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STRENGTHENING THE PLANNING UNIT OF THE  
MINISTRY OF INDUSTRY AND TECHNOLOGY

BR/UGA/84/003

UGANDA

Technical report: Report on the development of  
industrial statistics in Uganda\*

Prepared for the Government of Uganda  
by the United Nations Industrial Development Organization

Based on the work of Mr. Z. W. Kmietowicz,  
expert in industrial statistics

Backstopping officer: W. H. Eckert, Industrial Planning Branch

2

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\* This document has not been edited.

EXPLANATORY NOTES

Value of the local currency - New Ugandan Shillings (N.USh)  
United States Dollars = US-\$ mid September 1988  
1 US \$ = 150 N.USh.

ABBREVIATIONS

CIP	Census of Industrial Production
CTA	Chief Technical Adviser
ISIC	International Standard Industrial Classification
MIT	Ministry of Industry and Technology
MPED	Ministry of Planning and Economic Development
MPS	Monthly Production Statistics
SD	Statistical Department
UDC	Uganda Development Corporation

Abstract:

The report considers availability of industrial statistics in Uganda, assesses most immediate needs and describes steps taken to remedy the major deficiencies. It describes collection of statistics for 1987 and 1988, definition of economic aggregates, tabulation and analysis of available data for 110 industrial establishments. Several recommendations are made to improve collection of industrial statistics and their reliability. The report also describes the calculation of monthly index of industrial production for 1986, 1987 and 1988. A new procedure is used to incorporate new products in the index. The method is adapted to Ugandan conditions and ensures that the index is free from serious downward bias. The results of the index are interpreted and their reliability considered. Continuation and responsibility for the index are also discussed. Future needs for data collection and their analysis are considered. Training of local staff and its involvement in the assignment are also discussed.

TABLE OF CONTENTS

Special considerations	2
Abstract	3
Table of contents	4
I. Recommendations	5
II. Foreword	6
III. Availability of industrial statistics	7
IV. Assessment of the situation and plan of work	7
V. Data collection	9
VI. Estimation of labour costs, depreciation, net profit and value added	13
VII. Calculation of monthly index of industrial production	14
VIII. Continuation of the work	21
IX. Participation and involvement of local staff	21
Appendix 1. Recommendations for collection of industrial statistics	23
Appendix 2. Treatment of new products in the index of industrial production	28
Appendix 3. Statistical tables:	
Table 1: Basic data, manufacturing establishments, 1987	31
Table 2(a): Monthly index of manufacturing production, 1986	35
Table 2(b): Monthly index of manufacturing production, 1987, 1988	35
Table 3(a): Monthly index of manufacturing production, 1986 (detailed calculations)	36
Table 3(b): Monthly index of manufacturing production, 1987, 1988 (detailed calculations)	38
Monthly industrial productions specimen questionnaire	42
Foreign exchange requirements specimen questionnaire	43

I. RECOMMENDATIONS:

1. There is a great need to continue and improve the collection of the monthly production statistics conducted at present by the Statistics Department of the Ministry of Planning and Economic Development in order to provide up-to-date information about changes taking place in the manufacturing sector. The cooperation data collection between the Ministry of Industry and Technology and the Statistics Department described in Section 4. should be confirmed and expanded in order to increase industrial coverage of the enquiry. Due to lack of resources, the frequency of data collection may have to be quarterly in the near future. Suggestions for improving operational and organizational procedures are described in Appendix 1.

2. Estimates of value added in 1987 for the 110 establishments described in Section 5. should be expanded as soon as possible to cover all factories employing ten or more people and in particular those engaged in coffee, tea and cotton processing. Such estimates should provide a better measure of the contribution of the manufacturing sector to GDP and more reliable weights for the index of industrial production.

3. The monthly index of manufacturing production whose calculation is described in Section 6. should be confirmed by the Statistics Department and computed as frequently as the monthly statistics are collected. The method of incorporating new products and industries in the index, described in Appendix 2 should be used in order to avoid serious downward bids in the index. The reliability of the index should be increased by expansion of coverage of the monthly production statistics which provide indicators for the index.

4. Since a successful census of industrial production has not been taken for more than ten years, it is very important to carry out such a census as soon as possible in order to obtain detailed information about the structure of industry and the nature of inter-relationships between industries and with other sectors of the economy. The census would also provide more reliable weights for the index of production and basic data for input-output tables. The annual survey of industrial production should be discontinued for the time being in order to save resources. Further details are given in Appendix 1.

5. More resources should be devoted to collection of information about small establishments in order to evaluate their contribution to GDP and to assess changes taking place in the sector. It is believed that small-scale production is growing quickly and is likely to continue to do so.

II. Foreword:

The objectives of the originally planned twelve months assignment were to advise on and assist in strengthening the framework of industrial statistics as an important instrument for planning and decision making. More specifically the expert was expected to:

1. Assist in upgrading the existing directory of industrial enterprises.
2. Review the existing system of data collection, aggregation of data and monitoring of statistical work in the industrial sector.
3. Prepare recommendations for an improved framework of industrial statistics, to set up a regularly working and periodically reporting statistical service.
4. Recommend methodological and substantial improvement of statistical analysis, to assess industrial development, one of the basic outputs of the Planning Unit of the Ministry of Industry.
5. Provide on-the-job training and participate in other training activities in the fields of industrial statistics and statistical analysis.

In the light of the conditions found in Uganda on arrival and the reduction of the duration of the assignment to six months, the programme of work was redefined and limited to three main objectives:

1. Collection of data: Ministry of Industry and Technology (MIT) and the Statistical Department (SD) of the Ministry of Planning and Economic Development (MPED) were to join forces in the collection of monthly industrial statistics for 1987 and 1988 and the conduct of the census of industrial production, 1986. This required visits and revisits to more than 200 factories.

2. Preparation of basic economic aggregates: Estimates of employment, wages and salaries, labour costs, value added etc. were to be prepared for each company and subsequently aggregated into industrial sub-sectors and the whole industrial sector using the International Standard Industrial Classification (ISIC).
3. Calculation of indices: Compilation of monthly index of manufacturing production was to be attempted together with other indices like, earnings index, labour input index, labour productivity index, average labour cost index, etc., This programme of work was approved by the Chief Technical Adviser (CTA) and the project's Backstopping Officer in Vienna.

### III. Availability of Industrial Statistics:

Upon the expert's arrival in April, there was very little recent data about industrial production. The monthly production statistics collected by Statistical Department of MPED around April/May for the "Background to the Budget" and covering about 80 factories around Kampala and Jinja was the most important. It provided information about employment, labour costs, production and sales. There was also some information in the MIT files about parastatal companies reporting to Uganda Development Corporation (UDC) and those nationalised companies reporting directly to the MIT. This information is not comprehensive or continuous. There was also the annual census of industrial production which provides comprehensive information about the industrial sector. Unfortunately, the last such census was taken in 1983 and its analysis is not yet completed, although some preliminary results were published in the "Background to the Budget" recently. These data are now out of date because of recent political upheavals in Uganda.

### IV. Assessment of the situation and plan of work:

Given the situation described above, it was not possible to use the information available to the MIT or SD of MPED to produce up-to-date estimates of employment, gross output, sales, value



added, etc. for industrial establishments or indices of production, labour costs, labour productivity, etc. which would be useful for planning functions of the MIT. Thus, it was necessary to collect the basic information from manufacturing establishments and to analyse it. Given the limited funds available to the SD of MPED and the MIT, the optimum course of action was to pool resources of the two Ministries in order to cover as many factories as possible in the Kampala, Jinja, Mbale, Tororo and Entebbe areas. Such exercise would supply the MIT with useful basic data about many industrial establishments and would enable compilation of aggregates like employment, labour costs, sales, production, value added etc. and calculation of indices like index of industrial production, index of labour productivity, index of average labour costs, etc. It was fortunate that at the time of arrival in April 1988, the SD of MPED was engaged in the annual data collection for the "Background to the Budget". It quickly became apparent that the best use of the limited resources available to the MIT and to UNIDO was to join forces with the SD in order to cover as many industrial establishments as possible. The joint efforts were to be directed towards collection of monthly production and sales statistics for the whole of 1987 and as many months of 1988 as possible, and collection of returns of the 1986 Census of Industrial Production. Additionally, arrangements were made to collect information which was of particular importance to the MIT. This included comprehensive data about labour costs, depreciation and net profits. This information was needed for the estimation of value added which was required for the calculation of the index of production. Moreover, statistics of foreign-currency requirements of companies and special factors limiting production were also collected. This information was required for the MIT work on foreign exchange allocation. The information normally collected by the SD of MPED and the additional information were of vital importance to the MIT.

V. Data Collection:

Upon the expert's arrival in Kampala in April 1988, the SD was engaged in the collection of monthly production statistics for 1987 and the early months of 1988. Questionnaires were already distributed to factories in Kampala and Entebbe. Lugazi, Jijja, Tororo and Mbale were to be visited shortly. In April/May 1987 about 80 largest factories were visited in the six towns, the aim now was to revisit these establishments and to include other factories which were omitted in 1987 or have started production since then. Factories in Western Uganda were not visited because of lack of resources. However, some Western establishments were included in the survey because it was possible to obtain information about them from their Kampala headquarters. Factories in Northern Uganda were not visited because of security problems. Most of them are not in production due to the unsettled conditions in the region.

The questionnaire used by the SD for the collection of the monthly production statistics was revised by the author because it contained a number of ambiguities and omissions. Questions about direct and indirect labour cost/<sup>were</sup>very imprecise and needed fuller explanations. This difficulty was primarily responsible for incomplete data obtained in Kampala where the old questionnaires were used, and necessitated many revisits. The original questionnaires allowed only for one product. As many companies produced more than one product, it was necessary to make allowance for this. Maximum production capacity was also redefined because the concept of installed capacity was not very useful as many machines were beyond repair. The redesigned questionnaire was produced with UNIDO resources and was used in the areas outside Kampala. A copy of it is enclosed at the end of the report.

When Kampala returns started to come in, it became clear that information about labour costs was very incomplete because of the imprecise instructions given to respondents. Only basic wages and salaries were usually included under direct labour costs while

overtime payments, bonuses and variety of cash allowances were omitted. The indirect labour costs were almost totally ignored by respondents. Most gave only employer's contribution to social security scheme, which was a very small cost, but gave no information about important items like cost of lunch provided for workers by companies, cost of free or subsidised housing, cost of clinic or dispensary payment of staff medical bills, private use of company cars, provision of transport, allocation of free or subsidised produce, e.g. sugar, soap, oil, etc., expenditure on social and sporting facilities, compassionate payments to cover cost of funeral expenses and similar payments from which the labour force benefited. These deficiencies in the collected data were very serious and had to be remedied as labour costs are one of the main constituents of value added. Thus, it became necessary to revisit the Kampala factories in order to obtain more accurate assessment of labour costs. It proved very difficult to obtain information about indirect labour costs because usually the information was not kept centrally but was scattered over different accounts. Often rough estimates had to be made to make approximations to the actual costs involved, e.g. the estimate of depreciation on an old car owned by a factory and used mainly to bring workers to work and back or an estimate of a rental of a company house in Lugazi and Kakira sugar estates which are far from towns and where a housing market does not really exist. Often several visits were necessary to obtain the required information. This proved to be the most difficult phase of work. It cost a lot of time, money and patience.

