Preliminary Study

# The University (Engineering Faculty), Industrial And Local Government Linkage in Indonesia

## Chapter 1 INTRODUCTION

### 1.1 THE BACKGROUND AND OBJECTIVES

The effective tripartite linkage program among universities, industries and local government is a key strategy for developments of both Small and Medium Enterprises (SMEs) and universities in Indonesia. Strong linkages between local universities and local SMEs together with local governments can provide opportunities for SMEs to acquire capable human resources and technological know-how as well as for universities to build a firm bridge with the business world and creation of persistent regional development.

SMEs have been a core element of overall Indonesian economy, providing links to development especially in the regional development. If we ellaborate the GDP structure (average for year 2000 -2003, as presented below), it is clear that SMEs are a driving force of Indonesian economy. Large corporations play its majority role in three business sectors, i.e. Mining/ Drilling; Processing Industry; and Electricity, Gas and Water Supply, which represent capital intensive sectors. Yet, the economic pillar of Indonesia is heavily dependent on SMEs which represents almost 55.76% of GDP; or if we exclude the Mining and Gas sector, it will represent 63.40%

*Table 1.1.*
**GDP Structure Average**
**Year 2000 -2003 (percentages)**

| No. | Business Sector | 2000 - 2003 average | | | |
|---|---|---|---|---|---|
| | | Small | Medium | Big | Total |
| 1 | Agriculture, Lifestock, Plantation, Forestry & Fishery | 85.74 | 9.09 | 5.17 | 100.00 |
| 2 | Mining and Drilling | 6.73 | 2.96 | 90.31 | 100.00 |
| 3. | Processing Industry | 15.14 | 12.98 | 71.88 | 100.00 |
| 4 | Electricity, Gas, and Water | 0.52 | 6.80 | 92.68 | 100.00 |
| 5 | Building | 43.88 | 22.57 | 33.55 | 100.00 |
| 6 | Trading, Hotel and Restaurant | 75.60 | 20.81 | 3.59 | 100.00 |
| 7 | Transportation and Communication | 36.69 | 26.64 | 36.67 | 100.00 |
| 8 | Finance, rental and Services Corporations | 16.80 | 46.47 | 36.73 | 100.00 |
| 9 | Services | 35.59 | 7.16 | 57.25 | 100.00 |
| | **GDP** | 40.55 | 15.21 | 44.24 | 100.00 |
| | **GDP (excl. Mining and Gas)** | 46.22 | 17.18 | 36.60 | 100.00 |

*Source: DG SMEs and Cooperatives*

However, in the era of increasing global competition and local decentralization policy in Indonesia, SME businesses require more conducive and supporting environment which can strengthen their capacities. Since SMEs in general are lack of management resources, they are encountering various constraints such as capital shortage, insufficient marketing and production know-how, as the figure below illustrates. Therefore, it must be recognized that SME businesses cannot accomplish such vision without regional supports. SME development must be in line with local development, as noted in Indonesia's Ministry of Cooperatives Small and Medium Enterprises (SMOCSME) Draft Strategic Planning 2005-2009 (Renstra), that the development of SME must be accomplished in "a justifiable manner by giving more attention to the regional

development. It also strongly addresses that development of an incubator for business and technology managed by experts support the development of SME in Renstra for "the development of entrepreneurship and SMEs that have competitive advantages with the purpose to improve entrepreneurship behaviors and to increase the competitiveness of SMEs".

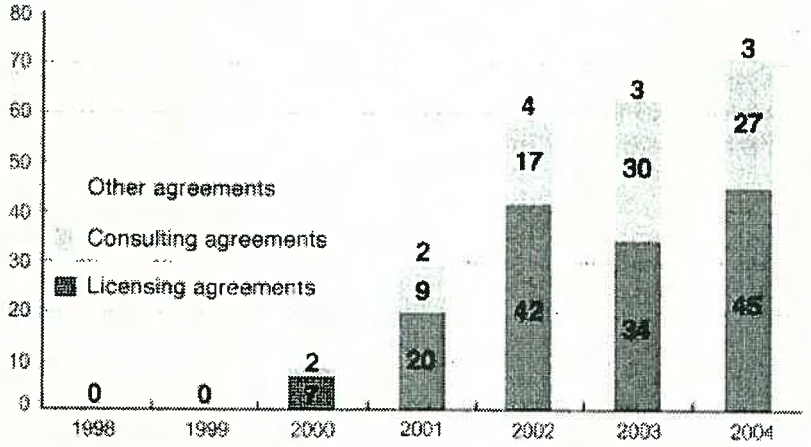
The strong linkage between local universities and SMEs can also constitute advantages for universities and the region as a whole. The Indonesian Government has recognized the potential of such industry-university cooperation as indispensable to facilitate further development of universities as well as to connect universities, particularly human resources, tightly with the business world. As noted in Minister of National Education for Indonesia's National Development Program 2000-2004 (Propenas), national universities in Indonesia aim "to increase and improve cooperation by higher education institutes to support development of small industries" and "to implement collaboration with industries to increase capacities in terms of knowledge and technologies". Propenas also highlights that these visions are necessary to accomplish goals of autonomous regional development of universities.

In Indonesia some works have been done, for example, through the Incubator Program initiated by UNDP (United Nations Development Program) which was introduced into Indonesia in 1992 with SMOCSME as the Indonesian counterpart. Part of its objectives addresses the aims to build networking between government, private companies and universities and to make full utility of university facilities as training centers, research centers and human resource development centers for SME development. Local national universities have already joined, including Atma Jaya University (Jakarta), Bogor Agricultural University (Bogor), Bandung Technological Institute (Bandung) and Gadjah Mada University (Yogjakarta). However, as it has been pointed out in the ongoing ADB Technical Assistance on Provincial SME Development Project,[1] universities have not played a significant role in upgrading SME technology or incubation due to the limited number of SMEs linked with the universities.

The concept of industry-university is also widely recognized in Japan. Japan is one of the countries which recently have actively been implementing many forms of Industry-university collaboration. For instance, since the enforcement of Law on Promotion of Technology Licensing Organization (so called "TLO Law") in 1998, more than 40 universities have established TLO in order to enhance technical transfer from universities to industries. TLO not only intermediates technical transfer by using patent rights from universities but also attempts to match between university's technical seeds and industry's needs. For example, the Center for Advanced Science Technology Incubation (CASTI) which was established by University Tokyo in 1998, handled 257 patents and 75 commercial agreements with value of JPY 2,491 million in 1994.[2]

[1] Midterm Report, ADB TA 4281-INO: Provincial SME Development
[2] See CASTI website (http://www.casti.co.jp/english/about/performance.html)

***Chart 1.1.***
***Trend of Number of Agreements with Corporations included by CASTI***




*Source: http://www.casti.co.jp/english/about/performance.html*

As seen in the Japanese good practice, industry-university collaboration and linkage is considered important for both industrial and university world based on complementarities. However, it also must be recognized that Japanese cases cannot be applied easily to the context of Indonesia. Especially, in times of decentralization, autonomous regional development has been considered difficult, leaving cities outside the Jakarta City slowly-developed. In the Incubator Program mentioned above, SMOCSME addressed that lack of sufficient resource on know-how and finance had limited their activities. Especially in times of governmental decentralization in Indonesia, universities outside Java Island tend to face more of such problems, unable to facilitate strong linkage between local universities, local industrial development and local government.

In order to strengthen such linkages, Japan International Cooperation Agency (JICA) has decided to conduct a baseline study to provide road map to identify problems, goals, resources, and required support in developing cooperation between universities, industries and local governments. The Study concerning linkages with Universities, Industries and Local Governments in Indonesia (hereinafter referred to as "the Study") mainly focuses on local universities outside Java Island and analyzes potential of each university as a strong linkage builder. The universities include, Gadjah Mada University in Yogjakarta (UGM), Andalas University in Padang (UNAND), Mataram University in Lombok (UNRAM), National University of Makassar in Makassar (UNM), Nusa Cendana University in Kupang (UNDANA) and Hasanuddin University in Ujung Pandang (UNHAS). These national universities, located outside of the Jakarta City, will be fully examined for their potentials in building full-scale and effectively strong linkages between universities, industry and also local government and creates an environment conducive of business in which all three parties taken on proactive roles as key participants of its own.

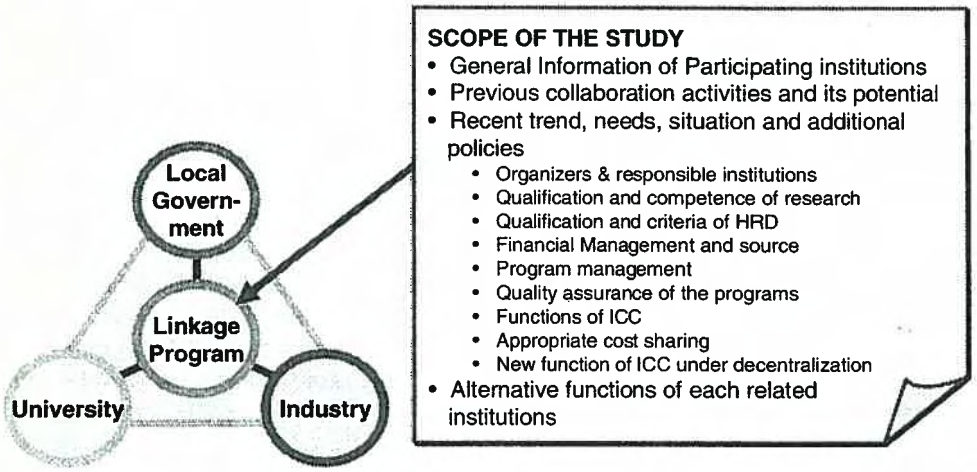
The general objective of this preliminary study is a design to provide a road map for the JICA's future intervention strategy for strengthening the linkages between universities, industries and local governments. The specific objectives are:

(1) Identifying current condition of target area and universities;
(2) Identifying various studies made on cooperation/ collaboration between universities, industries and local governments to develop their competitiveness;
(3) Identifying various factors that affect the development of collaboration between universities, industries and local governments and analyzing the impacts of those factors on collaboration;
(4) Recommending necessary actions and effective mechanism, and designing the new roles of each responsible institute

## 1.2 THE SCOPE AND EXPECTED OUTPUT

The study covers through examination of the role of universities as source of knowledge and technological generating activities for industries (in particular SME development) where local governments also take initiative for implementing certain program in the various types of linkage programs. The following *Chart 3* represents the brief flow on linkages and scopes of this study.

