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**DEPARTMENT OF MANPOWER AND TRANSMIGRATION
DIRECTORATE GENERAL OF TRANSMIGRATION
PROJECT LUWU SOUTH SULAWESI
INDONESIA**

**PLANNING AND PROGRAMMING DEVELOPMENT
WITH INPUT - OUTPUT ECONOMICS**

**THE APPLICATION OF INPUT - OUTPUT ALTERNATIVES
FOR POLICY PLANNING IN KABUPATEN LUWU**

SEPTEMBER 1983

**PROJECT LUWU
BAPPEDA TK II KABUPATEN LUWU
CHECCHI / DMJM**

FOREWORD

Technical assistance has been provided to Bappeda TK II Luwu through the USAID - Project Luwu loan agreement since November 1981. Two consultants, Mr. Robert Manly and Mr. Steven Cochran from Checchi/DMJM have been working with the Bappeda staff to establish a standard system of data gathering and analysis using Input-Output techniques as a basis for Repelita planning and annual development programming.

This interim paper reports the process being established and data compiled to date. The data continues to be examined at Bappeda and the figures reported are in a process of continuing analysis and update. At this time Mr. Cochran is departing for the U.S., and Mr. Manly will continue the process with Bappeda TK II Luwu for the next three months.

September 1, 1983

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CHAPTER 1 INTRODUCTION

1.1. PURPOSE

The overall goal of any planning activity is to devise substantive policy to improve the future. To reach this goal, Bappeda planners are charged with the task of identifying a set of projects and programs which are most likely to improve the future of the community.

Bappeda offices throughout Indonesia are engaged in "Bottom Up" planning where local staffs are much in need of operating procedures that will reduce their reliance on a multiplicity of subjective assumptions. Improved bottom up planning requires procedures actually designed to reduce subjective assumptions at the local level. Guidelines from the Home Affairs Ministry for Repelita planning suggest the use of a quantified format or modeling approach¹.

The Project Luwu Grant Agreement² calls for the initiation of "a planning process at the Luwu Kabupaten level designed to increase the capability of the local government to continually improve upon the planning for Kabupaten development and to ensure preparation of follow-on projects and programs suitable for financing by the donor community or the GOI itself"³.

1. Departmen Dalam Negeri, Direktorat Jenderal Pembangunan Daerah, "Pedoman Penyusunan Repelita IV Daerah", 3 February 1983.

2. Project Grant Agreement No. 497-0244 between the Republic of Indonesia and the United States of American for Luwu Area and Transmigration Development, June 4, 1981.

3. Ibid, Appendix I, Article I, pp.1-2.

This paper concentrates on the efforts of Project Luwu to assist the Bappeda TK II Luwu office in strengthening its planning and evaluation function relative to the identification of alternative development policies and the ranking of project proposals for approval prior to implementation. The approach selected uses quantified assumptions, regularized in a format with Luwu economic data, which can be used repeatedly to judge many development projects and their socio-economic impact.

1.2. INPUT-OUTPUT TECHNIQUES

Those wishing to undertake regional studies may choose among such techniques as regional income studies, commodity flow studies, balance of payments studies, economic base studies, multiplier studies, industrial location studies, and others. Each has virtues and limitations, but their partial character is often perceived as a major drawback. It is in this connection that general interdependence techniques are of value. They too have limitations, but the fact remains that they provide the essential mortar for cementing various partial studies⁴. Of the general interdependence approaches investigated, the interregional input-output approach is most prominent, both in terms of accomplishment and recognition⁵.

Project Luwu recommends the Input-Output technique of economic data organization and analysis as an appropriate methodology capable of addressing the issues mentioned in Section 1.1 above. It manages costs by relying on secondary

4. Walter Isard, Methods of Regional Analysis, Cambridge, MA: The M.I.T. Press, 1966) P. 309.

5. Abid, P. 310.

data and organizes data in an interactive manner using double entry accounting techniques for accuracy and accountability. The internal consistency inherent in the technique ensures that its accuracy, and therefore its usefulness, improves as it is used and updated. The structured nature of the technique provides a factor of replicability.

1.3. APPLICATION OF INPUT-OUTPUT TO PLANNING

In attempting to provide a comprehensive planning framework for a region, an analyst must usually go beyond simple comparative cost studies. Frequently he must examine the complex interrelations within the regional economy⁶. This examination is done in the context of two general Bappeda responsibilities, 1) planning and 2) analysis.

The planner is interested in selecting activities to be promoted in his region and must concern himself with questions dealing with:

1. The input structures of the activities
2. The local market for its products
3. The effect of the new activity's presence on the operations of other industries in the region and how it fits into the existing economic structure.

The input-output technique of data management allows the planner to examine the economy in these terms and select priority development activities in an objective manner.

6. Water Isard and others, Ecologic-Economic Analysis for Regional Development (New York, NY: The Free Press, 1972) P. 19.

On the other hand the Bappeda analyst may be concerned with an individual project or industry proposed by a specific sponsor. The input-output framework provides a consistent manner for the analyst to determine the potential impact of the new development upon the economy in general as well as upon specific factors such as employment, direct and indirect income, government services, and tax revenues. Given the data provided by an input-output table, the planner can work up consistent and thoughtful answers to the questions faced in comprehensive regional planning. In recent years it has become a basic tool to the regional analyst and has been successfully applied to problems of the regional economy⁷.

1.4. INPUT-OUTPUT AND BAPPEDA

As stated above, the primary goal of a planning agency is to recommend policy changes to improve the future of the economy. The purpose is to select projects or programs which improve the community's economy. The specific outputs of this approach as implemented by Project Luwu include input-output tables for Luwu, technology transfer, and a mix of formal and on the job training for Bappeda TK II and I.

1.5. ORGANIZATION OF REPORT

This paper approaches the details of I-O techniques from the general to the specific. Chapters 1 through 6 discuss the use of the table in development planning, first in general terms of sector multipliers and then in more specific terms of final demand, value added, and inter-industry transactions. Chapters 7 through 9 discuss the

7. Ibid.

more technical issues of the process regarding procedures for data gathering, tabulation, surveying, and balancing of the I-O table.

The latter chapters are not necessary for the reader in order to understand the general uses of the tables discussed in the first chapters. It is necessary however to have a basic understanding of input-output format to understand the use of the tables.

1.6. INPUT-OUTPUT FORMAT

The Input-Output table is a matrix of rows and columns which displays the value of total outputs produced by each of the economic sectors. It also shows the value of the inputs purchased by the sectors required to produce the outputs. The third aspect of the economy illustrated are the transactions made among the sectors, and the transactions made with the rest of the world through exports and imports. Figure 1 illustrates the general format of an I-O table.

The sectors are arranged across the the top of the table, and identically down the left side. In this case there are ten sectors. Total sector outputs are listed in the far right column and total sector inputs are in the second to last row (in our case an additional row has been added at the bottom for employment).

Reading across the rows, each sector's outputs are distributed among the sales it makes to other industries, called Interindustry Transactions, and sales to the "Final Demand" sectors. Final demand consists of:

KABUPATEN INPUT OUTPUT TABLE

	1	2	3	4	5	6	7	8	9	10	HH. CONS.	FIXED CAP. INVEST	CHANGE IN STOCK	LOCAL GOVT. EXPORTS	NON-LOCAL GOVT. IMPORTS	TOTAL OUTPUTS
1. AGRICULTURE 2. FORESTRY 3. FISHING 4. MINING 5. MANUFACTURING 6. TRANSPORT 7. SERVICES 8. GOV'T. ENTERPRISE 9. SOCIAL SERVICES 10. GOV'T. ADMIN.	INTER INDUSTRY TRANSACTIONS (PRODUCTION)										FINAL DEMAND (CONSUMPTION)					
PROFIT WAGES LOCAL TAXES NON LOCAL INCOME NON LOCAL TAXES CAPITAL CONSUMPTION	VALUE ADDED (INCOME)															
TOTAL INPUTS																
EMPLOYMENT																

1. Household Consumption
2. Fixed Capital Investment
3. Change in Stock
4. Government Expenditures
5. Exports and Imports(-)

Reading up and down the columns, each sector's inputs are distributed according to the sectors from which they are purchased. Inputs purchased from other industries are found in the interindustry transactions. Because the same "cells" are used to calculate interindustry inputs and outputs, the total interindustry outputs (rows) must equal total interindustry inputs (columns). Inputs not purchased from other industries are found in the Value Added sectors.

Value Added is comprised of:

1. Profit/Surplus
2. Wages and Salaries
3. Local Taxes
4. Non-Local Income
5. Non-Local Taxes
6. Capital Consumption

Figures in the Interindustry, Final Demand, and Value Added sections are always in terms of value, in our case millions of Rupiah. The employment row is in terms of persons.

The values used in this paper are all 1980 rupiah values. Bappeda chose 1980 as the base year for this study because of the abundance of data available from the 1980 census of population.

CHAPTER 2

USES OF INPUT-OUTPUT TABLES IN DEVELOPMENT PLANNING

2.1. GENERAL DEVELOPMENT PLANNING

The office of Bappeda TK II or Kabupaten Development Planning Office was first authorized by Kepres 27 of 1980 (Presidential Decree 27). Decision Letter of the Home Affairs Minister No. 185 of 1980 provides the implementing guidelines for the establishment and functioning of Bappeda TK II offices.

According to these documents, the general duties of Bappeda are to assist the Bupati (and the Governor) in the formation and evaluation of development policy. Specific tasks assigned to the Bappeda office include:

1. Compiling a basic development pattern, which consists of a long range 25 year plan and medium range 5 year "Repelita" Plans.
2. Compiling annual programs to implement the Repelita from local, provincial, and national funding.
3. Compiling with the Sekwilda and Finance Office the development program within the APBD (local budget). The Sekwilda is responsible for coordinating the overall budget preparation.

Decision No. 185 outlines a general planning process for the Bappeda staff which includes:

1. Coordinating the planning of all government offices (which are the sources of project proposals and the implementors of development projects).
2. Coordinating and conducting research for planning.

3. Following the preparation and development of plan implementation.
4. Monitoring the implementation and progress of development.

Through these documents, the Bappeda staff is charged with the task of coordinating and implementing Kabupaten planning activities for the purpose of policy formulation and evaluation. Bappeda coordinates with various government offices and the private sector regarding project identification, development, and implementation, and conducts planning studies to assist the Bupati and Governor in determining development policy. The various government offices and the private sector carry out this policy through program and project development. Bappeda monitors these activities as input into future planning.

Previous guidelines (BANGDA 1/9/26 of November 20, 1978 and 1/4/4 of April 21, 1979) defined a Repelita document as consisting of

1. General development goals
2. Local development priorities
3. Direction and policy for development
4. Qualitative Sectoral targets
5. Funding strategy

Updated guidelines for the compilation of the Repelita IV (5 year development plan) for 1984-1989 were released by the Home Affairs Ministry on February 3, 1983 in Letter No. 050.11/166/ Bangda. A six step process is outlined which was sent to all provincial governors, and subsequently to all bupati.

These steps, attached in Appendix 1, can be summarized as follows:

1. Evaluating the implementation of the previous Repelita through gathering and analysis of data.
2. Setting goals and objectives through discussion and seminars.
3. Projecting future funding, population, economic growth, and sectoral problems based on models, or on intuition.
4. Compiling alternative programs and projects.
5. Selecting alternatives based on program and project analysis, development strategies, and funding capability.
6. Drafting and finalizing the plan.

The guidelines accompanying these steps are broad and leave the detailed process of implementation up to each Bappeda office, depending on their experience and capabilities. It seems evident however that whenever possible a quantitative approach is now preferred. In step 2, Bappeda is requested to set a target growth rate, with estimates regarding the contribution of individual sectors towards economic growth. Projections of course should be quantified. The guidelines for Step 4 specifically request that alternative policies and strategies be accompanied by quantified estimates.

The Repelita is to be composed of four books:

1. Basic Policies
2. Sectoral Development Programs
3. Area Development Programs
4. Data and Appendices

The use of an input-output format for analyzing economic data provides a framework of information which facilitates the compiling of these books. The Inverse

Matrix and Transactions Tables (described in Chapters 2 and 4) provide a basis for the goals and objectives included in Book 1. Population and employment arranged sectorally in the I-O table helps the Bappeda staff develop specific policies and recommendations regarding employment.

Book 2 contains specific sectoral development programs. Sector multipliers calculated through the inverse matrix demonstrate the magnitude of each sector's role in the economy and indicate which might be given priority during the planning period. The transactions table can suggest specific programs within the sectors to be included in the development plan.

Book 3 is concerned with the locational aspects of development. With socio-economic data gathered by kecamatan and arranged in the Activity Frame (Chapter 7), project locations can be suggested by Bappeda and confirmed through field work and close examination of the base data.

Book 4 contains the data tables which support the plan. These tables include sectoral projections, projections of funds, and program "structure and hierarchy". Significantly the planning guidelines state that if possible an integrated intersectoral matrix (matrix keterpaduan antar sektor) should be included in Book 4. It appears evident that the Home Affairs Ministry has anticipated the use of relational or interactive modeling techniques such as Input-Output in compiling the Repelita. The use of an input-output table is an inductive process which studies specific factors of a regional economy and their interaction, from which more general conclusions may be made for development planning.

2.2. ECONOMIC ANALYSIS

Steps 1 and 3 of the Repelita guidelines require analysis of economic data and projections based on models or "intuition". The structure of the I-O table lends itself well to these requirements.

2.2.1. Sector Analysis - Benchmarks

An input-output matrix displays an area's economy in rows and columns which represent the individual sectors comprising the economy. Total outputs or production of each sector, found in the righthand column of the table, serve as benchmarks for each sector. With data gathered annually, sectoral growth can be easily calculated. Compiling all sector outputs on one table allows for easy comparison of the various economic sectors. An I-O table developed at the beginning of each Repelita planning period provides a regularized, quantified method of accomplishing Step 1, and annual updates provide the time series data for projections required in Step 3. As mentioned above, the inverse matrix helps the planner to set the tentative goals and objectives called for in Step 2.

2.2.2. General Analysis - Benchmarks

General economic indicators are useful to both planning technicians and decision makers. They are valuable as general indicators of socio-economic well-being, which may be easily compared with other areas and over long time periods.

The total value added for all sectors provides an estimate of gross regional product. Gross Regional Product minus Capital Consumption, Taxes, and Non-Local income provides an estimate of local personal income.

$$\text{GRP} = \text{Total Value Added}$$

$$\text{Local Personal Income} = \text{GRP} - \text{Capital Consumption} - \text{Taxes} - \text{Non-Local Income}$$

2.2.3. Employment and Human Resources

While gathering sectoral economic data for an input-output table it is a simple matter to include employment as well as production. The lower row of the Luwu I-O table provides estimates of the number of workers in each sector. Employment distribution by sector is easily analyzed, and production or income for each sector can be calculated on a "per worker" basis. Projections for sectoral growth in the Repelita can therefore be accompanied by employment projections, and social development programs for the labor force such as education and training may be planned.

2.3. PROJECT EVALUATION

Besides general planning and economic analysis, the I-O table is used to analyze the impact of specific projects or programs on the economy of Luwu. Step 5 of the Repelita Planning Guidelines calls for the selection of programs and projects to be included in the plan, based on project analysis and a comparison of available funds. This implies a ranking of project and program priorities to ensure that the most vital activities are funded by the increasingly limited development budgets.

Project proposals submitted to Bappeda in the appropriate format can be applied to the Simulation Model (Chapter 5) and run through computer analysis. The Project/Sector Form (Figure 2) is completed by the project proponent as part of the planning process. The form contains two parts: Project Purchases and Value Added on the left, and Project Sales and Final Demand on the right.

Blanks are provided at the top of the form for:

1. Location (kecamatan)
2. Project Code (for Bappeda Use)
3. Total Industry Output (or Cost)
4. Project Implementor
5. Industry Name
6. Sector Code

Project or activity inputs are listed in the left-hand column. All goods and services purchased by the project are listed in Section I including the quantity, price, and value of each. If the input is produced outside of Luwu, then an "M" is written in the Import column to specify an "import". This is very important and must be checked by the Bappeda staff to make sure the form is completed properly.

Section II of the purchases column is for "value added" purchases. Value added is comprised primarily of wages and salaries, local and non-local taxes, profit or surplus, capital consumption (depreciation) and other unknown costs. Labor costs are detailed by skill level to provide data for manpower planning. Project proponents are further requested to break down labor data by male/female* to help assess the women's role in the economy. Labor imported from

* L = Laki laki or male, P = Perempuan or female.

outside Luwu is also indicated by an "M" in the import column.

Project or activity sales are listed in the right-hand column. Inter-industry sales (sales as inputs to other economic activities) are listed in Section I, again by quantity, price paid to the producer, and value, according to who purchases the output. Sales to "Final Demand" are listed in Section II. These include direct sales to consumers, private investment, production placed in inventory, sales to government, and direct exports.

Total purchases and sales are summed in Section III as well as the total of import purchases and export sales. A critical point to remember is that total sales must equal total purchases. This balance serves as a check on the data and the form should be returned to the project proponent if the two figures are not equal. There is always a double check when compiling data in an input-output format. Whether it be a project, a sector, or the entire I-O table, inputs must always equal outputs.

A computer program is being set up on the Bappeda computer to evaluate the data on the project form. The project data is "added" to the Luwu I-O table as an additional row (outputs) and column (inputs). The computer calculates the change in final demand or Incremental Capital Output Ratio produced by the added investment from the proposed activity. This figure can then be compared to those resulting from other proposed activities and ranked according to the projected change in final demand.

It is a simple matter to fill the form for a proposed activity when it is an actual enterprise. A project, for example an oil palm plantation, has specific inputs such as:

1. Land Costs
2. Seedlings
3. Fertilizer and Pesticides
4. Construction and Equipment
5. Transportation
6. Labor
7. Credit (interest)
8. Fuel
9. Profit
10. Taxes

Sales can also be easily listed and distinguished.

1. Exports
2. Sales to local users
3. Changes in stock at end of year.

Each item is easily identified and quantified.

It is slightly more difficult to fill the form for more traditional kinds of government projects such as construction, but the I-O format focuses the planner's attention on the true scope of the project. Let's take a small irrigation project as an example. Usual thinking about the inputs for an irrigation project would produce a list such as

1. Construction (contractor)
2. Supervision (wages)
3. Transportation
4. Design (Services), and so forth.

The scope of the project however is not just construction, but irrigated agriculture. Therefore the additional costs to the farmers must also be listed as inputs.

5. Seeds (additional for the second season)
6. Fertilizer and pesticides (additional)
7. Water user fees
8. Additional interest on second season credit
9. Labor (self and hired labor)
10. and others

All additional costs must be included.

If the above 10 items represent project inputs, what are the outputs? Irrigated agriculture produces paddy and the anticipated additional production by the farmers must be listed in the sales column. A newly irrigated area of 100 hectares formerly may have produced 3 tons of paddy per hectare during the rainy season only.

Previous Production

3 tons per ha x 100 ha x 1 season/year x Rp. 100,000 =
Rp. 30 million

But with irrigation, production is now 5 tons per hectare, twice a year.

New Production

5 tons per ha x 100 ha x 2 seasons/year x Rp. 100,000 =
Rp. 100 million

Production Increase

Rp. 100 million
30 million

Rp. 70 million increase

This increase is then apportioned on the sales column according to sales to purchasers such as millers, direct consumption, or other purchasers. It cannot be forgotten however that total inputs must equal total outputs. This

means that any subsidies by the government (such as to pay for the construction) must also be listed in the sales column.

