

**Annual  
Manufacturing  
Survey  
Methodology**

**NATIONAL ADMINISTRATIVE DEPARTMENT OF STATISTICS**

JORGE BUSTAMANTE ROLDÁN  
**Director**

CHRISTIAN JARAMILLO HERRERA  
**Deputy Director**

MARIO CHAMIE  
**General Secretary**

**TECHNICAL DIRECTORS**

NELCY ARAQUE GARCIA  
**Regulation, Planning, Standardization and Normalization**

EDUARDO EFRAÍN FREIRE DELGADO  
**Methodology and Statistical Production**

LILIANA ACEVEDO ARENAS  
**Census and Demography**

MIGUEL ÁNGEL CÁRDENAS CONTRERAS  
**Geostatistics**

ANA VICTORIA VEGA ACEVEDO  
**Synthesis and National Accounts**

CAROLINA GUTIÉRREZ HERNÁNDEZ  
**Diffusion, Marketing and Statistical Culture**

**Bogotá, D. C., 2013**

**Director of Methodology and Statistical Production  
(DIMPE)**

Eduardo Efraín Freire Delgado

**Technical Staff**

Juan Francisco Martínez R., Giovanni Buitrago H., Gilma B. Ferreira, Juan C. Sánchez,  
Irma Inés Parra R, Nancy J. Rodríguez, Lilian A. Guio N., Germán Perez H.

**Grafic Design**

**Diffusion, Marketing and Statistical Culture Division**

**Diagramation and publishing**  
National Printing Office

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# Presentation

The National Administrative Department of Statistics, DANE as the coordinator entity of The National Statistical System (NSS), within the framework of the "Statistical Planning and Harmonization" project, works to strengthen and consolidate the NSS. This is carried out through several processes such as: the production of strategic statistics; the generation, adaptation, adoption and diffusion of standards; the consolidation and harmonization of statistical information, and the connection of instruments, stakeholders, initiatives and products. These actions are carried out in order to improve the quality of strategic statistic information, and its availability and accessibility to respond to users demand.

In this context DANE, aware of the need and obligation to provide better products for its users, developed a standard presentation guide for methodologies. The aim of this guide is to contribute to the visualization and understanding of the statistical processes, allowing further analysis, control, replicability and evaluation. The documents are presented in a standard and comprehensive manner, thus facilitating the understanding of the main technical characteristics involved in the processes and sub-processes of each research, making them available for both specialized users and the general public.

These series of guides promote the transparency and credibility of the technical expertise of DANE, for a better understanding and use of statistical information. This information is produced according to the principles of coherence, comparability, integrality and quality of the statistics.

# Introducción

The Annual Manufacturing Survey (EAM by its acronym in Spanish) obtains statistical information from the Colombian manufacturing sector in order to meet the needs for information inside the sector and fulfill both the international commitments and the requests of academics, researchers, trade unions as well as public and private institutions.

DANE has carried out five economic censuses (1945, 1954, 1971, 1990 and 2005), as well as continuous annual industrial surveys of establishments which fulfill the employment and production criteria defined each year. With the obtained information, the statistics that allow the knowledge of Colombian industry's structure and evolution are gathered and released.

With this information as basis, the indicators for the National Accounts are generated , enabling the process of measuring the evolution and the behavior of industrial sector based on variables such as employed personnel, gross production, employment, remunerations, intermediate consumption, value added, electricity consumption and fixed assets ,among others. The results of the surveys mentioned above make it possible to determine the domestic industry composition.

In the process of presenting the behavior of the industrial sector, The Annual Manufacturing Survey (EAM) applies the International Standard Industrial Classification of All Economic Activities -ISIC Rev 3- set by the United Nations Statistical Office. This survey covers those establishments with ten or more employees or with a production value which is established annually and updated according to the Producer Price Index PPI. The purpose of this document is to present to the user and public in general, the basic procedures concerning the Annual Manufacturing Survey methodology, bearing in mind aspects such as: design, production, analysis and dissemination.

The EAM as structural and exhaustive investigation which is applied to the establishments with 10 or more ten employed individuals becomes the main framework to generate the Monthly Manufacturing Sample. This is defined as the temporary research that shows the evolution of domestic industry through indices and variations.

The first part of this document corresponds to the survey design, taking into account its range, objectives and the conceptual basis, amongst other. Second part describes all relevant aspects of preparatory activities, information collection, critique and coding process, as well as the supervision and information consolidation. Finally, in the third part, the document is focused on the activities related to the dissemination of survey's statistical information.

# Background 1

The First Colombian Industrial Census was carried out in 1945. This Census was based on recommendations from international organisms specialized in censuses and economic surveys' development such as the United Nations' Statistical Office, the Inter-American Statistical Institute of the Organization of American States OAS. The reference for this census was the economic period between June 1st of 1944 and June 30th 1945, taking as a census framework a group formed by industrial establishments with five or more employed individuals or with annual production value lesser than six thousand Colombian pesos (\$6 000.00). The total number of establishments censused was 7 853, which represented a total of 135 400 individuals and reached a production value total of \$641.1 million Colombian pesos.

The second census was carried out in 1954 and covered the economic year of 1953 (Period from January 1st to December 31st). Initially, the information collection was applied to all the manufacturing establishments, without taking into account the limits of employed personnel and the production value. As a result, it collected the information from 47 112 establishments, which together reached the total production value of \$3 950 million pesos annually.

After conducting a preliminary analysis of information, it was determined that most of the counted establishments employed less than 5 individuals and registered a minimum production value. Based on this first evaluation, it was concluded that the processing of survey forms would imply a high cost and a sustainable backwardness in the result generation. For this reason, it was determined that the most convenient solution without affecting the census objectives, would be to exclude those establishments of low economic importance from the processing stage, and set a census framework with the establishments with 5 or more employed individuals or annual production value higher than \$24 000 million pesos. According to these conditions, 11 243 establishments which employed a total of 119 116 people and generated an annual production of \$3 804, 2 million Colombian pesos were processed.

In 1971, the Third Industrial Census was carried out, taking into account both sectors, trade and services. At this time, the establishments to be counted were divided into two groups: first group covered the establishments with five or more employed individuals; meanwhile the second group covered those establishments that employed less than five individuals, who later were identified through the sampling method.

The census covered the establishments with five or more employees nationwide, while the covering of the establishments with less than five employed individuals was limited to 12 most important urban sets, taking into account their number of inhabitants, and 179 selected municipalities. At this point, the sampling system called "stratified multi-stage sampling with controlled probability" was applied. It was a resource that ensured not only the representation of the country but also of each of its departments. This census makes

reference to 1970 and 7459 establishments which employed total of 347 159 individuals reached a production of \$59 315, 6 million pesos annually were surveyed.

During 1990, DANE carried out the National and Multisectoral Economic Survey (Censo Económico Nacional y Multisectorial) which covered sectors such as: industry, trade, services and construction. This census was constituted as the Fourth Industrial Census and it covered all the establishments which, at the moment of the survey, were operating nationwide. It covered a total of 95 332 industrial establishments from which 93 013 provided information; at the same time, a total of 885 737 individuals was employed (779 810 permanent and 105 927 temporary) and a total of \$10, 4 billion pesos of operational incomes in the year was reached.

For the survey in 2000, there were some changes registered in the collection form, in relation to the application of the International Standard Industrial Classification of All Economic Activities -ISIC Rev 3, made by the United Nations and adapted to the Colombian context by DANE (ISIC Rev 3 A.C.) for activities, and the Central Product Classification, Version 1, Adapted to Colombia -CPC 1.0 A.C. - for products. Those changes were conducted without modifying substantially the EAM structure.

In 2005, the General Census of Population and Housing was carried out, where the counting of independent economic units associated to housings in sectors like: agriculture, trade and services was done. In this census a total of 160 055 establishments was identified in the manufacturing industry with a total of 946 701 employees. In the case of industrial establishments with more than 10 employed individuals, the obtained results were crossed with the EAM directory, in order to determine those establishments that were out of the survey, so they too could be included. This is how a significant improvement in the survey's coverage was reached.

# Design 2

## 2.1 CONCEPTUAL FRAMEWORK

### 2.1.1 Objectives

#### General Objective

The objective is to obtain basic information from the industrial sector, which would provide facts about its structure, characteristics and evolution.

#### Specific objectives

- To generate the basic statistics for calculation of both economic values added in the industrial sector and the National Accounts.
- To determine the composition of production and consumption of raw materials in the industrial sector.
- To provide the characteristics of the sampling framework for further surveys concerning manufacturing sector.
- To obtain the regional distribution as well as geographic concentration or dispersion of the industrial activity.

### 2.1.2 Reference Framework

- **Conceptual Basis**

The Annual Manufacturing Survey provides the annual information about the behavior, changes and evolution of the manufacturing industry in Colombia. This information is obtained through a number of establishments, employed personnel, accrued remunerations (wages, salaries and social contributions) paid by the employed personnel, gross production, intermediate consumption, value added, investment (Gross and Net) electricity consumed, fixed assets values, amongst others.

