Product from 43.50 per cent in 1978 to 34.60 per cent in 1988 (Central Bureau of Statistic, 1990). Meanwhile, the industrial sector's contribution to GDP increased significantly from 8.9 per cent in 1978 to 17.8 per cent in 1988. To make the transition from an agriculture base, and to further accelerate economic growth, government and private investment had been promoted. Private investment as defined by the Provincial Investment Coordinating Board (1983: 11) is classified as investment with facilities under the foreign/ domestic investment law, investment without facilities, investment by cooperatives and other investments by the public.

The actual growth of industry in central Java is considered by
Chapter Three: The Genuk Industrial Zone

the government planners to be slow. During PELITA I and PELITA II Central Java was unable to attract industrial investment as successfully as other provinces in Java. In fact, Central Java is the province with the least foreign investment when compared to other provinces in Java, excepting the special territory of Yogyakarta. The industrial products from neighbouring provinces have, however, increased the traffic in trade, transportation and services flowing through Central Java.

The province of Central Java consists of twenty nine regencies (kabupaten), six municipalities (kotamadia), two townships (kota administrative), 502 districts (kecamatan) and 617 villages. The basic policy of Central Java's development plan outlines that the regional long-term policy is intended to change the structure of the regional economy, so that non-agricultural sectors gradually increase their role. Given this, the Regional Development Planning Board (RSTP, 1991: I-4) has divided the province into five development areas, or poles as follows:

- Development pole # 1: covering the area of Semarang and Magelang in which Semarang is designated as a centre of development.
- Development pole # 2: consisting of the area along the

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1. The distribution of investment from 1967/68 to July 31, 1992 shows that West Java had a major portion of foreign investment (32.20 per cent), followed by the Special Territory of Jakarta (17.30 per cent), East Java (6.90 per cent) and finally Central Java (5.60 per cent). See Sugihono Kadarisman (1991). Pembangunan Ekonomi Indonesia dan Peranan Penanaman Modal (Indonesian Economic Development and the Role of Capital Investment). A paper presented at PERMIAS (Indonesian Student Association in the U.S.) Seminar in Ames, Iowa, U.S.
western part of the northern coast. Pekalongan is appointed as a centre of development.

- Development pole # 3: comprised of the area along the eastern part of the northern coast. Kudus is the centre of development.

- Development pole # 4: consisting of the area around Surakarta, which is denoted as the development centre

- Development pole # 5: covering the area along the western part of the southern coast. Cilacap is appointed as a centre of development.

The Provincial Structure Plan of Central Java (1991: 1-8) outlines that the development of industrial zones, estates and other infrastructures is placed in the cities as generators and stimulators of economic growth.

The above policy is in keeping with the results of a study carried out by Gadjah Mada University which recommended Semarang city as a centre of growth # 1.a (Investment Coordinating Board, 1983: 19). The growth of this centre is to be prompted mainly by industry, trade, transport, communications and services. By its designation, Semarang city is expected to stimulate trickle-down effects in neighbouring regencies such as Kendal, Demak, Ungaran, and Purwodadi. This growth pole is called "Kedungsepur", an acronym referring to the above mentioned regencies which centre on Semarang (see figure 3.1). Other growth poles shown include "Subosuka" consisting of Surakarta, Boyolali, Sukohardjo and Karanganyar all
Figure 3.1. CENTRAL JAVA GROWTH POLES
Chapter Three: The Genuk Industrial Zone

centered on Surakarta (within the yellow boundary lines of the figure) as growth pole # 4 and "Bregas" which is comprised of Brebes, Tegal and Slawi, centered on Tegal (within the green boundaries) as growth pole 2.b

In order to increase people's prosperity, economic growth is required through both government and private capital investment channels. The emphasis of private capital investment in Central Java, during Pelita I, II and III, laid with the industrial sector ostensibly because of the limited agricultural areas available2.

The idea of accelerating industrialization came almost at the same time as the Indonesian Government's promulgation of the Environmental Management Act (EMA) 4, 1982. Thus, the Investment Coordinating Board avoided conflict with the provisions of EMA 4 by incorporating environmental considerations into its decision-making. Members of the Investment Coordinating Board realized that industrial activities were likely to spawn side effects in the form of pollution. They were also wise enough to foresee that conservation of the environment is essential for the continued prosperity for the people. An integrated formula for use of natural resources is required. Industrial zones which place industries in certain areas are an option for conserving natural resources.

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2. This rationale contradicts the view of Gunawan Sumodiningrat, a leading economist who argues that because the agriculture sector is dominant it has become a backbone of the people's economy. He prefers industrialization led by agriculture demand as opposed to export led-growth. (Prisma Journal. 2. 1990. p. 58).
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The considerations for establishing an industrial zone are multifold. Firstly, creating a zone makes it possible to set up a centralized waste-water treatment plant, using the most inexpensive technology available. In this way, the control of pollution would not reduce the desire to invest nor obstruct industrialization. Secondly, locating industries together in one place can save on expenditure by making more efficient use of infrastructure and other public service facilities. Thirdly, an industrial zone makes possible the regulation of spatial planning, city planning and regional planning, as well as transportation patterns and a green belt pattern. Fourthly, the policy encourages a hospitable investment climate by providing certainty about industrial sites, which are protected against the pressures of population expansion and the need for more residential areas.

The industrial zone locations are scattered throughout the regencies (Kabupaten) and municipalities (Kotamadia) which are considered to have the most potential for rapid development.

The first motivation for establishing an industrial zone deals with the concept of environmental harmony. However, due to the lack of integrated management and monitoring, environmental pollution has been reported to frequently occur in industrial zones such as in the Palur district, Surakarta municipality, Batang Regency, Klaten Regency, Temanggung Regency, Pekalongan municipality, Tugu
and Genuk district in Semarang\(^3\). The case of pollution in Genuk is further complicated because many factories there have either individual management (factories which are located in industrial zones) or integrated management by industrial estates. Quite often the industries blame each other for the pollution and each fails to take any responsibility. These details of such adverse environmental impacts will be discussed in more detail in Chapter Four, Section Three.

From an economic point of view, the motivations for promoting industrial zones include: (1) to speed up the process of distributing development equitably, (2) to maximize the natural and human resources of each municipality/ regency and (3) to reduce land speculation by industrial interests. Regarding the final point, there is concern that if the price of land is too high, it would obstruct investors from coming to Central Java. This industrialization policy agrees with the goals of the Department of Industry's policy which targets the whole of the island of Java as one of five regions for industrial growth (Provincial Investment Coordinating Board, 1983: 21).

The rationale for promoting industrial zones as noted above, are questionable. Firstly, industrial development can necessarily create unemployment for local people who work at cultivation of the dry rice-fields and pond-aquaculture (tambak), and thus can cause

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a significant decline in their family income. Local people lose their jobs when agricultural and aquaculture lands are taken over for use by the industrial zones. Meanwhile, the agriculture and aquaculture owners and workers are generally not prepared for factory jobs because their skills are too limited. Even if they are accepted as employees in the factories, their work consists mainly of low-level jobs paying Rp 1,600.00 to Rp 2,500.00 per day4. The factory pay falls below the wages which they had earned in pond-aquaculture ranging from Rp 3,000.00 - Rp 5,000.00 per day5.

Secondly, the number of people recruited for factory jobs is small compared to the number of people who are left unemployed. Employment opportunities in the factories are limited to a particular segment of the population: mainly young, single females6. Moreover, there is even a tendency for local workers to be less likely to get jobs because factory owners prefer in-migrant workers, who are considered to be hard workers, less absent and more dedicated. Thirdly, giving opportunities to investors to release lands of local people for use as industrial zones actually increases land speculation. These speculators-investors often leave the land idle for a certain period of time, and then sell it to

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4. $ 1.00 Canada currently equals Rp 1,640.00

5. Conclusion of the economic impact of industrial development on local people in the research area. Further discussion on this matter is provided in chapter 4.1

6. Wolf (1986), who conducted research on industrialization in the Ungaran Regency, encountered the same phenomena.
other investors for a higher price. Because the price of land has never declined in this region, the industrial zones give benefits to the capital owners in terms of land ownership\(^7\).

At the municipal level, planners support the idea of industrialization zones. The master plan of Semarang municipality for 1975-2000, states that population growth requires the creation of employment opportunities through establishing industrial zones. By the year 2000, the labour force is predicted to grow to the following numbers (Kotamadia Daerah tingkat II Semarang, 1990: 128):

1) total productive labour-power by \(69.56\% \times 1,593,459\) population =\(1,108,410\) people

2) labour-power for the industrial sector by \(35\% \times 1,108,410 = 387,944\) people

The ratio for labour-power needed for heavy, light and basic industries = 6:3:1. The area required for industry is projected to be 10 acres per 1000 people. The site area required = 70 per cent of industrial zone; thus, \(\frac{100}{70} \times 387,944/ 1000 \times 10 \times 0.4047 = 1,390,000\) square meters or 1,400 hectare.

Following this quantitative model, the municipal planners have come to the conclusion that Semarang needs to have industrial zones amounting to 1,400 hectare. Another consideration, of concern to the municipality, is that the industrial zones are intended to deal

\(^7\) Interview with staff of National Land Agency (Badan Pertanahan Nasional) of Central Java on August 23, 1992.
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with factories scattered about in areas that were once the outskirts of the city namely, Sron dol in the south, Simongan in the south-west, Jarakah in the west and Pandean Lamper in the east (see figure 3.2). Currently, these sites are mixed with residential areas and are no longer the urban outskirts because of the city expansion in 1976. The factories are thus requested to relocate in industrial zones. There is flexibility, however, because as long as they do not create pollution in their area, they are allowed to continue operating there.

The municipal government has established some criteria for locating an industrial zone. These criteria include (a) the distance between residential areas and the city core, with preference given to areas farthest from the city core; (b) proximity to transportation facilities, such as seaport and ground transportation; and, (c) location down-wind from residential areas. Again, these criteria are not always applied in practice. For instance, the Genuk Industrial zone is too close to the residential areas of Trimulyo and Tambakrejo, both of which are adversely affected with floods, water pollution, noise and odours.

Nevertheless, it was supposed to be on the basis of the above criteria that the Development Planning Board of Semarang

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8. For example, a Tannery formerly located in the residential areas of West Semarang caused water pollution and odours. Because of local people's complaints, the factory was relocated to the Genuk Industrial Zone. Unfortunately, the factory has been causing the same problem for neighbourhoods in the new area. Source: observation and interview with district official A of Genuk on June 29, 1992.
Figure 3.2
Old Industrial Areas

+++ : district boundary
---- : village boundary
----- : road
Chapter Three: The Genuk Industrial Zone

municipality selected three locations for industrial zones/estates: 1) the Tugu industrial zone consisting of 1,200 hectare and intended for heavy, medium and light industries, as a designated site for industrial estates; 2) the Genuk industrial zone comprised of 800 hectare and intended to accommodate heavy, medium and, light and small industries. This site is purely an industrial zone; 3) the Plamongansari industrial zone, which consists of 75 hectare intended for agriculture industries (small and light household industries). This site is for industrial zone. The three industrial zones are illustrated in figure 1.3

From the above descriptions, it can be surmised that the designation of industrial zones is much larger, (altogether amounting to 2,075 hectare) than the originally projected area (i.e 1,400 hectares). Furthermore, in reality, the actual development of each industrial zone noted above ignored the planning intentions. At the time that this research was conducted in May-October 1992, there was no industrial estate in Tugu, although various industries have been established there. Instead, the Tugu site has been used more as an industrial zone. In a similar way, three industrial estates, Bugangan Baru, Terboyo Megah and Terboyo Industrial Park, are located in Genuk, a zone not designed for accommodating estates. Similarly, in Plamongansari the dominant factories are textile and not agriculture-based industries. It is clear that the Coordinating Investment Board and other related government agencies
have prioritized investors' interest rather than planning for the public.

The Genuk industrial zone is prepared to accommodate both new industries (heavy, medium and light) and old industries which are located in inappropriate areas. The tannery factory as discussed earlier provides one such example. According to the head of planning in the Investment Coordinating Board\(^9\), the Genuk industrial zone is growing faster than the other two. Furthermore, the Mini Industrial Estate, Terboyo Megah Industrial and Terboyo Industrial Park, located at Genuk instead of at Tugu because Genuk has a better soil structure, and thus does not require much land reclamation. In addition, Genuk is more strategically located, at the outer ring-road intersection at the seaport-Kalibanteng airport and seaport-Jangli, towards the southern cities of Central Java. Further advantages include an abundant labour-power, not only from Genuk, but also from neighbouring districts such as Sayung. From a physical planner's perspective, Genuk also has strengths in the sense that drainage could flow towards the sea and the winds would not blow industrial pollution or odours towards the city core. The Genuk industrial zone is bordered by the Java sea to the north, by Banjir Kanal Timur River to the west, and by the district of Sayung to the east (see figure 1.3).

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\(^9\). Interview on May 19, 1992.
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3.2 Planning Processes for Industrial Zone in Genuk

3.2.1. The Site and its History

Semarang, the capital of Central Java, is geographically divided into two areas: 65.22 per cent of total area consists of flat areas with 2-5 per cent grade, while the remaining areas have a grade from 15-40 per cent. The population in 1988 was 1,119,036 and by the year 2000 is predicted to reach 1,600,000 people. The population density will then be 43 people per hectare. The settlements are divided into two areas. The upper level or hillsides, called "Candi", consists of settlements for high-income earners. The flat land is inhabited mostly by middle and low income people.

Historically, Semarang was part of the kingdom of Demak, which is now a neighbouring regency. The first head of the regency in 1418 was Kiai Pandan Arang. From 1500 to 1700 Semarang was the centre of flourishing international trade, with the arrival of foreigners, such as the Chinese at the beginning of the fifteenth century, Portuguese in the early sixteenth century and Indians, Arabs and Persians in the early seventeenth century (Kotamadia Semarang, 1990: 23). These foreigners built their own respective settlements.

With the arrival of the Netherlands East India Company (VOC) in 1678, Semarang came under Dutch authority and the head of the

10. The term Kiai refers to a knowledgable person, usually associated with spiritual or supernatural powers.
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Regency was officially appointed by the Dutch. The function of the city became primarily administrative under the Dutch Governor General for North Java. Since then, Semarang, in addition to its status as a trade centre has also been a base for military defence.

In 1906, this city became known as "Kotapraja", a municipality which was officially legitimized by "Staatblad" 120. From 1906 to 1942, Semarang was considered to be in its second phase of growth. From a planning viewpoint, three important events occurred between 1931 and 1933: the initiation of the Master Plan proposed by Thomas Karsten, the development of a seaport and airport in Kalibanteng and the development of the West and East Canal Rivers (Banjir Kanal Barat dan Timur) to deal with floods.

From 1942 to 1976 was the Semarang's third phase of growth. In 1976, Semarang was expanded to include the four neighbouring districts of Genuk, Gunungpati, Mijen, and Tugu, making a total of nine districts.

Genuk District had once been a part of the regency of Demak. The border between Semarang and Genuk was the Banjir Kanal Timur river (see figure 1.3). As a district which borders on a big city, Genuk had been pressured by the development of Semarang. On June 19, 1976, under the authority of Government Regulation no. 16, Genuk officially became part of Semarang, as did the districts of Gunung Pati, Tugu and Mijen. Semarang was thus expanded from 99.40 km2 to 373.70 km2 or 37,370 hectare, making Semarang Indonesia's second largest city in terms of area (Kotamadia Semarang, 1990: 62).
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When Genuk District was part of Demak, it was designated as a residential area. Evidence of this are four old houses built by the Demak Regency for public housing. The area currently used for an industrial zone was formerly used for dry rice-field or non-irrigated lands (sawah) and pond aquaculture (tambak). These rice fields were considered unproductive because they could be planted with only one crop of rice per year.

After sixteen years as part of the city of Semarang, the impressions of inhabitants of Genuk are varied. Village officials, mostly chosen from local people were happy to become civil servants paid on a regular basis. As part of Demak, Genuk was considered a rural area and village officials were given tanah bengkok (agriculture land given to village officials as salary). The "tanah bengkok," which must be released upon the termination of office, was also considered unproductive land, because it could be planted with rice only once a year due to flooding during monsoon and lack of irrigation.

Some lay persons are proud to live in Semarang, due to the rise in their social status; they are now called orang Semarang distinguishing them from villagers. Some community leaders, however, have discovered the high price of becoming city dwellers.
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of Semarang with problems such as pollution and changes in land use\footnote{According to an executive member of neighbourhood association (RW) # 07 in Tambakrejo village, local people bear the impacts of not only physical pollution, but also of social pollution, such as the socially unacceptable behaviour of in-migrants. Male-female relationships are locally considered to be a sensitive issue and should be allowed only within the context of legal marriage. Despite this, in-migrants who are mostly young and single, enter into transient intimate relationship with members of the opposite sex. Interview on July 7, 1992.}. Senior citizens also insist that physical amenities have become worse due to industrial activities. According to some residents, water flowing through the drainage ditches in front of their houses in 1960s was clean enough for bathing and children's play, but now the water is polluted and foul-smelling.

3.2.2 Feasibility Studies Conducted

In determining the location for industrial zones in Central Java's regencies and municipalities such as Semarang, the approach considered most appropriate by the Investment Coordinating Board is the profit-maximization approach. The twelve criteria used by the Investment Coordinating Board to evaluate the potential locations are as follows:
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Table 3.1
Criteria of Evaluation of Alternative Sites for Industrial Zones

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. The availability of land for possible extension</td>
<td>2</td>
</tr>
<tr>
<td>b. Geological conditions of the soil</td>
<td>3</td>
</tr>
<tr>
<td>c. Topography of the land and land use</td>
<td>2</td>
</tr>
<tr>
<td>d. Possibilities of land-fill and drainage</td>
<td>2</td>
</tr>
<tr>
<td>e. Land ownership</td>
<td>1</td>
</tr>
<tr>
<td>f. Price of land</td>
<td>1</td>
</tr>
<tr>
<td>g. Status land in town planning</td>
<td>3</td>
</tr>
<tr>
<td>h. Situation of the land location related to lines of transportation</td>
<td>3</td>
</tr>
<tr>
<td>i. location related to supplies of energy (electricity, gas etc)</td>
<td>2</td>
</tr>
<tr>
<td>j. location related to the availability of tap</td>
<td>2</td>
</tr>
<tr>
<td>k. location related to man-power (abilities and numbers)</td>
<td>1</td>
</tr>
<tr>
<td>l. Protection against environmental plans</td>
<td>3</td>
</tr>
</tbody>
</table>


The planning process of Industrial Zones in Central Java is illustrated in the following figure.
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Figure 3.3
Planning Process for Industrial Zones in Central Java

The reasons for industrial zones:

- to provide location for investors and reserve the land for industry
- to protect fertile land against unplanned land-use
- to control pollution
- to ensure business tranquillity
- to protect industries from expansion pressure from surroundings
- to facilitate supervision and evaluation of foreign and domestic investment

Diagram:

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[Diagram with steps:
  1. Data collection
  2. Industrial zones data processing
  3. Coordination meeting (11 agencies*)
  4. Provisional design
  5. Further survey
  6. Design revision
  7. Discussion (13 agencies**)
  8. Comparative study

*11 Agencies involved:
1. Provincial Investment Coordinating Board
2. Diponegoro University
3. Provincial Public Works
4. Provincial Development Planning Board
5. Agriculture Service
6. Provincial Department of Industry
7. Irrigation Construction
8. Development Bureau of Provincial Government
9. Economic Affairs Bureau of Provincial Government
10. Estate and Plantation Services
11. Region Services at Municipal Level

**13 Agencies involved are the ones listed above plus the following agencies:
1. Municipal People's Representative Council
2. Municipal Chambers of Commerce and Industry

Source: Provincial Investment Coordinating Board, 1983]
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As shown in figure 3.3, the reason for promoting industrial zones is to provide locations for industries with the goal of increasing the rate of capital investment in Central Java. This goal is considered the best response to sluggish economic growth.
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The Provincial Investment Coordinating Board (BKPM) began to formulate the Terms of Reference (TOR) and consulted with the Municipality Planning Board for spatial planning to indicate where the industrial zones should be located. The TOR was then given to the executor of the feasibility study, the Faculty of Engineering at Diponegoro University. Results of the feasibility studies were later discussed in a coordination meeting at the provincial level. The coordination meeting was attended by members from eleven agencies including: (1) the Provincial Investment Coordinating Board, (2) Diponegoro University as executor of the studies, (3) Provincial Public Works, (4) the Regional Development Planning Board, (5) the Regional Office/Service of Agriculture, (6) the Regional Office/Service of Industry, (7) Irrigation Construction, (8) the Development Bureau of the Provincial Government, (9) the Economic Affairs Bureau, (10) the Estates and Plantation Service (11) and other related services at the municipal level.

As shown in figure 3.3, the coordinating team reviewed the results of the study concerning geographical and topographical aspects of the sites carried out by Diponegoro University. The review relied on the twelve criteria of evaluation as illustrated in table 3.1. The outcome of this review was called a "design revision" which was then discussed at the municipal level by including the People's Representative Council and Chambers of Commerce at the municipal level on that coordinating team. The result of this meeting was a final design which was used as the
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basis for regional regulation.

The first stage of the planning process, the engineering studies, was funded by the fiscal budget of 1979 and 1980. The second stage, discussion and consultation, was funded by the fiscal budgets of 1982 and 1983. After formulation of the final design, and before promulgating regional regulation, three more studies were initiated by three different agencies. The first was the Environmental Information Report or initial EIA (PIL), conducted in 1983 by the Environmental Study Centre, Diponegoro University, and sponsored by the Investment Coordinating Board of Central Java. The second study was a Detailed Design for the Genuk Industrial Zone, sponsored by the Municipal Development Planning Board and carried out by Sarana Budi consulting firm in 1984. The second study detailed the conditions and potential of non-physical factors (socio-cultural, population density and growth, social status, social structure, type of community, economic aspects, distribution of industries' contributions to the Regional Gross Domestic Product, and physical conditions (spatial planning, land-use and soil characteristics) of the areas. This study also describes the problems encountered by the Master Plan when assessing the need for facilities. The latter refers to the demographic aspects, projections of the labour force, of industrial growth, of labour-power and of the strengths and weaknesses of the Genuk area as a location for industrial zone. The third study concentrated on spatial planning for the ring road in the Genuk area and was
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initiated by the Directorate of City and Regional Management, the Department of Public Works. The study itself was performed by Duta Citra consulting firm in 1990.

The three studies seem to be regarded as "add on" studies and did not have any influence on the decision of location of the industrial zone. Instead these studies appeared to reinforce or rationalize decisions that had already been made.

On February 1987, Governor Decree number 530 on Industrial zones was promulgated (Gubernur Kepala Daerah Tingkat I Jawa Tengah, 1987: xii). This decree outlined two industrial zones for Semarang municipality: the 36 hectare Genuk District in the village of Jamus to the east, and the 27 hectare Tugu District in the village of Karanganyar to the west. These areas was different from the Master Plan of Semarang Municipality which stated that Genuk district amounted to 800 hectare and consisted of the four villages of Tambakrejo, Trimulyo, Muktihardjo and Gebangsari; and that Tugu District amounted to 1,200 hectare spread over in the five villages: Tugurejo, Karanganyar, Randugarut, Mangkangwetan and Mangkangkulon.

The above description of the planning process showed the lack of coordination among related agencies. The Provincial Development Planning Board denoted the growth poles and growth centres which were to be propelled by industrial activities. This concept was supported by the Provincial Investment Coordinating Board and the Municipal Development Planning Board. However, these agencies did
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not work together closely. The Provincial Investment Coordinating Board, in the interests of creating capital investment, was motivated to provide locations called industrial zones. This Board coordinated the feasibility study, reviewed it, and provided the outcome of the assessment as the basis for the Governor's Decree. The locations identified by that decree differ from the ones designated by the Municipal Development Planning Board. The areas chosen by the Municipal Development Planning Board are actually the ones which are currently developed.

It seems that the industrial zone project proponents merely designated the location without building the industrial infrastructure, designing a transportation plan and water and sewage system programme.

Another deficiency of the planning process was that problem identification and goal formulation were arbitrarily determined by the Provincial Investment Coordinating Board. The Provincial Development Planning Board, which was supposed to be the "master" of the planning was in reality only a member of the coordinating team. Involvement of the Provincial Development Planning Board along with other agency members was limited to reviewing the geographical and topographical study. Local officials such as heads of district and villages and local people were not involved in the

\[12\] In Japan, the facilities required for industrial activities are often built by the government as a way of pumping public investment to local economic growth. The Mizushima industrial is a good case in point (Fu-chen Lo, 1975).
planning process. According to a planner from the Development Planning Board of Semarang\textsuperscript{13}, the inclusion of the People's Representative Council in the review of "design revision" legally incorporated local people's views since this council is a political body which represents the people. This procedure, however, was not really sufficient to accommodate people's views, because members of the People's Representative Council did not solicit or know much about the problems faced by the people. Moreover, the involvement of the People's Representative Council was at the final stage of the planning process when the completed design was already on hand\textsuperscript{14}. Their suggestions, if any, did not have any influence on the design or location of the industrial zone.

3.2.3 Monitoring and Evaluation Promoted

The decision on Genuk Industrial zone did not incorporate the Environmental Information Report (EIR) studies, as is evidenced by the lack of impact management imposed by the initiating agencies. Some important impact management proposals recommended by the EIR of Diponegoro University's Environmental Study Centre (1983) which were not applied included the following points: Firstly, the EIR

\textsuperscript{13} Interview with a staff member of the Physical Infrastructure Section at the Development Planning Board of Semarang on May 20, 1992.

\textsuperscript{14} According to Prof. Ir. Eko Budiardjo MSc, a lecturer at Diponegoro University and a leading planner in Central Java, most government planners assume that one form of public participation is consultation with other professional practitioners, theoreticians and members of parliament. The form of consultation is a seminar or hearing conducted at the last stage of the planning process. Interview on June 3, 1992.
concluded that water needed for factories should be taken from surface water instead of from deep-wells in order to prevent water intrusion from the sea. Secondly, the studies recommended that the factories treat their gas emission and waste water. Thirdly, the initial EIR also recommended monitoring for spending patterns of those compensated for land in order to encourage the sellers to reinvest wisely.