Such a summary for project proposals has two direct benefits for planners. First, it provides data in the form suitable for analysis with the regional input-output model. Second, it provides a framework for the project proponent to think of his project in its entire scope, to quantify the activity's inputs and outputs, and to investigate possible related projects to ensure required input supplies or markets.

CHAPTER 3 THE MULTIPLIER TABLE

3.1. MULTIPLIER ANALYSIS

When an input output table is developed for an area, the interindustry section is mathematically "inverted" to create the multiplier table. This complex operation is simplified through the use of the microcomputer. Multiplier analysis is useful for programming regional development¹, because it neatly points up how growth in one sector induces growth in another.

The multiplier table for Kabupaten Luwu is attached as Appendix 2. It shows the estimated multiplier of each sector in the economy, which can be used to rank sectors for priority in the Repelita plan.

For example the total multiplier for the Agriculture sector is 1.2, so when an additional one rupiah of investment in the agriculture sector will generate a total output by all sectors of 1.2 rupiah. The generated increase in each individual sector will be detailed in the multiplier matrix.

3.2. SECTOR PRIORITIES

Multiplier analysis helps the Bappeda staff to identify the development alternatives required in the Repelita Planning Guidelines. Sectors with higher multiplier values

1. Walter Isard, Methods of Regional Analysis (Cambridge, MA: M.I.T. Press, 1960) p. 189.

are considered as high priority sectors for development, since their impact in the other sectors will be great. Various investment alternatives can be applied to the multiplier table to estimate the optimum program for economic development.

3.3. BASIS FOR DEVELOPMENT PLAN

Results from the multiplier analysis must of course be balanced with national and provincial development policies as outlined in the GBHN and provincial Repelita. Using the multiplier table, national and provincial development policies can be objectively applied to the local condition in Luwu as a basis for the Repelita.

CHAPTER 4 THE FINAL DEMAND TABLE

4.1. COMPONENTS OF FINAL DEMAND

The final demand sector is of special importance because it is the autonomous sector, the one in which changes occur which are transmitted throughout the rest of the table¹. For Bappeda planners who must evaluate the use of government development funds, a clear understanding of final demand sectors is crucial, because government routine and development expenditures generally appear in final demand.

The Luwu final demand table consists of 11 columns (see Appendix 2). This is more than many tables constructed for small areas but better reflects government expenditures as they are administered in Indonesia. The Final Demand sectors consist of:

1. Household Consumption
2. Fixed Capital Formation
3. Change in Stock (+ or -)
4. Local Government Routine Budget
5. Local Government Development Budget
6. Inpres Budgets
7. Provincial Development Budget for Luwu
8. National Routine Budget for Luwu
9. National Development Budget for Luwu
10. Exports
11. Imports (-)

4.2. FINAL DEMAND AND BALANCING THE TABLE

The I-O table must always be balanced; inputs equal outputs. Adjustments must be made to balance the table,

1. William Miernyk, The Elements of Input-Output Analysis (New York: Random House, 1965) p. 13.

which are often made in the final demand section. The government expenditure columns are the most certain of the final demand sectors. Budget figures are published annually for local government offices and a brief survey can obtain non-local budget figures. Because of the certainty of government expenditure data, these columns are not adjusted to balance the table.

The household consumption figures are based on the Bappeda Household Survey. Since they are estimates based on a sample survey they are adjusted to balance the table only if necessary. Export data is based on secondary government data (Harbors and Highway offices) and so these figures are also only adjusted if necessary.

Change in Stock, Capital Formation, and Imports are estimated however by the requirement to balance the table. Change in stock is used to record changes in the stock of rice and other basic commodities, data being available from Dolog and major industries. Estimates on capital formation are made for the construction and manufacturing sectors. When these estimates are made, figures for imports for each sector are calculated by subtracting total inputs (which by definition equal outputs) from the sum of inter-industry output subtotals, household consumption, capital formation, change in stock, government, and exports.

$$\text{Imports (m)} = \text{II} + \text{HC} + \text{CF} + \text{CS} + \text{G} + \text{EX} - \text{Q}$$

II = Inter Industry Subtotal
HC = Household Consumption
CF = Capital Formation
CS = Change in Stock
G = Government
EX = Exports
Q = Total Input (Output)

4.3. GOVERNMENT ENTERPRISES AND GOVERNMENT ADMINISTRATION

A distinction must be made between government establishments and government administration. Offices with general administrative responsibilities and project offices (Local Government Office, Labor Office, Cooperatives Office, Project Luwu, Bappeda, etc.) are all administrative offices and their budgets are included in the appropriate government column in final demand section.

Government establishments which provide specific services at a cost however are included in the Inter-industry table. Most are combined into the Government Enterprises Sector, Number 26. These include utilities, post and communications, government banks, and the harbor cold storage facility. Government health and education services have been included in Sector 27, Social Services.

4.4. GOVERNMENT BUDGETS AND VALUE ADDED

The Input-Output table does not allow for value added purchases by the final demand sectors, but Governments pay wages and salaries to their employees, which should be entered into value added. This is solved by entering government wages in Sector 28 of the inter-industry table, Government Administration. The Luwu I-O table shows Rp. 3,199,259,000 paid in wages and salaries by the government. This figure appears twice in the table. Once in final demand as the subtotal of row 28, Government Administration. It also appears in column 28 in the value added section to balance the table. Because data was not available by skill level for government employees, the wages and salaries are summed in one cell.

4.5. THE GOVERNMENT ROLE IN THE ECONOMY

The government expenditure pattern is easily seen in the final demand section. Eighty percent of the local government routine budget is for salaries. Forty-three percent of the national routine budget is spent on salaries. Combining the two shows 88 percent of government routine budgets spent on employee compensation.

EMPLOYMENT COMPENSATION AS A PERCENT OF ROUTINE GOVERNMENT BUDGETS 1980-1981 Rp. (000)

	Routine Budget	Employee Compensation	Percent
	-----	-----	-----
Local (APBD II)	1,022,428	821,823	80
National (APBN)	1,621,930	1,501,932	93
TOTAL	<u>2,647,596</u>	<u>2,323,755</u>	<u>88</u>

These percentages are not unusual and demonstrate the role of government as an injector of purchasing power into the area, particularly the non-local budget and the local portion covered by national subsidies.

The development budgets show an even stronger trend towards concentration of purchases in an individual sector. Construction accounts for 89 percent of all development budget expenditures in Luwu.

CONSTRUCTION AS A PERCENT OF GOVERNMENT DEVELOPMENT BUDGETS 1980-1981 Rp. (000)

	Development Budgets	Construction	Percent
	-----	-----	-----
Local (APBD II)	139,960	87,937	63
Inpres	1,685,252	1,438,910	85
Provincial (APBD I)	161,681	82,169	51
National (APBN)	13,671,020	12,386,082	91
TOTAL	<u>15,657,913</u>	<u>13,995,098</u>	<u>89</u>

4.6. USE OF GOVERNMENT DEVELOPMENT BUDGETS

Certainly in a newly developing area such as Luwu where the government is primarily engaged in building or rebuilding physical infrastructure, construction will be an important activity. But direct benefits to sectors other than construction or households is limited and indirect impacts on other sectors will be only to those which sell local inputs to construction or households. The remaining will go to purchasing imports, benefiting producers outside of Luwu, and the local trade sector.

Development funds will not be so plentiful in the coming five years as national oil revenues decrease. Bappeda planners will have to seek ways to use government development resources to encourage local productivity. This means focusing on sectors with high multipliers using local resources.

This of course means agriculture, but also fishing, forest and wood products, and food and drink manufacturing. The local government can initiate programs in productivity, quality control, design, marketing, credit, skills training and worksite locations. Specific types of projects will be examined in Chapter 6. The important point to note is that government development budgets must be oriented towards the productive sectors. Development budgets, in particular those subsidized by the Provincial and national levels, can stimulate the economy through injections of purchasing power. This injection will be short lived however if used only to purchase imported consumables or construction materials, rather than improving the productive sectors.

CHAPTER 5
VALUE ADDED

5.1. DEFINITIONS

The lower portion of the Luwu Transaction table (Appendix 2) is called Value Added. The elements of value added include those inputs purchased by industries in the column headings which are not goods or services purchased from other industries or establishments. The Luwu value added section consists of

1. Income to establishment owners
2. Compensation to professional employees
3. Compensation to skilled employees.
4. Compensation to unskilled employees.
5. Local government taxes
6. Compensation to non-local employees.
7. Non-local government taxes
8. Capital consumption

Total inputs for each sector or activity unit column therefore consist of 1) interindustry purchases of goods and services, 2) profit or surplus to owners of establishments, 3) employee compensation, 4) taxes, and 5) capital consumption.

5.2. BENCH MARK FIGURES

The total value added for all sectors of the economy can be called the Gross Regional Product¹. If capital consumption is subtracted from the value added total, Net Regional Product is calculated. For Luwu these figures can be slightly misleading since the large construction, mining, and non-local government projects lead to a large value for

1. Idem, Harmston and Lund (Columbia, MO: University of Missouri Press, 1967). p. 61.

non local income. A third indicator, Local Value added, can be calculated by summing only local owner profit, local employee compensation and local taxes.

Planners and government officials are often interested in calculating an income per capita figure to compare with national or other local estimates. Subtracting local taxes from the local value added figure and dividing by the total population provides a good estimate of personal income percapita.

TOTAL VALUE ADDED, KABUPATEN LUWU
RP. (000)

Owner/Surplus	38,587,428	A
Professional Income	2,132,258	B
Skilled Income	10,341,651	C
Unskilled Income	10,618,511	D
Local Taxes	3,265,672	E
Non-Local Income	2,723,641	F
Non-Local Taxes	41,623,251	G
Capital Consumption	68,645	H
TOTAL	<u>109,361,057</u>	<u>T</u>

BENCHMARK FIGURES CALCULATED FROM VALUE ADDED 1980-1981
RP.(000)

Gross Regional Product (GRP) = T	= Rp. 109,361,057
Net Regional Product = T-H	= Rp. 109,292,412
Local Value Added = T-F-G-H	= Rp. 64,945,520
Net Personal Income (NPI) = T-E-F-G-H	= Rp. 61,679,848
TOTAL POPULATION = P	= 503,743 persons

Gross Regional Product per	
Capita = GRP/P (In Rupiah)	= Rp. 217,097/Capita
Net Personal Income per	
Capita = NPI/P (In Rupiah)	= Rp. 122,443/Capita

This method of analysis will be carried on by the Bappeda staff for the individual activity units and sectors as a guide in identifying appropriate activities for development.

CHAPTER 6 THE TRANSACTIONS TABLE

6.1. THE TABLE

The transactions table is the heart of the I-O table, just as the productive sectors are the heart of the economy. It is the outputs produced by these sectors and the transactions between them which determine the size and strength of the economy. Before the transactions table is examined in detail, a brief review of how the table is read may help. The table is found in Appendix 2.

The sectors of the economy are arranged along the rows and columns of the matrix. Normally the rows and columns are identical, but because of Bappeda's limited computer capability, the individual activity units in the rows have been aggregated into sector rows. The columns remain as activity units, grouped by sector.

Reading the data across the rows, the analyst reads sector outputs. Row one shows the portion of agriculture outputs sold to other sectors, including itself. The sum of the elements of row one of the interindustry table equal total interindustry sales of the food and estate crops sector.

Column one indicates all of the interindustry inputs purchased by the food and estate crops sector. Each column shows the value of inputs required for one sector or activity unit and from which sector they are purchased.

6.2. SECTOR OUTPUTS

The planner may look at the transactions table in several ways. We have already seen that the multiplier table is one indicator which can guide a planner in identifying planning policies. Total sectoral output (or input) is another.

TOTAL OUTPUTS
TWENTY LARGEST ACTIVITY UNITS
KABUPATEN LUWU
Rp. (000)

Percent of Total
Luwu Outputs

1. Mining	Rp. 69,035,655	41.2
2. Food/Estate Crops	20,221,736	12.1
3. Small Government Construction	15,408,821	9.2
4. Large Government Construction	8,591,439	5.1
5. Poultry	8,061,096	4.8
6. Trade (Wholesale, Retail, Fuel	6,280,858	3.7
7. Private Construction	5,374,000	3.2
8. Sea Fishing	5,169,492	3.1
9. Firewood	3,716,960	2.2
10. Government Administration	3,199,259	1.9
11. Plywood	2,264,382	1.4
12. Local Government Schools	1,405,646	0.8
13. Livestock	1,834,364	1.1
14. Sawmills	1,328,510	0.8
15. Rice Storage	1,255,266	0.7
16. Other Service	1,145,721	0.7
17. KUD	1,080,600	0.6
18. Motorized Land Transport	891,451	0.5
19. Household Industry	746,942	0.4
20. Rattan Sorter	692,898	0.4

This ranking is a general guide to the planner, but cannot be used alone, for some of the largest sectors have little influence on the local economy or else the local government has little influence over the sector. For example the largest sector is mining, but the local government and its planners have little influence over this

activity. Mining also relies heavily on import purchases and directly exports all of its production, so its local multiplier is very small. Its major impact has been the employment of local labor and the skills training done to improve the quality of the labor force.

The other top 10 sectors emphasize the strong roles of agriculture, government, construction and wood product sectors in the economy. Food/estate crops, poultry, and sea fishing together account for 20.0 percent of the economy's total outputs. The three construction sectors account for 17.5 percent of the total economy, and compensation to government employees (government administration) totals 1.9 percent. If government construction is added to employee compensation then the government role in the economy equals 19.4 percent of the economic output. This figure still does not include other government services such as health, education, or finance. If mining is excluded, it can be concluded that the Luwu economy is dominated by agriculture, construction, and government.

Previous studies of the food crops and livestock sectors of Kabupaten Luwu¹ have estimated average annual growth rates of approximately 10 percent between 1975 and 1983. This is very positive since the combined total of the outputs of the agriculture, agriculture services, livestock, and fishing sectors equal 22.0 percent of the total outputs of the economy. But when it is considered that government expenditures account for at least 19.4 percent of the economy,

1. See "Checchi/DMJM Annual Reports for Luwu Area and Transmigration Development Project", South Sulawesi, Indonesia 1982, 1981, 1980.

it is clear that the remaining sectors are not well developed and account for a small portion of the economy. With future government development budgets likely to be static or shrinking it is evident that the local government must adopt two basic economic policies for the coming five years.

1. Encourage increased agricultural productivity and diversity to ensure that the agricultural sectors can continue to contribute a large portion to Luwu outputs and exports.
2. Develop strategic secondary and tertiary sectors which purchase inputs from local resources to further diversify the economy, so that a reduced government role in the economy may be offset by an increased role by other sectors.

6.3. SECTOR PRIORITIES

If the two recommendations in Section 6.2 are to be adopted by the local government, how can the transactions table help planners select activities or programs? As mentioned in Chapter 3, the multiplier matrix guides the Bappeda planner in selecting general sectoral priorities. The detail of the transactions table can then be examined to identify significant local inter-industry transactions and to locate potential interindustry transactions where there is currently a zero. The objective is to see how many more "cells" in the table can be filled, and how the volume of existing cells or interindustry transactions can be increased.

6.3.1. Agriculture, Livestock and Fisheries (Sectors 1-6)

At first glance it is clear that there are many zeros in the Luwu table, not unexpected in a young growing

economy. The strong role of agriculture can be seen by the relatively large number of interindustry transactions in Sectors 1, 2, and 5 (Agriculture, Livestock, and Fisheries). Fertilizer, pesticides, livestock and fish feed, implements and services make up the major inputs. Pesticides and chemical fertilizers will certainly continue to be imported from Java and Sumatra, but local fertilizer, feeds, farm implements, and farm services (land preparation in particular) can be developed locally. The livestock and fisheries sectors currently import large amounts of maize and other feeds. Purchased locally, food farmers would be assured of a greater market and value is added to the agricultural output in the process of making animal feed.

6.3.2. Food and Drink (Sector 9)

The next major sector with important local inter-industry transactions is the food and drink sector. Rice milling and livestock slaughter are of course direct purchasers of outputs from sectors 1 and 2. Other food and drink activities currently in Luwu include bakeries and soybean cakes (9C), a noodle factory (9D), peanut confections (9E), coconut and other oils (9F), ice making (9G), and palm sugar (9H). But purchases from the agriculture sector by these food industries remain very small compared to total output of the agriculture sectors.

The Bappeda survey found two highly successful soybean processing establishments in Kecamatan Bone Bone. The potential for further developing such activities is great. The data shows no other processing of rice except for

milling. The large amount of food imports to Luwu indicates the potential for food industries based on rice. As mentioned above, animal feed producers would not only consume rice bran, but maize and other food and estate crop products.

A recommendation has already been made for the establishment of Markisa (passion fruit) estates which could produce ultimately for local fruit juice processors². Plans have also been made with World Bank assistance for a large oil palm plantation and processing plant in Luwu³.

Improved and maintained slaughter houses in the local markets would certainly help increase demand for meat and meat products. This is the kind of simple yet important step which the local government can take with its limited budget. Animal feed operations would also purchase animal byproducts from the livestock sector.

Surprisingly, Bappeda's study shows only a small amount of purchases from the fishing sectors by the food and drink establishments. This shows tremendous potential for fish and shrimp processing establishments, thereby providing local markets for the fishing sector and increasing the value added of its products. The Fisheries, Industry, and Cooperatives Offices in Luwu can coordinate to improve cold storage facilities at the harbor and in the market, and

2. Checchi/DMJM, "Industrial Development in Kabupaten Luwu", June 1983.

3. P.T. Tarindo "Outline Planning for the Proposed Luwu, South Sulawesi Nucleus Estate and Smallholders VII Project" May 1982.

introduce modern production, processing and marketing procedures for local consumption and export.

6.3.3. Wood Products (Sector 11)

An obvious priority sector is the wood products sector. The forests of Luwu remain one of its primary resources. The potential for expanded wood and rattan products has already been identified in the Checchi/DMJM report on Industrial Development in Luwu. But what can the local government do to encourage greater output by the wood products sector, rather than exporting directly?

First, the government can provide workshop space in local markets for wood and rattan craftsmen, space complete with electricity if available. Placing craftsmen near potential buyers will increase sales. The government can bring in skilled craftsmen from outside of Luwu to introduce new designs and techniques, and the trade office can assist in marketing in Luwu and elsewhere. The government banks can provide credit for more modern sawmills to process timber into more useable, higher value lumber than is currently produced.

6.3.4. Other Manufacturing (Sector 13)

This sector is currently very small with few local interindustry transactions. This sector should be targeted for growth however since there is potential for sales to many local industries. Increased use of hand tractors, minitractors, and other agricultural mechanization will require local spare parts. The IRRI hand tractor study in

Luwu has already shown the viability, not only for spare parts manufacture, but for the manufacture of entire hand tractors.

6.3.5. Service Sectors (19-24)

The service sectors are often the most overlooked when it comes to development, yet perhaps show the greatest potential for growth and employment. As farms use more mechanization (agriculture service sector), as food, wood, and other industries grow, and as the construction and transportation sectors follow this growth, all will require repair and maintenance services. On the part of the local government this means improving the technical trade school in Palopo, bringing in instructors and new machinery from elsewhere if necessary. Training should include repair of modern machinery such as photocopy machines, electric typewriters and appliances and other equipment, automobile repair, engine, air conditioning, and other services which a modern economy demands. Government banks should provide special credit programs for the purchase of service machinery and equipment. As with the wood and other manufacturing sectors, workspace must be provided to service industries. Modern automobile and equipment repair business need workspace and office space complete with electricity and water.