In this context, The manufacturing industry is defined as “ the mechanical or chemical transformation of organic and inorganic substances into new products, whether this

transformation is done through machines or by hand, in a factory or at home, where the products are sold either in a wholesale or a retail way. This transformation includes the assembling of component parts of manufactured products, except in the cases where such activity is typical of the construction sector. "

## **Thematic Content**

**Classification variable** . The economic activity based on the ISIC Rev. 3. A.C. classes (4 digits) is defined as variable of classification.

**Analysis variables** . As variables of analysis in the development of the EAM the following will be taken into account: the employed personnel, accrued wages and salaries, accrued social benefits, gross production, intermediate consumption, value added, costs and indirect manufacturing costs as well as the expenditures of administration and sales, electricity consumption (Kwh.), inventory variation, gross and net investment, fixed assets ledgers, production, sales and stock in the year, purchase and consumption of raw materials.

**Calculated variables.** Calculated variables include labour cost, technical production quotients, productivity amongst others.

## **International References**

The international recommendations applied in the Annual Manufacturing Survey are those established by the United Nations Statistical Office in relation to the Recommendations for the World Program of Industrial Statistics of 1973, series M. N° 54. Similarly, the International Standard Industrial Classification of All Economic Activities (ISIC) in their different versions (1 to 3) is applied for the coding of activities and the Central Products Classification (CPC)- Version 1.0..

Moreover, recommendations originated in the Andean Community of Nations (CAN by its acronym in Spanish) are applied, for topics related to the measurement of micro, small and medium enterprises (Mypimes); the recommendations of the United Nations Conference on Trade and Development (UNCTAD) in the field of Information and Communication Technologies (ICT)<sup>1</sup>, as well as those recommendations from the International Expert Committee (IEC)<sup>2</sup>, who have evaluated the product generated by the survey.

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<sup>1</sup> Since 2006, the FAM includes in the EAM form, the module of Information and communication technology – ICT – that allows to know the usage of these technologies by the manufacturing industry..

<sup>2</sup> In the Andean Center for Advanced Studies (CANDANE), pursuant to Decree 3851 of 2006, the assessment of industry statistics was advanced during the month of September 2007. In order to start this process, the support from CIS

## **2.2 STATISTICAL DESIGN**

### **2.2.1 Basic components**

#### **Type of statistical operation**

Statistical operation applied in the EAM is the census method for manufacturing establishments of Colombia, composed by ten or more employed individuals or a production value which is established annually.

#### **Universe**

The universe of the Annual Manufacturing Survey consists of the total of industrial establishments which are operating in Colombia and are defined as Industrial. The reference classification corresponds to the International Standard Industrial Classification of All Economic Activities adapted to Colombia (ISIC Revision 3. 3 A.C.)

#### **Target population**

The EAM target population consists of two types of establishments operating in the country and which are defined as industrials; those are all establishments with ten or more employed individuals or a production value established annually. These establishments are selected according to the International Industrial Classification adapted for Colombia (ISIC, Rv.3 A.C)

Taking into consideration the census results of 1954, DANE created an industrial directory which is updated each year according to the methodological framework adopted for each

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*Independent Commission of Experts, made up by Rafael Antonio España Gonzalez, Director of the National Economic Trade (FENALCO), Juan José Obagi, Associate Professor at the Pontificia Universidad Javeriana, and Fernando Cortina Garcia, General Deputy Director of Statistics of the service sector in the Institute of Statistics of Spain (INE) was given. With the certification of the EAM, the research data enters to the database or DANE's repository of information, called Colombian Data Infrastructure (ICD by its acronym in Spanish).*

survey. Following aspects are considered in the updating process: the census results, the industrial directories published by guilds like ANDI and ACOPI, Chambers of Commerce and institutions such as Social Insurances amongst others. Furthermore, the annual application that has been carried out by DANE annually since 1895, which is a short survey that allows detecting and incorporating new sources that comply with the established methodological requirements for inclusion, is also taken into account during the updating process.

### **Coverage and geographic disaggregation.**

The Annual Manufacturing Survey has been developed by adding information about the industrial establishments operating in the country; for this reason, the obtained results have the national coverage divided by metropolitan areas and departments of Colombia. The concentration level established by the framework of each survey and the industrial activity classification determined by The International Industrial Classification of all economic activities (ISIC) are taken into account.

### **Statistical Unit**

The industrial establishment is the unit of analysis and observation of the Annual Manufacturing Survey.

### **Statistical Framework.**

The base directory of sources to be investigated is developed by taking into account the updated directory of the last year survey which consists of the information about the establishments which provided that information, the information about the establishments that were added as new, as well as those that did not provide information due to being fully inactive or not being located in the sampling period, excluding liquidated establishments or those which changed their economic sector. During the survey period, the establishments which comply with the established inclusion requirements are being included. These establishments are detected through a mini-survey executed by DANE or are obtained from the directories from Chambers of commerce, trade unions and guilds.

## **Directory structure.**

The base directory of sources to be surveyed in the Annual Manufacturing Survey presents the following structure.

- Enterprise identifier
- Establishment identifier
- Industrial Activity (ISIC Rev. 3 A.C.)
- Name or corporate name of the enterprise.
- Commercial name of the Enterprise.
- Municipality and address where the management office is located.
- Department which the municipality belongs to or where the management office is located.
- Name or corporate name of the establishment.
- Commercial name of the establishment.
- Establishment address
- Municipality where the establishment is located
- Municipality's department where is located the establishment.
- DANE's Territorial branch that collects the information.

Based on the information from the directory, preliminary process of filling out the questionnaires is conducted, where the information about the establishments which will be surveyed is provided.

## **Directory for territorial branches**

This directory consists of the establishments assigned to each one of the DANE's territorial branches. This directory was developed in such a way that the personnel in charge of the survey can develop a precise control of all processes of their jurisdiction.

## **Directory for DANE Central**

This directory is created in such a way that the personnel in charge of the survey can control the survey operation's development nationwide.

### **Nomenclatures and classifications**

In order to carry out the Annual Manufacturing Survey, DANE applies different types of classifications required for both the development and the fulfillment of the survey's objective.

In 2000, the International Standard Industrial Classification of All Economic Activities adapted for Colombia (ISIC Revision 3. 3 A.C.) as well as the Central Products Classification (CPC Version 1 adapted for Colombia) were incorporated to the EAM, in order to fulfill with the sectoral statistical needs and requirements nationwide and abroad.

The industrial activities developed by the investigated establishments are organized and grouped taking as a reference the ISIC classification, while the manufactured products as well as the raw materials consumed by those establishments are presented following the CPC model. According to the ISIC Rev. 3 adapted for Colombia by DANE and based on the recommendations from the United Nations, the EAM structure presents four classification levels for the industrial activities developed by manufacturing establishments.

Level 1 Section (1st letter): It identifies the economic sector

Example: D manufacturing industries

Level 2 Division (2 digits): It groups the homogeneous manufacturing activities by production class.

Example: 15 Manufacture of food products and beverages

Level 3 Group (3 digits): It joins homogeneous manufacturing activities by type of production.

Example: 151 Production, transformation and conservation of meat and fish.

Level 4 Class (4 digits): It identifies the specific homogeneous manufacturing activities according to their production.

Example: 1511. Production, processing and preserving of meat and meat products

In 2000, the Central Products Classification -CPC Rev. 1.0.- developed by the United

Nations and adopted by DANE was incorporated in the Annual Manufacturing Survey's statistical process. The CPC is a complete classification which includes goods and services. Its main purpose consists of providing a general framework to conduct an international data comparison coming from different kinds of statistics that data present by types of products. Therefore, one of the main CPC characteristics, as general classification, consists of providing more detailed information than the other specific sectoral classification systems.

The CPC objective is to provide an international statistical comparison framework related to goods and services. It was designed to encourage the harmonization among different economic statistical sectors and strengthen the role of National Accounts as a coordination instrument of these statistics.

The CPC includes categories for all the products that can be subject of national and international transactions or that can be stored; in other words, it homogeneously groups all products that can be a result of some economic activity. Each class is sorted by goods and services are produced exclusively or predominantly in one ISIC class. However, it must be taken into account that not in all cases, an univocal relation between the ISIC and the CPC can be obtained, since goods or service can be produced with certain frequency in different activities.

The Central Products Classification Version 1.0 A.C. is supported on a system of exhaustive and mutually exclusive categories. The categories that compose this classification are structured in a way that the most possible homogeneity can be obtained inside each one of the categories, and are mainly based on physical properties, intrinsic nature of products, as well as their industrial origin, which enables a close relation with the ISIC Rev 3 A.C. and, at the same time, uses the headings and sub-headings of the Harmonized System of goods assignment (HS). This conceptual integration enables identifying a high grade of physical homogeneity of products with the activity where mainly or exclusively their production is done, defining them according to the International Trade. The CPC Ver. 1.0. Adapted for Colombia by DANE presents five classification levels for manufactured products and consumed raw materials by the industrial establishments, according to the United Nation's recommendations and guidelines. The CPC structure adapted to the sector is presented below.