The only monitoring undertaken by the Provincial Investment Coordinating Board are reports by individual industries, including the owners of two industrial estates: Terboyo Megah and Terboyo Industrial Park. The Board requires any industries using foreign investment facilities to report regularly. The main report format related to monitoring consists of providing information on (1) physical utilization including that of land use and of labour-power recruited, (2) production and marketing, (3) the factory's execution of the Environmental Impact Assessment (EIA) and (4) the problems the factory is currently facing. Factories which are not using foreign investment facilities have to report to the Provincial Department of Industry. The content of their reports is similar except that factories must report methods of environmental management such as what kind of pollution treatment unit is used and how pollution is treated.

Industry owners tend to be reluctant to report their activities. A staff member of Investment Control has reported that there is a lack of awareness among industry owners and industrial
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estate investors that they must report their own activities\textsuperscript{15}. According to him, the purpose of the report is to monitor the development of investment in Central Java. However there is no sanction for failing to do so. It seems that environmental monitoring is not a government priority. With the current system, actually, the factories could manipulate the report's findings on environmental concerns because the Investment Coordinating Board never follows up on late or delinquent reports unless people complain about the pollution or request the Bureau for Population and Environment to intervene.

The environmental monitoring done by the TKP2LH (Coordination Team for Environmental Impact Management) at the municipal level and Bureau for Population and Environment at the provincial level is reactive in the sense that the Bureau will act only in answer to a media report or complaint from local people\textsuperscript{16}. Quite often these agencies are too slow to handle pollution problems. Because their approach is very formal, official site visitations are announced in advance. Quite often when the officials from these agencies arrive, the factory owners point out that they do have a waste treatment program in operation. However, when the officials leave, the


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factory resumes polluting

Local people now seem to prefer reporting to the non-governmental organizations (NGOs) and to the Environmental Impact Management Agency (Bapedal). Bapedal frequently cooperates with NGOs in a more informal approach. Representatives of the NGOs concerned are placed temporarily in the impacted areas to make consistent and long-term observations of the reality of pollution levels. With such empirical evidence, the factories are warned and if they are still stubborn and refuse to deal with their pollution, they are sued in the courts. The Bapedal and NGOs method facilitates an effective reporting and handling of the pollution problem.

3.3 Current Development of Genuk Industrial Zone

3.3.1 Descriptions of Some Industrial Estates

The first factory at Genuk Industrial zone was built in 1969, at a time when the site was not yet officially called an industrial zone. The owner of the Cejamp (Central Java Marine Product) factory, Mr. Sulchan, was meanwhile also building the Sultan Agung Hospital and Sultan Agung Islamic University. At that time, Genuk, not yet part of Semarang, was not designated as an

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17. Based on an interview with an executive member of household association (RT # 05, RW # 03) of Trimulyo Village on July 24, 1992, and village official A of Trimulyo on September 10, 1992.

18. Interview an executive member of household association (RT) # 04 of neighbourhood association (RW) # 07, Tambakrejo village on July 24, 1992.
industrial zone by Demak Regency. Mr. Sulchan considered the land areas cheap and strategically located. When Genuk District became part of Semarang in 1976, followed by the decision to designate Genuk as an industrial zone in 1982, more factories were built there. In 1984, there were twenty factories in Genuk Industrial zone (Sarana Budi Consulting Firm, 1984: 38).

In an effort to attract more factories, provincial and municipal governments initiated building the Mini Industrial Estate as a new location for small industries which had been located in Bugangan Lama (Old Bugangan), a residential-industrial mixed area. These industries produce buckets, stoves, garbage bins, watering cans, mail boxes and kettles. Bugangan Baru (New Bugangan) was chosen in order to attract these factories to relocate in order to separate them from residential areas and to facilitate the supply of material for heavy and medium industries. The larger industries located in existing industrial zones were expected to act as "foster parents" for small industries. However, no transactions have thus far occurred between the large and small industries.  

When the government encouraged small (cottage) industries to move from Bugangan Lama to Bugangan Baru in 1986, only eight entrepreneurs did so. Currently, only one of them has remained at

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19. Interview with a staff member of Technical Service Unit, Bugangan Baru Mini Industrial Estate on June 3, 1992.
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the new site\textsuperscript{20}. This appears to be due to several reasons. Firstly, the new location is too far away from customers. Customers did not want to travel to the Mini Industrial Estate in Genuk, preferring instead to shop at the old site. Secondly, the new location is too far from raw materials. Suppliers did not want to go to Genuk. Consequently, small industries which did locate in Genuk incurred extra transportation costs for both for raw materials and marketing their products. Most of the factories now located in Bugangan Baru are medium scale.

Today, there are many factories scattered through the Genuk industrial zone, covering four villages (see Appendix 3 for the list of factories). In terms of location, the factories are divided into two categories. Those in the first group are located in the industrial zone where the investors are responsible for land acquisition, waste management and building the necessary infrastructure for electricity, sanitation, sewage, roads, etc. Those in the second group are located in industrial estates within the Genuk Industrial zone, namely Bugangan Baru Industrial Estate, Terboyo Megah Industrial Estate, and Terboyo Industrial Park Semarang.

Factories in both locations however have not generated backward linkages. Here are some examples. The three tanneries are taking raw material from other regencies and exporting their

\textsuperscript{20}. Interview with two entrepreneurs of home industries in Bugangan Lama (old location) on September 18 and 19, 1992.
products to Europe (Kalpataru, 1991; Mugas Enam Belas, 1990). The soft drink company is obliged to use packaging and ingredients from the U.S company which granted them a licence, and to sell most of its product for international market. The two marine product companies do not buy shrimp from local farmers but instead purchase them from the trader.

The planning process for the industrial estates is explained in the following section.

3.3.2 The Planning Process for Industrial Estates.

a. Bugangan Baru Mini Industrial Estate

Mini Industrial Estate (MIE), located in Muktihardjo Village was built by cooperation between the Department of Industry of Central Java and a private company called P.T. (Ltd.) Tanah Makmur. The Department of Industry, through the Development Agency for Small Industries (BIPIK) which gave the Technical Service Unit the mandate to provide equipment, tools and guidance to small industries. As a developer, P.T. Tanah Makmur bought land and built infrastructure such as roads, buildings, drainage, electricity and provided land certificates, building permits, operation permits and disturbance permits. The developer also provided a mortgage to factory owners (buyers), and obtained a domestic investment facility from the Provincial Investment Coordinating Board (BKPMD).

The feasibility study for the Mini Industrial Estate (MIE) was performed in 1979 by the Research and Development Institute (PRP),
Diponegoro University at Semarang. The study concluded that MIE was financially feasible based on four considerations: (1) the payback period was five years and nine months, (2) net present value was Rp 8,892,364,09, (3) and the benefit/cost ratio was 1.13 while the internal rate of return analysis was above 40 per cent (PRP Diponegoro University, 1981: 46-48). This particular MIE, one of 50 MIEs in Indonesia, was officially opened in November 12, 1981 by Minister of Industry, Mr. Soehoed. At the time of the official opening, the land area occupied was 35 hectares. It has since been expanded to 100 hectares, 80 per cent of which has been sold. This MIE is considered very successful in attracting factories, the number of which currently stands at 504.

The MIE feasibility study, however, did not assess the environmental and social impacts. Factories located in MIE are mostly medium-scale and not small-scale as previously planned. Currently, many factories in MIE cause environmental impacts such as odour, water pollution which affect local people in the sub-village of Tenggang in neighbourhood # 7 near the Tenggang river. Mr Ngasman, chair of household association (RT) # 4, RW # 7, confirmed that pollution takes the form of oil, scrap and other waste disposed of in the Tenggang river. The battery recycling factory produces smoke which disturbs local daily activities. People also suffer from flooding and are assailed daily by noxious odour.
Chapter Three: The Genuk Industrial Zone

A study done by Wahyuningsih et al.\(^\text{21}\) (1990: 32) demonstrates that the Technical Service Unit of the Department of Industry of Central Java cannot strictly enforce regulations concerning space allocations according to factory types. Rather it puts priority on the desires of factory owners who tend to choose strategic location without considering agglomeration as a strategy for waste management. Consequently, food processing plants are located in close proximity to factories producing hazardous wastes. Such haphazard spatial planning makes waste-treatment more difficult and creates an unsanitary, and unhealthy environment for food production and packaging.

Wahyuningsih et al (1990) found that a waste-treatment facility is provided by the Department of Industry, but it has not yet been put to use. At the time of this study, industrial wastes were just thrown away along with waste water. Complaints about pollution were raised by entrepreneurs, factory workers and other MIE residents in regards to dust pollution. This dust drifts around mainly at night, causing respiratory and eye problems (Wahyuningsih et al, 1990: 34). Unfortunately, factories located in MIE have no physicians to take care of their workers. The factory owners are reluctant to hire physicians due to the consequent rise in production cost. A physician in the Community Health Centre of

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\(^{21}\) She and her colleagues, lecturers at the Department of Public Health, Diponegoro University had conducted research on public health in Mini Industrial Estate in Bugangan Baru in 1990.
Chapter Three: The Genuk Industrial Zone

Genuk District, stated that his centre has never been involved in looking after the health of factory workers in the industrial zone including MIE\textsuperscript{22}.

\textbf{b. Terboyo Megah Industrial Estate}

Terboyo Megah Industrial Estate, managed by P.T Merdeka Surya Sakti, started operating in 1987. The area is 50 hectares, 5 hectare of which is yet unsold. This industrial estate deals with marketing plots of industrial land, warehouses and industrial buildings which are ready for use. The industrial and warehouse areas which have been built were based on integrated plans consisting of processing systems, road construction, drainage ditches for rain water, special disposal drains for sewage waste and other supporting facilities for convenience. The area of each standardized plot of land ranges from 360 to 1200 square meter.

According to a staff member at P.T Merdeka Surya Sakti, the owner of the Suara Merdeka Daily Newspaper had a few hectares of spare land he wanted to utilize as an industrial estate which was then called Terboyo Megah Industrial Estate. When this industrial estate was built 1987, the Presidential Decree number 53 of 1989 on industrial estate had not yet been issued, thus; the proponent relied on Governor's Decree number 530 of 1987 on industrial zones which regulated that any industrial activities must locate in an

\textsuperscript{22} Interview on August 21, 1992.
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industrial zone. However, this industrial estate, never undertook any environmental studies. According to the staff interviewed, its feasibility study was put together with that of the Terboyo Industrial Park.

c. Terboyo Industrial Park Semarang

Terboyo Industrial Park Semarang (TIPS) is managed by P.T. Merdeka Wirastama, a company of the same group as P.T. Merdeka Surya Sakti. The area planned for this industrial estate is 300 hectares. TIPS will develop the area for industrial plants, warehouses and public facilities. The development process has been divided into four parts (Nippon Koei, 1991:15). The first stage, targeted for completion in 1992, consists of 67 hectare intended to accommodate medium and small-size industries. The second stage comprises 60 hectare assigned to large industry and is targeted for 1994. The third phase consists of 65 hectare for medium and small industries and is planned for 1996. The fourth phase comprises 108 hectare for large industry as well as a bonded zone. It is scheduled for 1997 to come into operation.

The feasibility studies of this industrial zone included the Report of Advisory Service carried out by Nippon Koei Co. Ltd. in 1991, technical and economic studies were done by P.T Sandhika, and an Environmental Information Report (EIR) conducted by P.T Sandhika and Nawa Ripta. Nippon Koei reviewed the studies done by P.T Sandhika. Its review centred on the water supply system (estimation
Chapter Three: The Genuk Industrial Zone

of water consumption and water sources), a waste-water disposal system and environmental impact assessment.

The EIR done by P.T Sandhika and Nawa Ripta concluded that there would be a significant environmental impact resulting from the operation of this industrial estate. The study recommended expanding the scope into a full environmental impact assessment. Up to now, however, the EIA has never been performed.

The procedure for building an industrial estate is as follows. The project proponent must have a principal permit and a permanent permit. The principle permit is an approval given to an industrial estate company to conduct necessary preparations for providing land, site plans, installation and tools needed. The principle permit is an approval given to an industrial estate company which has already completed preparation so that the site is ready to use. After obtaining a permanent permit, the company must seek a location permit and a land release permit. These permits are issued by the Governor through the recommendation from the Land National Agency. After the operation, the company can apply for an extension permit. According to staff at the Municipal Development Planning Board, the company is also required to have a zone recommendation by the Mayor which is valid for six months.

Facilities provided by the company include building permits, the use-right of development, water, telephone and electricity. The location permits and land release permits are issued by the Investment Coordinating Board on behalf of the Governor of Central
Chapter Three: The Genuk Industrial Zone

Java through decree number 593.8 of 1990. Ironically, after giving the above permission, the Governor of Central Java, through decree number 530 of 1991, later formed a team for assessment of industrial estate locations. The team consists of twenty related agencies, supervised by Vice Governor # 2 and coordinated by the Assistant Provincial Secretary.23 None of them were drawn from the local government level as heads of district and villages.

According to a staff member at the National Land Agency of Central Java,24 this team, which had conducted twenty seven meetings, seems to be chasing a "fly-away kite" because the principle permit has been granted to project proponents. The National Land Agency, a member of the assessment team, has actually suggested not including pond-aquaculture (tambak) in the industrial estate. Quoting from the Presidential Decree number 53 of 1989, wet land is not supposed to be used for industrial estates.25 However, the assessment team perceived that from economic considerations that having industries would hasten economic growth and benefit the local people. It is an unfortunate fact that tambak (pond-aquaculture) on which most local people rely for making a living, is included in the industrial estate's plan. The staff of the

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23. The complete list of team member appears in Appendix 4.


25. According to a Staff member at the National Land Agency of Central Java, wet land includes productive agriculture land and pond-aquaculture. Interview on September 14, 1992.
Chapter Three: The Genuk Industrial Zone

National Land Agency suggested that if the Land National Agency had been involved in determining industrial zones in 1981, it would have recommended against the use of wet land for industrial development.

Another study, coordinated by the Directorate of City and Regional Management, the Department of Public Works was conducted on spatial planning for the ring road in Genuk. Again, this study came late in the planning process, after the approval of some developments such as the industrial zone and three industrial estates had been given. In other words, this study did not have any influence to restructure the industrial zone and estates.

3.4 Current and Future Problems of the Genuk Industrial Zone

In addition to a lack of response regarding environmental pollution as discussed earlier, another problem exists related to industrial zone in the Genuk District. Such problem is the upcoming developments, such as Sayung Industrial Estate and Merdeka Surya Sakti Industrial Estate near the current industrial zone. Sayung neighbours on Genuk District and has been connected by rapid development of infrastructure and factories. The Sayung Industrial Estate will encompass an area of 300 hectares, consisting of two villages: Sayung and Loireng. Merdeka Surya Sakti will develop an area of 300 hectares, in the Bedono and Sriwulan villages in the district of Sayung.

At the north-west side of the industrial zone, there will be
Chapter Three: The Genuk Industrial Zone

development of a bonded zone which is intended to supplement the industrial activities in Genuk. This expansion of the industrial areas is a phenomenon referred to by McGee and Greenberg (1992) as extended metropolitan regions. These three big projects will probably exacerbate the pollution problems and further degrade the environment. The two up-coming industrial estates will also add to the burden of road construction between Sayung-Genuk and worsen the existing traffic problem. According to the Natural Disain Consulting Firm which conducted a planning evaluation of Semarang City including the district of Genuk, the road infrastructure of Genuk area is insufficient to accommodate the daily traffic levels to and from Semarang. The number of daily trips was calculated at 7,823 (Natural Disain: 1990, III i) on a road only 14 metres wide. The consulting firm advised that the road be widened to 58 metres.

In conclusion, the planning of above industrial zone was purely top down in character, very inconsistent and even quite arbitrary. Quite often it appeared to have been altered for the benefit of investors. Moreover, the planning process, as documented, was not followed by impact management. Many environmental pollution have been handled on a case-to-case basis. The consequences of such planning will be detailed in the next chapter.
"Development is increasingly viewed as a two-edged sword, which brings materials, technological gains and new freedom but also breeds injustice, destroys cultures, damages environment and generalizes anomie"

Goulet, 1992

Industrialization as a form of development generates complex consequences. As a passage to economic change, it creates wealth for a small number of people but also causes many people to suffer. This chapter begins with the discussion of the economic impact of LEE industrialization both in terms of gross domestic product (GDP) and effects on local people. The analysis of economic impacts is followed by a discussion on social and environmental impacts. The data presented in this chapter was compiled through document analysis of study reports, focused interviews with key leaders and open-ended interviews with affected people.
4.1 Economic Impacts

4.1.1 The Contributions to Regional Gross Domestic Product

Industrialization as a strategy for economic development has been successful in terms of its contribution to Gross Domestic Product (GDP). At the national level, the growth rates of the industrial sector from Pelita I to Pelita IV were respectively 12.9 per cent, 13.7 per cent, 12.9 per cent and 13.2 per cent, all of which were well above the national growth rate. The contributions of the industrial sector to GDP during the same periods were 8.9 per cent, 11.5 per cent, 13.7 per cent and 18.4 per cent respectively (Department of Industry, 1990: 1). An economic performance such this has helped Indonesia to earn a reputation as a new industrialized country called the "Seventh Tiger of Asia". In Central Java, the province with the least foreign investment of all other provinces in Java except the special territory of Yogyakarta, the contribution of the agriculture sector to regional GDP decreased from 30.61 per cent in 1986 to 29.13 per cent in 1990. The contribution of the industrial sector to regional GDP from 1983 to 1986 was 14.42 per cent, and from 1986 to 1990 it increased by 2.38 per cent, from 21.23 per cent to 23.61 per cent (Statistics of Central Java, 1990: 23). Semarang, as growth centre # 1, contributed 24.94 per cent of the region's total industrial growth (P.T Merdeka Wirastama, 1990: III.6).
4.1.2 The Economic Impacts on Local People

• Loss of livelihood

The area used for industrial zone in Genuk is 800 hectares consisting of dry-rice fields (non-irrigated rice fields called sawah) and pond-aquaculture (tambak). Since this area was designated as an industrial zone in 1984, land transactions between local people and investors mostly through middle men, have been growing. All dry-rice fields have been sold and 75 per cent of the tambak, all of which were located in Trimulyo and Tambakrejo, has been sold.

The dry-rice fields and tambak are owned by a small number of people who represent an average of only 5.1 per cent of the total population in the impacted villages. In Trimulyo Village, which consists of three neighbourhoods (RW) with a total of 618 households, the tambak owners amounted to only 34 households, or

1. Interview with a tambak owner in RW # 05, Tambakrejo on September 10, 1992 and with an executive member of RW # 07, Tambakrejo on July 10, 1992.

Concerns about the decrease of productive lands (tambak and rice fields) have been raised by some scholars. Aris Purwanto (Kompas Daily Newspaper, 1986) recorded that in the period of 1981 to 1986 in Java and Bali, the decrease of rice fields amounted to 38,711 hectare per year. Otto Soemarwoto (1990) noticed that 0.3 million hectare out of the 1.2 million hectare rice-field for which irrigation was provided between 1969 and 1985 is no longer being used for farming but for industry and housing. Hotman Siahaan (Eksekutif Magazine, November 1992) documented that industrialization in East Java has seized many of the productive land in Sidoarjo Regency which is known the "rice storage" or surplus producing area in that province. Mayling Oey-Peter Gardiner (Tempo Weekly news Magazine, 1991) revealed that because of transformation from agriculture to industry, the number of desa-kota (rural-urban settlements) has increased rapidly, amounting to 90 per cent between 1980 and 1990.
5.5 per cent. In RW # 08 of Tambakrejo Village, of a total of 250 households, the tambak owners amounted to only 14 households, or 5.6 per cent. The former field owners who live in Trimulyo comprise 26 households or 4.2 per cent.

The pattern of spending of those who had sold their tambak or sawah is as follows. Ten out of the fourteen tambak owners in Tambakrejo interviewed, stated that they had inherited tambak from their parents and later sold part or all of their tambak. The price ranged from Rp 1,000.00 to Rp 2,885.00 per square meter. Three owners bought other tambak in the Sayung District saying it was cheaper and better because of the new tambak's distance from industrial activities which might pollute them. One owner spent his money on operating a deep-well and selling the water to villagers. Four other owners spent their money on making the Moslem pilgrimage (Haj) to Mecca and put the rest in a savings account. One owner distributed his compensation to his children. Another owner put his money in the Bank and began operating a beauty salon.

Five of the eight tambak owners interviewed in Trimulyo still hold their tambak; the three others have sold them. Of these, one seller spent his compensation to buy residential land and to make the Haj; one distributed the compensation to his children and the third bought another tambak in the Sayung District and went to Mecca for the Haj. The summary of spending patterns is shown in the following table.
Chapter Four: Impacts

Table 4.1
Pattern of Spending of Tambak Compensation

<table>
<thead>
<tr>
<th>Village</th>
<th>No. of</th>
<th>Number of</th>
<th>Pattern of Spending*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tb.rejo</td>
<td>10</td>
<td>10 (all and: part)</td>
<td>3 : 1 : 1 : 4 : 1</td>
</tr>
<tr>
<td>Trimulyo</td>
<td>8</td>
<td>3</td>
<td>1 : 1 : 2 : 1</td>
</tr>
</tbody>
</table>

Source: Interview with respondents
Question posed: "How did you spend your tambak compensation ?"

All dry-rice fields (sawah) which were located in Trimulyo have been sold. Unlike tambak, some of which remained in the hands of the original owners, the sawah were readily sold by owners who were pleased to release them, due to unproductivity\(^2\). The price ranged from Rp 1,000.00 to Rp 4,000.00 per square meter. With regard to the use of compensation, of seven former sawah owners interviewed, two had distributed compensation to their children; four had bought other sawah in Sayung District and spent the rest on the Haj pilgrimage; and another spent it renovating his house. The spending patterns are summarized in the following table.

\(^2\) This was supposed to be the only area used for industrial zone. However, the coordinating team of industrial zone also recommended to use tambak.
Chapter Four: Impacts

Table 4.2
Pattern of Spending of Sawah Compensation in Trimulyo

<table>
<thead>
<tr>
<th>Respondent number</th>
<th>Pattern of Spending</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Bought sawah:</td>
</tr>
<tr>
<td></td>
<td>Distributed:</td>
</tr>
<tr>
<td></td>
<td>Going on:</td>
</tr>
<tr>
<td></td>
<td>Renovate:</td>
</tr>
<tr>
<td></td>
<td>elsewhere:</td>
</tr>
<tr>
<td></td>
<td>to children:</td>
</tr>
<tr>
<td></td>
<td>on Haj:</td>
</tr>
<tr>
<td></td>
<td>the house</td>
</tr>
</tbody>
</table>

1 : : v : : :
2 : : : : v :
3 : v : : : v :
4 : : v : : : v :
5 : v : : : v :
6 : v : : : : v :
7 : v : : : : v :

Source: Interview with respondents
Question posed: "How did you spend your sawah compensation?"

It should be noted that in a religious society such as that of the impacted villages in Genuk District, the Haj, as the fifth pillar of Islam, is considered very important in people's lives. In this community, only rich people can afford to do the Haj. Thus, going on the Haj pilgrimage also strengthens the social status of the rich people compensated for releasing their sawah and tambak.

If tambak and sawah owners had spent their compensation to buy another tambak or rice-field elsewhere or other districts, they would have been able to get ones that were cheaper, better, wider and less polluted. At the first stage of compensation, the owners benefited from selling their rice-fields and tambak, because the price was relatively higher than the market price. One
disadvantage, however is that the fields and tambak they (the tambak and sawah owners) bought were located even further from their home residence.

Most owners sold their tambak and sawah through middle men who charged 2.5 per cent commissions. Currently, the remaining tambak owners seem to be no longer making a profit because the price of tambak elsewhere is even more expensive than that in their own area. For instance, the price of tambak close to the shore is now Rp 1,500.00 per square metre as compared to Rp 2,000 per square meter elsewhere. For tambaks located more inland the price is about Rp 6,000.00 as opposed to Rp 8,000.00 per square meter elsewhere\(^3\).

Furthermore, according to a tambak owner in neighbourhood # 02 of Trimulyo, when the government gives a principle permit to a single industrial estate investor it creates a monopoly. When the investor is the only buyer, the tambak owner will not get a good price. This benefits the industrial estate owner, who then becomes involved in land speculation. The investor may just leave the land idle for a number of years and then sell it to other investors without building any industrial estate. In the mean time, the tambak owners eventually release their tambak because these areas have been designated by the government for an industrial development. In this case, competition between investors who wish

\(^3\) Interview with an executive member of the neighbourhood association (RW) # 02 of Trimulyo on June 29, 1992.
to locate their factories in the industrial zone benefits the tambak owners more because the plurality of investors breaks the buying monopoly, and thus makes for higher land price.

As shown in table 4.1, only four out of eighteen tambak owners spent their compensation buying other tambak in the Sayung District, and four out of seven sawah owners bought other sawah elsewhere. This means that most of the former owners used their compensation for unproductive purposes. At this point, the loss of tambak and sawah caused a loss of livelihood for majority people who did not utilize their compensation wisely.

The process of land release is relatively fair. The buyers (investors) rarely have direct contact with the owners. The middle men actively seek out the owners and occasionally persuade the owners to sell, but so far there is no intimidation, either from village officials or from the investors. However, the middle men frequently take advantage of the owners through the land transaction. There is an unwritten rule that after the transaction is done, the tambak and sawah owners may still utilize their tambak or sawah until these tambak or sawah have been cleared by the

\footnote{Land compensation is a critical issue in Indonesia. Hotman Siahaan (Eksekutif Magazine, November 1992) revealed that in East Java, many problems associated with land compensation for industrialization in Cangkring Malang and Urip Sumoharjo have not yet been solved. Siahaan further suggests that the land dispute usually occur when the government is involved in the compensation process. Similar problems have been reported as occurring in Kedungombo of Central Java, Cimacan of West Java and Plumpang of Jakarta (Tempo Weekly news Magazine, 1992).}
investors. Yet, the middle men frequently request the former owners to give up their tambak or sawah early, and then the middle men utilize these tambaks or sawahs until the investors take over

The industrialization of land also threatens local people with unemployment. All twenty-six sawah owners in Trimulyo Village have sold their fields. According to former sawah owners, each field required two male workers for ploughing and seeding, and about six female workers for planting and harvesting. Thus, at least 208 persons lost their jobs in agriculture due to the sales. A tambak pond requires two to three local workers for restocking and looking after the fish ponds and about five workers for harvesting. Workers and their wages in the tambak sector are illustrated in the table below.