The transactions table shows that the value added component of service industries is larger than that of the agriculture and manufacturing. Growth of the service sectors will mean increased employment opportunities and income for Luwu, and fewer "imports" in the form of services and repairs done in Ujung Pandang and elsewhere.

CHAPTER 7
THE SIMULATION MODEL

7.1. A DYNAMIC MODEL

The simulation model is the working model of the economy. Although it may appear on paper as a static model, it is a dynamic model used for three primary operations

1. To balance the transaction table
2. To annually update sector output estimates
3. To periodically update the input coefficients

The simulation model is developed on the computer spreadsheet and appears schematically as shown in figure 3. It is composed of the following parts:

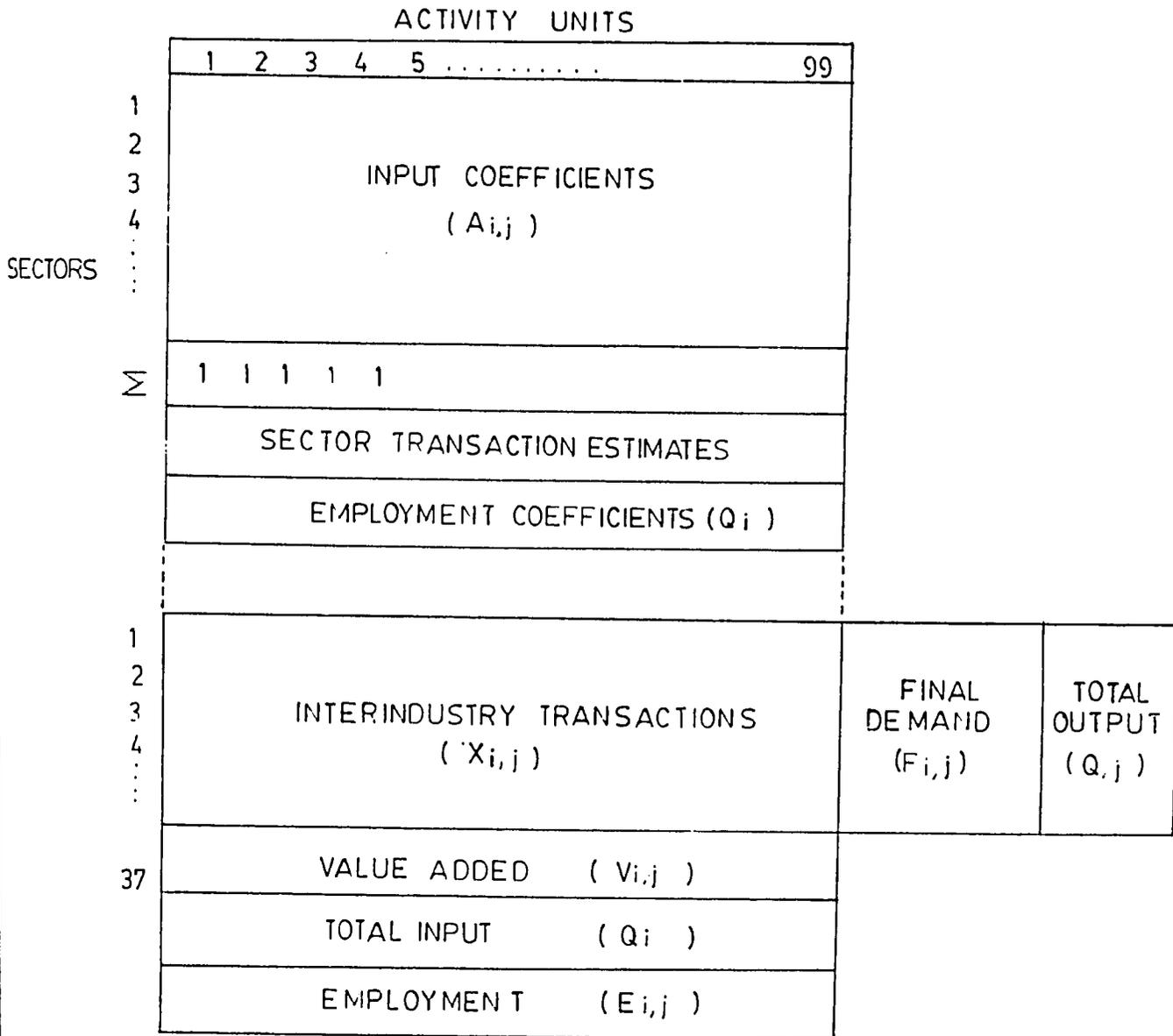
1. Table of Input Coefficients ($A_{i,j}$)
2. Coefficient Totals (always equal to 1.)
3. Employment Coefficients
4. Total Sector Transaction Estimates
5. Interindustry Transaction Table ($X_{i,j}$)
6. Final Demand ($F_{i,j}$)
7. Value Added ($V_{i,j}$)
8. Total Outputs (Q_j) = Total Inputs (Q_i)
9. Employment ($E_{i,j}$)

The input coefficients were previously calculated from the results of Bappeda's surveys and from secondary data sources. They are listed down each activity unit column.

The transactions table is the product of the sector transaction estimates and the coefficients listed above it. A column in the transactions table is calculated by multiply- ing each of the coefficients in the column directly above,

FIGURE 3

THE SIMULATION MODEL
SCHEMATIC



times the sector output estimate. Mathematically this is written as

$$X_{i,j} = (Q) (A_{i,j})$$

This is drawn schemetically in figure 4.

Figure 4

$a_{1,1}$	Input Coefficients	$a_{i,j}$ = input coefficient
$a_{2,1}$		
$a_{i,1}$		
Q_i	Sector Output Estimates	Q_i = Sector Output Estimate
$X_{1,1}$	Interindustry Transactions	$X_{i,j}$ = Interindustry Transaction
$X_{2,1}$		
$X_{i,1}$		

Values for interindustry transactions, value added, and final demand are calculated in the same manner, except for change in stock, capital formation, and imports and exports. These figures are entered directly as values in the transactions table and are adjusted to balance the final demand with value added.

7.2. BALANCING THE TRANSACTIONS TABLE

The first time the transactions table is calculated some if not all, of the rows will be out of balance with their corresponding columns. The analyst must balance the table by adjusting the input totals carefully to approach the

calculated output totals. The sector input totals are adjusted one by one, because each change will cause small changes in all the other sector totals. It is a task which takes time and patience. Considerable work has already been done in gathering output estimates and calculating input coefficients, but a poor job of balancing the table will reduce the accuracy of the previous work. The staff must set aside one month at least for the balancing operation to be done well.

7.3. ANNUAL UPDATES OF SECTOR OUTPUT ESTIMATES

The question is often asked about the validity of an input-output table one or two years after it has been constructed. Can the table still be used for planning and evaluation purposes? Input coefficients are actually quite stable¹. Sector outputs change more rapidly. Agricultural output will vary with the weather. Industrial output will vary less severely than agriculture but will change from year to year.

The dynamic nature of the model allows for annual updates of the output figures in order to keep the I-O table current. Chapter 8 will describe how the Basic Frame helps organize the gathering of output data for each activity unit and how secondary data sources play a role in estimating activity unit and sector outputs. For the moment we will assume that the Bappeda Data and Reports Division receives or calculates annual output figures for each activity unit. When the output totals are complete for a new year, they may be inserted in place of the original figures in the Sector Transactions Estimate row. When the computer spreadsheet is

1. Harmston and Lund, p. 39.

"recalculated" an updated transactions table results from the multiplication of the coefficients by the new Sector Transaction figures.

In this way, the Bappeda can regularly monitor the growth and changes taking place in the economy. Annual estimates of gross regional product, personal income, and sectoral production may be made.

7.4. PERIODIC UPDATES OF INPUT COEFFICIENTS

Chapter 8 will describe the process of developing the input coefficients table. The first time the table is constructed it is a time consuming task. Field surveys are required of activity units in most of the sectors of the economy. This task required six months for the Luwu Bappeda office, plus time devoted earlier to planning and preparing the activities.

Once the coefficients are calculated for the first time however, periodic updates are less of a problem. Because of the relative stability of the coefficients, a portion of the sectors may be selected each year for analysis and updating. A five year process should be planned to coincide with the Repelita planning process. The Luwu I-O table, made up of 37 sectors, can be divided into 5 parts containing 7 or 8 sectors each. As an annual activity the Data and Reports Division should select one of the 5 groups of sectors to resurvey and recalculate input coefficients. This process will produce an entirely new I-O table every five years, ready for use in the Repelita five year planning process.

7.5. THE SIMULATION MODEL AS AN EQUATION

When reading the simulation model, it should be read as a series of equations. These equations multiply the output totals by the coefficients to calculate the transaction table values. The sum of the transaction table rows calculates total sector outputs and the sum the transaction table columns calculates total sector inputs. When any one coefficient or output total is changed, changes will occur in several other places in the model. This is why the model is called dynamic. It allows the analyst to observe various changes by adjusting the coefficients or transaction estimates one at a time or all at once.

CHAPTER 8

INPUT COEFFICIENTS

8.1. INTRODUCTION

The creation of the technical coefficients table is perhaps the most difficult and certainly the most important part of the compilation of the I-O table. The kabupaten office of the Ministry of Industry collects annual data on input requirements for many industries, but it does not yet cover all sectors of the economy. A survey is generally required to gather input data for all of the sectors. The simulation model demonstrated the importance of the coefficients table, and the procedure to compile the input coefficients should be well planned by Bappeda.

The economic sectors can be divided into three types which require somewhat different procedures for the calculation of input coefficients:

1. The Interindustry Sectors (Agriculture, Industry, and Services)
2. Household Consumption
3. Government

The calculation of all three types input coefficients is based on one concept. All activity units produce a certain amount of outputs, and by definition total outputs equals total inputs. An activity unit requires various kinds of inputs including raw materials, services, labor, profit, and others to produce its outputs. When studying an activity unit, input data must first be gathered in terms of the quantity or value of each input used, the sum of which equals total input. For example, a sawmill with production

equal to Rp. 1 million might have inputs that appears as in columns 2 and 3 below:

(1)	(2)	Sawmill #1 Inputs		Sawmill #1 Coefficients
		(3)		(4)
Input 1	Logs	Rp.	350,000	.350
Input 2	Electricity		50,000	.050
Input 3	Construction		25,000	.025
Input 4	Fuel		150,000	.150
Input 5	Transportation		80,000	.080
Input 6	Electricity		60,000	.060
Input 7	Machine Repair		30,000	.030
Input 8	Labor		75,000	.075
Input 9	Profit		125,000	.125
Input 10	Depreciation		55,000	.055
TOTAL INPUTS		Rp.	1,000,000	1.000

The input coefficients for this particular activity unit (column 4) are calculated by dividing the value of each input by the total, resulting in a sum of 1. If inputs data for several activity units are gathered, the data for each can be added to estimate a set of general input coefficients for that type of activity unit.

	Sawmill #1	Sawmill #2	Sawmill #3	Sum	Activity Unit Coefficients
Input 1	Rp500,000	Rp500,000	Rp400,000	Rp1,250,000	.35817
Input 2	50,000	65,000	30,000	145,000	.04155
Input 3	25,000	40,000	-	65,000	.01862
Input 4	150,000	125,000	40,000	315,000	.09026
Input 5	80,000	100,000	90,000	270,000	.07736
Input 6	60,000	95,000	120,000	275,000	.07880
Input 7	30,000	40,000	-	70,000	.02006
Input 8	75,000	150,000	100,000	325,000	.09312
Input 9	125,000	310,000	135,000	570,000	.16332
Input 10	55,000	75,000	75,000	205,000	.05874
TOTAL	1,000,000	1,500,000	990,000	3,490,000	1.00000

In this way, a survey of a sample of each type of activity unit found in Luwu will produce a set of input coefficients useful for producing a transactions table.

8.2. INTERINDUSTRY INPUT COEFFICIENTS SURVEY

The prior preparation of a complete and organized Activity Frame provides a sound basis for selecting sample activity units for surveying. A stratified random sample of each activity unit classification, stratified by location, can be selected from the Activity Frame. From this, a list of the number and type of activity units to be surveyed for each kecamatan is compiled. A survey team of three to four persons can complete the survey of sample activity units for rural kecamatans in approximately three days. Working with the Camat and Kepala Desas, a list of specific establishments to be surveyed can be compiled. The survey team must make an effort to survey both large and small establishments of each activity unit type.

Special surveys must be made outside of the stratified sample of the large major industries in the area. In the case of Luwu this meant the P.T. Inco nickel mine in Kecamatan Nuha and the P.T. Panca Usaha Plywood factory in Kecamatan Bupon.

The same form used for project proposal data (Chapter 2) can also be used as a survey form. The format of having inputs and outputs written side-by-side, where total outputs must equal total inputs, serves as a check for the enumerator who must continue probing with questions until the sum of the inputs equals the sum of the establishment's outputs.

Because the form used does not contain specific questions written out, training the survey enumerators is very important. Training must include not only the mechanics of filling in the form, but the concepts of input-output, the various inputs which establishments buy, the concept of balancing the value of inputs with the value of outputs, and so forth. A trial survey must be undertaken during the training, and each survey team should compile the data for at least one type of activity unit as shown with the sawmill example above. Only through actually compiling the data and calculating sample coefficients will the enumerators know if their data is complete.

The survey form allows the enumerator to write down the establishment data in a detailed fashion and to identify imported and locally produced inputs. This data is extremely important and must not be lost while compiling the data. Appendix 4 shows an example of one page of the input coefficients which were calculated from the Luwu survey. The top of the form contains the following for each activity unit:

- a. Total Units (from the Activity Frame)
- b. Total Units Sampled
- c. Sample Output (total output of all units sampled)
- d. Total Output per Unit $(b)/(c)$
- e. Total Activity Unit Output $(d) \times (a)$

Because 1980 is used as the base year for data from secondary sources in this study, a deflator¹ is applied to

1. Calculated from monthly price index figures published by Central Bureau of Statistics.

the total output to estimate the total output value in 1980 Rupiah.

In this manner, not only are input coefficients calculated for the activity units, but a total output estimate as well. This serves as a check on data received from secondary sources, and becomes the primary data source for outputs when no secondary data is available.

Below the block of output data calculations are the calculated input coefficients. At first these calculations may seem tedious or complicated, but use of one of the better computer spreadsheet programs makes the task quite easy². The input coefficients listed in rows 1 through 29 and continuing to the TOTAL row represent local and import coefficients combined. Rows 1 through 29 represent interindustry coefficients, the following eight rows are value added inputs. The total of interindustry and value added input coefficients for each activity unit equals one.

Two more sets of coefficients are found below the total. The first set are import coefficients. These coefficients represent the component of each of the input coefficient which are imported. Below the import coefficients are found labor coefficients. These are read differently than the input coefficients. The input coefficients represent the percentage of total inputs which are bought from each sector. The labor coefficients however

2. Bappeda TK II Luwu uses Hewlett-Packard's version of VisiCalc Plus.

represent the average number of employees per establishment or activity unit. Labor is broken down by owner, professional, skilled, and unskilled labor.

The selection of sample respondents for non-agricultural establishments is not difficult since they generally occupy a physical location, have a business name, and are known by the camat or kepala desa. Because most kecamatans are rural however, with most of the activity units being small farmers or laborers, care must be taken to select a representative sample of farmers, fisherman, livestock and poultrymen. Lists of farmers and fishermen are usually available from the kepala desa and the selection of respondents should be done at the desa level, selecting desas representing various levels of agricultural practice and prosperity.

Non-agricultural activity units generally produce one type of output, or several types which are similarly related, and only one survey form need be filled out. Agricultural establishments are different however. Most small farmers have several types of production, including at least paddy and poultry, and often large livestock, fishing, or firewood gathering depending on location. Data from farmer respondents who have production outputs encompassing more than one type of activity unit should be written on separate forms, one for food crops inputs and outputs, one for poultry, one for livestock, and so forth.

This is important due to the nature of production data from available secondary sources. Though rice, chickens, and fish may all be produced by one farmer, the food crops

data is reported separately by Dinas Pertanian, poultry data is reported by Dinas Perternakan, and fish production by Dinas Perikanan. In order to use this annual production data, separate input coefficients should be calculated for each.

8.3. HOUSEHOLD CONSUMPTION

The final demand sector contains a column titled Household Consumption. This represents the purchases made by households for final consumption rather than as inputs for another productive process. This includes purchases of food, clothing, shelter, services, manufactured goods, payments of taxes, and savings and investments. It is possible to make an estimate of overall household consumption patterns by treating it as a residual, that is the difference between total outputs and the sum of inter-industry inputs, government purchases, and imports and exports. In practice however it is better to conduct a survey of household expenditures, using the result as a basis for filling the cells of the household consumption column, and then making any adjustments required to balance the input-output table.

Researchers have found that sample sizes of 200 households are adequate for determining consumption patterns of families under most circumstances³. In Luwu however 662 households were surveyed in 33 of the kabupaten's 156 desas. The large sample size was selected because of the large and diverse geographic characteristics of Luwu (17,792 square kilometers). When the data was analyzed

3. Harmston and Lund. p. 76.

however, a fairly consistent pattern of expenditures became evident, and it was probably not necessary to select such a large sample size, even in an area as large as Luwu. The recommended 200 families should indeed be adequate for most surveys.

Selecting a sample population was not difficult with the cooperation of the Kabupaten Statistics Office. The head of the office was kind enough to allow Bappeda to use their lists of households which were compiled during the 1980 census. Though two years old they were the most complete and comprehensive lists available for the entire kabupaten. They were found to be still valid in all but the most urban desas of Palopo where there seems to be a higher rate of mobility of households. With the help of the kapala desas, substitute households of similar socio-economic status were selected to replace those that could not be found.

For each of the 33 desas selected for household surveys, 20 households were selected randomly from the census lists. For each household selected the two neighboring households were listed as alternates to be used in case the selected household could not be contacted. A replacement household was selected by the kepala desa only if the sample household and both alternates were not available.

For the household survey, a different form must be used than that for the industry survey for two reasons:

1. Households make a wide variety of purchases, some at irregular intervals.

2. Household heads cannot be expected to remember all of their purchases over a year's time, unlike establishments that often keep books or a good mental record of their operations.

We found the best method was to make a sample "shopping list" of possible household purchases, listed by sector. The enumerator could use this list to guide the respondent through the interview. Regular purchases such as food were estimated on a weekly basis. Other purchases such as household goods, house repairs and school fees were estimated on a monthly or annual basis. The data was later extrapolated on an annual basis after the interview was finished.

The household interview was much more time consuming than the industry survey for two reasons:

1. Households in a rural area, even within one desa, are spread over a wide area. It takes time to locate the respondent, and the enumerators sometimes must walk several kilometers. Two villages surveyed were only accessible by foot and one by boat.
2. It was not unusual for a household survey to require one hour or longer to complete as the respondent tried to remember past purchases. The time gradually decreased however as enumerators became more skilled and could anticipate difficulties.

To speed up the household survey it was very tempting to have the kepala desa call all of the respondents to a central location to be interviewed (saving time for the enumerator but taking the time of the respondent). Though efficient of time it proved to be far from satisfactory. Interviews could not be done privately, respondents were shy to answer when others were nearby, and often the questions were answered for the respondent by the others. The time saved was not worth the loss of accurate data.

