



Towards a New Industrial and Business Statistics Programme for Developing Countries and Countries with Economies in Transition



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Towards a New Industrial and Business Statistics Programme for Developing Countries and Countries with Economies in Transition

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Background

UNIDO technical cooperation in industrial statistics with developing countries started in the latter half of the 1980s following the 1983 World Programme of Industrial Statistics. The general purpose of the programme was to contribute to the world industrial statistics programme by improving “a developing country’s capability to collect, process, use and disseminate industrial statistics” (UNIDO, 1995). In the context of the overall technical assistance programme of UNIDO, the industrial statistics component was regarded as a part of an ‘upstream’ activity supplying industrialists and policy makers with information needed to make coherent assessments and effective decisions. As technical assistance in industrial statistics expanded and the number of projects increased, UNIDO adopted a more general approach, by establishing a conceptual framework of the National Industrial Statistics Programme (NISP) in 1989. Kenya, Ethiopia and Barbados were among the first countries to receive technical assistance under the NISP.

NISP attracted widespread interest among developing countries. In the beginning of the 1990s, when a strong wave of economic liberalization and privatization hit many centrally planned economies, the industrial statistics system faced new challenges. Contrary to conventional forms of data collection, when it was assumed that data users would only be government officials, the evolving economic situation has increased the need for industrial data, which are now equally sought by the private sector, data production associations and potential domestic and foreign investors. Therefore, the focus of NISP was on users’ needs and their ability to access data quickly. NISP projects involved national chambers of commerce and industries in discussions of the survey questionnaire and in supervision of data collection. Publication of the business directory, with updated information for wide use by the private sector, thus became one of the major outputs of the project.

In 1993, when the UN Statistical Commission provided the mandate of collecting and disseminating international industrial statistics to UNIDO, the responsibility of extending technical assistance to developing countries and countries with economies in transition increased significantly. Accordingly, UNIDO was obliged to maintain an

international industrial statistical database and disseminate data on the global business structure to international users. Around the same time, a task force was created by the UN Statistics Commission, which included UNIDO, to study the status of international industrial statistics, and it was concluded that the “industrial statistical system in the two groups of countries (developed and developing) diverge even more than before”. It also emphasized the greater need for industrial statistics in delivering technical assistance to developing countries.

In the 1990s, several technical assistance projects were undertaken in developing countries of Asia, Africa and Latin America. During this time, NISP also took upon itself the task of providing technical assistance to countries with economies in transition for converting their MPS-based statistical system to an SNA-based standard system. MPS, also known as the System of Balances of the National economy, was a statistical system used by member States of the Council for Mutual Economic Assistance (COMECON). This system divided the activities of institutional entities, such as government, households and organizations, into production and non-production spheres, simply because that valuable aspect of the work done in the non-production sphere was not included in their output or in any other production measures. After COMECON was dissolved in 1991, its former members started adopting SNA standards in their national statistical systems. UNIDO assisted Mongolia, Moldova, Viet Nam, Laos and Cambodia, in building a new system that can produce internationally-comparable industrial statistics.

An evaluation mission was subsequently undertaken to Albania, Azerbaijan, Croatia, Lithuania, Macedonia and Uzbekistan to study the transition process of these countries in industrial statistics. At the same time, Africa remained the main focus of technical assistance. UNIDO assisted in conducting the first industrial survey in the newly liberated States of Africa, such as Eritrea and Namibia, while Cameroon, Ethiopia, Ghana, Kenya, Madagascar, Mauritius, Sudan, the Gambia, Zambia and Zimbabwe were among other recipients of UNIDO assistance in recent years. Currently, industrial statistics projects are being implemented in Lebanon, Russian Federation, Saudi Arabia and Sri Lanka.

Despite the valuable contribution of NISP in the past, the nature of the demand for industrial statistics and methods of data collection and dissemination has changed significantly over the past 20 years. While the main emphasis in the past was on periodic industrial census and surveys, new technology has now made it possible to maintain the business register more efficiently and produce data more frequently, with a higher level of precision. The emerging industrial statistics system is a fine combination of administrative records maintained in a fully computerized and regularly updated business register, annual industrial surveys for major indicators of industrial performance and monthly/quarterly production reports that produce reliable estimates of short-term indicators such as production indices. However, many countries, especially African LDCs, have not yet reached that stage even though the economic or industrial censuses are still relevant for their benchmark statistics. There is, therefore, a need to formulate a new programme of technical cooperation based on past experiences and new directions. This paper is drafted as a background paper for in-house discussion on technical cooperation in industrial statistics.

