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**United Nations Industrial Development Organisation**

NISP Lao project US/LAO/97/142

**Survey of Industrial Establishments, 1999**

**Report**

BY

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FOR

**Ministry of Industry and Handicrafts Lao PDR**

Vientiane, July 2000

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The report has been produced without formal editing.

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## 1. Introduction

The New Economic Mechanism (NEM) programme initiated in 1986 brought about the Lao People's Democratic Republic's gradual transformation to a liberal and market-oriented economy. In recent years, the government adopted a number of rules and regulations aimed to diversify the economic structure through privatisation and foreign investment. A number of state run industrial establishments were transformed to other forms of ownership, while joint ventures and industries with direct foreign investment came into operation. Despite the negative impact of the Asian financial crisis on the Laotian economy, the reconstruction process is underway.

The overall industrial growth rate per annum for the period of 1990-97 was estimated at 12.9%. The contribution of the industrial sectors, including construction, to GDP reached 20.6% in 1997 as compared to 14.4% in 1990. However, some slackness was observed in recent years. Only in 1999, the reference period of the survey, 15 large-scale establishments and more than 100 medium scale industries were forced to close their operation. Industrial production has not been revitalized yet after the crisis and the earlier prognosis of a 5% average annual growth of industrial production requires correction. However, industrial production is expected to grow in 2000 thanks to the start of the trial production from a new hydroelectric plant last September.

Lao PDR has also expanded its international economic relations. The country was integrated in ASEAN in 1997 as a full member. Further economic development of the country with broader international economic relations has made it absolutely necessary that the economic statistics of the country be reliable and internationally comparable. Several international organizations extended technical assistance to Lao PDR in its endeavour to develop an efficient statistical system based on internationally accepted standards. A SIDA project was executed in the National Statistical Centre (NSC) in order to improve the national economic database. Technical assistance of UNIDO was extended to the Ministry of Industry and Handicrafts in the implementation of the National Industrial Statistics Programme (NISP). The NISP project was funded by the Government of Thailand.

The Industrial Survey 1999 conducted under the NISP project has been a very timely operation, not only to build up a new industrial statistical system in the country, but also to reveal some of the negative impact of the Asian financial crisis on the Laotian economy. With the industrial database established in the Statistics and Planning Division (SPD), the Ministry of Industry can now analyse the recent position of the industrial sectors of the country, learn to make the best use of industrial statistics and sustain the progress made so far in the industrial information system.

It is also important to mention that the National Statistical Centre (NSC) has very positively responded to the effort of the Ministry of Industry and Handicraft (MIH) to improve the database. NSC itself is encountering the critical data-gap in industrial

statistics required for national accounts and other macroeconomic statistics. NSC has agreed to support the Statistics and Planning Division (SPD) of the Ministry in its further statistical activities.

### **1.1 The NISP Project**

The NISP implementation in Lao PDR was aimed at establishing a new system of industrial statistics in the Ministry of Industry and Handicrafts (MIH). At the first stage MIH was provided with statistical materials and documents required to carry out activities envisaged in the project. The staff of the Statistics and Planning Division received on-the-job training in international statistical standards, while staff from other Divisions of MIH participated in the introductory training and discussion programmes. More training was provided during the preparation of the industrial survey. Staff members of the Statistics and Planning Division later trained enumerators and supervisors of different provinces.

Simultaneously, the project installed 3 PCs with the total capacity of 17 GB hard disk and 256 MB RAM. The PCs are connected to a LAN with a designated server and to Internet. The NISP software specially designed by UNIDO for industrial statistics was installed and the staff was trained in its operation. The software was customized for processing of industrial survey data. The UNIDO System Analyst also developed a separate package in MS Access for processing small-scale industry survey data.

A register for large and medium industries was created, which was used for the industrial survey. The register has also been updated by the industrial survey results. However, this task has not been completed for medium scale industries, because the survey results could update only the data of selected establishments. The Ministry was advised to collect registration data for all establishments, which has not been done yet. Updating the registration data is now an immediate task especially because the survey staff found many mistakes in the Ministry records during the fieldwork.

### **1.2 Industrial Survey**

The core task of the NISP project was the survey of industrial establishments. The importance of the survey was not only to meet the data gap existing in the country, but also to set up a mechanism of collecting, processing and disseminating industrial statistics. Official statistics operations in Lao PDR are decentralized. The National Statistical Centre, the main statistical body of the country, compiles and produces macro-economic indicators, while line ministries are the major sources for sector statistics. The Ministry of Industry and Handicrafts (MIH) is responsible for industrial statistics covering mining and quarrying, manufacturing and electricity, gas and water. The range of industrial statistics available before this survey was



limited to only two tables published in "Basic Statistics"<sup>1</sup> namely, quantity of principle industrial products and number of establishments by provinces.

The Industrial Survey 1999 created benchmark statistics for Laos. The statistical methods and procedures used in the survey shall be applied in future to similar statistical operations. The NISP project, through this survey, has built up the technical capability of the MIH in conducting industrial surveys.

The survey was separately carried out for large and medium-scale establishments (with 10 and more persons engaged) and small-scale establishments and household operated units (with less than 10 persons engaged). The present report is prepared to describe the methods applied to the survey of large and medium scale industries and to present the survey results.

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<sup>1</sup> Basic Statistics is an annual statistical publication of the National Statistics Centre of Laos.

## **2. Survey methodology**

### **2.1 Objective of the survey**

The Industrial Survey-99 was aimed at producing basic industrial statistics of the Lao PDR to meet the existing data gap. The survey was a benchmark operation and its results were used to establish an industrial data system in the Ministry of Industry under the ongoing NISP project. Besides, the survey also intended to:

- Update the establishment register of MIH
- Produce relevant figures for industrial sectors to improve the national account estimates for the country
- Set up an appropriate system of classification by type of activities, type of ownership and geographical area for industrial statistics
- Establish a computerised data base of industrial establishments, and
- Strengthen the technical capability of the MIH in conducting industrial surveys.

The survey results comprise a comprehensive set of statistics that can be used by planners, policy makers, and scholars as well as by the business community.

### **2.2 Scope and coverage of the survey**

The industrial sector, according to International Recommendations of Industrial Statistics, comprises all establishments that are primarily engaged in mining, manufacturing and the production and distribution of electricity, gas and water (tabulation categories C, D and E of ISIC rev-3). Activity related to production and supply of gas was not reported in Laos. Other activities are defined below.

#### **C. Mining and quarrying:**

Mining and quarrying are used in a broad sense encompassing extraction of minerals occurring naturally as solids, such as coal and ores, liquids, such as crude petroleum, or gases, such as natural gas. Underground or surface mining, well operation, and all supplemental activities aimed at preparing the crude materials for marketing, done generally near or at the mine site, such as milling, dressing and beneficiating, are classified here.

#### **D. Manufacturing**

Manufacturing is defined as the physical or chemical transformation of materials or components into new products, whether the work is performed by power-driven machines or by hand, whether it is done in a factory or in the worker's home, and whether the products are sold at wholesale or retail.

Assembly of the component parts of manufactured products is considered manufacturing, except in cases where the activity is appropriately classified in any class of division 45 (Construction). Also included is the recycling of waste materials.

## E. Electricity and water supply

This category combines three utility sectors namely electricity, gas and water supply. Electricity includes generation, collection, transmission and distribution of electric energy for sale to households, industrial and commercial users. Electricity production may be hydraulic, conventional, thermal, nuclear, solar, tidal etc. in origin. Included are electric power plants, which sell a significant amount of electricity to others. Also included in this category is production class includes production, collection and distribution of steam and hot water for heating, power and other purposes. The water supply includes collection, purification and distribution of water to household, industrial, commercial or other users.

According to the current industrial legislation in Lao PDR, establishments are classified into three size classes based on the number of persons engaged.

Large:	100 persons and more
Medium:	10 and more but less than 100 persons
Small:	less than 10 persons engaged.

As mentioned earlier, the survey of small establishments was conducted separately based on an area sampling design. The survey of small establishments is still at the data collection stage. The Industrial Survey reported here covered large and medium scale establishments.

The survey was based on sampling method. In total 301 out of 586 establishments engaged in mining and quarrying, manufacturing and electricity and water supply were selected. No establishment was reported as being engaged in the production and supply of gas. The sampling design and selection procedure applied to the survey is described below.

### 2.3 Sampling design

#### 2.3.1 The frame

The frame is made up of the list of statistical units to be covered in the survey. The statistical unit of this survey was an establishment defined as an economic unit, which engages under a single ownership or control in one, or predominantly one kind of economic activity at a single physical location.

An enterprise or a corporation may consist of a number of kind-of-activity or local units under a single legal entity. These units often are eligible to be an establishment. When an enterprise has a number of eligible establishments, data were to be collected separately for each establishment. So, the frame might include one or more units belonging to the same enterprise. By definition, each unit in the survey frame referred to an establishment.

The frame for the survey was prepared from the register of MIH, its field offices, and from the records of other line ministries<sup>2</sup>.

### 2.3.2 Sampling scheme

Due to the small number of establishments in many ISIC branches, the possibility of sampling was limited to a few sectors. Hence, sampling was applied when the number of units exceeded 5 at the 4-digit level of ISIC rev-3. With this consideration the following sampling scheme was adopted:

- Establishments with 100 and more persons engaged were surveyed on a complete enumeration basis.
- Establishments with less than 100 persons engaged were sampled if their number in any ISIC branch at the 4-digit level exceeded 5.
- If the number of establishments in any ISIC branch at the 4-digit level was 5 or less all establishments were selected.
- From each ISIC branch with 6 to 50 establishments 5 samples were taken.
- From each ISIC branch with 51 to 100 establishments 10 samples were selected.
- No ISIC branches had more than 100 establishments.

In total 301 establishments, out of which 107 large and 194 medium scale industries, were selected. Selected establishments contributed more than 85% to total employment. The sampling fraction in terms of the number of establishments as well as in terms of the number of persons engaged is given below.