Level 1 Section (1 digit). It gathers the homogeneous genres of products

Example:

**2 Food products, beverages and tobacco; textiles, apparel and leather products**

Level 2 Division (2 digits). It gathers similar variety of products

Example:

**28 Knitted or crocheted fabrics; wearing apparel**

Level 3 Group (3 digits). It groups types of homogeneous products.

Example:

**282 Wearing apparel, except fur apparel**

Level 4 Class (4 digits): It joins homogeneous products according to their manufacturing type.

Example:

**2821 Panty hose, tights, stockings, socks and other hosiery, knitted or crocheted**

Level 5 Subclass (5 digits): It gathers homogeneous products, according to their intrinsic nature and manufacturing grade.

Example

**28210, Panty hose, tights, stockings, socks and other hosiery, knitted or crocheted**

Reference period

The requested information refers to the fiscal year (t-1) preceding the data collection year (t). Thus, for 2009 (data collection year), the requested information would correspond to the 2008 survey.

### **Data Collection Period**

The assigned time for data collection process is approximately six months in the year following the year of reference. Data collection is being carried out simultaneously with processes of critique, capture and validation; in the year following the year of reference.

### **2.2.2 Design of indicators**

Since 1955, DANE has gathered information related to the most significant economic

indicators recommended by the United Nations with the purpose of developing the Annual Manufacturing Survey. The principles that have been taken into account for the survey design are: objectivity and transparency in the data collection process, historical continuity and compatibility of the statistical series as well as their international comparability. In this sense, the indicators which are generated nowadays were determined and defined starting from the first Industrial Census. These indicators are presented below:

### **Number of establishments**

It corresponds to the total of industrial establishments that provide the required information relevant for the survey, according to the annually agreed framework, presented in the statistical tables released by DANE.

DANE decided to keep in the directory and process annually the information of those establishments which, without fulfilling the agreed inclusion parameter for each survey, register a relevant annual production value classified regionally or by industrial clusters<sup>3</sup>.

### **Employed personnel**

It corresponds to the number of employed individuals in each establishment, in other words, the total of number of individuals working and depending on this job to survive. This indicator also includes individuals who are working without a fixed remuneration: owners, company partners and relatives.

The following individuals are not taken into account as employed personnel: workers with unlimited and non-paid leave, individuals who are undertaking military service, retired, members of boards of directors who are paid only for meeting attendance, owners, company partners and their relatives who are not working in the establishments and workers who are not part of the production process.

The sum of the current categories- professionals, technicians and technologists of production (national and foreign), permanent as well as temporary (directly contracted by the establishment or through job agencies) plus the workers and operators of production contracted in a similar way as mentioned above - equals to the production personnel. On the other hand, the current category, Employees from Administration and Sales (permanent as well as temporary and contracted directly by the establishment or through

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<sup>3</sup> These establishments must not be taken into account as a representative group of the industrial establishments that employ less than 10 people.

job agencies), equals to the administration personnel, with the same contraction options as previously mentioned.

Concerning the enactment of Law 789 of 2002 referred to the compulsory recruitment of apprentices and trainees, in 2003 was included in the survey this new occupation category. However, this is not counted in the total number of employed persons in the establishments. This information is released in separate tables.

### **Occupation categories**

The employed personnel by the establishment is classified by gender, with attention to the following categories:

- Professionals, technicians, and technologists of production (national or foreign)

This category refers to all individuals who are directly engaged in the productive activities or tasks, directly related to the production process. The category includes following engineers: mechanic, chemical, industrial, electric, etc as well as technicians and technologists who are working directly in the production area.

- Workers and operators of production

It corresponds to the employees who work in areas such as: manufacturing, assembly, installation, maintenance, inspection, storage, loading and unloading. Normally, these employees are: workshop messengers or personnel, firemen, machinery cleaning staff, supervisors and foremen who work manually, drivers of vehicles that transport raw materials, common materials or products inside the establishment, employees who work on repair and maintenance (mechanic, electrical, etc) of machinery and industrial equipment; administrative heads and supervisors who work on the regulation of worker, surveillance and service staff. It is included in this indicator the apprentices of reformatories, orphanages or similar entities who produce goods and services with a commercial value, as well as the apprentices who work in the establishment's productive area for a defined period of time, where they receive a special training for a specific profession, art or duty and are paid with a salary (cash or in kind).

- Administration and Sales Personnel

It is composed by the individuals who manage the economic, financial and administrative aspects of the enterprise and whose job is to develop and manage the enterprise's general politics. This personnel consists of managers, deputy managers and directors and it also includes the administrative heads, supervisors, salesmen, distributors and delivery men (as long as the establishment is in charge of the headquarter and the remuneration).

This indicator does not take into account the staff working in warehouses, administrative offices, manager offices and other auxiliary units that do not depend directly on the establishment or are located on a place geographically different from the production plant.

### **Types of contract**

- Owners, partners and family workers without fixed remuneration.

Owners and partners of an enterprise are defined as those individuals who work in a establishment without receiving a defined salary; in consequence, they gain their incomes from the profits.

Family members who work without fixed remuneration, owner's relatives who work in an enterprise without receiving a salary, for a period less than the third part of a normal working day (fifteen hours per week). These workers do not take part in the enterprise's management.

If an owner, partner or a family worker has an assigned fixed salary it must be included in the category it belongs to, according to the work he/she performs.

This occupation category is related to the establishments which operate under the legal denominations as: natural person, sole proprietorships, limited liability company, solidarity economy, corporations in fact and limited partnership.

- **Permanent personnel**

Permanent personnel is defined as plant or payroll personnel with a direct relation with the

establishment , through an indefinite term contract. Until 1996, with the purpose of developing the EAM, the information according to the payroll to November 15 or the earliest date for which data were available was requested. Since 1997, it is requested only the annual average.

- **Temporary personnel directly contracted by the establishment**

It corresponds to the personnel with a direct relations with the establishment through a fixed-term contract for developing specific activities with an agreed payment.

- **Temporary personnel contracted through the hiring agencies**

It corresponds to the personnel (year average) without a direct relation with the establishment, but contracted through agencies or enterprises specialized hiring personnel to develop specific functions in the industrial establishment.

- **Wages and salaries paid to the employed personnel**

Defined as the fixed or ordinary remuneration paid to the employee in money or in kind, as a periodic salary or a payment , involving compensation for the rendered services to the establishment, before deducting the discounts for withholding tax, social security contributions, union, employees funds and similars.

This indicator includes: Integral salary<sup>4</sup>, wages and salaries (overtime, etc), sales commissions, travel allowances, salaries in kind and other expenditures that constitute the salary itself under dispositions of the Colombian Labor Regime and the Substantive Labour Code.

### **Accrued social contributions**

It refers to amounts the employee receives periodically or occasionally from the employer, according to the Colombian law. Those contributions are defined as: the ordinary social contributions, the special social contributions and the legal or agreed overtime, different from wages or salaries, established by the Colombian Labor Regime and the Substantive Labour Code.

### **Gross production**

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<sup>4</sup> Campbell C. Legal Aspects of Doing Business in Latin America. Volume 1, par 151, 2007. See the Glossary below for the definition.

The gross production value is equal to: “the value of all the products manufactured by the establishment” plus “ incomes as a result of industrial subcontracting developed for others” plus “The value of the sold electricity”, plus “ the value of incomes obtained by the Tax Reimbursement Certificates (CERTs)<sup>5</sup>” plus “the value of the stock of products in manufacturing process to start the year, minus the value of products in manufacturing process to finish the year plus the value of other operation incomes such as the incomes generated due to the rent for produced goods as well as the installation, maintenance, and repair of goods produced by the establishment

The following paragraph shows the variables which compose the Gross production:

**Value of manufactured products and sub products in the year:** Defined as the value of all products manufactured by the establishment with sales purpose and the products sold or part of the establishment’s inventory. It also includes the intermediate products which have been transferred from an establishment to another one of the same enterprise, the resulting waste from the manufacture process; the intermediate products with sales purpose and those sold or part of the inventory which are valued as factory price.

**Incomes obtained through the industrial sub-contracting:** It is defined as the amount given by third party, industrial as well as non-industrial, for industrial work (Product manufacturing) where raw materials, materials as well as packaging, supplied by those third establishments have been consumed.

**Amount obtained through the installation, repair and maintenance of products manufactured by the establishment:** It corresponds to the incomes obtained for the installation, maintenance and repair of products manufactured by the establishment.

**Rent of goods produced:** Concerned as the incomes obtained by the establishment from the rent of manufactured when those are not destined to sale purposes.