I. Relevance of a new programme

Poverty eradication is first on the agenda of the UN MDGs because of the severity of this problem in developing countries, especially in LDCs. Available statistics suggest the direct relation of the incidence of poverty with the level of industrial development. According to the United Nations Conference on LDCs, over the past three-and-a-half decades, the number of people living on less than US\$1 a day increased from 125.4 million to 278.8 million in 39 LDCs for which data is available. The situation is particularly severe in African LDCs where the percentage of people living in absolute poverty increased from 55.8 per cent to 64.9 per cent. On the other hand, the share of LDCs in world MVA changed by a marginal value of 0.1 per cent over the past 15 years and reached 0.3 per cent, while during the same period their share in world population increased from 11.4 per cent to 13.2 per cent, resulting in the overall decline of MVA per capita. The latest figures show that MVA per capita in LDCs is US\$32 (US\$19 in African LDCs) against the developing country average of US\$381 and the world average of US\$1,210. The highest level of MVA per capita in the world is US\$10,660 in Japan for 2004; more than 300 times higher than the average of LDCs as a whole.

UNIDO has taken up the challenge of reducing poverty by increasing the production capacities by focusing on the promotion of entrepreneurship, SME development and productivity growth in industries, especially in the manufacturing sector. These activities aim to accelerate economic growth and thereby reduce income poverty. The role of industrial statistics in this process is indispensable as the strategy of sustainable development can only be formulated based on detailed empirical data on the industrial structure and growth. However, the technical capacity of NSOs and line ministries responsible for industrial affairs in many developing countries, especially in LDCs, is quite weak. Almost half of the LDCs do not have any industrial data for the past 20 years, and many others do not have a regular programme for updating industrial statistics.

The United Nations has recognized the important role of statistics in development efforts of developing countries. The United Nations Economic and Social Council in its resolution (ECOSOC/6233),¹ adopted on 26 July 2006, has expressed "... its deep concern that (a) there still exists in many countries a lack of adequate data to (i) assess national trends in the context of monitoring progress towards the realization of all the internationally agreed development goals, including the MDGs, and (ii) inform and monitor the implementation of national development policies and strategies, and (b) in many countries where data do exist, there is lack of capacity to use them and, in certain cases where country data are available, they are not used to the extent possible". The resolution also calls upon the United Nations system, including the United Nations Statistics Division, regional commissions and international agencies, to support national efforts in building and strengthening the national statistical capacity, and urges donor countries and international organizations and regional statistical offices to support developing countries and countries with economies in transition in strengthening the statistical capacity in support of development.

The lack of basic statistical information on the kind of industrial activities, economic potential and human resources seriously hampers the formulation of an

¹ <http://www.un.org/News/Press/docs/2006/ecosoc6233.doc.htm>

appropriate development strategy and the means to monitor progress. In order to measure the comparative advantage of a country in the international market and attract foreign investment, it is essential that statistics at country level are internationally comparable. Following the recommendation of the UN Statistics Commission, major international standards to determine the methodological uniformity of international industrial statistics have been recently revised. These include:

- International standard industrial classification rev-4
(Prior version ISIC rev-3, 1990)
- International recommendations of industrial statistics, 2008
(Prior version of 1983)
- Index numbers of industrial production, 2010
(Prior manual from 1950)

UNIDO, as a responsible agency for global industrial statistics, has been a major player in the revision of industrial statistical methods and classification standards. The role of the Organization will also be imminent in the implementation of these standards, especially in those countries where NSOs lack the technical capacity to build the system in compliance with new statistical standards.