***Chart 1.2. Scope of the Study***




The scope of the linkage programs in this Study can be basically classified into these three components. However, given short time frame, the focus of this study, special emphasis should be given to the component 1 (university) as shown in the below Box 1.

**Box 1. Components of Studies**

1. Universities - Industry/SMEs (Technology and HR)
   - Business Incubator;
   - Research and Development for SME's Empowerment;
     - Technological generating
     - Human Research Development (Training, etc)
     - Patent (IPR) and standardization support
2. Universities to Industry/SMEs (Management and Marketing)
   - Input provision and output
   - Scope of market and market information
   - Knowledge and technological change
3. Local Governments – Industry/SMEs
   - Capacity building for planning and implementing of industry and SMEs development strategy;
   - Technical Assistant in preparing industry and SMEs development strategy;
   - Technical assistant in installing/developing one stop services licensing for trade, industry and investment

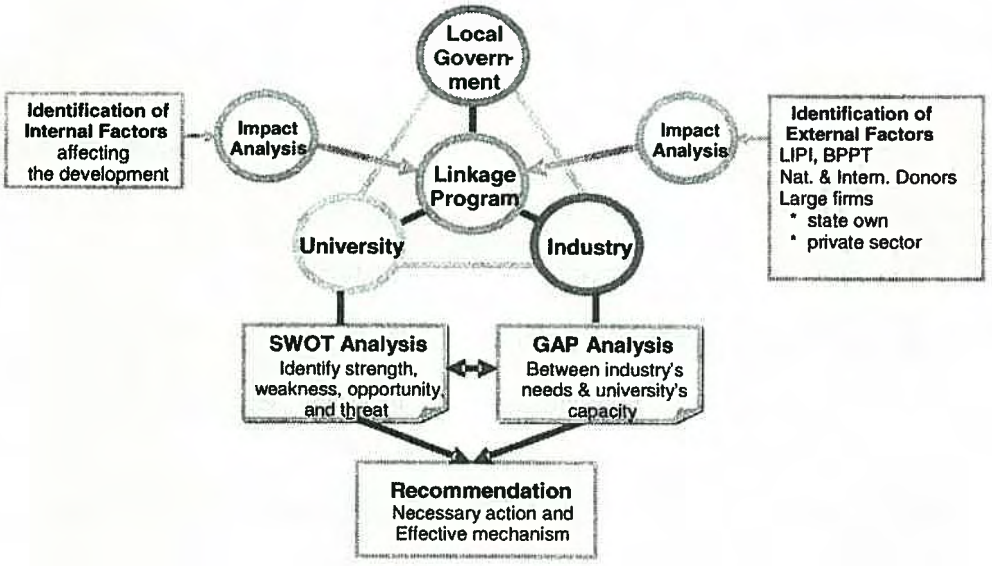
## 1.3 THE FRAMEWORK OF ANALYSIS

The framework of linkage programs is started to assume that university plays a major important role for industrial development through R&D for technological generating activities. However, the leadership for directing social-economic change in any local and regional economy is

expected lead by national and local government which consists of: Bupati (Regent), Walikota (Major), and Gubernur (Governor). The linkages of the university or engineering faculty with local government and industries (SMEs) are constructed based on: (1) its major institutional function, (2) strength and weakness in the linkages program, and (3) the basic social and economic incentive for developing any particular linkage program.

The analysis is structured into a relationship triangle between university-industrial business community (SMEs) and local government. These three players are playing a critical role in the local economic development, especially in the local industrial development. The six universities under the study are focused on the performance Engineering Faculty (EF) interaction with the industrial sector, i.e. represented by SMEs and with local government. The framework and flow of analysis is illustrated in the following, *Chart 1.4.*

***Chart 1.3.***
***The Framework of Analysis Linkage Programs***




The following are a brief explanation on how the three major institutions in Chart 4 are analyzed:

### 1.3.1. Three Basic Function of University

The outreach of universities on the necessity to develop linkage program was primarily not so much derived from demand sides, but rather it is a supply driven program. All, kind of linkages of university with industrial (SMEs) community or university with local government was primarily induced by "Three Dharma Perguruan Tinggi" (three basic university mission), i.e. *First*, Education (Pendidikan), *Second*, Research and Development (Penelitian) and *Third*, Developing Extension Work (Pengabdian Masyarakat). Most of the universities shows have a strong program emphasis on education programs but not on the research and development (R&D) and extension works. Universities fiscal expenditure shows about average 80-90% budget spent on education program and the rest goes to R&D and extension works.

Due to limited budget, most of the universities tried as hard as possible to involve the teaching staff, students and university staff in organizing and doing some research or extension work within different faculties and departments. All of these R&D and extension work activities were primarily designed to match the objective to increase research budget, improving teaching staff in lieu with promoting individual academic careers as it will be recorded in the university's

statute. Consequently, there is always effort made by universities to make the "three basic principles (mission)" of universities are in the well balance in the academic careers of teaching staff. Thus, there is always a strong incentive shared by universities and teaching staff on outreach program of which not only to conduct educational program but also combined with certain credit point on research and extension works. This institutional incentive system plays an important role and it is a compulsory for individual to academic staff and the universities to build their academic careers, moving from lower to upper level of professorship or achieving certain salary level.

The role as a player on the supply side or as desire of universities working with research and extension works is reflected through developing various centers, such as SMEs centers, incubators, agriculture development centers and inter-national corporations. In short, three basic principle of university, are:

- Education and Training.
- Research and Development for basic on research and technological application.
- Extension work which basically for technological implementation for local community, as in this case SMEs development.

### 1.3.2. Local Government

The role of local government is categorized into three different, but equally, important task: as law makers (regulating), licenses issuer as economic agent which plays important role in budget decision (licensing) and as policy coordination at different government activities (coordinating). The terminology of local government should conclude various the agencies such as trade and industries office (dinas perindustrian dan perdagangan), agriculture office (dinas pertanian), animal husbandry office (dinas peternakan), etc. The specific function of local government will be classified into two specific roles:

- Regulator established local regulation such as licensing, public infrastructure development and promoting investment. This function is needed for managing the growth of economic (industrial) sector.
- As economic agent, the local government through its spending power impacted the local economy.

### 1.3.3. SMEs Development

SMEs as a major component of the private sector play significant role in local economic growth, employment creation and poverty reduction. Given that those specific roles of the three different institutions investigated, the linkage programs will be analyzed by using the SWOT and gap analysis. The SWOT analysis will be explained later separately, while Gap Analysis (GA) will be conducted on how the expectation and realization of linkages programs (if any) between engineering faculty and SMEs. The role of university on R&D for technological generating activities could (or could not) meet to the program needed by SMEs, such as:

(1) generating new product technology,
(2) improving existing SMEs products,
(3) improving market expansion,
(4) Intellectual Property Rights (IPR) and
(5) products standardization.

The external and internal factor affecting the development will be identified in brief. For example, the role of LIPI, BPPT, private sectors will be identified to clarify if these external factors have direct link (impact) with the university for the purpose of SMEs development. The identification of the role of external institutions and collaboration in term of budget and assistance will be clarified whether it is directly or through university for SMEs development. For this purpose,

the analysis is also directed on how the local government plays its role to support or make the collaboration with university for SMEs development.

### 1.3.4. Identify Internal Factors on Research and Development

First, to some extent, the consultants identified factors for research infrastructure of target six universities. Given the time constraints of field survey, the consultants will make library research as much as possible before conducting field survey so that the survey can be implemented most efficient manner.

The basic fact finding of the target universities and engineering faculties, the emphasis will be put on the research of existing linkage programs with private sector and their performance. The performance of linkage programs will be assessed by analyzing the outputs, for example, number of supported companies, number of research and licensing agreements, number of patents acquired, income generated by linkage programs, etc. Later in the field survey, the impact of the existing linkage programs will be also assessed by conducting interview survey to SME recipients of these linkage programs to find out how the program have brought the benefits or costs to them.

In making external impact analysis, the consultants will collect significant information from government institutional and private sector who has any collaboration in each region whereas directly or indirectly affects linkage programs. Among other things, the consultant team will also present the economic indicators concluding, population, population below the poverty line, nutrition status, unemployment rate, per capita GRDP, inflation, literacy ratio, school and university enrollemnt ratio, etc.

### 1.3.5. Identify External Economic Factors

For the selected provinces, as being a location for each universities, their economic indicators show different achievement. The unemployment rate of DI Yogjakarta, West Nusa Tenggara, and East Nusa Tenggara are lower than nation's average unemployment rate. On the other hand, the unemployment rate of West Sumatra and South Sulawesi are much higher than the nation's average unemployment rate. However, the GRDP growth of each provinces shows a positive and to some extent exceeds the nation's average GRDP growth rate.

***Table 1.2.***
**Selected Indicators of Indonesia**

| | Province | Population - Mid 2004 | | Unemployment Rate | | GRDP 2003 (in thousand) | | GRDP Contribution | | Inflation |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Total (in thousand) | Share | Mid 2004 | Hi/(Lo) | /cap | Growth | Agriculture | Industry | Mid 2004 |
| 1 | West Sumatera | 4,538.20 | 2.07% | 12.74% | 2.88% | 7,409.20 | 4.48% | 23.57% | 12.29% | 6.98% |
| 2 | DI Yogyakarta | 3,181.20 | 1.45% | 6.26% | -3.60% | 5,916.40 | 4.09% | 16.54% | 14.46% | 6.95% |
| 3 | West Nusa Tenggara | 4,135.50 | 1.89% | 7.48% | -2.38% | 3,959.20 | 3.10% | 24.39% | 4.28% | 6.61% |
| 4 | East Nusa Tenggara | 4,123.40 | 1.88% | 4.48% | -5.38% | 2,402.30 | 5.87% | 39.24% | 1.89% | 8.28% |
| 5 | South Sulawesi | 8,639.80 | 3.94% | 15.93% | 6.07% | 4,772.00 | 5.39% | 35.82% | 11.46% | 6.47% |
| | | | | | | | | | | |
| | Other Provinces | 194,523.70 | 88.77% | 9.96% | 0.10% | 8,986.80 | 4.00% | 14.31% | 27.80% | 6.27% |
| | Indonesia | 219,141.80 | 100% | 9.86% | 9.86% | 8,304.30 | 4.10% | 16.58% | 24.65% | 6.40% |

*Source: BPS Indonesia*

In short, the economic development of the country is still on progress and needs more participations from national government represented by LIPI, BPPT, local research station manage by central government, large firms or state own companies international donors in supporting R&D and SMEs development. Therefore, it is required to have effective tripartite linkage program between universities, industries, and local government.