<table>
<thead>
<tr>
<th>Village</th>
<th>No. of: Average Workers: The Origin of</th>
<th>The Wages Offered</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Resp.: Employed*: Workers**:</td>
<td>(Rupiah per day)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>:</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tambakrejo</td>
<td>10 : 5 : 5 : 8 : 2 : 4 : 5 : 1</td>
<td>Rp 2,500 to 3,500</td>
<td></td>
</tr>
<tr>
<td>Trimulyo</td>
<td>8 : 2 : 6 : 6 : 2 : 1 : 7</td>
<td>Rp 3,500 or less</td>
<td></td>
</tr>
</tbody>
</table>

Source: Interview with respondents

*The question posed was, how many workers do you employ?
**The question posed was, where were your workers from?

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5. Interview with an executive member of household association # 02, neighbourhood # 08, Tambakrejo on July 10, 1992.

So far, twenty five tambak have been sold in the two villages. Thus, seventy five (75) persons have lost their jobs in pond-aquaculture. Sawah offers only seasonal jobs, whereas tambak provides works all year round (three harvests per year).

Forty five households living in neighbourhood (RW) # 08, Tambakrejo, who used to benefit by gleaning the tambak have lost this supplemental income. These gleaners called *penjrupuh* or *pengasak* who work after the main harvest, pick up the types of fish not stocked by the pond's owners. The idea is to share the harvest with the poor. The gleaners' principal job is digging tambak, an activity locally called *penduduk*. Only three people actually relied on gleaning as their principal occupation. Before the coming of the factories, people could glean almost every day and this job was available throughout the year. The gleaners could obtain two to three kilograms of waste fish per day and sell them for Rp 2,000.00 to Rp 2,500.00.

After the industrialization of the tambak and the subsequent decrease in number of tambak, the gleaners could only glean the ponds one or twice a month on the average. They now utilize their gleaning only for subsistence meals, not for selling. In addition to limiting the number of tambak, the new owners, either investors or middle men acting on behalf of the investors, are not pleased to let local people glean, even though the unwritten rule says that it is acceptable as long as the "tambak" is not yet filled in. The
Chapter Four: Impacts

Profile of gleaners is summarized in the following table:

<table>
<thead>
<tr>
<th></th>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>v</td>
<td>4</td>
<td>1</td>
<td>2,000</td>
<td>500</td>
</tr>
<tr>
<td>2</td>
<td>v</td>
<td>4</td>
<td>1</td>
<td>2,250</td>
<td>600</td>
</tr>
<tr>
<td>3</td>
<td>v</td>
<td>2</td>
<td>uncertain:***2,000</td>
<td></td>
<td>v</td>
</tr>
<tr>
<td>4</td>
<td>v</td>
<td>5</td>
<td>1</td>
<td>2,500</td>
<td>700</td>
</tr>
<tr>
<td>5</td>
<td>v</td>
<td>3</td>
<td>uncertain:1,500</td>
<td></td>
<td>v</td>
</tr>
<tr>
<td>6</td>
<td>v</td>
<td>4</td>
<td>2</td>
<td>2,400</td>
<td>600</td>
</tr>
<tr>
<td>7</td>
<td>v</td>
<td>3</td>
<td>1</td>
<td>1,750</td>
<td>400</td>
</tr>
<tr>
<td>8</td>
<td>v</td>
<td>4</td>
<td>1</td>
<td>2,000</td>
<td>400</td>
</tr>
<tr>
<td>9</td>
<td>v</td>
<td>5</td>
<td>1</td>
<td>2,750</td>
<td>450</td>
</tr>
<tr>
<td>10</td>
<td>v</td>
<td>4</td>
<td>1</td>
<td>2,000</td>
<td>500</td>
</tr>
<tr>
<td>11</td>
<td>v</td>
<td>3</td>
<td>uncertain:2,000</td>
<td></td>
<td>v</td>
</tr>
</tbody>
</table>

Source: Interview with respondents

Note:
*1990 is a year when the huge number of tambak was replaced with industries and is considered a time when gleaning activity was limited.

**Respondents very rarely do gleaning, on a bi-weekly basis, etc.

1 : Factory
2 : Construction worker
3 : Vendors
4 : Respondents feel pessimistic that they can find work in other fields because of their limited skills

According to an executive member of neighbourhood association # 08, the transition from tambak jobs to factory jobs is not easy. The tambak people do not have the skills required for factory jobs. Furthermore, the wages offered by the factories are lower than the ones they earned from tambak, both as tambak diggers or gleaners.

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The advantages and disadvantages experienced by local workers as a result of this transformation will be discussed in the next section.

The land compensation has caused an increase in land values along the industrial access area. According to an executive member of neighbourhood # 07 Tambakrejo, in 1969, the land bought by Mr. Haji Sulchan for the marine product factory was only Rp 500.00 per square meter. Land prices in the same area currently run Rp 100,000.00 per square meter. Another executive member from neighbourhood # 03, Trimulyo, said that when he moved there in 1976, the land price was Rp 1,000.00 per square meter. Now the price of land ranges from Rp 80,000.00 to Rp 100,000.00. However, in areas which are not accessible nor strategic for the industries, the price has not risen much. An executive member of household association # 03, neighbourhood # 02, living in an unstrategic area or kampong, stated that when he moved to Genuk in 1982, the land price was Rp 3,000.00 per square meter. Currently, the price is about Rp 15,000.00 per square meter. In a decade, the value of land has increased about 500 per cent, whereas in strategic areas, it has increased about 8000 per cent over sixteen years. The increase of land values mainly benefits the elite who own land in strategic locations. They also were the main recipients of benefits resulting from compensation of tambak or sawah. In summary, the economic benefits have been accrued to only a small percentage of the
population in the impacted area.

**Decrease of Family Income**

Local workers whose skills are limited to agriculture and pond-aquaculture (tambak) are not prepared to enter factory jobs. If they are accepted as employees in the factories, their work is mainly in low level jobs with a wage of between Rp 1,600.00 and Rp 2,000.00 per day. These are below the wages they had earned in the tambak which ranged from Rp 2,500.00 to Rp 5,000.00 per day. The following are two cases of local people who transferred their jobs, and lost both income and social satisfaction.

Respondent no. 5 (table 4.5) who lives in neighbourhood # 08 with his wife and four children, used to own a tambak. He calculated that his income from the tambak ranged from Rp 5,000.00 to Rp 10,000.00 per day. He is currently working in marine product factory, earning Rp 3,000.00 per day which does not meet his family's needs. He has lost not only in terms of the sum of his income, but also his independence. Formerly, he worked on his own tambak and no one rushed him. Respondent no. 9 of table 4.5 used to work as a shrimp trader, buying from tambak farmers and selling to the local market. He earned from Rp 5,000.00 to Rp 7,500.00 per day. The volume of shrimp has now declined due to the limited number of tambaks and the shrimp production curtailed by factory pollution. Only a few tambak farmers still sell shrimp, so this
respondent is currently working in a soft drink factory and is paid Rp 3,250.00 per day. This wage is not enough to meet basic family needs. His wife has to work as a street vendor selling cigarettes, sugar and other groceries. He said that working in the factory does not allow the freedom that he enjoyed as a shrimp trader. In this factory, relations between employer and employees are formal and structured. The decline of family income is also experienced by a former tambak worker who is now working in Bugangan Baru Mini Industrial Estate (respondent no. 6, table 4.5). A profile of local factory workers in Tambakrejo is illustrated in the following table:
Table 4.5  
Profile of Local Factory Workers in Tambakrejo

<table>
<thead>
<tr>
<th>Respond.</th>
<th>Job Experience*</th>
<th>Previous</th>
<th>Length of Work</th>
<th>Current Daily</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>: Job number</td>
<td>: Daily Wages:</td>
<td>in Current Jobs</td>
<td>: Wages</td>
</tr>
<tr>
<td>----------</td>
<td>-----------------</td>
<td>------------</td>
<td>----------------</td>
<td>----------</td>
</tr>
<tr>
<td>Yes</td>
<td>No: (Rupiah)</td>
<td>:&gt;1 yr</td>
<td>: 1-3 yr:3-5yr:&lt;5 yr</td>
<td>(Rupiah)</td>
</tr>
<tr>
<td>----------</td>
<td>-----------------</td>
<td>------------</td>
<td>-----------------</td>
<td>---------</td>
</tr>
<tr>
<td>1</td>
<td>-</td>
<td>: v : -</td>
<td>:</td>
<td>: v : 1,616</td>
</tr>
<tr>
<td>2</td>
<td>-</td>
<td>: v : -</td>
<td>: v :</td>
<td>: v : 1,750</td>
</tr>
<tr>
<td>3</td>
<td>-</td>
<td>: v : -</td>
<td>: v :</td>
<td>: v : 1,750</td>
</tr>
<tr>
<td>4</td>
<td>: v (factory)</td>
<td>: - : 1,450</td>
<td>: v :</td>
<td>: v : 3,666</td>
</tr>
<tr>
<td>6</td>
<td>: v (tambak)</td>
<td>: worker :</td>
<td>: - : 3,000</td>
<td>: v : 2,500</td>
</tr>
<tr>
<td>7</td>
<td>: v (factory)</td>
<td>: - : 1,500</td>
<td>: v :</td>
<td>: v : 3,300</td>
</tr>
<tr>
<td>8</td>
<td>: v (factory)</td>
<td>: - : 1,650</td>
<td>: v :</td>
<td>: v : 1,666</td>
</tr>
<tr>
<td>12</td>
<td>: v (factory)</td>
<td>: - : 4,500</td>
<td>: v :</td>
<td>: v : 3,000</td>
</tr>
<tr>
<td>14</td>
<td>-</td>
<td>: v : -</td>
<td>: v :</td>
<td>: v : 1,583</td>
</tr>
</tbody>
</table>

Source: Interview with respondents
*The question posed was, did you work before? If so where?.
**For the purpose of comparison, the wages level was converted to a daily rate.

According to interview responses, most male workers prefer to work as construction workers, rather than factory employees. Two executive members from neighbourhood # 08 and # 078, explained that construction jobs offer better wages (Rp 3,500.00 per day plus meal). Thus, only local female workers are willing to take factory jobs. However, there is also a tendency for local workers to be less likely to get jobs because factory owners prefer to hire in-

---

8. Interview on July 10 and July 7, 1992 respectively.
migrant workers. They are considered hard workers, less absent and more dedicated. According to staff of the personnel department of tannery\(^9\), local workers frequently complained about wages and working conditions. If there was a dispute between the factory and local workers, they would tell their friends and neighbours who would then protest and intimidate the factory.

**Job Creation and Loss**

Theoretically, the industrial sector could create employment opportunities. However, the number of people recruited in factory jobs is small compared to the number of people left unemployed\(^10\). In the three villages studied: Trimulyo, Tambakrejo and Muktihardjo, the average number of people absorbed into the industrial sector is 22 per cent of the total labour force as shown in the following table.

---


\(^10\). Douglass (1991: 240) notes that the absorptive capacity of the manufacturing sector is too low vis-a-vis the rapid growth of the labour force and the shedding of labour from the rice-producing Green Revolution areas of Central and East Java.


Table 4.6
Population in Impacted Villages by Occupation, 1992

<table>
<thead>
<tr>
<th>Type of Occupation</th>
<th>Tambakrejo</th>
<th>Trimulyo</th>
<th>Muktihardjo</th>
</tr>
</thead>
<tbody>
<tr>
<td>N : %</td>
<td>N : %</td>
<td>N : %</td>
<td></td>
</tr>
<tr>
<td>Farmer</td>
<td>90 : 1.6</td>
<td>230 : 10.93</td>
<td>200 : 0.86</td>
</tr>
<tr>
<td>Farm worker</td>
<td>475 : 8.79</td>
<td>360 : 17.12</td>
<td>2,020 : 8.68</td>
</tr>
<tr>
<td>Fishermen</td>
<td>162 : 3.00</td>
<td>- : -</td>
<td>- : -</td>
</tr>
<tr>
<td>Entrepreneur</td>
<td>15 : 0.27</td>
<td>33 : 15.69</td>
<td>790 : 3.34</td>
</tr>
<tr>
<td>Factory worker</td>
<td>1,156 : 21.41</td>
<td>431 : 20.49</td>
<td>5,473 : 23.48</td>
</tr>
<tr>
<td>Construction worker</td>
<td>438 : 8.11</td>
<td>215 : 10.22</td>
<td>3,357 : 14.41</td>
</tr>
<tr>
<td>Trader</td>
<td>34 : 0.62</td>
<td>51 : 2.42</td>
<td>480 : 2.06</td>
</tr>
<tr>
<td>Transportation work.</td>
<td>20 : 0.37</td>
<td>29 : 1.38</td>
<td>229 : 0.98</td>
</tr>
<tr>
<td>Civil Servant</td>
<td>215 : 3.98</td>
<td>42 : 1.04</td>
<td>6,075 : 26.06</td>
</tr>
<tr>
<td>Retired Person</td>
<td>24 : 0.44</td>
<td>16 : 0.76</td>
<td>380 : 1.63</td>
</tr>
<tr>
<td>Self-Employed</td>
<td>2,711 : 50.20</td>
<td>695 : 29.00</td>
<td>4,299 : 18.45</td>
</tr>
<tr>
<td>Total</td>
<td>5,400 : 98.79</td>
<td>2,103 : 100.00</td>
<td>23,303 : 99.95</td>
</tr>
</tbody>
</table>

Source: Village Monographs, May 1992

As demonstrated above, the most common occupation is self-employment such as sewing, vending, repairs and other services, employing up to 29 per cent in Trimulyo and 50.20 per cent in Tambakrejo. Muktihardjo village is an exception, where the number of self-employed is only 18.45 per cent.

Local workers working in the factories are mostly young, single and female. Their wages range from Rp 1,550.00 to Rp 3,000.00 per day, with one meal provided per day. Those working the night shift are given a meal allowance of Rp 300.00 to Rp 400.00. The profile of local workers who mostly female is summarized in the
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following table.

Table 4.7
Profile of Local Factory Workers
in Trimulyo

<table>
<thead>
<tr>
<th>Respond.</th>
<th>Job Experience</th>
<th>Previous Work</th>
<th>Length of Work</th>
<th>Current Daily Wage</th>
<th>Wages Earned</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>v (factory)</td>
<td>-</td>
<td>&gt;1 yr</td>
<td>2,000</td>
<td>Yes 3,000</td>
</tr>
<tr>
<td>2</td>
<td>v (factory)</td>
<td>-</td>
<td>1-3 yr</td>
<td>2,333</td>
<td>Yes 3,000</td>
</tr>
<tr>
<td>3</td>
<td>v (factory)</td>
<td>-</td>
<td>3-5 yr</td>
<td>1,800</td>
<td>Yes 1,000</td>
</tr>
<tr>
<td>4</td>
<td>v (factory)</td>
<td>-</td>
<td>&lt;5 yr</td>
<td>1,000</td>
<td>Yes 2,000</td>
</tr>
<tr>
<td>5</td>
<td>v (self-employed)</td>
<td>-</td>
<td>&gt;1 yr</td>
<td>2,000</td>
<td>Yes 3,000</td>
</tr>
<tr>
<td>6</td>
<td>v (factory)</td>
<td>-</td>
<td>1-3 yr</td>
<td>1,716</td>
<td>Yes 1,000</td>
</tr>
<tr>
<td>7</td>
<td>v (factory)</td>
<td>-</td>
<td>3-5 yr</td>
<td>1,100</td>
<td>Yes 1,000</td>
</tr>
<tr>
<td>8</td>
<td>v (factory)</td>
<td>-</td>
<td>&lt;5 yr</td>
<td>2,000</td>
<td>Yes 1,100</td>
</tr>
<tr>
<td>9</td>
<td>v (tambak worker)</td>
<td>-</td>
<td>&gt;1 yr</td>
<td>1,550</td>
<td>Yes 3,000</td>
</tr>
<tr>
<td>10</td>
<td>v (tambak)</td>
<td>-</td>
<td>1-3 yr</td>
<td>2,000</td>
<td>Yes 2,000</td>
</tr>
</tbody>
</table>

Source: Interview with respondents

*The question posed was, did you work before? If so where?*

**For the purpose of comparison, the wages level was converted to a daily rate.

The wage level mentioned above is barely enough to meet the worker's own needs and not enough to support family. However, most workers suggested that it is better to have a low-paid job than to be unemployed, because a job gave them pride and also a chance to make friends. The worker's qualitative response regarding the contribution of their wages to family income is shown in the following table.
Table 4.8
Contribution to the Family Income
Qualitative Worker Responses in Tambakrejo

<table>
<thead>
<tr>
<th>Respondent number</th>
<th>Respondent's Status</th>
<th>Worker's Responses*</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>single</td>
<td>could not contribute</td>
</tr>
<tr>
<td>2</td>
<td>single</td>
<td>helped her little brother to buy school books</td>
</tr>
<tr>
<td>3</td>
<td>single</td>
<td>helped her little brother to buy school books</td>
</tr>
<tr>
<td>4</td>
<td>single</td>
<td>helped feed his brother</td>
</tr>
<tr>
<td>5</td>
<td>married, with four children</td>
<td>not enough to meet the family needs</td>
</tr>
<tr>
<td>6</td>
<td>married, with six children</td>
<td>enough for daily needs</td>
</tr>
<tr>
<td>7</td>
<td>single</td>
<td>enough for daily needs</td>
</tr>
<tr>
<td>8</td>
<td>single</td>
<td>education and basic needs</td>
</tr>
<tr>
<td>9</td>
<td>married, with two children</td>
<td>not enough to meet family needs</td>
</tr>
<tr>
<td>10</td>
<td>single</td>
<td>helped her brother</td>
</tr>
<tr>
<td>11</td>
<td>married with three children</td>
<td>not enough to meet family needs</td>
</tr>
<tr>
<td>12</td>
<td>married with three children</td>
<td>not enough to meet family needs</td>
</tr>
<tr>
<td>13</td>
<td>single</td>
<td>could not contribute</td>
</tr>
<tr>
<td>14</td>
<td>single</td>
<td>could not contribute</td>
</tr>
<tr>
<td>15</td>
<td>single</td>
<td>occasionally helped her brother</td>
</tr>
</tbody>
</table>

Source: Interview with respondents

* The question posed was, how much do you contribute to the family income?

Workers are indeed concerned with the wage system. Their employers hardly ever differentiate between those who had finished higher school and those who had only finished primary school: the difference in salary is only Rp 1,000.00 per week. As shown in table 4.5, respondent no. 3, a high school graduate who works in a marine product factory is earning Rp 10,500.00 per week or Rp
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1,750.00 per day, whereas respondent no. 1, with only primary school qualification earns Rp 9,700.00 per week or Rp 1,616.00 per day. Similarly, respondent no.8 of table 4.5 who holds a high school diploma, feels she is treated unfairly by her employer in a sport-tools company. Her wages are equal to wages earned by those who hold only a primary school diploma.

In-migrant workers come from across Central Java, such as Demak, Kudus, Purwodadi, Jepara, Ambarawa, Klaten, Purworejo and even from Banten (West Java) and Palembang (South Sumatra). Their daily wages are better than those of local worker because of their education qualification and skills. Their wages range from Rp 1,875.00 to Rp 6,660.00. However, they have to pay for rooms and meals. Thus, most of them cannot send home even a portion of their income. Minimum wages in central Java range from Rp 1,630.00 to Rp 1,720.00\textsuperscript{11}. Some workers as shown in figure 4.5 and 4.7 are paid below the minimum wages. The profile of in-migrant workers in Tambakrejo and Trimulyo is illustrated in the following table:

\textsuperscript{11}. Minister of Man-power Decree no. 187 of 1991.
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Table 4.9.a
Profile of In-migrant Workers in Tambakrejo

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Length of Work (yrs)</th>
<th>Daily Wages (Rupiah)</th>
<th>Sex &amp; Marital Status</th>
<th>Contribution to Family</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>2,400</td>
<td>M, single</td>
<td>just for himself</td>
</tr>
<tr>
<td>2</td>
<td>5</td>
<td>2,533</td>
<td>M, single</td>
<td>occasionally helped his brother for tuition fee</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>900</td>
<td>M, single</td>
<td>just for himself</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>2,350</td>
<td>F, Married</td>
<td>with 1 child</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>just for herself and could not help her family</td>
</tr>
<tr>
<td>5</td>
<td>3</td>
<td>2,083</td>
<td>F, single</td>
<td>just for herself</td>
</tr>
<tr>
<td>6</td>
<td>7</td>
<td>2,583</td>
<td>F, single</td>
<td>Rp 7,500/ month for family</td>
</tr>
<tr>
<td>7</td>
<td>2</td>
<td>1,875</td>
<td>M, single</td>
<td>just for himself</td>
</tr>
<tr>
<td>8</td>
<td>1</td>
<td>2,916</td>
<td>M, single</td>
<td>just for himself</td>
</tr>
<tr>
<td>9</td>
<td>1</td>
<td>1,250</td>
<td>F, single</td>
<td>just for herself</td>
</tr>
<tr>
<td>10</td>
<td>4</td>
<td>6,660</td>
<td>F, single</td>
<td>Rp 50,000/ month for family</td>
</tr>
<tr>
<td>11</td>
<td>4</td>
<td>3,333</td>
<td>M, married</td>
<td>with 3 children: Rp 50,000/ month for family</td>
</tr>
<tr>
<td>12</td>
<td>2</td>
<td>2,083</td>
<td>M, single</td>
<td>just for himself</td>
</tr>
<tr>
<td>13</td>
<td>2</td>
<td>4,166</td>
<td>M, single</td>
<td>occasionally sent part of his income home</td>
</tr>
<tr>
<td>14</td>
<td>5</td>
<td>3,333</td>
<td>M, single</td>
<td>Rp 50,000/ month for family</td>
</tr>
<tr>
<td>15</td>
<td>3</td>
<td>1,166</td>
<td>F, married with:</td>
<td>one child: could not help her family</td>
</tr>
</tbody>
</table>

Source: interview with respondents
### Table 4.9.b
Profile of In-migrant Workers in Trimulyo

<table>
<thead>
<tr>
<th>Respondent</th>
<th>Length of Work (yrs)</th>
<th>Daily Wages (Rupiah)</th>
<th>Sex &amp; Marital Status</th>
<th>Contribution to Family</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1,233</td>
<td>M, single</td>
<td>just for himself</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>2,666</td>
<td>M, married</td>
<td>occasionally sent small portion of his income home</td>
</tr>
<tr>
<td>3</td>
<td>2,5</td>
<td>1,500</td>
<td>M, married</td>
<td>not enough for family</td>
</tr>
<tr>
<td>4</td>
<td>2</td>
<td>4,166</td>
<td>M, single</td>
<td>to meet for his own needs</td>
</tr>
<tr>
<td>5</td>
<td>2</td>
<td>4,166</td>
<td>M, single</td>
<td>just for himself</td>
</tr>
<tr>
<td>6</td>
<td>2</td>
<td>2,000</td>
<td>M, single</td>
<td>just for himself</td>
</tr>
<tr>
<td>7</td>
<td>8</td>
<td>4,333</td>
<td>M, single</td>
<td>occasionally sent part of his income home</td>
</tr>
<tr>
<td>8</td>
<td>6</td>
<td>1,733</td>
<td>M, married</td>
<td>not enough for family</td>
</tr>
<tr>
<td>9</td>
<td>10 months</td>
<td>1,500</td>
<td>M, married</td>
<td>not enough for family</td>
</tr>
<tr>
<td>10</td>
<td>1</td>
<td>1,500</td>
<td>M, single</td>
<td>enough for himself</td>
</tr>
<tr>
<td>11</td>
<td>1</td>
<td>1,800</td>
<td>M, single</td>
<td>just for himself</td>
</tr>
<tr>
<td>12</td>
<td>3 months</td>
<td>1,500</td>
<td>M, married</td>
<td>just for meals</td>
</tr>
<tr>
<td>13</td>
<td>4</td>
<td>2,666</td>
<td>M, married</td>
<td>two children: enough for basic needs</td>
</tr>
<tr>
<td>14</td>
<td>5</td>
<td>1,666</td>
<td>M, married</td>
<td>enough for meals</td>
</tr>
<tr>
<td>15</td>
<td>4</td>
<td>2,666</td>
<td>M, married</td>
<td>three children</td>
</tr>
</tbody>
</table>

Source: interview with respondents

Most local workers are also concerned with poor working conditions in a workplace that is noisy, dirty, smelly and crowded. In the marine product company that was observed, workers are equipped with face masks, head covers, gloves and boots. However, the tannery previously mentioned does not provide any of this equipment to its workers, who complain about skin disease and odours. In the steel and sport-tools factory, the workers complain about dust and crowded conditions. These complaints are confirmed by a physician in the community health centre of Genuk District who...
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said that many workers visited him and complained about skin diseases and respiratory problems. The in-migrant worker perceptions of the factory environment where they are working are summarized in the following table:

Table 4.10
In-migrant Worker's Perceptions about Factory Environment
Trimulyo

<table>
<thead>
<tr>
<th>Respondent number</th>
<th>Factory Environment*</th>
</tr>
</thead>
<tbody>
<tr>
<td>:</td>
<td>Good : Bad</td>
</tr>
<tr>
<td>1</td>
<td>good work-mate :</td>
</tr>
<tr>
<td>2</td>
<td>good relationship :</td>
</tr>
<tr>
<td></td>
<td>:among workers :</td>
</tr>
<tr>
<td>3</td>
<td>nothing : odour and crowded</td>
</tr>
<tr>
<td>4</td>
<td>good work-mate : nothing</td>
</tr>
<tr>
<td>5</td>
<td>clean : unclear rules re: wage system</td>
</tr>
<tr>
<td>6</td>
<td>good work-mate : unfair regulations</td>
</tr>
<tr>
<td>7</td>
<td>nothing : dirty and noisy</td>
</tr>
<tr>
<td>8</td>
<td>clean : crowded</td>
</tr>
<tr>
<td>9</td>
<td>good work-mate : noisy and dirty</td>
</tr>
<tr>
<td>10</td>
<td>good work-mate : unclear rules re: wage system</td>
</tr>
<tr>
<td>11</td>
<td>nothing : dirty</td>
</tr>
<tr>
<td>12</td>
<td>nothing : dirty</td>
</tr>
<tr>
<td>13</td>
<td>nothing : dusty and dirty</td>
</tr>
<tr>
<td>14</td>
<td>good relationship : dusty</td>
</tr>
<tr>
<td></td>
<td>:among workers :</td>
</tr>
<tr>
<td>15</td>
<td>-ditto- : unclear rules re: wage system</td>
</tr>
</tbody>
</table>

Source: Interview with respondents

* Includes physical conditions and wages system

**The question posed was, what are the good and bad things about working in the factory?.

As a comparison, here are some findings drawn from Wolf's research in Ungaran Regency. Wolf (1986) also substantiated that
employment opportunities in rural industrialization are limited to a particular segment of the population: young, single females\textsuperscript{12}. In terms of wages, Wolf further suggested that the contribution of a factory worker's wages to family income was very little. The commuting worker only contributed 2.5 per cent, the migrant worker 6.3 per cent and the local worker 17.5 per cent. Because of such low wages, Wolf concluded that by sending their daughters to work in the factories, poor families subsidize industrial development\textsuperscript{13}. In her dissertation, Wolf (1986: 381) reported that the cost of industrialization was borne by poor rural families, mediated through the labour of young village women. Ironically, their low wages are always promoted as a comparative advantage for the foreign investors. Weber (1992) argues that the present minimum wage level cannot meet the minimum physical needs of the workers\textsuperscript{14}. In Jakarta, the minimum wage fulfils only 31 per cent of minimum physical needs while in West Java it meets only 15 per cent. Industrial workers are categorized as the poorest of the poor\textsuperscript{15}.