Apart from the upcoming international standards, there are new priorities for industrial statistics that have arisen from UNIDO's overall global mandate on industrial development. In the changed context, industrial development will be progressively based on knowledge, innovation technology and the efficient use of energy. In response to new challenges, UNIDO could expand its role in development of statistical methods and procedures for collecting, processing, analyzing and disseminating data taking into account such emerging issues as:

Accordingly, UNIDO's expanded role in industrial statistics could be expected to include:

- Statistics on R&D expenditure made by industrial enterprises
- Statistics on industrial innovation---statistics on production and sale of new and technologically-improved products, acquisition of new and technologically-improved equipment; outright purchase of patent, technical know-how, trademark and copyrights

- Statistics on ICT usage by industrial enterprises
- Statistics on energy consumption in industry by type

The collection of country data on new priority areas requires close interaction between UNIDO and NSOs. UNIDO might need to experiment with new statistical techniques by conducting pilot studies, which is possible only with the participation of NSOs. While most of above-mentioned statistics are available for OECD countries, UNIDO's assistance is necessary for many developing countries and countries with economies in transition.

The new programme on technical cooperation aims to assess the data gap in different fields of industrial statistics in these two groups of countries, identify areas for UNIDO technical assistance and implement projects to strengthen the statistical capacity of national institutions. The programme could also provide the essential framework of technical cooperation between UNIDO and NSOs, describe the major components of assistance and present the modality of project implementation.

II. Target group of the new programme

The new industrial statistics programme will generally be targeted to developing countries and countries with economies in transition that need to establish a new system or improve the existing system of industrial statistics. It would serve as a constructive response by UNIDO to the UN Economic and Social Council resolution (ECOSOC/6233) for support in strengthening the statistical capacity of these countries. Focusing more on the mandate, UNIDO could further refine its priority area depending on the availability of industrial data, as well as in conjunction with its overall technical assistance programme in industrial development.

In the past, UNIDO undertook studies on the assessment of statistical systems in developing countries and countries with economies in transition. The last study dates back to 1995, which was devoted to NISP implementation in six countries of Eastern Europe and Central Asia. More recently, the World Bank has made a general assessment of the statistical capacity of various developing countries and countries with economies in

transition based on statistical practice, data collection and indicator availability. However, as the World Bank assessment did not include any specific questions on industrial statistics, its findings do not reflect the actual status of industrial statistics capacity. Therefore, a rough assessment of industrial statistics capacity could be made based on the response of a country to the UNIDO general industrial statistics questionnaire and availability of such data in the UNIDO database. A systematic failure in data-reporting indicates the weak institutional capacity of a country to produce basic industrial statistics. For further differentiation of non-responses, three major indicators: employment, value added and capital formation, were selected.

Complete response: response to all indicators

Partial response: response to one of three indicators

Non-response: response to none of the indicators

Countries were grouped according to the degree of response to UNIDO questionnaires. A comparison of the scores of statistical capacity of developing countries and countries with economies in transition showed that the general and industrial statistics capacity in a number of countries is at different levels. However, the LDCs in sub-Saharan Africa and the island nations of South Pacific were ranked lowest in both cases. Of the 26 LDCs of sub-Saharan Africa, 25 do not have any data on capital formation and 20 do not have any MVA data. All the 12 countries that responded only partially to the UNIDO questionnaire in the past were unable to update the data for the last five consecutive years. Data for a few other countries are even older, for instance, Somalia - 1986, Sierra Leone – 1993, Burundi -1995, and so on. In the Asia Pacific region, with the exception of Afghanistan and Bhutan, it is mainly the Pacific island nations that lack basic industrial data. However, the importance of the manufacturing sector in the economies of the Pacific islands might be limited in comparison with the sub-Saharan region. A list of LDCs by industrial data availability is presented below.

Table 1. Industrial data availability in LDCs by major indicators

	Country	Employment	Value added	Gross fixed capital formation	Last reported year if "Yes" for any data items
1	Afghanistan	Yes	No	No	2002
2	Bhutan	No	No	No	
3	Kiribati	No	No	No	
4	Samoa	No	No	No	
5	Solomon Islands	No	No	No	
6	Timor-Leste	No	No	No	
7	Tuvalu	No	No	No	
8	Vanuatu	No	No	No	
9	Angola	No	No	No	
10	Benin	No	Yes	No	1999
11	Burkina Faso	Yes	No	No	1998
12	Burundi	Yes	No	No	1995
13	Central African Republic	No	No	No	
14	Chad	No	No	No	
15	Comoros	No	No	No	
16	Dem. Rep. of Congo	No	No	No	
17	Djibouti	No	No	No	
18	Equatorial Guinea	No	No	No	
19	Guinea	No	No	No	
20	Guinea-Bissau	No	No	No	
21	Lesotho	Yes	No	No	1998
22	Liberia	No	No	No	
23	Madagascar	No	Yes	Yes	1998
24	Mali	No	No	No	
25	Mauritania	No	No	No	
26	Mozambique	Yes	No	No	2000
27	Rwanda	Yes	Yes	No	1999
28	Sao Tome & Principe	No	No	No	
29	Senegal	Yes	Yes	No	2002
30	Sierra Leone	Yes	No	No	1993
31	Somalia	Yes	No	No	1986
32	Togo	No	No	No	
33	Uganda	Yes	Yes	No	2000
34	Zambia	Yes	Yes	No	1994
36	Haiti	Yes	No	No	1997