**Value of sold electricity:** Defined as the amount obtained for selling electricity, purchased or generated by the establishment.

- **Value of the incomes obtained by CERT:** It corresponds to the discounts obtained

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<sup>5</sup> CERT: (P)

during the year due to export activities of products and sub products manufactured by the establishment

- Stock items in manufacturing process at the beginning and in the end of the year, valued at production cost.

### **Intermediate consumption**

It corresponds to the value of all the consumable goods used by the establishment in the production process. It includes the following variables: raw material consumption, materials and packaging valued as acquisition price (without including indirect taxes), purchased electricity, industrial subcontracting expenditures, expenditures by developed industrial activities developed by home-sourced workers, gifts and free samples, consumed accessories and spares, other consumed energy resources, public utilities (water, post service, telephone, etc.) technical fees and services, expenditures for maintenance and repair services, insurances (excluding the social contributions), leasing chattel and real estate.

The variables that take part in the intermediate consumption's calculation are defined as follows:

- Value of the consumption of raw and packaging materials: It corresponds to the factory cost (excluding indirect taxes and inflation adjustments) of all physical elements incorporated into the products manufactured by the establishment and those relevant for its manufacturing or constituted in the packaging material and the final presentation, although they are not part of the final product itself. Therefore, the value of all raw materials, materials and packaging consumed by the establishment in the development of their products are included into the value of production.
- Value of the purchased electricity (only the imputable to the manufacturing process): It corresponds to the price of kilowatts (KW) acquired by the establishment to keep the industrial plant operating.
- Value of indirect manufacturing costs and expenditures: This is the value of indirect costs (excluding indirect taxes and inflation adjustments) and expenditures incurred by the establishment for the development of its industrial activity and therefore, only imputable to this activity.

In order to perform the Annual Manufacturing Survey, some basic aspects in the industrial process have been identified and are listed below:

- Value of expenditures by the industrial work performed by third parties: It corresponds to the price charged by third parties for manufacturing and finishing processes of products developed for the establishment, when the total or a part of the required raw materials is delivered.
- Value of expenditures by industrial work developed by home-sourced workers: This refers to the amount charged by natural individuals who perform a completely industrial work at home and do not have any employment relationship with the establishment.
- Gifts and free samples value (only imputed to the manufacturing process): It corresponds to the value of those products which are included as production costs and are distributed as gifts or free samples for promotional purposes.
- Value of maintenance, accessories and spares consumed (only imputed to the manufacturing process): This refers to costs of the maintenance, preservation or repair of industrial machinery, equipment, accessories and spare parts consumed (for less than 1 year), which are property of the establishment.
- Value of other energy resources consumed (only imputed to the manufacturing process): Includes the accrued value by means of fuels (except for automobiles) consumed by the establishment to power up the machinery and industrial equipment as energy or fuel for furnaces or just for generating electricity.
- Value of water, mail, telephone utilities consumed (Only imputed to Administration and Sales) Defined as the value accrued by public utilities consumed by administrative offices, agencies or commercial properties.
- Fees and technical services (only imputed to the manufacturing process): It correspond to the value accrued by sporadic, casual or accidental contracting of natural person or legal entities, for providing professional or technical services in the production process of the establishment.
- Insurance, excluding social benefits (only imputed to the manufacturing process): It includes the expenditures accrued by premiums and insurance policies that protect the assets, products, raw materials and packaging materials, property of the establishment.

- Real estate leasing (only imputed to the manufacturing process) concerns the value accrued by the use of buildings where the production process of the establishment is developed.
- Machinery and equipment leasing “in purchase option” (only imputed to the manufacturing process): It corresponds to the expenditures accrued by the leasing (without purchase option) of industrial machinery and equipment.

### **Value added**

The value added corresponds to the total incomes received for the use of production factors involved in the production process during the surveyed period (land, capital, labor, business organization). DANE calculates the value added as the difference between gross production and intermediate consumption.

- **Expenditures of administration and sales:** Under this heading are surveyed all the expenditures accrued (excluding indirect taxes and inflation adjustments) for all non-industrial services provided by other establishments or individuals, imputed to the administration and sales of the establishment.

These costs are explicitly requested and they correspond to the following:

- Sale cost of non-produced products and non-transformed raw materials: Refers to all the products and goods which weren't manufactured by the establishment, sold in the same conditions as they were purchased before. It includes the cost of raw materials, materials and packaging acquired in order to be used in the production process, for different purposes. Since these materials were neither consumed nor suffered any transformation in the manufacturing process, they were sold.
- Gifts and free samples value (Only imputed to Administration and Sales): It corresponds to the value of those products which are distributed as gifts or free samples with promotional purposes and included as sale costs.
- Value of maintenance, accessories and spares consumed (Only imputed to Administration and Sales): It refers to the accrued value from repair and maintenance services, as well as accessories and spares consumed for the conservation of administrative offices, agencies or commercial premises, made by natural person or enterprises. It also includes the amount charged

for repair works, the value of parts and accessories consumed for office equipment, computers and motor vehicles for the transportation of people from administrative offices, agencies or commercial properties.

- Value of consumed water, mail, telephone utilities (Only imputed to Administration and Sales) is the value caused by public utilities consumed by administrative offices, agencies or commercial properties.
- Fees and technical services consumed (Only imputed to Administration and Sales): Corresponds to the value accrued by sporadic, casual or accidental contracting of natural persons or legal entities, for the provision of professional or technical services to the administration and sales of the establishment.
- Insurance, excluding social benefits (Only imputed to Administration and Sales): It involves the expenditures accrued by bonuses and insurance policies that protect the assets, property of the establishment.
- Real estate leasing (Only imputed to Administration and Sales): It corresponds to the cost of the use of buildings where sales and administrative activities of establishments, agencies or commercial premises are performed.
- Lease (with option to purchase) of machinery and equipment used (Only imputed to Administration and Sales): It refers to the expenditures incurred (without the purchasing option) of machinery, office equipment, computers and communications leasing.
- Cost of purchased electricity: Refers to the consumption value of the establishment's offices, agencies or commercial premises.
- Advertising and publicity: Defined as the costs incurred by the establishment to publicize and advertise their products.
- Accrued royalties: It corresponds to the price charged by companies, natural persons and legal entities, as compensation for the use of trademarks and patents, subsoil exploitation, copyright, exclusivity, etc.
- Direct Taxes (industry and commerce, property, etc.): Defined as the expenditure caused by taxes or mandatory charges for the state such as: the industry and commerce tax, property taxes, etc; which are different from

the income tax, complementary tax, and value added tax (VAT) and consumption tax.

- Loan loss provision (LLP) expenditure, inventories and other: It refers to total of provisions made by the company to cover potential loan losses, inventories and other.
- Accrued depreciation: Corresponds to the annual decrease in the value of fixed assets as a result of their use, wear or obsolescence.
- Other costs and expenditures of administration and sales not included above: Refers to other costs and expenditures of administration and sales incurred by the company such as: sales commissions to third parties, freight and haulage, stationery, office supplies, books and subscriptions, etc.

### ***Electricity consumption (KW)***

This indicator involves the number of kilowatts (KW) of electricity consumed by the industrial establishment during the year. This indicator is obtained by deducting the sold KW from the purchased (KW) plus the generated KW.

### **Inventory variation**

DANE has divided this information collection into four large categories:

- Inventory of raw materials, materials and packaging: It includes the value of raw materials, materials and packaging which are valued as a final cost of production, at the beginning and at the end of the year.
- Inventory of goods during the manufacturing process: It comprises the value of products which have not yet been finished at the beginning and at the end of the year and were valued at production cost until that moment.

Inventory of finished products: it includes the value of all finished products and sub products which are valued as the final cost of production at the beginning and at the end of the year.

- Inventory of products which weren't manufactured by the establishment: It corresponds to the value of all products purchased by the establishment which are sold without any transformation

process and are valued as the final cost of production at the beginning and at the end of the year.

### **Fixed assets ledger value**

It corresponds to the book value of all fixed assets of the establishment, defined as those relatively durable goods, not intended for sales, which are used by the establishment to develop its industrial activity. It includes all physical assets that are expected to contain a productive life of more than one year, as well as all those extensions, additions or improvements and relevant renovations that extend the assets' economic life or normal economic efficiency.

Regarding of the Annual Manufacturing Survey, DANE has grouped all fixed assets into two main groups: depreciable and non-depreciable, as presented bellow

#### **Non-depreciable fixed assets**

- Land: Terrains acquired for development of the industrial activity.
- Constructions in progress: It includes the costs incurred by the establishment as a result of construction or expansion of buildings dedicated to the development of its business, such as plants, warehouses, offices, etc.
- Machines in assembling process: It corresponds to the value of machinery acquisition plus the corresponding value of costs and expenditures incurred in assembling of such.
- Other non-depreciable fixed assets: It includes the assets, different from those previously mentioned, which are property of the establishment.