Establishments were stratified by ISIC at the 4-digit level as well as by two size categories: large and medium. The final allocation of samples by ISIC and by size categories is given in Table 2.1 below.

Table 2.1:  
Number of Establishments in Total and in Sample by Size

	Total	Sample	Sample in % to the total
Number of establishments	586	301	51.28
Large	107	107	100.00
Medium	479	194	40.50
Number of persons engaged	43130	37132	86.09
Large	31407	31407	100.00
Medium	11723	5725	48.84

<sup>2</sup> Some manufacturing sectors are out of the jurisdiction of the Ministry of Industry. For example, forestry based industry is administered by the Ministry of Defence. In such cases, the register of other ministries was also used to prepare the frame.

Selection of establishments was made using the PPS (*probability proportional to size*) method without replacement, while the number of persons engaged was considered as the size measure.

### 2.3.3 Estimation procedure

All establishments with 100 and more persons engaged were surveyed on a complete enumeration basis. For establishments with less than 100 persons engaged, the selection equation was:

$$p_j = n \frac{m_j}{M}$$

where,

- $m_j$  – is the number of persons engaged of j-th establishment
- $M$  – Number of persons engaged in all establishments of an ISIC branch
- $n$  – number of samples in the ISIC branch.

Hence, value of Y characteristics in total for 4-digit ISIC branch is estimated as:

$$\tilde{Y} = \frac{1}{n} \left( \frac{M}{m} \sum_n y_i \right)$$

For the sake of simplicity in the estimation procedure a multiplier (estimation weight) was calculated for each selected unit. Large-scale establishments were considered as sampled with the selection probability of 1, so the weight was also 1. For medium scale establishments, weights were calculated according to the above formulae. While processing data, a data file with the individual weight of establishments was incorporated in the data processing programme. A set of unweighted data was produced first to check the consistency of results. Once all editing and checking procedures were completed, output tables were generated from the set of weighted data.

### 2.3.4 Treatment for closure and non-response cases

The survey was conducted at a time when the industry of the country was badly affected by the Asian financial crisis. Many industries selected were closed. However, no substitution of sample was allowed for closed units. Instead, cases of closure were considered as a zero value of production and other indicators. This assumption better reflected the actual situation, because these industries were not permanently liquidated but temporarily closed due to the market conditions and financial problems.

There were few non-response cases. Estimation for non-responding establishments was made based on the average figure of reporting establishments in the respective ISIC branch at the 2-digit level.

## **2.4. Data collection and processing**

The collection of data was made by a trained team of enumerators and supervisors designated by the Ministry. At the beginning of the survey, the field staff dropped the questionnaire in the business offices of the selected establishments. In many cases representatives of the establishments returned the questionnaire to the SPD staff at the Ministry. In some cases, particularly for smaller establishments, enumerators interviewed the responsible person of the establishments and filled the questionnaire at the site.

Data were collected from March to June 2000 and refer to the fiscal year 1999. Respondents were asked to provide the data from their book keeping records, whenever possible.

Data were processed using the NISP software. The Ministry staff entered the data on to the data entry format customised according to the survey questionnaire. Primary data as well as reports generated from the survey results are stored in the database created in the Ministry.

## **2.5. Limitations of the survey**

This is a first survey of this kind conducted by the Ministry of Industry and Handicrafts. Thanks to the great efforts of the Ministry and the dedicated work of the staff involved, the survey came to a successful end. The survey results comprise a comprehensive data set and the Ministry and other uses can make the best use of this information.

At the same time it should be noted that the survey also had its limitations. The Ministry will learn from these limitations to improve the quality of the survey in future. For users, on the other hand, it is suggested to take these limitations into consideration while using the survey results.

First, the administrative records of the Ministry used for the frame of the survey were poorly maintained. The type of activities as well as the actual size of the establishments varied from the Ministry records. For the sampling purpose, establishments were grouped by employment size class, which was found, during the fieldwork, not to be always correct. Hence the poor quality of the frame has caused a certain margin of errors in results. Another problem, partly also associated with the quality of the frame, was an unexpectedly large number of closure cases. Sampling was applied only to the medium sized industries. Out of 194 selected establishments, 52 were found to be closed (more than 25%). The estimation would have been much better if the information about closure had been available at the design stage of the survey.

The survey aimed to set up an internationally recognised system of industrial statistics in Laos. The methods and procedures adopted in the survey appeared to be new for the staff of the Ministry. Similarly, industrial establishments were found to be unfamiliar with the type of questionnaire administered in this survey, which

affected the value of some indicators. For example, the figure on depreciation was found quite high. Observations of a few questionnaires indicated that some establishments probably reported the accumulated value of depreciation over many years. Similarly, medium scale establishments could not always report the value of opening stock.

It is also necessary to note that some errors were made during data entry because of different denominations used in the survey questionnaire. During data editing, it was found that data entry staff had at times made errors when rounding up the figures to million Kip.

Despite these limitations, the results of the industrial survey in general do fairly reflect the current status and structure of the industrial sector of Laos. The government departments, business community and other users can make very good use of these results, which constitute the only available set of information of this kind.

Table 2.2: Effective and Actual Size of Sample in Industrial Survey 1999

ISIC	Total number of establishments			Number of sampled establishments			Number of closed establishments			Non-response cases			Number of returns			Estimated number of establishments		
	Large	Medium	Total	Large	Medium	Total	Large	Medium	Total	Large	Medium	Total	Large	Medium	Total	Large	Medium	Total
<b>C Mining and quarrying</b>	<b>1</b>	<b>18</b>	<b>19</b>	<b>1</b>	<b>8</b>	<b>9</b>	<b>0</b>	<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>6</b>	<b>7</b>	<b>1</b>	<b>13</b>	<b>14</b>
10 Mining of coal	0	2	2	0	2	2	0	0	0	0	0	0	0	2	2	0	2	2
14 Other mining and quarrying	1	16	17	1	6	7	0	2	0	0	0	0	1	4	5	1	11	12
<b>D Manufacturing</b>	<b>103</b>	<b>461</b>	<b>564</b>	<b>103</b>	<b>186</b>	<b>289</b>	<b>15</b>	<b>50</b>	<b>65</b>	<b>4</b>	<b>4</b>	<b>8</b>	<b>84</b>	<b>132</b>	<b>217</b>	<b>88</b>	<b>322</b>	<b>410</b>
15 Manufacture of food and beverages	3	90	93	3	42	45	0	9	9	0	1	1	3	32	35	3	71	74
16 Manufacture of tobacco products	2	11	13	2	5	7	1	2	3	0	0	0	1	3	4	1	7	8
17 Manufacture of textiles	0	5	5	0	5	5	0	0	0	0	0	0	0	5	5	0	5	5
18 Manufacture of wearing apparel	49	19	68	49	5	54	9	4	13	2	0	2	38	2	40	40	4	44
19 Leather products and footwear	0	2	2	0	2	2	0	1	1	0	0	0	0	1	1	0	1	1
20 Wood and wood products	29	99	128	30	17	47	3	8	11	1	1	2	26	8	34	27	52	79
21 Paper and paper products	0	5	5	0	5	5	0	0	0	0	0	0	0	5	5	0	5	5
22 Publishing and printing	2	6	8	2	5	7	0	0	0	0	0	0	2	5	7	2	6	8
24 Chemical and chemical products	2	21	23	2	11	13	0	0	0	0	0	0	2	11	13	2	21	23
25 Rubber and plastic products	2	12	14	2	5	7	1	1	2	0	0	0	1	4	5	1	10	11
26 Non-metallic mineral products	3	122	125	6	28	34	1	7	8	1	1	2	4	20	24	5	92	97
27 Basic metals	3	4	7	2	4	6	0	2	2	0	0	0	2	2	4	2	2	4
28 Fabricated metal products	0	8	8	1	8	9	0	0	0	0	0	0	1	8	9	1	8	9
29 Machinery and equipment	1	11	12	1	11	12	0	5	5	0	0	0	1	6	7	1	6	7
30 Office and computing machinery	0	1	1	0	1	1	0	0	0	0	0	0	0	1	1	0	1	1
31 Electrical machinery and apparatus	1	3	4	0	3	3	0	1	1	0	0	0	0	2	2	0	2	2
32 Radio TV and communication equipment	0	1	1	0	1	1	0	1	1	0	0	0	0	0	0	0	0	0
33 Medical, precision and optical instruments	0	0	0	1	0	1	0	0	0	0	0	0	1	0	1	1	0	1
34 Manufacture of motor vehicles	0	11	11	0	10	10	0	2	2	0	0	0	0	8	8	0	9	9
35 Other transport equipment	1	7	8	1	7	8	0	4	4	0	0	0	1	3	4	1	3	4
36 Manufacture of furniture and other manuf.	5	23	28	1	11	12	0	3	3	0	1	1	1	7	8	1	17	18
<b>E Electricity and water supply</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>3</b>	<b>0</b>	<b>3</b>	<b>3</b>	<b>0</b>	<b>3</b>
40 Production and distribution of electricity	2	0	2	2	0	2	0	0	0	0	0	0	2	0	2	2	0	2
41 Collection and distribution of water	1	0	1	1	0	1	0	0	0	0	0	0	1	0	1	1	0	1
<b>Total</b>	<b>107</b>	<b>479</b>	<b>586</b>	<b>107</b>	<b>194</b>	<b>301</b>	<b>15</b>	<b>52</b>	<b>67</b>	<b>4</b>	<b>4</b>	<b>8</b>	<b>88</b>	<b>138</b>	<b>227</b>	<b>92</b>	<b>335</b>	<b>427</b>