### 1.3.6. Identify Potential Industries (Industrial Mapping)

In the era of regional autonomy, each region is expected to develop its unique local industry by nurturing potential companies in particular SMEs. According to the data from BPS in 2002, the manufacturing industry's structure in each target area is varied; however, textile, food and wood related industries are the top three except DI Yogjakarta where non metallic metal products also have major shares. Whereas textile industry represent dominant share in West Nusa Tenggara, wood industry occupies majority share in East Nusa Tenggara.

In identifying potential industries the consultants will analyze industrial structure by examining the following indicators in addition to the above figure that is based on the business units:

- The industry's output share to GDRP;
- The growth ratio of industry output;
- The industry's contribution to employment;
- The grow ratio of industry's employment.

This information will be used to develop a sampling design for industrial components. In this case SMEs were chosen to represent industrial community.

### 1.3.7. Impact Analysis of Existing Linkage Programs

As the above chart shows, SMEs represent 66 to 97% of the target regions, which means the target regional economy's driving force are SMEs. Therefore, the consultants will basically identify the support needs of potential SMEs towards the target universities with respect to research and development activities. When selecting ten SMEs in potential industries, the consultants will consider the following criteria:

- SMEs that have already linkages with universities;
- SMEs that have already linkages with local governments;
- Start-up SMEs that do not have any linkage with universities or local governments.

The consultants will conduct field interview in collaboration with local partners to identify the appropriate SMEs for this survey. In principle, the questionnaire will be delivered at least one day before the interview day.

### 1.3.8. SWOT Analysis for Target Universities

After identifying the baseline condition of the research infrastructure, the consultants will evaluate the internal and external factors that influence the quality of research and development activities of the target universities by using SWOT (Strength, Weakness, Opportunity and Threat) analysis method. In this analysis, all the collected data and information will be realigned in terms of internal capacity (Strength vs. Weakness) and external environment (Opportunity vs. Threat).

Among others, the following indicators can be suggested to assess internal and external factors.

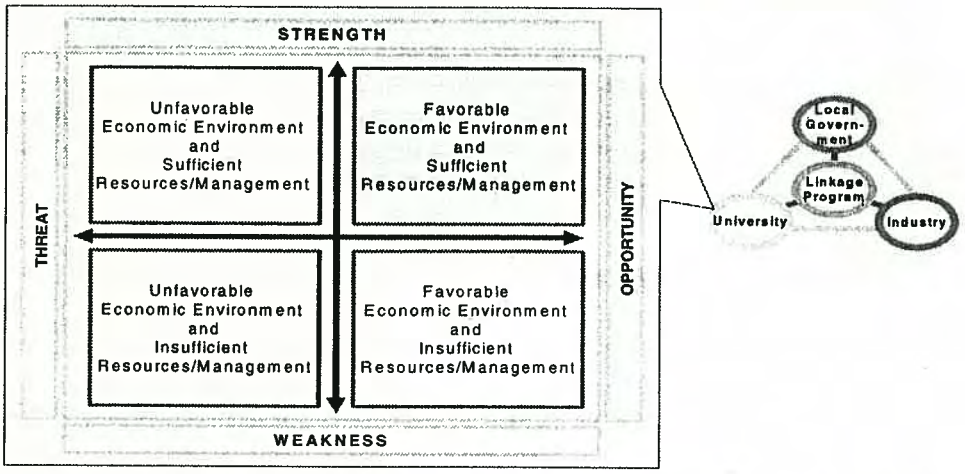
Internal Factors

- Human resource
- Financial resource
- Laboratory resource
- Management system and strategy

External Factors

- Economic trend (national and regional)
- Industrial trend (national and regional)
- State of competition with other institutions

**Chart 1.4.**
***The Image of SWOT Analysis Approach.***



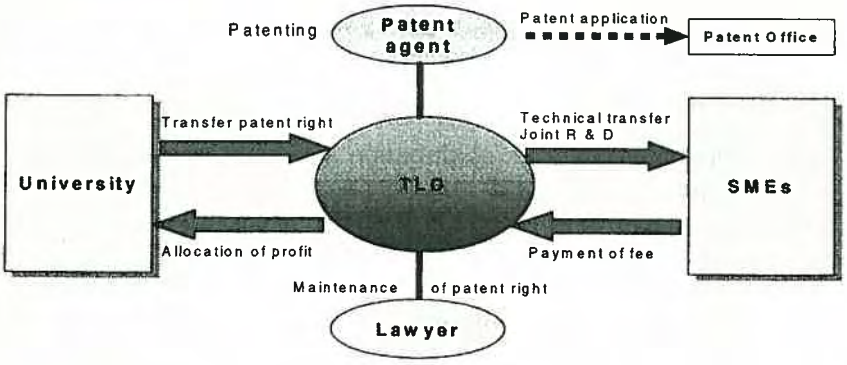

## 1.3.9. Gap Analysis between Industry/SME Needs and University's Capacities

After identifying SME's needs and current capacities of the target universities, the consultants will analyze the gap between the former and the latter. This analysis will be made in order to formulate future JICA's intervention strategy to strengthen linkage scheme by bridging the gap between both institutions. The gap will be analyzed by comparing with the necessary capacities for the universities to fulfill SME's needs and with their current capacities.

## 1.3.10. Recommend Effective Linkage Scheme Among Universities, Industries and Local Governments by Utilizing Bench Marking Domestic and Japanese Experiences (ex. Regional Platform) as well as SWOT and Gap Analysis

The analysis also lead to develop possible effective linkage scheme among universities, industries and local governments and design the new roles of each responsible institute. In this regard, the external factors will take into account the international as well as domestic best practices as benchmarking cases. For example, in Indonesia, ITB, ITS, IPB, UNPAD and University Brawijaya are actively implementing linkage programs, among other universities. In Japan, Center for Advanced Science and Technology Institute (CASTI) of University of Tokyo, has been achieving remarkable accomplishment in transferring technology to SMEs. These best practices will be also studies for making future strategy for strengthening linkage programs in target universities.

***Chart 1.5.***
***Image of TLO (Technology Licensing Organization) in Japan***

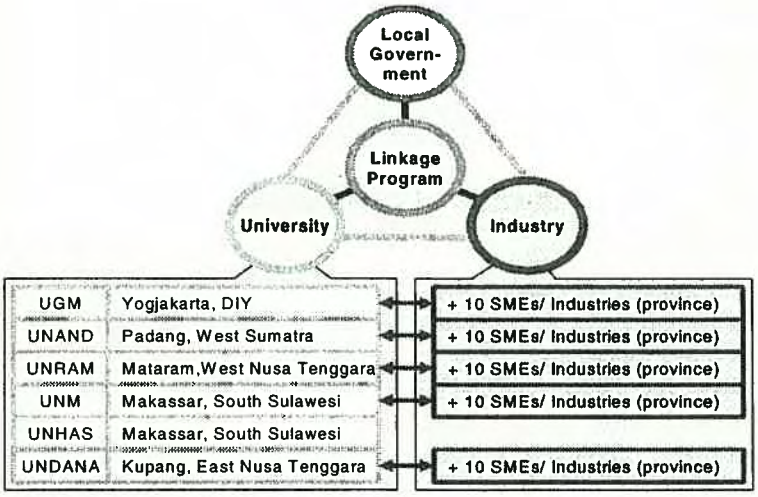



*Source: UFJ Institute Ltd., Issue of the Month, March 2002, p 9*

### 1.4 RESEARCH METHODOLOGY AND SAMPLING DESIGN

The Study mainly targets for universities in outer islands except UGM. The target six universities have been selected by taking into account geographical diversification, level of maturity and capacity of developing collaboration with industry and local governments. The Study also targets for potential SMEs from major industries in each region for identifying their needs. The target number of SMEs should be at least ten in each region. In addition, the Study also targets for five provincial governments where the target universities where located.

***Chart 1.6.***
***The Study Target University***




In addition to the questionnaire developed to gain information from industrial (SMEs) and two set of guideline question for university and local governments were prepared. The ten samples of SMEs were divided to five that have been involved in the linkage programs and the rest for not experience any linkage programs. The in-depth interview with SMEs, local government officials from various department (dinas), faculty of engineers and all centers develop within all faculties were conducted. The necessary secondary data from department of education and universities are assembled to get insight of a specific problem being investigated.