Wolf also concluded that export oriented industries recruited

\textsuperscript{12} Diane L. Wolf conducted research for her dissertation entitled "Factory Daughters, Their Families and Rural Industrialization in Central Java" in an industrial centre in Ungaran Regency between 1985-1986.

\textsuperscript{13} Kompas Daily Newspaper. Jakarta, August 1, 1986.


large number of workers who became dependent on global markets. The workers' fate: wages, other benefits, and job security are all determined by the fluctuation of the international market. This is evidenced by the slow-down of the marine product company in the Genuk industrial zone due to the decline of demand from Japan. The company has not recovered full production for over two years and, consequently, the employees work on alternate days.

With regard to working conditions, Wolf (1986: 226) observed that in the factories she studied, workers were not equipped with safety goggles required to protect their eyes and nor given covers for their heads. Accidents tended to occur involving long sleeves and hair. Workers also complained about temporary hearing problems after their shift, due to the high volume of noise. Older workers tended to have poorer hearing than newer workers.

In a tannery located in the Genuk industrial zone, the level of noise during the production process is 75 to 87 decibels (dBA), which exceeds the environmental standard of 60 dBA (Kalpataru, 1990: III.7).

**Local Indirect Benefit**

There is some local indirect benefit to the local economy resulting from industrial activities such as renting rooms to in-migrant workers, operating deep-wells, and food vending. The rental rates of rooms to in-migrant workers range from Rp 5,000.00 to Rp
15,000.00 per month. In neighbourhood # 03, the Rp 5,000.00 rent is for a simple room without conveniences, clean water or bathroom. The renters themselves must buy clean water. The Rp 15,000.00 room comes with clean water and a good bathroom.

The deep-well for providing clean water is also profitable. A bucket of water is sold for Rp 30.00. Only rich people have suitable rooms for rent and or operate deep-wells. In each household association (RT), only one or two people have such a well. These same people are also those who have tambak, sawahs and houses strategically located for sale to industries.

Only a few food stalls owned by local people operate in the industrial environs because most factories provide a meal for their workers.

4.2 Social Impacts

4.2.1 Community Cohesion

Community cohesion refers to the level of interaction and degree of interdependence of individuals, groups and institutions as evident by the number of friends and relatives in the area, the extent of use of local services and facilities, participation in community activities, and neighbouring (Armour, 1987: 2-16). Cohesiveness in a community helps individual residents to gain a sense of belonging and of psychological identification with the community, and generally encourages an interest in the community's
well-being and future. In the case of the Genuk community, community cohesion has been weakening as evidenced by the decrease in participation of in-migrant workers and in the reduced frequency of regular community meetings.

The number of in-migrant workers living in the local area is quite significant. In each household association studied, there are at least twenty in-migrant workers, as compared to sixty to seventy total households. In some household associations, the number of in-migrants had surpassed the number of households. In household association # 03, neighbourhood # 02 there are 92 in-migrants, whereas the total number of household is 67. In household # 01, neighbourhood # 03, there are 100 in-migrants, whereas the number of households is 24.

There are two main consequences of the great number of in-migrants mentioned by an executive member of household association # 04, neighbourhood # 07 in Tambakrejo and an executive member of neighbourhood # 03 Trimulyo. Firstly, the in-migrants increase the demand for the water which is already in short supply; thus, they deteriorate the quantity and to some extent the quality of the natural environment. Secondly, as noted by an executive member of neighbourhood # 07 earlier, in-migrants cause social and cultural conflicts. Socially, as discussed earlier, in-migrants have more

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access to work in the factories because of their skills. This leads to rising jealousy from local people. Culturally, the behaviour of in-migrants quite often is not suited to local customs. For example, male-female relationships are locally considered to be a sensitive issue and should be allowed only within the context of marriage. However, in-migrants who are mostly young and single come and go freely with other people. Most in-migrants also do not have a sense of belonging to the local community: they never involve themselves in community activities such as mutual assistance.

Another indication of weakening community ties is that the household associations in impacted villages are less likely to conduct regular meetings as previously was the habit. In neighbourhood # 01, Trimulyo Village which consists of five households associations, only household association # 02 still maintains regular meetings. This is also the case for neighbourhood # 02, where only two households (# 03 and # 04) out of five, conduct a regular monthly meeting. In neighbourhood # 03, none of the household associations has regular meetings. An executive member of household association # 05, neighbourhood # 03, suggested that people are getting busy with their own concerns. Activity patterns have changed because of involvement in the industrial activities and because of the employment of both husbands and wives. The tambak and sawah cultivation was marked by a division of labour, with males doing the ploughing and seeding, and females
doing the planting and harvesting. Currently, in the factories, husband and wife must both work constantly in order to meet family needs.

The chairperson of the household association is a key player in keeping the neighbourhood forum working. However, most chairpersons are busy with their own business and neglect the community organization. This makes people apathetic.

In neighbourhood # 08, Tambakrejo Village, only household association # 01 still has a regular quarterly meeting. Another regular meeting is for Islamic teaching, conducted each Thursday evening. This community forum covers all people within the neighbourhood but rarely deals with anything outside of religious matters.

4.2.2 Physical Disruption of People's Day-to-Day Activities

This variable refers to the disruptions to residents living in the vicinity of the industrial zone who experience in their daily activities due to nuisance effects such as odours, dust and noise. Three tanneries located in neighbourhood # 01, Trimulyo Village and one tannery factory in Gebangsari Village produce odours which disturb the day-to-day activities of local people and office workers in Genuk District, Trimulyo Village, as well as credit cooperative, and primary school students and teachers. The following figure shows the location of the impacted neighbourhood.
Figure 4.1. Neighbourhood Impacted by Odours

- : Tannery
- : Saw Mill
- : Steel Company
- : School
- : Village Office
- : Village Boundary
- : District Office
- : District Boundary
- : Village Boundary

0 1 Km
An executive member of household association # 02 and a resident\textsuperscript{18}, who lives opposite the tannery factory located in RT # 01, described the odours as very disturbing. The stench occurs during the day and causes stomach pain, vomiting and loss of appetite. The resident added that the odours also occur if the wind blows toward the residential area. District official B of Genuk\textsuperscript{19}, said that the odours occur in midday between 11:00 to 13:00. Village official B of Trimulyo\textsuperscript{20}, claimed that the odour emanated from waste which the tannery disposed into the Babon River (see figure 4.2).

\textsuperscript{18}. Interview on July 14, 1992.
\textsuperscript{19}. Interview on June 26, 1992.
\textsuperscript{20}. Interview on July 24, 1992.
Figure 4.2

Polluted Babon River Causing Odours

Source: Field Research, 1992
The odour is caused by the extreme number of bacteria which exceeds the environmental standard. Evaluation environmental report (EER) on a tannery factory carried out by the Kalpataru Sejatidiri consulting firm revealed that the waste discharged by that factory increases the content of bacteria (MPN) by 1.26 per cent at the minimum photosynthesis, and 3.83 per cent at the maximum photosynthesis (Kalpataru, 1990: III.19). The Kalpataru study shows that the dominant bacteria living in Babon River is of the coliform group. In the Babon River, the total bacteria (upstream to downstream) ranges from 15,400 to 23,500 MPN/100 ml, whereas the environmental standard is 10,000 MPN/100 ml. The types and numbers of bacteria in Sringin and Tenggang rivers are not available.

People in neighbourhood # 03, Trimulyo Village have been disrupted by odours produced by a soft drink factory. According to people living in household associations # 02 and # 03, shrimp waste disposed into the village drainage and subsequently drained into the Sringin River by that factory causes odour and discolours the water. People are surprised that a soft drink factory would produce shrimp waste but a staff of personnel department at that factory\(^{21}\), explained that the factory also has a permit to operate cold storage. People living near the village drainage and the Sringin River suffer the most from the odour.

Chapter Four: Impacts

An executive member of household association # 05 in neighbourhood # 03, Trimulyo said that shrimp waste which discolour the water, disturbs people daily lives and is a real eyesore. The impacted neighbourhood and the polluted river are shown in the figure 4.3 and 4.4

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Figure 4.3
Neighbourhood Impacted
by Odours and Water Pollution
Figure 4.4
Village Drainage (above), in front of Soft Drink Factory, drains into Sringin River (below)

Source: Field Research, 1992
Chapter Four: Impacts

In neighbourhood # 07, Tambakrejo Village, odours are caused by the marine product factory discharging shrimp waste into the village sewer. According to an executive member of household association # 04 of neighbourhood # 07 and an executive member of that neighbourhood\(^{23}\), some people covered the drainage in front of their homes to avoid the stench. However, those who could not afford to cover the drainage, suffer from the odour daily. The executive member of the neighbourhood mentioned earlier reported the pollution to the Municipal government, but there had been no response. Such odours are also experienced by people living in household association # 04, neighbourhood # 08, Tambakrejo, an area near the Tenggang River\(^{24}\). They lamented that the water of this river had become black, and river fish such as blanak and lundu could no longer live there. The impacted neighbourhood is shown in the following figure.

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\(^{23}\) Interview on July 9, 1992.

\(^{24}\) The seriousness of disruptions in people daily lives by odour is evident in an environmental pollution case in Klaten Regency, where a straw-mushroom processing plant in Jonggrangan Village disturbs local people, especially students and teachers of junior and high schools. School teachers said that the odours usually occur in the morning between 9.00 -10.30. Many students then go outside and vomit. Other get headaches and daily school activities are disrupted. *Suara Merdeka* Daily Newspaper, August 25, 1992.

Odour disruption is also experienced by local people living in the vicinity of the industrial zone in Palur, Surakarta Regency. This unpleasant smell causes headaches and loss of appetite. *Suara Merdeka* Daily Newspaper, June 1992.
Figure 4.5
Neighbourhood Impacted by Odours and Water Pollution
4.3 Environmental Impacts

There are many environmental consequences experienced by local people which are caused by industrial activities in their area\textsuperscript{25}. In addition to odours, other adverse impacts include both floods and lack of clean water, as well as water, air and noise pollution.

4.3.1 Floods

A hundred factories are located in the Genuk industrial zone spreading over the four villages of Tambakrejo, Trimulyo, Muktihardjo and Gebangsari (see appendix 4 for list of factories). Two neighbourhoods (RW) of Trimulyo village currently suffer from annual floods. Formerly, the rain water was diverted to the rice fields and then to the sea. Now, the rice-fields are gone and replaced by factory buildings, roads and other infrastructures. Rain water can no longer flow to the sea, and instead flows into the residential areas. People in a neighbourhood must help each other to elevate their homes from the flood waters.

Homes which suffer the most are those of household association # 01, neighbourhood # 02, Trimulyo Village. According to a resident of the area\textsuperscript{26}, the replacement of rice fields with

\textsuperscript{25} Douglass (1991: 240) testifies that similar projects such as the extension of the Jakarta metropolitan region are seriously eroding the environmental quality of life and ecological basis for further economic growth.

\textsuperscript{26} Interview on July 14, 1992.
industries, such as a steel company and Terboyo Industrial Park, and office of Genuk district causes floods. Rain water can no longer flow to the village drainage, but instead flows into the residential area. An executive member of household association # 01 reported that floods occur twice a year on average, during the rainy season. The length of inundation is about half a day, and the water rises about 30 to 40 cm.

Residents in household association # 01, neighbourhood # 03, also suffer from flooding due to the same cause. The flood occurs 3-4 times a year during the rainy season and last for 3 to 4 hours. Unfortunately, the flood waters are mixed with solid waste such as iron scraps and industrial garbage, etc coming from the factories. People must help each other to elevate their homes by about 50 to 100 cm to avoid the flood waters. According to an executive member of household association # 0127, drainage was cleaned by factories, but only in front of the factory itself. Further downstream, where the industrial waste silts up and overflows the drainage ditches into residential areas, the ditches were not touched at all.

People in household association # 05 in neighbourhood # 01 also suffer from annual floods. Two residents28, living in that area, said that the flood was caused by land fillings at Terboyo Industrial Park. The floods in this area are not as bad as those in

the two areas discussed earlier. The flood areas are shown in figure 4.6.

Floods also occur in household association # 04, neighbourhood # 02. According to executive members of those household associations, the flood waters are mixed with both liquid wastes like oil and shrimp waste, and solid waste. Local people are reluctant to clean up the mess because they perceive it is the factories, not local residents that cause the pollution. These two key persons suggest that the factories and Terboyo Industrial Park should have a regular program to clean up the environment, and allocate part of the company profits to clean up their own mess, thus providing a clean environment for both the factory and the area residents.

4.3.2 Lack of Clean Water

Most factories operate deep-wells. Terboyo Industrial Park alone has developed three deep tube-wells for the first phase of its construction (Nippon Koei, 1991: 17). Bugangan Baru Mini Industrial Estate planned to operate six deep-wells (PRP Diponegoro University, 1983: 11). Unfortunately, industrial deep-wells dried out village wells, upon which people used to rely for clean water. Everyone in Trimulyo Village has experienced a lack of clean water. The regular wells, which are only 3 or 4 meters deep, produce saline water which is only good for washing. Neighbourhood # 03,
Figure 4.6
Land filling (higher than neighbouring residential areas) causing floods

Source: Field Research, 1992
Chapter Four: Impacts

Trimulyo used to have deep-wells built by the Dutch government. Currently those wells are dried out. An executive member of the neighbourhood association\textsuperscript{29}, mentioned that a huge number of in-migrant workers has also increased demand for water that is already in short supply. One mosque well in this neighbourhood is also dried out. People now have to buy clean water from their neighbours operating deep well or take water provided by some factories. In every neighbourhood association, there are one or two rich persons operating deep-wells and selling the clean water to people. There are two ways to get clean water: people can buy it directly for Rp 30.00 per bucket, or channel it by plastic pipe from the private deep-wells and pay Rp 800.00 per hour. In household association # 02 of neighbourhood # 01, the tannery factory and MSG (Mono Sodium Glutamate) factory provide free water for three to four hours per day for local people.

In Neighbourhoods # 07 and # 08, Tambakrejo, all village wells are dried out. People here suspect that this is because the factories' deep-wells had absorbed the village water. Most people in neighbourhood # 07 prefer to channel water through plastic pipe at Rp 700.00 per hour, or at Rp 1,500.00 per hour by larger pipe. The concerns over lack of clean water and floods are expressed by in-migrant workers living in Trimulyo as shown in the following table.

\textsuperscript{29}. Interview on July 8, 1992.
Chapter Four: Impacts

Table 4.11
In-migrant Worker Perceptions
about a Place They Live in Trimulyo*

<table>
<thead>
<tr>
<th>Respondent no.</th>
<th>Environment**</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Good</td>
</tr>
<tr>
<td>1</td>
<td>friendly environment</td>
</tr>
<tr>
<td>2</td>
<td>cheap place to stay</td>
</tr>
<tr>
<td>3</td>
<td>close to work</td>
</tr>
<tr>
<td>4</td>
<td>hospitable people</td>
</tr>
<tr>
<td>5</td>
<td>close to work</td>
</tr>
<tr>
<td>6</td>
<td>close to work</td>
</tr>
<tr>
<td>7</td>
<td>good neighbourhood</td>
</tr>
<tr>
<td>8</td>
<td>good neighbourhood</td>
</tr>
<tr>
<td>9</td>
<td>close to work</td>
</tr>
<tr>
<td>10</td>
<td>close to work</td>
</tr>
<tr>
<td>11</td>
<td>good neighbourhood</td>
</tr>
<tr>
<td>12</td>
<td>good neighbourhood</td>
</tr>
<tr>
<td>13</td>
<td>close to work</td>
</tr>
<tr>
<td>14</td>
<td>good neighbourhood</td>
</tr>
<tr>
<td>15</td>
<td>close to work</td>
</tr>
</tbody>
</table>

Source: Interview with respondents

*The question posed was, what are the good and bad things about the place you live?

**It includes physical and social environment

The lack of clean water, due to the same cause is also experienced by residents in sub-village of Tambakaji in Tugu Industrial zone, West Semarang (Environmental Study Centre Diponegoro University, 1992). The small lake upon which residents of three villages: Tambakaji, Karanganyar and Randugarut used to rely for clean water is now dried out and cannot meet the
4.3.3 Water Pollution

Water pollution is closely related to odours, as discussed earlier. The odours emanate from the water that has been polluted. According to an executive member of household association # 03 of neighbourhood # 01, the water quality has been severely degraded in the Babon River. He also recalled that, prior the 1980s, when the factories had not yet been built, people could use the river-water for bathing and for washing clothes. An executive member of household association # 02 claimed that water pollution in his area is caused by the three tanneries and the shrimp feed factory.

In Tambakrejo village, people in household association # 04, neighbourhood # 08, are affected the most due to proximity to the Tenggang River (see figure 4.5). Oil, shrimp waste and solid waste spews from the marine product company, the packaging plant and

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30. Concerns about factory operations drying out the water has been widely raised in other industrial zones. Hardjono (1990) noticed that the large-scale tapping of ground water, pumped up by individual companies for industrial purposes, is causing the water table to fall every year. In central Bandung, West Java, where factories have been extracting water for several years, the municipality water-supply authority estimated the drop at 25 metres between 1981 and 1986. In the east Tangerang industrial zone adjacent to Jakarta, it is indicated that the water table is falling 0.4 metres a month. The Mining Service (Dinas Pertambangan) of West Java found that some factories in Bandung do not comply with the regulation saying that the water tapping is limited to 100 litre per minute. In fact, most factories are tapping the water at a rate of 240 to 300 litre per minute. Some factories also operate more deep-wells than they should. Tempo Weekly news Magazine. October 3, 1992.

factories located in Bugangan Mini Industrial Estate (LIK) to mix with river water, and causes it to turn black. Tambak owners have reported the problem to the village and district offices, but found no response. Government officials argue that this area has been designated as an industrial zone, and that there is no need to preserve tambak. Sooner or later the tambak will be replaced by factories.

The study results provided by consulting firms such as Kalpataru and Nawa Ripta indicate that three rivers (the Babon, Sringin and Tenggang) surrounding the industrial zone and the residential areas have been polluted. Two of three rivers are no longer habitable by fish. Tambak production, especially shrimp, has declined over the last five years. This kind of pollution is confirmed by four tambak owners. They stated that industrial pollution prevents shrimp from migrating from the ocean to the tambak. An informal leader who is also a tambak owner living in neighbourhood # 05 of Tambakrejo Village, revealed that the tambak productivity of shrimp had declined by 50 per cent since 1984, when the industrial pollution began to occur. Water pollution in the form of oil also kills the larvae.

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32. Interview on July 15 and 17, 1992.

33. The decline of fish production caused by water pollution was also experienced by fishermen in Siak District, Riau Province, Sumatra, the home of 18 factories. Over the last five years, their income has decreased from Rp 15,000.00 to Rp 3,000.00 per day. (Tempo Weekly news Magazine, September 19, 1992). In Serang, West Java, factory's pollution causes the decline of shrimp
Chapter Four: Impacts

Water pollution was also reported by the consulting firm findings as discussed earlier. Chemical parameters such as power of hydrogen (pH), biological oxygen demand (BOD) and chemical oxygen demand (COD), exceed the environmental standard. An Evaluation environmental report conducted by Kalpataru consulting firm (1990: III.9) shows that in Babon River the level of BOD ranged from 214 to 260 mg/l; whereas the environmental standard is 150 mg/l. The level of COD varied from 388 to 424 mg/l, while the environmental standard is 300 mg/l. A study on Environmental Information Report (EIR) done by the P.T Mugas Enambelas consulting firm (1990: III.10) for the new tannery factory showed that the level of power of hydrogen (pH) ranged from 8.02 to 8.06 which nearly exceeds the environmental standard of 6.5 to 8.5. An Environmental Information production in Tambak from 5-8 tonne to 1 tonne per month and the decrease of fish caught by fishermen (Tempo Weekly news Magazine, March 13, 1993).

The danger of water pollution to humans was proven by a tragedy in the industrial zone at Bekasi Regency, West Java. Two teenagers died in the Sadang River which has been polluted by ten factories, from swallowing highly basic river water. The mouths of the dead teenagers were soapy and their skin was covered with acid burns. The Environmental Impact Management Agency which measured the water quality confirmed that the level of pH was 11.5, much higher than the environmental standard. Kompas Daily Newspaper, November 18, 1992.

Warnings of water pollution has also come from the areas of the Bengawan Solo River, the longest river in Java, which has been polluted by factories located in the Palur Industrial Zone in Surakarta Municipality. A study initiated by an environmental student group at Surakarta State University (UNS) demonstrated that the level of BOD was 556.7 mg/l and COD was 3.610 mg/l. Suara Merdeka Daily Newspaper, June 15, 1992.

Water pollution has also been reported occurring in other industrial zones such as in Deli Serdang Regency, North Sumatra, and in Serang Regency, West Java. A staff of Environmental Impact Management Agency (Bapedal) stated that about 70 per cent of rivers in Indonesia have been polluted. Tempo Weekly news Magazine, September 19, 1992.
Chapter Four: Impacts

Report (EIR) for Terboyo Industrial Park done by the P.T Nawa Ripta consulting firm (1991: 34) revealed that the level of pH in Babon River was 8.3; in Sringin river 8, and in Tenggang river 7.9.

4.3.4 Air pollution

The air quality in Genuk area has been degraded by pollution. In addition to gas emissions and dust particles produced by factories, the huge number of vehicles crossing the area exacerbate the air quality problems. The Natural Disain consulting firm (1990: III i) calculated that the number of daily vehicle trips totalled 7,823. Kalpataru (1990: III.4) studies showed that the level of dust in Trimulyo Village surrounding the tannery varied from 0.53 to 2.5 mg/ m3, which is much higher than environmental standard of 0.26 mg/ m3. Nawa Ripta's (1991: 29) studies revealed that level of oxide (Ox) in Tambakrejo Village ranged from 0.090 to 0.110 ppm. The maximum allowed by environmental standards is 0.1 ppm. Mugas Enambelas's (1991: III.7) studies showed that in some Trimulyo areas the level of dust particles were from 0.261 to 0.326 mg/ m3. The excess of dust particle level in Genuk District was also confirmed by the Bureau for Population and Environment of Central Java government which recently monitored air quality in the major cities in central Java35.

High level of dust particle level and gas emission disruption

caused by the steel and saw mill companies are experienced by local people in household association # 01, neighbourhood # 02 (see figure 4.1). Some people working in these companies complain of respiratory and eye problems to the community health centre.

4.3.5 Noise

Kalpataru's (1990: III.3) studies demonstrated that the level of noise along the street in the industrial zone is 60 decibels (dBA), the very maximum allowed by the environmental standard. Mugas Enambelas's (1991: III.7) studies indicated that the noise in certain areas is from 50 to 62 dBA. In Trimulyo Village, especially in neighbourhood # 01, noise emanating from a saw mill and steel company disrupts the daily lives of people and disturbs the religious activities of the mosque located in household association # 02 (see table 4.1). The Islamic lectures held there every evening no longer run very well because of noise.

The adverse economic, social and environmental impacts of industrialization unfortunately cause suffering for local people. Were these impacts predicted by feasibility studies? The next chapter will compare the predicted and the actual impacts, and discuss how the responsible government agencies deal with these.

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36. Interview with a physician in the community health centre in Genuk District.

The agglomeration of industrial activities in Mishuzima, Japan also generates smoke and sulphur dioxide, causing respiratory disease and crop damages. See Lo, 1974

134
impacts.
"Development planning, as an idea about taking society in charge, and an activity with a number of subfields, is a part of the technical order of modern society. But it is an aspect of the moral order as well."

Peattie, 1981

This chapter begins with a discussion of the impact assessment studies undertaken in the planning for the industrial zone. It discusses what impacts were predicted and what measures (impact management) were offered by the studies to deal with those impacts. This is followed by a similar discussion of individual industrial estate located within the industrial zone. Finally, the predicted impacts and the actual impacts are compared. The data provided in this chapter was derived from document analysis of consultants' study reports.

5.1 Assessment Studies in the Indonesian Context

Assessment is part of a planning process in which the program, project or policies are examined in regard to specific sets of advantages and disadvantages. The role of assessment studies can be seen as evening the odds in the competition to present points of view to the decision makers (Boothroyd and Anderson, 1987: 8). The
assessment studies usually applied include technical feasibility studies, benefit/cost analysis (BCA) and environmental impact assessment (EIA). The technical feasibility study and BCA are generally conducted at the earlier stage of planning during which the alternative solutions are being assessed. This is not the case for the EIA, which always come too late. It is conducted when a preferred site has already been chosen (Armour, 1990; Hadi, 1989). Thus, EIA has no influence in the key decision-making regarding the project assessed.