### 3. The Survey Report

#### 3.1 Size and structure of industrial sector

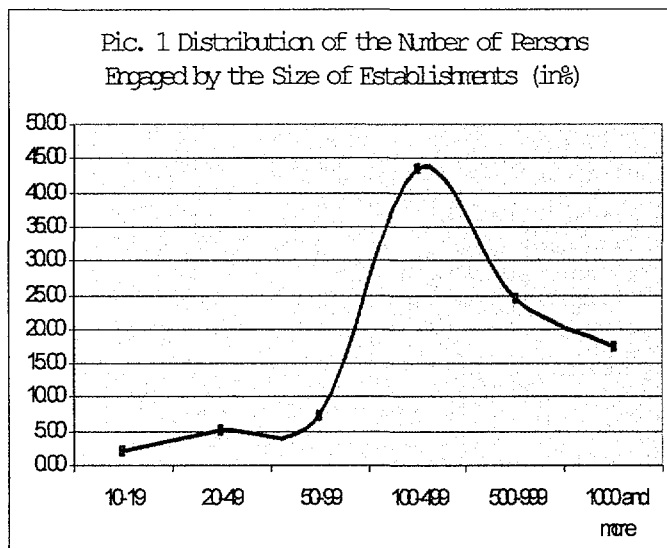
According to the administrative records available in the Ministry of Industry and Handicrafts, from its own sources as well as other sources, there were 586 establishments with 10 and more persons engaged, out of which 107 were large and 479 were medium scale establishments (as shown in Table 2.2). This number was used as the population for the design of the survey. As mentioned earlier, larger establishments were not sampled but completely enumerated. From the medium scale sector, however, a sample of 194 establishments was selected. The survey results showed that 15 large establishments were not in operation, thus, the number of large establishments in operation was reduced to 92. In the case of medium establishments 52 out 194 were closed. Based on the sample proportion of closed establishments, the number of medium scale establishments in operation during the reference period was estimated at 335 and the total number in operation in 1999 at 427.

The industrial production in Lao PDR was found to be very highly concentrated in a few large establishments. Only 15 large establishments contribute 75% to the total gross output. Two electricity supply companies, *Electricite Du Laos* and *Theuanh- Hinboun Power Station* produce about 45% and the remaining 13 large establishments of the manufacturing sector produce 30% of total industrial output. Some of the most significant manufacturing establishments reported in the survey were *Lao Brewery Co.*, *Lao Tobacco Co.*, *Lao Garment Co. Ltd*, *Phoudoi - Leuangfathong Wood Industry Corporation*, *Lao Vengvieng Cement Plant* and *Vientiane Steel Industry Co. Ltd*. Large-scale establishments dominated in all major indicators of mining and manufacturing establishments, while no medium scale industry was reported in electricity and water supply.

Table 3.1:  
Percentage Distribution of Large and Medium Scale  
Industry by Major Indicators, 1999

Indicators	Large	Medium	Total
<b>Mining and quarrying</b>			
Number of establishments	7.1	92.9	100.0
Number of persons engaged	76.6	23.4	100.0
Gross fixed capital formation	99.6	0.4	100.0
Gross output	97.0	3.0	100.0
Value added	97.1	2.9	100.0
<b>Manufacturing</b>			
Number of establishments	21.5	78.5	100.0
Number of persons engaged	83.6	16.4	100.0
Gross fixed capital formation	81.0	19.0	100.0
Gross output	74.2	25.8	100.0
Value added	78.4	21.6	100.0
<b>Electricity and water supply</b>	100.0	0.00	100.0

As the distinction of large and medium industry is made on the basis of employment, larger establishments were also labour intensive industries. Table 3.1 shows that large establishment in the manufacturing sector employed 83.6% of all persons engaged however they produced only 74.2% of output. In contrast, medium scale manufacturing establishments employed only 16.4% of total persons engaged but contributed 19% to gross fixed capital formation and produced 25.8% of total gross output.



The survey results have shown that the highest concentration of employment was reported in larger establishments, especially in the size class of 100-499 persons. Establishments in this range employed almost half of the total number of persons engaged. Actually, establishments of this size made significant contributions to all production indicators of the manufacturing sector. The chart reflects the distribution pattern of the whole industry in terms of the number of persons engaged.

When data were analysed by type of ownership, the joint venture sector was found dominant in the industrial sector of Laos. Almost half of the persons engaged in industrial establishments were employed in joint venture industries. Similarly, joint venture industries produced more than two-third (69.4%) of total value added. Joint venture industries had a higher share in gross output in all industrial sectors. The distribution of gross output of industrial sectors by type of ownership is presented below.

Table 3.2  
Gross Output of Industrial Sectors by Type of Ownership of Establishments (in %)

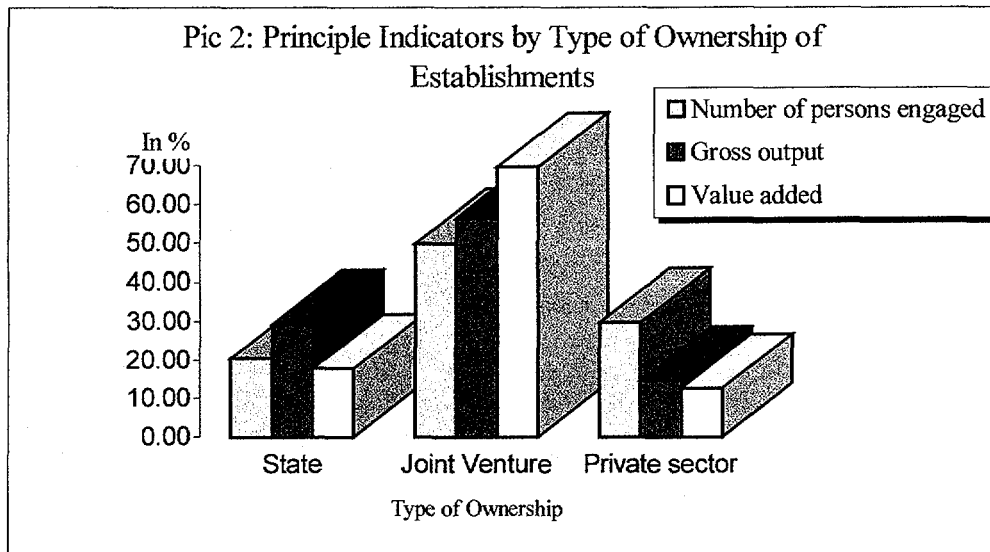
Industrial sectors	State	Joint venture <sup>3</sup>	Private sector <sup>4</sup>	Total
Mining and quarrying	35.89	59.73	4.38	100.00
Manufacturing	12.13	62.24	25.63	100.00
Electricity and water supply	51.89	48.11	0.00	100.00
Industry average	29.23	56.25	14.52	100.00

The state sector has the highest share in gross output of electricity and water supply. It is mainly because *Electricite Du Laos* and *Lao Water Supply Company* both belong to the government. However, value added of state owned

<sup>3</sup> Includes direct investment with full ownership of foreigners

<sup>4</sup> Includes joint ownership of state and national private companies

establishments in this sector was much less than that of joint venture establishments. The distribution of other indicators by type of ownership is illustrated in the following chart.



Among the manufacturing activities, joint ventures had a major share in the beverages (*Lao Brewery Co*) and garment industry, whereas the government owned establishments made the highest contribution to tobacco and cement production, thanks to the state owned *Lao Tobacco Co.* and *Lao Vengvieng Cement Plant*.

The role of the private sector was significant only in the manufacturing sector. Most of the privately owned establishments were engaged in food processing, garment, wood planing and brick production.

The distribution of industry by ISIC branches was also heavily affected by a few large industries. Manufacturing contributed 56% to total industrial output. Mining and electricity and water supply contributed 2% and 42% respectively. The single largest branch in terms of output was the production of electricity with 41.6% of the total. Among manufacturing activities, the garment industry produced one-third of the total gross output of the manufacturing sector. As a traditionally labour intensive industry, the garment industry had the highest labour concentration with 46.6% of the total number of persons engaged in manufacturing.

Food and beverages, tobacco, wood products and cement were the most significant manufacturing activities. Among others, a notable contribution (almost 6% of total gross output of manufacturing) was made by motorbike assembly and bodybuilding of vehicles. Gem stone cutting and jewellery did not contribute much to gross output due to their small size, however these activities were reported in large numbers.

The geographical distribution of industry was characterised by a very high concentration of establishments in Vientiane and its vicinity. Almost half of the total number and two-thirds of large establishments were located in the Vientiane area. Among other provinces, Savannakhet, Champasak, Bolikhamxay and Khammaoune were significant.

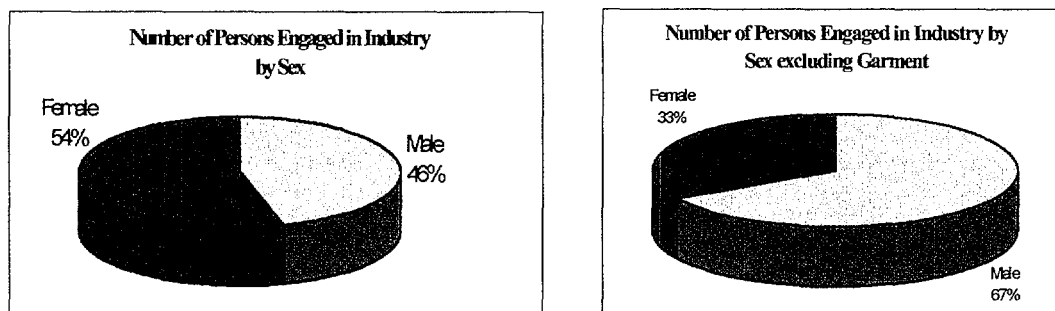
### 3.2 Employment characteristics

The estimated number of persons engaged in mining, manufacturing and electricity and water supply was estimated at 37075. The average number of persons engaged per establishment is estimated at 86 persons. This figure fairly represents the distribution observed in the survey, because, out of the 226 actually surveyed establishments only 88 belonged to the group of large-scale industries, i.e. with 100 and more persons engaged.