When the questionnaires from Jinja, Lugazi, Mbale, and Tororo started to come in, it became clear that some of the problems encountered in Kampala were still present in spite of the modifications introduced in the questionnaire and additional instructions given to respondents. Direct labour cost were now recorded fairly accurately, but there were still some omissions of indirect labour costs. This was mainly due to the unwillingness of respondents to give information about cost of free housing, private use of company cars

and other benefits enjoyed by senior staff. Sometimes the information was not provided simply because of unwillingness of respondents to supply the information. Sometimes they were not very competent in making the estimates demanded of them. To overcome some of these problems, it proved most efficient in many cases to collect the relevant facts from respondents during revisits and then make the required estimates in the office. The revisiting in Jinja, Lugazi, Mbale and Tororo was also very time consuming, expensive and exhausting. Most of this work was performed without the cooperation of the SD of the MPED, whose funds for data collection were exhausted. At that time, as on other occasions, the MIT/UNIDO team consisted of three statistical assistants and myself.

A particular difficulty in collecting the statistics was extreme reluctance of many firms to supply the information. There is great mistrust of government intentions in collecting the information. Many companies pay low basic wages which are subject to income tax and large allowances of various kind. e.g. housing, travel, productivity, punctuality, cost of living etc. which are free of income tax. They do not want to advertise these practices which the government may wish to stop. The same applies to many indirect labour costs like free lunch, company housing, private use of company cars, etc. Income tax is not usually levied on these benefits, but it could be. For this reason there is general unwillingness to provide the information. When the information is demanded, the estimates supplied are usually downward biased. It was often necessary to obtain additional information about the number of company houses and their quality or the number of company cars and frequency of their use for private purposes etc. and then make independent estimates of the amount of benefit derived. In order to increase cooperation of respondents, the MIT and MPED should publicise the importance of data collection in the future and should stress the usefulness of such information for government policy formulation. More specific suggestions about improving accuracy of the collected information are given in Appendix 1.

It is necessary to stress the need for revisits during data collection. If revisiting was not undertaken, the quality of the collected data would be seriously impaired. It became clear after revisiting that basic wages and salaries constituted only  $\frac{1}{2}$  and sometimes  $\frac{1}{3}$  of the total direct labour cost because overtime pay, bonuses and all cash allowances were omitted. The degree of under recording of indirect labour costs was much greater. Here only employer's contribution to social security scheme was usually given. This amounted to about 10% of basic wages and salaries. However, when final estimates of indirect labour costs were made, sometimes after several revisits, these costs were often twice as large as the final estimates of direct labour costs and sometimes three times as large. The final estimate of total labour costs was often ten times as large as the one originally supplied by respondents. This shows quite clearly that the information normally provided to the SD was very unreliable and underlines the need for determined data collection in the future. If the information given in the original returns was taken at its face value, the resulting estimates of value added would have been grossly underestimated. The same would have been true of the contribution of the manufacturing sectors to GNP and the weights of the index of industrial production which are based on value added.

Information about depreciation and net profits, which together constitute gross profits, was collected for 1987. These data were necessary to make estimates of value added. Simultaneously, completed questionnaires of the 1986 census were collected. The MIT questionnaires about foreign exchange requirements and factors limiting production were distributed and subsequently collected. The questionnaire was designed by the author at the request of the Chief Economist of the MIT. A copy of the questionnaire is enclosed at the end of the report.

VI. Estimation of labour costs, depreciation, net profits and value added:

After intensive data collection, which took place in May, June and July, estimates of direct, indirect and total labour costs were made for each of the 110 factories covered by the survey. The estimates were based on all the additional information obtained during revisits. Sometimes company estimates of various items were accepted. Sometimes independent estimates were made from additional information, if company estimates seemed unreliable. Some of the difficulties encountered there were described in section V. Estimates of gross profit, equal to net profit (profit before tax) plus depreciation, were usually obtained from company accounts for larger companies and were estimated for smaller companies. Net profit for smaller companies was usually estimated as 15% or 20% of sales depending on the circumstances, and rough estimates of depreciation were made using replacement cost basis. Many company accounts show depreciation estimated using historic cost values. These estimates were completely unrealistic, but they do not affect gross profit. If the replacement cost estimate of depreciation was used in the accounts, depreciation would be larger but net profit would be reduced by the same amount, and gross profit would remain the same. Total labour cost and gross profit were added together to give value added.\* Average employment in 1987 was also calculated and was used to calculate average labour cost and value added per employee.

Net profit was often negative. This was most common for public or parastatal companies and also for a number of private companies which suffered from currency conversion tax and foreign exchange losses related to devaluation. The latter were particularly heavy for companies which had large foreign loans denominated in dollars and other convertible currencies. Sometimes net losses were so large that gross profit was negative too. In a few cases, net losses were so large that value added was also negative. \*\* This was true for one or two large factories undergoing rehabilitation

\* = see footnote on page 22

\*\* = idem

and maintaining their labour force with a view to early resumption of production.

The data mentioned above together with capacity utilisation, expected production for 1988, sales and production by volume and value were transferred by the UNIDO Industrial information expert in charge of Directory of Establishments, to company summary cards which will constitute part of the Data Bank of the MIT.

The estimates of direct, indirect and total labour costs as well as value added were also supplied to the SD of the MPED for future reference. The estimates of value added should be used to assess the contribution of the manufacturing sector to the GNP.

Table 1 in Appendix 3 gives ISIC classification, name of company, employment, direct labour cost, indirect labour cost, total labour cost, gross profit, value added and sales in 1987 for the 110 factories covered by the study. This should provide the MIT with useful basic data which can be employed for a variety of purposes.

#### VII. Calculation of monthly index of industrial production

Introduction: One of the objectives of the data collection was to obtain enough information to calculate monthly index of industrial production which has not been available in Uganda for many years. Particular emphasis was placed on collection of information needed for the estimation of value added which was to serve as the weighting system for the index. Care was also taken to collect up-to-date physical output indicators required for the index. Originally, it was also intended to calculate an index of labour input, index of labour productivity and index of average labour costs. Unfortunately, shortage of time prevented their computation.

Coverage: The index covers the period January 1986 to June 1988 and consists of two indices linked together. The first covers the period January 1986 to January 1987 and is based on data supplied

by 49 factories. The second covers the period from January 1987 to June 1988 and is based on data supplied by 110 factories. The factories included are broadly the same as those covered by the SD of MPED in April/May 1987 and 1988 when it collected information for the "Background to the Budget". For the period January 1986 data was available for only 49 factories because only 82 of them were covered in April/May 1987 as compared to 110 in 1988, and because some returns were lost. It is important to stress that the first index does not show what happened to manufacturing production in Uganda between January 1986 and January 1987, but only what happened to production of the 49 factories. The same is true for the index covering the period from January 1987 to June 1988, but in this case 110 of the largest companies were covered. It also means that the weights given to the various industries in the two indices are different, see Appendix 3, Table 2.

For some industries the weight used in the index may be larger than their share of value added in total manufacturing. This is true for industries which include only few large companies, as all of them would be included in the survey and the index. If an industry consists of many companies of various sizes only, some of which were included and most excluded, its weight in the index would be too low. Coffee, tea and cotton processing are examples of such industries.

Methodology: Fixed base (Laspeyres) formula was used in the calculation of the index. Production in January 1987 was taken as base of the index and was set equal to 100. The monthly weights were obtained by calculating value added for 1987 for the 110 factories and taking a monthly average. This procedure was followed because many components of value added, e.g. depreciation, net profit, rent of company houses, etc. were available on annual rather than monthly basis. Such a procedure also ensured that the weighting system of the index was more reliable than it would have been if value added in January 1987 was estimated directly. Value added for one month can vary considerably from the average because it can



be low due to depressed production, lack of raw materials, power failures, etc. or exceptionally high when raw materials are available and production is running smoothly.

A special method developed by the author was used to handle new products and new industries. As many factories resumed production in 1987 and 1988, and some new ones were established, the need for such a procedure was paramount. If the new method was not used the contribution to production of new and restarting factories would have been omitted and a considerable downward bias would have been introduced in the index. The method is described in Appendix 2 and a numerical illustration is provided.

It was mainly due to the importance of new products and new industries that production indicators were calculated for products of individual factories, rather than for individual industries. Moreover, such procedure allows more comprehensive inclusion of new products and new factories in the index and thus increases its accuracy. As production conditions became more stable, it will be possible to replace factory production indicators with industry indicators. This would allow a reduction in the number of production series used in the future. The best time to do this would be when more reliable and up-to-date estimates of value added become available from a census of production. Since analysis of censuses of production usually take two or three years, the estimates of value added presented in this report, perhaps amended by fuller estimates of value added for tea, coffee and cotton processing and other industries, will have to be used in the calculation of the index for some time to come.

The following methodological points should also be remembered when using the index:

1. Some factories had negative value added. This was usually due to large net losses of public companies which were being rehabilitated or had difficulties in obtaining

foreign raw materials. As weights of the index have to be positive by definition, net losses of these companies were ignored and an adjusted, positive, value added was obtained. An economic justification for the adjustment is the exceptional nature of the net losses which are not expected to continue.

2. Companies having large loans denominated in foreign currencies suffered exceptional losses when Uganda shilling was devalued in 1987. This exceptional item was often ignored but it was very large and resulted in substantial net losses, and sometimes negative value added. The adjustment was made because these losses are not expected to arise in the future.

Basic results: Table 2(a) in Appendix 3 shows that the index of manufacturing production rose from 0.767 in January 1985 to 1.000 in January 1987, an increase of 30%. The greatest gain in production occurred in the chemicals, paints and soap group of industries whose production increased more than eleven fold. Timber, wood, furniture, paper and printing sector multiplied its production nearly seven fold. Production in the tyres, plastics, bricks, tiles and cement sector more than doubled. It must be remembered, however, that these spectacular increases in production were made from a very low base as production levels in January 1986 were very depressed by the civil war. All sectors of manufacturing increased their production in 1986, except the leather and footwear sector whose production declined by 80%.

The index shown in Table 2(b) in Appendix 3 indicates that manufacturing production increased from 1.000 in January 1987 to 2.120 in June 1988, i.e., it more than doubled. The average compound rate of growth over the period was 70% p.a. It must be remembered, however, that production in January 1987 was still at a very low level, in spite of some growth in 1986, and thus the increase was from a low base. A large part of the growth came

from factories restarting production in 1987 and 1988, e.g. Uganda Sugar Corporation (Lugazi). If the new method of dealing with new products and new industries was not used in the calculation of the index, it would have a serious downward bias. As in 1986, the growth in production in 1987 and 1988 was not uniform. The largest gain in production occurred in the iron and steel industry which more than quadrupled its output. Timber, wood, furniture, paper and printing sector, which did well in 1986, also quadrupled its output. All sectors of industry shown in Table 2(b) managed to increase production. The lowest increase was registered by the tyres, plastics, bricks, tiles and cement sector which increased production by only 9%.

When the two indices are combined, the greatest increase in production during the period of January 1986 to June 1988 occurred in the timber, wood, furniture, paper and printing sector, which registered an average compound rate of growth of 294% p.a. The chemicals, paints, medicines and soap sector was close behind with a rate of growth of 241% p.a. Spirits, beer, soft drinks, and tobacco also did well with a rate of growth of 77% p.a. Production in the leather and footwear sector declined during the period at the rate of 37% p.a. and production in the metal products and electrical goods sector declined at the rate of 15% p.a. Indices for individual factories are shown in Table 3 in Appendix 3.

Another important characteristic of the index is its instability. Production in many sectors goes up one month and down another. Even the overall index exhibits some of the fluctuations. They are due to a number of factors. Sometimes they are caused by shortage of raw materials produced by lack of foreign exchange, sometimes by breakdowns in electricity or water supply, and sometimes by failure of equipment.