#### **Depreciable fixed assets**

- Buildings and structures: Comprises the facilities, storage structures, piers, brick kilns, blast furnaces, oil refineries, shipyards, etc. this group also includes those elements that are an integral part of buildings and structures, such as: heating equipments, gas extraction or ventilation elements, air conditioning, etc.
- Machinery and equipment: It corresponds to both the industrial machinery and equipment purchased or manufactured by the establishment for its own use,

exclusively dedicated to the manufacture process of products. It includes the returnable packaging in industries such as: dairy and beverage.

- **Transportation elements:** It refers to all vehicles and transportation elements owned by the establishment, such as: tanker trucks, trucks, cars and other means used for mobilization or transportation of raw materials, products and people.
- **Office equipment:** It comprises all the establishment's physical office resources such as: typewriters, microcomputers, computers, printers, desks, filing cabinets, photocopying equipment, etc, as well as capital goods related to the administration and sales. Stationery and office supplies are excluded.

### **Accrued depreciation in the year**

It corresponds to the annual value which is set as replacement for deterioration, usage or obsolescence of the establishment's fixed assets during its useful life.

### **Gross investment**

It refers to the of investments in new and used fixed assets, manufactured for its own use or received as a transfer from other establishments, minus the sales, withdrawals and transfers of fixed assets owned by the establishment.

The relevant variables for Gross Investment's calculation are presented as follows:

- **Purchase of new fixed assets:** It comprises the acquisition value of fixed assets that have not been previously used in the country, including all those imported assets, new and used, since the latter are new to the country. It also includes the cost of extensions and improvements made to extend the asset's useful life or to increase its productivity.
- **Purchase of used fixed assets:** Corresponds to the acquisition value of fixed assets previously used in the country. It also includes the reconditioned equipment, facilities, buildings, land, etc.
- **Fixed assets produced or constructed by the establishment for own use:** This indicator refers to the fixed assets value produced in the establishment by the payroll staff and within its industrial activity context.
- **Fixed assets received as a transfer:** Refers to the value produced between

establishments which belong to the same business organization. It includes physical or accounting movement as well as transfers between accounts, such as construction in progress to buildings and structures or machinery in assembling process to machinery and equipment.

- Fixed assets sales value: Corresponds to the value of fixed assets, which were sold during the year and are property of the establishment. According to the fixed asset's book value at the selling time, it shall be excluded from any profit or loss margin.
- Disposals of fixed assets: It refers to the book value of fixed assets that are no longer used in the development of the establishment's economic activity, due to their obsolescence, irreparable damage, loss, etc.
- Transfers of fixed assets: It comprises the book value of those assets at the moment of being sent or transferred to another establishment of the same company or to another account.

### **Net investment**

Defined as the result of deducting the annual depreciation from the Gross Investment

### **Annual production, sales and stocks**

It comprises the following aspects: production, nationwide and abroad sales as well as transfers of manufactured goods during the year to other establishments of the same company and stocks (till December 31st). It also includes the quantities and value of all products manufactured by the establishment for selling purposes, even if these have been sold or become part of the inventory, the intermediate products transferred to other establishments of the same company for their completion, the production wastes which are intended for sale, the products manufactured by others who were given the necessary raw materials for their manufacture, fixed assets produced for the establishment or enterprise's own usage, and the products made for other establishments that provided the necessary inputs for their manufacturing. The amount and sales' value by product have been included since 1992 and starting from the year 2000, the figures include the foreign sales percentage as well. .

### **Purchasing and consumption of fixed assets**

It refers to the process of buying and consuming of all items physically incorporated into the finished products and those necessary for its manufacture or for its final packaging and presentation, even though they were not part of the final good.

Includes consumption according to the source (domestic or foreign), the purchase and transfer of raw materials (received or sent to other establishments of the same company), and packaging materials used by the establishment in its production process. Includes quantities and value of raw materials, packaging materials and consumed, the amounts received or sent to other establishments of the same company, those provided to other for their processing, the materials applied in the production of fixed assets for use of the establishment or company to which it belongs, as well as those received from third parties for their manufacture.

Purchase value and quantities and value of purchases by product have been included into the survey starting from 1992 and since the year 2000, the percentage of foreign consumption has been included as well.

### **Other surveyed variables**

- Sales of products and sub products manufactured by the establishment or received from other establishments of the same company.

Refers to the sales total, nationwide as well as abroad, made by the enterprise during the year. It includes products and subproducts manufactured by the establishment, including remainders and imperfect products, those manufactured by third parties which were given the raw materials and finally, the products received by transfer from other establishments of the same company for their trading.

- Sales of products which were not manufactured by the establishment (including raw materials)

This category refers to all goods (including raw materials and packaging materials) purchased and sold in the same condition in which those were obtained, in other words, products without any transformation process.

- Income from products manufactured for third parties (industrial and non-industrial)

Corresponds to the revenue received for the manufacturing of products made for industrial and non-industrial third parties that provided all or part of the raw materials for such manufacture. These profits are generated through sales inside the country and abroad.

- Selling electrical energy

Corresponds to the revenue obtained through the sale of electricity during the year.

- Other incomes obtained from industrial services (installation, repair and maintenance, amongst other.)

Refers to incomes from the activities related to operations of the establishment's activity which do not take into account the processing of raw materials into new products. Those revenues are those obtained by installation, repair, maintenance, services on lathing, painting, metal treatment, etc. This income is generated through sales inside the country and abroad.

- Other operational incomes

Includes revenues from activities related to the manufacturing sector not listed above.

- Purchases of raw materials, materials and packaging made in the year.

Corresponds to the purchases of inputs made nationwide and abroad during the year.

- Other energy sources consumed

It includes the quantity and value of other energy sources different from electricity, which were consumed in the development of the enterprise's activity during the year. Includes crude oil, diesel oil (diesel), fuel oil, gasoline, kerosene, natural gas, propane gas (LPG), coal, coke, charcoal, wood, bagasse, rice husks, coffee husks and palm waste.

### **2.2.3 Design of instruments**

In order to achieve a higher and better efficiency in Annual Manufacturing Survey's collection, comprehension and analysis processes, a series of instruments that allows the fulfillment of the survey objectives was designed,, namely:

**Directories:** These directories consist of the previous year's survey records; in other words, the establishments that provided information plus those that were admitted as new in the survey, plus those that did not provide the information for being inactive or not being located, minus liquidated ones or those which changed their industry.

**Forms:** one form is employed for establishments and another one for enterprises<sup>6</sup>. The purpose of using the company as a reporting unit is to facilitate the provision of information from the reporting sources and obtain general registration of secondary, auxiliary or complementary activities, different from the manufacturing activity that the enterprise normally performs.

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<sup>6</sup> One enterprise could consist of more than one establishment. In the case of more establishments which are part of the enterprise it will fill out as many forms as the number of establishments and one summary form for the enterprise.

Form E, designed to collect the information from enterprises and their industrial establishments. (See Appendix A)

# Statistical production 3

## 3.1 PREPARATORY ACTIVITIES

In the statistical production processes, a series of preparatory activities are carried out in order to proceed with the data collection and production stage. The first part consists of a prior awareness raising , a data collection training and the staff selection. These previous procedures are described below.

### 3.1.1 Increasing awareness

In this process, the points of view of various industry associations are taken into account, through previously established meetings.

### 3.1.2 Training

The EAM research coordinators are in charge of the training process development, which is addressed to each one of the DANE's territorial branches and auxiliary offices. In general terms, this training process discloses, on the one hand , the survey methodology, on the other hand, each one of the data collection instruments, together with standards, parameters and the effective manner to analyze and verify the information in the EAM forms, as well as detect and correct data inconsistencies. This process also takes into account the use and management of the capture-debugging module in the system.

During the EAM execution and according to the evaluation of the obtained results, DANE's experts and logistic personnel arrange specific visits to the territorial branches and auxiliary offices to detect data inconsistencies, as well as evaluate, correct, and strengthen the hired staff skills. Finally, experts and logistic personnel perform a field supervision about the development of each of one of

the EAM stages.

### **3.1.3 Staff selection**

The selection of required personnel for the EAM development is done in territorial branches and auxiliary offices, as well as at the Central DANE. In Territorial branches and auxiliary offices, this staff selection is required for developing the following processes: Mini-survey application and data distribution, collection, critique coding, capture and analysis; meanwhile at Central DANE, the staff selection is carried out for the developing the processes of reception, analysis, detection and correction of data inconsistencies, as well as the production and checking of output tables.

The procedure stages to follow in the staff selection process are:

- The estimation of resource needs and approval application .
- Public notice
- Evaluation of registrations and development of the first selection according to the required profile.
- Training course taught by the EAM coordinator in each one of DANE's territorial branches and auxiliary offices.
- Placement test.
- Staff Interview.
- Final staff selection.
- Training reinforcement conducted by the Central DANE's methodological team during the EAM operation development.