Out of the total number of persons engaged 745 persons were working proprietors and unpaid family workers and 36330 persons were employees. Among the employees about 70% were production workers and 13% technicians. Similarly, administrative and seasonal workers comprised 10% and 7% of the total number of employees. The highest number of production workers was reported in the garment industry, whereas the production of electricity employed more technicians than any others. Similarly, wood and wood products, non-metallic mineral products (mainly brick and tile industry), and basic metal products employed seasonal and temporary employees most. Obviously, all these industries produce construction materials and construction is a predominantly seasonal business in Laos.

Distribution of the number of persons engaged by sex in the reference period was in favour of female workers (54%) in Laos. The distribution was highly affected by the relatively large share of the garment industry where female employees were 85% of the total number of persons engaged. In other sectors, excluding garments, female employees were one third of the total. In both cases the participation of women in industry was quite high.

Pic 3: Number of Persons engaged by Sex



The number of female employees was higher among production workers and seasonal and temporary employees. However, the number of female technicians

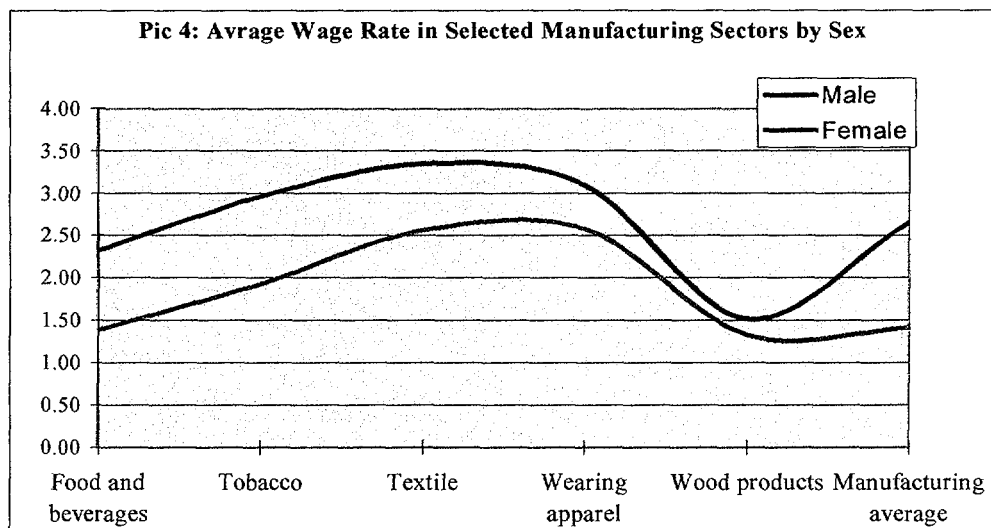
in industrial establishments was found to be less than 15% in 1999. The distribution of employees by their functional categories is presented in Table 3.3.

Table 3.3:  
Percentage Distribution of Employees by Functional Categories and by Sex

	Production workers	Technicians	Administrative workers	Seasonal and temporary employees	Total number of employees
Male	37.14	86.11	62.46	27.96	44.98
Female	62.86	13.89	37.54	72.04	55.02
Total	100.00	100.00	100.00	100.00	100.00

From the survey results it is estimated that industrial establishments paid about 110 billion Kip as compensation of employees in the reference period. Almost 85% of this amount was paid as direct wages and salaries, the remainder was paid as different kinds of benefits (around 5%) as well as contribution to social security (around 10%). The average rate of wages and salaries per annum was estimated at 2.5 million Kip, approximately US\$ 360. Average wages were higher in mining and quarrying and lower in the manufacturing industries. The lowest rate of average annual salary was reported in the wood (1.4 million Kip) and brick and tile industry (1.9 million Kip), where the largest number of seasonal workers was employed.

Average wages and salaries were almost two times higher for male than female employees. Male employees on average received 2.66 million Kip in the reference year against 1.41 million Kip paid in average to female employees in the same period. This is explained by the fact that in the textile and garment industry, where women were employed most, the average wages and salaries of female employees were lower than those of male employees



### 3.3 Value and cost of production

The estimated value of industrial output from the survey results was 2198 billion Kip, out of which 56.6% were produced in the manufacturing sector. Value of goods produced comprised 91% of output, with 87% sold and 4% stock increment. Receipts from industrial services contributed 8.6%, while the value of capital goods produced on own account was less than 1% of gross output.

The total value of material costs of production measured as intermediate consumption was estimated at 1363 billion Kip. For the manufacturing sector materials and supplies (raw materials, packaging materials, chemicals etc.) represented almost 90% of total intermediate consumption. However, in the mining industry and in the utility sector the cost of material and supplies was only 20% and 46% of intermediate consumption respectively.

The value added to output ratio was estimated at 38% for industry as a whole. This ratio was 45% in mining and quarrying and 38% for both manufacturing and the utility sector. The highest rate of value added to output ratio was observed in food and beverages and tobacco products. Value added at producer's prices tends to be higher in sectors with a higher rate of indirect taxes. *Lao Brewery Co* had a 76.6% share in the gross output of ISIC branch 15: Food and beverages. *Lao Brewery Co* together with *Lao Soft Drink Co. Ltd.*, which also produced highly taxable items such as Pepsi Cola, Mirinda etc., contributed 91.5% of gross output of ISIC branch 15.

### 3.4 National account indicators

On the basis of survey results a set of national accounts indicators were compiled to measure the contribution of the industrial sectors to GDP and other macroeconomic indicators.

Table 3.4:  
National Account Indicators of Industrial Sectors

	Mining and quarrying	Manufacturing	Electricity and water supply	Total
<b>Employment</b>				
Number of persons engaged	715	32677	3683	37075
<b>NA indicators</b>	Value in billion Kips			
Gross output	33.5	1243.5	920.7	2197.7
Intermediate consumption	18.5	775.2	569.3	1363.0
Value added at producer's prices	15.0	468.3	351.4	834.7
Indirect taxes less subsidies	0.5	114.1	5.9	120.5
<b>Value added at factor cost</b>	<b>14.5</b>	<b>354.2</b>	<b>345.5</b>	<b>714.2</b>
Compensation of employees	4.1	94.0	11.7	109.8
Depreciation	2.6	59.6	89.7*	151.9
Operating surplus	11.9	294.6	255.8	562.3
Gross fixed capital formation	2.7	80.6	13.9	97.2
Change in stock	0.8	95.6	54.3	150.7

\* EDL reported very high value of depreciation.

## 4. Appendices

### 4.1. Glossary of terms

1. **Industrial activities:** For the purpose of industrial statistics, industrial activities cover mining, manufacturing and electricity, gas and water supply as defined in International Standard of Industrial Classification of All Economic Activities (ISIC, rev 3).
2. **Establishment:** An establishment is defined as an economic unit, which engages under a single ownership or control in one, or predominantly one kind of economic activity at a single physical location. The survey has covered establishments engaged in mining, manufacturing and electricity, gas and water.
3. **Statistical unit:** The statistical unit is an entity for which required items of data are compiled. The statistical unit for this survey was an establishment engaged in industrial activities.
4. **Number of persons engaged:** The number of persons engaged includes all persons who work in or for the establishment excluding persons who do work in their own home on materials provided by the establishment (home workers).

The number of persons engaged includes working proprietors, active business partners and unpaid family workers. Working proprietors and active business partners are those who are actively engaged in the work of the establishment without regular wages and salaries, for at least one third of the normal working time.

**Employees:** The number of employees equals the number of persons engaged less working proprietors, active business partners and unpaid family workers. Category 'employees' includes all paid workers of an establishment. Total number of the paid employees comprises all workers and apprentices if they receive wages and/or salaries. Persons working away from the establishment (except home-workers) when paid by and under the control of the establishment - for example, sales representatives, maintenance and repair personnel etc. are also included under the respective category depending upon the nature of work done by them.

5. **Compensation of employees:** The compensation paid to employees comprises two items, namely, wages and salaries and employer's contribution to social security, pension funds etc. The term 'Wages and salaries' includes all remuneration payable in cash and/or kind more or less regularly for each pay-period to all paid employees and consists of:

Basic wages/salaries, basic wages and salaries for leave periods and paid holidays,

payment for overtime;

dearness, compensatory, house-rent and other allowances;

regular bonuses, such as production bonus, incentive bonus, commissions etc.

The contribution to social security, pension funds, etc. cover all payments made by the employer on behalf of his employees which form part of employees' income but not of wages and salaries. Included are employers' contributions to social security systems, insurance premiums on hospital and medical plans, private pension plans, life insurance premiums etc.

**6. Sale and receipts for services:** This item includes

sale of all goods from own production of the establishment,  
sale of goods made by others from materials supplied by the establishment;  
sale of scrap and by-products;  
transfer to other establishments of same enterprise (in case of multi-establishment enterprise).

Goods produced for own consumption are also included. Valuation of goods shipped is made at the establishment price including all duties and taxes imposed on products when they leave the factory. Valuation of goods of own-consumption and transfers is made as though sold. For practical reasons, book value of establishments can be accepted. Data should be collected in quantity and value term at least for the most important products of establishments.

Receipts for industrial services include all types of receipts for work done for others or for services of an industrial nature, which include:

- receipts for contract or commission work done for other establishments on their materials;
- receipts for repair and maintenance work done for other establishments;
- receipts for goods sold in the same condition as purchased.

Receipts for non-industrial services include all types receipts for services of non-industrial nature rendered to other establishments. It includes receipts for land, building, machinery and equipment given in lease or rented out, storage facilities and transport services provided to others, receipts for copyrights, patents, trademarks etc.

**7. Purchases of goods and services:** Purchases of goods include:

- fuels and electricity
- raw materials, including fuels used as raw materials;
- chemicals and other auxiliary materials;
- packing materials, containers, etc;
- other consumable stores including spare parts and components for repair and maintenance of machinery and equipment if their working life is less than one year.