It is difficult to say how representative the index is of changes in production of the Ugandan manufacturing sector. Tea, coffee and cotton processing sector is certainly under represented in

the index. The tea and coffee processing factories included in the index show little growth during the two and a half years covered by the index. The trend of cotton production was probably similar. If these trends are representative, the index would be lower if coffee, tea and cotton processing industries carried their appropriate weight. Changes in the other sectors of industrial production are likely to be more representative as the factories included in the index dominate these sectors.

It is also worth noting that the 110 factories covered by the survey, on which the index was based, employed 19,752 people in 1987, see Table 1, Appendix 3, while the 230 establishments covered by the 1982 census of industrial production employed 16,416 people. The 1983 census was less comprehensive than the one taken in 1982. It covered only 76 establishments whose total employment was only 8,598. Moreover, the censuses covered some establishments belonging to mining, construction and water industries which are not included in the manufacturing sector. Censuses attempt to cover establishments employing 10 or more people. The data come from Table A38 of the statistical appendix of the "Background to the Budget 1988/1989". The above comparisons suggest that the 110 factories covered by the survey account for a large proportion of manufacturing employment, although it is not possible to say how large. Total value added of the 110 establishments covered by the survey was 2,343 m.sh. in 1987, see Table 1, Appendix 3, while the contribution of the manufacturing sector to GDP at factor cost measured in current prices was estimated to be 1,274,456 m.sh. (see Table 1.2 in the statistical appendix of the "Background to the Budget, 1988/1989"). Although the GDP estimate includes the contribution of small scale units, and coffee, tea and cotton processing, the estimate seems far too large, as it implies that the 110 largest companies account for only 0.2% of total value added by the manufacturing sector.

Continuation of the index: The calculation of the index can be continued if monthly production data can be collected regularly by the SD of MPED and the MIT. This is unlikely to be the case in the near future because of shortage of funds for regular visiting of factories. If some additional resources were made available, quarterly visits might be possible. This would enable the calculation of the index four times a year covering the previous three months in each case. As estimates of value added are provided in the report, the only information required is physical production data. These should not be too difficult to obtain. For suggestions of cooperation between the statisticians employed by the MIT and the MPED in collecting industrial statistics see Appendix 1.

Responsibility for the calculation of the index: In the past the index of industrial production was calculated by the SD of MPED which is still responsible for the collection of the monthly production statistics needed for the index. The MIT is vitally interested in the results of the index in order to assess the overall performance of the industrial sector. It has attempted, with UNIDO's help, to restart the index because resources available to the SD were insufficient for the purpose. Statistical personnel available to the MIT is also insufficient for the collection of the data and the calculation of the index. As the SD is now responsible for the collection of production statistics, it should also take responsibility for the calculation of the index. The statisticians of the MIT should be actively involved in the collection of data, calculation of the index and analysis of results. The SD should give high priority to this task and should ensure that the index is calculated regularly. It is hoped that some of the World Bank funds, which may become available to the SD, will be devoted to the task. The final decision about the responsibility for the index should be made after consultations between the MIT and MPED.

VIII. Continuation of the work:

As was mentioned earlier, the collected data and the calculated index of industrial production can be used to compile other indices. It is possible to calculate an index of labour and the associated index of labour productivity. Indices of direct, indirect and total labour costs can also be calculated. The same applies to indices of labour costs per unit of output. Indices of selling prices of manufactured goods can also be calculated. Such indices can be of considerable help to the MIT in evaluating performance of manufacturing industries and individual companies.

IX. Participation and involvement of local staff:

One of the objectives of the assignment was to train local staff in design of questionnaires, data collection, compilation of important economic aggregates like gross profit, value added, and labour cost, calculation of index numbers and analysis of data. This objective was only partly attained. The statistical section of the MIT consists of two graduate statisticians and four statistical assistants, two of which have some statistical training. In spite of repeated attempts to involve them in the expert's work, the two graduates showed little interest in what he was doing and provided him with very little help. Most of his work was completed with the assistance of three statistical assistants, the fourth disappeared shortly after his arrival and took no further part in the proceedings. One dedicated, interested and hard working assistant was sent for further training to the Dar-es-Salaam Statistical Centre in August. The project was able to supplement his Commonwealth Scholarship to make this possible. The work was completed with the help of two statistical assistants.

Without their assistance, the work would have been severely handicapped and might have been impossible. They helped with data collection, tabulation of the results and calculation of the index of industrial production. They have learned a lot and are now more valuable members of the

statistical section. It was very unfortunate that not even one of the graduate statisticians was able to work closely with the expert and prepare himself/herself to continue the work.

This is one reason why the MIT will not be well placed to continue the calculation of the index of industrial production in the future.

Footnotes from page 13:

- \* = This is an approximate definition of value added which proved useful in the circumstances prevailing in Uganda. A better estimate of value added would have been obtained if gross operating surplus was used instead of gross profit. The former includes repayments of interest on loans, currency conversion tax, currency adjustment (devaluation) losses, etc. which the latter does not. In most cases, it was easier to obtain an estimate of gross profit (net profit plus depreciation) from accountants than an estimate of gross operating surplus an aggregate with which they are less familiar.
  
- \*\* = This is often the result of using gross profit as an approximation to gross operation surplus (see previous note). Gross profit was often negative, sometimes resulting in negative value added, while gross operating surplus might have been positive and so might have been value added.

Appendix 1

Recommendations For Collection Of Industrial Statistics

1. Introduction: Recently and at present, the annual Census of Industrial Production (CIP) and the Monthly Production Statistics (MPS) are the main sources of industrial data in Uganda. This is likely to remain the case in the near future, although the frequency of these enquiries may change. Originally, the enquiries were conducted with the help of postal questionnaires, but at present it is necessary to visit the factories as postal deliveries are unreliable. Due to lack of resources in recent years, the enquiries have not been conducted regularly and the coverage of factories was not complete. In order to save time and money, the census questionnaire was simplified recently, but it is still difficult to complete and analyse. As shortage of resources is likely to continue in Uganda for some time, the following changes could be introduced to speed up completion of the questionnaires and analysis of collected data without affecting unduly the usefulness of the collected statistics.
  
2. Reduction of frequency of the census: The main function of the census is to provide information about the structure of the manufacturing sector, nature of the relationships between industries, estimates of value added need for national accounts and the index of production, etc. As structure of industry changes slowly, it is not necessary to study it every year. Moreover, the index of industrial production may be readily used to update the contribution of the manufacturing sector to national income, and the weights of the index of production are normally revised every five years or so. Thus it may be sufficient to conduct the census every three or even five years, provided an index of industrial production is calculated regularly. Such a change would provide a considerable saving in resources which could be used for more systematic collection of the monthly production statistics required for the calculation of the index of industrial production. Moreover, respondents



would find it easier to provide the monthly production data, if they did not have to complete the census questionnaire as well.

An alternative to the change proposed above would be to have a census covering all establishments employing 10 or more people every five years, say, and have a simplified annual survey covering only the largest factories employing, say, 50 people or more. Large companies have better accounting systems and are able to provide the required information with greater ease. They also require fewer revisits or reminders to complete the questionnaire. Such a system would analyse the structure of industry in full detail at five yearly intervals, and would provide a link between the census years. Although such a system would save some resources, its introduction would be less radical than the change proposed earlier. Given Uganda's limited resources and difficult operational conditions, the first proposal seems more attractive.

3. Simplification of the Census Questionnaire: An important reason why respondents have difficulties in completing the census questionnaire is the need to provide information about quantities of products sold and produced, and quantities of raw materials purchased and used in production. These data are accompanied by value of sales, production, raw materials purchased and consumed. Information about quantities of sales, production, raw materials purchased or used in production is not readily available to accountants who are interested primarily in money flows (values). Thus they find the questionnaire more difficult to complete, than it would otherwise be, particularly if their companies produce many products and use several raw materials. Their task would be greatly simplified if they had to provide information only about value of total sales and value of all raw materials purchased. This would speed up completion of questionnaires and reduce the number of revisits necessary to obtain the information.

This simplification would not result in a great loss of collected information, as quantities produced and sold are recorded in the monthly production returns. Quantities and values of individual inputs would no longer be available however. Such information is needed for the construction of input-output tables, and could be provided, when required, on an additional questionnaire attached to the census.

4. Simplification of the Monthly Production Questionnaire: The monthly production questionnaire was modified by the expert in order to allow inclusion of three products (rather than one) and to clarify some instructions given to the respondents, i.e. direct and indirect labour costs were more fully described, employment was more exactly specified, position of sales taxes was clarified and maximum production capacity was defined more realistically. The questionnaire proved much better than the original, but there is still room for improvement and simplification.
- (1) It seems desirable to confine employment to persons on the payroll, as there are very few unpaid workers and unpaid working owners.
  - (2) Indirect labour costs like benefits derived from free housing, free or subsidised meals, free or subsidised products, private use of company cars, etc. are very difficult to estimate, and are usually under-recorded. The expert has spent a lot of time revisiting factories because this information was deficient. This can not be done regularly due to limited funds available to the SD of the MPED. It may be desirable, therefore, to drop the question, and thus simplify the task of the respondent. Information on indirect labour costs would normally be provided by the census.

- (3) Direct labour costs like wages, salaries, overtime pay, bonuses, cash allowances of various types, etc. are easier for the respondent to supply and should be collected in the future. Efforts should be made to ensure that all cash payments to employees are included. In the past many respondents gave only basic pay of employees which often constituted only 25% of all earnings.
  - (4) Respondents often use the same prices to value quantities produced and sold. If they do not, the price used to value production can be computed at different stages of the manufacturing process. This lack of conceptual uniformity in pricing undermines the usefulness of the collected information. If the question is dropped, the task of the respondent would be further simplified and the loss of information would be negligible.
  - (5) At present production and sales data are collected only for principal products. Some factories produce a variety of products and their total sales by value should also be recorded.
5. Frequency of Collection of Monthly Production Statistics: Originally the data were collected monthly using postal questionnaires. Lately, shortage of funds, unreliability of postal deliveries and the necessity to visit factories forced the SD of the MPED to collect the information only once a year, in April and May, to provide data for the "Background to the Budget". It is unlikely that the statistics can be collected every month in the near future, as funds are likely to remain limited. If more resources are made available to the SD, it may be possible to collect the information quarterly. As postal services improve, the questionnaires should be sent by post and only companies, which do not reply by a stipulated date, should be visited. The calculation of the index of industrial production will depend on the frequency with which the monthly data

are collected. If the statistics are collected quarterly, it will be possible to calculate and publish the index of industrial production quarterly for the past three months.

6. Collaboration of the MIT and SD of the MPED in the collection of the Monthly Production Statistics: The two statisticians and the four statistical assistants of the MIT should help the SD to collect the monthly production statistics as they provide vital data to the Ministry. Some funds of the MIT should be allocated for the provision of transport and payment of allowances to the staff concerned. The MIT personnel should be employed to collect information from factories located in Kampala and from companies whose headquarters are in Kampala e.g. Uganda Development Corporation, Uganda Cement Industry, Mitchell Cotts and others. These companies can usually supply information about their factories located in other parts of Uganda. The resources of the SD should be employed to cover factories located in other towns and other parts of Uganda. Such an allocation of resources would not commit the MIT to large expenditures, but would provide very real help to the SD which, in the past, has performed the whole task on its own. Such cooperation should enable the SD to extend the coverage of the enquiry and thus enhance the usefulness of the collected information.

Appendix 2:

Treatment of new products in the index of industrial production

The procedure for dealing with new products and new industries was described in Kmiotowicz and Silver (1980). The method was originally developed to calculate an annual index of industrial production for Tanzania, see Kmiotowicz and Silver (1984). The procedure was adapted to Uganda conditions and was used in the calculation of the monthly index of industrial production presented in the report. A brief description of the procedure is given below, together with a numerical illustration.