Two important points were observed during the conduct of the household survey.

1. Female enumerators were generally more effective than males in asking questions and probing about household purchases. This may be because they are more familiar running a household, or because the majority of household respondents were women.
2. Conducting household surveys in the local dialect was imperative. In Luwu many dialects are spoken which meant that enumerators were assigned survey locations based on their language skills.

8.4. SURVEY IMPLEMENTATION

The household and industry surveys were conducted simultaneously by the Bappeda staff, with assistance from one Project Luwu staff member and two persons from the Luwu Transmigration Office. Twenty persons organized into five teams conducted the surveys. It was planned that the field work would be completed in two and a half weeks. One month was actually required to complete all interviews because it was necessary to return to five desas to complete questionnaires partially filled out.

The data from household surveys is compiled in a similar fashion as the industry surveys. Household purchases are summed for each respondent by sector. Then total purchases from each sector were added together and summed to estimate total household purchases for the respondent households.

This figure divided by the number of respondents yields a value for total consumption per household. The total respondent purchases from each sector divided by the sum

total of purchases by all respondents yields the input coefficients for household consumption.

At least one month should be allowed for tabulating the surveys. It actually took Bappeda two months to tabulate their data due to frequent power blockouts which resulted in loss of data in computer memory, and due to revisions made in the process based on the staff's experience.

8.5. GOVERNMENT PURCHASES

A second survey in the final demand sector is required for the local and non-local government inputs. Considerable secondary data is available for local government routine, development, and Inpres budget expenditures. These figures can be found in the annual reports titled "Anggaran Pendapatan dan Belanja Daerah". An interview with the kabupaten treasurer is required to obtain details of purchases generally described as "other", and to determine what goods and services are purchased locally and what are purchased outside the area.

There is no central report however of purchases by non-local government services for routine and development expenses. Bappeda does routinely publish reports on total budget figures, but there is no data regarding the input components of the budgets, and no figures are regularly gathered for non-local government routine income and expenditures.

Bappeda therefore had to send a questionnaire to each government routine and project office to request not only their total budget figures, but to ask for a breakdown of

the budgets and what items were bought locally or imported. As explained in the Final Demand Section (Chapter 4) the majority of government expenditures are for construction and employee compensation and it is important to obtain good estimates of these expenses. Personal interviews with office or project managers are not usually necessary, but personal visits are often required to ensure that questionnaires are returned to Bappeda.

8.6. SUMMARY

In brief, three surveys are required:

1. Agriculture and Industry
2. Households
3. Government

The first is a sample survey selected by stratified random sampling techniques from the total number of activity units in each kecamatan. The number of respondents per activity unit in each kecamatan is selected from the Activity Frame. The actual respondent names are selected with help from the camats and kepala desas.

To conduct the household survey, Bappeda selects a minimum of 200 households from census lists or other available household registration lists. Selection again should be based on a stratified random basis from desas representing various geographic and economic conditions.

The survey of government expenditures is accomplished through a self-administered questionnaire personally delivered to each government office and personally picked up. The questionnaire must include details of expenditures, where they are made, and how many employees they pay.

The same form may be used for the industry/agriculture survey and the government survey. One form should be filled out for each establishment surveyed and one for each government office in the area.

CHAPTER 9
THE ACTIVITY FRAME AND SECTOR OUTPUTS

9.1. DEFINITION OF CLASSIFICATIONS

Before any work may begin on gathering input-output data, an Activity Frame must be constructed. The importance of this frame cannot be overemphasized because it forms the basis for all subsequent work. A well orgaized Activity Frame allows the Bappeda staff to gather and analyze data in a consistent manner. Without the Activity Frame, the staff will find itself repeating many steps because data is gathered incorrectly, or missing altogether.

Most Input-Output studies define two types of economic classifications, the sector and the establishment. The establishment is the smallest unit and is defined as "an economic unit, generally at a single physical location where business is conducted or where services or industrial operations are performed¹.

In Luwu, where so many economic activities are informal, without a precise location (for example firewood gathering, farm labor, and sea fishing) the term "Activity Unit"² has been chosen rather than establishment. It is felt that this better reflects the types of socio-economic activities in a rural area such as Luwu.

1. U.S., Executive Office of the President. Office of Management and Budget, Standard Industrial Classification Manual, 1972, P. 10.

2. Activity Unit is translated into Indonesian as "Unit Kegiatan".

Activity units are grouped into economic sectors. These sectors are flexible groupings into which activity units are combined to help the analyst understand the data. It shrinks the number of figures in the table to a more comprehensible number, but at the expense of the loss of detail. Although sector definitions are flexible because some activity units are difficult to classify, it is imperative that a standard system of classification be used so that a staff of 20 to 25 people all work in a consistent manner. For this work, the U.S. Standard Industrial Classification Manual of 1972 is used. Activity units are classified into one of the manual's Major Groups. The Major Groups are then easily combined into sectors. The number of sectors defined depends on the complexity of the area's economy.

9.2. THE ACTIVITY FRAME

The Activity Frame consists of three main types of information:

1. Type of activity units grouped by sector
2. Number and location of activity units
3. Activity unit output

9.2.1. Activity Units Grouped by Sector

The very first task of Bappeda when initiating an input-output study is to identify all of the activity units which are known to be present in the kabupaten. Sources for this data include the Economic Section of the Bupati's office (Bagian Ekonomi); the Kabupaten Statistics office; the local offices of the Departments of Industry, Trade, Health, Education, Religion, and Cooperatives; the electric, water, and telecommunications utilities, and other offices. From all of these sources, a draft list of activities is

assembled. It should be emphasized that this is a list of socio-economic activity units and aside from "traditional" economic activities, social service activity units such as schools, health services, mosques and churches are included. In the case of Luwu, 99 different types of activity units were identified (see Appendix 4). A more developed or urban area would have more, a less well developed area will have less.

These activity units were grouped by the Bappeda staff into 29 sectors as follows:

INPUT-OUTPUT SECTORS
KABUPATEN LUWU

- | | |
|-----------------------------|-------------------------------|
| 1. Agriculture | 16. Trade |
| 2. Livestock | 17. Financial Services |
| 3. Agricultural Services | 18. Hotel/Restaurant |
| 4. Forestry | 19. Personal Services |
| 5. Fish Ponds | 20. Business Services |
| 6. Sea Fishing | 21. Vehicle Repair |
| 7. Mining and Quarrying | 22. Other Repair |
| 8. Construction | 23. Recreation |
| 9. Food and Drink | 24. Other Services |
| 10. Textile | 25. Cooperatives |
| 11. Wood Products | 26. Government Enterprises |
| 12. Non Metal Manufacturing | 27. Social Services |
| 13. Other Manufacturing | 28. Government Administration |
| 14. Transportation/Storage | 29. Household Industry |
| 15. Private Utilities | |

Several extraordinary sectors were identified for Luwu which may not normally be found in other input-output tables. Agricultural services were made a separate category because of the importance of agriculture to Luwu. As farming becomes more modern, Luwu's farmers will rely more and more on agricultural services such as tractor rental and specialized labor for planting and harvesting. A separate sector has been made for cooperatives because of the special role the Indonesian government gives to co-ops for farm

input supplies, marketing, credit and consumer supplies. Government enterprises such as public utilities and banks have been grouped in the government enterprise sector and government social services such as health and education have been placed in the social services sector.

Luwu's sectors are not meant to be definitive for all kabupatens in Indonesia. They must be arranged to suit the activity units which exist and the purpose to which the input-output table will be used.

9.2.1. Broad Sector Groupings

Depending on the purpose involved, the socio-economic sectors are sometimes grouped into general categories. Some economists make three major distinctions.

1. The Primary Sectors (1-7)
2. The Secondary or Manufacturing Sectors (8-13)
3. The Tertiary or Service Sectors (14-29)

Others use broader categories and refer to them as:

1. The Productive Sectors (1-26)
2. The Social Sectors (27-29)

As with the sector classifications themselves, the sectors may be grouped in any way depending on the analyst's objectives.

Besides the activity unit and sector data, additional information is provided at the top of page 1 of the Activity Frame. This includes land area, population, households, and labor force (currently being calculated by the kabupaten Labor Office - Bina Guna).

9.2.2. Number and Location of Activity Units

The list of activity units must be accompanied by the number of units in the kabupaten, arranged by kecamatan. This part of the table is important for three reasons:

1. The total number of units is used to help estimate total outputs.
2. Gathering data by kecamatan is verifiable. At this level, individual activity units can be counted (in more urban areas data should first be gathered at the desa level).
3. Data gathered by kecamatan provides a geographic frame useful later to the planner in identifying project locations, and to the analyst in selecting survey samples when necessary.

9.2.3. Activity Unit Output

The data for the basic frame is complete with output estimates for each of the activity units. Output estimates are often available from secondary sources and it must be the goal of Bappeda to have all output estimates calculated by other offices. Data should be submitted to Bappeda in terms of

1. Total output
2. Price received by activity unit
3. Output value (Output x Price = Value)

An Activity Frame consisting of activity unit and sector classifications, number and location of activity units, and total estimated output per activity unit serves as the framework for the entire data bank which forms the I-O table. The Activity Frame alone, updated annually provides a valuable tool for Bappeda to monitor the area's economy. As the variety of activity units becomes more diverse (hopefully new activity unit classifications can be added to the list each year) and the total outputs value increases, the more stable the economy will become.

9.3. DATA SOURCES

Initially it often appears that sources for this kind of data are difficult to find. The Luwu experience has demonstrated however that numerous sources of data exist and most of the frame can be filled with data from secondary sources. It is indeed the task of almost all government agencies in a Kabupaten to gather basic data for their particular concern.

The same source can usually provide data regarding both the type of activity units and their number and locations. The majority of data come from the industry office, economics section, statistics office, and the agriculture service offices as noted in column 3 of the Luwu Activity Frame. One important job of Bappeda is to reconcile differences found from different data sources. In particular, the industry office and economics section provide counts of similar activity units, yet they seldom agree. Bappeda, working with these two offices, can reconcile them so that all will work from the same base figures.

Sources of output data are not always the same as those who count the activity units. For example the statistics office counts the number of farmers during the census, but the agriculture office (Dinas Pertanian) gathers farm output data. The Luwu Activity Frame provides two columns for output data, a primary source and an alternate source. The primary source is the source from which the data should originate. Sometimes the data is found not to be reliable or not to exist at all and so a secondary source is used. In the beginning, that secondary source is often a Bappeda survey.

This is fine for a one time activity for Bappeda, but surveying is a time consuming, costly activity which must be limited. Once the Activity Frame is established and data sources and gaps are identified Bappeda, working through the Bupati, can apportion the task of filling in the data gaps among the various government agencies.

Although data should be submitted to Bappeda in terms of outputs, producer price, and output value, Bappeda should keep a file of commodity prices on hand. Then any output data provided without a value can quickly be completed. Fortunately the Kabupaten Statistics Office gathers weekly, monthly and quarterly price statistics for rural and urban areas of every kabupaten in Indonesia. These price surveys, coded HK1, HK2, HK3, HP1 and HP2 can be averaged on an annual basis to estimate urban market prices and rural farm-gate prices for many commodities.

9.4. DATA AVAILABILITY

The experience in Luwu has shown that data gathering is at first a demanding task, but that the Activity Frame organizes the task into manageable units. It should be filled as completely as possible, but gaps should be left blank where data is missing. A meeting should then be called of all heads of government service offices and other potential data sources. The frame is explained, existing data as well as data gaps are discussed, and decisions can be made as to how to fill them. It was found in Luwu that through this process of including as many as possible in such a meeting, much of the data is soon forthcoming, and later reports from secondary sources include the data in the format required by Bappeda.

CHAPTER 10 CONCLUSIONS

10.1 THE "MATRIX ANALYSIS" PLANNING PROCESS

The standard process for compiling a Repelita plan as discussed in Chapter 1 is a national process which must be adhered to by the provincial and kecamatan Bappeda offices. The question then arises - Can the I-O model be incorporated into the standard process?

It is suggested that the Repelita process be modified to include an "Integrated Intersectoral Matrix" to be included if possible in Book IV of the plan. The I-O process fulfills this requirement. Figure 4 illustrates the process developed by Bappeda TK II Luwu which combines the I-O approach and the standard process developed by the Home Affairs Ministry.

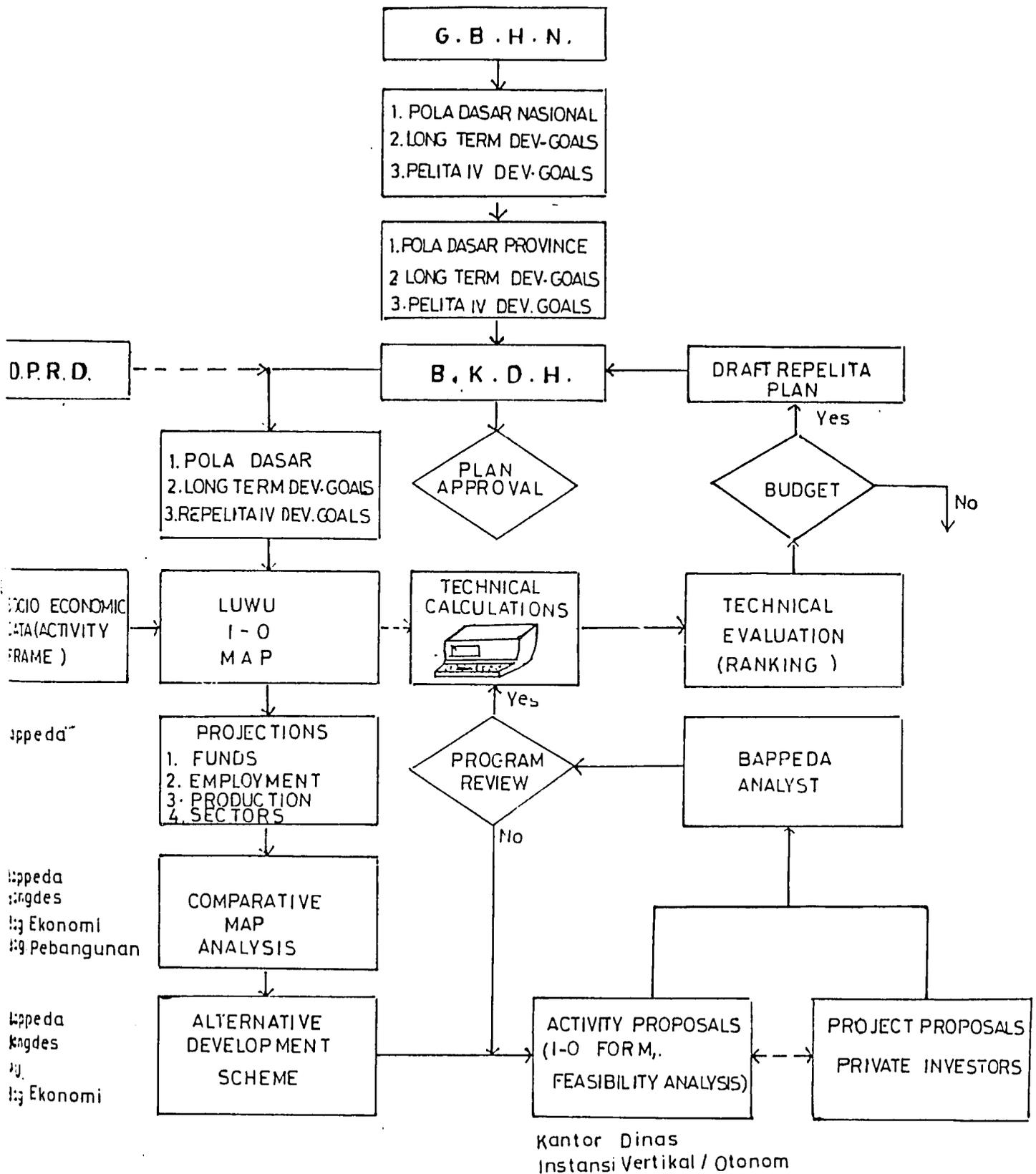
10.1.1. Planning Guidelines

The process starts with the planning guidelines promulgated by the national and provincial government through the following documents:

1. G.B.H.N (Broad Outlines for National Development)
2. Pola Dasar (Basic Framework)
3. Pola Umum (General Goals for Development)

These guidelines, along with administrative regulations are received by the Bupati for implementation at the local level. Kabupaten plans must therefore conform to national

FIGURE 2
PROCESS FOR COMPILING REPÉLITA KAB. LUWU



and provincial guidelines as well as meet the development needs of the kabupaten itself.

10.1.2. Gathering Socio-Economic Data

The local process starts with the Pola Dasar and Pola Umum for the Kabupaten. These are written by the Bappeda office based on inputs from the Bupati and D.P.R.D. While this is done (and actually for a period of 18 months previous to this) socio-economic data is gathered and arranged in the Activity Frame described in Chapter 7. Normal data gathering procedures would result in a series of tables describing the various socio-economic sectors of the Kabupaten. In this process which we call Matrix Analysis Planning, socio-economic data is gathered and organized into the Activity Frame, suitable for compilation into the Kabupaten Input-Output table.

10.1.3. The Luwu Input-Output Table

Sector transaction or output data from the Activity Frame is applied to the table of input coefficients to create the Kabupaten Input-Output table. If the socio-economic data were left in its usual format, each table would describe only a small part of the economic system, showing no interaction with the rest of the economy. In Matrix Analysis Planning, the data is gathered with the specific purpose of creating Input-Output tables. These tables are in a sense like a map, not of the area's physical characteristics but a map describing the socio-economic characteristics of the area. Hence the use of M.A.P., or Matrix Analysis Planning, to describe this process. It is the Matrix Analysis which allows the Bappeda planner to

analyze quantitatively and objectively alternative plan schemes and proposals for specific activities.

10.1.4. Projections

The guidelines for compiling the Repelita plan require that projections be made for:

1. Availability of development funds
2. Employment
3. Production
4. Sector growth

Data gathered over several years in the format of the Activity Frame will provide the data necessary to make these kinds of projections. Agriculture data already gathered over a time series of 12 years and past budget summaries provide Bappeda with the figures useful for currently needed projections.

10.1.5. Comparative I-O Analysis

One advantage of the I-O process is that it arranges data in a consistent format which allows comparability of data between regions and over time. All I-O Matrices have the same basic format. Some will have more sectors than others, some handle imports and exports with slight variations but they are all easily comparable. One aid to interpreting the Luwu table therefore is to compare it with other tables which might be available. Annual updates of the Luwu table will provide comparable figures over time with which to estimate the changes in the economy.

10.1.6. Alternative Development Schemes

The Repelita guidelines require that Bappeda, along with local universities, colleges, or other institutions compile alternative approaches to development for the 5 year

plan period. The I-O table guides the planner in identifying various alternatives. The inverse matrix shows which sectors have the highest multipliers. The transactions table indicates local markets and potential new transactions. Alternative investment patterns based on this study of the tables can be tested on the simulation model to estimate changes five years hence, and one general alternative can be selected for the Repelita.

10.1.7. Development Activity Proposals

Based on the general alternative scheme selected for development, specific proposals must be solicited from the various government service offices for development activities. The Indonesian government provides standard forms for development project proposals. Because of the specific data requirements for I-O analysis, Bappeda TK II Luwu is providing a special form for this process, which was described in Chapter 2.