### 3.2 INFORMATION COLLECTION

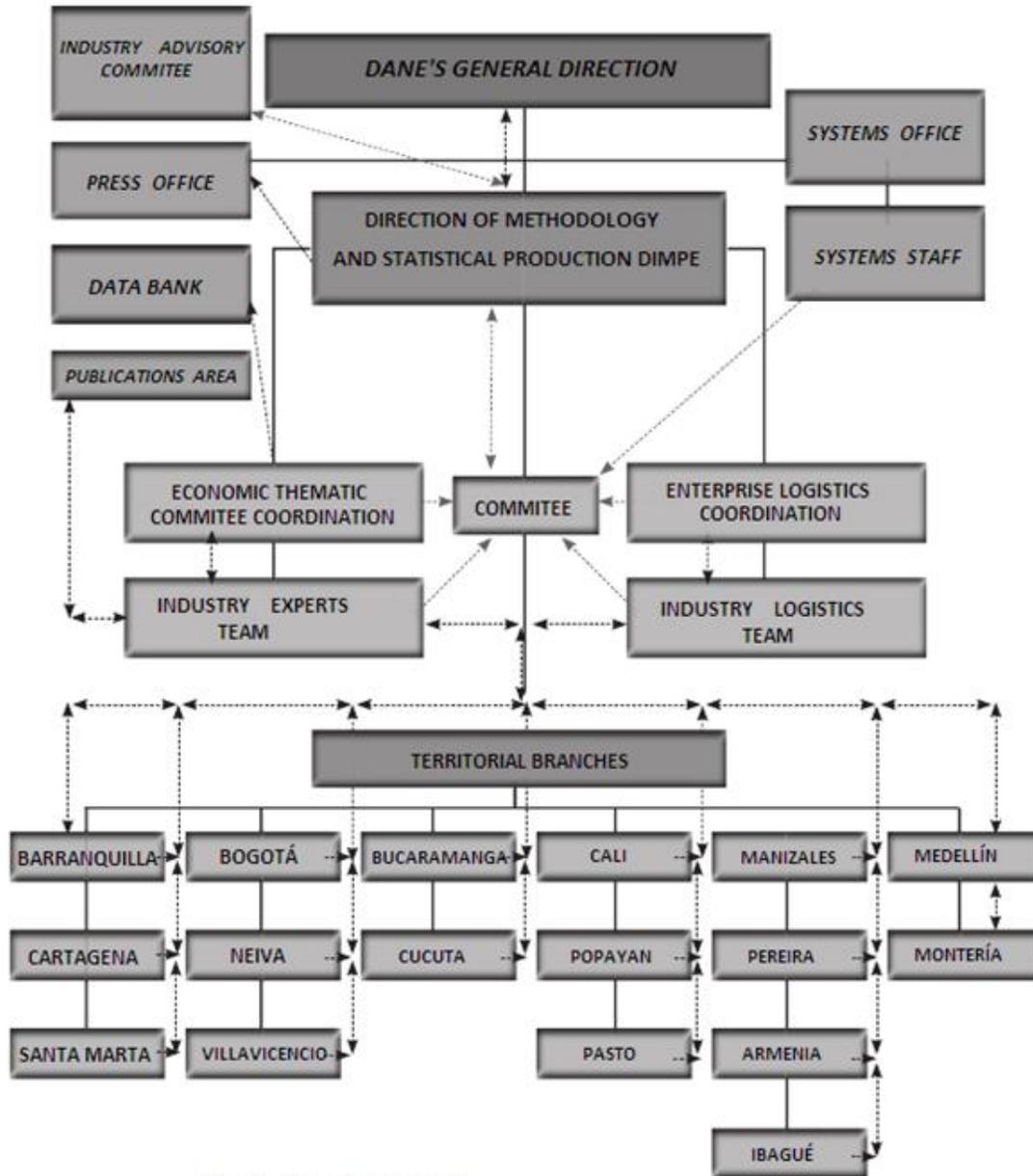
#### 3.2.1 Operative organizational chart

Framed within the DANE's general management system, the Annual Manufacturing Survey has a functional and dynamic structure that ensures the fast and methodical development of different phases involved in their implementation, as follows:

Table 1: Annual Manufacturing Survey's structure.

Activity	Execution Staff
General Coordination, Technical programming	Experts of Industry. Enterprise logistics
Coordination and control of the EAM operation	Enterprise logistics
Distribution, collection, pre-critique, critique, coding and interactive capture-debugging of the EAM forms.	DANE's territorial branches and auxiliary offices Industry teams.
EAM general processing	Enterprise logistics - Systems
Information analysis	Experts of Industry. Enterprise logistics
EAM material edition and printing.	Experts of Industry Publications Area
Results dissemination	DANE's data bank

Chart 1. Organizational chart regarding the EAM Administrative and operative structure



Organization chart's legend  
 ..... Direct office

SOURCE: DANE

### 3.2.2 Operational scheme, data collection method and procedure

This scheme comprises two stages of simultaneous execution at DANE's territorial branches and auxiliary offices: the first stage corresponds to the distribution and collection of forms; meanwhile, the second stage refers to processes such as: criticism, coding, capture-debugging, consolidation and sending of forms to Central DANE. Generally, it includes the following activities:

- Training, recruitment and contracting personnel who shall develop the EAM operation
- Updating the source directory, including the mini-survey results and the inclusion of new reporting sources detected during the year.
  - Organization and adequacy of the survey materials for further distribution
  - Installation and testing of monitoring, control and capture-debugging software.
  - Distribution of forms and filling out instruction manuals to respondent units, according to the appropriate directory.
  - Updating system with the information about distribution deadlines.
  - Control and monitoring of the distribution process. It corresponds to the report concerning the forms' distribution status, produced automatically by the system, based on the directory and the delivery deadlines to each source.
  - Checking and collection of EAM forms whose objective consists of developing a fast and complete data examination, as well as, clarify and correct directly with the respondent the filling out errors to accept or reject the form in direct proportion to its data consistency.
  - Updating systems with the information about the dates of critique and coding
  - Control and monitoring of the collection status. It corresponds to the report regarding the forms' collection status, generated automatically by the system, based on the directory and delivery dates of each reporting source, in each DANE's territorial branch or auxiliary office.
  - Critique and coding of the collected information. This process consists of conducting a thorough analysis of rendered information and also, the rectification, correction or clarification of data without inconsistencies, according to the standards and parameters pointed out in the criticism instructions. It aims to get as high accuracy as possible from the collected data.

- Closely related to the critique process is the process of geographic location coding, which takes into account the information from the political-administrative division of new establishments, new products, new raw materials and those that were not previously filled out, taking as a reference the Central Product Classification.
- Comparative analysis of economic indicators, where each form is compared with both the preceding period forms and the results obtained from the Monthly Manufacturing Sample. This process aims to provide information for the sources these two investigations have in common. . This is done as technical control of evolution of each unit over time.
- Updating systems with the information about the dates of critique and coding Control and monitoring of the critique and coding process. It corresponds to the report about the forms' checking status, produced automatically by the system, based on the directory and delivery dates of forms properly critiqued by the critics.
- Capture-debugging information: Procedure which is performed through the system, which allows on the one hand, capturing in magnetic media all information from each form and on the other hand, performing a strict quality control of both processes, critique and coding.
- Control and monitoring of the interactive capture-debugging process. It corresponds to the report about the status of forms' capture-debugging, which is automatically generated by the system, based on the directory and the termination dates of this process for each respondent source.
- Receipt, consolidation and analysis of the information sent, forms and EAM operation controls from DANE's auxiliary offices. This activity is performed at the territorial branch over all the auxiliary offices of its jurisdiction, taking into account the report provided by the system about the status of distribution, collection, critique, capture, EAM operation novelties and other information sent to DANE Central.
- Process control and regional coverage (including auxiliary offices). Refers to the report on the EAM operation at DANE's territorial branches, provided by the system.. It comprises the status of distribution, collection, critique, capture, and EAM operation novelties as well as other information sent to DANE Central.
- Consolidation and delivery of information and forms to DANE Central. Procedure which is executed by the system with the purpose of consolidating the information and sending electronically the information from forms that are consistent to the DANE Central, according to the established methodological guidelines.
- Evaluation of EAM operation development at DANE's territorial branches. Refers to the report provided by the system about the EAM operation development in each one of the DANE's territorial branches, including the auxiliary offices of its

jurisdiction. It comprises the status of distribution, collection, critique, capture, and EAM operation novelties as well as other information sent to DANE Central.

### **Systems users**

Users will have different levels of access to the system taking into account their duties inside the EAM. Once a user has finished the process of filling out the information requested, after communicating with the respondent source, a different user will have access with another role to modify and adjust the information. Thus, users have a series of functions which are listed below:

### **Respondent unit**

Filling out the form

Changing the password.

Downloading the instruction manuals.

### **Critique staff**

Filling out the form.

Form critique

Changing the password.

Downloading of the instruction manuals.