The monthly index of production is calculated using the base weighted (Laspeyres) formula. For example, the index for month 2 with month 1 as base is given by:

$$(1) \quad I_{12} = \frac{\sum_{i=1}^n P_{1i} Q_{2i}}{\sum_{i=1}^n P_{1i} Q_{1i}}$$

where  $Q_1$  and  $Q_2$  are quantities produced in months 1 and 2 respectively,  $P_1$  is value added per unit of output in month 1, and summation extends over all the  $n$  products which were manufactured in month 1. When a new product appears in month 2, say, strictly speaking, its contribution to the growth of production cannot be included in the index because its value added per unit of output in month 1, its base period 'price', is not available. If, however, a notional base period price for the new product can be estimated, its contribution to industrial production can be included in the numerator of the index. The formula for the index would then be:

$$(2) \quad I_{12} = \frac{\left[ \sum_{i=1}^n P_{1i} Q_{2i} + P_{1,n+1} Q_{2,n+1} \right]}{\sum_{i=1}^n P_{1i} Q_{1i}}$$

where  $P_{1,n+1}$  is the notional 'price' of the new product in month 1 and  $Q_{2,n+1}$  is the quantity of the new product manufactured in month 2. If costs of production do not change very much between the base period month and the month of introduction of the new product, value added per unit of product in the month of introduction can be

used as  $P_{1,n+1}$ . If costs of production, i.e., costs affecting value added (factor costs) are rising because of inflation, a suitable price index may be used to deflate the 'price'.

In the calculation of the Uganda index,  $P_{1,n+1}$  for new products was estimated as average monthly value added per unit of output, for the months in which production took place. No adjustment was made for inflation, as all other 'prices' were estimated as monthly average values added per unit of output in 1987.

As many factories in Uganda resumed production in 1987 or 1988, for example, Uganda Sugar Corporation, their contribution to the growth of production was substantial. The index would have a serious downward bias if the contribution of new products was omitted.

A hypothetical example: Suppose there are two bakeries producing different types of bread. The first was in production in month 1 while the second started production in month 3. The number of loaves of bread produced by the two bakeries was as follows:-

	<u>Month 1</u>	<u>Month 2</u>	<u>Month 3</u>	<u>Month 4</u>
Bakery 1	12,000	12,500	13,500	15,000
Bakery 2	Nil	Nil	1,000	1,500

Separate calculations show that value added per loaf for the first bakery was Shs. 50 in month 1, and value added per loaf for the second bakery was Shs. 80 in month 3. If there was little inflation during the period, value added per loaf in month 1 of the second bakery can be assumed to be the same as in month 3. If inflation was a problem, value added per loaf in month 3 for the second bakery should be deflated by a suitable index.

The calculation of the index of production for the two bakeries using formula (?) is as follows: month 1: 1.00; month 2:  $(12,500 \times 50) / (12,000 \times 50) = 1.042$ ; month 3:  $(13,500 \times 50 + 1,000 \times 80) / (12,000 \times 50) = 1.258$ ; month 4:  $(15,000 \times 50 + 1,500 \times 80) / (12,000 \times 50) = 1.450$ ,

i.e., production of bread increased by 45% between month 1 and month 4. If production of the second bakery was omitted, the index in month 3 would have been 1.125 and in month 4 = 1.250. Thus, the second bakery contributed 20% to the increase in production between month 1 and month 4.

References:

Z.W. Kaletowicz and M.S. Silver, (1990) "New products and the index of industrial production". Journal of Development Studies, Vol. 16, No.4, pp. 463-7.

Z.W. Kaletowicz and M.S. Silver, (1980), "Some problems in the construction of indexes of industrial production for developing countries: the case of Tanzania, 1965-72", Journal of Developing Areas, Vol. 13, No.4, pp.481-99.

APPENDIX 3 TABLE 1 BASIC DATA, MANUFACTURING ESTABLISHMENTS, 1967

EST	NAME OF COMPANY/FACTORY	EMPLOYMENT '000 sh	DIRECT LABOUR COST '000 sh	INDIRECT LABOUR COST '000 sh	TOTAL LABOUR '000 sh	GROSS PROFIT '000 sh	VALUE, ANNOX '000 sh	SALES INCLUDING TAX '000 sh
3111	Uganda Meat Packers Ltd	30	598	500	1,098	1,532	2,630	17,465
3112	Dairy Corporation Ltd	414	4,809	22,195	27,004	14,000	41,004	264,788
3113	Bisco Oil Refineries Ltd	187	1,850	3,855	5,705	-3,566	2,140	1,270
-	Subtotal	631	7,257	26,551	33,808	11,964	45,774	282,983
3116	Uganda Millers Ltd	313	6,439	14,453	20,892	37,748	64,660	274,617
3116	Uganda White Industries	61	1,923	4,993	6,926	-2,264	4,662	41,942
3116	Kajjansi Maize Mill	6	23	136	161	140	301	505
3116	Muganyizi Grain Millers Ltd	158	6,741	4,875	11,616	8,000	19,616	46,129
3116	Uganda Maize Industries Ltd	27	648	648	1,296	933	2,229	9,333
3116	Uganda Attitude Trading Co Ltd	8	345	84	429	88	516	1,273
3116	Uganda Food Product (1960) Ltd	30	6,434	1,707	8,141	100	8,241	5,093
3116	Millstone Ltd	16	160	10	170	250	420	682
3116	Kitezo Associated Traders	15	111	130	241	1,670	1,711	6,675
-	Subtotal	434	22,836	27,036	49,872	42,485	92,356	388,265
3117	New Kambamu Bakery	8	133	375	510	2,940	3,450	8,102
3117	Maize Feeds Ltd	105	2,378	1,414	3,792	11,288	15,080	19,472
3117	New Friends Bakery	12	508	576	1,084	1,540	2,524	15,509
3117	Maize Sweet Bread Ltd	9	87	24	111	4,188	4,299	20,940
3117	New Babercraft and Dairy Ltd	10	43	1,943	1,986	2,947	4,933	16,312
3117	Bagline Bakery	32	168	1,947	2,095	2,998	5,093	9,070
-	Subtotal	176	3,319	6,279	9,598	25,921	35,519	89,715
3118	Sugar Corporation of Uganda Ltd	400	3,758	16,611	20,369	2,292	22,661	12,091
3118	Kahira Sugar Works (1963) Ltd (Jaggery)	122	1,343	4,955	6,298	1,608	7,906	8,080
-	Subtotal	522	5,101	21,566	26,667	3,900	30,568	21,171
3119	Kahira Sugar Works (1963) Ltd (Sweets) (1)	32	172	1,264	1,437	1,261	2,698	6,323
3120	CRB (Coffee Roasting Plant)	14	821	295	1,116	431	1,547	1,621
3120	Karoo Espresso Works	22	175	198	373	-277	-179	31,478
3120	Kamali Coffee Works Ltd	47	403	nil	403	270	673	48,866
3120	Elgonia Industries Ltd	17	50	50	100	54	156	726
-	Subtotal	100	1,449	308	1,817	400	2,217	82,141
3121	Blenders (U) Ltd	71	689	388	1,221	2,415	4,634	15,520
3121	Uganda Tea Corporation Ltd	102	719	7,163	8,292	-7,746	546	22,708
3121	Mitchell Cotte (Toro/Kohuma)	170	2,190	2,500	5,190	6,619	11,799	37,017
3121	Mitchell Cotte (Mityama)	80	921	921	1,842	4,237	6,079	25,727
3121	Mitchell Cotte (Mimara)	66	697	697	1,394	4,095	5,489	15,647
-	Subtotal	443	5,780	12,169	17,949	10,670	28,619	116,119
3122	Maize Spices	25	163	118	281	293	574	1,617
3122	Africa Biscuits (U) Ltd	39	884	1,110	1,994	2,080	4,074	8,788
3122	Kampala Ice Plant	33	134	122	256	3,717	3,971	6,251
-	Subtotal	97	1,181	1,350	2,531	5,690	8,221	15,956
3123	Uganda Feeds Ltd	22	1,044	6,383	8,129	15,752	24,081	148,133
3123	Prisons Food Mills	26	99	60	159	2,570	2,679	12,638
-	Subtotal	98	2,044	6,443	8,488	18,772	26,760	160,773



APPENDIX 3 TABLE 1 CONT.

181C	NAME OF COMPANY/FACTORY	EMPLOYMENT	DIRECT LABOUR COST '000 sh	INDIRECT LABOUR COST '000 sh	TOTAL LABOUR COST '000 sh	GROSS PROFIT '000 sh	VALUE, ADJUSTED '000 sh	SALES EXCLUDING TAX '000 sh
3131	E.A. Distilleries Ltd	91	921	2,233	3,154	12,500	15,654	242,033
3132	(1) W/A Uganda Breweries Ltd	639	5,493	51,284	56,777	44,978	102,755	487,089
3133	(2) Nile Breweries Ltd	640	28,893	3,297	32,092	1,203	33,295	275,150
3133	(3) Uganda Chibuku Ltd	12	233	336	569	1,200	1,983	6,264
-	Subtotal	1,402	35,364	57,544	92,908	63,881	136,789	1,002,596
3134	(1) Kampala Bottlers Ltd	80	3,216	3,276	6,492	6,219	16,712	193,726
3134	(2) Jubilee Ice and Soda Works Ltd	48	772	803	1,575	-1,630	-55	11,912
3134	(3) Lake Victoria Bottling Company Ltd	284	6,231	8,026	13,167	264,000	273,167	166,806 *
-	Subtotal	412	6,219	12,105	21,224	264,389	287,824	372,644
3140	B.A.T. Uganda 1984 Ltd	(1)	79,840	60,603	140,443	260,000	400,443	842,397
3211	(1) Nyansa Textiles Industries Ltd	4,472	104,075	22,747	127,021	145,230	273,072	376,647
3211	(2) African Textiles Mills Ltd	1,135	19,777	3,082	20,859	-549	20,310	38,456
3211	(3) Malco Textiles Ltd	822	7,915	18,406	26,322	13,989	40,311	81,834
3211	(4) Uganda Rayon Textiles Manufacturers Ltd	264	2,373	6,534	9,107	30	9,137	6,049
-	Subtotal	6,693	134,160	49,769	184,109	158,720	342,830	481,009
3212	Uganda Blanket Manufacturers (1973) Ltd	148	7,702	5,439	13,141	26,979	40,119	170,075
3215	(1) Uganda Fibre Manufacturers Ltd	212	12,317	3,679	16,196	11,324	27,519	50,583
3215	(2) Uganda Bags and Hessian Mills Ltd	487	8,329	17,040	25,369	2,000	27,369	73,219
-	Subtotal	847	28,748	26,158	54,906	40,303	95,207	193,877
3220	(1) Uganda Garments (1973) Ltd	58	770	2,397	3,166	127	3,293	1,474 *
3220	(2) United Garments Industries Ltd	213	4,563	3,229	8,092	-19,249	-11,177	12,786
3220	(3) Charlotte Garment Industries	19	393	210	603	3,500	4,103	16,436
-	Subtotal	290	3,726	6,136	11,861	-15,662	-2,761	28,660
3231	Uganda Leather and Tanning Industries Ltd	158	2,024	3,932	5,946	-7,639	3,307	6,627
3240	(1) Walk-Over Shoe Company Ltd	13	47	98	142	1,035	1,176	15,395
3240	(2) Uganda Bags Shoe Company Ltd	247	23,446	3,309	26,815	27,015	53,830	178,108
3240	(3) Uganda Shoe Company	20	356	240	596	1,920	2,716	8,876
-	Subtotal	438	26,073	7,628	33,699	27,231	61,029	211,629
3311	Ara Ply Ltd	320	12,234	7,544	19,918	40,000	59,918	81,490
3311	(2) Kira Sawmill and Plywood Factory	427	5,064	3,931	8,995	32,938	31,934	34,139
-	Subtotal	747	17,418	11,475	28,913	67,938	91,852	115,589
3320	(1) Proton Limited	35	675	218	893	5,000	5,893	6,712
3320	(2) Muscraft Manufacturing	102	3,691	6,942	10,633	12,028	22,659	240,817
3320	(3) Transcon (U) Ltd	16	256	348	606	969	1,575	4,323 *
3320	(4) Lunar Industries Ltd	12	189	368	556	364	620	674 *
3320	(5) Vitaform (U) Ltd	162	4,248	3,283	7,533	18,260	25,993	61,181
-	Subtotal	327	9,338	10,983	20,321	36,719	57,040	313,727
3411	Papco Industries Ltd	171	1,235	1,393	2,630	-1,093	1,536	3,980
3411	(2) Tropical Tissues Ltd	14	42	375	417	-78	339	9,080
3412	(1) Mulben Limited	42	738	154	892	2,291	3,183	4,768
3412	(2) Printpak (U) Limited	184	4,324	6,994	13,318	-21,548	-8,230	27,610
3412	(3) Associated Paper Industries Ltd	120	2,717	2,420	5,137	-319	4,817	11,093
3419	Ugatar Ltd	30	233	1,143	1,376	3,760	3,155	3,445
-	Subtotal	361	9,509	14,311	23,820	-19,109	4,630	59,976

APPENDIX 3 TABLE 1 CONT.