Cost of industrial services includes all payments during the accounting year made by the establishment for different kind of industrial services received from others. These payments consists of:

- cost of contract and commission work done by others on materials supplied by the establishment (including payments made to home-workers);
- cost of repair and maintenance of fixed assets done by others including the cost of materials supplied by them for repairing;



- cost of goods sold in the same condition as purchased (to be reported at purchase value).

Cost of non-industrial services includes all payments for lease, rent, advertising, accounting, insurance, communication, legal, auditing and similar services. This item also includes the cost of transportation of finished goods, water, payments for license, copyright, patent, trademark etc.

- 8. Value of stocks:** This item comprise the value of all materials and supplies, fuels, finished and semi-finished products and goods for resale, held by, or under the control of, the establishment (at the establishment itself or in ancillary or other warehouses).
- 9. Fixed assets:** Fixed assets include land, building, machinery and equipment, transport equipment, furniture and others (laboratory, library etc.). Assets owned by establishment but rented out in the reference period are included. Similarly, hired assets are excluded but full value of assets taken on hire-purchase system (whether fully paid or not) excluding interest element are included. Fixed assets acquired from others are valued at the full cost incurred, i.e. at the delivered price plus the cost of installation, including any necessary fees and taxes but excluding financing costs. Fixed assets produced by the establishment for its own are valued at cost of all work plus overhead costs allocable to this work. Value of fixed assets sold, discarded or otherwise disposed of during the accounting year is recorded in its book value.
- 10. Indirect taxes and subsidies:** Indirect taxes are charged to materials and supplies as well as to final products of an establishment. Indirect taxes charged to materials and supplies are included in the cost of materials purchased. Indirect taxes reported in this survey are those charged to final products of the establishment. So, sale tax, excise and other indirect taxes charged to final product of the establishment are included. Subsidies are inverse to taxes, paid by government to establishments in the form of direct payment, rebate and import discounts.

#### **11. Components of the principle indicators**

Principle indicators presented in output tables comprise several data items. Such indicators such as the number of persons engaged, the total amount of wages and salaries are directly transcribed from the questionnaire and explained above. However, there are some other indicators which are compiled from several data items. Composition of these indicators is shown below.

### Gross output and intermediate consumption

Output components	Input components
Value of sale <i>Plus</i> Value of electricity sold <i>Plus</i> Receipts for services <i>Plus</i> Goods sold in the same condition as purchased <i>Less</i> Cost of goods to be sold in the same condition as Purchased <i>plus</i> Value of work done on own account <i>plus</i> Change in stock of finished goods, work on progress and goods for re-sale	Cost of materials and supplies purchased <i>plus</i> Cost of fuels and electricity purchased <i>plus</i> Payment for services <i>less</i> Change in stock of materials and supplies and fuel
<b><i>Equals</i> Gross output</b>	<b><i>Equals</i> Intermediate consumption</b>

*Total value added = Gross output - Intermediate consumption*

### Gross fixed capital formation

Components of the fixed capital formation	
	<b>New assets purchased/acquired</b>
<i>plus</i>	Old assets purchased/acquired
<i>plus</i>	Value of capital repair done
<i>plus</i>	Value of work done on own account
<i>equals</i>	Total acquisition during the year
<i>less</i>	sale or/and loss of fixed assets
<b><i>equals</i></b>	<b>Gross fixed capital formation</b>

## **4.2. Statistical tables**

Statistical tables present estimated values of indicators for the total number of establishments in operation in 1999 unless otherwise mentioned. The database in the NISP system includes individual weights for the estimation of the total. However the system can also provide unweighted data if necessary.

Statistical tables presented here are those most widely used. Users who are interested in more detailed information can obtain additional tables from the database installed in the Ministry of Industry and Handicraft.

The survey was based on a sampling method, which requires the estimation of variance. As mentioned earlier, the scope of sampling was limited to the medium scale industry of a few ISIC branches. Variance and standard errors were checked for major indicators where sampling was involved. For the purpose of variance estimation selection of establishments was assumed as PPS with replacement, (actually, PPS without replacement). All checked indicators were found to be at the acceptable level of precision.

Table 1: Principal Indicators of Industrial Statistics by ISIC, 1999

*All Establishments*

ISIC	Number of establishments	Number of persons engaged	Number of employees	Compensation of employees	Gross fixed capital formation	Change in stock	Gross Output	Intermediate consumption	Total value added
	Numbers			Value in million Kips					
<b>Mining and quarrying</b>	<b>14</b>	<b>715</b>	<b>696</b>	<b>4124</b>	<b>2683</b>	<b>777</b>	<b>33471</b>	<b>18511</b>	<b>14960</b>
10 Mining of coal	2	223	218	1251	2408	814	20310	12132	8178
14 Other mining and quarrying	12	492	478	2873	275	-37	13161	6379	6782
<b>Manufacturing</b>	<b>410</b>	<b>32677</b>	<b>31951</b>	<b>93993</b>	<b>80628</b>	<b>95640</b>	<b>1243517</b>	<b>775244</b>	<b>468273</b>
15 Manufacture of food and beverages	74	2276	2062	6262	32013	12228	233439	75579	157860
16 Manufacture of tobacco products	8	853	850	2687	4552	1425	74670	18640	56030
17 Manufacture of textiles	5	375	367	1116	313	242	4836	2078	2758
18 Manufacture of wearing apparel	44	15227	15121	42371	14310	29501	411566	311454	100112
20 Wood and wood products	79	6819	6728	19277	6569	15085	189024	171837	17187
21 Paper and paper products	5	311	304	684	2059	1259	5438	5139	299
22 Publishing and printing	8	386	385	993	978	695	11705	7047	4658
24 Chemical and chemical products	23	732	682	3703	2010	4935	31755	19016	12739
25 Rubber and plastic products	11	536	514	1300	1900	6310	24849	17582	7267
26 Non-metallic mineral products	97	2473	2358	5156	5382	5770	58355	22266	36089
27 Basic metals	4	583	574	2693	811	1157	23875	11499	12376
28 Fabricated metal products	9	257	242	1113	1110	8202	43515	28840	14675
29 Machinery and equipment	7	218	207	952	118	467	9342	6987	2355
31 Electrical machinery and apparatus	2	104	103	209	0	1184	6108	5412	696
34 Manufacture of motor vehicles	9	864	837	3226	2029	3154	69990	47240	22750
35 Other transport equipment	4	181	167	1123	109	2744	32226	19689	12537
19,30, 33 & 36 Other manufacturing	21	482	450	1129	1128	1282	12824	4939	7885
<b>Electricity and water supply</b>	<b>3</b>	<b>3683</b>	<b>3683</b>	<b>11745</b>	<b>13945</b>	<b>54330</b>	<b>920678</b>	<b>569324</b>	<b>351354</b>
40 Prod. & distribution of electricity	2	3097	3097	10944	3786	53050	909907	560596	349311
41 Collection and distribution of water	1	586	586	801	10159	1280	10771	8728	2043
<b>Industry total</b>	<b>427</b>	<b>37075</b>	<b>36330</b>	<b>109862</b>	<b>97256</b>	<b>150747</b>	<b>2197666</b>	<b>1363079</b>	<b>834587</b>

Table 2: Principal Indicators of Industrial Statistics by ISIC  
Government sector

ISIC	Number of establishments	Number of persons engaged	Number of employees	Compensation of employees	Gross addition to fixed assets	Change in stock	Gross Output	Intermediate consumption	Total value added
	Numbers			Value in million Kips					
<b>Mining and quarrying</b>	<b>2</b>	<b>326</b>	<b>326</b>	<b>2812</b>	<b>287</b>	<b>73</b>	<b>12010</b>	<b>5807</b>	<b>6203</b>
10 Mining of coal	1	30	30	121	12	123	363	238	125
14 Other mining and quarrying	1	296	296	2691	275	-50	11647	5569	6078
<b>Manufacturing</b>	<b>22</b>	<b>3664</b>	<b>3648</b>	<b>10678</b>	<b>6567</b>	<b>15211</b>	<b>150024</b>	<b>54508</b>	<b>95517</b>
15 Manufacture of food and beverages	3	60	60	28	0	0	259	91	168
16 Manufacture of tobacco products	1	734	734	2433	4552	4501	67170	15697	51473
17 Manufacture of textiles	1	121	121	283	238	-86	2122	477	1645
18 Manufacture of wearing apparel	1	967	962	3568	886	1537	21091	14442	6649
20 Wood and wood products	4	679	675	1141	0	4206	10963	4531	6432
22 Publishing and printing	6	253	253	788	168	269	8127	5230	2569
24 Chemical and chemical products	2	246	240	524	642	1971	6358	2872	3485
26 Non-metallic mineral products	4	604	603	1913	81	2813	33935	11168	22767
<b>Electricity and water supply</b>	<b>2</b>	<b>3561</b>	<b>3561</b>	<b>10512</b>	<b>13472</b>	<b>54327</b>	<b>477714</b>	<b>431887</b>	<b>45827</b>
40 Prod. & distribution of electricity	1	2975	2975	9711	3313	53047	466943	423159	43784
41 Collection and distribution of water	1	586	586	801	10159	1280	10771	8728	2043
<b>Industry total</b>	<b>26</b>	<b>7551</b>	<b>7535</b>	<b>24002</b>	<b>20326</b>	<b>69611</b>	<b>639748</b>	<b>492202</b>	<b>147547</b>

Table 3: Principal Indicators of Industrial Statistics by ISIC  
*Private sector*