Countries with economies in transition are reported to have a good general statistics capacity. However, their response to the UNIDO industrial statistics questionnaire is rather weak. This is mainly because many CIS countries still follow the

old statistical system with different methods of compilation of indicators and classification of economic activities from international standards. These countries require assistance in introducing new statistical techniques and standards, which can be provided through training programmes and industrial surveys.

Table 2. Industrial data availability in countries with economies in transition by major indicators

	Country	Employment	Value added	Gross fixed capital formation	Last reported year, if "Yes" for any data items
1	Armenia	No	No	No	
2	Azerbaijan	Yes	No	Yes	2003
3	Belarus	No	No	No	
4	Kazakhstan	Yes	No	No	2003
5	Kyrgyzstan	Yes	No	No	2003
6	Moldova	Yes	Yes	No	2003
7	Tajikistan	Yes	No	Yes	2003
8	Turkmenistan	Yes	No	No	2000
9	Uzbekistan	No	No	No	

Illustrations in tables 1 and 2 indicate the lack of industrial statistics in both groups for one reason or another. Hence, countries in both groups could be included in the new industrial and business statistics programme. The programme could also be beneficial for other developing countries, where the existing industrial statistics system requires improvement. Here three groups of countries with different requirements of technical assistance can be distinguished.

Table 3. Expected outcome of UNIDO technical assistance in Industrial statistics by the target groups		
Target group	Output	Outcome
Countries with least developed statistical system	Building the industrial statistics capacity through benchmark industrial statistics operation	Recipient country has a functional industrial statistics system
Countries with developing statistical system	Improvement of national industrial statistics system	Industrial statistical system of the country is based on the most recent statistical standards
Countries with economies in transition	Assistance in introducing the recent statistical standards	National statistical system produces internally comparable industrial statistics

UNIDO could also offer a range of activities through technical cooperation projects to help recipient countries build a new statistical system that is achievable and sustainable. The programme consists of a number of interrelated components described as follows.

III. Main components of the New Industrial Business Statistics Programme (NIBSP)

NIBSP is designed to provide technical assistance to NSOs in business and industrial statistics.

1. Business register

The business register is a structured list of economic activity units engaged in the production of goods and services. The importance of the business register in industrial statistics is twofold. First, it produces a business directory with key information on industrial entities that are relevant and useful to the business community. The directory lists industrial enterprises, with contact addresses of their head offices as well as the location of production units, plants, factories and ancillary units. Secondly, the register provides the framework for sector-specific statistical surveys. The quality of this framework predetermines, to a significant extent, the reliability of industrial survey results. A well-defined, comprehensive and regularly updated business register allows statisticians to improve the industrial survey design and apply, whenever necessary,

sampling techniques that will reduce the time needed for and cost of data collection, and increase the precision of statistics.

Business units are classified by type of activity, in accordance with the international standard of industrial classification (ISIC). Other major classification criteria are legal organization, such as incorporated or unincorporated, and ownership, such as private, government or foreign investment. The business register is created from administrative records, census list or from a recently undertaken statistical survey.

UNIDO has long experience in extending support to NSOs for creating a computerized business register through the use of an efficient updating mechanism. It should be noted that the ongoing revision of international recommendations for industrial statistics requires a different approach for constructing a business register. The business register maintained by many NSOs, so far, is based on the consideration of an establishment as a statistical unit. Therefore, the number of units/entries in the register indicates the number of establishments. This approach complied with the 1983 recommendations of industrial statistics. However, the forthcoming revision of the UN recommendation is also expected to include enterprises as a statistical unit of industrial statistics. This means that production and employment data will be collected at establishment level, while financial data and statistics of non-industrial services, including the cost of R&D expenditure, data on patent, trademark and copyright, will be collected at enterprise level.