181C	NAME OF COMPANY/FACTORY	EMPLOYMENT	DIRECT LABOUR COST '000 sh	INDIRECT LABOUR COST '000 sh	TOTAL LABOUR COST '000 sh	GROSS PROFIT '000 sh	VALUE ADDED '000 sh	TAX RECEIVING '000 sh
3420	(1) Determined Printers Ltd	4	143	37	202	291	493	528
3420	(2) New Vision Publications	76	848	3,609	4,457	4,800	9,757	12,159
-	Subtotal	80	993	3,646	4,639	5,091	9,750	12,687
3311	Uganda Oxygen Ltd	31	1,227	1,031	2,259	5,918	8,177	23,971
3321	(1) Berger Paints (U) Ltd	15	868	1,922	2,790	11,436	14,245	23,210
3321	(2) International Paints (U) Ltd	26	75	1,435	1,511	1,646	3,157	3,554
3321	(3) Sedalia Paints (U) Ltd	11	258	707	965	-3,635	-2,670	6,241
-	Subtotal	52	1,201	4,064	5,266	9,467	14,732	31,003
3322	(1) Uganda Refugee African Industry Ltd	10	500	115	615	1,290	1,905	6,240
3322	(2) Bucco Pharmaceutials Ltd	29	1,140	149	1,289	3,969	5,258	13,212
-	Subtotal	39	1,640	264	1,904	5,259	7,163	19,452
3323	(1) Makerebe Soap Works Ltd	83	3,731	2,300	6,031	7,199	13,230	9,711*
3323	(2) Iganga Industries Ltd	62	389	4,091	4,480	-504	3,976	1,093*
3323	(3) New Alliance Oil Mill/Budaba Ginners	42	327	1,108	1,435	-503	912	10*
3323	(4) Terere Oil and Soap Industry	40	292	1,345	1,637	-503	1,134	1,170
3323	(5) Uganda Associated Industries Ltd	40	1,592	2,617	4,209	2,628	11,887	111,300
3323	(6) Mubveni Soap Industries Ltd	147	1,670	3,640	5,310	2,903	8,213	12,912
3323	(7) Makerebe Industries (U) Ltd	300	39,100	63,290	102,390	212,428	314,818	655,441
-	Subtotal	994	47,121	78,391	125,512	228,498	344,210	791,257
3351	(1) Uganda Bending Ltd	27	249	604	853	6,000	6,853	48,480
3351	(2) Kasuum's Automobile House Ltd	23	810	197	1,007	180	1,187	45,516
3351	(3) Bwalya (R.A) Ltd	88	1,140	1,032	2,172	46	2,618	10,463
-	Subtotal	138	2,399	1,833	4,232	6,226	10,658	104,459
3360	(1) Uganda Plastic Industry (1979) Ltd	14	303	74	439	5,000	5,439	7,587*
3360	(2) Ship Toothbrush Factory Ltd	108	1,282	1,010	2,292	140	2,432	107,658
-	Subtotal	122	1,647	1,084	2,731	5,140	7,871	110,245
3491	Uganda Clays Ltd	362	8,034	7,255	15,289	20,601	35,910	40,027
3492	(1) Uganda Cement Industry Ltd (Terere)	526	6,780	13,370	20,150	18,000	38,150	108,714
3492	(2) Uganda Cement Industry Ltd (Rima)	520	5,776	11,150	17,126	-138,729	-171,401	51,886
-	Subtotal	1,046	12,556	25,120	37,676	-120,729	-83,053	160,620
3710	(1) E.A. Steel Corporation Ltd	488	25,260	39,893	65,153	-12,112	53,041	57,810
3710	(2) Uganda Bwalya Ltd	77	714	4,503	5,217	4,300	9,717	95,913
3710	(3) Steel Rolling Mills Ltd	57	826	2,607	3,433	-18,000	-14,567	0
3710	(4) Terere Steel Works Ltd	48	467	232	699	0	699	7,107
-	Subtotal	650	27,267	47,235	74,502	-25,612	48,890	156,850
3811	Chillington Tools Ltd	136	4,399	3,682	8,081	11,567	19,623	49,354
3812	TEMPACO Ltd	248	3,674	2,391	6,065	7,707	13,774	29,455
3813	(1) Casemate (A) Ltd	78	1,284	18,312	19,596	30,000	49,598	92,070
3813	(2) E.A. Steel Products Ltd	52	472	389	861	4,027	4,888	12,412
-	Subtotal	514	10,033	24,754	34,787	53,296	88,083	141,241

APPENDIX 3 TABLE 1 CONT.

ISIC	NAME OF COMPANY/FACTORY	EMPLOYMENT	DIRECT LABOUR COST '000 sh	INDIRECT LABOUR COST '000 sh	TOTAL LABOUR COST '000 sh	GROSS PROFIT '000 sh	VALUE ADDED '000 sh	SALES EXCLUDING TAX '000 sh
3819	(1) Uganda Engineering Corporation Ltd	315	5,890	872	6,762	2,996	9,758	20,176
3819	(2) Sembule Steel Mills Ltd	124	4,485	3,153	7,638	14,083	21,721	57,927
3819	(3) N.K. General Metal Works Ltd	10	144	12	156	292	468	198
3819	(4) Uganda Metal Industries Ltd	42	928	318	1,246	639	1,885	5,198
-	Subtotal (4)	491	11,447	4,355	15,802	18,010	33,817	83,699
3839	(1) Chloride (U) Ltd	41	674	2,283	2,957	8,675	11,632	23,250
3839	(2) Cable Corporation Ltd	60	510	976	1,486	13,500	14,986	10,000
-	Subtotal (2)	101	1,184	3,259	4,443	22,175	26,618	33,250
3909	(1) Moon Enterprises Ltd	20	61	355	416	-1,569	-1,153	136
3909	(2) Kampala Chalk Factory Ltd	23	846	760	1,606	8,706	10,310	105
3909	(3) Uganda Brushware Mfrs Ltd	22	298	17	315	3,950	4,265	1,869
-	Subtotal (3)	65	1,205	1,132	2,337	11,085	13,422	2,110
-	Total (110)	19,752	531,791	564,211	1,096,002	1,246,880	2,142,882	6,465,746

\* Includes sales taxes

Note: Number of factories in a sub-section is shown by a number in brackets, in a sub-total row.

\* = Cases where gross profit and/or value added unexpectedly exceeds sales. Sales were not used in the derivation of value added and thus are not directly related to it. There are several reasons why value added and/or gross profit may occasionally exceed sales, e.g. sales for some establishments show only sales of the principal product rather than total sales, sometimes imputed labour costs increase value added but leave sales unaffected, companies restarting production may have large labour costs and thus large value added, but their sales may be low, etc..

Appendix 3

Table 2(a): MONTHLY INDEX OF MANUFACTURING PRODUCTION, 1944 (JAN. 1947 = 100)

CODE	Industry	No. of Facto- ries	1946												Rate of growth Jan. 1947 -Jan. 1946 % p.a.		
			Value added Jan. 1947 '000 abn	Propor- tion	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.		NOV.	DEC.
A	Wheat, milk, oil, flour, bread, sugar, confectionery	7	4,244	0.030	0.728	0.708	0.247	0.688	1.066	1.096	1.183	1.120	0.990	1.053	0.837	0.612	37
B	Ten, perfum, and other foods	6	3,483	0.025	0.531	0.634	0.787	1.099	0.756	0.809	0.749	1.092	0.792	1.288	1.378	1.218	88
C	Spirits, beer, soft drinks, tobacco	6	68,588	0.474	0.548	0.875	0.980	0.874	1.061	0.865	1.040	1.166	1.034	1.146	1.312	1.478	87
D	Textiles, cordage, garments	6	11,208	0.080	0.666	1.186	1.822	2.117	1.918	1.498	1.610	1.079	1.100	1.167	1.540	1.424	50
E	Leather, footwear	4	5,066	0.036	4.680	2.454	1.019	2.502	1.409	1.997	3.948	4.824	4.268	6.345	4.724	5.481	-90
F	Timber, wood, furniture, paper, printing	4	4,074	0.029	0.149	0.176	0.603	0.378	0.685	0.995	0.891	1.440	1.615	1.179	1.179	0.875	571
G	Chemical, prints, medicines, soap	5	27,876	0.198	0.087	0.078	0.715	0.114	0.358	0.090	0.061	0.059	0.242	1.533	1.056	0.852	1049
H	Tires, plastics, bricks, tiles, cement	2	6,188	0.044	0.455	0.415	0.987	0.493	1.091	1.552	1.081	1.280	0.745	0.437	1.535	1.315	120
I	Iron and Steel	2	810	0.006	1.011	8.021	6.530	8.046	7.524	2.400	15.800	8.690	12.800	5.009	22.850	4.710	-1
J	Metal products, electrical goods	7	10,979	0.078	2.459	2.565	2.763	2.561	2.770	2.158	2.500	2.414	2.346	2.265	2.651	1.094	-59
	Manufacturing	49	140,537	1.000	0.767	0.828	1.118	1.027	1.198	0.948	1.194	1.222	1.160	1.484	1.604	1.309	30

Table 2(b): Monthly index of manufacturing production, 1967 and 1968 (Jan. 1967 = 100)