### **Technical assistant**

Filling out the form

Operative reports for territorial branches

Novelties' assignation.

Changing the password.

Downloading of the instruction manuals.

### **Logistic staff**

Filling out the form

Form critique

Analysis tables.

Consultation and edition of EAM Directory.

Territorial branches reports – Nationwide.

Novelties' assignation.

Directories and plans downloading.

Changing the password.

Downloading of the instruction manuals.

### **Experts staff**

Consultation of EAM Directory

Territorial branches reports- Nationwide.

Changing the password.

Downloading the instruction manuals.

### **Board of directors**

Consultation of EAM Directory.

Territorial branches reports - Nationwide.

Changing the password.

Downloading the instruction manuals.

### **Webmaster**

Critique process

Data reports and analysis tables

Consultation and edition of EAM Directory.

Territorial branches reports - Nationwide.

Novelties' assignation.

Administration of users.

Administration of periods.

Administration of variables

Uploading and downloading backups

Uploading and downloading directories and plans.

Downloading the instruction manuals.

## **Data collection method**

Since the EAM 2008 data collection process done in a self-filling out process throughout an electronic form is applied, for which it was designed a letter model, where is informed to the establishment about the collection scheme that will be applied and is given a login password for accessing to the DANE's website. Subsequently, the establishment develops the reports or information with the permanent assessment from the DANE's collector-critic, following the filling out manuals and instructions until obtaining the information with the established quality and timeliness parameters.

For such establishments that cannot provide the required information through this electronic medium, DANE delivers a physical form to continue the previously mentioned processes.

In order to out this process, DANE applies the (I form) for establishments and a summary form (called E, sum of establishments) for enterprises. These are previously filled out with the identification of the industrial establishment, ISIC Rev. 3 A.C economic activity, inventories, products and raw materials in CPC.

The paper form distribution generally is performed in two ways, depending on the establishment's geographical location:

By mail: This method is applied when the respondent units are located outside the city limits or in municipalities different from the DANE's territorial branch or its auxiliary offices.

By personal visit: The paper form is given to the establishment by an official DANE's employer. This method is applied in difficult access regions (rural areas).

## **Data collection process procedure**

The EAM data collection process consists of making a quick and a complete review of information in order to clarify and correct possible errors which occurred during the fill-out process, thus approve the survey form once its consistency evaluation is done. DANE's staff visits the establishments in cases when: the respondent units are located in municipalities different from the DANE's territorial branches or auxiliary offices, when those are located in rural areas or when the reporting sources refuse to give information to the survey.

The collection process is done through the territorial branches and auxiliary offices. The establishment is informed about the EAM operation's starting date and the deadlines for filling out the forms and sending the survey's questionnaire (in electronic or paper form ), which correspond approximately to 30 calendar days.

The collection system for the EAM 2008 operation was conducted through an online

system, hosted on DANE servers, developed in HTML platform and supported in a MSQL database. This system allows all users to access the electronic form through the DANE's website by clicking on the link "industry", option "Annual Manufacturing Survey's filling out instrument."

Each user will have an assigned username and a password, which can be changed through the system for security reasons. This module allows filling out and consulting the survey forms as well as the management and consultations to the EAM directory. Although the process of filling out information is done by the respondent units, the system allows any user to perform this work at any given time. Through these forms, the advancement level of the EAM can be monitored in a realtime as operational as thematic level.

The application controls the number of captured, debugged and respondent units which did not report information on time, control of the survey directory by territorial branch and national total. It allows the logistics team to have the system's autonomy, to create, modify or delete users from the system. In this module, Different users can find the instructions and manuals that facilitate the process of filling out the form and the general system handling. The collection system for the EAM 2008 operation was conducted through an online system, hosted on DANE servers, developed in HTML platform and supported in a MSQL database. This system allows all users to access the electronic form through the DANE's website by clicking on the link "industry", option "Annual Manufacturing Survey's filling out instrument."

### **Supervision and control of data collection operation**

The system is supported by an interactive module of EAM operation control and monitoring which allows performing a strict daily monitoring and control of stages such as: distribution, collection, critique , capture-debugging and receipt of forms in all territorial branches and also DANE Central. This is how the system is basically designed, with the information given below:

1. Base directory of respondent units to be surveyed, according to the previous year survey.
2. New potential respondent unitss to be surveyed, according to the mini survey results.
3. Respondent unitss received by transfer from other territorial branches.
4. Respondent unitss sent by transfer to other territorial branches.
5. Total respondent unitss to be surveyed (1 +2 +3-4).
6. Distributed units (according to the delivery date to the source).
7. Undistributed units.
8. Respondent unitss which did not not report the information on time, whose collection deadline has

not expired.

9. Respondent units which did not report the information on time whose collection deadline has expired.

10. Collected respondent units (according to the receipt date at DANE).

11. Critiqued respondent units and code of the official who performed this work (according to the critique process completion date).

12. Respondent units that entered the system (not debugged for having errors) and the code of the official who performed this work.

13. Debugged respondent units which are not sent to DANE Central.

14. Respondent units sent to DANE Central.

With the information obtained through this module, a summary table is generated. Through this table, the development of each of the different stages of the survey and its coverage can be seen, as well as the process status of each form.

### **Classification and organization of the surveys**

This process consists of consolidating the information obtained through the questionnaires from the territorial branch or auxiliary office, verifying the coverage (sources that provided information, sources who did not report the information on time or sources with novelties) and submitting the information to the statistical production group. These EAM forms present an important element for further information query and shall, therefore, be sent to DANE Central. These shall be sent to DANE Central.

Each territorial branch sends an electronic version of information provided by respondent units. Once the logistics section of enterprises receives the information, these start downloading it from the EAM application, consolidating and issuing the required lists (novelties, enterprises which did not report the information on time).

Since the EAM operation in 2008, it has not been necessary for DANE's territorial branches to send information because the online form allows checking the information at the required time. The survey's support will be the database that will remain on DANE servers; therefore, the information directly entered by the source as well as the information obtained in paper form shall be passed to the electronic form.

## **Codification and critique procedure**

Critique instruction manual: DANE has developed an instruction manual made of standards and procedures for a proper handling of information, specifications about consistency and validation and the ways to assure information quality. This instruction manual is used in the critique stage, which is applied to the electronic form as well as for the paper form through a data sheet generated by the capture application linked to the survey's methodological principles, described in the critique manual, which is generated by DANE Central and distributed to the territorial branches and auxiliary offices.

Once the respondent source enters the information and clicks on the option "send", that information is received by the critic staff. In that moment, the critic starts the data review, in order to discuss with the source all possible inconsistencies detected in the information provided and perform the required adjustments.

ISIC Rev. 3 A.C Classification Manual: Allows setting the main activity of the establishment in a unique and concise way. It presents the industrial classes with inclusions and exclusions in a complete and comprehensive way. The products' codification is carried out as a part of the critique process, which is done through the electronic form, bearing in mind that, although the respondent units present the information in a physical media, at the end of the EAM operation it must be transferred to the electronic form.

CPC Classification Manual: Presents the CPC structure which is composed, in its more disaggregated level, by subclasses consisting of groups of products typical for ISIC activities. This classification becomes the basic tool used to assign specific codes to the information provided in Chapters VIII and IX of the survey forms. Raw materials codification is carried out as a part of the information critique process and through the electronic form, concerning that-although the respondent units present the information in a physical media- at the end of the EAM operation, this information shall be transferred to the electronic form.

## **3.3 DATA TRANSMISSION AND PROCESSING**

### **3.3.1 Data transmission to DANE Central**

This process refers to all activities directed to incorporate into the system the information contained in paper form, by inputting the capture application. As a result, the .dbf tables

(Capture Application designed in FoxPro) are created in order to consolidate the information obtained from the paper forms. It should be noted that the capture is done through software and that this is the point when the final corrections or clarifications are being made, all this with the intention of validating the data while filling it out. The entire capture process in the territorial branches is accompanied by guidance, supports and assistance from the Systems Office in each territorial branch and Central DANE.

Same as in the case of critique process, this activity involves assessing the quality of work which is being performed; as a result, each time any partial information and forms are delivered to Central DANE, their corresponding indicators are also generated and sent back to territorial branches or auxiliary offices. The capture is done through a system developed in Visual Fox Pro, which validates and creates the utility programs to send the information to Central DANE, as well as creates information backups and new users, among other tasks.

Starting from 2008, the capture system used for the operation of the EAM is performed through an online system, which gives access to information in real time, eliminating the processes of information consolidation and submission from DANE's territorial branches and auxiliary offices to DANE Central.

#### Files consolidation

The classification of records in the database is done according to the Metropolitan Area, Department, Municipality and relevant variables such as: Number of establishments, employed personnel, etc. At this point, the analysis of all the information and forms delivered is carried out, as well as the operational control of the auxiliary offices. This activity is executed at DANE's territorial branches and subsequently at their auxiliary offices according to the report provided by the system, regarding the status of distribution, collection, critique, capture, EAM operation novelties and information delivered DANE Central. When inconsistencies appear, debugging process starts by using the Visual FoxPro capture program. Once all information is debugged, the tables are delivered to the respective team in charge of data processing by applying SAS software, which proceeds to generate preliminary tables. Then, the revision and correction processes are performed, before generating the final tables for dissemination.