The form is flexible enough that it may be used not only for government sponsored activities but for the private sector as well. Several government service offices such as the industry, trade, manpower, agriculture offices and banks work with private sector entrepreneurs to identify viable project proposals. These proposals submitted to Bappeda on the I-O form can also be analyzed by Bappeda as to their impact on the economy.

10.1.8. Bappeda Analyst/Program Review

The development activity proposals are submitted by the various sponsors to Bappeda for review. The first review is

to check the data on the form for completeness and accuracy. Undoubtedly there will be questions on many for which Bappeda staff must contact the sponsor for clarification. Forms filled out incorrectly should be returned to the sponsor. Those filled in correctly may be advanced to the next step.

10.1.9. Technical Manipulation

A computer program is being prepared for the Bappeda office which could be used by any planning office using this matrix analysis approach. The program contains the Input-Output Matrix for the region and allows the Bappeda analyst to add to it the I-O data for any project or a collection of projects from their I-O forms. The manipulation of the data through the program yields figures which indicate the projected change in final demand or Incremental Capital Output Ratio of a project. These figures are used to indicate the potential impact which the project will have on the area's economy. This manipulation process is a simple one requiring approximately ten minutes for data input and five minutes to run the program.

10.1.10. Technical Evaluation (Ranking)

After all projects have gone through the I-O manipulation process, the results can be compared. A preliminary ranking of project priorities may be made based on the results of the manipulation, those with the highest change in final demand or ICOR being the highest ranking. This is the first round of ranking and is only preliminary.

10.1.11. Budget Review

These project rankings must then be reviewed in light of the projected budget availability. The budget will most certainly allow only a portion of the priority list to be

implemented. The analyst will be able to go down the list of projects and draw a line where the projected budget is exhausted. Of course certain realities must also be taken into consideration. Perhaps one of the highest ranking projects is also extremely expensive, thereby limiting the diversity of projects which can be implemented. In this case the expensive project may have to be reconsidered, or other sources of funds should be sought. It is important in this regard to enter into the computer various mixes of projects in an effort to discover which may provide the best overall impact on the economy of the area.

10.1.12. Draft Repelita Plan

When a final list of projects or programs is decided upon by the planning staff, they are compiled into a draft Repelita Plan. This plan however is only a draft which must be approved by the decision makers of the district.

10.1.13. Bupati (Decision Maker)

The draft plan is submitted to the Bupati and the provincial Bappeda office for their consideration and approval. With the data and computer manipulation results appended to the plan proposal, a very strong case will be provided for the plan's approval at higher levels.

10.1.14. Plan Approval

Following the decision of the higher authorities, the plan scheme can be finalized into an official area development plan.

10.2. ANNUAL DEVELOPMENT PROGRAMS

The above process was developed by Bappeda TK II Luwu in an attempt to combine the I-O process with national planning procedures. The process however is also compatible with annual programming for development budgets.

Each year the Bappeda office must solicit project proposals from the government service offices. Aside from submission on the standard A-1 and A-2 forms, project proposals are accompanied by I-O forms, the project data may be analyzed with the computer I-O program and priorities made based on the ICOR. A standard process thus emerges for five year development planning, annual programming, and analysis of private sector investment.

10.3. PERT CHART FOR SOCIO-ECONOMIC DATA AND I-O TABLE

The "Matrix Analysis Planning" flow chart illustrates the entire planning process which incorporates national planning guidelines and input-output analysis techniques. The process of gathering the socio-economic data and compiling the I-O tables is illustrated rather simply on the flow chart by two activity boxes. These activities can be divided into discrete tasks as described in earlier chapters and placed on a time scale with the use of the Plan Evaluation and Review Technique or PERT.

Figure 5 illustrates the I-O PERT Chart which starts with the identification of all active establishments or activity units in the area. The resulting Activity Frame is the basis of all subsequent tasks and must be completed

before any other tasks are undertaken. A complete list of establishments will help the staff work through each task with the assurance that their results are as near to complete as possible and will not have to repeat tasks when

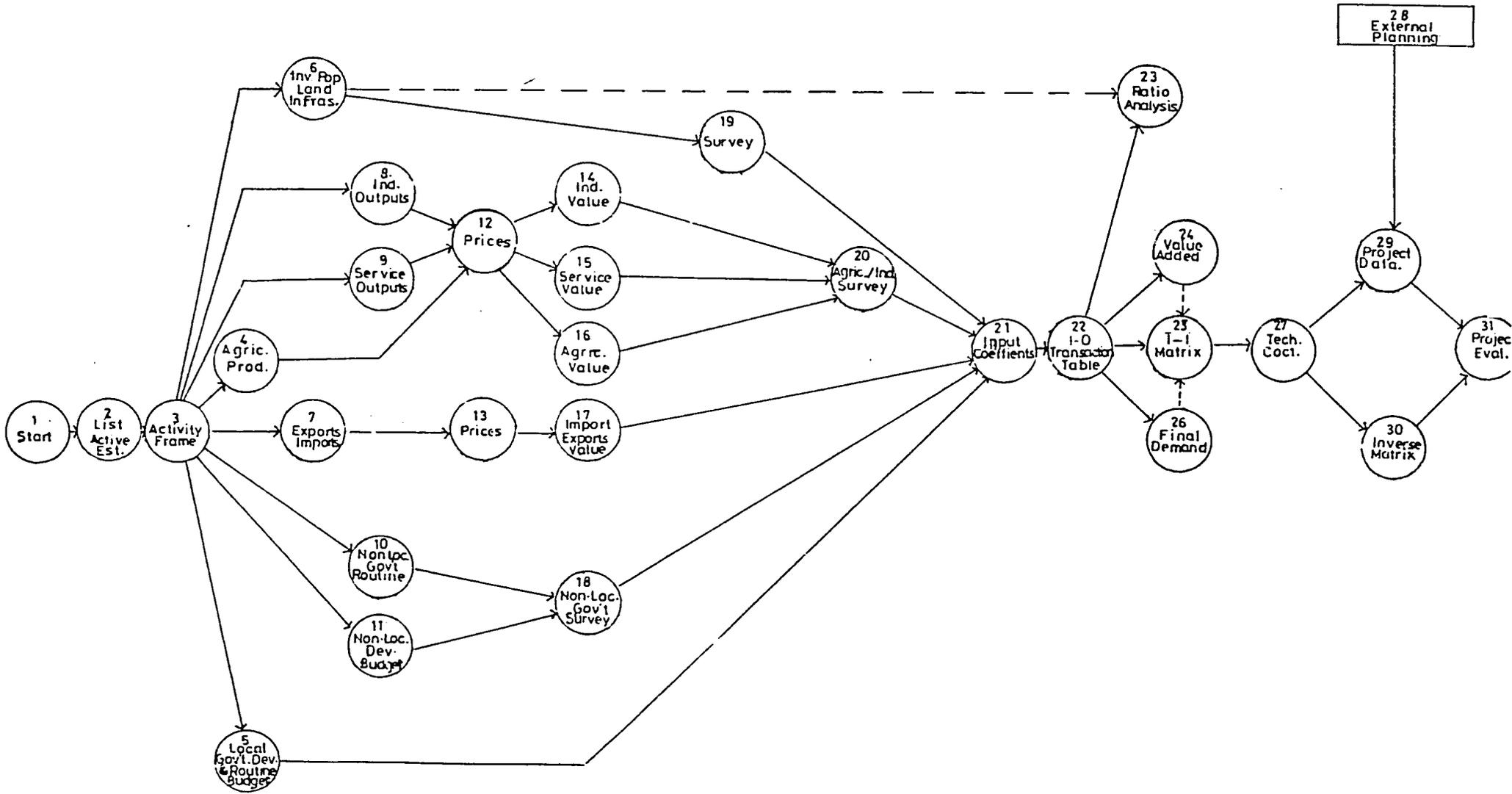
accurate collection of production and inputs data requires an accurate count of establishments. Compiling the list of establishments by activity units, rather than aggregated into sectors provides a frame which allows a survey to be undertaken of specific activity units.

When the activity frame is complete, production figures can be gathered. Agricultural production data and local government expenditures are both well documented and are gathered simultaneously. Agricultural data is available from the Food Crops, Estate Crops, Fisheries, Livestock, and Forestry Service offices. Local government expenditures are detailed in the annual publication "Anggaran Pendapatan Belanja Daerah TK II", available at the Kantor DIPENDA.

Meanwhile base data on population, land area, land use, and basic infrastructure can be gathered from the Statistics Office, Public Works Road and Irrigation Sections, Desa Potential Surveys (Rural Development Office) and Agraria. Some field survey work to check road and irrigation locations is usually necessary. Import-export data can also be gathered by the fifth month from the Harbors Office (Kesyahbandaran) and the Highway Traffic and Transportation Office (LLAJR).

PERT CHART FOR KABUPATEN I O PLANNING

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22



By the sixth month production data from secondary sources for manufacturing and service industries should be gathered. This will become an annual routine task after the first year. Non-local government routine and development budgets are more difficult to obtain than local government figures since they must be gathered through a survey of individual offices and projects. This can be completed by the 9th month as well.

The next step is to gather price data. Prices on a range of goods and services are available from the Kabupaten Statistics Office on the following forms:

1. HK 1 - Weekly Consumer Prices - Urban
2. HK 2 - Monthly Consumer Prices - Urban
3. HK 3 - Quarterly Prices of Services - Urban
4. HP 1 - Monthly Consumer Prices - Rural
5. HP 2 - Monthly Producer Prices - Rural

Prices for export commodities must often be gathered separately, from the Kabupaten Trade Office, other government offices, or directly from private traders.

Prices applied to production data yield production values. Ownership and employment data gathered from the Agriculture Service Office, Statistics Office, and Industry Office complete the secondary data collection. The staff should now be ready to plan the surveys.

The household survey can be planned as soon as population data and base maps are complete. As mentioned in Chapter 8, Bappeda TK II Luwu was able to use household lists from the Kabupaten Statistics Office to select a stratified random sample of household respondents.

The survey of agriculture and industry, based on the list of activity units as a sample frame, can be undertaken once secondary production data is complete. Authors recommend concentrating efforts on the major industries, not necessarily the largest single industries, but the economic activities which produce the largest outputs. Sampling should be concentrated in these activities, with smaller samples chosen from the less dominant but more numerous activities.

Survey of non-local government agencies is required as described in Chapter 8, and can be implemented simultaneously with the industry survey.

Survey results lead to the production of the coefficient and transactions tables. Where secondary data is unavailable or unreliable, survey data can be extrapolated based on the activity frame to estimate activity unit outputs.

The transactions table leads to estimates of value added, final demand, and interindustry transactions. Ratio analysis is then possible using base data for population, land use, and infrastructure to estimate gross community product or income per capita, per area, or per sector, or on whatever specific basis may be required.

Using the inverse matrix program, the staff is now ready to plan alternative development schemes and analyze activity proposals.

10.4. THE ROLE OF BAPPEDA AND LOCAL GOVERNMENT OFFICES

The planning process above requires active participation by many persons and offices in Luwu. This is one of its strengths. The more that Bappeda can draw in the participation of the government service offices, educational institutions, and private sector, the greater chance there will be in creating a plan which will meet the local development needs, and be implemented. Figure 6 summarizes these roles.

The local decision makers, the Bupati and the DPRD, are the first to play a role in the process, interpreting the guidelines from the provincial and national level, and providing advice to Bappeda regarding the Pola Dasar for the area. Bappeda must write the Pola Dasar and General Goals for long range and medium range development.

All local government agencies contribute to the socio-economic Activity Frame. Under the direction of Bappeda they annually submit new data on the number of activity units and outputs for those sectors which fall under its jurisdiction. With this data provided, Bappeda makes the necessary projections and develops the Luwu Input-Output Table. Bappeda, working with the Repelita Committee tests various alternative development approaches and selects one as a general guide for planning development activities. All local government service offices are involved in submitting activity proposals. When possible they will involve the private sector in their proposals.

Figure 6

PLANNING ROLES
MATRIX ANALYSIS PLANNING

<u>Task</u>	<u>Responsible Agency</u>
1. General Guidelines	1. BAPPENAS, BAPPEDA TK I, Bupati, DPRD
2. Pola Dasar Pola Umum Pembangunan Jakarta Panjang Pola Umum Pelita IV	2. BAPPEDA TK II
3. Socio-Economic Data/ Activity Frame	3. BAPPEDA TK II and all Govern- ment Service Offices (Annual Activity)
4. Luwu Input-Output Table	4. BAPPEDA TK II
5. Projections	5. BAPPEDA TK II
6. Comparative I-O Analysis/ Development Alternatives	6. BAPPEDA TK II and Repelita Committee
7. Development of Activity Proposals	7. All government service offices (working with private sector where possible)
8. Program Review/Technical Technical Manipulation Technical Evaluation	8. BAPPEDA TK II
9. Budget Review	9. BAPPEDA TK II and SEKWILDA
10. Draft Repelita	10. BAPPEDA TK II
11. Plan Approval	11. Bupati and DPRD

Bappeda evaluates each proposal and ranks then based on the ICOR result from the technical evaluation. Sekwilda assists Bappeda in estimating budget availability and matching projects to funding sources.

The draft plan is written by Bappeda and submitted to the Bupati and the DPRD for approval.

The role of the government agencies outside of Bappeda can be summarized into three categories:

1. Through their representatives on the Repelita committee they work with Bappeda to analyze various alternative development schemes with the J-O table and select one which appears to best promote local development.
2. As an annual activity they submit updates of activity unit output data for the Activity Frame.
3. For the Repelita and Annual Development Program they submit Activity Proposals to Bappeda TK II for evaluation and inclusion in the plan.

10.5. CONTINUITY OF THE PROCESS

A question is often raised regarding the long term prospects for the Matrix Analysis Planning process. Is the Bappeda staff capable of continuing the process in the future? Is it a process capable of meeting the planning needs of other kabupaten or provincial planning offices?

The answer to the second question is clearly yes. The process provides a structured program for data gathering and analysis useful at either level of planning. The process directly responds to many of the elements of the national planning guidelines, such as

1. Creation of an Integrated Intersectoral Matrix.
2. Creation of a model to quantitatively calculate projections and develop strategies and policies.
3. Objective analysis of program and project proposals.

The usefulness of the approach was evident during staff training sessions when many poignant questions asked by the participants were capable of being answered through careful study of the input-output table. Training participants from the provincial Bappeda as well as from Luwu were equally enthusiastic about the process.

Regarding the first question one can say that the structure of the process is being left behind with Bappeda; the activity frame, the coefficients table, the simulation model, and the matrix inversion program. The computer equipment is in place and the staff trained to use it. They have developed an administrative procedure to use the process. It remains for the staff to continue the implementation process. There are many ways of technically manipulating input-output data which Bappeda cannot be expected to know or use. Their experience of gathering the data at the micro level, compiling it into the micro level and manipulating the data into an input-output table has given them insights into kabupaten Luwu that perhaps few other planning staffs have had. It will reflect in their Repelita plan. The staff is currently writing the kabupaten Pola Dasar. The input-output data is being used to outline broad development objectives, particularly in regards to the national priority of industrialization during Repelita IV. The structure of the process and the repetitive nature of the data gathering and analysis will insure that concepts learned during the past year and a half will continue.

MINISTER OF HOME AFFAIRS
REPUBLIC OF INDONESIA

APPENDIX 1

TRANSLATION:

CHECCHI/DMJM

Jakarta, February 3, 1983

To: All the Governor Of Province
in Indonesia

No. : 050.11/166/Bangda
Enc. : 1(one)
Subject: Guide for compiling
Local Repelita IV

Reference to the Minister of Home Affairs No.050.1/2038/Bangda with the subject of the Preparation of Guidelines for the Compiling of Local Repelita IV, and considering that the time for compiling the Local Repelita IV is short, so while waiting for issuance of a Guide Preparation and Management of local development, this special guide is given for compiling the Local Repelita IV with the following steps :

STEP I. To evaluate the implementation of the Local Repelita (REPELITA III).

As was stated in the letters of the Minister of Home affairs, that the indicators to be used for the evaluation of the implementation of the last PELITA are based on 4 (four) subjects :

- 1) How far the basic problems not yet overcome in the last PELITA III were carried out.
- 2) To identify the basic problems not yet overcome in the last PELITA, and new problems which have appeared.
- 3) How well the goals of the areas/sectors/Sub-Sectors have been achieved.
- 4) Is the "Regional system" of the last REPELITA appropriate in light of inter-regional growth in the Province.

STEP II. To set Purpose and Directions.

The next activity is to set the purpose and directions as a continuation of the first step activity.

The following should be done in this stage :

- 1) To study of the purpose and directions of National Development which were stated in the Broad Outline for National Development (GBHN) and National REPELITA;
- 2) To make estimates of the fund availability and potential of the region for the present and the future;
- 3) To estimate the growth rates desired based on the calculations of the available data resources;

- 4) To make an estimates concerning the contribution of each sectors/ subsectors toward the achievement of the desired growth target of the region and efforts to be undertaken to solve problems facing the area.

Writing the draft of the planning should be guided by the GBHN Plan such as stated in the President's speech of October 1, 1982, and should be in accordance with the GBHN which resulted from the Sidang Umum MPR 1983.

STEP III. Projections.

- 1) The results of stages I and II should be used as an inputs for the projection of the future development, using several approaches such as : ecstractive approach, normative approach, a combined approach, and calculated of physical, economic, and social aspects which are linked to the projection of the population and cost (financing).
- 2) Steps to be done in making projections of the situation are :
 - a) To determine the basic situation, which is to determine the situation based on reliable data and information.
 - b) To determine of the factors most influential among the variables present.
 - c) To determine development "type".
 - d) To determine models being used.

STEP IV. Compiling Alternatives.

Based on the projection results concerning the situation and problems to be faced in the future five years, alternatives are to be created to solve these problems, which will include the formulation of :

1. The Purpose and Aim of the Development.
2. Basic Targets of the Development.
3. Strategy and policy, together with quantitative calculations such as expected growth rates and their implications.

In compiling these alternatives, the following must be clarified :

- 1) Assumption being used (e.g : estimates of the growth rate).
- 2) Method/system being used.
- 3) Activities to be implemented.
- 4) Costs
- 5) Benefits.

STEP V. Selection of Alternative.

This stage is to choose the best alternative to be formulated as a draft of the development plan.

This selection is based on :

- 1) The most urgent requirements of the five year to come.
- 2) Purpose and Aim of National Development.
- 3) The comparison of costs and benefits, as far as this can be calculated.
- 4) Ability of funds.

STEP VI. Writing of Draft Plan which consists of :

- 1) Book I contains the Basic Policy of the Local REPELITA, including :
 - a) Purpose of the Local REPELITA,
 - b) Condition and Potential of the Region,
 - c) Goal of the Local REPELITA,
 - d) Purpose of Local REPELITA,
 - e) Strategy and Policy of Local REPELITA,
 - f) Population and Employment Opportunities,
 - g) Sources of Development Fund,
- 2) Book II contains the development sectors and estimated costs for each sector..