CODE	No. of Facto- ries	Value added Jan. 1967 '000 abn	Propor- tion	1967												1968						Rate of growth % p.a. JAN. 67 -JAN. 68
				JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.	JAN.	FEB.	MAR.	APR.	MAY	JUNE	
A	21	14,203	0.070	1.000	0.763	1.373	1.171	1.365	1.055	0.968	0.899	1.104	1.365	1.578	1.524	1.402	1.425	1.484	1.399	1.705	1.705	46
B	14	6,188	0.030	1.000	1.330	1.386	1.332	1.232	1.143	1.152	1.064	1.041	1.216	1.586	0.983	1.168	1.407	1.341	1.341	1.205	1.667	43
C	6	77,147	0.357	1.000	1.213	1.346	1.259	0.921	0.714	1.227	1.047	1.290	1.204	1.574	1.811	0.985	1.934	2.324	2.088	2.105	2.174	73
D	10	37,939	0.188	1.000	2.808	2.336	1.946	1.930	1.634	2.061	1.946	2.160	1.934	2.168	1.764	0.783	2.281	2.298	2.216	2.529	2.414	86
E	4	6,066	0.025	1.000	8.384	7.012	6.273	5.527	1.643	2.022	2.598	4.933	6.574	6.823	3.948	2.053	2.514	5.348	1.641	1.635	1.616	42
F	15	11,688	0.058	1.000	1.778	2.164	2.430	2.671	6.505	9.394	9.673	4.672	4.858	6.205	3.714	2.239	3.519	3.186	6.827	4.182	4.085	170
G	13	31,237	0.156	1.000	0.816	1.716	1.982	1.484	1.013	2.085	1.887	2.123	1.808	2.085	1.908	1.780	1.705	1.705	0.364	2.278	1.684	44
H	6	6,708	0.043	1.000	1.035	0.817	1.227	1.822	0.575	0.710	0.621	1.177	0.944	1.040	0.022	2.132	0.567	0.712	0.687	0.903	1.614	7
I	4	810	0.004	1.000	2.196	2.181	2.467	2.471	0.573	1.129	3.833	10.485	9.908	12.648	6.412	2.132	1.812	0	14.082	135	4.274	82
J	13	13,886	0.069	1.000	1.383	1.492	1.346	1.540	1.195	2.151	1.306	1.691	1.661	2.029	1.666	1.627	2.052	3.588	2.176	1.871	1.696	41
	110	201,977	1.000	1.000	1.457	1.775	1.701	1.496	1.402	2.631	1.678	1.908	2.154	1.873	1.318	1.999	2.299	1.977	2.283	2.120	2.120	70

Appendix 3.  
Table 3(a).  
Monthly Index of Manufacturing Production 1986 (Jan. 1987 - 1991)  
(Unadjusted calculations)

ISIC	Ind. sub	Value added Jan. 1987, sh.	JAN.	FEB.	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
3111	Slaughter, meat (11700)	Nil	0	0	0	0	0	0	0	0	0	0	0	0
3112	Dairy produce	3,616,950	0.721	0.707	0.126	0.652	1.165	1.157	1.209	1.205	1.190	1.123	0.877	0.667
3116	(8) Grain milling	36,982	0	0	0.712	2.666	2.696	2.020	1.576	2.263	0.177	1.970	3.633	2.778
3116	(9)	142,515	0.366	0.327	0.476	0.272	0.192	0.166	0.165	0.600	0.166	0.166	0.167	0.167
3117	(1) Bakery products (10.7)	Nil	0	0	0	0	0	0	0	0	0	0	0	0
3117	(6)	426,158	0.587	0.582	4.152	0.587	0.587	0.587	0.591	0.591	0.591	0.591	0.591	0.591
3119	confectionery	226,806	1.665	1.300	1.111	1.607	0.911	1.165	1.197	0.568	0.567	0.593	0.565	1.116
	Subindex	4,263,201	0.728	0.708	0.297	0.688	1.066	1.096	1.181	1.120	0.990	1.053	0.837	0.692
321(a)	(2) Coffee processing	30,120 <sup>a</sup>	0	0	2.026	0.602	1.653	0.869	0.711	1.665	0.837	0.590	0.861	0.505
321(a)	(4)	11,000	0	0	0.452	1.166	1.666	1.660	1.575	1.218	1.100	0.600	0.767	1.006
321(b)	(1) Tea processing	386,291	0.616	1.557	2.185	2.776	2.776	1.782	0.761	1.191	0.971	0.652	1.506	1.512
321(b)	(2)	769,607	0.866	0.551	0.987	0.980	0.986	0.791	0.690	0.613	0.972	0.966	1.207	1.008
321	(2) Other food products	319,507	0.686	0.129	0.684	0.767	0.565	0.290	0.613	0.512	0.196	0.776	1.019	0.910
322	(1) Animal feeds	1,966,913	0.615	0.586	0.716	0.851	0.196	0.716	0.707	1.162	0.795	1.657	1.509	1.600
	Subindex	3,483,260	0.531	0.636	0.782	1.009	0.756	0.809	0.760	1.092	0.772	1.208	1.176	1.218
331	Spirits	1,306,329	0.675	1.672	1.396	1.569	1.116	0.622	0	0.665	1.266	0.627	1.057	1.017
333	(1) Beer	8,821,397	0.110	0.152	0.166	0.415	0.356	0.426	0.205	1.008	0.175	0.213	0.771	0.806
333	(3)	161,280	0.178	0.121	0.300	0.653	0.926	0.926	0.911	0.862	0.936	1.107	0.617	0.806
334	(2) Soft drinks	223,606	1.112	0.313	0.709	0.506	0.995	0.226	0.511	0.565	0.090	0.782	1.013	1.013
336	(3)	22,952,389	0.559	0.819	1.165	1.778	1.778	1.600	1.663	1.965	1.617	2.001	2.758	2.667
336	(4)	31,087,081	0.656	0.673	0.673	0.922	0.709	0.675	0.726	0.698	0.817	0.817	0.906	0.860
336	(5)	66,079,038	0.568	0.175	0.400	0.874	1.061	0.865	1.060	1.066	1.016	1.106	1.157	1.678
	Subindex	1,692,506	0.801	1.160	2.581	2.581	2.657	1.982	2.076	0.695	1.263	1.376	1.283	1.116
321	(4)	761,515	1.206	1.166	0.920	1.561	1.328	1.675	2.190	2.015	2.078	1.615	2.092	1.297
321	(5)	3,167,290	0.110	0.263	0.481	0.256	0.216	0.192	0.080	0.011	0.086	0	0	0.608
321	(6)	2,291,290	0.216	0.912	1.666	2.068	2.280	0.587	1.280	0.698	0.612	0.576	1.270	0.960
321	(7)	2,297,926	1.747	3.083	3.019	6.152	6.066	3.876	1.581	2.400	3.075	1.216	1.956	1.235
322	(2) Garments	819,803	0.277	0.533	1.501	0.773	0.773	1.866	1.769	2.618	0.895	1.376	1.823	0.825
322	(3)	11,207,670	0.666	1.198	1.522	2.117	1.910	1.608	1.619	1.079	1.100	1.167	1.560	1.626
	Subindex	275,575	0.177	0.167	0.768	0.672	0.661	0.866	1.261	1.153	1.276	1.160	2.249	1.696
3240	(1) Footwear	98,016	0.167	0.071	0.016	0.081	0.150	0.187	0.716	0.162	0.062	0.167	0.066	0.751
3240	(2)	4,685,833	5.596	2.776	1.978	2.726	1.691	2.139	6.119	5.310	6.076	6.989	5.176	6.018
3240	(3)	226,767	0.609	0.686	1.226	1.121	1.217	1.353	1.696	1.265	1.115	1.606	1.661	1.737
	Subindex	5,085,809	6.980	2.656	1.819	2.502	1.609	1.997	1.958	6.026	6.206	6.165	6.276	5.681
331	(2) Timber, wood	2,661,126	0	0.740	0.484	0.240	0.619	1.063	0.858	1.732	1.500	1.296	1.175	0.891
3412	(2) Printing	1,150,036	0.165	0.181	0.215	0.269	0.597	0.117	0.756	0.201	0.616	0.193	0.262	0.096
3419	(2) Other paper products	262,950	0.062	0.539	0	0.084	0	0	0	1.672	0	0.191	0	1.075
350	(2) Publishing (11.42)	Nil	35000	49000	63000	50000	60000	RECORD	60000	74000	74000	90000	120000	RECORD
	Subindex	4,076,111	0.149	0.716	0.503	0.378	0.685	0.995	0.891	1.670	1.615	1.179	1.178	0.875

Table 3(a) cont'd

	Industry <sup>a</sup>	Value added Jan. 1987, sh.	JAN	FEB	MAR.	APR.	MAY	JUN.	JUL.	AUG.	SEP.	OCT.	NOV.	DEC.
3521	(1) Paints	1,187,080	1.633	1.420	2.222	2.136	2.891	1.129	1.064	0.836	2.923	3.903	2.486	1.031
3521	(2)	263,065	3.092	1.134	2.160	1.679	1.482	0.956	0.919	1.688	0.540	0.162	0	0.318
3521	(3)	96,331	1.645	1.645	1.645	1.645	1.645	1.645	1.645	1.645	1.645	1.645	1.645	1.645
3523	(4) Soap	94,458	0	0.206	17.892	0	71.382	6.235	0	0.405	0.418	0.219	0.322	0.370
3523	(7)	26,234,833	0	0	0	0	0	0	0	0	0.109	1.441	1.000	0.632
-	Subindex	27,875,987	0.087	0.078	0.175	0.114	0.338	0.080	0.061	0.059	0.242	1.533	1.056	0.652
3691	(1) Bricks, tiles	2,992,408	0.940	0.858	0.892	0.892	1.062	1.059	1.102	1.056	1.288	0.903	0.891	0.893
3692	(1) Cement	3,195,793	0	0	1.037	0.119	1.119	2.014	1.062	1.490	0.236	0	2.323	1.710
-	Subindex	6,188,201	0.455	0.415	0.967	0.493	1.091	1.552	1.081	1.280	0.745	0.437	1.553	1.315
3710	(2) Iron, steel	809,801	1.010	8.000	6.500	0.800	7.500	2.400	15.800	8.890	12.800	5.000	22.800	4.700
3710	(4)	Nil	1.8	46	67.5	89.7	53.2	0	0	0	0	20.4	111.08	22.7
-	Subindex	809,801	1.011	8.021	6.530	8.040	7.525	2.400	15.800	8.890	12.800	5.009	22.850	4.710
3811	Non-ferrous	1,651,884	0.625	0.665	0.963	0.718	0.495	0.647	0.949	1.382	1.488	1.566	0.339	0.316
3812	Iron beds	1,147,786	0.851	0.069	0.848	0.319	0.556	1.023	0.941	1.160	1.133	0.946	0.609	0.357
3813	(1) Structural steel	4,133,158	0.958	0.889	0.778	0.844	1.161	1.031	1.183	1.220	0.458	0.862	1.012	0.316
3813	(2)	407,317	1.010	8.000	6.500	0.800	7.500	2.400	15.800	8.890	12.800	5.000	22.800	4.700
3819	(2)	1,810,064	1.892	1.277	1.800	2.031	2.308	2.308	2.492	2.615	2.848	3.969	3.385	1.846
3839	(1)	969,350	0.011	2.097	3.008	3.507	3.217	1.107	0.721	1.038	1.458	0.971	3.493	0.997
3909	(2)	859,153	20.000	17.143	18.286	18.500	16.071	12.500	11.250	10.000	9.679	8.929	8.244	4.288
-	Subindex	10,978,712	2.459	2.365	2.783	2.581	2.770	2.138	2.560	2.414	2.346	2.285	2.851	1.094
3000	Manufacturing index <sup>b</sup>	140,536,340	0.767	0.828	1.118	1.027	1.158	0.949	1.199	1.222	1.169	1.494	1.664	1.389

<sup>a</sup> Names of factories may be identified from Table 1.

<sup>b</sup> Value added per unit of output for factories not producing in Jan. 1987. The main entry shows physical production.

<sup>c</sup> Adjusted value added. Original value added was negative. Net losses were ignored to obtain the adjusted figure.

<sup>d</sup> Index was transferred from Table 1(a). It was calculated using the subindices and weights (proportions) shown in Table 2.