# Chapter 2 REGIONAL ECONOMIC REVIEW AND INDUSTRIAL OUTLOOK

The main objective of this chapter is: ***First***, to show the trend of economic growth and employment in five target provinces and ***Second***, to describe industrial outlook and identify the potential industries in the target regions. The information on economic growth and industrial structures would provide some ideas:

(1) to illustrate the contribution of each economic sector on the local economic development; and
(2) to explore the needs of potential linkage between university function and industrial community development

### 2.1. REGIONAL ECONOMIC REVIEW

Before mentioning about the industrial outlook, two regional economic indicators measured by GDP and employment for five different provinces are presented in the following Table 2.1 and 2.2

***Table 2.1***
***Share of Economic Sector in Total GDP of Five Provinces***

| Prop. | Sector (%) | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Agricul ture | Mining & Oil | Indus tries | Water, gas, electricity | Constr uction | Trade, restaurant & hotel | Transport & Comunictn | Fund, rent of building& comp. services | Servic es |
| DI. Yogjakarta | | | | | | | | | |
| 1993-1996 | 16.23 | 1.43 | 13.34 | 0.53 | 10.40 | 15.48 | 11.41 | 10.41 | 20.77 |
| 1997-1998 | 17.56 | 1.30 | 13.43 | 0.62 | 9.03 | 15.47 | 11.18 | 10.80 | 20.62 |
| 1999-2002 | 16.91 | 1.19 | 13.40 | 0.75 | 8.10 | 16.00 | 12.45 | 10.80 | 20.40 |
| East Nusa Tenggara | | | | | | | | | |
| 1993-1996 | 39.29 | 1.64 | 2.57 | 0.73 | 8.50 | 12.51 | 9.99 | 4.42 | 20.36 |
| 1997-1998 | 37.76 | 1.38 | 2.34 | 0.85 | 7.21 | 13.39 | 12.87 | 4.51 | 19.68 |
| 1999-2002 | 37.07 | 1.24 | 2.38 | 1.00 | 6.35 | 14.18 | 10.75 | 4.19 | 22.84 |
| West Nusa Tenggara | | | | | | | | | |
| 1993-1996 | 37.36 | 3.04 | 4.72 | 0.44 | 8.18 | 15.58 | 9.85 | 3.05 | 17.78 |
| 1997-1998 | 35.59 | 2.99 | 4.85 | 0.51 | 8.21 | 16.59 | 11.45 | 2.97 | 16.84 |
| 1999-2002 | 28.42 | 21.96 | 4.14 | 0.46 | 6.43 | 13.26 | 10.09 | 1.93 | 13.31 |
| West Sumatra | | | | | | | | | |
| 1993-1996 | 21.21 | 6.21 | 15.38 | 1.09 | 6.09 | 16.85 | 11.52 | 5.89 | 15.76 |
| 1997-1998 | 20.69 | 6.80 | 16.09 | 1.80 | 5.16 | 16.44 | 12.09 | 5.28 | 15.64 |
| 1999-2002 | 21.43 | 5.62 | 16.18 | 2.59 | 3.83 | 16.70 | 12.54 | 4.81 | 16.31 |
| South Sulawesi | | | | | | | | | |
| 1993-1996 | 37.16 | 3.44 | 11.83 | 1.05 | 5.84 | 16.07 | 6.23 | 6.24 | 12.13 |
| 1997-1998 | 35.59 | 3.50 | 12.58 | 1.27 | 5.52 | 16.62 | 7.35 | 5.70 | 11.87 |
| 1999-2002 | 34.61 | 4.59 | 12.72 | 1.43 | 4.53 | 17.46 | 8.18 | 4.33 | 12.15 |
| National | | | | | | | | | |
| 1993-1996 | 16.47 | 9.34 | 23.46 | 1.08 | 7.42 | 16.80 | 7.13 | 8.83 | 9.47 |
| 1997-1998 | 15.85 | 9.38 | 25.19 | 1.37 | 7.02 | 16.42 | 7.30 | 8.27 | 9.19 |
| 1999-2003 | 16.41 | 9.53 | 26.22 | 1.71 | 5.93 | 15.95 | 7.67 | 7.06 | 9.52 |

*Notes: Analyzed based on GDP by Provinces in Indonesia, 1993-2002 (Constant Price, 1993)*
*Period 1993-1996: before crisis period*
*Period 1997-1998: crisis period*
*Period 1999-2002: after crisis*

When the country is facing a low economic growth, it is imperative for local governments to actively find the new dynamic source of regional economic growth in the aftermath the Asia Economic Crisis and under decentralization the role of universities and local governments. Given the fact that Indonesia has a large number of unemployment, questions that should be examined is how to promote high potential economic sectors by facilitating investment, employment, and technology transfer. In this regard, investment promotion in labor intensive industries is the key for sustainable development in Indonesia. The recent study on employment using large national data also shows that agriculture sector combined with the SMEs development are the key to the growth and poverty reduction through employment creation.

The data on employment shares presented in *Table 2.2*, which is portrayed into before, during and after economic crisis situation is also showing that there are some interesting progresses. The data of all provinces shows that the role of agriculture sector is still remaining a major economic sector which absorbs the largest employment. The industrial labor force absorbed by economic sector in Yogyakarta is relatively higher as compared to the other four provinces except West Sumatra. This implies that Yogyakarta's economy is more industrialized compared to the others.

***Table 2.2***
***Share of Employment by Sector in Five Provinces***

| Prop. | Sector (%) | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Agriculture | Mining & Oil | Industries | Water, gas, electricity | Construction | Trade, restaurant & hotel | Transport& Comm. | Fund, rent of building comp services | Services | Others |
| DI. Yogjakarta | | | | | | | | | | |
| 1994-1996 | 38.46 | 0.89 | 12.67 | 0.16 | 7.03 | 20.46 | 2.97 | 1.00 | 16.33 | 0.02 |
| 1997-1998 | 34.00 | 0.59 | 13.78 | 0.15 | 5.38 | 21.61 | 3.37 | 0.87 | 20.24 | - |
| 1999-2003 | 35.29 | 0.65 | 13.73 | 0.07 | 6.51 | 22.90 | 2.51 | 0.93 | 17.41 | - |
| East Nusa Tenggara | | | | | | | | | | |
| 1994-1996 | 70.02 | 0.65 | 11.59 | 0.10 | 2.56 | 5.79 | 1.09 | 0.19 | 7.98 | 0.03 |
| 1997-1998 | 67.51 | 0.26 | 10.75 | 0.15 | 2.03 | 7.42 | 1.60 | 0.34 | 9.94 | - |
| 1999-2003 | 71.72 | 0.44 | 8.48 | 0.03 | 2.28 | 6.92 | 1.76 | 0.64 | 7.74 | - |
| West Nusa Tenggara | | | | | | | | | | |
| 1994-1996 | 61.24 | 0.82 | 10.98 | 0.11 | 3.13 | 12.30 | 2.59 | 0.30 | 8.44 | 0.10 |
| 1997-1998 | 48.45 | 2.07 | 12.37 | 0.15 | 4.64 | 16.92 | 4.12 | 0.34 | 10.95 | - |
| 1999-2003 | 51.60 | 5.08 | 7.63 | 0.02 | 4.23 | 16.50 | 4.50 | 0.53 | 9.90 | - |
| West Sumatra | | | | | | | | | | |
| 1994-1996 | 50.88 | 0.85 | 6.15 | 0.16 | 3.41 | 19.56 | 3.29 | 0.38 | 15.18 | 0.13 |
| 1997-1998 | 44.58 | 0.71 | 8.13 | 0.20 | 3.64 | 22.68 | 4.13 | 0.66 | 15.27 | - |
| 1999-2003 | 51.53 | 0.82 | 5.55 | 0.03 | 3.14 | 18.45 | 4.59 | 0.82 | 15.07 | - |
| South Sulawesi | | | | | | | | | | |
| 1994-1996 | 59.43 | 0.32 | 6.44 | 0.22 | 3.44 | 14.32 | 3.53 | 0.54 | 11.70 | 0.06 |
| 1997-1998 | 52.42 | 0.21 | 6.88 | 0.26 | 2.86 | 18.15 | 3.77 | 0.44 | 15.00 | - |
| 1999-2003 | 59.47 | 0.29 | 4.86 | 0.09 | 3.27 | 15.33 | 4.63 | 0.48 | 11.58 | - |
| National | | | | | | | | | | |
| 1994-1996 | 45.08 | 0.90 | 12.89 | 0.21 | 4.38 | 17.91 | 4.36 | 0.78 | 13.40 | 0.09 |
| 1997-1998 | 43.07 | 0.90 | 12.11 | 0.22 | 4.42 | 19.48 | 4.75 | 0.73 | 14.33 | - |
| 1999-2003 | 44.60 | 0.89 | 12.74 | 0.07 | 4.34 | 19.24 | 5.11 | 1.07 | 11.93 | - |

*Note: Analyzed based on Employment in Indonesia, 1994-2003*
*Note: Employment more than 15 years that works a week ago*

## 2.2. *REGIONAL INDUSTRIAL OUTLOOK*

### 2.2.1. Industrial Structure: What is the Target?

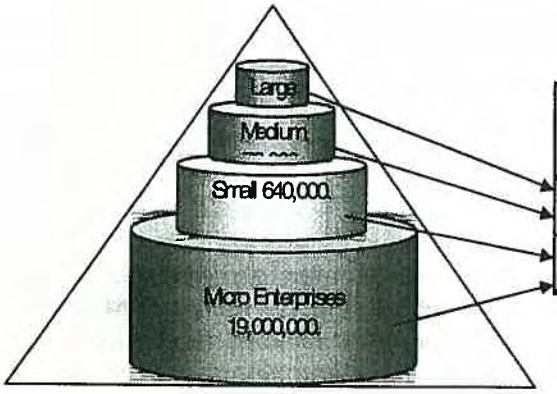
Difficulties in analyzing SME condition and performance are due to different SMEs definition being used. The definition of SMEs are varies and data consistency is hard to come by. They are sometimes defined on the basis of number of employees, capital or sales output. There is not direct correlation between number of employees and gross revenue. Mostly, SMEs are small or household size. Firms of 20 employees or larger begin to play a role in trade related activities; and those with larger than 100 employees, although the number of firms are relatively small, offer the greatest potential for participation in trade and investment expansion. Data on SMEs are drawn from available sources and different definitions occasionally have to be used, depending on the data availability. The smaller share of SMEs in value added compared to employment is due to the lower amount of capital and lower productivity of SMEs as compared to the larger and more capital intensive industries. The SMEs are mostly rural and agricultural based. Some of them involved in local markets oriented manufacturing. In 1986, the SMEs are recorded as an industry sector which is accounted for two thirds of employment and nearly one fifth of output[3]. However, whatever

[3] See interesting discussion John Schilling (2003). The difficulty of getting good data is also due to the fact that Medium scale industries are sometimes grouped with large and sometimes shown separately. Information about

definition is used, it becomes the largest source of employment in Indonesia. In manufacturing industry, SMEs contributed more than 67% of jobs in 1986 and 60% in 1997.

The share in value-added was 18% and 10% in the same years[4]. In this report the adopted definition of SMEs was based on Central Bureau Statistics (CBS). Using this definition, the stylized pyramidal industrial structure based on total establishment for national level is shown in Table 2.3.