ISIC	Number of establishments	Number of persons engaged	Number of employees	Compensation of employees	Gross addition to fixed assets	Change in stock	Gross output	Intermediate consumption	Total value added
	Numbers			Value in million Kips					
<b>Mining and quarrying</b>	<b>8</b>	<b>186</b>	<b>174</b>	<b>169</b>	<b>0</b>	<b>0</b>	<b>1472</b>	<b>802</b>	<b>670</b>
14 Other mining and quarrying	8	186	174	169	0	0	1472	802	670
<b>Manufacturing</b>	<b>224</b>	<b>10821</b>	<b>10367</b>	<b>22838</b>	<b>12116</b>	<b>17413</b>	<b>317804</b>	<b>211969</b>	<b>105835</b>
15 Manufacture of food and beverages	42	1473	1270	2353	1740	4428	57491	23582	33910
16 Manufacture of tobacco products	5	62	60	27	0	0	256	165	91
17 Manufacture of textiles	3	231	225	589	67	-26	1961	1079	882
18 Manufacture of wearing apparel	12	2666	2651	5411	1101	4923	51796	44631	7165
20 Wood and wood products	34	2350	2301	2773	1016	294	61907	53660	8246
21, 22 Paper products, publishing and printing	5	165	163	301	1257	468	3579	1880	1699
24 Chemical and chemical products	17	391	361	1562	647	1376	21306	13789	7517
25 Rubber and plastic products	3	137	136	421	1723	0	4000	2749	1251
26 Non-metallic mineral products	78	1632	1550	3117	627	2967	18509	9416	9093
27 Basic metals	4	583	574	2693	811	1157	23875	11499	12376
28 Fabricated metal products	5	88	82	146	1046	110	11569	6551	5018
29 Machinery and equipment	3	117	111	396	-12	29	2612	1760	823
34 Manufacture of motor vehicles	5	753	732	2801	2092	1548	57649	40482	17167
19,30,33,36 Other manufacturing	8	173	151	249	1	140	1293	725	568
<b>Industry total</b>	<b>232</b>	<b>11007</b>	<b>10541</b>	<b>23008</b>	<b>12116</b>	<b>17413</b>	<b>319276</b>	<b>212772</b>	<b>106505</b>

Table 4: Principal Indicators of Industrial Statistics by ISIC

*Joint venture and foreign sector*

ISIC	Number of establishments	Number of persons engaged	Number of employees	Compensation of employees	Gross addition to fixed assets	Change in stock	Gross Output	Intermediate consumption	Total value added
	Numbers			Value in million Kips					
<b>Mining and quarrying</b>	<b>4</b>	<b>203</b>	<b>196</b>	<b>1142</b>	<b>2396</b>	<b>704</b>	<b>19989</b>	<b>11902</b>	<b>8087</b>
10 Mining of coal	1	193	188	1130	2396	691	19947	11894	8053
14 Other mining and quarrying	3	10	8	12	0	13	42	8	34
<b>Manufacturing</b>	<b>164</b>	<b>18192</b>	<b>17936</b>	<b>60477</b>	<b>61945</b>	<b>63017</b>	<b>775689</b>	<b>508770</b>	<b>266920</b>
15 Manufacture of food and beverages	29	743	732	3881	30273	7800	175689	51906	123783
16 Manufacture of tobacco products	2	57	56	228	0	-3076	7244	2778	4466
17 Manufacture of textiles	1	23	21	244	8	354	753	522	231
18 Manufacture of wearing apparel	31	11594	11508	33392	12323	23041	338679	252380	86299
20 Wood and wood products	41	3790	3752	15363	5553	10586	116154	113646	2508
21 Paper and paper products	2	279	273	588	1612	1217	5437	5077	360
24 Chemical and chemical products	4	95	81	1615	720	1589	4091	2355	1735
25 Rubber and plastic products	8	399	378	878	177	6310	20848	14833	6016
26 Non-metallic mineral products	15	237	205	126	4675	-10	5911	1681	4230
28 Fabricated metal products	4	169	160	967	64	8092	31946	22289	9657
29 Machinery and equipment	4	101	96	556	130	438	6730	5227	1503
31 Electrical machinery and apparatus	2	104	103	209	0	1184	6108	5412	696
34 Manufacture of motor vehicles	4	111	105	425	-63	1606	12341	6759	5581
35 Other transport equipment	4	181	167	1123	109	2744	32226	19689	12537
19,30,33,36 Other manufacturing	13	309	299	880	6364	1142	11531	4215	7316
<b>Electricity and water supply</b>	<b>1</b>	<b>122</b>	<b>122</b>	<b>1233</b>	<b>473</b>	<b>3</b>	<b>442964</b>	<b>137437</b>	<b>305527</b>
40 Prod. and distribution of electricity	1	122	122	1233	473	3	442964	137437	305527
<b>Industry total</b>	<b>169</b>	<b>18517</b>	<b>18254</b>	<b>62852</b>	<b>64814</b>	<b>63724</b>	<b>1238642</b>	<b>658109</b>	<b>580534</b>

Table 5: Number of establishments by ISIC and by Employment Size Class<sup>5</sup>

ISIC	Total number of establishments	10 to 19	20 - 49	50 - 99	100 - 499	500 & more
<b>Mining and quarrying</b>	<b>7</b>	<b>2</b>	<b>2</b>	<b>1</b>	<b>2</b>	<b>0</b>
10 Mining of coal	2	0	1	0	1	0
14 Other mining and quarrying	5	2	1	1	1	0
<b>Manufacturing</b>	<b>217</b>	<b>55</b>	<b>55</b>	<b>32</b>	<b>63</b>	<b>12</b>
15 Manufacture of food and beverages	35	15	13	2	5	0
16 Manufacture of tobacco products	4	1	1	1	0	1
17 Manufacture of textiles	6	1	2	1	2	0
18 Manufacture of wearing apparel	38	0	0	2	27	9
20 Wood and wood products	35	2	8	8	15	2
21 Paper and paper products	5	0	2	3	0	0
22 Publishing and printing	7	3	1	1	2	0
24 Chemical and chemical products	14	5	6	1	2	0
25 Rubber and plastic products	5	0	1	2	2	0
26 Non-metallic mineral products	23	10	6	3	4	0
27 Basic metals	4	1	1	0	2	0
28 Fabricated metal products	9	5	3	1	0	0
29 Machinery and equipment	7	3	2	2	0	0
31 Electrical machinery and apparatus	2	1	0	0	1	0
34 Manufacture of motor vehicles	8	3	3	2	0	0
35 Other transport equipment	4	1	1	2	0	0
19,30,33,36 Other manufacturing	11	4	5	1	1	0
<b>Electricity and water supply</b>	<b>3</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>2</b>
40 Production and distribution of electricity	2	0	0	0	1	1
41 Collection and distribution of water	1	0	0	0	0	1
<b>Industry total</b>	<b>227</b>	<b>57</b>	<b>57</b>	<b>33</b>	<b>66</b>	<b>14</b>

<sup>5</sup>. Covers only surveyed units. The number of establishments by employment size may be different from that in Table 2.2, as the classification of large and medium was based on administrative records.



Table 6: Number of Persons Engaged by ISIC and by Sex

ISIC	Total number of persons engaged		Working proprietors		Employees	
	<i>Male</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>	<i>Male</i>	<i>Female</i>
<b>Mining and quarrying</b>	<b>636</b>	<b>79</b>	<b>16</b>	<b>3</b>	<b>620</b>	<b>76</b>
10 Mining of coal	203	20	5	0	198	20
14 Other mining and quarrying	433	59	11	3	422	56
<b>Manufacturing</b>	<b>13635</b>	<b>19042</b>	<b>520</b>	<b>206</b>	<b>13115</b>	<b>18836</b>
15 Manufacture of food and beverages	1529	747	158	56	1371	691
16 Manufacture of tobacco products	407	446	3	0	404	446
17 Manufacture of textiles	80	295	1	7	79	288
18 Manufacture of wearing apparel	2307	12920	73	33	2234	12,887
20 Wood and wood products	4612	2207	75	16	4537	2,191
21 Paper and paper products	187	124	6	1	181	123
22 Publishing and printing	241	145	1	0	240	145
24 Chemical and chemical products	427	305	39	11	388	294
25 Rubber and plastic products	287	249	18	4	269	245
26 Non-metallic mineral products	1635	838	77	38	1558	800
27 Basic metals	311	272	5	4	306	268
28 Fabricated metal products	222	35	14	1	208	34
29 Machinery and equipment	184	34	8	3	176	31
31 Electrical machinery and apparatus	71	33	0	1	71	32
34 Manufacture of motor vehicles	793	71	9	18	784	53
35 Other transport equipment	149	32	13	1	136	31
19,30,33,36 Other manufacturing	193	289	20	12	173	277
<b>Electricity and water supply</b>	<b>2606</b>	<b>1077</b>	<b>0</b>	<b>0</b>	<b>2606</b>	<b>1,077</b>
40 Production and distribution of electricity	2204	893	0	0	2204	893
41 Collection and distribution of water	402	184	0	0	402	184
<b>Industry total</b>	<b>16877</b>	<b>20198</b>	<b>536</b>	<b>209</b>	<b>16341</b>	<b>19989</b>