With regard to the environmental assessment studies, there is an application guideline of Government Regulation 29 of 1986 concerning Environmental Impact Assessment. This guideline issued by the Ministry of State for Population and Environment sets out the procedure for environmental studies relating to both proposed (new) and already approved projects but not yet assessed (existing). The existing projects are the ones that were built when Environmental Management Act and EIA regulation had not yet been promulgated. For new projects, an Environmental Information Report (EIR) is required to determine whether the planned activities are required to be accompanied by an Environmental Impact Assessment. If an EIA is required, the information provided by the EIR can be used to develop the term of reference for the EIA; if not, the information of the EIR would be used as a reference for the required Environmental Management and Monitoring Plan. This procedure is illustrated in the following figure:
Chapter Five: Comparative Analysis

Figure 5.1
EIA Procedure for New Projects

<table>
<thead>
<tr>
<th>Application</th>
<th>Exempt</th>
<th>Screening</th>
</tr>
</thead>
<tbody>
<tr>
<td>EIR</td>
<td>TOR</td>
<td>EIR</td>
</tr>
<tr>
<td>EIA</td>
<td>TOR</td>
<td>EIA</td>
</tr>
<tr>
<td></td>
<td></td>
<td>EMgP/EMP</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Construction Work</td>
</tr>
</tbody>
</table>

Project Stages  | Prefeasibility & Conceptual Design | Preliminary Design | Detailed Design | Construction

Adapted from Kasru Susilo and Kier. In Conover and Hanson, 1988.

Note:
EIR : Environmental Information Report
EIA : Environmental Impact Assessment
TOR : Terms of Reference
EMgP : Environmental Management Plan
EMP : Environmental Monitoring Plan

In the procedure for existing projects, the Environmental Evaluation Report (EER) is required to determine whether the projects need to be accompanied by an Environmental Evaluation Study (EES). If an EES is required, the information of EER can be used as a reference for the EES; if not, the EER would be utilized for base information in providing the Environmental Management and Monitoring Plan. The EIA procedure for existing projects is as follows.
Chapter Five: Comparative Analysis

Figure 5.2

EIA Procedure for Existing Projects

<table>
<thead>
<tr>
<th>EIA Alternative</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exempt ← Screening &amp; Prioritization</td>
</tr>
<tr>
<td>EER → TOR → EER → EMgP/EMP → Modification Work</td>
</tr>
<tr>
<td>EES → TOR → EES → EMgP/EMP → Modification Work</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project Stages</th>
<th>Existing Operation</th>
<th>Preliminary Plan and/ or Process</th>
<th>Detailed Design Plan and/ or Process Modification</th>
<th>Implement. Modification</th>
</tr>
</thead>
</table>

5.2 The Assessment Studies for the Industrial Zone

An industrial zone is an area designated by the government for various industries without any tie or under one management among them. There are no explicit regulations on whether only proponents of an industrial zone must conduct the assessment studies, or whether each individual factory should do its own assessment.
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studies. In the case of the Genuk industrial zone, the Environmental Information Report (EIR) was conducted only by its proponent, the Provincial Investment Coordinating Board. When the planning process for industrial zone was initiated in 1982, Government Regulation on EIA had not yet been promulgated. However, according to this regulation, each individual factory located within industrial zone must be accompanied by an Environmental Evaluation Report (EER, or PEL in Indonesian term), if it is suspected of being likely to cause a significant environmental impact.

An industrial estates proposal follows different rules. According to the National Land Agency Regulation no. 6 of 1990, only the estate proponent is obligated to conduct an EIR for all factories located on that estate. The proponents of the Bugangan Baru Mini Industrial Estate, however, did not comply with this regulation because when the estate was initiated in 1980, that regulation had not yet been imposed. Terboyo Megah Industrial Estate, built in 1987, also failed to conduct any environmental assessment studies. Staff from the company running this industrial estate said that when the estate was built, the National Land Agency Regulation noted above had not yet been enacted. Nevertheless, the activities of Bugangan Baru Mini Industrial Estate and Terboyo Megah Industrial Estate have caused many

1 Interview on August 21, 1992.
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environmental impacts.

With regard to the industrial zone proposal, three assessment studies were carried out. The first was the environmental information report, sponsored by the Provincial Investment Coordinating Board and performed by the Environmental Study Centre, Diponegoro University in 1983. The second was a Detailed Design Study which included a feasibility study for the Genuk industrial zone, sponsored by the Municipal Development Planning Board and conducted by the Sarana Budi consulting firm in 1984. The third was a spatial planning study for the Ring Road in the Genuk area initiated by the Directorate of City and Regional Management, Department of Public Works and performed by the Duta Citra Consulting Firm in 1990. Detail on each of the assessment studies follows.

5.2.1 Environmental Information Report (EIR) for the Genuk Industrial Zone

The 1983 EIR study undertaken by Diponegoro University (page 65-66) stated that the waste discharged by the factories would be in the forms of solid, liquid, gas emissions and dust particles. The study further suggested that while the solid waste could be utilized for sanitary land-fill, the liquid waste would degrade the water quality and village wells. Such assessments were too descriptive and too general. The source locations of predicted pollution were not mentioned, nor were the impacted communities
(Tambakrejo, Trimulyo or Muktihardjo) identified and in what ways. Such omissions can be attributed to the fact that the assessors did not know what kind of factories were being built. The kind of impacts would be dependent on the characteristics of the undertaking, and, at the time such characteristics were not yet known. This is a common problem in Indonesia where the EIA study is generally not supplemented with detailed type and characteristic of project being studied. However, this problem is especially prevalent and serious in assessing industrial zones or estates. The proponent generally only identifies the factories in generic terms such as heavy, medium or light industries or other general classification namely food, textile, chemical, printing, steel etc. The proponent do not know exactly what factories are going to be located in their zones or estates

That the liquid waste degrades the environment, and that gas emission and dust particles disrupt the environment are correct and obvious. But what, who, how and where are likely to be affected were not mentioned. Chapter four of this dissertation described the serious water pollution coming from the marine product and packaging companies which have been discharging shrimp waste and plastic waste. The situation is worsened by the discharge of scrap iron and waste oils from factories located in Bugangan Baru Mini Industrial Estate. As detailed in chapter four, the water pollution adversely affects the daily lives of local people and harms the tambak in Tambakrejo Village. In Trimulyo Village, the water
pollution originates from the soft drink company, three tanneries and the shrimp feed factory and causes odours which disrupts day-to-day activities of local people. The noise and dust particles resulting from the saw mill and steel companies, disrupt local people and religious activities. None of the above problems were addressed by the 1983 EIR studies.

The EIR studies done by Diponegoro University (1983: 67) were correct in predicting the use of deep-wells that would generally degrade the ground water, cause water intrusion and dry out the village wells. However, those predictions did not indicate where, when, and how serious the impacts would be on local people. Because of drying-out of village wells in Tambakrejo and Trimulyo villages, local people must now spend part of their hard-earned income to buy clean water. Water intrusion had occurred before the 1983 EIR studies were done. The studies should have evaluated how much the intrusion had interfered in the environment.

Page 74 of the 1983 EIR studies predicted that land compensation would cause issues and concerns, and generate consumptive pattern of spending. It was also stated that immigrants would be a driving force for disharmony among local people. Such statements neglected to elaborate on who would be affected, when and in what ways. It was discussed in chapter four of this dissertation that the worst actual impacts from land compensation are in regard to tambak compensation. From the viewpoint of the owners, the loss of sawah did not cause as serious
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impact as the loss of tambak, because sawah is not so productive. Nevertheless, the replacement of sawah with industries caused loss of local jobs. The job loss was experienced both by those working in the sawah and in the tambak. In addition, many gleaners (penjrupuh) also lost their supplemental income. In hindsight, the number of people suffering job-loss or the threat thereof was quite significant: about 75 full-time workers, 208 seasonal workers and about forty households of gleaners.

*Impact Management:*

Impact management addresses how to proceed with the undertaking. The purpose of impact management is to eliminate, reduce or off-set real or perceived adverse impacts associated with the project, and in so doing, to make the facility more acceptable to the community where the project would be located. Impact management measures can be grouped into four categories (Armour, 1988: 2). The first is a mitigation measure aimed at avoiding or reducing potential negative effects. The second is a compensation measure intended to redress or off-set unavoidable negative effects. The third is a contingency measure proposed to aid in the detection and timely response to potential problems and unanticipated effects. The fourth is a community relation measure directed to ensure effective two-way communication and joint problem-solving to resolve concerns and issues on an on-going basis.
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The impact management measures offered by the EIR studies were mostly mitigation measures. Here are some examples. To deal with water pollution, the EIR studies recommended that the factories in the industrial zone provide integrated waste water treatment. Each factory was advised to have a pond to dissolve and treat water pollution before discharging that water into the village drainage. This recommendation, however, is not followed by the factories. Each factory has its own management. There is no integrated management among the factories within the industrial zone. For gas emissions and dust particles, it was suggested that each factory to have a filter device, electronic precipitator and screening. However, not much has been done for this recommendation either. The steel, saw mill and sporting goods factories continue to generate gas emissions and dust particles. A recommendation to reduce the air pollution dictated planting trees which could absorb the dust particles. Some trees were planted but not in adequate numbers to absorb the huge amount of dust particles and gases generated by the factories and motor vehicles traffic.

The recommendation for the lack of clean water was to use the river water and or utilize the clean water provided by a state water firm. In reality, not a single factory utilizes the river water. All of the factories and industrial estates use deep-wells. Terboyo Industrial Park has two deep-wells, and Bugangan Baru Industrial Estate has six deep wells. The state water firm has not expanded its operations to the impacted areas and local people have
been waiting for a long time to have running water provided by that firm.

The only impact management offered for social impacts was to give local people priority in the recruitment of factory workers. How to actually implement such recruitment priority was not further discussed, and did not address the problem what factories should do if the qualifications of local workers do not match the requirements for the factory jobs (i.e., training program). In the beginning, factory owners recruited many local workers. However, they currently prefer to hire in-migrant workers who are considered to be of better quality than local workers. The comparative analysis of the assessed and actual impacts is summarized in the following figure.
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Figure 5.3

Summary of EIR Study Predictions and Actual Impacts of Industrial Zone

<table>
<thead>
<tr>
<th>Activities</th>
<th>Impact Predicted</th>
<th>Impact Management</th>
<th>Actual Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste discharge</td>
<td>water pollution</td>
<td>did not mention</td>
<td>water pollution</td>
</tr>
<tr>
<td></td>
<td>did not mention</td>
<td></td>
<td>affects tambak</td>
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<tr>
<td></td>
<td>what, who would</td>
<td></td>
<td>and local people</td>
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<td></td>
<td>affected and when</td>
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<tr>
<td></td>
<td>integrated waste</td>
<td>treatment by</td>
<td>integrated waste</td>
</tr>
<tr>
<td></td>
<td></td>
<td>the factories</td>
<td>management</td>
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<tr>
<td></td>
<td>no assessment on</td>
<td></td>
<td>noise disrupts</td>
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<td></td>
<td>noise</td>
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<td>people and</td>
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<td>religious</td>
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<td>activities</td>
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<td></td>
<td></td>
<td></td>
<td>use of an electric precipitator, a do not have</td>
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<td></td>
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<td></td>
<td>filter device and</td>
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<td></td>
<td>these devices</td>
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<td></td>
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<td></td>
<td>screening</td>
</tr>
<tr>
<td>Deep-wells operation</td>
<td>would dry-out</td>
<td>local people wells</td>
<td>people have to</td>
</tr>
<tr>
<td></td>
<td>did not discuss</td>
<td>did not discuss</td>
<td>buy clean water</td>
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<tr>
<td></td>
<td>the consequences</td>
<td>the consequences</td>
<td></td>
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<td></td>
<td>use river water</td>
<td>use river water</td>
<td>factories do not</td>
</tr>
<tr>
<td></td>
<td>and clean water</td>
<td>use river water</td>
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<td></td>
<td>provided by a</td>
<td>or clean water</td>
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<td></td>
<td>water firm</td>
<td>from water firm</td>
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<td></td>
<td></td>
<td></td>
<td>but rely on deep wells</td>
</tr>
<tr>
<td>Land compensation</td>
<td>would cause</td>
<td></td>
<td>loss of</td>
</tr>
<tr>
<td>compensation issues for local people</td>
<td>recruitment of</td>
<td>livelihood, jobs and supplemental income</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>local workers by</td>
<td>in-migrants are</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>privileged</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>the factories</td>
</tr>
</tbody>
</table>
5.2.2 Detailed Design and Feasibility Study for Genuk Industrial Zone

This study which included elements of impact assessment, assessed the Genuk area in terms of feasibility as an industrial zone from comprehensive view points, including population, socio-cultural concerns, land use and spatial planning. This study was commissioned in 1984, a time when the site had already been chosen. Consequently, the results of this study did not have any influence on the location and the design which had already been set.

In this study, each aspect of Genuk area (population, socio-cultural, land use and spatial planning) was analyzed in terms of its strengths and weaknesses to support the industrial zone. At its conclusion, the study stated that the advantages outweighed the disadvantages, thus; the Genuk area was considered feasible as an industrial zone.

The study was weakened by the fact that it did not explicate any assumptions of what type of factories would be built and what subsequent impacts would affect the Genuk area.

The detailed design study suggested that there would be no air pollution to residential areas because the predominant wind blows toward the sea. The actual impact reveals that air pollution occurs in both of the impacted villages. In Tambakrejo, people suffer from gases and dust coming from factories located in Bugangan Baru Mini Industrial Estate. In Trimulyo Village, people are disturbed by dust particles from the steel and saw mill companies. Air pollution
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in Tambakrejo occurs because this village is situated in the path of prevailing winds moving towards the sea. The air pollution is attributed to factories such as the steel and saw mills located near the residential areas (neighbourhood # 01 and # 02).

The 1983 EIR (page 24) recommended that tambak could not be maintained, and would need to be replaced with industries. The study referred to tambak pollution in East Java that had been squeezed by industries that cause the decline of tambak production. It seems that this study justified the replacement of tambak with industries and did not understand how tambak can help many local people to earn a living. In fact, as discussed in chapter four of this dissertation, after some of the tambaks were replaced by industries many local people lost their income, and former tambak-owners lost their livelihood. Some persons switching from tambak to factory jobs had their incomes drop considerably because factory jobs do not pay as well as does working the tambak. Socially, affected people also have lost their autonomy as they are currently tied to factory-style work.

From a socio-economic point of view, the detailed design study mentioned that in-migrant workers would generate population pressure. Local people who could not compete for work in the factories, the study suggested, would become frustrated and would be a driving force behind an increase in crime. Eight years after the study was done, however, there was still little crime in the impacted villages. The inability to compete with in-migrant workers
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has so far generated social jealousy and there is disharmony between in-migrant workers and local workers due to lack of involvement by in-migrants in regular village activities. In-migrant workers living in the impacted villages increase pressure on physical resources such as the already scarce supplies of clean water. However, physical conflicts between local people on one side, and in-migrant workers and factory owners on the other, have not yet happened. The summary of the detailed design assessment and the actual impact follows:

Figure 5.4

Summary of Detailed Design and Feasibility Study Predictions, and Actual Impacts of Industrial Zone

<table>
<thead>
<tr>
<th>Activities</th>
<th>Impact Predicted</th>
<th>Impact Manag.</th>
<th>Actual Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Activities</th>
<th>Impact Predicted</th>
<th>Impact Manag.</th>
<th>Actual Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>water pollution</td>
<td>caused mostly by permeable soil</td>
<td>heavy pollution from the factories</td>
<td></td>
</tr>
<tr>
<td>no impact</td>
<td>management</td>
<td>offered</td>
<td></td>
</tr>
</tbody>
</table>

In-migrant workers: population pressure: and crime. No discussion on what kind of pressures: No crime concern

<table>
<thead>
<tr>
<th>Activities</th>
<th>Impact Predicted</th>
<th>Impact Manag.</th>
<th>Actual Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-migrant workers: pressure on the use of clean water, social disharmony.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>no impact</td>
<td>management</td>
<td>offered</td>
<td></td>
</tr>
</tbody>
</table>

5.2.3 Spatial Planning Study for the Ring Road in Genuk area

This study was initiated by the Directorate of City and
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Regional Management, Department of Public Works, the proponent of the Ring Road, and done by the Duta Citra consultant. The principal objective of the study was to provide a spatial structure for the Ring Road areas including Genuk. In the case of the Genuk area, this 1990 study, was too late to influence the design because industrial activities had already been occurring there since the early 1980s.

The spatial planning study (page III.06-07) justified the use of land for industrial activities. It attributed the potential of Genuk for industrial activities to the area having three rivers (the Babon, Sringin and Tenggang) for waste disposal, abundant man-power, and manageable topographical conditions. The study, however, did not realize nor assess that these three rivers have been polluted and two of them are already not habitable by fish as discussed in chapter four of this dissertation. The study should have assessed the pollution carrying capacity of the rivers. Had it done so, it might have concluded that the industrial activities in Genuk area have been at maximum and need to be restricted.

The report (page VI.14) concluded that factories such as tanneries or those producing steel, batteries or fertilizer should be prevented from locating in the Genuk Industrial Zone for reasons of environmental protection. These industries are considered to produce a primary toxin which causes the death of fish and plankton. However, the warning was not followed by the Provincial Investment Coordinating Board (BKPM) and the Department of Industry.
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of Central Java which have the authority to grant or deny permission for a factory's operation. Even though it was clear that an existing tannery had been causing odours and water pollution since 1985, those agencies granted operating permits in 1990 for three more tanneries: two to be located in Trimulyo Village (Jaguaraya Utama and Puspita Abadi) and one in Gebangsari (Buana Sakti). In addition, a steel company causing noise and gas emissions were granted an operating permit in Trimulyo Village. A battery recycling plant was also given permission to locate in the Bugangan Baru Mini Industrial Estate. This factory generates air pollution disrupting people's daily lives in neighbourhood #07, Tambakrejo and in Genuk's residential areas.

It can be summarized that three feasibility studies for the industrial zone failed to predict the impacts with any degree of accuracy. This was because the assessments were done without a complete picture of the undertakings. The weakness of prediction was exacerbated by a lack of knowledge of the local people being affected. The 1983 EIR took Muktihardjo village as the only sample area. This village is least affected by the industrial activities. The social impact analysis was performed only at the level of the household, not at that of individuals or of the community as a whole. The predictions and evaluation made by three studies noted above were based merely on professional judgement and not grounded in community input. Thus, they were not even good baseline studies. Consequently, there was no reliable impact management offered.
The environmental information report (EIR) done in 1983 should have included an impact evaluation, since several factories which currently generate environmental pollution were already operating at that time. These factories include the Marine Product Company, Comfeed Company, a shrimp feed company and the Bugangan Baru Mini Industrial Estate. However, the 1983 EIR study ignored the existing polluters and assumed only that environmental impact might be caused by incoming factories. This failure was also true for two other studies. Even though the Detailed Design and Spatial Planning were conducted after the factories being operated in industrial zone they did not assess the impacts that have been occurring.

Some recommendations proposed by those studies were not taken into account by the responsible government agencies as evidenced by their granting the establishments of new tanneries and other factories, despite a suggestion that these not locate in Genuk Industrial Zone. This is partly due to the lack of coordination among related agencies. The studies which recommended preventing such factories from locating in the zone were submitted to the Department of Public Works, whereas the agencies which grant the operating permits for the factories are the Provincial Investment Coordinating Board and the Provincial Department of Industry.

5.3 The Assessment Studies for Industrial Estates

As mentioned earlier, within the Genuk Industrial Zone there are three industrial estates, namely the Bugangan Baru Industrial
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Estate, Terboyo Megah Industrial Estate and Terboyo Industrial Park. The detailed assessments of the two estates (Terboyo Megah did not do any environmental studies) follow.

5.3.1 Feasibility Study of Bugangan Baru Mini Industrial Estate

This study dealt primarily with economic feasibility, and concluded that, in terms of the investors' interests, the Mini Industrial Estate was financially feasible given three considerations: the pay-back period, the net present value accounting, and cost/benefit ratio. Beyond these considerations, some predictions regarding the social and environmental impacts were made, but they have not come true.

The feasibility study (page 12) predicted that the Bugangan Baru Mini Industrial Estate would generate an informal sector of vendors, food-stalls, transportation services, thus contributing to an increase in regional income. It was also believed that the huge number of in-migrants would increase crime. Recent observations offer evidence to the contrary: the informal sector appears to have grown only in Bugangan Baru Mini Industrial complex and has not spread out to surrounding areas. Crime, as discussed earlier and confirmed by the head of the Service Centre², is not a problem for either people in Industrial Estate or in the impacted villages.

Page 27 of the study stated that environmental pollution would

². Interview on June 3, 1992.
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occur because of liquid and solid waste discharged by the factories. That statement has proven true, but how it would occur, and who or what would be affected were not addressed. It is a fact that factories in the Bugangan Baru Mini Industrial Estate contributed to water pollution in the form of oil waste, plastics and iron scraps.

The battery recycling plant also produces air pollution in the form of smoke in Tambakrejo Village and in the Genuk Indah residential area. These impacts were not discussed. Page 18 of the study described the list of potential factories being located in the estate but did not assess the type of activities and pollution caused by them. Interestingly, the battery recycling factory currently causing pollution was not on that list.

On page 13, it was stated that Bugangan Baru was an ideal place for industrial activities because it is away from residential areas, and thus, the industrial activities would not cause adverse environmental impacts on people in that area. The advantage for factories located there would be that they could easily expand their operations because of abundant available land. My study of actual impacts shows that factories in Bugangan Baru have contributed to water and air pollution. Water pollution harms the tambak in Tambakrejo Village. As discussed in chapter four of this dissertation, air pollution and the water pollution disrupts residents of both Tambakrejo and the Genuk Indah residential area. Most factories located in Bugangan Baru are not really the cottage
(small) industries for which the estate was designated by the Department of Industry. For cottage industries, mixing with residential area would not be a problem because they do not cause any pollution except minor noise, which is still at a tolerable level. In fact, few real small industry owners found that Bugangan Baru is not a strategic location because of distance from customers and raw material sources. The linkages with big industries in industrial zone and industrial estates (Terboyo Megah and Terboyo Park) did not occur as previously anticipated.

The feasibility study suggested that to avoid pollution within the Bugangan Baru complex, the proponent should provide a waste treatment facility. This facility, however, has never yet been used, and according to Wahyuningsih et al. (1990) would not able to deal with the expanse of Bugangan Baru which currently covers 100 hectare. The above assessments can be summarized in the following figure:
### Figure 5.5

#### Summary of Feasibility Study Predictions and Actual Impacts of Bugangan Baru Mini Industrial Estate

<table>
<thead>
<tr>
<th>Activities</th>
<th>Impact Predicted</th>
<th>Impact Manag.</th>
<th>Actual Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>In-migration of workers</td>
<td>would cause crime</td>
<td>:</td>
<td>no crime has occurred</td>
</tr>
<tr>
<td>Waste discharge</td>
<td>water and air pollution would not affect residents</td>
<td>:</td>
<td>the pollution affects tambak and local people heavy air pollut. disrupts lives of local people</td>
</tr>
<tr>
<td>:</td>
<td>:</td>
<td>:</td>
<td>waste treatment facility not operated</td>
</tr>
<tr>
<td>Relocation of small industries</td>
<td>would be of benefit: to small industries and create linkages: with big industries: in Genuk area:</td>
<td>:</td>
<td>small industries lost accessibility to market and raw materials no transactions between big and small industries: within industrial zone:</td>
</tr>
</tbody>
</table>

### 5.3.2 Environmental Information Report for Terboyo Industrial Park

This study done by Nawa Ripta Consulting firm was specifically addressed to Terboyo Industrial Park. This study should have included an impacts evaluation, because when the study was initiated in 1990, environmental and social impacts caused by existing factories were already occurring. Nevertheless, the study
failed to incorporate information on these impacts.

The prediction made by the EIR study was so descriptive, it did not mention specific kinds of impact that might occur. Page 69 explained that water pollution would biologically harm the sensitive micro organism of which only part could adapt to the polluted water. The probable causes of the water pollution and its impacts on the environment were not discussed. Had the EIR study been thoroughly done, it would have found that polluted water in Babon River at Trimulyo Village is produced by three tanneries and a shrimp feed plant, that the water pollution in Tenggang river is caused by the marine product and packaging companies and factories in Bugangan Baru, and that pollution in Sringin River is generated by the soft drink company.

Because of lack of information about the factories being built, the assessment predictions were useless. Here are some examples. On page 76 of the EIR study, it was explained that industrial estate activities would cause negative impacts to air quality. However, which factories would generate the air pollution was not mentioned. In fact, the air pollution has been caused by existing factories such as steel factory, battery recycling plant, sporting goods factory and the increasing numbers of vehicles.

Nawa Ripta study (page 78) predicted that noise would be occurring during the construction and operation phase. Tambak would be affected by water pollution (page 81). These predictions were not accompanied by a discussion on the source of impacts (what
factories) and who would be affected. In fact, as discussed in chapter four of this dissertation, noise has occurred in Trimulyo Village, generated by the saw mill and steel companies. With regard to tambak, the main impact caused by Terboyo Industrial Estate is not from water pollution but from replacing tambak with industries. The increasing number of tambak compensation began when Terboyo Industrial Park was initiated. The EIR study did not assess the impact of tambak compensation on livelihood and local people's jobs, an effect which has been very significant.

Regarding socio-economic aspects, the report stated (page 70 and 82) that new job opportunities would be created. It did not elaborate on who would get the jobs or what segment of population would take factory jobs. In reality, there are also job loss for those who used to work in tambak and sawah. The number of people displaced from their former jobs is quite significant.

It was predicted (page 83) that increased population density would not occur because the area is easily accessible and in-migrant workers would prefer commuting instead of residing in the area. This prediction has turned out to be incorrect, in fact, I found in each household association, there are at least twenty in-migrant workers. In some household associations (household # 03, neighbourhood # 02 and household # 01, neighbourhood # 03) the number of in-migrant workers exceeds the number of households. The overwhelming number of in-migrants leads to tension with local people and increases the demand for clean water which is already

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short in supply.