UNIDO is developing statistical methodology for creating a new business register and improving the existing one based on revised recommendations of industrial statistics. UNIDO experts have tested a number of models of new register and data management system. The model developed for Sri Lanka allows the creation of a new register using different data sources. The system can automatically check and match and un-match cases to avoid omission or duplication of an entry in one or different sources, and even create a unique list of business enterprises that combines all sources, yet avoids any duplication. The menu-driven reporting system developed for Saudi Arabia has the facility of generating basic industrial statistics from the business register. However, in the case of Ghana, the business register had to be based on information provided entirely from field

operations where no reliable administrative records or past register exist for several years. It should therefore be noted that experiences gained from surveys recently undertaken will contribute to developing a flexible and common application of the business register. Therefore, UNIDO assistance in creating a new register using the forthcoming ISIC rev-4 might also be in the interest of a large number of developing countries.

2. Industrial census and surveys

The industrial census and surveys are the most important sources of industrial statistics in developing countries where the administrative recording system is rather weak and data derived from secondary sources are not always reliable. The industrial census and surveys are normally large-scale statistical operations which involve data collection from industrial enterprises and establishments for a comprehensive set of data items. Data are collected through direct interviews in the field, or mailing questionnaire, or a mix of both methods. Recently, data collection through web-surveys appears to be gaining momentum, although its coverage is limited even in countries with a developed statistical system.

Planning and design of an industrial census or survey involves the preparation of various statistical instruments, namely, the framework, questionnaire, instruction manual, data collection plan, data-processing plan, output tables and others. The range of statistical data collected from the census and surveys is determined by the questionnaire that lists all required data items. UNIDO was implementing a model questionnaire based on IRIS-83. In the new context, two important revisions have been made to the model questionnaire. First, there will be two questionnaires; one for enterprise, and the other for establishment. Second, the new questionnaire includes additional data items on areas such as energy consumption, R&D expenditure and technological innovation, ICT usage by industrial enterprises and acquisition of new technology, information and communication equipment, software development and outright purchase of technical know-how, patent and copy-rights.

UNIDO's new technical assistance programme could also extend assistance to NSOs in designing the questionnaire, whereby the UNIDO model questionnaire could be customized as the per country's needs and designed in full compliance with the national accounting concepts of SNA-93 (update), as well as other recommendations related to

business accounting, ICT statistics and statistics on industrial innovation. The range of statistical data to be collected can be adjusted depending on the country's need and available technical capacity in NSOs. However, a minimal set of principle indicators would have to be maintained in all national surveys in order to produce internationally comparable statistics on employment, value added and capital formation.

The industrial survey design may also involve sampling, especially for countries with a large number of smaller manufacturing establishments. The programme envisages specialized services for designing industrial surveys and training national staff in sampling techniques applicable to the survey.

3. Short-term indicators of industrial statistics

As mentioned earlier, the industrial census and surveys are large operations. Since a considerable amount of time is needed to complete them, statistics thus produced could be disseminated with certain time lags. Short-term indicators, such as index numbers of industrial production, can therefore be used to meet the immediate needs of users with regard to information on the current status of industry in the country.

Implementation of this component requires that enterprise/establishment level data are included in a recently conducted survey. As part of the UNIDO project, this component is implemented after the final results of the survey are produced. It could also be developed as a separate project if necessary data are available for the selection of units and calculation of base weights can be derived from a recently conducted survey. The programme also envisages the revision of base weights and rebasing of index series.

The main advantage of the production index is that it indicates real industrial growth independent of price fluctuation, which is very important for monitoring the current trend of industrial production. The index number of industrial production is also essential for quarterly estimates of national accounts. Apart from production indices, quarterly production reports provide current statistics on employment and sales.

4. Data-processing, management and dissemination

NIBSP also covers technical assistance in system design, setting up electronic data-processing facilities and data management by the NSO of the recipient country. National industrial data systems comprise different sources for input data, such as registration data and other administrative records, census and survey data and monthly/quarterly production reports. Often these data sources are scattered over different departments and agencies, such as the Statistical office, Ministry of Industry, National Bank, Investment Centre and so on. Sometimes statistics produced by these agencies conflict with each other, which confuses, rather than helps, data users. If all data sources are linked to a single system, it significantly reduces cases of omission and duplication, subsequently, improves the coherence and reliability of statistics produced.