Appendix 3  
Table 3b

MONTHLY INDEX OF MANUFACTURING PRODUCTION, 1987 AND 1988 (JAN 1987=100)  
(DETAILED CALCULATIONS)

ISIC	Industry <sup>a</sup>	Value added, Jan. 1987, New sh.	1987												1988					
			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
3111	Slaughtering, meat (1120) <sup>Ⓢ</sup>	NIL	NIL	NIL	NIL	165	159	98	169	170	197	209	298	241	226	601	726	616	699	699
3112	Dairy products	3,416,950	1.000	0.974	1.106	0.970	1.112	1.670	1.086	1.029	1.261	1.270	1.243	1.460	1.565	1.667	1.626	1.171	1.682	1.692
3115	Oil	178,125	1.000	0	0	0	0.780	0.000	0.000	0.627	1.297	0.697	1.239	0.332	0.414	0.414	0.266	0.000	1.066	0.361
	Subindex	3,595,275	1.000	0.976	1.051	0.989	1.118	1.581	1.087	1.066	1.177	1.277	1.360	1.687	1.581	1.781	1.792	1.115	1.879	1.861
3116	(1) Grain milling	788,497	1.000	0.860	1.667	4.708	1.230	0.466	0.363	0.218	0.586	1.576	2.566	1.766	0.187	0.115	0.178	2.193	2.895	1.356
	(2)	4,554,899	1.000	0.160	1.771	1.005	1.186	0.790	0.669	0.511	0.581	1.176	1.564	1.316	1.196	1.365	1.656	1.999	1.658	1.560
	(3)	25,037	1.000	1.000	0.917	0.917	0.958	1.000	1.000	0.908	0.908	1.042	1.000	1.000	0.917	0.917	0.917	1.000	1.042	1.042
	(4)	1,674,697	1.000	0.785	1.109	1.275	1.275	0.916	1.189	1.721	1.496	1.678	1.766	1.087	1.717	1.317	1.196	1.161	1.674	1.180
	(5)	185,777	1.000	2.171	1.958	2.807	0.717	1.707	2.477	3.516	3.089	3.169	2.009	1.616	3.559	2.012	6.660	6.656	1.662	1.162
	(6)	47,070	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.699	1.699	1.699	1.699	1.699	1.699
	(7) (161) <sup>Ⓢ</sup>	NIL	NIL	5,970	9,770	4,490	390	0	0	1,970	970	0	0	0	6,000	0	0	0	0	0
	(8)	34,982	1.000	1.001	0.957	1.086	1.116	0.654	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	(9)	119,000	1.000	1.000	1.000	0.813	1.091	0.709	1.091	0.778	0.779	0.779	1.566	1.016	1.125	1.161	1.161	1.161	1.161	1.161
	Subindex	6,985,915	1.000	0.933	1.655	1.601	1.468	0.816	0.815	0.811	0.888	1.251	1.563	1.281	1.666	1.277	1.567	1.615	1.697	1.576
3117	(1) Bakery products (107) <sup>Ⓢ</sup>	NIL	NIL	NIL	NIL	15600	27000	10,500	36600	36600	76600	76600	0	0	76600	36600	76600	76600	76600	
	(2)	1,242,851	1.000	1.283	1.576	1.185	1.418	0.618	0.719	0.776	1.477	2.096	2.569	2.146	2.136	2.145	1.165	1.208	0.991	0.991
	(3)	218,667	1.000	1.000	1.000	1.157	1.167	1.167	1.206	1.478	1.478	1.628	1.628	1.816	0.910	0.600	0.500	0.500	0.910	0.910
	(4)	376,747	1.000	1.029	0.941	1.669	1.618	1.972	1.957	2.016	2.115	2.500	2.752	1.766	0.157	0.142	0.241	0.217	0.235	0.235
	(5)	411,099	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.087	1.087	1.087	1.087	1.087	1.087
	(6)	424,158	1.000	1.000	0.667	1.000	0.567	1.000	1.000	0.667	0.667	0.667	0.667	1.000	0.000	0.681	0.681	1.066	1.066	1.066
	Subindex	2,673,722	1.000	1.136	1.187	1.285	1.703	1.076	1.150	1.155	1.689	1.850	2.106	1.917	1.221	1.676	1.026	1.168	0.996	0.996
3118	(1) Sugar	56,651	1.000	0.020	0.029	0.008	0.012	0.003	0.000	0.000	0.000	0.000	0.021	0.000	0.000	1.272	22.476	29.016	68.115	68.003
	(2)	666,400	1.000	0.729	1.008	1.176	0.981	0.871	1.230	0.916	0.701	6.806	0.766	0.972	0.910	0.811	0.669	0.660	0.557	0.516
3119	Confectionery	224,896	1.000	1.131	1.410	2.276	1.178	0.821	0.937	0.660	1.169	2.625	3.052	6.507	1.160	1.563	0.771	1.027	1.271	0.966
	Subindex	947,949	1.000	0.782	1.049	1.757	0.969	0.722	1.087	0.799	0.770	1.188	1.766	2.372	0.910	1.018	0.992	2.101	3.113	6.523
3121	(1) Coffee processing	130,417	1.000	0.956	1.219	1.286	1.407	1.076	1.123	0.799	0.918	0.881	1.163	0.772	1.116	0.635	1.070	0.788	1.080	0.641
(a)	(2)	30,120	1.000	0.769	0.997	0.645	0.587	0.352	2.865	1.711	0.786	1.165	1.505	2.375	0.697	1.102	0.800	0.611	0.777	1.677
	(3)	56,188	1.000	1.649	0.007	0.907	0.776	0.609	1.099	1.120	1.116	1.216	2.186	2.539	0.310	1.117	2.076	1.170	1.170	1.170
	(4)	17,000	1.000	0.459	0.707	0.706	1.001	0.767	2.267	0.881	0.465	1.139	2.248	2.141	0.663	1.171	0.181	0.856	0.856	0.856
	Subindex	229,725	1.000	1.085	1.603	1.051	1.115	0.927	1.483	1.143	0.977	1.052	1.518	1.678	0.868	1.192	1.223	0.839	1.168	0.806
3121	(1) Tea processing	786,291	1.000	1.466	1.125	2.157	1.788	1.867	0.887	0.679	0.612	0.906	2.186	1.766	2.661	1.686	2.710	2.050	2.050	2.050
(b)	(2)	749,407	1.000	0.470	0.656	0.709	0.617	0.596	0.742	0.518	0.710	0.915	0.909	0.867	0.791	0.786	0.615	0.990	0.861	0.607
	(3)	987,192	1.000	0.650	0.775	1.000	0.783	1.000	0.467	0.725	1.088	1.011	1.186	1.718	1.000	0.825	1.025	0.738	0.900	1.125
	(4)	508,225	1.000	0.754	0.721	0.967	0.801	0.916	0.191	0.672	0.851	0.721	0.857	1.626	0.705	0.869	1.069	0.918	0.770	0.951
	(5)	457,417	1.000	0.674	0.702	0.561	0.902	0.667	0.351	0.520	0.775	0.765	0.901	1.667	0.775	0.902	0.900	0.882	0.677	1.096
	Subindex	3,084,534	1.000	0.719	0.797	1.063	0.841	0.946	0.556	0.625	0.860	0.893	1.119	1.599	1.065	0.992	1.150	1.016	0.968	1.082
3121	(1) Other food products	47,873	1.000	0.712	0.923	0.885	0.578	1.105	1.169	1.079	1.421	1.465	1.566	1.571	1.000	0.712	0.923	1.156	1.156	1.156
	(2)	339,507	1.000	2.681	2.062	2.728	2.035	0.802	1.102	1.717	1.807	1.582	2.280	2.191	0.821	1.162	2.612	2.117	2.286	2.286
	(3)	297,677	1.000	0.982	1.090	0.987	0.676	0.498	0.870	0.869	0.918	1.017	0.916	0.821	0.953	0.975	0.881	0.912	0.775	0.775
	Subindex	685,017	1.000	1.803	1.560	1.841	1.340	0.711	1.105	1.316	1.796	1.378	1.883	1.553	0.926	1.168	1.253	2.218	1.762	2.262





## Appendix 3

Table 3A - cont.