***Table 2.3***
***Pyramidal Structure of Enterprises in Indonesia***
***Source: BPS, 1996 and www.depkop.go.id***




| Size of Firms | Total Establishment 1996 (units) | Total Manufactures 1996 (units) | Total Establishment 2001 (units) |
|---|---|---|---|
| Large | 11,000 | 6,500 | 2,095 |
| Medium | 70,000 | 16,000 | 57,743 |
| Smal | 640,000 | | |
| Micro | 19,000,000 (*) | 2,000,000 | 38,000,000 (**) |

*(*) Outside agriculture sector amount of 20 million enterprises*
*(**) Including agriculture sector*

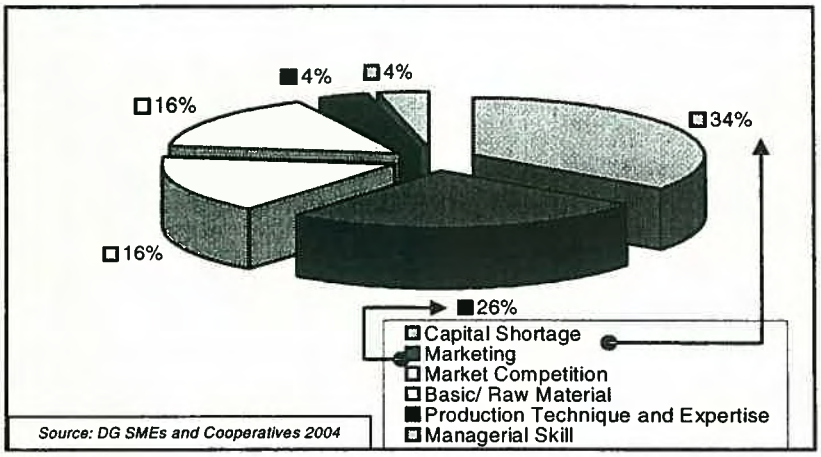
Again, based on the definition Central Bureau Statistic (CBS) on SMEs, the statistics show sharp industrial contrast. The number of players at bottom layers is dominated by small enterprises which employ 9-20 persons and micro enterprises employing 1-9 persons. The easiness to enter and get out of market of small and micro enterprises have established informal economic sector. In the past, the central government tended to treat this informal sector as "social entities" rather than "business entities". Compared with this large bottom layers, the number of medium and large enterprises (20-100 employments for the former, more than 100 employments for the latter) is much smaller.

### 2.2.2. The Problem Facing by SMEs

According to the result of 250 small business conference of "Forum Daerah" (FORDA) one of SMEs association Indonesia[5], the typical of problems faced by small firms for not making profit or enlarging firms on products differentiation are: lack of capital, limited of knowledge and information of market, lack of technological knowledge to improve quality, government bureaucracy, skill and management (entrepreneurship) and availability of raw material at local level[6].

small scale enterprises is often not included in census data, and it is hard to match data from industry and labor market surveys.
[4] They also provide the bulk of jobs in rural areas as most farmers manage their own farms.
[5] One of SMEs Associations in Indonesia that have almost 2,000 members.
[6] See: Aji, 1999, *Have SME Constituencies Truly Participated in Policy Making,* Unpublished Paper Presented on Seminar on SMEs Development in Indonesia.

***Chart 2.1.***
***Problem Encountered by SMEs***




The result of CESS (2000) study also confirms small scale industries generally: (a) lack of capital, (a) lack of market access, (c) lack of professional management, and therefore in most cases they have limited capacity to serve for the local and regional market. Small scale industries were hardly had any linkages for developing for the same or different needed products produced by large-scale firms. Most surveyed firms do not have any clear idea of universities' capability on product developments. This may be caused by inadequate dissemination of information from university side. In order to overcome all of these small industrial problems, policy makers should realize that "outside-assistances" for strengthening role of SMEs in the local economy is needed.

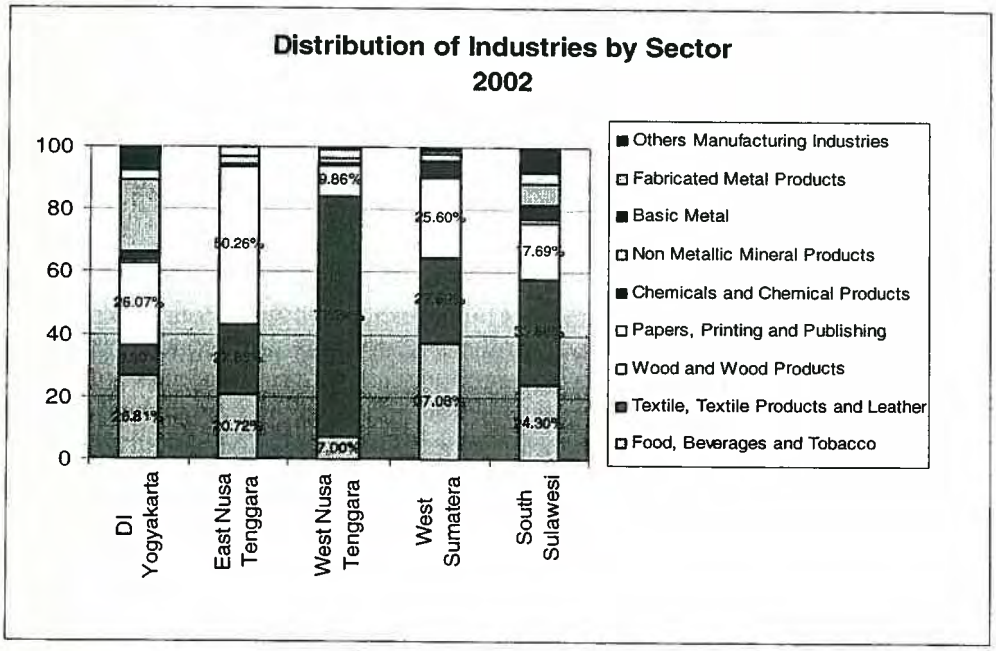
UNIDO (2000) shows the problem of industrial stagnation after economic crisis 1997 is largely caused by: (1) limited export market scope, (2) lack of technology applications, (3) uncertain and limited input supply and (4) weak organizational problems. Given all of these problems, SMEs are urgently required to increase their technical capacity in terms of producing quality products to meet global market needs. In facing for such globalization economy a study of ADB (2001), mentions that the success of SMEs depends on its ability to make effective used of: (1) business network, (2) industrial cluster (for cost cutting means) so that these two business tools could be utilized to overcome size constraints of SMEs.[7] This study also shows the inter firm learning curve, but it does not mention how firms could utilize the resources of local universities for upgrading their technical capacities by getting technical transfer from universities to increase competitiveness.

### 2.2.3. Industrial Distribution by Sectors and Scales

In order to understand the industrial structure of local economy, the following *Chart 2.2*, shows a distribution of industries by sector for five target provinces (where six surveyed universities are located). It shows in general that textile industry, wood and wood product and fabricated metal products are playing an important role in the target provinces. Textile, textile product and leather plays dominant role (77.34%) in West Nusa Tenggara. But the dominant industries in East Nusa Tenggara are wood and wood product (50.26%) and fabricated metal products (37.08%) in West Sumatra. Based on the above mentioned statistic, it can be said the industrialization is still in early stage and mostly remains resource based industries.

[7] Tambunan, Mangara & Wolfgang Hilebrand 2001. Institutional Set Up for SME Policy Design & Implementation, Case Study Japan. ADB.2001.

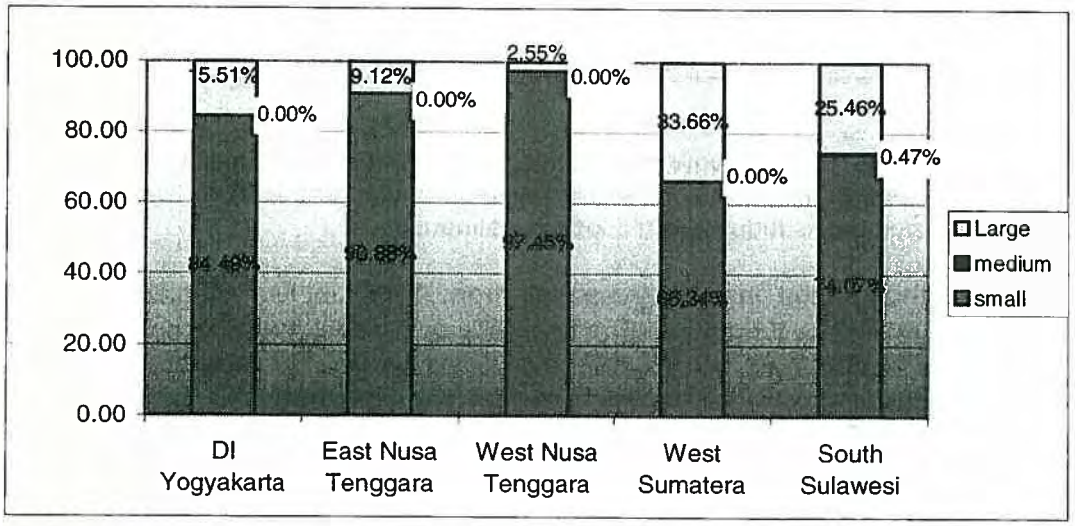
***Chart 2.2***
***Distributions of Industries***




*Source: BPS Website*

The industrial data available for the five provinces are further analyzed by breaking-down into the distribution of industries by scales. The objective is to examine the share of industries by each scale for each province as shown in *Chart 2.3*.

***Chart 2.3***
***Distribution of Industries by Scale 2002***




Source: BPS Website

The *Chart 2.3* shows that the small size industries are dominant in Yogyakarta, West and East Nusa Tenggara economy, but less important in South Sulawesi and West Sumatra Province. Probably, this is because the large cement industries and a coal mining (ombilin) play a significant

role in the West Sumatra economy. Likewise in South Sulawesi there is a large-scale comment industry. Interestingly, all five provinces show the numbers of medium size enterprises are very nominal, which reflects the missing of the middle phenomenon. Therefore, the policy of local government should be directed to provide effective assistances for further enlarging and expanding small industries to medium scale.

### 2.2.4. Provincial Statistic on Number of Small, Medium and Large Establishment by 2 digit ISIC 2002

Most of the industrial structures of the selected provinces are basically focused on the first three categories of 2 digits ISIC, i.e. (a) food, beverages and tobacco, (b) textile, textile products and leather, and (c) wood and wood products. It is clear that the industry of all of selected provinces captured in the survey is classified as traditional industry which requires medium level of technology and labor intensive. Therefore, the survey on SME linkage is targeted to SMEs on those kinds of industries.