Table 7: Number of Employees by Functional categories, by ISIC and by Sex

	Total number of employees		Production workers		Technicians		Administrative workers		Seasonal and temporary	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
<b>Mining and quarrying</b>	<b>620</b>	<b>76</b>	<b>251</b>	<b>20</b>	<b>246</b>	<b>3</b>	<b>49</b>	<b>21</b>	<b>74</b>	<b>32</b>
10 Mining of coal	198	20	64	7	117	0	16	9	1	4
14 Other mining and quarrying	422	56	187	13	129	3	33	12	73	28
<b>Manufacturing</b>	<b>13115</b>	<b>18836</b>	<b>9076</b>	<b>15889</b>	<b>1526</b>	<b>297</b>	<b>1839</b>	<b>1122</b>	<b>674</b>	<b>1528</b>
15 Manufacture of food and beverages	1,371	691	898	397	114	8	231	77	128	209
16 Manufacture of tobacco products	404	446	71	208	124	7	109	59	100	172
17 Manufacture of textiles	79	288	45	236	3	0	31	52	0	0
18 Manufacture of wearing apparel	2,234	12,887	1687	12155	248	251	271	458	28	23
20 Wood and wood products	4,537	2,191	3506	1687	251	4	596	179	184	321
21 Paper and paper products	181	123	135	101	26	11	20	11	0	0
22 Publishing and printing	240	145	101	117	10	0	57	28	72	0
24 Chemical and chemical products	388	294	255	194	45	10	76	44	12	46
25 Rubber and plastic products	269	245	195	217	25	0	49	28	0	0
26 Non-metallic mineral products	1,558	800	1020	281	210	0	190	52	138	467
27 Basic metals	306	268	230	4	44	0	25	8	7	256
28 Fabricated metal products	208	34	143	11	24	0	40	23	1	0
29 Machinery and equipment	176	31	139	7	18	2	19	10	0	12
31 Electrical machinery and apparatus	71	32	70	28	0	0	1	4	0	0
34 Manufacture of motor vehicles	784	53	367	1	356	1	61	34	0	17
35 Other transport equipment	136	31	70	3	11	0	52	24	3	4
19,30,33,36 Other manufacturing	173	277	144	242	17	3	11	31	1	1
<b>Electricity and water supply</b>	<b>2606</b>	<b>1077</b>	<b>91</b>	<b>26</b>	<b>2160</b>	<b>335</b>	<b>282</b>	<b>162</b>	<b>73</b>	<b>554</b>
40 Production and distribution of electricity	2,204	893	25	0	1920	307	192	118	67	468
41 Collection and distribution of water	402	184	66	26	240	28	90	44	6	86
<b>Industry total</b>	<b>16341</b>	<b>19989</b>	<b>9418</b>	<b>15935</b>	<b>3932</b>	<b>635</b>	<b>2170</b>	<b>1305</b>	<b>821</b>	<b>2114</b>

Table 8 : Composition of Compensation of Employees by ISIC  
Value in million KIPS

	Wages and salaries	Other benefits	Employer's contribution to social security	Total compensation of employees
<b>Mining and quarrying</b>	<b>3964</b>	<b>13</b>	<b>147</b>	<b>4124</b>
10 Mining of coal	1201	12	38	1251
14 Other mining and quarrying	2763	1	109	2873
<b>Manufacturing</b>	<b>78196</b>	<b>4395</b>	<b>11402</b>	<b>93993</b>
15 Manufacture of food and beverages	4143	818	1301	6262
16 Manufacture of tobacco products	2056	586	45	2687
17 Manufacture of textiles	1005	62	49	1116
18 Manufacture of wearing apparel	40262	1570	539	42371
20 Wood and wood products	9808	428	9041	19277
21 Paper and paper products	654	22	8	684
22 Publishing and printing	852	92	49	993
24 Chemical and chemical products	3501	103	99	3703
25 Rubber and plastic products	1222	70	8	1300
26 Non-metallic mineral products	4575	397	184	5156
27 Basic metals	2646	30	17	2693
28 Fabricated metal products	1051	47	15	1113
29 Machinery and equipment	925	21	6	952
31 Electrical machinery and apparatus	209	0	0	209
34 Manufacture of motor vehicles	3182	26	18	3226
35 Other transport equipment	997	107	19	1123
19,30,33,36 Other manufacturing	1108	16	4	1128
<b>Electricity and water supply</b>	<b>9522</b>	<b>1827</b>	<b>396</b>	<b>11745</b>
40 Production and distribution of electricity	8870	1770	304	10944
41 Collection and distribution of water	652	57	92	801
<b>Industry total</b>	<b>91682</b>	<b>6235</b>	<b>11945</b>	<b>109862</b>

Table 9: Compensation of Employees by Sex and by ISIC

	Wages and salaries		Other benefits		Employer's contribution to social security		Total compensation of employees	
	Male	Female	Male	Female	Male	Female	Male	Female
<b>Mining and quarrying</b>	<b>3359</b>	<b>605</b>	<b>12</b>	<b>1</b>	<b>136</b>	<b>11</b>	<b>3507</b>	<b>617</b>
10 Mining of coal	834	367	11	1	27	11	872	379
14 Other mining and quarrying	2525	238	1	0	109	0	2635	238
<b>Manufacturing</b>	<b>34877</b>	<b>43318</b>	<b>2204</b>	<b>2191</b>	<b>9779</b>	<b>1623</b>	<b>46860</b>	<b>47132</b>
15 Manufacture of food and beverages	3185	958	525	293	775	526	4485	1777
16 Manufacture of tobacco products	1197	859	326	260	24	21	1547	1140
17 Manufacture of textiles	265	740	24	38	21	28	310	806
18 Manufacture of wearing apparel	6919	33343	259	1311	127	412	7305	35066
20 Wood and wood products	6888	2920	331	97	8510	531	15729	3548
21 Paper and paper products	480	174	11	11	5	3	496	188
22 Publishing and printing	449	403	37	55	28	21	514	479
24 Chemical and chemical products	2540	961	68	35	62	37	2670	1033
25 Rubber and plastic products	620	601	54	16	4	4	678	621
26 Non-metallic mineral products	3710	865	362	35	157	27	4229	927
27 Basic metals	2470	176	30	0	17	0	2517	176
28 Fabricated metal products	940	111	39	8	13	2	992	121
29 Machinery and equipment	704	221	19	2	5	1	728	224
31 Electrical machinery and apparatus	144	65	0	0	0	0	144	65
34 Manufacture of motor vehicles	3106	76	23	3	16	2	3145	81
35 Other transport equipment	790	207	87	20	13	6	890	233
19,30,33,36 Other manufacturing	470	638	9	7	2	2	481	647
<b>Electricity and water supply</b>	<b>7920</b>	<b>1602</b>	<b>1542</b>	<b>285</b>	<b>333</b>	<b>63</b>	<b>9795</b>	<b>1950</b>
40 Production and distribution of electricity	7384	1486	1495	275	257	47	9136	1808
41 Collection and distribution of water	536	116	47	10	76	16	659	142
<b>Industry total</b>	<b>46156</b>	<b>45525</b>	<b>3758</b>	<b>2477</b>	<b>10248</b>	<b>1697</b>	<b>60162</b>	<b>49699</b>

Table 10: Composition of Intermediate Consumption of Establishments by ISIC  
Value in million Kips

	Value of purchased				Change in stock of materials and fuel	Payment for services	Intermediate consumption
	Materials and supplies	Fuel	Electricity	Water			
<b>Mining and quarrying</b>	<b>3655</b>	<b>1190</b>	<b>62</b>	<b>0</b>	<b>182</b>	<b>13786</b>	<b>18512</b>
10 Mining of coal	2574	147	6	0	10	9415	12132
14 Other mining and quarrying	1081	1043	56	0	172	4371	6380
<b>Manufacturing</b>	<b>684374</b>	<b>25447</b>	<b>10563</b>	<b>1062</b>	<b>64473</b>	<b>118271</b>	<b>775247</b>
15 Manufacture of food and beverages	69923	5432	1197	401	11197	9823	75578
16 Manufacture of tobacco products	20732	158	198	22	3320	850	18640
17 Manufacture of textiles	1343	43	89	9	141	735	2078
18 Manufacture of wearing apparel	282003	3112	2468	352	17938	41457	311454
20 Wood and wood products	129469	8441	2344	96	13282	44769	171837
21 Paper and paper products	4238	323	296	24	392	650	5139
22 Publishing and printing	5982	99	67	6	316	1209	7048
24 Chemical and chemical products	16352	278	261	50	4059	6134	19017
25 Rubber and plastic products	17843	139	490	20	2122	1212	17582
26 Non-metallic mineral products	15151	3272	903	24	1875	4791	22266
27 Basic metals	8251	2325	1364	1	781	339	11499
28 Fabricated metal products	30591	909	213	3	3521	645	28840
29 Machinery and equipment	6568	176	337	12	581	475	6987
31 Electrical machinery and apparatus	4408	17	57	5	-509	416	5412
34 Manufacture of motor vehicles	48071	439	169	26	2368	903	47241
35 Other transport equipment	18304	127	30	4	1801	3025	19689
19,30,33,36 Other manufacturing	5145	157	80	7	1288	838	4940
<b>Electricity and water supply</b>	<b>259830</b>	<b>5832</b>	<b>2136</b>	<b>0</b>	<b>2902</b>	<b>304428</b>	<b>569324</b>
40 Production and distribution of electricity	254427	5330	828	0	1622	301633	560596
41 Collection and distribution of water	5403	502	1308	0	1280	2795	8728
<b>Industry total</b>	<b>947859</b>	<b>32469</b>	<b>12761</b>	<b>1062</b>	<b>67557</b>	<b>436485</b>	<b>1363083</b>

Table 11: Components of Gross Output of Establishments by ISIC

	Value of total sale	Change in stock	Receipts for services	Value of fixed assets produced on own account	Gross output
<b>Mining and quarrying</b>	<b>20531</b>	<b>595</b>	<b>12345</b>	<b>0</b>	<b>33467</b>
10 Mining of coal	10197	804	9309	0	20310
14 Other mining and quarrying	10334	-209	3036	0	13157
<b>Manufacturing</b>	<b>1177965</b>	<b>31168</b>	<b>29985</b>	<b>4399</b>	<b>1233735</b>
15 Manufacture of food and beverages	229932	1030	2354	123	233336
16 Manufacture of tobacco products	75669	-1894	895	0	74670
17 Manufacture of textiles	4470	101	265	0	4836
18 Manufacture of wearing apparel	389606	11563	6396	4001	409693
20 Wood and wood products	169738	1804	17398	84	189024
21 Paper and paper products	4566	867	0	5	5438
22 Publishing and printing	11242	379	84	0	11376
24 Chemical and chemical products	30769	876	46	64	30836
25 Rubber and plastic products	20661	4188	0	0	24848
26 Non-metallic mineral products	53584	3895	786	90	58332
27 Basic metals	23099	376	378	22	23265
28 Fabricated metal products	38625	4681	209	0	43515
29 Machinery and equipment	9011	-114	445	0	9313
31 Electrical machinery and apparatus	4415	1693	0	0	6108
34 Manufacture of motor vehicles	68612	786	582	10	69983
35 Other transport equipment	31156	943	127	0	31280
19,30,33,36 Other manufacturing	12810	-6	20	0	7882
<b>Electricity and water supply</b>	<b>722988</b>	<b>51428</b>	<b>146262</b>	<b>0</b>	<b>920678</b>
40 Production and distribution of electricity	717164	51428	141315	0	909907
41 Collection and distribution of water	5824	0	4947	0	10771
<b>Industry total</b>	<b>1921484</b>	<b>83191</b>	<b>188592</b>	<b>4399</b>	<b>2187880</b>