ISIC	Industry <sup>a</sup>	Value added, Jan. 1987, sh.	1987												1988						
			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	
3411	(1) Paper (1722) <sup>a</sup> (2) (5.55) <sup>a</sup>	NIL NIL	NIL NIL	NIL NIL	NIL NIL	NIL NIL	NIL NIL	NIL NIL	NIL NIL	NIL NIL	NIL NIL	NIL NIL	NIL NIL	2.5 13.8	7.3 7.7	15.10 0	0 0	40.18 0	19.29 0	28.167 3,011	8.76 8,137
3412	(1) Paper and cardboard boxes (21.98) <sup>a</sup> (2) (4.659) <sup>a</sup> (3)	NIL 1,150,036 NIL	NIL 1,000 <sup>b</sup> NIL	NIL 0.863 NIL	NIL 3.603 62,074	NIL 1.653 150,299	NIL 3.659 75,587	NIL 3.662 58,679	NIL 1.542 46,560	NIL 0.750 107,537	NIL 1.973 0	NIL 2.249 0	NIL 3.719 0	NIL 2.024 0	NIL 1.620 0	NIL 2,726 0	NIL 1,060 0	NIL 0.690 0	NIL 2.640 0	NIL 1.036 0	NIL 0.645 0
3419	Other paper products	262,949	1,000	2.034	1.380	0.029	0.350	0.000	0.000	0.000	0.193	0.228	0.227	0.146	0	6,134	1,508	3,313	1,505	1,505	1,505
-	Subindex	1,412,985	1,000	1.081	3.834	2.139	3.303	3.379	1.565	0.981	1.119	2.197	3.607	1.782	0	3,510	1,143	1,556	2,797	1,399	0,919
3420	(1) Printing, publishing (2) (11.42) <sup>a</sup>	41,098 NIL	1,000 NIL	1,000 NIL	1,000 NIL	1,000 30,000	1,000 23,000	1,000 75,500	1,000 100,000	1,000 95,000	1,000 113,500	1,000 124,500	1,000 189,000	1,000 170,000	1,250 195,000	1,250 195,000	1,250 255,000	1,250 315,000	1,250 110,000	1,250 110,000	1,250 110,000
-	Subindex	41,098	1,000	1,000	1,000	9,336	7,391	21,979	29,621	27,198	32,519	35,595	53,518	48,738	55,415	55,415	72,107	88,780	31,816	31,816	
3511	Basic chemicals	681,436	1,000 <sup>b</sup>	0.960	0.811	0.787	0.762	0.776	0.740	1.019	0.796	0.854	1.074	0.926	0.659	0.729	0.764	0.673	0.769	0.769	
3521	(1) Paints (2) (3)	1,187,080 263,065 96,551	1,000 1,000 1,000	2,598 1,060 1,078	2,447 1,036 1,058	3,058 0.401 2,005	1,722 0.860 0.250	2,445 0.000 1,484	3,756 0.000 1,094	2,669 0.000 0.678	1,278 0.254 0.935	1,308 0.000 0.366	2,751 0.000 0.479	1,727 0.000 0.552	2,714	2,177	1,514	2,193	2,389	2,389	
-	Subindex	1,546,696	1,000	2,742	2,117	2,541	1,100	1,970	2,952	2,092	1,081	1,027	2,142	0,977	2,111	1,771	1,256	1,864	1,895	1,895	
3522	(1) Medicines (2)	158,716 438,194	1,000 1,000	1,000 1,104	1,000 1,183	1,000 1,128	1,000 0.262	1,000 0.142	1,000 0.095	1,000 0.177	1,000 0.608	1,000 0.764	1,000 1.025	1,000 1.064	1,200	1,200	1,200	1,200	1,200	1,200	
-	Subindex	596,910	1,000	1,076	1,134	1,094	0.444	0.370	0.336	0.396	0.565	0.827	1,018	1,067	0,719	0,667	0,542	0,529	0,493	0,493	
3523	(1) Soap, washing powder (922.75) <sup>a</sup> (1) (1197.31) <sup>a</sup> (1) (625.3) <sup>a</sup> (2) (3) (3) (4) (4) (5) (6) (7)	NIL NIL NIL 329,894 77,682 NIL 94,458 NIL 990,596 684,428 26,234,833	NIL NIL NIL 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000 1,000	NIL NIL NIL 0 0 191 0 0 0.943 0.700 0.686	NIL NIL NIL 1.271 0 0.39 0 0.866 0 1.703	NIL NIL NIL 1.271 0 0 0.565 16.465 1.666	NIL NIL NIL 0.790 0 0.182 0 0.547 0 1.283	NIL NIL NIL 2.821 0 384 0 0 0	NIL NIL NIL 1.024 0 248 0 0.792 28.609 1.474	NIL NIL NIL 1.047 0 248 0 1.542 17.724 1.561	NIL NIL NIL 0.667 0 158 0 1.928 30.188 1.618	NIL NIL NIL 0 0 32 0 1.882 0 1.542 17.724 1.618	NIL NIL NIL 0 0 0 0 1.882 0 0.075 22.071 1.471	NIL NIL NIL 0 0 0 0 0.075 21.618 1.700	NIL NIL NIL 0 0 26 0 0.075 21.618 1.673	1,620	1,340	1,235	1,214	1,218	1,218
-	Subindex	28,411,891	1,000	0.707	1.731	2.010	1,610	0.981	2,108	1,928	2,244	1,895	2,107	2,066	1,812	1,747	1,777	0,884	2,374	1,720	
3551	(1) Tyre, Lube (2) (3)	571,080 98,921 13,901	1,000 1,000 1,000	1,000 1,000 0.000	1,000 1,000 8,942	1,000 1,000 2,151	1,000 1,000 3,428	1,000 1,000 8,087	1,875 1,000 2,208	1,285 1,000 12,645	1,005 1,000 17,627	1,140 1,000 13,898	1,115 1,000 14,161	1,090 1,000 10,317	1,170	1,285	1,525	1,175	1,175	1,175	
-	Subindex	683,907	1,000	0.980	1,159	1,023	1,049	1,147	1,755	1,471	1,317	1,175	1,359	1,261	1,297	1,472	1,673	1,351	1,325	1,505	
3560	(1) Plastics (139.1) <sup>a</sup> (2)	NIL 202,657	NIL 1,000	NIL 4.814	NIL 4.478	NIL 3,139	NIL 4,150	NIL 0.447	4,133 2,851	739 4,928	3500 4,170	7800 3,945	5700 11,429	2081 3,343	14,799	2615	2,151	1,548	2,007	2800	
-	Subindex	202,657	1,000	4.814	4,478	3,139	4,150	0.447	5,888	5,455	6,522	6,553	15,067	4,771	12,451	6,864	2,837	2,099	2,894	2,958	
3691	Structural clays	2,992,408	1,000	1,079	1,049	0,799	0,488	0,731	0,386	0,985	0,664	0,807	0,474	0,553	3,286	0,860	0,849	0,775	0,676	0,609	
3692	(1) Cement (2)	3,195,793 1,693,851 <sup>a</sup>	1,000 1,000	1,369 0.088	0,727 0.000	1,741 0.863	1,235 0.146	0,000 1,171	0,631 0,422	0,115 0.013	1,869 0.108	0,796 0.621	1,205 0.025	0,723 0,144	0,909	0,000	0,000	1,705	1,887	1,307	
-	Subindex	4,889,648	1,00	0,926	0,476	1,437	0,858	0,405	0,559	0,080	1,260	0,715	0,797	0,403	1,107	0,000	0,406	0,474	0,900	1,255	

104

Table 3b Cont.

ISIC	Industry <sup>A</sup>	Value added, Jan. 1987, Sh.	1987												1988					
			JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN
3210	(1) Iron, steel (67430.1) <sup>B</sup>	NIL	NIL	NIL	15.4	27.4	0.2	0.1	0.4	62	222	119	152	77	25.6	22	0	136.4	257	121
	(2)	809,801	1,000	2,065	1,239	0.125	1,454	0,565	1,096	0,336	0	0	0	0	0	0	0	1,826	0,332	0,332
	(3)	(1876) <sup>C</sup>	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	NIL	0.9	179	170
	(4)	(161) <sup>D</sup>	NIL	NIL	159	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Subindex	809,801	1,000	2,136	2,525	2,407	1,471	0,573	1,129	3,831	18,485	9,909	12,657	6,412	2,132	1,832	0	16,050	22,135	11,274
3811	Non-ferrous	1,651,884	1,000	1,529	1,629	0,776	1,389	0,957	0,628	0,184	1,556	1,013	1,278	0,524	0,866	0,000	0,963	1,274	1,510	1,881
3812	Iron beds	1,147,786	1,000	1,019	0,981	0,544	0,292	0,299	0,882	0,528	1,120	0,853	0,904	0,424	0,111	0,515	0,615	0,559	0,559	0,559
3813	(1) Structural steel	4,131,158	1,000	1,000	1,287	1,287	1,287	1,287	1,535	1,535	1,564	1,604	1,663	1,663	1,066	0,667	0,752	0,565	1,062	1,119
	(2)	407,317	1,000	1,000	1,000	4,000	10,000	13,000	33,000	2,000	12,000	15,000	13,000	13,000	13,000	19,000	19,000	21,600	4,000	6,300
	Subindex	7,340,145	1,000	1,121	1,299	1,204	1,711	1,778	2,958	1,371	2,340	2,089	2,080	1,815	1,592	1,531	2,026	0,901	1,318	1,150
3819	(1) Fabricated metal	813,178	1,000	1,249	5,613	0,487	3,374	1,451	1,038	0,848	1,009	0,904	1,800	0,904	1,086	1,332	0,773	0,994	1,325	0,152
	(2)	1,810,064	1,000	1,178	1,108	0,692	1,200	0,769	1,092	1,569	1,369	1,138	0,908	0,956	0,556	2,031	2,015	1,108	1,566	1,644
	(3)	37,324	1,000	0	0	0	0	0	1,000	0	0	0	0	0	1,000	0	0	0	1,000	0
	(4)	(748) <sup>E</sup>	NIL	NIL	NIL	NIL	160	514	28	0	0	0	0	0	0	0	0	0	0	0
	(798) <sup>F</sup>	NIL	NIL	NIL	NIL	65	300	154	102	91	0	0	0	0	0	0	0	0	0	0
	Subindex	2,660,566	1,000	1,092	2,339	0,670	1,911	1,061	1,095	1,312	1,120	0,992	1,103	0,874	0,669	1,689	1,517	1,127	1,453	1,102
3819	(1) Other electrical goods	969,350	1,000	1,448	1,000	0,761	0,078	0	1,410	1,496	0,672	0,862	2,796	1,399	0,783	1,786	0,665	0	0,373	0,756
	(2)	1,248,803	1,000	1,220	0,876	0,571	0,567	0	0,224	0,261	0	0,261	0,258	0,249	0,258	0,863	1,179	1,263	1,474	0,606
	Subindex	2,218,153	1,000	1,320	0,930	0,632	0,410	0	0,762	0,801	0,206	0,515	1,367	0,752	0,587	1,255	0,956	0,981	0,993	0,784
3910	(1) Other manufactured products	434,887	1,000	0,072	0,464	0	0,904	0	0,774	0,010	0,395	0,235	0	1,038	3,336	0,448	0,561	5,424	0,623	0,623
	(2)	859,153	1,000	5,357	2,679	4,286	2,500	0,500	3,393	3,179	0,750	6,571	7,536	4,286	2,036	20,000	12,000	12,857	10,214	10,214
	(3)	355,372	1,000	1,374	1,018	0,658	0,738	0,764	0,883	0,034	1,420	2,050	1,205	0,323	1,008	2,459	2,824	1,502	1,635	1,635
	Subindex	1,649,412	1,000	3,305	1,737	4,112	1,700	0,425	2,162	1,666	0,800	4,058	4,185	2,576	5,193	11,067	12,427	11,145	6,098	6,098
4100	Manufacturing total <sup>G</sup>	201,976,854	1,000	1,457	1,775	1,701	1,496	1,402	2,031	1,679	1,906	1,869	2,134	1,873	1,118	1,998	2,269	1,977	2,281	2,120

<sup>A</sup> Names of individual factories can be identified by reference to Table 1.

<sup>B</sup> Value added per unit of output for factories not producing in Jan. 1987. Main entry shows physical production.

<sup>C</sup> When value added was negative, net losses were ignored to obtain positive value added.

<sup>D</sup> Subindex for factory producing more than one product. Details are not shown.

<sup>E</sup> Index is the same as in Table 2(i). It was calculated using subindices and proportion weights shown in Table 2.

Monthly Industrial Production Statistics

Month: ..... Code No: .....  
(For Official Use)

Name of Establishment: .....

Postal Address: .....

Location: County/Street: ..... City/Town: ..... District: .....

Type of Activity: .....

Employment and Labour Costs:

1. No. of persons employed: (a) on the payroll ..... (b) unpaid workers .....  
 (c) unpaid working owners ..... (d) Total .....
2. Wages, salaries, overtime pay, cash allowances etc. before tax (Shs.) .....
3. Other labour costs (Shs.): (a) Employers' contributions to social security funds: ..... (b) Payments in kind e.g. food, housing, transport, etc. meal subsidies, medical bills, expenditure on social and sporting facilities, etc. ....  
 (c) Total .....
4. Total Labour cost (2 + 3(c)): .....

Production and Sales:

5. Monthly sales: quantity, (specify unit of measurement)
6. Monthly sales: value, (Shs.) (Include sales taxes. Specify amount of tax).
7. Monthly production: quantity, (Specify unit of measurement)
8. Monthly production: value, (Shs.)
9. Expected production next month, quantity, (Specify unit of measurement)
- 10.(a) Maximum production capacity if raw materials, spare parts, etc. were available: quantity, (Specify unit of measurement)

P R O D U C T		
1. ....	2. ....	3. ....

- (b) Number of shifts assumed .....
11. Give reasons for major change in production, as compared with previous month, e.g. strike, machine breakdown, lack of demand, etc.  
 .....
  12. Name of person providing information: .....  
 Title: ..... Tel: ..... Date: ..... Signature: .....

(PLEASE RETURN THE COMPLETED FORM NOT LATER THAN TWO WEEKS AFTER THE END OF THE MONTH IN QUESTION TO: THE CHIEF GOVERNMENT STATISTICIAN,  
 P.O. BOX 13, ENTEBBE).

THE REPUBLIC OF UGANDA

FOREIGN EXCHANGE REQUIREMENTS

	1988		1989	
	Quantity Unit ...	Value US-\$	Quantity Unit ...	Value US-\$
<b>A. Required articles</b>				
1. Raw materials:				
a.				
b.				
c.				
d.				
2. Spare parts:				
a.				
b.				
c.				
d.				
3. Machines, etc:				
a.				
b.				
c.				
d.				
4. Others:				
a.				
b.				
c.				
d.				

**B. What are the main factors limiting production at your factory ?**  
 (List the factors in order of their importance and describe the nature of the problem, e.g. shortage of raw materials, spare parts, machines or foreign exchange, insufficient demand, shortage of skilled labour or management, shortage of water or electricity, etc.)

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.