#### *Special Region of Yogjakarta (D.I. Yogjakarta)*

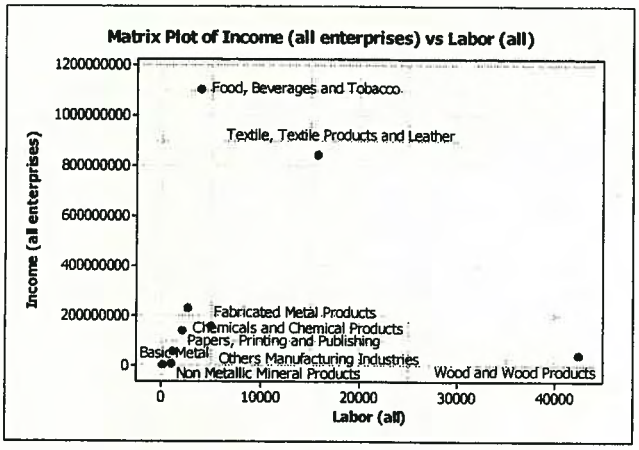
The industry distribution in D.I. Yogjakarta is mainly focused on (a) food, beverages and tobacco, (b) textile, textile products and leather, (c) wood and wood products and (d) Non Metal/ Metallic Mineral Products.

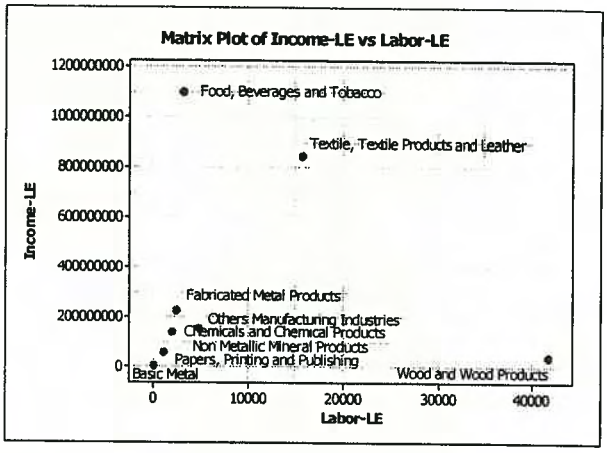
***Table 2.3.1.***
***Number of Small, Medium and large establishment by 2 digits ISIC, 2002***
***DI Yogjakarta***

| ISIC | Kind of Industry | Number of Industry | | | INCOME (Rp.) | | | Employment created | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Small | Medium | Large | Small | Medium | Large | Small | Medium | Large |
| 31 | Food, Beverages and Tobacco | 47,666 | - | 2,384 | 5,233,092,348 | | 1,099,501,832,000 | 625 | | 3,141 |
| 32 | Textile, Textile Products and Leather | 9,440 | - | 8,856 | 1,026,289,800 | | 844,982,263,000 | 94 | | 15,576 |
| 33 | Wood and Wood Products | 46,274 | - | 2,384 | 3,394,325,400 | | 38,491,578,000 | 554 | | 41,747 |
| 34 | Papers, Printing and Publishing | 464 | - | 1,022 | 188,040,000 | | 57,726,115,000 | 5 | | 1,054 |
| 35 | Chemicals and Chemical Products | 155 | - | 5,450 | 270,000,000 | | 138,659,317,000 | 4 | | 1,959 |
| 36 | Non Metallic Mineral Products | 42,869 | - | - | 6,988,530,396 | | | 877 | | |
| 37 | Basic Metal | | | | | | | | | |
| 38 | Fabricated Metal Products | 3,714 | - | 1,362 | 4,614,069,000 | | 224,618,840,000 | 83 | | 2,458 |
| 39 | Others Manufacturing Industries | 7,119 | - | 7,494 | 932,417,400 | | 153,775,517,000 | 87 | | 4,796 |
| | | **157,701** | **-** | **28,952** | **22,646,764,344** | **-** | **2,557,755,462,000** | **2,329** | **-** | **70,731** |

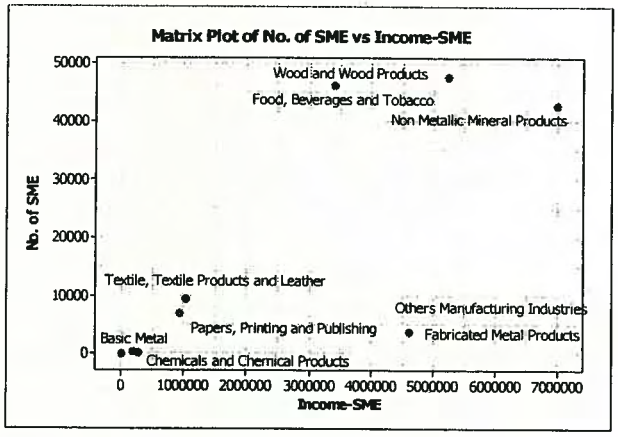
However, the income distribution in the province is mainly generated from (a) food, beverages and tobacco, and (b) textile, textile products and leather. This situation is indicated by the increasing batiks industry and food based industry.

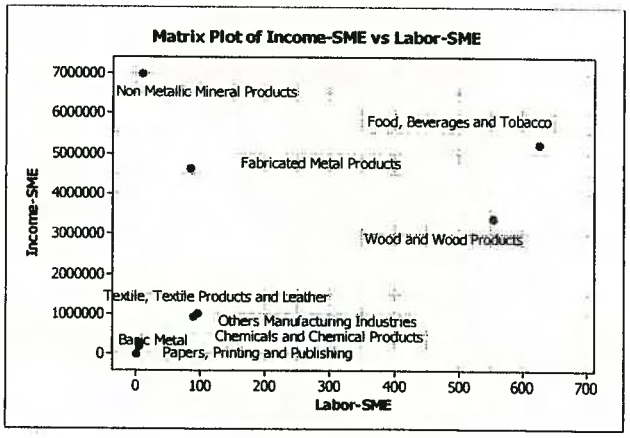
Although the income generated from SMEs in D.I. Yogjakarta exceeds the other selected provinces, it contributed only 0.88% of the total industry in the province. Most of the income generated from the industry in the province was derived from large corporations. As a total, the income was generated from the food/ beverages & tobacco, and textile/ textile product & leather industries, which exceeding Rp. 1.9 trillions in 2002. The figure represents 75.6% of the total income from industry.




The major contribution of Income from SMEs came from SMEs related to non metallic mineral products, food/ beverages/ tobacco, fabricated metal products, wood & wood products, and textile/ textile product and leather. The income generated from the SMEs in those areas was representing approximately 86% of the total SMEs income. On the other hand, the labor absorbed was also ranked as the top compared to other field of business of the SMEs.




The distribution of the industry shows which sector that SMEs are more interested. And the income generation will obviously show the attractiveness of the business sector. From these points of view, it is assumed that the most promising business sectors of the SMEs in D.I. Yogjakarta are non metallic mineral product, food/ beverages/ tobacco, and wood/ wood products. This assumption is acceptable as being supported by the fact that D.I. Yogjakarta is well known with its handicraft (specialized in copper jewelry, batiks, statues/ wooden handicraft and traditional food). The targeted SMEs in this study, is therefore aimed to the SMEs within the business sectors as mentioned earlier.

## ***West Sumatra***

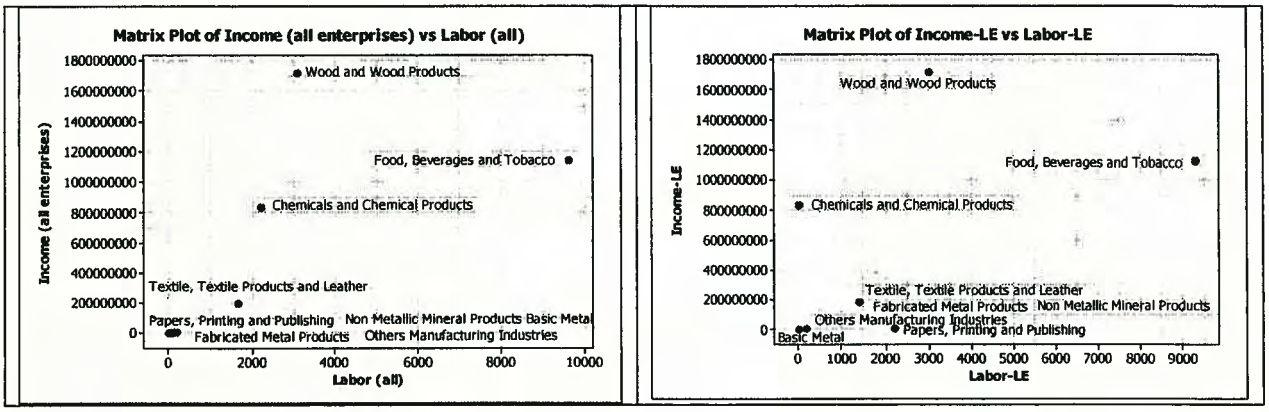
Similar to the other provinces, West Sumatra province also has an industry distribution which is based on the top three industry categories of 2 digits ISIC, i.e. (a) food, beverages and tobacco, (b) textile, textile products and leather, and (c) wood and wood products.