Table 12: Fixed Assets of Establishments at the End of the Year by ISIC

	Land	Building and structures	Machinery and equipment	Transport equipment	Furniture and others	Total
<b>Mining and quarrying</b>	<b>2</b>	<b>4717</b>	<b>970</b>	<b>6370</b>	<b>1250</b>	<b>13309</b>
10 Mining of coal	0	4537	573	2943	1128	9181
14 Other mining and quarrying	2	180	397	3427	122	4128
<b>Manufacturing</b>	<b>14001</b>	<b>115270</b>	<b>200601</b>	<b>58960</b>	<b>45089</b>	<b>433921</b>
15 Manufacture of food and beverages	4314	10251	43641	4648	29848	92702
16 Manufacture of tobacco products	7	4120	6028	1090	793	12038
17 Manufacture of textiles	214	639	1167	357	86	2463
18 Manufacture of wearing apparel	406	20741	25586	3095	7596	57424
20 Wood and wood products	3348	42722	79048	16833	2287	144237
21 Paper and paper products	0	1229	2408	70	165	3872
22 Publishing and printing	2383	1450	1931	407	277	6448
24 Chemical and chemical products	99	5325	6041	1627	1042	14135
25 Rubber and plastic products	12	1491	2454	628	200	4784
26 Non-metallic mineral products	951	14577	26735	22905	692	65860
27 Basic metals	18	426	1575	2401	167	4587
28 Fabricated metal products	926	1432	1496	629	82	4565
29 Machinery and equipment	340	1343	491	479	187	2840
31 Electrical machinery and apparatus	0	77	7	467	200	751
34 Manufacture of motor vehicles	50	2776	718	1524	124	5193
35 Other transport equipment	380	530	214	559	226	1909
19,30,33,36 Other manufacturing	553	6141	1061	1241	1117	10113
<b>Electricity and water supply</b>	<b>29</b>	<b>1568376</b>	<b>187493</b>	<b>13708</b>	<b>6267</b>	<b>1775873</b>
40 Production and distribution of electricity	0	1546447	183841	12715	3817	1746820
41 Collection and distribution of water	29	21929	3652	993	2450	29053
<b>Industry total</b>	<b>14032</b>	<b>1688363</b>	<b>389064</b>	<b>79038</b>	<b>52606</b>	<b>2223103</b>

Table 13: Gross Addition to the Fixed Assets of Establishments by ISIC

	Addition during the year				Sale and loss of fixed assets	Gross fixed capital formation
	New assets	Used assets	Capital repair	Produced on own account		
<b>Mining and quarrying</b>	<b>2683</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2683</b>
10 Mining of coal	2408	0	0	0	0	2408
14 Other mining and quarrying	275	0	0	0	0	275
<b>Manufacturing</b>	<b>33826</b>	<b>4496</b>	<b>38314</b>	<b>4399</b>	<b>408</b>	<b>80628</b>
15 Manufacture of food and beverages	1434	373	30164	123	81	32013
16 Manufacture of tobacco products	4552	0	0	0	0	4552
17 Manufacture of textiles	235	5	79	0	6	313
18 Manufacture of wearing apparel	9582	455	367	4001	95	14310
20 Wood and wood products	3938	2317	230	84	0	6569
21 Paper and paper products	1607	447	0	5	0	2059
22 Publishing and printing	273	0	725	0	20	978
24 Chemical and chemical products	1221	160	566	64	2	2010
25 Rubber and plastic products	917	3	980	0	0	1900
26 Non-metallic mineral products	434	261	4671	90	74	5382
27 Basic metals	507	270	12	22	0	811
28 Fabricated metal products	1048	71	0	0	9	1110
29 Machinery and equipment	133	0	0	0	15	118
34 Manufacture of motor vehicles	1461	134	520	10	96	2029
35 Other transport equipment	119	0	0	0	10	109
19,30,33,36 Other manufacturing	6365	0	0	0	0	6365
<b>Electricity and water supply</b>	<b>4645</b>	<b>0</b>	<b>10107</b>	<b>0</b>	<b>807</b>	<b>13945</b>
40 Production and distribution of electricity	4593	0	0	0	807	3786
41 Collection and distribution of water	52	0	10107	0	0	10159
<b>Industry total</b>	<b>41154</b>	<b>4496</b>	<b>48421</b>	<b>4399</b>	<b>1215</b>	<b>97256</b>



### 4.3. Questionnaire

## Ministry of Industry and Handicrafts Industrial Survey 1999 Questionnaire

#### 1. Name and address of establishment

Name of establishment: In Lao: In English: Identification number : Location of establishment: Street: Village: Province: Telephone: Name of contract person : In operation since ( year ):	House number: District: P.O. Box: Fax :	Area code : _____
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#### 2. Address of main office : ( if different from the location of establishment )

Street :	House number :
Village :	District :
Province:	P.O. Box :
Telephone :	Fax :
Name of contract person in main office:	

#### 3. Economic activity

	Description	ISIC code
Main		
Secondary		

#### 4. Legal status :

401	Sole state	
402	Single proprietorship	
403	Cooperatives and partnership	
404	Company	

#### 5. Type of ownership :

501	Central Government	
502	Local Government	
503	Domestic private	
504	Domestic and foreign (Joint venture)	
505	State and Private	
506	Foreign	

**6. Economic organisation :**

601. Is this a single establishment?	1. Yes <input type="checkbox"/>	Go to → Q. 7	2. No <input type="checkbox"/>
602. Is this a main or branch establishment?	1. Main <input type="checkbox"/>	Go to → Q. 604	2. Branch <input type="checkbox"/>
603. Name of main establishment:	Go to → Q. 7		
604. Number of branches:			

**7. Number of persons engaged :**

	Description	Male	Female	Total
701	Working Proprietors and active business Partners			
702	Unpaid workers			
<b>Employees</b>				
703	Production workers total			
704	Technician			
705	Administrative			
706	Seasonal and temporary employees			
7	<b>Total</b>			

**8. Compensation of employees**

		Value in million		
	Indicators	Male	Female	Total
801	Wages and salaries			
802	Other benefits paid to employees			
803	Contribution to social security, pension funds etc.			
8	<b>Total compensation of employees</b>			

**9. Cost of fuels, water and electricity purchased**

		Value in million Kips		
	Materials	Unit	Quantity	Value
901	Fuels purchased			
902	Water purchased			
903	Electricity Purchased			
904	Electricity generated for own consumption			
905	Electricity Sold to others			
9	<b>Total</b>			

**10. Quantity and value of materials and supplies purchased**

		Value in million Kips		
	Materials	Unit	Quantity	Value
1001				
1002				
1003				
1004				
1005				

1006	Others			
1007	Total			
1008	Goods purchased for resale			
<b>10</b>	<b>Total purchase</b>			

### 11. Payment for services

Value in million Kips

	Description	Value
1101	Payment for contract and commission work done by others	
1102	Payment for repair and maintenance	
1103	Payments for lease and hire of plant, machinery and equipment	
1104	Rental payments for land and buildings	
1105	Transportation of finished goods	
1106	Insurance	
1107	Postage, telephones, telex, fax, etc.	
1108	Legal and auditing fee	
1109	Payment for patent, trade mark, copy right and others	
1110	Payment for other services	
<b>11</b>	<b>Total payment for services</b>	

### 12. Quantity and value of sales

Value in million Kips

		Unit	Quantity	Value
1201				
1202				
1204				
1205				
1206				
1207	Others			
1208	Total			
1209	Receipts from the goods sold as purchased			
<b>12</b>	<b>Total sale of goods</b>			

### 13. Receipts for services rendered to others

Value in million Kips

	Description	Value
1301	Receipts for contract and commission work done for others	
1302	Receipts for repair and maintenance	
1303	Receipts for goods sold as purchased	
1304	Rental receipts for land and buildings	
1305	Receipts for lease of plant, machinery and warehouses	
1306	Receipts for storage facilities provided to others	
1307	Receipts for transport services rendered to others	
1308	Other receipts for non-industrial services	
<b>13</b>	<b>Total receipts from services</b>	

**14. Value of stocks**

Value in million Kips

	Particulars	At the beginning of year	At the end of year
1401	Materials and supplies		
1402	Fuels		
1403	Finished products		
1404	Semi-finished goods		
1405	Goods for resale		
<b>14</b>	<b>Total</b>		

**15. Fixed assets**

Value in million Kips

		Land	Building and structures	Machinery and equipment	Transport equipment	Furniture and others	Total
1501	At the beginning of year						
1502	New assets purchased						
1503	Used assets acquired						
1504	Capital repair done						
1505	Fixed assets produced on own account						
1506	Sale and loss fixed assets						
1507	Depreciation						

**16 Indirect taxes and subsidies**

		Value (in million Kips)
1601	Indirect taxes (sales tax, excise and other taxes charged to final products)	
1604	Subsidies received	
<b>16</b>	<b>Total</b>	