UNIDO can assist NSOs in designing the system, providing advice on the acquisition of appropriate hard- and software and also developing necessary applications for an efficient industrial data system. The system, once developed, requires regular updating and maintenance. It also needs skilled staff for data-processing and proper data management. NIBSP envisages training national staff in various applications as well as in data-processing and data management.

In recent years, the use of information technology (IT) in data dissemination through electronic media is rapidly increasing. Dissemination through electronic media is much easier for users to find, retrieve and understand statistical information. Through electronic media data can be disseminated without any significant time-lag as per users' demand. UNIDO can assist developing countries and countries with economies in transition in disseminating data electronically through:

- Interactive electronic publishing, web sites
- On-line database access
- Multimedia, CD ROM and other off-line media
- Other publication in electronic form

One major problem related to data dissemination electronically is protecting the confidentiality of statistics and ensuring the safety of databases. Providing electronic

access to databases means disseminating micro-data to users. Statistics Law in most countries requires that data be disseminated only in consolidated form. UNIDO experts can advise on how to maintain an appropriate balance between maximum data protection and minimum loss of such information.

5. Data analysis

Data collection itself is not the aim of any statistical operation; its final outcome is relevant statistical information for development planning, monitoring and policy formulation. UNIDO can assist countries in analyzing and interpreting industrial statistics with regard to the stage of development achieved by a country and necessary policy intervention expected from government and business community.

UN resolution ECOSOC/6233, as quoted earlier, has mentioned that in many countries where data exist, there is a lack of capacity to use them, and where country data are available, they are not used to the full extent. This is mainly due to the lack of technical capacity of NSOs in many countries to analyze data. Industrial statistics comprise various socio-economic variables that are closely interrelated over time and geographical regions. These variables indicate the position and contribution of the manufacturing sector to the national economy as a whole. Expertise that UNIDO can offer under NIBSP ranges from basic analysis of survey data, using descriptive methods, to multivariate analysis, involving advanced statistical methods such as factor analysis, principle component analysis, cluster analysis and so on. The Research Unit of the Research and Statistics Branch of UNIDO could assist in carrying out in-depth economic analysis of data in order to measure the impact of productivity and investment and international trade on industrial development. Major findings of such analysis could help governments and the business community to formulate new policies and monitor their implementation.

6. Training programmes

As part of the technical assistance project, NIBSP envisages a variety of training programmes, such as on-the-job training provided by UNIDO experts through project activities, group training courses or workshops, study tours or training abroad. On-the-job training is provided to staff that work closely with UNIDO international experts. Such staff will not only be actively involved in planning, design and execution of statistical surveys and will also be able to enhance their technical skills by working together with international experts. Upon completion of the project, the staff will thus become capable of conducting future rounds of surveys on their own, and also ensure the sustainability of technical assistance.

Group training courses and workshops will be conducted to train a larger number of staff on the basic concepts and methods of industrial statistics. Similar training will also be conducted for automation staff on the operation of new database facilities, software and other applications. If data collection is to be conducted through direct interviews with respondents, it will be necessary to train field staff as well on the administration of the questionnaire, procedures of interview and related methods. Senior staff might need to learn about the experiences of other countries in organizing and operating the industrial statistics system. For this purpose, UNIDO can organize a study tour in countries of the region. In special cases, if necessary funding arrangements are made, local staff could be sent to an international statistical training centre for advanced training.

UNIDO can conduct a training programme as a separate project. Such a project might be designed for a country, by way of a course to train statisticians in a particular country, or a regional group-training course to train statisticians of different countries.

IV. Programme costs

The cost of the programme is broadly estimated based on the simple linear cost model² of statistical surveys, with minor adjustments. The total programme costs include fixed costs that are constant for an unlimited number of observations, and variable costs, which vary, depending on the number of enterprises to be included in the industrial statistics system.