***Table 2.3.2.***

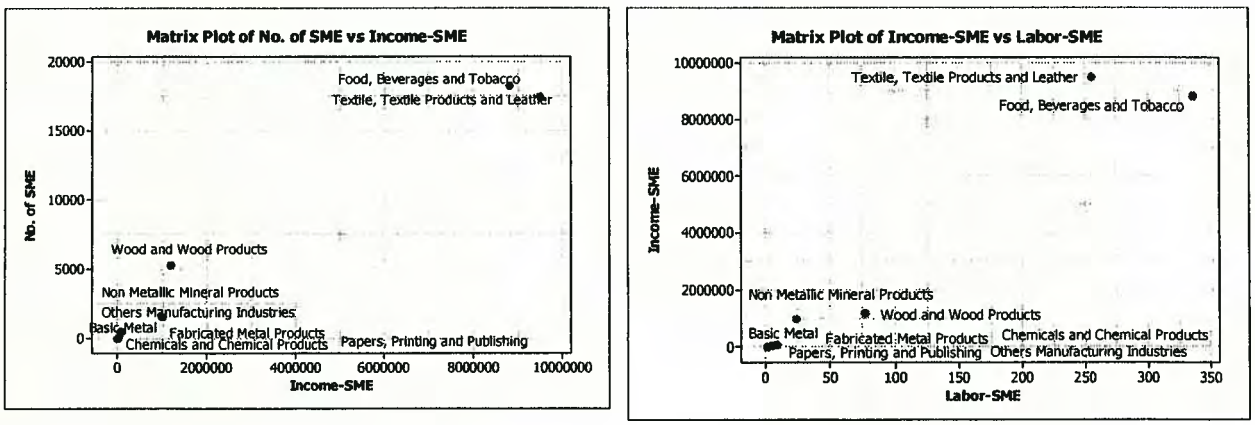
***Number of Small, Medium and large establishment by 2 digits ISIC, 2002***
***West Sumatra***

| ISIC | Kind of Industry | Number of Industry | | | INCOME (Rp.) | | | Employment created | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Small | Medium | Large | Small | Medium | Large | Small | Medium | Large |
| 31 | Food, Beverages and Tobacco | 18,262 | - | 6,131 | 8,821,191,000 | | 1,132,208,151,000 | 335 | | 9,294 |
| 32 | Textile, Textile Products and Leather | 17,488 | - | 681 | 9,493,794,000 | | 186,253,559,000 | 255 | | 1,387 |
| 33 | Wood and Wood Products | 5,262 | - | 11,581 | 1,191,120,000 | | 1,718,952,103,000 | 76 | | 3,013 |
| 34 | Papers, Printing and Publishing | - | - | 341 | | | 7,004,875,000 | | | 113 |
| 35 | Chemicals and Chemical Products | 155 | - | 3,066 | 24,000,000 | | 835,683,305,000 | 4 | | 2,194 |
| 36 | Non Metallic Mineral Products | 1,548 | - | - | 994,800,000 | | | 23 | | |
| 37 | Basic Metal | | | | | | | | | |
| 38 | Fabricated Metal Products | 464 | - | - | 76,200,000 | | | 8 | | |
| 39 | Others Manufacturing Industries | 464 | - | 341 | 93,528,000 | | 4,375,000,000 | 9 | | 170 |
| | | 43,643 | - | 22,140 | 20,694,633,000 | - | 3,884,476,993,000 | 710 | - | 16,171 |

The interesting issue is that the first three industry categories income have surpassed the leading large industry i.e. cement industry. Tends to follow the situation of Bangka Province which formerly relies on tin and bauxite mining, it is predicted that the contribution of cement industry in West Sumatra will also decline due to decreasing number of mining deposit. Therefore, the government of West Sumatra has been collaborating to improve other sectors of industries rather than its cement industry. For the record purposes, the contribution of the cement industry has been extensive in assisting the SMEs. This is the result of Jimbaran Memorandum which set a compulsory of large establishments to put aside 2 ½ % - 5 % of its revenue for SMEs and community development programs.




Unlike other selected provinces, the industrial income of the West Sumatra province was 44.05% supported from its wood and wood products. This would have come from furniture and other wood related industries, including wooden handicraft. The other sectors such as food/ beverages/ tobacco and chemicals/ chemical products had contributed 29.22% and 21.40% to the provincial industry income. These industries are also recorded as business sector which absorbed most of industrial labor.



The SMEs in food/ beverages & tobacco and textile/ textile products & leather were the most contributing business sectors (exceeds 88% of the total SMEs contribution to the provincial industrial income). The labor absorbed in these sectors was 590 labors.

Therefore, the survey of this study is focused to SMEs which deal with the three business sectors, such as food/ beverages & tobacco, textile/ textile products & leather, and wood/ wood products. Further, it is indicated that the province is well known with its "hot-chilly cassava", woven products, home made shoes, and wood based handicraft.

## *South Sulawesi*

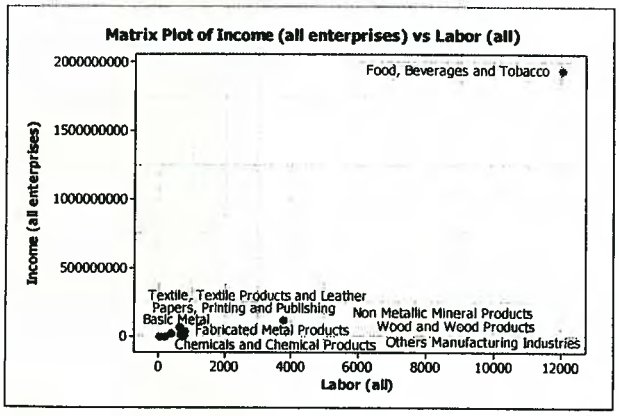
The industry distribution of South Sulawesi is similar to other selected provinces, whereas relies on (a) food, beverages and tobacco, (b) textile, textile products and leather, and (c) wood and wood products as its major contributor to the economy.

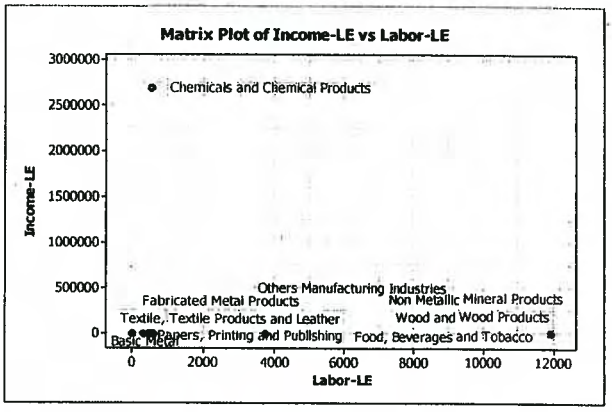
***Table 2.3.3.***
***Number of Small, Medium and large establishment by 2 digits ISIC, 2002***
***South Sulawesi***

| ISIC | Kind of Industry | Number of Industry | | | INCOME (Rp.) | | | Employment created | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Small | Medium | Large | Small | Medium | Large | Small | Medium | Large |
| 31 | Food, Beverages and Tobacco | 9,595 | - | 10,559 | 4,377,137,400 | | 1,935,218,729,000 | 141 | | 11,907 |
| 32 | Textile, Textile Products and Leather | 27,238 | - | 681 | 2,720,400,000 | | 2,823,549,000 | 247 | | 488 |
| 33 | Wood and Wood Products | 13,309 | - | 1,362 | 2,621,985,600 | | 37,663,709,000 | 165 | | 594 |
| 34 | Papers, Printing and Publishing | 155 | - | 1,022 | 12,600,000 | | 19,163,658,000 | 3 | | 340 |
| 35 | Chemicals and Chemical Products | - | 389 | 3,406 | | 2,694,991,000 | 13,216,650,000 | | 99 | 531 |
| 36 | Non Metallic Mineral Products | 5,571 | - | - | 1,616,400,000 | | | 147 | | |
| 38 | Fabricated Metal Products | 2,631 | - | 341 | 251,676,000 | | 63,220,093,000 | 70 | | 521 |
| 39 | Others Manufacturing Industries | 2,940 | - | 3,747 | 2,414,520,000 | | 114,744,931,000 | 42 | | 3,710 |
| | | 61,440 | 389 | 21,118 | 14,014,719,000 | 2,694,991,000 | 2,186,051,319,000 | 815 | 99 | 18,091 |

On the contrary to other selected provinces, it is recorded that there are some medium scale industries on chemicals and chemicals products in South Sulawesi. The contribution of these industries is recorded as more likely significant.

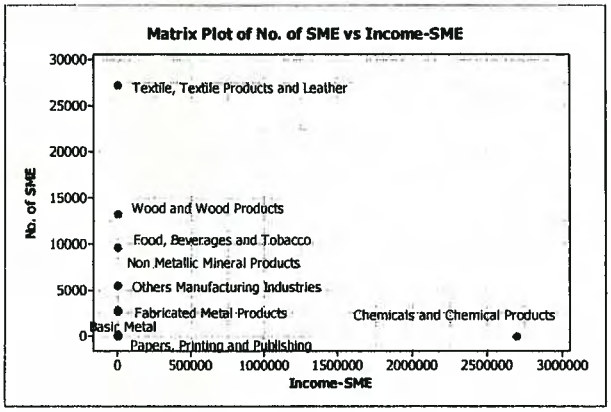
Ranked as the third province which generated income from industries amongst other selected provinces, the food/ beverages and tobacco industries had contributed almost 88% of South Sulawesi' provincial income from industry in 2002. This reflects that the industry of the province is still relied on its semi-traditional income generator, i.e. food/ beverages and tobacco. On the other hand, the SMEs in the province is more focused on three business sectors such as (a) food, beverages and tobacco, (b) textile, textile products and leather, and (c) wood and wood products.

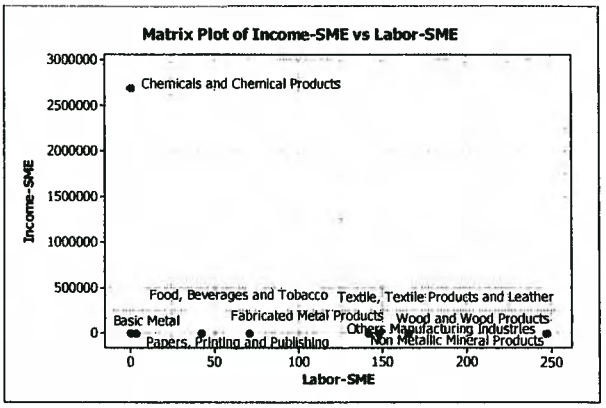



The SMEs in food, beverages and tobacco were the major contributor which supported approximately 31.23% to the total income from SMEs industries in South Sulawesi. Most of the

income was generated from food processing SMEs. The labor absorbed in this sector was 141 labors in 2002.




The SMEs in textile, textile products and leather had contributed approximately 19.41% to the total SMEs industry income and absorbed 247 labors in 2002. In the same year, the SMEs in wood and wood product contributed approximately 18.71% of the total SMEs industry income and absorbed 165 labors. The SMEs in other manufacturing industries had contributed approximately 17.23% of the total SMEs industry income and absorbed 42 labors.

The targeted SMEs for field observation were aimed to the SMEs in the above mentioned sectors. The detailed description of the SMEs in South Sulawesi is described in Chapter 3.

## ***West Nusa Tenggara***

Although its industry distribution is similar to other selected provinces, the gross income of the province of West Nusa Tenggara is generated from textile and textile products.