The Development consists of:

- a) Agriculture and Irrigation;
- b) Industry;
- c) Mining and Energy;
- d) Communications and Tourism;
- e) Trade and Cooperative;
- f) Manpower and Transmigration;
- g) Regional, Village and Urban Development;
- h) Religion;
- i) Education and Youth;
- j) National Culture and Belief in God;
- k) Health, Social Welfare and Women's Role;
- l) Population and Family Planning;
- m) Housing and Settlement;
- n) Law;
- o) Safety and Public Order;

- p) Information, Press and Public Communications;
 - q) Science, Technology and Research;
 - r) Government Administration;
 - s) Private Investment;
 - t) Management of Natural Resources and Environment;
- 3) Book III contains Regional Development and Development of the Local Areas (Daerah Tingkat II) which consist of :
- a) Regional Development (Location Aspects).
 - b) Development of the Daerah Tingkat II.
- 4) Besides these three books, a 4th book may be compiled if necessary, which contains :
- a) Tables of Sectoral Projections.
 - b) Tables of Expenditures Projections.
 - c) Structure of the Program, hierarchy of locations, and cost estimates of development projects.
 - d) Integrated intersectoral matrix (if possible).

STEP VII. Formalizing the Draft Plan.

- Workshop, to get inputs from the government, professionals, and community leaders.
- Rewriting.

STEP VIII. Approving the Final Draft.

In order to approve the Draft Plan in Gubernur Kepala Daerah Tk. I Decree by 31 March, 1984, it is hoped that the process should be started at least 12(twelve) months before hand.

For correct implementation, attached is the diagram of the Guide for compiling Local REPELITA IV.

Thank you for the attention.

For Minister of Home Affairs;

Dir.Gen Pembangunan Daerah;

DIAGRAM OF GUIDE FOR COMPILING LOCAL REPELITA IV

NO.	ACTIVITY	TIME	WHAT MUST BE DONE	IMPLEMENTOR	RESULTS MUST BE REACH:
1.	Evaluating the implementation of the Local REPELITA. (Evaluate goals achieved and not achieved)	2 months	<ul style="list-style-type: none"> - Data Gathering - Data Analysis 	<ul style="list-style-type: none"> - Bappeda - Dinas - Institutional Bodies - Vertical Central & Local Agencies 	Conditions, Problems and Potentials of the Region
2.	To set Goals and Directions	1 month	<ul style="list-style-type: none"> - Discussions/ Workshops 	<ul style="list-style-type: none"> - Bappeda(Coordinator) with participants: + Vertical Agencies + Kanwil + Dinas-Dinas + Institutions + Universities(Local) + Group Leaders/Chamber of Commerce to discuss available data 	Formulation of the Directions and Goals of the Regional Development(Tentative)
3.	Projections	2 months	<ul style="list-style-type: none"> - Estimates based on: + Available Models + Intuition(without models) 	<ul style="list-style-type: none"> - Bappeda - Universities - Institutions 	Projections : <ul style="list-style-type: none"> - Funding - Population and Employment Opportunities - Local Economic Growth and Production. - Divisions/Sectors of Development. - Potential Problems in Future

NO.		ACTIVITY	TIME	WHAT MUST BE DONE	IMPLEMENTOR	RESULTS MUST BE REACH:
4		Compiling Alternatives	2 months	- Compile Alternatives - Problems and Strategy of Development	- Bappeda - Universities - Institutions	Development Alternatives : - Development and Regional - Compiling Alternative Programs and Projects
5.		Alternative Selection	2 months	- Selection of Alternatives - Develops Program by matching funds to projects	- Bappeda	- Programs & Projects Compiled
6.	WRITING & DETERMINE OF PLANNING	Writing of Draft Plan	1 month	- ditto -	- Bappeda	- Local REPELITA, Books I, II, III, & IV
		Finalize the Draft Plan	1½ month	- ditto -	- Bappeda	- Local REPELITA, Books I, II, III, & IV
		Approval of Plan through Decision Letter	½ month	- ditto -	- Bappeda	- Local REPELITA, Books I, II, III, & IV

MULTIPLIER TABLE
AND
SECTOR REQUIREMENTS

Commodity Sectors	REQUIREMENTS																										
	Crop Estate 1.	Live stock 2.	Ag. Service 3.	Forestry 4.	Pond Fishing 5.	Sea Fishing 6.	Mining 7.	Construc tion 8.	Food & Drink 9.	Textiles 10.	Wood Prod 11.	N-Metal Mfg 12.	Other Mfg 13.	Transp Strge 14.	Pvt Utiliti 15.	Trade 16.	Finance 17.	Hotel Restaur 18.	Person Service 19.	Bus Service 20.	Vehicle Repair 21.	Other Repair 22.	Recrea tion 23.	Other Service 24.	Cooper- atives 25.	Govt Entrps 26.	Social Service 27.
1 Crop/Estate	1.02965	0.17620	0.00998	0.00110	0.01152	0.00305	0.02294	0.01425	0.21327	0.00645	0.00996	0.00614	0.00518	0.23263	0.00159	0.02373	0.00606	0.11753	0.00795	0.00116	0.00514	0.02805	0.00227	0.00637	0.67467	0.00322	0.00223
2 Livestock	0.00102	1.13504	0.00030	0.00007	0.00569	0.00067	0.00443	0.00323	0.36524	0.00068	0.00723	0.00367	0.00101	0.01503	0.00171	0.00194	0.00221	0.17718	0.00159	0.00075	0.00229	0.13257	0.00423	0.00596	0.04247	0.00120	0.00061
3 Ag. Service	0.00875	0.00904	1.09130	0.00005	0.00122	0.00136	0.00845	0.00517	0.00965	0.00199	0.00509	0.02430	0.00377	0.01150	0.00273	0.00123	0.00655	0.00512	0.00230	0.00099	0.00462	0.00334	0.00083	0.00104	0.02891	0.00326	0.00116
4 Forestry	0.00457	0.00009	0.00376	1.05150	0.00954	0.01112	0.00586	0.02348	0.00853	0.00933	0.02985	0.00590	0.01333	0.18342	0.00763	0.01868	0.00472	0.01078	0.01101	0.00368	0.01502	0.01001	0.00519	0.00525	0.01860	0.01036	0.00460
5 Fishponds	0.00000	0.00005	0.00001	0.00000	1.39507	0.00000	0.00001	0.00007	0.00004	0.00000	0.00001	0.00002	0.00000	0.00002	0.00001	0.00000	0.00049	0.05038	0.00004	0.00000	0.00002	0.00006	0.00003	0.00001	0.00002	0.00001	0.00001
6 Sea Fishing	0.00000	0.00002	0.00000	0.00000	0.00010	1.00781	0.00000	0.00200	0.00001	0.00000	0.00000	0.00001	0.00000	0.00000	0.00000	0.00000	0.00006	0.00625	0.00001	0.00000	0.00000	0.00001	0.00009	0.00009	0.01874	0.01330	0.00642
7 Mining/Dry	0.00571	0.00424	0.00533	0.00012	0.00466	0.00739	1.03297	0.95209	0.00688	0.00765	0.02905	0.10098	0.01523	0.02471	0.01124	0.00276	0.00177	0.00322	0.00883	0.00400	0.01378	0.00953	0.00409	0.00365	0.01874	0.01330	0.00642
8 Construction	0.00014	0.00614	0.00012	0.00000	0.02997	0.00018	0.00075	1.00102	0.00217	0.00018	0.00051	0.00224	0.00035	0.00056	0.00028	0.00622	0.00911	0.00216	0.00039	0.00010	0.00048	0.00113	0.02778	0.00314	0.00080	0.00034	0.00685
9 Food & Drink	0.00166	0.23362	0.00057	0.00020	0.01216	0.00157	0.01210	0.00637	1.11474	0.00164	0.02102	0.00755	0.00243	0.04205	0.00136	0.00450	0.00351	0.25658	0.00234	0.00130	0.00259	0.04060	0.00198	0.00592	0.12024	0.00162	0.00114
10 Textiles	0.00003	0.00018	0.00007	0.00000	0.00659	0.04935	0.00013	0.00026	0.00044	1.34258	0.00005	0.00004	0.00130	0.00045	0.00002	0.00014	0.00010	0.00070	0.01007	0.00416	0.00022	0.00015	0.00082	0.00027	0.00115	0.00007	0.00062
11 Wood Prod	0.01435	0.01337	0.01449	0.00016	0.01872	0.04909	0.07606	0.19975	0.01879	0.01797	1.50256	0.23104	0.07668	0.03246	0.02618	0.01170	0.00576	0.01100	0.02261	0.07049	0.04969	0.03132	0.02370	0.01258	0.04620	0.03192	0.04072
12 N-Metal Mfg	0.00199	0.04190	0.05800	0.00067	0.03659	0.00024	0.34956	0.21332	0.07254	0.00029	0.21677	1.10503	0.16430	0.13922	0.12261	0.01577	0.01655	0.05172	0.09247	0.04235	0.20336	0.10114	0.03436	0.00019	0.20019	0.14419	0.04934
13 Other Mfg	0.01909	0.03763	0.05924	0.00035	0.02605	0.03518	0.08067	0.15418	0.02763	0.02769	0.02182	0.01538	1.15744	0.07277	0.01949	0.00877	0.04796	0.04075	0.06782	0.03435	0.17766	0.09926	0.01647	0.01209	0.09473	0.04211	0.03201
14 Transp/Strge	0.00570	0.01785	0.00404	0.00505	0.03326	0.00664	0.09834	0.06099	0.01846	0.02724	0.02536	0.02133	0.02230	1.07334	0.00552	0.10910	0.02273	0.02377	0.03516	0.00406	0.02122	0.02538	0.00669	0.01862	0.04298	0.01342	0.00940
15 Pvt Utiliti	0.00013	0.00258	0.00020	0.00002	0.00315	0.00022	0.00041	0.00160	0.00717	0.00021	0.00056	0.00089	0.00030	0.00104	1.00034	0.00251	0.00369	0.00993	0.00251	0.00580	0.00298	0.00255	0.01083	0.03017	0.09102	0.04512	0.00162
16 Trade	0.00637	0.04312	0.02049	0.00115	0.07701	0.02696	0.01321	0.10626	0.02639	0.02306	0.01370	0.01899	0.05332	0.05002	0.02301	1.23407	0.00813	0.03655	0.05126	0.01286	0.03782	0.03067	0.01653	0.02285	0.01582	0.00771	0.01344
17 Finance	0.00134	0.00203	0.00832	0.00004	0.02355	0.00055	0.00207	0.00681	0.00367	0.00062	0.00191	0.00499	0.00087	0.00618	0.00549	0.00069	1.00214	0.00273	0.00310	0.00091	0.00195	0.00465	0.00262	0.05576	0.00234	0.00158	0.00084
18 Hotel/Restau	0.00006	0.00034	0.00011	0.00001	0.00170	0.00008	0.00018	0.00132	0.00051	0.00007	0.00020	0.00045	0.00008	0.00041	0.00018	0.00005	0.00071	1.00042	0.00078	0.00006	0.00036	0.00121	0.00066	0.01616	0.00035	0.00026	0.00013
19 Personal Ser	0.00000	0.00007	0.00000	0.00000	0.00000	0.00000	0.00001	0.00002	0.00023	0.00000	0.00014	0.00092	0.00001	0.00001	0.00000	0.00000	0.00000	0.00005	0.00000	0.00001	0.00000	0.00001	0.00000	0.00000	0.00000	0.00000	0.00000
20 Business Ser	0.00032	0.00272	0.00062	0.00004	0.00691	0.00075	0.00085	0.00447	0.00480	0.00072	0.00097	0.00186	0.00122	0.00237	0.00093	0.02236	0.00986	0.00534	0.00723	0.00043	0.00476	0.00491	0.19208	0.05753	0.00151	0.00337	0.00282
21 Vehicle Rep	0.00118	0.00122	0.02426	0.00019	0.00266	0.00081	0.00372	0.01087	0.00129	0.00111	0.00127	0.00169	0.00092	0.03735	0.00037	0.00081	0.00142	0.00129	0.00190	0.00021	1.00114	0.00196	0.00100	0.01401	0.00256	0.00075	0.00204
22 Other Rep	0.00087	0.00229	0.00080	0.00003	0.01461	0.00117	0.00321	0.00822	0.00615	0.00094	0.00293	0.00971	0.01161	0.00235	0.00168	0.00206	0.00119	0.00915	0.00606	0.00270	0.01171	1.00382	0.02963	0.02118	0.00269	0.00538	0.00185
23 Recreation	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000
24 Other Serv	0.00223	0.00206	0.00156	0.00034	0.09269	0.00455	0.00965	0.04053	0.03049	0.06423	0.01160	0.02567	0.00430	0.01907	0.00328	0.00229	0.01883	0.02500	0.04790	0.00325	0.02177	0.07434	0.03581	1.00454	0.00999	0.01547	0.00572
25 Cooperatives	0.00908	0.00796	0.00133	0.00165	0.01394	0.00428	0.03223	0.02608	0.00764	0.00953	0.00974	0.00712	0.00734	0.25117	0.00182	0.02570	0.00745	0.00876	0.01152	0.00137	0.00097	0.00949	0.00221	0.00612	1.01914	0.00441	0.00310
26 Govt Entrps	0.00000	0.00007	0.00002	0.00000	0.00006	0.00009	0.00001	0.00002	0.00021	0.00000	0.00001	0.00001	0.00000	0.00002	0.00001	0.00002	0.00002	0.00005	0.00001	0.00000	0.00000	0.00000	0.00000	0.00001	0.00000	0.00000	0.00000
27 Social Serv	0.00000	0.00008	0.00001	0.00000	0.00002	0.00001	0.00003	0.00005	0.00022	0.00001	0.00014	0.00003	0.00002	0.00000	0.00001	0.00023	0.00001	0.00007	0.00007	0.00001	0.00003	0.00002	0.00001	0.00001	0.00001	0.00001	0.00001

MULTIPLIERS

1.20476	1.88641	1.20651	1.07276	1.62866	1.29553	1.73785	1.00941	1.94518	1.56925	1.00366	1.65506	1.53732	2.29843	1.24251	1.50050	1.17263	1.83649	1.39259	1.19591	1.59061	1.61552	1.42194	1.34099	2.34522	1.35529	1.23220
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APPENDIX 3. PAGE 1
TRANSACTION TABLE COEFFICIENTS

	Crops Estate	Farm Labor	Live- Stock	Poultry	Lvstk Labor	Cattle Rental	Tractor Rental	Rattan Agent	Fire Wood	Resin Agent	Fish Pond	Pond Labor	Sea Fishin
	1A	1B	2A	2B	2C	3A	3B	4A	4B	4C	5A	5B	6A
Crops/Estate	.02263		.23248	.09993									
Livestock	.00033		.04282	.02206									
Ag. Service	.03644		.00483										
Forestry	.00012												
Fishponds			.0001						.00523	.91866	.00132		.00501
Sea Fishing											.28588		
Mining/Qry													.01002
Construction			.01128	.004									
Food&Drink			.2895	.2967							.02139		
Textiles											.00597		.00013
Wood Prod	.00047		.00462								.00351		.03682
M-Metal Mfg	.04923		.00823	.00411			.05093				.00234		.02163
Other Mfg	.01186		.04386	.01634			.05796				.01129		.062
Trans/Strge	.00318		.00055	.01082				.03559			.00969		.02837
Pvt Utiliti										.004225	.01473		.00086
Trade	.0029		.03703	.02298									
Finance	.000745			.00003		.01644	.00043	.00078			.04038		.01887
Hotel/Res						.00998					.01296		
Personal Sr													
Business Sr													
Vehicle Rep													
Other Rep	.000125					.03001				.00021			.00048
Recreation										.000095	.00064		.00016
Other Serv	.00159		.05422	.00008									
Cooperatives	.00762					.00001				.00411	.06481		.00239
Govt Entrpse											.00218		.00227
Social Srv													
Govt Admin													
WH Industry													
Local Owner	.78546	1	.21031	.48994	1	1	.81689	.5	.99399	.06828	.42949	1	.5789
Prof. Income													
Skilled Inc	.01414		.0116	.01948			.01778						
Unskilled In	.05534		.04794	.01298									.16047
Local Tax	.00782		.00063	.00012				.45396			.0916		.065
U.L. Income								.00167		.00442	.00129		.00672
U.L. Tax				.00043							.00053		
Cap Cons							.00835						
Total Input	1	1	1	1	1	1	1	1	1	1	1	1	1
Total Units	66002	3122	45246	29567	1786	2034	127	15	6709	10	2390	163	1833
Owners	1	1	.125	.1	1	1	1	1	1	1	1.0769	1.0526	1
Professional				.027									
Skilled	.03		.13	.03									
Unskilled	.28		.069	.02							.15		1.3
U.L. Labor										13	1.31		.8667
OUTPUT	20158733	63003	1834364	8061096	153514	151101	610858	521549	3716960	258705	530392	5120	5169492

APPENDIX 3 PAGE 2
TRANSACTION TABLE COEFFICIENTS

Fishing	Labor	Mining	Quarry	Private	Small	Large	Rice&	Animal	Bakery	Noodle	Peanut	Oils	Ice	Palm
	6B	7A	7B	Constr	Govt	Govt	Sago	Slaugh-	and	Factory	Confect			
				8A	8B	8C	Mills	ter	Other	9D	9E	9F	9G	9H
							.41052		.31086		.32046	.31614		
								.64227	.00246		.00966			
						.00003	.00151		.03294					.02157
							.01011							
				.045	.045	.00034								
						.00152								
	.005								.13618	.25718	.14051		.03378	
.02188							.00121							
				.117	.117	.06528	.00244							
	.28249			.108	.108	.20208	.06369		.00803		.02661	.0121	.14128	
	.02035			.099	.099	.17664	.00926						.0448	
	.00166			.027	.027	.06325	.0042	.00707				.00744	.02255	
													.0393	
.00311	.01483			.081	.081	.05909	.01045	.00097	.02117	.04608	.01323	.02674	.01589	.04623
				.00745	.00745	.00068	.00115						.00745	
				.00072	.00072	.00031								
													.00149	
				.000014	.000014	.000015							.01539	
				.017906	.017906	.002055								
						.00037	.001645					.00107	.01117	
				.04591	.04591	.00276	.01791	.00097				.02843	.11129	.05547
							.000975							
							.00101							
.97501	.51956		.1	.1	.00443	.39127	.28896	.35801	.16214		.08725	.49309	.87673	
	.00567				.0018	.0012						.00262		
	.02834		.198	.198	.0405	.03048	.04366	.13016	.38768	.48953	.49153	.01863		
	.02267	.28135		.135	.20033	.04809	.01358		.14692			.03766		
	.00151	.19909		.018	.018	.00486	.00299	.00252	.00019		.0293	.00252		
	.03329					.16009								
						.00045							.00109	
	.58419					.00301								
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1212	1	62	25	72	7	257	54	7	1	1	100	13	74	
1		1				1.04	1.8	1	1	1	1.0849	1	1	
					9.86	.05							.17	
	90	1	60	70	125.14	.32	1.2	2.75	13	2	1.9169	1.17		
	505	4	70	80	117	.47	.0		4			2.33		
	413				5.71						4.5096			
162883	69035655	231384	5374000	15408821	8591439	389715	549671	16882	1104	621	25777	170623	11599	

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TRANSACTION TABLE COEFFICIENTS