With regard to impact management, the Nawa Ripta's EIR study (page 86) proposed to use a waste treatment facility, to plant trees along access road, to use surface water to ameliorate the short supply of water in the area, and to involve local people in the monitoring committee. In fact, the waste treatment unit has not been built. The area of Terboyo Industrial Park does not have many trees, and seems to be extremely dry and hot. Instead of using the surface water, the Terboyo Industrial Parks built two deep-wells for the first stage of its construction. The last recommendation was also ignored. Local people have never been involved in a monitoring committee. No single factory nor industrial estate has a monitoring program. The following figure summaries the prediction discussed above.
### Figure 5.6
Summary of the EIR Predictions and Actual Impacts of Terboyo Industrial Park

<table>
<thead>
<tr>
<th>Activities</th>
<th>Impact Predicted</th>
<th>Impact Management</th>
<th>Actual Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Waste discharge</td>
<td>water pollution</td>
<td>: water pollution</td>
<td>: water pollution</td>
</tr>
<tr>
<td></td>
<td>harms micro-organism</td>
<td>: also harms shrimp &amp;</td>
<td>: fish, and disrupts</td>
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<tr>
<td></td>
<td></td>
<td>: local people</td>
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<td></td>
<td></td>
<td>: waste water</td>
<td>: no such treatment</td>
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<td>: treatment</td>
<td>: offered</td>
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<td>degradation of air</td>
<td>: dust particles and</td>
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<td>quality without</td>
<td>: gas emissions disturb</td>
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<td></td>
<td>mentioning who</td>
<td>: local people</td>
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<td>would be affected</td>
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<td></td>
<td></td>
<td>: tree planting</td>
<td>: few trees planted</td>
</tr>
<tr>
<td>Sea water intrusion</td>
<td>saline water</td>
<td></td>
<td>: saline water</td>
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<tr>
<td></td>
<td>affects</td>
<td>: intrusion had</td>
<td>: occurred before</td>
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<td></td>
<td>private wells</td>
<td>: the studies done.</td>
<td>: the surface water</td>
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<td></td>
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<td>: recommend the factories</td>
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<td></td>
<td>: use the surface water</td>
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<td></td>
<td></td>
<td>: involve local people in</td>
<td>: offered</td>
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<td></td>
<td></td>
<td>: the monitoring committee</td>
<td></td>
</tr>
<tr>
<td>Labour recruitment</td>
<td>job creation</td>
<td>: more jobs taken</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>: by migrant workers</td>
<td></td>
</tr>
<tr>
<td>In-migration</td>
<td>no population</td>
<td>: pressure on the</td>
<td></td>
</tr>
<tr>
<td>of workers</td>
<td>pressure</td>
<td>: demand for clean</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>: water and social</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>: harmony</td>
<td></td>
</tr>
<tr>
<td>Land fills</td>
<td>no assessment made</td>
<td>: floods in residential</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>: area</td>
<td></td>
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</table>
Chapter Five: Comparative Analysis

It can be concluded that the assessment studies for the industrial estates made similar mistakes to the ones made for industrial zone in terms of inaccurate predictions because the studies failed to integrate existing factories which were causing cumulative impacts. The two studies also failed to incorporate the data from community. Many predictions were made solely by the assessors and not supported by any empirical evidence.

5.4 Environmental Evaluation Study

As mentioned earlier, each factory which is considered as likely to generate significant environmental impact is required to conduct an environmental evaluation report. This report is needed to decide whether a factory must also provide an environmental evaluation studies (EES). If an EES is not required, the EER can be used as base line information in providing for an environmental management and monitoring plan. Given the important economic, social and environment impacts, as discussed in chapter four of this dissertation, many factory proponents must be conducting an evaluation study. The factory proponents which fall into this category should include the Central Java Marine Product Company, Aorta Soft Drink Company, Tensindo Sport Tools Company, Nimaru Jaya Steel Company, Shrimp-Feed Company, Puspita Abadi Tannery Factory, Terboyo Megah Industrial Estate, Terboyo Industrial Park and Bugangan Baru Mini Industrial Estate. According to Population and Environment Ministerial Decree no. 52 of 1987, the deadline of
completing such evaluation studies was December 31, 1992. It means that all projects including factories considered to cause significant environmental impacts must complete their evaluation studies before that deadline. However, up until my research was completed in October 1992, only one factory, the Condro Purnomo Cipto Tannery Factory, had completed an Environmental Evaluation Report. Its 1991 report follows.

Environmental Evaluation Report for Condro Purnomo Cipto Tannery

This is the best example of what an environmental report could entail, in contrast the other studies cited for Genuk Industrial Zone and industrial estates. It is comprehensive and supplied with a clear theoretical background, as opposed to the other studies. However, its analysis is not straightforward. The EER study (page IV.8) noted that eight out of ten chemical parameters of water quality in Babon River had exceeded the environmental standard and that Condro Purnomo Tannery had been contributing to water pollution by its waste discharges into that river, and by not operating its waste treatment plant. Instead of further discussing how much the tannery had polluted that river, this study blamed the residential areas and other factories upstream as the principal polluters. The tannery, suggests the EER studies (page IV.10), is only one component which adds to the burden of Babon River downstream.

One evidence that the factory had caused significant pollution
Chapter Five: Comparative Analysis

in the forms of odours and water pollution was provided by the EER study itself (page III.77). The consequences included decrease in tambak production and the disruption of people daily lives. Local people protested the pollution, and insisted that the factory treat the waste water. However, the study (page IV.26) testifies that waste treatment is still not being used.

Page III.80 stated that the number of in-migrant workers amounted to only two persons. It seems that the study relied heavily on the secondary data available in the village office. That data is seldom up-dated. If the study assessor verified it with the household association level, the data would be much different. As discussed in chapter four of this dissertation, the average number of in-migrant workers in each household association in Trimulyo Village is twenty. In household association # 03 of neighbourhood # 02 and household association # 01 of neighbourhood # 03, the number of in-migrants outnumber that of the households. By not mentioning the huge influx of in-migrants, the significant impact they caused such as pressure on clean water supplies and social disharmony, was never addressed by the assessment.

The EER studies (page 80) also claimed that the role of government institutions at the village level, namely both neighbourhood and household associations (RW and RT) and the Village Security Institutions (LKMD), are very dominant in planning and management local development. This statement does not seem to be based on any empirical evidence. On the contrary, as I observed
only a few household associations (RT) actively deal with local development activities. In neighbourhood # 01, only one out of five household associations has a regular monthly meeting. In neighbourhood # 02, only two of five household associations keep their regular meeting. In neighbourhood # 03, no household association has a regular meeting. The vice chair of Village Security Institutions (LKMD) acknowledges that practically the LKMD is only active for Bulan Bakti (Monthly Devotion) held once a year\(^3\). This program involves village cleaning and security, and works because of government support.

The report (page IV.20) briefly discussed the social impacts as involving labour recruitment and the increase of income for those working in the factory. However, the study did not elaborate on who was recruited and whether it was local people or in-migrants. Furthermore, no income comparison was made between the pond-aquaculture jobs and factory jobs. If the assessor had compared them, it would be evident that income has decreased when people change to a factory job.

According to the page IV.22, factory activities did not alter the pattern of social relationships in the community. In reality, the patterns of people daily lives have changed because of factory activity regimes such as shift work and work hours. People moving into factory jobs no longer have enough time for getting together

\(^3\) Interview on September 10, 1992
to socialize as is evident by the decrease in people's involvement in regular community meetings. The summary of the EER is illustrated in the following figure:

**Figure 5.7**
Summary of EER and Actual Impact for Condor Purnomo Cipto Tannery

<table>
<thead>
<tr>
<th>Activities</th>
<th>Impact Evaluated</th>
<th>Impact Manag.</th>
<th>Actual Impacts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid waste discharge</td>
<td>harms tambak and sawah but is mostly</td>
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<td>disrupts local</td>
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<td></td>
<td>caused by factories</td>
<td></td>
<td>people and</td>
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<td></td>
<td>up stream</td>
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<td>the factory</td>
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<td>evaluated is the</td>
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<td></td>
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<td></td>
<td>big polluter</td>
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<td></td>
<td></td>
<td>to reactivate</td>
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<td>the existing</td>
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<td></td>
<td></td>
<td>measure seems not</td>
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<td>waste-water</td>
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<td>to be followed;</td>
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<td></td>
<td>treatment and</td>
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<td>the pollution is</td>
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<td></td>
<td>to improve its</td>
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<td>still occurring</td>
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<td></td>
<td>functions</td>
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<td>In-migration</td>
<td>no migrant</td>
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<td>number of migrant</td>
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<tr>
<td>of workers</td>
<td>workers stay</td>
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<td>workers staying in</td>
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<td>impacted villages</td>
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<td></td>
<td>would not cause</td>
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<td>in-migrants cause</td>
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<td>weakening community</td>
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<td>social disharmony</td>
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<td>RT, RW and LKMD</td>
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<td>Their roles are</td>
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<td>have important role</td>
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<td>diminishing in</td>
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<td>in the community</td>
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<td>people's lives</td>
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<td>lives</td>
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<tr>
<td>Factory</td>
<td>style of work: did not cause</td>
<td></td>
<td>has changed the</td>
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<td>change in patterns</td>
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<td>daily lives</td>
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<td>of behaviour</td>
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<td>cycles of people</td>
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<td>and decreased</td>
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<td>involvement in</td>
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<td>community</td>
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<td></td>
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<td>activities</td>
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It can be concluded that, all assessment studies discussed above did not accurately predict and evaluate the impacts that currently occur. Because of these inaccurate predictions, improper impact management procedures were proposed. Consequently, the impacts have worsened.

Most study assessors relied only on secondary data available in the village office and questionnaires, and do not utilize other potential methods such as personal observation, focus-group discussions and focused interviews. An additional problem was that most assessors did not verify the data obtained from local officials (district and village) by checking it with local people. There is a tendency for local officials to report only the "good news" so relying on it as a sole source biases the data.

Another problem is the lack of enforcement of the environmental regulations. It was evident that the two industrial estates and many other factories, according to 1986 Government Regulation on EIA should have conducted an evaluation environmental studies, but in the absence of sanctions, they did not.

The government agencies responsible for granting operation permits are apparently unaware that the existing tannery causes pollution and grants permission for other tanneries in the area. Poor coordination among the related agencies is evidenced in neglecting the recommendation proposed by a study not locate the potential polluted factories in Genuk area.

The above facts have led me to further investigate the
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planning process of industrial zone from the perspective of local leaders and officials who are directly affected by industrial development on a day-to-day basis. The next chapter will discuss what they think about the process of planning for industrial development and their suggestions on how to improve the process.
"Everyone has ordinary knowledge—has it, uses it, offers it. It is not, however, a homogeneous commodity. Some ordinary knowledge, most people would say, is more reliable, more probably true, than other."


The people being affected are frequently ignored in the planning process as they are often considered uneducated and inexperienced, thus; their perspective is poorly valued or considered as less useful. However, experience shows that many development projects fail because of lack of knowledge on a given area and the views of the local people. Unfortunately, local people must pay for that negligence in the form of adverse economic, social and environmental impacts. This chapter demonstrates that many of the adverse impacts on Genuk industrial zone could have been prevented by involving people in the planning process. The discussion begins with a review of village community structure, and examines who the local people are and how village decisions are normally made. Following this is a discussion on local people's perceptions of the planning process and a review of some of their ideas on how to improve the process. The data provided in this chapter was gathered through focused interviews with local
officials, and open-ended interviews and focus group discussion with local leaders.

6.1 The Structure of Village Government

As discussed in chapter two, the village is the lowest level of governmental administration in Indonesia. The apparatus of the village office consists of village head, secretary, and at least three deputies to deal with government, development, and social and religion affairs. In the impacted villages of Tambakrejo and Trimulyo, these officials are appointed and are civil servants responsible to the head of the district (Camat).

The village administration is divided into neighbourhood associations (RW), each of which is sub-divided into household associations (RT) (see figure 6.1). The chair and executive members of the RW and RT are elected and voluntary. Most people do not want to take these jobs because of the huge responsibility and the high expectations of their constituents. In villages like Trimulyo and Tambakrejo which geographically and administratively appear as urban but are socially rural, the hours required of RW and RT officials are unlimited. People are allowed to come to the RW and RT officials at any time. These posts are thus, in effect, twenty-four hour jobs.

The chair of the RW coordinates his affiliated RTs. One RW normally consists of from three to twelve RTs. The RT deals with all matters relevant to a household association, from writing
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letters of recommendation, to dealing with physical development, village cleaning and security, youth guidance, social order, etc. The chair of an RT is considered as both a formal and informal post. It is formal because it is a branch of the village office. It is informal because the chair of an RT is elected by local people. Only people who are really dedicated and good leaders are considered appropriate to take this job. For an outsider who intends to deal with development, research or other matters related to a given geographic area, the chairs of the RW and RT, are the first "gatekeepers" one must meet to obtain permission.

In addition to being a branch of the village office, the RT is a forum in which people can discuss their needs and aspirations. An agenda frequently discussed is the community's physical development including improving the drainage, widening and up-grading roads, providing garbage bins, arranging local security, building river and ditch embankments and building worship places. The RT, thus, could play an important role in accelerating self-help development. It is unfortunate that most RTs in the impacted villages deal only with administrative duties. Active RTs, on the other hand, such as those in RT #03 and #04 of RW #02, which are concerned with such major issues as floods and water pollution have been effectively discussing the building of embankments on the Sringin River and elevating their houses above the flood waters.

1. Observation on a Regular Community Meeting in RT #03, RW #02 Trimulyo on August 1, 1992 at a resident's place.
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An institution called the Village Security Institution (LKMD or Lembaga Ketahanan Masyarakat Desa) is intended to be a forum for development planning. The chair of the LKMD is commonly also the head of a village, but frequently directs the institution's programs to the interests of upper-level government rather than the village's own activities. The vice-chair of LKMD is usually an influential person who is considered to have similar perspectives to those of the village head (in most villages, there are also some influential people whose perspectives differ from those of the village head). Other executive members of the LKMD include those dealing with issues such as development, social and religious, sport and youth, etc.

Another institution, labelled the Family Welfare Education (PKK or Pendidikan Kesejahteraan Keluarga) is normally chaired by the wife of the village head. In a case where the village head is a female, the chair of PKK could be someone else who is considered knowledgeable in dealing with women and development. The executive members of the PKK are educated women and the wives of the RW officials. The PKK is intended to serve as a forum for enhancing women's role in development in an effort to improve family prosperity (Indonesia, 1991: 137).

The structure of village government is illustrated in the following figure.
An informal forum not included in the structure previously described is Islamic Learning, locally called pengajian, a weekly religious meeting in which people listen to Islamic teachings by a religious leader or pray together. In communities which place a high value on religion such as in Tambakrejo and Trimulyo, this forum is considered very important. In addition to being a religious forum, it is also a forum for informal socialization. In most cases where RT and RW are not active, village officials utilize the "pengajian" forum to deliver messages on development.

6.2. People's Perception on the Development Planning Process

It is generally perceived that decisions on industrial zone development in Genuk are taken through a top down approach. This was stated for example, by a staff of the physical and
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infrastructure section at the Municipal Development Planning Board of Semarang. He said that decision-making for the planning process concerning industrial zones was made at the provincial and municipal level, where the Municipal Development Planning Board (Bappeda) and Provincial Investment Coordinating Board (BKPM) worked together, and that decision-making did not involve the heads of district and the impacted villages. He further suggested that Genuk district and impacted villages of Trimulyo, Tambakrejo, Muktihardjo and Gebangsari must follow the decisions made by the Municipal Development Planning Board. This statement was confirmed by a district official of Genuk, who testified that he was merely informed that Genuk had been designated as an industrial zone and he was never involved in the planning process. His participation was limited to being a member of the land compensation committee, formed after the Genuk industrial zone had been approved to accommodate industrial estates. Another official of Genuk District, also said that the district and village officials were uninformed about the planning process for the industrial zone. He has been working in Genuk since 1970, a time before Genuk became part of Semarang, and was confirmed that the news that Genuk had been designated as industrial zone appeared in 1980.

Both district officials further suggested that when Genuk was

planned to be an industrial zone, it would have been better for the district officials to be involved because they knew their areas better than the upper levels of government did.4

The reason that the district officials agreed with the decision to make Genuk a designated industrial site, was that Genuk is a relatively resource-poor area. The dry rice-fields could only be planted with rice once a year. However, the two officials did not realize that tambak, which has been squeezed by factories, has potential for further development, as many local people are involved in these jobs.

The statement by the district officials that they were not involved in decision-making on the industrial zone was supported by interviews with village officials. Village official A of Trimulyo5, said that he occasionally feels embarrassed by not knowing in advance about development projects in his area. People in his village frequently ask him such questions as where the ring road is to be located and which area would be used for industries. He could not honestly answer these questions because he had never been involved in the planning process for the industrial zone. Village official B of Trimulyo6, had heard a rumour that the area for the industrial zone involved 1,000 hectares, half of which

4. This statement supports Van den Ham's view (1989: 224), that detailed knowledge of the characteristics of an area is available only at the local level.

5. Interview on September 10, 1992.

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was located to the south of Kaligawe Road (the main road of Genuk) incorporating Muktihardjo and Gebangsari villages and the other half lying to the north of the road, covering Trimulyo and Tambakrejo villages. In fact, the designated area for the industrial zone is only 800 hectares. Such discrepancy demonstrates the uncertainty of sources.

Village official A of Trimulyo, said that factories located in his area absorbed many local workers. Not every factory informed him of its commencement of operations. After getting an operating permit, factory owners immediately built and began to operate the plant without consulting the village officials. However, many factories did contact him which gave him opportunity to appeal to the factory Manager to give priority to local people for labour recruiting.

Village official A of Tambakrejo\(^7\), also revealed that they were not involved in the planning process for industrial zone. The growing concern over industrial expansion began when Terboyo Industrial Park started purchasing tambak from local people in 1987. Tambakrejo, a term meaning liveable tambak was named after the abundance of tambak which economically and socially support popular livelihood. This term may gradually disappear as the tambak system is replaced with factories. Village official B of Tambakrejo explained that even though the industries have been creating job

\(^7\). Interview with two village officials on June 26, 1992.

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opportunities, a disadvantage also follows, namely the pollution that is disrupting people's daily activities in neighbourhood # 07 where he lives, and especially household association # 04 of neighbourhood # 07.

6.3 People's Perceptions on Land Acquisition and Industrial Development Impact

The views of the informal leaders follow. Because they were not involved in the planning process these leaders could only say that the top-down approach was not sound. They made this evaluation on the basis of their experience with the land acquisition process and the consequences of industrial development on people's daily lives. An executive member of neighbourhood # 02 who is also a tambak owner in Trimulyo⁸, said that he knew nothing about the planning for the industrial zone in his area. He had heard a rumour that Genuk had been designated as industrial zone. As a tambak owner, his concerns were awakened when the industrial estates were being built within the industrial zone. Unlike an individual factory in the industrial zone, which requires only one to three hectare of land, the industrial estate needs 50 to 300 hectare of land. As discussed in chapter four, in the case of industrial estates, only one investor is approved by the government to release or compensate land for each estate. One land-buyer creates a

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monopoly and forces the tambak owners to sell their land at a low price. He contrasted this with the fairer compensation given to the tambak and sawah owners in an industrial zone where a plurality of investors created an environment of fair competition. He had led the complaints about the process of land compensation, but up until now there has been no response from the government. He added that the current political atmosphere is not conducive for incorporating local people's views and aspirations. Most local leaders especially village officials and some LKMD executives, seek benefits for themselves and thus ally themselves with the interests of municipal and provincial governments, and to some extent with the factory owners.

An executive member of neighbourhood association # 01 in Trimulyo, explained about the positive impacts of industrialization in his area. In addition to job opportunities offered, some factories frequently give assistance in the form of

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9. In the case of pollution in Tugu Industrial Zone in Semarang city, local government appeared to be allied with the interest of factory owners. Seven factories located in that zone were verified to generate water pollution causing the decline of tambak production. This led the Indonesian Environmental Forum to campaign for boycott on all products produced by those factories. In the name of the workers' interests, this step was opposed by the municipal government. (Tempo Weekly news Magazine, April 27 1991). Another example was the pollution case in Sadang River in Bekasi Industrial Zone which caused the death of two teenagers. Before that tragedy happened, the concerns had been raised by local people. However, the Coordinating Team of Environmental Impact Management (TKP2LH) of Bekasi Regency always reiterated that the water pollution indicated by the level of power of Hydrogen (pH) was below the environmental standard. Kompas Daily Newspaper. November 10 and 11, 1992.

money for village development, such as for up-grading roads, and for national day celebrations and village ceremonies. However, according to village official A interviewed earlier, the factory donations did not amount to much. The executive member of neighbourhood # 01 further explained that the greatest concern caused by the industries is pollution, especially water pollution, coming from three tanneries which all are located in his neighbourhood.

An executive member of neighbourhood # 03 in Trimulyo\textsuperscript{11}, revealed aspects of the consequences of land compensation. People rarely have enough money. When they received compensation, they could not spend it on productive purposes. Rather, they spent it on purchasing motor bikes, renovating their houses and going on Haj. As it happened in Tambakrejo, people then lost their livelihood. With regard to the pollution, people in his neighbourhood may have been the most affected by industrial activities. They suffer from water pollution, floods and lack of clean water. So far there is no assistance from factories and industrial estates to deal with the pollution. If he were consulted about the industrial development, he would suggest restricting the polluted factories. On this matter an executive member of household association # 04 of neighbourhood # 02, urged the factories to allocate part of their profit for cleaning programmes.

\textsuperscript{11}. Interview on July 8, 1992.
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An executive member of neighbourhood # 03 who shared his ideas earlier testified that when Genuk was part of Demak, this area was not designated as an industrial zone, but as an residential area. He himself prefers the latter designation. It is a fact that even before the industries came, this area was densely populated; thus, factories and in-migrants have exceeded its natural carrying capacity and social carrying capability.

An executive member of neighbourhood # 07 in Tambakrejo Village\textsuperscript{12} explained that to be the host of factories is more severe than pleasure. In terms of jobs, his personal observation led him to conclude that there is no priority of local people for employment in the factories. Environmentally, factory activities generate pollution which harms the tambak and disturbs people lives. Industrial activities also dry out the village wells, which in turn further burdens local people with expenditures for the purchase of clean water. Local people are repeatedly blamed by the factories for any loss of properties\textsuperscript{13}. He also complained about the "social pollution" caused by in-migrant workers staying in their area. The in-migrants do not involve themselves in community activities which give the impression that in-migrants do not need

\textsuperscript{12} Interview on July 7, 1992.

\textsuperscript{13} The person interviewed gave as an example the following. One day, when the management of the factory nearby this neighbourhood discovered that some property was stolen, they accused local people of stealing it. However, it turned out that a factory employee had stolen the property and hid it in a rice-field. Interview on July 7, 1992.
to join the community activities. In addition, their daily behaviour quite often does not fit with local custom.

With regard to the industrial pollution, the executive member of neighbourhood # 07 interviewed above, prepared a petition in 1982 warning the factory to deal with its water pollution. This petition requested the factory to improve village drainage in order to mitigate the odours coming from water pollution. However, a village official did not want him to bring forward the case, and so did not sign the petition. He himself brought the petition to the municipal office where it was ignored. However, the village drainage remains untouched, while odours and water pollution become worse as they are increased by effluent emissions coming from other factories. A staff member from one of factories accused of pollution said that the factory is aware of the problem. However, because of a decline in productivity over the last two years, the factory lacks the funding to improve the drainage\textsuperscript{14}.

An executive member of neighbourhood # 08\textsuperscript{15}, offered his observations on tambak compensation. According to him, only rich tambak owners still hold their tambak, and about 75 per cent of the original owners have sold their tambak. After being informed that Genuk was designated as an industrial zone, people from outside the community, mostly middle-men and investors, started purchasing

\textsuperscript{14} Interview on August 26, 1992.

\textsuperscript{15} Interview on July 10, 1992
tambak in 1982. The tambak transactions were accelerated when it became known that Terboyo Industrial Park would be built. Some tambak owners did not utilize their compensation money effectively and then lost their livelihood. The executive member mentioned above is concerned about such people losing their jobs because their skills are limited to tambak jobs and not suited for employment in the factories or other industrial jobs. Another concern was expressed about the waste-fish gleaners, who are considered the poorest of the poor in the neighbourhood. Such problems, however, were not addressed by either the factories or the government. The factories do not have any training programs to prepare local people to enter the factory jobs. In addition, there is no priority given to local people to get employment in the factories. In the mean time, local people cannot compete with in-migrants who offer more skills and are more qualified. The factory owners thus prefer to hire in-migrants rather than local workers. He also observed that local males do not like to work in the factory because of low wages, as compared to the wages given in tambak jobs.

An informal leader who is also a tambak owner in neighbourhood # 05 of Tambakrejo¹⁶, is concerned about industrial pollution affecting the productivity of shrimp. Shrimp production has declined over the last five years by about 50 per cent. He is also

concerned about the middle-men who persistently try to persuade him and other remaining tambak owners to sell their tambak. Up until now, he has not sold any of his tambak because it is still proving very worthwhile for his family and for the twenty-five people working for him. He claimed that it is a pity that most of the tambak in his area had been sold. Because the tambak owners hold a legal certificate of ownership, no one can force them to sell. However, tambak owners who have released their land have done so because they are driven by a need for the instant money offered by middle men. But unfortunately they do not use the money wisely, and subsequently come to lose their livelihood.

The informal leader interviewed above said he had grown accustomed to confronting project proponents. Firstly, he disputed the low price of land compensation offered when part of his land was released for the Banjir Kanal River normalization project. Secondly, he disputed the Banger River normalization project. He won the latter dispute. He stated that he himself and people in his neighbourhood are considered "stubborn", as they persist in fighting for their rights.

6.4 People's Ideas to Improve the Planning Process

I asked local officials and local leaders for their ideas on how to improve the planning process in the future. Because of their limited knowledge about the planning process, local leaders offered ideas that address what they directly know and experience. They
tended to concentrate only on the problems they are currently facing.

District official A strongly suggested that the government include local officials in the planning process because they have a detailed knowledge about the areas, and thus can tell which areas are appropriate for industries and which areas are not. No ideas were proposed by district official B who emphasized that an industrial zone was the decision of upper-level government and that lower-level government must merely follow those decisions. This statement was echoed by village officials of Trimulyo and Tambakrejo both of whom said that they could do nothing. The provincial government's decisions thus seem to be unchallenged by local government and residents. Village official A of Trimulyo commented that he needs to know the plans for his area so that he can respond to inquiries or questions from local people. So far, he can only answer his people with speculation, for example: "From what I have heard, the industrial zone would include ......, the Ring Road would be passing by this and that place" etc.

An executive member of neighbourhood # 07 who shared the ideas earlier, suggested there should be an impact management process to deal with loss of livelihood and loss of jobs. For example, those who have received compensation for tambak and rice-fields could be

17 In this case, the provincial government creates the dependency of local government. According to two leading Indonesian scholars, Loekman Soetrisno and Mubyarto (1978: 39), the provincial government considers the local government as subordinate and not as a partner.
counseled to utilize their money wisely. The misuse of money not only causes loss of livelihood, but also loss of jobs for tambak employees. Thus he gave another example of potential impact management: Job loss should be dealt with by training program sponsored by factories through their cooperation with government's agencies in the industrial zone. Factories, in his view, should consider employees involved in tambak and sawah not just the actual owners.