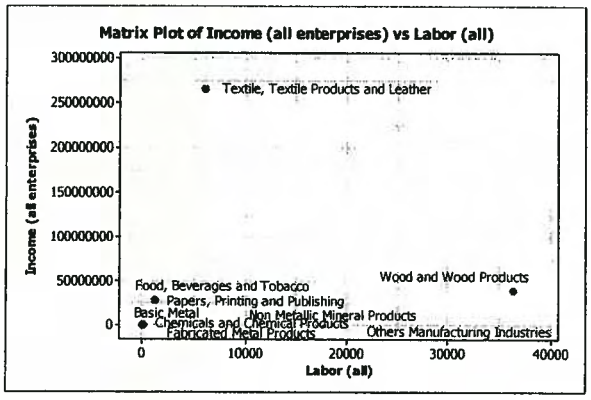
The income generated from textile and textile products reflects approximately 80% of the total income generated for the province of West Nusa Tenggara. On the side of SMEs contribution to income of the province, industries on ISIC no. 31, 32, and 33 contributes more than other sectors. This leads the survey to put more focus on SMEs which representing textile and wood related industries.

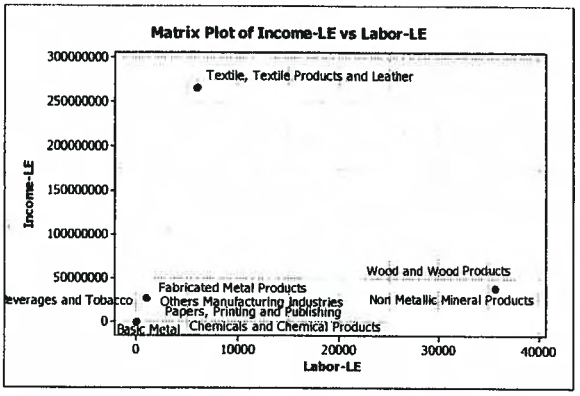
***Table 2.3.4.***
***Number of Small, Medium and large establishment by 2 digits ISIC, 2002***
***Nusa Tenggara***

| ISIC | Kind of Industry | Number of Industry | | | INCOME (Rp.) | | | Employment created | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Small | Medium | Large | Small | Medium | Large | Small | Medium | Large |
| 31 | Food, Beverages and Tobacco | 3,560 | - | 2,044 | 1,472,184,000 | | 27,258,679,000 | 101 | | 1,035 |
| 32 | Textile, Textile Products and Leather | 15,321 | - | 7,494 | 501,198,000 | | 266,626,877,000 | 132 | | 5,910 |
| 33 | Wood and Wood Products | 49,988 | - | 681 | 1,255,299,000 | | 38,258,055,000 | 553 | | 35,712 |
| 34 | Papers, Printing and Publishing | 155 | - | - | 204,000,000 | | | 3 | | |
| 35 | Chemicals and Chemical Products | 310 | - | - | 27,828,000 | | | 4 | | |
| 36 | Non Metallic Mineral Products | 2,476 | - | - | 570,276,000 | | | 57 | | |
| 37 | Basic Metal | | | | | | | | | |
| 38 | Fabricated Metal Products | 2,786 | - | - | 421,878,000 | | | 43 | | |
| 39 | Others Manufacturing Industries | 155 | - | - | 1,800,000 | | | 1 | | |
| | | 74,750 | - | 10,219 | 4,454,463,000 | - | 332,143,611,000 | 894 | - | 42,657 |

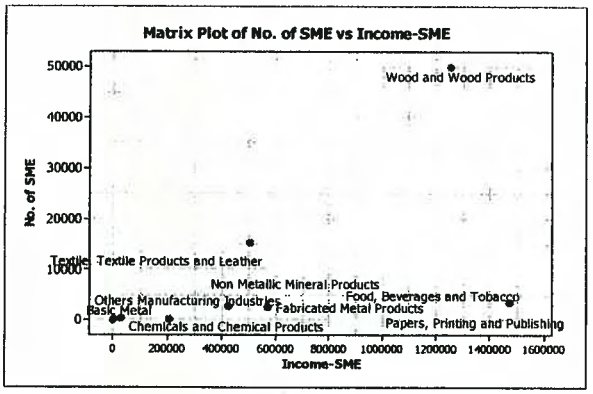
The textile, textile products and leather industry was the major contributor to the industry income of West Nusa Tenggara province which had contributed approximately 79.36% of the total industry income in 2002. The industry absorbed a labor force of 6,042 persons in 2002. The traditional woven industry of Nusa Tenggara is well known to domestic

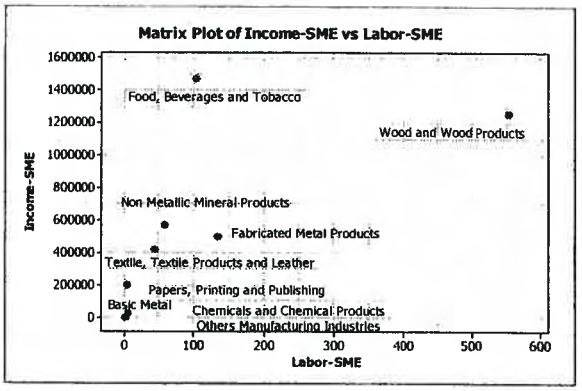
and international market; however it has not been improved through extensive and aggressive promotion.




Although absorbing the most industry labor (36,265 persons), the wood and wood products industry became the second to the top contributor to the total industry income of West Nusa Tenggara. It contributed only 11.74% of the total industry income in 2002. The third rank was food, beverages and tobacco industry, which contributed 8.54% of the total industry income and absorbed 1,136 labors in 2002.




On the contrary to the fact that the total contributor of the total industry income derived from large textile, textile products and leather industry; the contribution of SMEs in the same sector was only ranked as the fourth top contributor, which reflected a merely 11.25% of the total SMEs industry income or illustrating a 0.15% share of the total industry income. The SMEs in food, beverages, and tobacco industries had contributed the largest share to the total SMEs industry income. However, it only reflects 0.44% of the total industry income. The second rank was SMEs in wood and wood products, which contributed approximately 28.18% of the total SMEs industry income or equivalent to 0.37% of the total industry income of the province in 2002.

## ***East Nusa Tenggara***

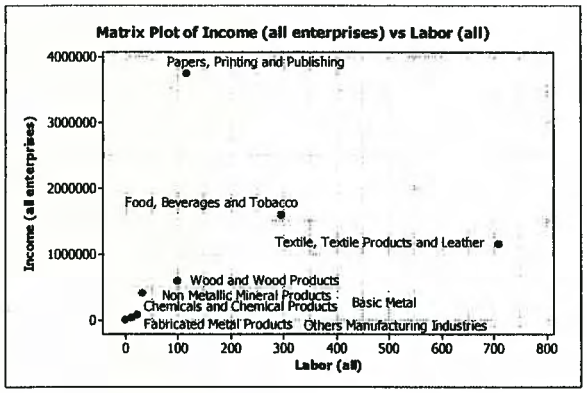
The industry distribution of East Nusa Tenggara is similar to other selected provinces, whereas relies on (a) food, beverages and tobacco, (b) textile, textile products and leather, and (c) wood and wood products as its major contributor to the economy.

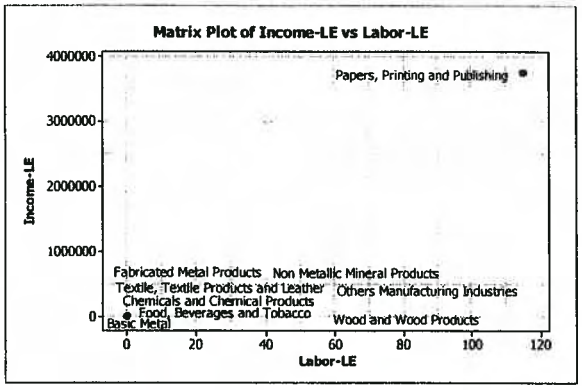
***Table 2.3.5.***
***Number of Small, Medium and large establishment by 2 digits ISIC, 2002***

## East Nusa Tenggara

| ISIC | Kind of Industry | Number of Industry | | | INCOME (Rp.) | | | Employment created | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Small | Medium | Large | Small | Medium | Large | Small | Medium | Large |
| 31 | Food, Beverages and Tobacco | 20,893 | - | - | 1,603,811,400 | | | 295 | | |
| 32 | Textile, Textile Products and Leather | 81,904 | - | - | 1,156,494,000 | | | 707 | | |
| 33 | Wood and Wood Products | 7,893 | - | - | 600,522,000 | | | 98 | | |
| 34 | Papers, Printing and Publishing | - | - | 341 | | | 3,753,384,000 | | | 115 |
| 35 | Chemicals and Chemical Products | - | - | - | | | | | | |
| 36 | Non Metallic Mineral Products | 1,393 | - | - | 419,640,000 | | | 32 | | |
| 37 | Basic Metal | | | | | | | | | |
| 38 | Fabricated Metal Products | 2,012 | - | - | 77,712,000 | | | 22 | | |
| 39 | Others Manufacturing Industries | 774 | - | - | 30,765,600 | | | 10 | | |
| | | **94,868** | **-** | **341** | **3,888,945,000** | **-** | **3,753,384,000** | **1,164** | **-** | **115** |

Similar to other selected provinces, the target of survey on SMEs will be focused on those sectors. The selected SMEs observed are the ones which represent textile, wood products and food products industries.




In terms of industrial income, the papers, printing, and publishing industry was dominating the industrial income in East Nusa Tenggara. The contribution of the industry was reflecting a share of 49.11% of the total industry income in the province. On the other hand, the former leading sector i.e. wood and wood product (Cendana wood) had become the fourth major contributing sector due to scarcity of the raw material. Excessive exploitation on logging made in the last decades without reforestation and replanting program made the industry collapsed.

The second and the third major contributor to the industry income of the province are food/ beverages & tobacco and textile/ textile products and leather industries in 2002. The food, beverages and tobacco industry had contributed approximately 20.99% of the total industrial income. The textile, textile products and leather industry had contributed approximately 15.13% of the total industrial income. Unfortunately, the statistical data does not record any large industry on the sectors. However, the leading sector in income generation, i.e. papers, printing and publishing is managed by large industries (comprises of 341 corporations).