Tailor 10	Sawmill 11A	Plywood 11B	Car- Penter 11C	Rattan Craft 11D	Shingles 11E	Boat Repair 11F	Boat Making 11G	Brick &Lime 12A	Tile 12B	Bldg Block 12C	Ceramics 12D	Char- coal 12E	Ebony Wood craft 13A
	.02213			.20175	.14655			.04587 .10159				.01449	
								.12618 .0041 .00457	.0197	.00484	.13068		
.25514		.0196											
	.46718	.22727	.31769				.19509	.05369		.00346		.75645	.14561
.04927	.02185	.20511	.05011	.01099			.02754		.17344	.03045	.06034		.23192
.01591	.02469		.01596	.02252	.00175		.05114	.00194					.00121
.01758	.01748	.00912	.02693					.01024	.00296				
	.00071												
.01354	.01002		.01246	.00502	.0009	.003	.0118	.00339	.02549	.00457	.02797		.03496
	.00088							.00608					
		.00015											
		.00029											
.00008	.0006		.000145					.00689	.000315				
.00144	.00591	.00246	.00698					.04459					
	.00163												
	.00011		.00073										
.58871	.29509		.40432	.35621	.8508	.997	.17683	.22393	.23262	.23062	.50771	.06089	.13617
	.00254		.00286										
.05657	.08543	.0225	.1484	.40351			.41437	.29558	.54431	.60299	.25775	.04058	.34798
	.04033	.07562	.012135				.12144	.03669		.12074	.00036	.14208	.10215
.00164	.00225	.00074	.00126				.00179	.03467	.001165	.00233			
	.00001	.43424											
.00012	.00116		.00002										
		.0029											
1	1	1	1	1	1	1	1	1	1	1	1	1	1
55	78	1	40	5	115	10	1	62	1	2	3	1	6
1.04	1.12		1	1	1	1	1	1.09	1	1	1	1	1
	.06	2	.04										
.3	2.59	91	1.79	4	.5		30	3.14	6	4	2.5	1	4
	3.24	453	.54				17	1.64		1	.5	7	1.5
		26											
164175	1328510	2264382	240393	19985	761	1753	27000	110510	26219	8680	51266	36050	16524

APPENDIX 3 - PAGE 4
 TRANSACTION TABLE COEFFICIENTS

	Metal	Welder	Motor Land Trans	Becak Land Trans
	13B	13C	13D	14A 14B
			.04362	
.00705				
.14167	.07783	.09412	.17169	
.00829	.35442	.13523	.10001	
.05801		.00868		.19655
.02228	.06484	.0276	.02271	
			.01573	
			.07439	.05456
			.04719	
.44435	.12583	.48866	.36575	.16064
			.02618	
.2506	.37708	.18402	.05297	
		.05784	.03616	.5569
.06775		.00223	.01025	.00625
			.00154	.00613
		.00162	.00142	
			.01039	.01897
1	1	1	1	1
5	4	21	77	535
1	1	1.25	1.11	1
			.26	
1	3.33	.5	1.79	
		.75	2.42	.71
10775	16000	48862	891452	633707

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TRANSACTION TABLE COEFFICIENTS

SECTORS	Sea Transp 14C	Storage Dolog 14D	Rattan Sorter 14E	PVT Utility 15	Whole- sale 16A	Retail 16B	Fuel 16C	Phar- macy 16D	Gold- smith 17A	Insur- ance 17B	Coffee shop 18A	Lodging 18B	Restau- rant 18C
1											.06143		.04193
2											.09991		.20506
3													
4			.77329								.007938		
5											.03651		.09056
6													.07042
7													
8		.000296				.002831							
9											.22571	.08932	.17239
10									.00001				
11						.00698		.02654					.00588
12	.23818	.00032	.00925	.10859					.00491	.00541			
13	.00377	.00057	.00044	.00642		.00029			.17843	.01551		.16311	.00861
14		.02064	.02344	.0008	.13692	.04553	.08058	.00318	.01656	.01979	.00904	.00913	.00546
15					.01515	.00166				.00323		.0531	
16	.03593	.06889	.00139	.01632	.098274	.31064	.02916	.00672	.00234	.00314	.06126	.03653	.06479
17	.00075		.00007	.00462						.01009			
18										.01065			
19													
20		.000004			.004216	.000289	.001195			.000975	.000227		
21	.00425	.00018								.000435			
22		.00004	.000085	.004615	.00234	.00001	.00199			.00028	.000225	.01742	
23													
24	.00254	.00041	.00121	.00461					.00558	.01929	.00634	.05322	
25		.90158											
26								.00849		.00289			
27		.00057				.00033							
28													
29													
30	.55		.13976	.80305	.64875	.5957	.82025	.74665	.66418		.44224	.29932	.26449
31			.0056		.01318		.03506	.09554		.11406		.03287	
32	.02136	.0036	.03039	.0289	.03215	.01003	.00142	.04246	.10454	.1367	.00801	.12708	.02094
33	.14322	.0029	.0056	.01445	.01061	.0083	.01047	.06369	.01117	.00249	.03904	.07669	.04188
34			.008835	.007625	.01254	.01525	.015685	.00372	.00623		.00212	.02687	.00759
35						.00183			.00093	.64013			
36			.00064		.02587	.00033	.00419	.00301	.00512	.01493		.01534	
37													
Total Input	1	1	1	1	1	1	1	1	1	1	1	1	1
Total Units	3	3	5	25	306	1371	186	2	28	5	123	12	9
Owners	1		4	1	1.06	1.02	1.1176	1	1.14		1	1	1.08
41		1.333	.75		.18			1		9		.2	
42	.5	40.67	6.25	.6	.82	.11	.06	1	.57	58	.17	2.2	.75
43	1		1.5	.2	.47	.05	.24	2	.57	1	1.5	3	1.5
44													
OUTPUT	3421	1255266	692898	56406	2218769	3199286	862803	9718	55427	414790	308121	56498	35102

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TRANSACTION TABLE COEFFICIENTS

Beauty Shop	Photo Barber	Photo Studio	False Teeth	Photo-Copy	Adver-tising	Bicycle Service	Auto Motor/Service	Tire Repair	Watch Repair	Type- Radio writer Repair	Leather Repair	Cinema	
19A	19B	19C	19D	20A	20B	21A	21B	21C	22A	22B	22C	22D	23A
													.32727
													.03462
.00916	.00049				.00375								
					.05045				.01345				
.05609	.01305	.1504	.04208	.11881	.0048	.02826	.16184	.06682	.00103	.06468	.03479	.14469	.00453
.04095	.02798	.10608	.05667	.1485	.0011	.10804	.15062		.14269	.09224	.10438	.00839	.00223
.02866	.00299	.01511		.00368		.04349	.01012		.00897	.06464			.00202
.00109				.03093			.00225						.01069
.04305	.00626	.00755		.0377	.00144	.02062	.02075	.01014	.02018	.01956	.02152	.0034	.00424
				.00236									
.00064	.001998					.000544	.000277						.01984
.00256				.00589			.00485			.002375			.01455
.05249	.01998		.10875	.00942		.053826	.01524			.00476		.19394	.03704
.00091						.00059							
.61661	.81079	.61205	.7825	.5109	.46918	.65108	.54747	.46122	.80583	.750475	.83931	.31601	.56766
				.07069			.00594						.01424
.13092	.07543	.10791		.01767	.23464	.07053	.04398	.23091					.02818
.00963				.03535	.23464	.01763	.032103	.23091					.02172
.004	.041032	.0009	.01	.0081		.00294	.0043		.00785	.00127		.0063	.04533
						.00245							
.00324							.00026						.19311
1	1	1	1	1	1	1	1	1	1	1	1	1	1
25	5	8	2	4	2	22	76	2	8	5	3	4	14
1	1	1.25	1	1	1	.8889	1	1	1	1.4	1	1	1
.09				.33			.25						.33
1		.5		.33	1	.22	.74	1					1
.09				.33	1	.11	.6	1				.33	1.67
53725	1309	10288	1200	33945	34768	15152	619111	1676	8370	15775	4182	16500	202794

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TRANSACTION TABLE COEFFICIENTS

	Other	Farm Coop	Other Coop	Farm Center	P.L.N Elect Coop	Water (P.A.M)	Post Office	Tele- com.	Govt Banks	Health Practi- tioner.	Hosp/ Clinic	Local School (Const)	Local School (RTN)	
	23B	24	25A	25B	25C	26A	26B	26C	26D	26E	27A	27B	27C	27D
		.84454		.15107	.03163									
.003				.00171										.019339
		.54658		.00858										
.0002										.00492				.00093
.04653	.0197	.10085	.0551	.49232	.48001		.00572			.00016				
	.0006		.34034	.01125	.0166		.01557		.088558	.01789	.0044	.01447	.02624	
	.01274	.04244	.00043		.02594		.00562			.00956	.008497	.00201	.01784	
	.0293				.18425		.00009			.02035				
.01875	.01392	.00123		.00356	.00249		.00196			.01376	.00015		.00203	
	.05506			.006558										
	.01556			.00196										
.15481	.00563			.000412					.000837	.00041	.000363		.001691	
	.01324			.00295							.00683		.00519	
.11355	.01			.00049	.005855				.001045	.001025	.00341		.00078	
.0289				.00727	.040985				.01047	.03486				
									.01759	.02122	.01804		.0013	
										.01595				
.7158	.77105	.00711	.02854	.06306										.65474
					.03157									
		.00011	.01314	.14063	.19523	.12573	.08123	.98241	.52758	.15321	.97635	.96905	.92466	
		.00044	.0022		.01707									
.0125	.05	.00055	.0022	.00751										.009015
									.25029					
.150684					.87427	.88981								
		.00273	.01147	.06904										
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
21	1000	18	15	2	5	1	8	1	6	449	159	298	48	
1	.002	1.2222												
				1.5	1.4	1	1	1	1	1	1	1	1	1
		.45	.27	60.5	17.4	7	13	6	16	1	.2	5.42	5.60	
	.02	1.8	.53	16	2.2	1	2	1	2.5		.1			
51992	1145721	1080600	283406	126506	303240	27838	559772	20462	350000	154690	227684	1405646	227652	

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TRANSACTION TABLE COEFFICIENTS

National School	Religion Organi.	Govt Admin	H.H Industry
27E	27F	28	29

.36487

.09122

.09887

.03966

.04714

.04209

.01886

.02079

.38459

.79189

.10002

.14422

.00045

.85533

1

1

1

79

1258

1

1

5.35

.83

3035

1

.1

368110

594

3199259

746942

APPENDIX 4 PAGE 1

TRANSACTION TABLE VALUES

Rp. (000)

SECTORS	Crops Estate 1A	Farm Labor 1B	Live-Stock 2A	Poultry 2B	Lvstk Labor 2C	Cattle Rental 3A	TRactor Rental 3B	Rattan Agent 4A	Fire Wood 4B	Resin Agent 4C	Fish Pond 5A	Pond Labor 5B	Sea Fishing 6A
Crop/Estate 1	456192		426453	805545									
Livestock 2	6652		78547	177828									
Ag. Service 3	734584		8860										
Forestry 4	2419								19440	237662	700		25899
Fishponds 5			183								151628		
Sea Fishing 6													51798
mining/Qry 7													
Construction 8			20692	32244							11345		
Food&Drink 9			531048	2391727							3166		672
Textiles 10											1862		190341
Food Prod 11	9475		8475								1241		111816
N-Metal Mfg 12	992414		15097	33131		31111					5988		320509
Other Mfg 13	239083		80455	131718		35405					5139		146658
Trans/Strge 14	64105		1009	87221			18562			1093	7813		4446
Pvt Utiliti 15													
Trade 16	58460		67926	185244		10043	224		2899		21417		97548
Finance 17	15018			242		6096					6874		
Hotel/Res 18													
Personal Srv 19													
Business Sr 20													
Vehicle Rep 21						18332				54			2481
Other Rep 22	2520									25	339		827
Recreation 23													
Other Serv 24	32052		99459	645						1063	34375		12355
Cooperatives 25	153610										1156		11735
Govt Entrps 26													
Social Srv 27													
Govt Admin 28													
PH Industry 29													
Local Owner 30	15833878	63003	385785	3949453	153514	151101	499004	260775	3694621	17664	227798	5120	2992102
Prof. Income 31													
Skilled Inc 32	285044		21279	157030			10861						829518
Unskilled In 33	1115584		87939	104633				236762			46584		336017
Local Tax 34	157641		1156	967				871		1143	684		34739
L.L. Income 35											281		
L.L. Tax 36				3466									
Cap Cons 37							4355						
TOTAL INPUT	20158733	63003	1834364	8061096	153514	151101	610859	521549	3716960	258705	530392	5120	5169492
TOTAL LABOR	86463	3122	14660	5233	1786	2034	254	15	6709	140	6063	172	5905

APPENDIX 4 PAGE 3

TRANSACTION TABLE VALUES

Rp. (000)

Tailor 10	Sawmill 11A	Plywood 11B	Car- Penter 11C	Rattan Craft 11D	Shingles 11E	Boat Repair 11F	Boat Making 11G	Brick &Lime 12A	Tile 12B	Bldg Block 12C	Ceramics 12D	Char- coal 12E	Ebony Wood craft 13A
	29400			4032	112			5069 11227			743		
								13944 453 505	517	42	6699		
41888		44382											
	620653	514626	76370				5267	5933		30		27270	2406
8089	29028	464447	12046	220			744		4547	264	3119		3832
2612	32801		3837	450	1		1381	214					20
2886	23222	20651	6474					1132	78				
	943												
2223	13312 1169		2995	100	1	5	319	375 672	668	40	1434		578
		340											
		657											
13	797	0	35					761	8				
236	7851 2165	5570	1678					4928					
	146		175										
96651	392030 3374		97196 688	7119	647	1748	4774	24747	6099	2002	26039	2195	2250
9287	113495 53579	50949 171233	35674 2917	8064			11188 3279	32665 4055	14271	5234 1048	13214 18	1463 5122	5750 1688
269	2989 13	1676 983285	303				48	3831	31	20			
20	1541		5										
		6567											
164175	1328510	2264382	240393	19985	761	1753	27000	110510	26219	8680	51266	36050	16524
74	547	572	135	25	173	10	48	364	7	12	12	9	39

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TRANSACTION TABLE VALUES

Rp. (000)

	Metal	Motor	Becak
	Furn.	Land	Land
	Welder	Trans	Trans
13B	13C	13D	14A 14B

38885

76

1526	1245	4599	153053
89	5671	6608	89154
625		424	124555

240	1037	1349	20245
			14023

84144 34575

42068

4788 2013 23877 326049 101799

23338

2700 6033 8992 47220

2826 32235 352911

730 109 9137 3961

1373 3885

79 1266

9262 12021

10775 16000 48862 891452 633707

10 17 53 430 915

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TRANSACTION TABLE VALUES

Rp. (000)

SECTORS	Sea Transp 14C	Storage Dolog 14D	Rattan Sorter 14E	P.V.T Utility 15	Whole-Sale 16A	Retail 16B	Fule 16C	Phar-macy 16D	Gold-smith 17A	Insur-ance 17B	Coffee shop 18A	Restau-Lodging 18B	rant 18C
1													
2											18928		1472
3											30784		7198
4			535811										
5											2446		
6											11249		3179
7													2472
8		372					9057						
9											69546	5046	6051
10									1				
11						22331		258					206
12	815	402	6409	6125					272	2244			
13	13	716	305	362			928		9890	6433		9215	302
14		25909	16242	45	303794	145663	69525	31	918	8209	2785	516	192
15					33614	5311				1340		3000	
16	123	86475	963	921	218047	993826	25159	65	130	1302	18875	2064	2274
17	3		49	261							4185		
18											4418		
19													
20		5			9354	925	1031			404	70		
21	15	226								180			
22		50	59	260	5192	32	1717			116	69	984	
23													
24	9	515	838	260					309	8001	1953	3007	
25		1131723											
26								83		1199			
27		716				1056							
28													
29													
30	1882		96839	45297	1439426	1905815	707714	7256	36814		136263	16911	9284
31			3880		29243		30250	928		47311		1857	
32	73	4519	21057	1630	71333	32089	1225	413	5794	56702	2468	7180	735
33	490	3640	3880	815	23541	26554	9034	619	619	1033	12029	4333	1470
34			6122	430	27823	48789	13533	36	345		653	1518	266
35						5855			52	265520			
36			443		57400	1056	3615	29	284	6193		867	
37													
INPUTS	3421	1255266	692898	56406	2218769	3199286	862803	9718	55427	414790	308121	56498	35102
LABOR	8	126	63	45	774	1618	264	10	64	340	328	77	30

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 TRANSACTION TABLE VALUES
 Rp. (000)

Beauty Shop 19A	Barber 19B	Photo Studio 19C	False Teeth 19D	Photo-Copy 20A	Adver-tising 20B	Bicycle Service 21A	Motor Service 21B	Tire Repair 21C	Watch Repair 22A	Radio Repair 22B	Typewriter Repair 22C	Leather Repair 22D	Cinema 23A
													5400
													7021
492	1			130									
				1754					113				
3013	17	1547	50	4033	167	428	100197	112	9	1020	145	2387	919
2200	37	1091	68	5041	38	1637	93250		1194	1455	437	138	452
1540	4	155		125		659	6265		75	1020			410
59				1050			1393						2168
2313	8	78		1280	50	312	12847	17	169	309	90	56	850
				80									
34	3					8	171						4023
138				200			3003			37			2951
2820	26		131	320		816	9435			75		3200	7511
49							9						
33127	1061	6297	939	17343	16312	9865	338945	773	6745	11839	3510	5214	115118
				2400			3678						2888
7034	99	1110		600	8158	1069	27229	387					5715
517				1200	8158	267	19875	387					4405
215	54	9	12	275		45	2662		66	20		104	9193
						37							
174							161						39162
33725	1309	10288	1200	33945	34768	15152	619111	1676	8370	15775	4182	16500	202794
55	5	14	2	8	6	27	197	6	8	7	3	5	56

TRANSACTION TABLE VALUES

Rp. (000)

	Other	Farm Coop	Other Coop	Farm Center	P.L.N Elect Coop	Water (P.A.M)	Post Office	Tele- com.	Govt. Banks	Health Practi- tioner.	Hosp/ Clinic	Local School (Const)	Local School (RTN)
Video	24	25A	25B	25C	26A	26B	26C	26D	26E	27A	27B	27C	27D
		912610		19112	4001								
	3437			216									4403
		154904		1085						761			212
	229									25			
2419	22571	108979	15616	62282	145558		3202			7117		20340	
	637		96454	1423	5034		8716		30995	2767	1002	20340	5974
	14596	45861	122		7866		3146			1494	1935	2825	4061
	33570				55872		50			3148			
975	15948	1329		450	755		1097			2129	34		462
	63083			830									
	17827			248									
805	6450			52					293	63	83		385
	15169			373									1182
590	11457			62	1775				366	159	776		178
1503				920	12428				3665	5392			
								360	7427	2791			296
										2467			
37216	883408	7683	8088	7978						101282			
					9573								
		119	3724	17791	59202	3500	45470	20102	219653	23700	222299	1362141	210501
		475	623		5176								
650	57286	594	623	950						1395			
7834									87602				
		2950	3251	8734		24338	498091						
51992	1145721	1080600	283406	126508	303240	27838	559772	20462	350000	154690	227684	1405646	227652
21	22	62	12	156	105	9	128	10	117	449	207	1615	262

TRANSACTION TABLE VALUES

Rp. (000)