An informal leader of neighbourhood # 05, Tambakrejo who shared the ideas earlier was very straightforward in his responses. He did not refuse to accept the government's plan for industrial development, but insisted that it would be better not to replace tambak with factories in order to gain further benefits for local people. If the ultimate goal of industrial development is to improve people's prosperity, tambak has been shown to be more economically feasible and socially acceptable than the industries. Thus, the answer is to discontinue the industrialization. The pollution generated by factories has been heavy and the current factories must be heavily supervised to mitigate the pollution.

An executive member of neighbourhood # 02 mentioned earlier also remarked that maintaining the tambak sector would be better than continuing the industries. A remark was supported by four tambak owners in Trimulyo and eight tambak owners in Tambakrejo as shown in the following table.
### Chapter Six: People's Perspective

#### Table 6.1
Tambak Owners' Idea about their Area*

<table>
<thead>
<tr>
<th>Resp. No.</th>
<th>Preference</th>
<th>Rationale</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Industry</td>
<td>Tambak: Both**</td>
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<td></td>
<td>Tambak: Both**</td>
<td>Tambak is more profitable</td>
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<td>Tambak: Both**</td>
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</table>

**Source:** Interview with respondents

*The question posed was, what would you prefer your area to be? **Both refers to continuing industries while maintaining tambak

A member of neighbourhood # 02 suggested that the current political atmosphere is not conducive to change. This was evidenced
by the inability of village and district officials to force the factories to deal with the pollution. It seems that they are even reluctant to warn the factories. Furthermore, the responsible government agencies at the higher levels cannot monitor industrial activities on a daily basis. They may make a visit if there is a report of a serious problem, but when they leave the site, the pollution continues.\footnote{A similar tactic is also performed by a pulp and paper factory in Riau to fool the staff of Bureau of Population and Environment. The factory looks very good when it is supervised, but when the officials leave, the pollution continues. (\textit{Tempo Weekly news Magazine}. November 19, 1992).}

An executive member of neighbourhood #07 who shared the ideas earlier, on the other hand just wanted not to add more industries because of current heavy pollution. There should be a mechanism by which people could easily get access to report to appropriate authorities on the industrial pollution and to get a quick response. He testified that when he pioneered the proposal for a petition, it took a long time to get a response. Many reports never received any reply.

Seven former sawah owners interviewed in Trimulyo mentioned that the replacement of sawah with industries was good because it could provide jobs for their children. They regarded their former sawahs as less valuable because of poor soil and unproductivity. They considered themselves lucky that their sawahs have been bought at relatively high price. However, they saw their good fortune in that regard as offset by a variety of industrial pollution.
Chapter Six: People's Perspective

As demonstrated in table 6.1, thirteen out of eighteen tambak owners in Tambakrejo and Trimulyo responded that they did not agree with replacing the tambak with industries. This response was due to their suffering from pollution since 1982. When the early assessment studies gathered their input, the response was positive, in the hopes that the industries would create more jobs and create a liveable place, etc. To some extent, job opportunities have been created, but industrial development has degraded living conditions in the area.

A good lesson for the Social Impact Assessment (SIA) assessors is that without a clear picture of the undertaking, they could not predict what impacts would occur. In fact, the assessors never released the undertaking description, either because they do not have it in hand, such as in the case of the industrial zone or because they do not want to share it with the people who are likely to be affected. A dominant method they currently employ is a questionnaire which does not provide a room in which assessors and the impacted people can openly discuss the impacts of the undertaking. What they have been doing is inquiring as to perceptions by residents about the development, even without mentioning the kind of development. The response, of course would always be positive, because development means jobs, income, and availability of services and facilities such as electricity, asphalt roads, etc.

It can be concluded that local officials at district and
village levels did not know about the planning process of industrial zone. The information they received was blurred. Local people heard only rumours, and so could not figure out what the process was and how to improve it. Community members' response then were mainly with regard to the situations they now face namely water and air pollution, floods, job loss and low wages. They appeal that similar factories such as tannery, battery, and steel processing plants should not be allowed to locate in the Genuk area.

The social, economic and environmental tragedies of the industrial development in the Genuk area are mostly caused by the negligence to include local people in the planning process. In addition, the goal of development is also arbitrarily formulated and defined by the upper-level government. Government planners at the upper level neglect the problems faced by the host communities of industrial development. Their objective is economic growth that is expected to trickle benefits down to the local people. In fact, to the extent Genuk is representative of an industrialized area, we see that economic growth does not work that way, but accumulates in the hands of investors and factory owners. This leads to the question of what planning is supposed to do in that matter. The next chapter will discuss the planning implications on uncontrollable industrial development.
Chapter Seven: Summary, Conclusions

CHAPTER SEVEN

SUMMARY, CONCLUSIONS AND PLANNING IMPLICATIONS

"Development is not a work, an activity or a project. It is a movement in which many who share similar ideals take part."

Phongphit, 1989

This chapter will conclude the discussions in the previous chapters and then identify the implication for future planning and the potential of further research.

7.1 General Conclusions

This thesis is concerned with the questions: what are the consequences of industrialization as promoted in Indonesia and why do they occur. Chapter two and three outline the nature of development policies and the top-down planning being implemented in the industrial growth centres. Chapter four points out the economic, social and environmental problems caused by LEE industrialization in Genuk area. Chapter five describes the failure of impact assessment in providing necessary information for planners, decision-makers and local leaders to understand the likely impacts of LEE industrialization. Chapter six analyzes the
local people's views as to why the impacts occur and identifies their suggestions on how to improve the planning process. In this final chapter I draw conclusions as to why the problems documented in chapter four seem to be occurring. On the basis of the information presented in the previous chapters the causes of the impacts can be induced as follows:

1. LEE industrialization oriented development
2. top-down planning and no local participation
3. poor impact assessment
4. lack of adequate monitoring
5. management oriented to investor's interest
6. poor enforcement of environmental regulation

The discussion of each cause follows.

7.1.1 Industrialization Oriented Development

At the national level, the policy to encourage industrialization is considered the only means to achieve economic progress. Through a series of five year development plans, industrialization is given top priority. The fifth five year development plan projected industrialization to be a leading sector in the economic structure. The industrialization is mainly large scale and externally controlled and specially directed toward export. Such national policies emphasize industrialization without considering the environmental and social costs or the potential of alternative development strategies. This policy influences the
Chapter Seven: Summary, Conclusions

planning process of industrialization at the provincial level.

7.1.2 Top-down Planning and no Local Participation

In the province of Central Java, the above policies are reflected in the establishment of industrial zones as growth centres. This policy is implemented by a top-down approach that provides for no popular input or even giving information to people so that they can react or adapt. The planning is very centralized in the hands of provincial and, to a lesser extent, municipal government. Information (or more accurately dictation) flows down to the local government and people without room for effective feedback.

At the early stage of industrial zone planning in Central Java, the objectives of LEE industrial development were formulated by several related agencies led by the Provincial Investment Coordinating Board (BKPMDB). The principal goal was to counteract the slow rate of economic growth experienced during the first and the second five-year development plans in Central Java. The response to sluggish economic growth was to accelerate LEE industrialization by encouraging capital investment. Many deregulations were implemented to encourage investors. Another important step was to provide industrial zones as industrial growth centres. This idea coincided with the Provincial Development Planning Board (BAPPEDA) concept which designated Semarang as a centre of economic growth propelled by industrial activities.

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The proponent merely denoted the location of the industrial zone without taking steps to develop the necessary industrial infrastructure, water and sewage, transportation planning, housing and residential programmes. The proponent (government agencies) relied solely on private initiative and investment to build those facilities, but the investors and factory owners do not want to invest much on public facilities which do not return a profit. The government also leaves it to the investors and factory owners to make direct contact with local land owners for land compensation except in the case of industrial estates where the government has acted as a mediator.

Local officials, local leaders and affected people notice what is going wrong with the industrial zone. However, they are unable to do anything, as they are in a subordinate position and the decisions by the upper level government must be followed. This finding corroborates the view of Koentjaraningrat (1985: 462), a leading Indonesian anthropologist, who notes that Indonesian society is managed from the top-down, and from the centre out to the periphery. Policies and decisions from superiors are still very important determining factors in every day-life.

7.1.3 Poor Impact Assessment Studies

A feasibility study to determine the location of the industrial zone was based solely on physical, geographical and topographical studies. After the location had been determined, and
many industries had been built, other studies, including Environmental Information Report (EIR), Detailed Design and Spatial Planning studies were later commissioned. These studies had no influence on the decision-making for the project. The assessment studies did not even the odds as they should, but rather acted only to rationalize or legitimate the project and thus expedite the industrialization process. Interestingly, in the case of the Genuk Industrial zone, the location examined by the three studies was not the one determined by the Governor's Decree but one designated by the Municipal Development Planning Board. This discrepancy shows the lack of consistency of among related government actions on their own decisions.

The assessment studies were initiated by three different agencies: the EIR by the Provincial Investment Coordinating Board in 1983, the Detailed Design study by the Municipal Development Planning Board in 1984, and the Spatial Planning study by the Directorate of City and Regional Management in 1990. There was very little coordination among these related agencies. The wholly predictive EIR studies did not accurately predict the economic, social and environmental impacts.

The Detailed Design and the Spatial Planning which were undertaken after some industries were already operating in the area repeated the predictive mistakes of the previous studies. Additionally, the studies offered no reliable monitoring and impact management.
Chapter Seven: Summary, Conclusions

Overall, the results of impact assessment failed to provide the information necessary for planners, decision-makers and ideally local leaders to understand the likely impacts of industrialization. The failure is to a large degree due to the impact assessors not consulting local people, not looking at existing and comparable case studies, and not considering the nature of the local economy.

7.1.4 Lack of Adequate Monitoring

The only monitoring performed is a quarterly report put together by individual industries concerning the number of workers recruited, production and marketing achieved, and problems the factory faced. Because there is no enforcement of pollution regulations, many industries seem unmotivated to report on their activities. In the mean time, the number of industries locating in Genuk area has been growing rapidly, accelerated by the establishment of two more industrial estates, which would have been disallowed to locate there if the government had followed its Master Plan. This is another example of the inconsistent decision making and follow through by the government planners.

Odour and water pollution are dealt with on a case by case basis. If there is a report, government inspectors visit the site,
but when they leave, the pollution resumes. In dealing with pollution, the government seems to be facing a major dilemma. On the one hand, investors and factory owners should be protected because of their contribution to increase GDP and job opportunities. On the other hand, the government cannot close its eyes to the dangers of pollution to local people and to the environment.

Other forms of pollution such as floods, noise and air pollution remain untouched as do problems associated with economic and social impacts such as loss of jobs and livelihoods and the weakening community ties.

The industrial growth centre in Genuk has grown into an uncontrollable area. The industrial zone and estates have stimulated other massive activities such as industrial bonded-zone to the west and two industrial estates to the east. These giant projects, currently being developed, will eventually far exceed the natural carrying capacity and the social carrying capability of the area.

7.1.5 Management Oriented to Investor Interests

The principal goal of industrial zone development is merely to achieve rational economic growth. That goal strictly dictates the

1. Douglas (1991) also notes that attempts to deal with environmental issues in Jakarta and in Indonesia as a whole have not been cast in a regional policy framework.
way the government planners and other related agencies manage the
LEE industrial development which tends to give priority to
protecting the factory interests. This has been evidenced in two
ways. The first is in siting the industrial estates and some
factories which tend to meet the wishes of investors and factory
owners without considering agglomeration as a strategy for waste
management and Master Plan implementation. The second is in dealing
with pollution problems in which the responsible government
agencies seem to be reluctant to warn or to punish the polluting
factories. In addition, the permitting authority also continue
granting operation permits to the potential polluted factories.

Industrial management driven by a corporate planning style is
oriented toward efficiency and profit making. Corporate planning,
it has been argued involves no other value judgements (Boothroyd
and Anderson, 1984: 2). Of course, this may not be surprising if we
assume that the desires of the owners of the means of production
are not the same as the desires of the poor. Ross and Usher (1982:
22) suggests that the formal economy is never concerned with equal
and fair distribution. The thesis has shown several examples of the
corporate style being practiced by the factory owners in Genuk
area. They chose strategic locations without considering
integrating waste management with other industries; they pay low
wages to obtain maximum profit; they utilize equipment for high
productivity without considering the environmental consequences;
they mislead the environmental inspectors in order to achieve the
Chapter Seven: Summary, Conclusions

cheapest cost, instead of building reliable waste treatment management; they ignore the people's complaints by collaborating with key officials. Consequently, industrial pollution, in the form of air and water contamination, odours and noise, and other adverse impacts such as floods, loss of jobs and livelihood, are borne by local people. These impacts also occur in other industrial zones as widely reported in the mass media.

7.1.6 Poor Enforcement of Environmental Regulation

The failure of permit authorities to take the important assessment seriously when the latter do identify problems, and the failure of permittees to follow the environmental regulation that they supposed to enforce are major causes of environmental degradation and adverse impact on local people.

Some recommendations proposed by impact assessment studies were not taken into account by the authorities as evidenced by their granting for the establishments of new tanneries, a saw mill, a steel factory, despite a suggestion that these not locate in Genuk Industrial Zone.

There are two industrial estates and many factories which according to 1986 Government Regulation on EIA should have conducted an evaluation environmental studies, but in the absence of sanctions, they did not.
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7.2 Planning Implications

Reforms and restructuring are required to achieve sound planning for industrial zones. The reforms involve establishing criteria for the selection of industry which strengthen the existing local economy such as tambak, sawah or cottage industries. Restructuring the current planning process is required to incorporate the needs and knowledge of local people by developing means to involve them. These required changes are elaborated below.

7.2.1 Industrial Selection Criteria

With regard to the type of industries chosen, Loekman Soetrisno has suggested avoiding manufacturing based-industries (large scale, export oriented, externally controlled), as they cause other small industries to die2. He suggests that there should be a development ethic directing the selection of type of industrialization which can increase agriculture product. In a society dominated by agriculture, such as Indonesia, industrialization must be intended to develop and strengthen its potential; a consideration which also influences choices of the type of technology employed. Soetrisno provides two examples of industries employing appropriate technology. From India comes a technology of fermenting teak leaves which increases the value of that leaf. In Malaysia, a technology for drying fish utilizes the

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2. Quoting his article entitled "Industri di Negara Berkembang" (Industries in Developing Countries) in Kompas Daily Newspaper, December 14, 1984.
Chapter Seven: Summary, Conclusions

shell-rice paddy. These two types of technology make real contributions to the improvement of local people's income and encourage people to stay put rather than seek opportunities in urban areas.

The second form of industrial development which is economically beneficial and environmentally sound involves small scale or cottage industries. The small scale (cottage) industries in Bugangan Lama of Semarang were encouraged to relocate to Bugangan Baru Mini Industrial Estate in Genuk, but due to reasons previously discussed, chose not to relocate. Cottage industries can improve people's prosperity and alleviate local poverty. They also offer wages ranging from Rp 3,500.00 to Rp 5,000.00 plus meals. That amount is much higher than wages paid by the factories in the industrial zone which vary from Rp 1,600.00 to Rp 3,500.00 and include one meal.

Environmentally, as I observed, cottage industries do not produce any waste except scrap-iron, which can be recycled and utilized by scavengers. The only disruption they generate is noise coming from hammering, molding and furnishing activities of the workers. The cottage industry is a good example of the integration between centres of production and consumption. Most workers and owners all live in one place. The industries buy the raw materials, 

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3. Interview with two owners of a small scale industry in Bugangan Lama, on September 18 and 19, 1992. Their information is confirmed by the workers and evidenced by the fact that some people who used to being small industry's workers are currently operating the cottage industries by themselves.
produce and sell their products all in the same area. However, they must constantly face a marketing problem because of their inability to compete with big industries. For instance, small industry production of buckets made from steel scrap has been squeezed by the plastic buckets produced by big industries. The government pays little attention to small industries because, large-scale industries are considered to contribute more to the GDP than small industries.

It can be concluded that the small scale industries, locally based (cottage or agriculture) and locally controlled production units contribute most to improving the quality of life of local people. They are also more socially harmonious and generally more environmentally sound and sustainable.

7.2.2 Process Change

To restructure the existing planning mechanism, applying community development principles is required. Boothroyd (1991: 150) proposes three possible roles for a state agency to support community development. These include leaving people alone to plan their own development, actively intervening in communities, or involving outside experts to provide support. In the case of Indonesia, the role of the state agency could be a combination of these three roles. Here is an example: the government agency has a plan, industrial development for example. In order for both the government and community to each gain benefits, the government plan
Chapter Seven: Summary, Conclusions

should be examined through community needs. The intent is to match goals formulated by the government with goals desired by the community. The following figure illustrates how the government agency and community can work together.

**Figure 7.1**
Proposed Development Planning Strategy

Government (authority)  
(resources)  
(exerts)

Development Planning: -top-down  
-standard guidance  
-quantitative oriented

Provincial → Broad focus → Government Plan  
& Municipal Level

Standard of living & economic growth

Common Goals

Community level → Limited focus → People's Needs

- bottom up

Program  
-accommodative

- qualitative

NGOs or Local Planners  
(concerned about grassroots)  
(non-bureaucratic)  
(participatory approach)


The above figure suggests that government agencies and local communities can be good partners in pursuing common goals namely to
improve the standard of living, create self-reliance, and in turn to generate economic growth (at least locally) that is environmentally sound. Both the government and the community have the potential and motivation to achieve these goals.

The government has the authority, resources and experts. Its development planning is top-down, standard in guidance, quantitatively-oriented and broadly focus. Community planning, generally initiated by local leaders or NGOs, is flexible, accommodative, realistic and of limited focus and can be qualitatively focused. The two perspectives could be matched with each other by promoting community development planning. Promoting this type of planning requires two strategies. First, the government agency should be prepared to train local people to be local planners. This can help make the government policy fit the context of the local conditions. As suggested by Uphoff (1982: 387), promoting bottom-up development requires some top-down efforts by using catalyst or promoters who are recruited, trained and fielded from the centre to work with people at the periphery and to build up organizational capacities among them. Secondly, NGOs could also have great potential as a partner in planning. The government agency should be prepared to negotiate with NGOs in a process of formulating common policy.

There are some successful projects achieved in cooperation between NGOs and government such as the involvement of LP3ES (Institute for Economic and Social Research, Education and
Chapter Seven: Summary, Conclusions

Information in assisting the government to encourage and develop farmer's participation in small scale irrigation in Indonesia (Ibrahim, 1992: 22). LP3ES cooperated with the Department of Public Works and the Department of Agriculture to develop a model of construction, operation and maintenance of a small scale irrigation system. LP3ES employed community organizers who were trained in the basic irrigation skills and techniques of participatory development. The community organizers acted as motivators, catalysts, organizers and mediators, and stayed in the villages for extended periods of time to get a sense of what kind of irrigation should be built. The farmers contributed up to 30 per cent of the construction materials and 54 per cent of the labour. The irrigation fits into the farmer's needs and more importantly farmers feel that the irrigation belongs to them.

Pinney (1983: 44) recorded other projects undertaken in collaboration between the Indonesian government and NGOs, such as establishing clean water supplies, family planning, and training for grassroots development planning.

The restructured approach which is proposed would allow local people to participate in defining local planning policies as shown in the following figure:
Chapter Seven: Summary, Conclusions

Figure 7.2
Policy Level Assessment

Problem Identification
  ↓
Goal Formulation
  ↓
Facts Appraisal
  ↓
Policy Alternatives
  ↓
Options
  ↓
Impact Assessment
  ↓
Decisions


The above figure presents seven steps of a planning model. At each step a government agency could involve local people. At the sixth step, for example, assessment studies, SIA could be applied in order to exert influence in redesigning the proposed project or policy with community input. Approaches to SIA must be shifted from a technical model to a community or political model. The community development model of SIA emphasizes the needs, attitudes, beliefs and values of potentially affected people; thus the public has an important role in the SIA process. From this perspective, SIA is aimed at achieving a more equitable process of development by empowering the community to take control. As Tester (1980: 4)
Chapter Seven: Summary, Conclusions

notes, the community development approach to SIA is intended to bring about a fundamental change by creating an "active informed public". In this paradigm, SIA is a social phenomenon, oriented toward social change. This shift requires abandoning conventional survey research methods and replacing them with participatory research methods. Hall (1975: 28) outlines the principles of the participatory research method: (1) the research process should involve the community in the entire research project, from the formulation of the problem to the discussion of how to seek solutions and in the interpretation of the findings; (2) the beneficiary of research should be the community, and the community must be allowed greater involvement in the research process, both in formulating the problem and in finding the solutions. To optimize community involvement, Rees (1986: 19) suggests that researchers must be fully familiar with native views of the problem and the socio-political context in which the work will be conducted.

As shown in NGOs experiences discussed earlier, development programs, policies or projects which incorporate local people's interests and needs are possible to apply. Such policies, as Mubyarto and Soetrisno (1978) suggest, require a new mentality in the government bureaucracy related to their perception of the community's role in the development process. The new mentality is to regard the populace as partners rather than as subordinates.
7.3 Suggestions for Further Research

Research on the potential agendas to reform and restructure development planning is needed in Indonesia as elsewhere. One useful study could be a comparative analysis of agricultural-oriented, small scale, locally controlled industries and manufacturing base industries (large scale, export oriented and externally controlled). The pros and cons of these types of industries have been widely debated between government planners on one hand and some leading scholars on the other. The government planners encourage the manufacturing base industries especially those oriented toward exports. They argue that this type of industry will take up slack in the economy, and in turn trickle benefit down to the people. Even more importantly, perhaps the manufacturing industries are considered to be the symbol of modernization and the kind of society highly aspired to by government planners. However, some scholars are highly concerned about the mixed effects of manufacturing industries.

A second agenda would be to undertake research soliciting government officials on what they think would be the pros and cons of involving local people in planning. The method employed would be interviews and focus group discussions among those who have been involved in planning actual programs, projects or policies.

A third potential research agenda would be the measurement of the physical carrying capacity and social carrying capability. There is a need for studies to develop appropriate indicators for
use in monitoring industrial activities in industrial zones. The research method used would be comparative studies among the industrial zones, observation and interviews with local people regarding their views about their area.

A fourth study is also needed to calculate the amount of carrying capacity (resources) appropriated by industrial zones from neighbouring regencies (hinterlands). The appropriated carrying capacity approach has been developed by Rees and Wackernagel (1992). The research method employed would be document analysis and interviews with people working in the related agencies such as Land Agency, Water Firm, etc.

A fifth agenda would be to examine the potential of regular community meetings as a forum for planning at the local level. The studies would search for the possibility of utilizing these forums as community development tools by which people can acquire community planning skills, as widely used by Native Indians in Canada and in rural communities in Thailand (Boothroyd, 1989). Planning skills are required to manage the change, complexity and conflict which arises in a community interaction with the wider world.

7.4 OVER ALL CONCLUSIONS

We have seen that, as has been documented elsewhere, large scale, export oriented and externally controlled industries in Central Java do not benefit local people. The industrial growth
centre is economically causing poverty, socially creating disharmony and environmentally harming the amenities. In analyzing the planning process for industrialization I have concluded that the causes range from the macro level to the local level and from the formulation of objectives to the monitoring and impact management. Because of the industrialization problems for local people are so entrenched at every level of planning, the indicated solutions from a local perspective are for a fundamentally different approach to industrial development, one that considers more comprehensive goals and fully involves local people in the planning process at all steps.
ABBREVIATIONS AND GLOSSARY

ASEAN : Association of Southeast Asian Nations

BAPPEDES (Badan Perencanaan Pembangunan Daerah): Regional Development Planning Board

BAPPENAS (Badan Perencanaan Pembangunan Nasional): National Development Planning Board

Camat : the head of district

Dinas : service agency


BKKBN (Badan Koordinasi Keluarga Berencana Nasional): National Family Planning Coordinating Board

BKLH (Biro Kependudukan dan Lingkungan Hidup): Bureau for Population and Environment

BKPMRD (Badan Koordinasi Penanaman Modal Daerah): Regional Investment Coordinating Board

BPN (Badan Pertanahan Nasional): National Land Agency

DPR (Dewan Perwakilan Rakyat): People's Representative Council

ESC : Environmental Study Centre

DPRD (Dewan Perwakilan Rakyat Daerah): Provincial/Municipal/Regency People's Representative Council

GDP : Gross Domestic Product

Haji or Hajjah : Person who has made Haj Pilgrimage, the fifth pillar of Islam

Kanwil : representative office

Kabupaten : regency

Kotapraja or Kotamadia : municipality

KLH (Kependudukan dan Lingkungan Hidup): Population and Environment

LIK (Lingkungan Industri Kecil): Mini Industrial Estate

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LKMD (Lembaga Ketahanan Masyarakat Desa): Village Security Institution
MIE: Mini Industrial Estate
NGO: Non Governmental Organization
PELITA (Pembangunan Lima Tahun): Five Year Development Plan
PIL (Penyajian Informasi Lingkungan): Environmental Information Report
Repelitada (Rencana Pembangunan Lima Tahun Daerah): Provincial/ Municipal/ Regency Five Year Development Plan
RIK (Rencana Induk Kota): Master Plan
RSTRP (Rencana Struktur Tata Ruang Propinsi): Provincial Structure Plan
PRP (Pusat Riset dan Pengembangan): Research and Development Centre
PKK (Pendidikan Kesejahteraan Keluarga): Family Welfare Education
Pribumi: Indigenous Indonesia
PT (Perseroan Terbatas): Limited Liability
Puskesmas (Pusat Kesehatan Masyarakat): Community Health Centre
RT (Rukun Tetangga): household association
RW (Rukun Warga): neighbourhood association
Tambak: pond-aquaculture
Tegal: dry-rice field or non irrigated land
TKP2LH (Tim Koordinasi Penanggulangan Pencemaran Lingkungan Hidup): Coordination Team for Environmental Management and Pollution
UDKP (Unit Daerah Kerja Pembangunan): Unit for Coordinating Development Activities.
VOC (Verinichde Oost Indische Compagnie): Netherlands East India Company.
BIBLIOGRAPHY

In addition to the books listed below, the following periodicals are referred to in the text:

Eksekutif Magazine
Kompas Daily Newspaper
Prisma Quarterly Journal
Suara Merdeka Daily Newspaper
Tempo Weekly news Magazine

Armour, Audrey

Ariff, Mohamed and Hal Hill

Badan Pertanahan Nasional (the National Land Agency)

BAPPEDA Tk I Jawa Tengah (Provincial Development Planning Board)

Boothroyd, Peter

Boothroyd, Peter
(1990) Developing Community Planning Skills: Applications of A Recursive Seven Step Model. Vancouver: UBC CHS

Boothroyd, P. Gardner, J.E and Rees, W.E

212
Boothroyd, Peter and William E. Rees  

Boothroyd, Peter and Anderson, Owen  

Boudeville, J-R.  