Fixed costs include the cost of services of at least two international experts: an industrial statistician and a systems analyst, two UNIDO staff missions, six-month remuneration for national experts, minimal cost for equipment (a server for the business register, five terminals and accessories) and a reasonable amount for sundries. The industrial statistician will prepare the structure of the business register, define its scope and coverage and identify the applicable data sources. The expert will also advise on industrial survey design, data collection, output tables and prepare the final report, including major findings of the completed statistical operation. The systems analyst will design the data system, advise on required automation facilities, develop/customize the software for maintaining and updating the database and also produce reports for data users.

The cost of the business register and survey operation is a variable which depends on the number of eligible statistical units in the country. As described earlier, the business register includes enterprises, while the survey operation may include establishments as statistical units. The survey operation costs include enumeration and supervision costs, data entry and processing costs, transport and communication costs, stationery and field staff training costs.

² The model used for estimation of the programme cost is given by:

$$C = C_0 + C_1a + C_2b$$

where,

a – number of all enterprises in the register

b – number of statistical units (enterprise or establishment) to be surveyed ($a \geq b$)

C_0 – fixed cost

C_1 – average cost of adding one enterprise in the register

C_2 – average cost of adding one statistical unit in the survey

Based on earlier experiences, the total cost of the project for a country with the number of statistical units up to 2,000 is estimated at US\$195,000. This amount includes all the fixed costs mentioned above and variable costs for statistical units up to 2,000 units. However, it does not include costs for training national staff abroad, study tours and so on, which are very specific to the needs of the country. For every additional 1,000 units, project costs will increase by US\$25,000 (for example, for 3,000 units US\$220,000, for 4,000 units US\$245,000 and so on).

The country may choose one or more components from the list as long as facilities related to other components are already in place. For example, if a country already has a fairly updated business register and needs technical assistance only for the industrial survey, then project costs will be less. Such a decision can only be made after obtaining the required information on existing facilities. However, if a country wishes to choose just one component, then project costs might be relatively higher.

Table 4. Project cost for single component implementation (Dollars)	
	Amount in US\$
Business register (up to 2000 units)	80,000
Industrial survey (up to 2000 units)	120,000
Data processing and database management	60,000
Quarterly production indices	45,000
Statistical analysis	40,000
Country course in industrial statistics or/and database management 2 weeks (Up to 15 participants)	20,000

It is expected that most LDCs, especially where there is a critical data gap, will require full-scale programme implementation, including all components. Since such countries are relatively small, both in size and number of industrial enterprises, it can be generalized that the costs of the project could vary between US\$200,000 and US\$250,000. In the case of other developing countries and countries with economies in transition, it might be possible to implement one or more components of the project.

V. The Organization's strategy

The technical cooperation programme on industrial statistics is actually a part of the Organization's corporate strategy stipulated in its first service module: Industrial governance and statistics. Implementation of this module has been difficult due to an imbalance between objective requirement and expectation of countries that are in need of UNIDO technical assistance, and human and financial resources allocated to the Statistics Unit of PCF/RST responsible for implementing the Organization's strategy. In the context of new international standards and priorities of industrial statistics, the Statistics Unit is currently engaged in the preparation of a package programme that could be offered to countries. The programme includes:

1. A manual describing the operational characteristics of industrial survey design including:
 - Guidelines of the business register and methodology of its maintenance and updating
 - A handout on the sampling technique applicable to industrial surveys, which describes recommended selection methods, computation of weights, estimation of total, mean and variance, imputation of missing data and treatment of non-responses
 - A model questionnaire for the industrial survey with a description of data items and concepts and definitions
 - A programme for short-term indicators, especially methods for constructing monthly/quarterly indices of industrial production
 - A set of statistical indicators on the industrial performance and methods for data analysis

2. Development of software for the business register and processing of industrial survey data
 - The new industrial and business statistics programme underscores UNIDO's technical cooperation in industrial statistics. One aspect of the unique mandate, given to the Organization by the international community,

addresses one of the key issues of industrial development – to collect and disseminate statistical information, and support the overall technical cooperation programme of the Organization by supplying reliable data on major indicators at country level.

- NIBSP is expected to improve the Organization’s delivery of industrial statistics, which is one of its key service modules for technical cooperation. The programme responds positively to the appeal made in UN resolution ECOSOC/6233 with respect to statistical capacity-building in developing countries and countries with economies in transition, and paves the way for decisions to be taken on integrating the statistics component in any major development projects pursued by the Organization in a member State in the future.



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