National		Religion	Govt	H.H.																	
School	Organi.	Admin	Industry	Int-Ind	SECTORS	HH	Cons	Cap	Form	L Gov	Rt L	Gov	Dv	Inpres	Prov	Dv	Natl	Rt	Natl	D	
27E	27F	28	29																		
				2813893	1.	15227507							500	22161	1872					41	
				695610	2.	7456126									107						
				748513	3.									1264	8742					344	
				871542	4.	3522470							100								
				166240	5.	429241															
				141130	6.	5258175															
				998235	7.																
134312				236611	8.		15108257			7360		87937	1438910		82169		40810	1238608			
				3560661	9.	11214746								34	210		873	220			
				240883	10.	2850226				294		8									
33579				4435448	11.	70380									731						
36395				26171778	12.	5103914						420	86237		936					7210	
14599	28			6095739	13.	10207622	4998302		99948	11030		3700		943	53772				23242		
	25			2259367	14.	3031084			7298		1166	169		99	9183				13059		
	11			148234	15.	85778															
7653				5112518	16.	1225736				964		1642	1236		204		4373	1252			
				274977	17.	725220															
				40120	18.	346224									95					2490	
				594	19.	65928															
				27207	20.	9936			73770				1264		260					9921	
				548736	21.	494673			10611											6866	
				41251	22.	19444			360											651	
				0	23.	254786															
				1311199	24.	2110318														9142	
				1300389	25.	190125															
				12535	26.	1650448						3520					1845	3991			
				5012	27.	2905806						16929								1514	
				0	28.					821823	16708	130277	65313	1501932	626414						
				0	29.	520204															
				58258422	SubTot																
				38587428	OWNER																
				2132258	PROF																
141571	470			10341651	SKILLED																
	59	3199259		10618511	UNSKILL																
				107724	3265672	LOC TAX															
				336	2723641	N-L INC															
				638882	41623251	N-L TAX															
				68645	CAP CONS																
				1.0936E8	VA TOT	74976018	20106559	1022428	139960	1685252	161681	1621930	1367107								
368110	594	3199259	746942	1.6762E8	INPUT T																
423	1170	3035	1	167921	LAROR																

TRANSACTION TABLE VALUES

Rp. (000)

Exports	Imports	Changes	OUTPUT	INPUT	r.
2350284	-6464	-188430	20221736	20221736	1
1916223	-19092	0	10048974	10048974	1
		0	761959	761959	1
123240	-20139	0	4497214	4497214	1
	-59969	0	535512	535512	1
241977	-308907	0	5332375	5332375	1
88126875		-1.986E7	69267039	69267039	1
	-13876	0	29374260	29374260	1
1362827	-1.493E7	0	1215992	1215992	1
130127	-3057363	0	164175	164175	1
3731871	-4355646	0	3882784	3882784	1
47969	-3.125E7	0	232725	232725	1
2932177	-2.454E7	0	92161	92161	1
648960	-2767064	155888	3476744	3476744	1
	-177606	0	56406	56406	1
	-68620	0	6290576	6290576	1
	-529980	0	470217	470217	1
	-11626	0	399721	399721	1
		0	66522	66522	1
	-142943	0	68713	68713	1
	-486750	0	635939	635939	1
	-22742	0	44827	44827	1
		0	254786	254786	1
	-2284938	0	1145721	1145721	1
		0	1490514	1490514	1
203075	-614102	0	1261312	1261312	1
	-544885	0	2384376	2384376	1
36792		0	3199259	3199259	1
226738		0	746942	746942	1
			1.6762E8	1.6762E8	29.00
			=====	=====	

1.0208E8 -8.621E7 -1.989E7 1.6762E8

RAPPEDA TK II LUWU KAPJAPATEM LUWU
 SAMPLE PAGE - INPUT COEFFICIENTS FROM BAPPEDA SURVEYS AND SECONDARY SOURCES

Data Source	Survey											
	Survey	Survey	Survey	Survey	Survey	Survey	Survey	Estimate	Survey	Survey	Survey	Survey
TOTAL UNITS	66002	3122	45246	29567	1786	1034	77	15	6709	1	2390	163
UNITS SAMPLED	430	16	16	60	0	3	1	15	3	1	13	19
SAMPLE OUTPUT	170050	459	62077	18484		125	2250	604800	1662	300000	8552	715
TOTAL/UNIT	395	29	3880	308		42	2250	40320	554	300000	658	38
TOTAL OUTPUT '82	26101489	89465	1,755588	9108607	178600	43083	174150	604800	0	3000000	1572252	6134
Deflator	.70422	.70422	.85954	.86235	.85954	.85954	.85966	.86235	.86235	.86235	.83473	.83473
TOTAL OUTPUT '80	18381190	63003	1,508988	7854807	153514	37032	149710	521549	0	258705	1312406	5120
ALT. OUTPUT/UNIT												
ALT. OUTPUT '80	20158733		1834364	8061096					3716960	111433	530392	
Alt. Output Source	D.Pertan Kebun, Ikn		D. Ternak	D. Ternak					Bap Est	D. Kehuta	D. Perika	
SELECTED OUTPUT	20158733	63003	1834364	8061096	153514	37032	149710	521549	3716960	258705	530392	5120
	CROPS/ ESTATE 1A	FARM LABOR 1B	LIVE- STOCK 2A	POULTRY 2B	POULTRY LABOR 2C	CATTLE RENTAL 3A	TRACTOR RENTAL 3B	RATTAN AGENT 4A	FIREWOOD 4B	DAKAR AGENT 4C	FISH POND 5A	POND LABOR 5B
1 CROPS/ESTATE	.02263		.23248	.09993								
2 LIVESTOCK	.00033		.04282	.02206								
3 AGRIC. SERVICE	.03644		.00483									
4 FORESTRY	.00012											
5 FISH PONDS			.0001						.00523	.91866	.00132	.28588
6 SEA FISHING												
7 MINING/QUARRY												
8a SMALL CONSTRUC			.01128	.004							.02139	
8b LARGE CONSTRUC												
9 FOOD & DRINK			.2895	.2967								.00597
10 TEXTILES												.00351
11 WOOD PRODUCTS	.00047		.00462									.00234
12 NON-METAL MFG	.04923		.00823	.00411			.05093					.01129
13 OTHER MFG	.01186		.04386	.01634			.05796					.00969
14 TRADE/STORAGE	.00318		.00055	.01082								.01473
15 PVT UTILITIES												
16 TRADE	.0029		.03703	.02298			.01644	.00043	.00078			.04038
17 FINANCE	.000745			.00003			.00998					.01296
18 HOTEL/RESTAURAN												
19 PERSONAL SERV.												
20 BUSINESS SERV.												
21 VEHICLE REPAIR							.03001					
22 OTHER REPAIR	.000125									.00021		
23 RECREATION										.000095		.00064
24 OTHER SERVICE	.00246		.05422	.00008			.00001					
25 COOPERATIVES	.00762									.00411		.06481
26 GOVT ENTERPRISE												.00218
27 SOCIAL SERVICE												
28 GOVT ADMIN.												
29 HOUSEHOLD IND.												
Jel. Antar-Ind.	.13724	0	.72952	.47705	0	0	.16533	.03602	.00601	.9273	.48509	0
VALUE ADDED												
LOCAL OWNER	.78546	1	.21031	.48994	1	1	.81689	.5	.99399	.06828	.42949	1
PROF. INCOME												
SKILLED INCOME	.01414		.0116	.01948			.01778					
UNSKILLED INCOME	.05534		.04794	.01298				.45396				.0836
LOCAL GOVERNMENT	.00782		.00063	.00012				.00167		.00442		.00129
NON-LOCAL INCOME												.00053
NON-LOCAL GOVT				.00043				.00835				
CAPITAL CONSUMP.												
TOTAL	1	1	1	1	1	1	1	1	1	1	1	1
IMPORTS												
1 CROPS/ESTATE	.01154		.22884	.0191								
2 LIVESTOCK				.00637								
4 FORESTRY									.00523			
5 FISH PONDS												.2508
7 MINING/QUARRY												
8a SMALL CONSTRUC												
9 FOOD & DRINK			.17057	.26378								.0055
10 TEXTILES												.00351
11 WOOD PRODUCTS												
12 NON-METAL MFG.	.04923		.00823	.00411			.05093					.01129
13 OTHER MFG.	.01153		.04386	.01634			.05796					.00969
14 TRANSP/STORAGE												.01169
16 TRADE												
21 VEHICLE REPAIR												
22 OTHER REPAIR												
24 OTHER SERVICE												
27 SOCIAL SERVICE												
CAPITAL CONSUMP.												
Total Imports	.0723	0	.45146	.3097	0	0	.10889	0	.00523	0	.29248	0
LABOR												
LOCAL OWNER	1	1	.125	.1	1	.1	1	1	.1	1	1.076923	1.052632
PROF. LABOR				.0270270								
SKILLED LABOR	.03		.13	.03			1					.15
UNSKILLED LABOR	.28		.069	.02								1.31
NON-LOCAL LABOR												

BAPPEDA TK II KABUPATEN LUWU
 ACTIVITY FRAME
 SECTORS AND SOSIO ECONOMIC ACTIVITY UNITS
 KABUPATEN LUWU 1980-1981

CODE USA SIC	SECTOR/INDUSTRY	DATA																	TOTAL LUMU UNITS	SECONDARY DATA SOURCE		BAPPEDA ESTIMATE		
		SOURCE	UNIT	LAMPUNG	SULI	BAJU	PASTEN	RUFOM	WARA	MLNANG	SABENG	LIMENG	MASABA	MLNGKE	EGME-2	MDTU	MNGITA	MALILI		NUMA	OUTPUT SOURCE QUANTITY (Ton)	OUTPUT VALUE (\$000)	SOURCE QUANTITY (Ton)	OUTPUT VALUE (\$000)
	Area	Agraria	ha2	256	231	281	769	594	206	688	1653	2714	2556	444	1506	287	912	1160	2931	17791				
	Population	Stat.	Pers.	21383	15941	25259	12525	47969	60260	69226	28922	10709	25206	17825	51965	26693	25769	15187	18922	592740				
	Households	Stat.	HH	4233	2920	6660	2404	8462	10615	12980	5428	1768	5666	3892	9662	5000	1698	2700	5459	92924				
	Male Labor Force	Bina Guna	Fers.																					
	Female Labor Force	Bina Guna	Fers.																					
1	AGRICULTURE																							
0100	Crops Estate	Stat.	Fers.	3437	1915	5000	2265	5760	4115	9508	5123	1750	4265	2468	7752	2771	6462	1572	1819	66092	Frtanz	20158733		
0760	Farm Labor	Stat.	Fers.	245	6	249		316	836	248				3	605	128	477	6	3	3122	Bap Srvy		63063	
2	LIVESTOCK																							
0210	Lyst. Offtake	Estimate	Head	401	626	4225	2139	2253	1688	10381	2387	533	1047	1078	4416	1165	9190	239	278	45246				
0250-0760	Poultry Farmer	Stat.	Fers.	1496	2385	2	2317	2929	1470	7775			327	2520	2597	1475	3918	14	240	29467	Bap Est		1834364	
	Lyst Labor	Stat.	Fers.	1	102		517	662	127	55			13		33	219	54	3	240	1786	Bap Est		8661596	
																			3	1786	Bap Srvy		152514	
3	AG. SERVICE																							
0710	Animal Rental	Bap Est	Pers.																					
0710	Tractor Rental	Pertanz	Tractor	3	21	47		5		30	4		6		7	2	2			1034	Bap Est		37632	
0821	Estate Seed Farm																		2	129	Bap Srvy		149710	
4	FORESTRY																							
0640	Rattan Agents	Hutan	Agent				2																	
0840	Firewood Gatherer																			15	Hutan	521549		
0849	Damar Agents	Hutan	Agent																					
0840	Mewesu Agents																			1	Hutan	11433	Bap Srvy	3716960
																								258705
5	FISH PONDS																							
0921	Pond Owners	Stat.	Fers.	129	154	101		487	204	104				611	741	69	2	13						
0910	Fond Labor	Stat.	Fers.	8	8	7		23	95	4				6	1	9	2	2		2675	Ikanan	530392		
																				163		Bap Srvy		5120
6	FISHERMEN																							
0912	Fishermen	Stat.	Pers.	159	195	56		369	374	37				126	160	226	11	120						
0910	Fishing Labor	Stat.	Pers.	65	46	33		229	280	10				147	61	269	24	48						
																				1833	Ikanan	5169492		
																				1212		Bap Srvy		162883

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CODE USASIC	SECTOR/INDUSTRY	DATA SOURCE	UNITS	LAMPNG	SULI	BAJO	KASTEM	KUPON	WARA	MLNPNB	SABPNB	LINPNB	NASBA	PLNGIE	POWE-2	WDTU	NGRTA	NALILI	MUHA	TOTAL LUMU UNITS	SECONDARY SOURCE	DATA OUTPUT QUANTITY (Ton)	SOURCE OUTPUT QUANTITY (Rp/00)	BAPPEDA ESTIMATE SOURCE	OUTPUT QUANTITY (Ton)	VALUE (Rp/00)
MINES/QUARRY																										
106	Mining	Inco	Estab.										4	12						1	1	Inco	6903655			
1442	Quarries	Ekonomi	Estab.						28	13	1									62			Bap Est		251384	
CONSTRUCTION																										
1660/1700	Contractors	Ekonomi	Estab.					2	96	1	1									161	Indstr			Bap Est	5374000	
	Private Const.																				APBD/ APBN	15408821				
	Small Gov't Const.																					8591439				
	Large Gov't Const.																									
FOOD & DRINK																										
2041	Rice/Sago Mills	Ekonomi	Mills	14	8	63		57	3	26	1		24	1	38	9	13			257			Bap Srvt		389715	
2011	Slaughter House	Ekonomi	Estab.		1	14		7	18	2			4		6			1	1	54			Bap Srvt		599671	
2051	Bread and Others	Industr	Estab.						2		2				3					7			Bap Srvt		16882	
2098	Noodle Making	Industr	Estab.						1											1	Indstr	1104				
2099	Peanut Confection	Industr	Estab.						1											1	Indstr	621				
2079	Cooking Oil	Ekonomi	Estab.	16	3	15		11	11	4	1		4		9	10	4	6	3	97			Bap Srvt		25777	
2899	Other Oil	Industr	Estab.										1		2		1			3	Indstr	included in Cooking Oil				
2097	Ice Making	Ekn/Ind	Estab.		2	2			4	1			1		1			1	1	13	Indstr	19576	Bap Srvt		170623	
2098	Palm Sugar	Bap Est	Estab.																	74			Bap Srvt		11599	
TEXTILES																										
2311	Tailors	Ekonomi	Estab.	4	2	11		2	10	4	4		1		7	2				55	Indstr	164175				
WOOD PRODUCT																										
2491	Sawmill	Ekn/Ind	Estab.	3		1		2	41	4			2	9	2	7	3	2	2	78	Hutan	1075643	Bap Srvt		1328510	
2435	Plywood Factory	Industr	Estab.					1					2		7	1	2			1			Bap Srvt		2264382	
2500	Cabinets/Furn.	Ekn/Ind	Estab.	1		6			17	1	1		2		7				2	40	Indstr	95955	Bap Srvt		246393	
2400	Rottan Craff	Industr	Estab.						2				4	9	9	8	5	2	4	1	3	Indstr	571	Bap Srvt		19985
2400	Shingles	Bap Est	Estab.	4		7		4	53	5	1									115	Hutan	761				
3731	Boat Making	Industr	Estab.					1												1	Indstr	27000				
3731	Boat Repair	Bap Est	Estab.					1	9											10			Bap Srvt		1753	
NON-METAL MFG																										
3251 &	Brick Making												2		3	2	2	4	3	62	Indstr	126830	Bap Srvt		110510	
3274	and Lime	Ind/Ekn	Estab.	1	1	8		4	28	3	1									1	Indstr	26219	Indstr		1495	
3259	Tile Factory	Industr	Estab.						1											2	Indstr	8680				
3250	Blq Blocks	Industr	Estab.						2											3	Indstr	23688	Bap Srvt		51266	
3269	Ceramics	Industr	Estab.					1	2											1	Indstr	36050				
3200	Charcoal	Industr	Estab.						1																	

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CODE	SECTOR/INDUSTRY	DATA SOURCE	UNIT	LAMPNG	SULI	BAJU	BASTEN	BUFON	WARA	MLNRNG	SABANG	LIMBNG	MASBA	MLNGYE	BONE-2	WOTU	MNGITA	MALILI	MUHA	TOTAL LUWU UNITS	SECONDARY DATA SOURCE QUANTITY (Ton)	OUTPUT VALUE (Rp000)	BAPPEDA ESTIMATE OUTPUT QUANTITY (Ton)	OUTPUT VALUE (Rp000)	
13 OTHER IND.																									
2499	Ebony Handicraft	Industr	Estab.						6																
2752	Printing	Industr	Estab.						5																
2599	Metal Furn Mfg	Industr	Estab.						4																
3599	Welder	Ekonomi	Estab.		1				12																
14 TRNSP/STORAGE																									
4100/4200	Land Transport.	Ekonomi	Estab.	2	1	2		4	39	10					3	1	1	4	6	77					
4100	Bekak Transport.	LLAJR	Estab/Prs						535											535			Bap Est	891452	
4400	Sea Transport.	Ekonomi	Estab.						2					1						3			Bap Srvt	633707	
4221	Dolog Storage	Dolog	Location			1			1											3			Bap Srvt	3421	
4226	Rattan Sorter	Survey	Estab.						2											4	Dolog Hutan	1255266	Bap Srvt	181257	692898
15 UTILITIES (Private)																									
4911	Electric Generator	Ekonomi	Estab.	1		1		1		4				2	7	2	2	2	1	2	25			Bap Srvt	56406
16 TRADE																									
5100	Wholesale Trade	Ekn/Dag	Estab.	3	2	21		20	142	27	4			14	1	19	6	5	11	31	306			Bap Srvt	143388
52159	Retail Trade	Ekn/Dag	Estab.	16	26	74		36	475	53	43			128	3	119	46	45	88	219	1371			Bap Srvt	219874
5541	Fuel	Ekonomi	Estab.						3												3			Bap Srvt	91732
5912	Pharmacy	Ekonomi	Estab.						2												2			Bap Srvt	15474
17 FINANCE																									
6059	Gold Smith	Ekonomi	Estab.	1		2		2	14	2					3	1	1	1	1	28				Bap Srvt	55427
6411	Insurance	Dagang	Estab.						5											5				Bap Srvt	414790
18 HOTEL/RESTRN																									
5812	Coffee Shop	Ekonomi	Estab.	3	3	12		8	35	17	4			2		13	2	6	1	17	123			Bap Srvt	308121
7011	Hotel	Ekonomi	Estab.						7								1			2	12			Bap Srvt	56498
5812	Restaurant	Ekonomi	Estab.						4											4	9			Bap Srvt	35102
19 PERSONAL SRV																									
7231	Beauty Salon	Ekonomi	Estab.											2						2	25			Bap Srvt	53725
7241	Barbershop	Ekonomi	Estab.					1	19	1										5				Bap Srvt	1309
7221	Photo Studio	Ekonomi	Estab.						3											1	8	10288		Bap Srvt	
8072	False Teeth	Ekonomi	Estab.		1				4	1										1	2	1200		Bap Srvt	
20 BUSINESS SRV																									
7332	Photocopy	Ekn/Ind	Estab.																		4			Bap Srvt	7783
7511	Advertising	Industri	Estab.						4											2				Bap Srvt	
6531	Land Rental/Storage								2															Bap Srvt	
8911	Survey, Etc																							Bap Srvt	

Appendix 7

DEFINITIONS

Bappeda	Local Development Planning Office
GBHN	(Garis Besar Haluan Negara) - Broad Outlines for National Development
Inpres (Instruksi Presiden)	Local Project Development Funds
Kabupaten	Administrative division of a province
Kecamatan	Administrative division of a kabupaten
Repelita	Five year development plan