Carino, Ledivina V.  

Conover, Shirley A.M and Hanson, Arthur J.  

Coraggio, J.L  

den Ham, Allert van and Hady, Hariri  

den Ham, Aller van  

Department of Information, Republic of Indonesia  


-------------


Goulet, Denis (1992) Development: Creator and Destroyer of Values. World Development 20 (3)


Governor of Central Java 1987 Instruksi Gubernur Nomor 530/32 tentang Penetapan Lokasi Wilayah Industri di Jawa Tengah (Governor Decree on Industrial Zone in Central Java)


--------

Hall, Budd (1975) "Participatory Research: An Approach for Change". Convergence. (8) 2


215
Indonesia Department of Information

Industry, Department of, Republic of Indonesia

Industry, Department of, Central Java.
(1990) "Development Policy of Industrial Sector in Central Java in Repelita V". Semarang, Central Java.

Investment Coordinating Board, Central Java Province

Kadarisman, Sugihono

Kalpataru Sejatidiri Consulting Firm

Kassim, Azizah
(1991) Social Dimensions of Industrialization in Malaysia. Regional Development Dialogue. (12) 1 Spring

King L.A.J

Koentjaraningrat

Komin, Suntaree

Kotamadia Daerah Tk II Semarang


Minister of Man-power, Republic of Indonesia (1991) Keputusan Menteri Tenaga Kerja Republik Indonesia Nomor 187 tentang Peningkatan dan Penetapan Upah Minimum sektor dan sub sektor di Daerah Jawa Tengah (Ministerial Decree on the increase and minimum wages in Central Java).


217


Pusat Riset dan Pengembangan (Research and Development Centre), Diponegoro University (1981) Studi Kelayakan Lingkungan Industri Kecil (Feasibility Study for Bugangan Baru Mini Industrial Estate). Semarang


Appendix 1

List of Resource Persons

Resource persons: Planners and other people involved in industrial zones and estates planning

The Objective Achieved: to obtain information on the process of planning of the industrial growth centre.

Research Instrument Used: Focused Interviews

1. Ir Susilo Wasisto, Head of Planning Section, BKPM-D
2. Ir E. Sulistyowati, Head of Control Section, BKPM-D
3. Drs Bambang Budiadi, Head of Monitoring Section, BKPM-D
4. Drs Varchan Sahlisaputro, Vice Chairperson of BKPM-D
5. Ir Aunurrofieg, Head of Physical Infrastructure, Bappeda TK II Kodia Semarang
6. Ir Tomy Sasmito, Head of Bappeda Tk II Kodia Semarang.
7. Ir Dharma Gunadi, Staf of Physical Infrastructure Section, Bappeda TK I Jawa Tengah
8. Ir Soliechdi, Director of Terboyo Industrial Park
9. Drs Imam Sujati, Assistant Director, Terboyo Industrial Estate
11. Dr. Ir. Soegiono Soetomo, Planner and University Professor.
12. Prof.Ir. Eko Budiardjo, Msc, Planner and University Professor.
13. Drs Daryono Rahardjo, Economist and member of executor of feasibility study for Bugangan Baru Mini Industrial Estate in Genuk Industrial Zone.
14. Suprapto, Bsc Director of Service Centre, Bugangan Baru Mini Industrial Estate
15. Drs Muntachob, Head of Bina Program, Kanwil Perindustrian
16. Ir Edi Miun, NGO's staff involved in environmental studies on Genuk industrial zone
17. District official A of Genuk
18. District official B of Genuk
19. Village official A of Trimulyo
20. Village official B of Trimulyo
21. Village official A of Tambakrejo
22. Village official B of Tambakrejo
23. Staff member A of National Land Agency of Central Java.
25. Sudarmadji SH, Head of Law Section, Semarang Municipality
26. Dr Heru Wahyono, Community Health Centre of Genuk
Resource persons: Selected Factory's owners located in the Industrial zone

Research's Instrument used: Focused Interview

1. Susilo Rahardjo SH, P.T Condro Purnomo Cipto (Tannery Factory)
2. Abdulrachman, Chair of worker's Association of P.T Condro Purnomo Cipto
3. Budi Wahyudi SH, P.T Aorta, Caprisonne (Soft Drink Factory)
4. Muchtarom, P.T Cejamp (Marine Product Company)
5. H.Dachlan, P.T Cejamp (Marine Product Company)

Research persons: Small (Cottage) Industry's owner in Bugagan Lama

Research Instrument Used: Focused Interviews

1. Mulyoto
2. Tugiman
3. Rakisan
4. Sutadi

Resource persons: Key Leaders (Chair of RW, RT and Informal Leaders).

The Objectives Achieved: to identify issues and problems of the industrial growth centre, to get people's ideas on improving the planning process and to select of interviewees from local people.

Research Instrument Used: Open-Ended Interviews and personal observation.

Trimulyo Village:

1. Executive member of RW 01
2. -ditto- of RT 01
3. -ditto- of RT 02
4. -ditto- of RT 03
5. -ditto- of RT 05
6. Informal Leader of RW 02
7. Executive member of RW 02
8. -ditto- of RT 01
9. -ditto- of RT 02
10. -ditto- of RT 03
11. -ditto- of RT 04
12. Informal Leader of RW 02
13. Executive member of RW 03
14. -ditto- of RT 01
15. -ditto- of RT 02
16. -ditto- of RT 03
17. -ditto- of RT 04
18. Executive member of RT 05

Tambakrejo Village:
1. Executive member of RW 07
2. -ditto- of RT 04
3. Executive member of RW 08
4. -ditto- of RT 01
5. -ditto- of RT 02
6. -ditto- of RT 03
7. -ditto- of RT 04
8. -ditto- of RT 05
9. Executive member of RW 05
10. -ditto- of RT 01
11. -ditto- of RT 02
12. Informal Leader of RW 05

Resource Persons: Impacted People consisting of Tambak's owner, Sawah's Owner, Tambak's worker, Factory's workers.

The Objective Achieved: to understand the environmental, economic and social implications of the industrial activities from people's point of view.

Trimulyo Village:
Tambak's owners:
1. Roichan, RT 03, RW 02
2. Matrodi, RT 05, RW 03
3. Asnawi, RT 05, RW 03
4. H. Wasan RT 03, RW 03
5. Mu'in RT 04, RW 03
6. Fadlun RT 03, RW 03
7. Achmadun RT 03, RW 03
8. H. Ichsan RT 03, RW 03
9. H. Syamsun RT 03, RW 01

Sawah's Owners
1. Saryan RT 05, RW 03
2. Muntono RT 05, RW 03
3. Mat Rusdi RT 01, RW 02
4. Sodik 01 02
5. Sabar 05 03
6. Juremi 05 03
7. Roichan 03 02

Factory's Workers
a. In-migrant Workers
1. Basrowi RT 05, RW 03
2. Sugino 01 03
3. Suyadi 01 03
4. Untung 01 03
5. Wisnu Jati S. 01 03  
6. Subarno 01 03  
7. Parmono 01 03  
8. Ali 05 03  
9. Suwarno 01 03  
10. Slamet Triyo 01 03  
11. Juwarno 05 03  
12. Edy Yusron RT 05 RW 03  
13. Mahfudin 05 03  
14. Yubadi 05 03  
15. Burhan 03 03  

b. Local Workers  
1. Kustini RT 04, RW 03  
2. Karsono 04 03  
3. Badriyah 04 03  
4. Suliyah 04 03  
5. Mulyono 03 02  
6. Mulyono 04 03  
7. Sulastri 03 04  
8. Sunaryo 04 03  
9. Sulasih 03 02  
10. Margono 03 03  

Tambakrejo Village  
Tambak’s Owners  
1. Maschub RT 01 RW 08  
2. H. Marjanah 01 08  
3. H. Samsudin 01 08  
4. H. Rapinah 01 08  
5. Mastonah 01 08  
6. Sukardi 01 08  
7. Muslich 02 08  
8. Achmadi 01 08  
9. Karminah 02 08  
10. Mas’ud 02 08  

Tambak’s Worker  
1. Riyanto RT 04 RW 02  
2. Sumadi 04 02  
3. Baidi 04 02  
4. Achmad Marwi 04 02  
5. Surat 04 02  
6. Kasmin 04 02  
7. Romani 04 02  
8. Sarjuni 04 02  
9. Astori 04 02  
10. Samiun 04 02  
11. Rozikin 04 02
Factory's Workers

a. In-migrant's Workers

1. Edy S. RT 07 RW 07
2. Harsono 06 01
3. Mulyono 04 04
4. Giyanti 05 02
5. Mustika 02 07
6. Sugiarti 02 07
7. Pawiarto 05 07
8. Aminah 07 07
9. Sumarni 07 05
10. Ny. Richard 04 06
11. Sukarjo 05 06
12. Suparno 05 06
13. Syaf'i'i 06 01
14. Rachmat 07 08
15. Endang 06 06

b. Local's Workers

1. Thoyibah RT 04 RW 08
2. Wahyuni 04 08
3. Siti Romlah 04 08
4. Sakdullah 01 08
5. H. Imam S. 01 08
6. Tohari 01 08
7. Nur Aziz 01 08
8. Marlina 01 08
9. Sabililah 01 08
10. Fatihah 03 08
11. Herman 03 08
12. Hamidun 03 08
13. Puji Rahayu 06 08
14. Mugiyati 02 08
15. Sakturoh 03 08

Resource persons: Key leaders and lay persons

Research's Instrument Used: Participatory Research and Group Discussion through Regular Community Meeting

The Objectives Achieved: to further discuss about the issues, problems and the planning process from people's point of view.

1. RT 03, RW 02 Trimulyo
   Place of Meeting: Resident's home
   Date: August 1, 1992

2. RT 02, RT 01 Trimulyo
   Place of Meeting: Resident's home
   Date: August 26, 1992
3. RT 04, RW 02 Trimulyo  
    Place of Meeting: Resident's home  
    Date: September 20, 1992

4. RT 01, RW 05, Tambakrejo  
    Place of Meeting: Resident's home  
    Date: September 10, 1992
Appendix 2

RESEARCH INSTRUMENT:
FOCUSED INTERVIEWS
OPEN-ENDED INTERVIEWS
FOCUS GROUP DISCUSSION

FOR FIELD RESEARCH ON PLANNING FOR INDUSTRIALIZATION
IN CENTRAL JAVA, INDONESIA: THE PROCESS,
THE IMPACTS AND THE ALTERNATIVES

SCHOOL OF COMMUNITY AND REGIONAL PLANNING
THE UNIVERSITY OF BRITISH COLUMBIA
VANCOUVER, B.C
APRIL 1992

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I. Focused Interview for Planners and Decision-Makers:

1. The Background of the Industrial Zones/ Estate Project

1.1 When and by whom (which departments or agencies) was the project initiated?
1.2 What were the objectives of the project?
1.3 How were the objectives formulated?
1.4 Why was the industrial zones/estates; was there any other alternative?
1.5 Where were/are the sources of funding?
1.6 What Departments/agencies were/are involved?
1.7 What were the considerations in taking that location as a project site?

2. The Process of Determining a Project Site

2.1 How was the process of determining a project site carried out?
2.2 What kind of feasibility studies were commissioned and who (consulting firms or research institutes) conducted those studies?
2.3 Who were involved in the planning process?
2.4 Were local people involved in that process?
2.5 Could you describe in detail the process of determining the site?

3. The Process of Project Execution

3.1 How many district and villages were covered by the project?
3.2 Were there any problems at the upper-middle-level of government (municipal and districts) in determining this project?
3.3 How was the coordination with other related agencies conducted?
3.4 How was the compensation decided?
3.5 Was there any public participation carried out?
   • for determining the compensation
   • for impact management
   • for monitoring plan
   what type of public participation, if any, was involved and how was it conducted?
3.6 What were the crucial aspects of project execution?
   • compensation plan
   • other (please specify)

4. Impact Management

4.1 What kind of impact management was promoted/introduced and when (in terms of planning stage i.e., shortly after
feasibility studies were finished, or after the socio-economic impacts had occurred).

4.2 How were impact management and monitoring plans proposed? (through studies by consulting firms and public participation?)

4.3 Were there any evaluation studies after the project was built and after the industries which were located in this zone/estate were operating?

II. Focused Interview for Local Officials (District and Village Officials)

1. When and from whom did you first find out that this area has been designated as an industrial zone?
2. Could you elaborate in detail about your understanding of industrial zone/industrial estate (how wide is it, what area is covered, etc.)?
3. In what way (process) were you involved in the planning process?
4. Do you agree with the government decision regarding the industrial zone in this area? If so, why?
5. In your view, what were the weaknesses of the planning process of the industrial zone?
6. What are the current problems of industrial activities in your area?
   • environmental impact (specify)
   • land compensation
   • social impact (specify)
   • economic impact (specify)
7. Have any of the problems been reported to the responsible government agencies? If so, how did they respond? If not, why?
8. Are you aware of other developments going on in your area such as Ring Road, an Industrial Bonded zone, other industrial estates? If so, how far do you know about those projects? If not, why?
9. What are your ideas to deal with the current problems of industrial activities such as:
   • pollution?
   • economic and social impacts?
10. Given this experience, what are your ideas to improve the planning process of industrial development?
III. Open-Ended Interview for Local People and Local Leaders

Note: As mentioned in the research proposal, the data regarding socio-economic and environmental impacts was gathered from the result of studies conducted by research institutes or consulting firms. This open-ended interview aims at complementing that data and verifying some key issues.

1. What were your perceptions about the project (industrial zone/ estate) before it was built in 1984?
2. After several years of project operation, what do you think of the project, in terms of the advantages and the disadvantages for local people?
3. What do you think of compensation measures?
4. What are your perceptions about impact management?
5. What are your ideas for improving the process on determining the project?
   - site selection?
   - compensation?
   - impact management?
6. What kind of pollution, if any, affects your neighbourhood?
7. Where (from which factory) does the pollution come from?
8. What time does it usually occur?
9. Who are being affected and in what way?
10. Has the pollution been handled or reported? If so, what institution or agencies are dealing with it?

IV. Focus Group Discussion

Focus Group Discussions will be administered to local leaders. The aim is to get local leaders' views on how the process went, how to deal with the current problems and how to improve the planning process. Certain questions to stimulate discussions will be raised. They include:

1. What was your personal experience regarding the project, i.e. the process of determining the site?
   - compensation?
   - impact management?
2. Did people (lay persons) come to you and request your advice/considerations regarding what to do?
3. If they did so, what did you do with these requests?
4. How did you take a position between peoples' interests and project proponent interests?
5. What do you think of the process of compensation and impact management?
6. What do you think of the pollution and other environmental problems currently occur such as:
   - water pollution?
   - odours?
   - lack of clean water?
   - air pollution?
   - noise?
7. What do you propose to improve the planning process of industrial zone?
V. Open-Ended Questions Addressed to "Tambak" Owners

Respondent Identity

Name (for recheck only): 
Address: RT: RW: Village: 
Length of stay in this neighbourhood: 

1. When did you start working in "tambak"?
2. Why did you choose this job?
   • family inheritance
   • skill
   • other (please specify)
3. How many workers do you employ?
4. Where (the place of origin) do the workers come from?
5. How often per year do you harvest the tambak?
6. How was the harvest over the last five years?
7. If there were any significant differences from year to year, why did it happen?
8. Did you sell (part or all) your tambak to factory owners or industrial estate owners?
9. If so, how did you spend your tambak compensation?
10. If you spent part or all of your compensation for buying tambak in another place, how is the new tambak compared to the tambak you sold (cheaper, better, etc.)?
11. If you were selling your former tambak now, would it still be profitable and/ or could you reinvest tambak of equivalent price and value elsewhere?
12. How did/do industrial activities affect the tambak production?
13. Was there any environmental pollution harming the tambak? If so, when did it happen and how did it affect the tambak?
14. What do you think of this area? Should it be continued as location for the industries, stop them or can industries and tambak exist together with certain conditions?
VI. Open-Ended Questions Addressed to "Sawah" Owners

Respondent Identity

Name (for recheck only) : 
Address : RT: RW: Village: 
Length of stay in this neighbourhood : 

1. Why did you farm (sawah)?
   - family inheritance
   - skill
   - other (specify)
2. How many workers did you employ?
3. Where did they come from?
4. When and to whom did you sell your sawah?
5. What was the process of that transaction? (direct or through middle men, how much was the price per m2, etc.)
6. How did you spend your sawah compensation?
7. If you spent part or all of your compensation to buy sawah elsewhere, how is the new sawah (cheaper, better)?
8. After you sold your sawah, what new jobs did your former worker find and where?
9. As you know, all sawah have gone and industries have been growing. Do you like the way your area has been developed? If so, why? If not, why?
VII. Open Ended Questions Addressed to Gleaners

Respondent Identity:

Name (for recheck only):
Address:RT: RW: Village:
Family size:

1. Why do you do gleaning?
2. When did you start doing gleaning?
3. Is this job (work) available throughout the year?
4. If there has been change in terms of the frequency of gleaning, could you describe the change, why and when it started?
5. If there is change in terms of the frequency of gleaning, how much did you earn (for each gleaning) before and after the change?
6. What do you think of the new tambak owners (factory owners and industrial estate investors)? Do they allow you to do gleaning?
7. What jobs would you prefer when all tambak are replaced with industries and there is no chance to glean?
VIII. Open Ended Questions for Local Workers

Respondent Identity:

Name (for recheck only) : 
Address : RT: RW: Village: 
Marital Status : S/M
Number of children and dependents :
Education Attainment :

1. In which factory are you currently working?
2. How long have you been working in that factory?
3. Could you tell me the process of getting employment in that factory?
4. Did you have previous work experience? If so, where and for how long?
5. How much do you earn (per day, per week or per month)?
6. In addition to basic salary, do you also receive other allowances such as meals, transport and other? If so, how much?
7. As an employee, do you also receive social and health insurance? If so, what kind?
8. How much do you contribute to the family income?
9. What are the good things and the bad things about working in the factory?
IX. Open Ended Questions for In-migrant Workers

Respondent Identity:

Name (for recheck only) :
Place of Stay : RT: RW: Village:
Marital Status : S/M
Number of children and dependents :
Education Attainment :
Place of Origin :

1. In which factory are you currently working?
2. How long have you been working in that factory?
3. Could you tell me the process of getting employment in that factory?
4. Did you have previous work experience? If so, where and for how long?
5. How much do you earn (per day, per week or per month)?
6. In addition to basic salary, do you also receive other allowances such as meals, transport and other? If so, how much?
7. As an employee, do you also receive social and health insurance? If so, what kind?
8. How much do you contribute to the family income?
9. What are the good things and the bad things about working in the factory?
10. What are the good things and bad things about the place where you stay?
Appendix 3
The Structure of Central Government of Indonesia

People's Consultative Assembly
(Majelis Permusyawaratan Rakyat - MPR)

Supreme Court Supreme Audit Body President People Representative Council Supreme Advisor Council
(Mahkamah Agung) (Badan Pemeriksa Keuangan) (Dewan Perwakilan Rakyat) (Dewan Pertimbangan Agung)

Vice President

Central Government Ministers Non-Department Agencies, e.g

Central Government Departments Civil Service Administrative Board
(Badan Administrasi Kepegawaian Negara)

Provincial Government-Governors Central Bureau of Statistics
(Biro Pusat Statistik)

Regency Heads/ Mayors National Development Planning Board
(Badan Perencanaan Pembangunan Nasional)

Distric Heads Institute of Science
(Lembaga Ilmu Pengetahuan Indonesia)

Village Heads State Logistic Board
(Badan Urusan Logistik)

State Ministry for Population and National Family Planning Coordinating Board
(Menteri Negara Kependudukan dan Badan Koordinasi Keluarga Berencana Nasional)

State Ministry for Environment
(Menteri Negara Lingkungan Hidup)

### Appendix 4

List of Industries located in Genuk Industrial Zone:

<table>
<thead>
<tr>
<th>No</th>
<th>Factories</th>
<th>Product / Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>P.T Central Java Marine Product:</td>
<td>frozen shrimp</td>
</tr>
<tr>
<td>2.</td>
<td>P.T Kongo Indonesia:</td>
<td>furniture</td>
</tr>
<tr>
<td>3.</td>
<td>P.T Flototto:</td>
<td>wood processing</td>
</tr>
<tr>
<td>4.</td>
<td>P.T Tensindo Young Sport:</td>
<td>sport tools</td>
</tr>
<tr>
<td>5.</td>
<td>P.T Dong Ill Indonesia:</td>
<td>shoe</td>
</tr>
<tr>
<td>6.</td>
<td>P.T Semarang Packaging Industry</td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>P.T Tirto Aryo Kencono:</td>
<td>ice</td>
</tr>
<tr>
<td>8.</td>
<td>P.T Mascom Graphy:</td>
<td>printing and publishing</td>
</tr>
<tr>
<td>9.</td>
<td>P.T Proteina Prima:</td>
<td>compound feed</td>
</tr>
<tr>
<td>10.</td>
<td>P.T Anawil</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>P.T Tanah Makmur:</td>
<td>factories building</td>
</tr>
<tr>
<td>12.</td>
<td>P.T Sandi Furni:</td>
<td>rattan industry</td>
</tr>
<tr>
<td>13.</td>
<td>P.T Tensindo Sejati</td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>P.T Java Mukti:</td>
<td></td>
</tr>
<tr>
<td>15.</td>
<td>P.T Intracom Sakti</td>
<td></td>
</tr>
<tr>
<td>16.</td>
<td>P.T Mandiri Andal Guna</td>
<td></td>
</tr>
<tr>
<td>17.</td>
<td>P.T Merdeka Surya Sakti:</td>
<td>Terboyo Megah Industrial Estate</td>
</tr>
<tr>
<td>18.</td>
<td>P.T Harapan Wibawa Mukti:</td>
<td>polyester film</td>
</tr>
<tr>
<td>19.</td>
<td>P.T Sama Mina:</td>
<td>Shrimp feed</td>
</tr>
<tr>
<td>20.</td>
<td>P.T Merdeka Wirastama</td>
<td>Terboyo Industrial Park</td>
</tr>
<tr>
<td>22.</td>
<td>P.T Tempo</td>
<td></td>
</tr>
<tr>
<td>23.</td>
<td>Si Bunga Matahari:</td>
<td>cigarette package</td>
</tr>
<tr>
<td>24.</td>
<td>Handayani</td>
<td></td>
</tr>
<tr>
<td>25.</td>
<td>P.T megah Jaya Lestari Prima</td>
<td></td>
</tr>
<tr>
<td>26.</td>
<td>P.T Dwipa Indonesia Dewa Gopta</td>
<td></td>
</tr>
<tr>
<td>27.</td>
<td>P.T Prasojo</td>
<td></td>
</tr>
<tr>
<td>28.</td>
<td>P.T Makmur Graha</td>
<td></td>
</tr>
<tr>
<td>29.</td>
<td>P.T Rodeo:</td>
<td>Knitting and Garment industries</td>
</tr>
<tr>
<td>30.</td>
<td>P.T Anugerah Pradipta</td>
<td>Ice</td>
</tr>
<tr>
<td>31.</td>
<td>Tirta Kencana:</td>
<td>Cold storage</td>
</tr>
<tr>
<td>32.</td>
<td>Mina Baruna:</td>
<td>Transportation</td>
</tr>
<tr>
<td>33.</td>
<td>Remaja:</td>
<td></td>
</tr>
<tr>
<td>34.</td>
<td>P.T SMP</td>
<td>Transportation</td>
</tr>
<tr>
<td>35.</td>
<td>P.T Rimba Cendana Industri</td>
<td></td>
</tr>
<tr>
<td>36.</td>
<td>P.T Janico Raya</td>
<td>Timber</td>
</tr>
<tr>
<td>37.</td>
<td>C.V Kapuas Raya:</td>
<td></td>
</tr>
<tr>
<td>38.</td>
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<td>42.</td>
<td>P.T Mustika Sumber Agung</td>
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<td>P.T Nasmoco</td>
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<td>P.T Indo Marco</td>
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Number of Factories located in Industrial Estates:

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Other Industrial estates outside Genuk Industrial Zone:

1. P.T Indo Perkasa Usaha : Industrial Estate
2. P.T Semarang Industrial estate : -ditto-

Source: Field Research, 1992
Appendix 5

Related Agencies Involved in Assessing the Industrial Estates in Genuk:
1. Vice Governor I, supervisor
2. Assistant Province Secretary II, coordinator
3. The Head of the National Land Agency, chair of the team
4. Provincial Development Planning Board, vice chair
5. The Head of Bureau for Production Development, secretary 1
6. Provincial Investment Coordinating Board, secretary 2
7. Provincial Department of Industry, vice chair
8. Municipal Development Planning Board, member
9. Provincial Department of Public Works, member
10. Agricultural Service, member
11. Plantation Service, member
12. Provincial Department of Transportation, member
13. Department of Public Works Bina Marga, member
14. Provincial Department of Communication, Post and Tourism, member
15. Electric State Firm, member
16. Provincial Department of Forestry, member
17. Community Service of Diponegoro University, member
18. Department of Public Works Hydro section, member
19. Bureau for Population and Environment, member
21. Provincial Mining Department, member

Source: Field Research, 1992
Appendix 6

Pictures of the Site
Factories in the Genuk Industrial Zone

Source: Field Research, 1992
Factories in the Industrial Estate

Source: Field Research, 1992
Tambaks which have been squeezed by factories

Source: Field Research, 1992
Water pollution in front of factories

Source: Field Research, 1992
Commuting Workers

Source: Field Research, 1992
Community Meeting at the Neighbourhood Association

Source: Field Research, 1992
Small (Cottage) Industries in Old Bugangan

Source: Field Research, 1992