For the EAM 2008, data consolidation process is performed by the territorial branches and auxiliary offices through the electronic form, where not only the information captured directly from the source, but also the information captured by the critique staff (in cases where the source provides information in paper form) will be registered.

### **3.3.2 Data processing**

#### **Identification of the establishment's industrial activity**

First of all, it is important to point out that economic activity should be understood as a process, which corresponds to the combination of actions and resources whose results is a product or a set of homogeneous products. Thus, an industrial activity occurs when some raw materials are transformed into a new product, through a certain process.

The set of business actions (capital, labor, administrative and operational structure, etc) Involved in one industrial activity are exclusively directed to the production of the most possible homogeneous group of manufactured goods.

The results of sources surveyed by the Annual Manufacturing Survey must be grouped and presented in summaries concerning both the industrial classes according to ISIC Rev. 3 A.C., and products according to the CPC. With the purpose of getting the results of a certain industrial class, data about those homogeneous establishments must be grouped according to the main activity these perform. Therefore, it is essential that each manufacturing establishment can be properly classified according to its main activity and consequently, that the standards for determining that main activity can be clearly defined.

The wide range of possibilities and activities, including the manufacturing sector development, complicate the precise establishments' classification. However, the real difficulty to determine the main activity of an industrial establishment is considered to be only the cases where several different manufacturing activities are developed inside the establishment. In these cases, it is important to determine which of these activities corresponds to the main activity and which would be the secondary ones.

Usually, the notion of activity for industrial units is tied to the notion of homogeneous products. In economic terms, it can be said that the main activity of an establishment is the one that contributes the most to the total value added. Since in practice, it can be very difficult to separate the value added of an establishment into various activities it normally carries out, it is advised to determine the main activity through the participation of homogeneous groups of processed goods in total production structure.

Taking the reference of the ISIC Rev.3 A.C., the previously expressed standards and concepts and the CPC guidelines as a whole, the process of determining the establishment's main activities becomes less complex. In fact, the ways to perform this task in an efficient and accurate way will be given as follows, taking into account the Chapter VIII of the EAM form and the classifications mentioned.

Based on the fact that the information about all and each one of the products reported by

the respondent units in Chapter VIII have been properly encoded (in the Critique and Codification stage) to eight (8) digits- according to the Annual Manufacturing Survey's CPC Codification Manual, the processing system will automatically classify each establishment according to its main activity, during the Capture-Debugging stage, by using the following method:

First of all, it is relevant to specify the type of products that each establishment manufactures in order to determine the type of CPC subclass (5 digits) those products correspond to, and secondly, to assign the ISIC Rev. 3 A.C. (4 digits) activity that the main products manufactured by these establishments belong to.

According to the information about manufactured product which is provided in Chapter VIII by the establishments surveyed, the following procedures shall be conducted:

1. Determining the CPC class (5 digits) which different products manufactured by the establishment belong to.

In order to accomplish this task, the production values of products' codes shall be grouped and subtotaled in such a way that the first five digits of these products' codes are equal. As a result, homogeneous product groups will be obtained, which may correspond to one or more CPC subclasses.

1. Setting the ISIC (Rev. 3 A.C.) class of higher production value.

Once the CPC subclasses (5 digits) are grouped and subtotaled, assign the corresponding ISIC Rev. 3 A.C. (4 digits) class is assigned to each one of the subclasses, according to the Annual Manufacturing Survey's CPC Coding Manual. Then, the ISIC classes whose four digits are equal must be grouped and subtotaled, thus determining different industrial activities carried out by the establishment.

The activity (ISIC class 4 digits) with the highest value will become the main activity of the establishment. When the corresponding tables are presented, complete information concerning this establishment must be added to this activity. The following practical example illustrates the use of the methodology described above.

**Table 2. Methodology to establish the ISIC Rev. A.C. Rev Class of the highest production value**

Name of products	CPC Code	Measurement Unit	Quantity Produced	Production value (Thousand of pesos)
Saddle cloths	2921101	N	10	10 500
Tack and accessories for horseback riding	2921103	N	12	8 500
Leather handbags	2922101	N	30	5 000
Wallets, checkbook covers and similars of leather	2922102	N	170	6000
Leather luggage	2922105	N	50	5500
Leather briefcases	2922106	N	24	7 000
Plastic handbags	2922201	N	10	12 500
Plastic luggage	2922205	N	150	3 500
Plastic briefcases	2922206	N	30	7300
Canvas rucksacks	2922901	N	160	8 700
Canvas duffle bags	2922902	N	900	10 000
Plastic boots	2931201	PR	35	14 000
Slippers and similars (except of leather)	2932101	PR	500	11 000
Leather footwear for men	2933001	PR	210	19 000
Textiles and rubber footwear for men	2934002	PR	450	27 000
Leather sports footwear	2949002	PR	630	14 000
Leather parts-uppers-for footwear	2960001	PR	9.000	10 000
Leather outer-soles	2960002	kg	12.000	15000
Leather parts for footwear	2960004	V		7 000
			TOTAL	8 500

At first glance it may be understood that, as the code 2934002 textile and rubber footwear for men has the highest production value, the establishment's activity would correspond to shoe manufacturing; However, it is essential to clearly determine the CPC subclass that groups the products which generate the highest production value and then locate this type of production in the ISIC Rev.3 class that primarily or exclusively generates such production.

**Step1. Determination of CPC subclasses (5 digits)**

The CPC subclasses determination is done by gathering and subtotaling products' codes whose first five digits result equal, with the purpose of identifying homogeneous product groups established in CPC subclasses and the main production of the establishment.

CPC Subclasses	Value (Thousands of pesos \$)
29211	19 000
29221	23 500
29222	23 300
29229	18 700
29312	14 000
29321	11 000
29330	19 000
29340	27 000
29490	14 000
29600	29 000
<b>Total</b>	<b>98 500</b>

By examining the information in relation to the CPC subclasses, it can be observed that the establishment manufactures 10 groups of homogeneous products, surpassing the products of subclass 29600 (Parts of footwear; removable in-soles, heel cushions and similar articles; gaiters, leggings and similar articles, and parts thereof), by recording together the highest production value (\$ 29 million).

**Step 2. The determination of the ISIC (Rev 3) class with the highest production value.**

Once the products' codes are grouped and subtotaled according to the CPC subclass, the corresponding ISIC Rev. 3 (4 digits) class is assigned to each one of these, in order to set the ISIC class, where such products are primarily or exclusively manufactured.

Under these conditions, CPC subclasses in the example will be organized according to the ISIC in the following way:

CPC Subclasses	Value	ISIC Classes	Value (Thousands of pesos \$)
29211	19 000	1931	42 500
29221	23 500	1931	
29222	23 300	1932	23 300
29229	18 700	1939	18 700
29312	14 000	1924	14 000
29321	11 000	1923	11 000
29330	19 000	1921	19 000
29340	27 000	1922	27 000
29490	14 000	1925	14 000
29600	29 000	1926	29 000
<b>Total</b>	<b>198 500</b>		<b>198 500</b>

Once analyzed the groups of products (CPC subclasses) in the example, taking as a reference the ISIC classes (4-digit), it can be observed that:

1. The establishment is engaged in two big industrial groups: 192 "Manufacture of footwear" and 193 "Manufacture of travel accessories, luggage, handbags; saddlery and harness" (ISIC group classification 1931).

2. At first glance, it can be noted that in ISIC class 1931 "Manufacture of travel accessories, luggage, handbags; saddlery and harness", the products of CPC subclasses 29211 and 29221 are concentrated and generate as a whole the highest production value in the establishment (\$ 42.5 million), which corresponds to its main activity.

**Step 3. The assignment of the establishment's main activity according to ISIC Rev. 3**

Consolidating the 1<sup>st</sup> and 2<sup>nd</sup> step, it is inferred that the establishment from the example is classified according to ISIC Rev. 3 as follows:

Section C: Manufacturing industry

Division 19: Tanning and dressing of leather; manufacture of footwear; manufacture of travel accessories, luggage, handbags, saddlery and harness

Production value according to the Division: \$ 158.5 million.

Group 193: Manufacture of travel accessories, luggage, handbags; manufacture of saddlery and harness

Production value according to the group: \$ 84.5 million.

Class 1931 Manufacture of travel accessories, luggage, handbags; manufacture of saddlery and harness

Production value according to the class: \$ 42.5 million.

In fact, if the participation of each class of products (CPC) as well as different ISIC Rev.3 classes are verified, the result will be the following:

<b>CPC Subclasses</b>	<b>Value</b>	<b>%</b>	<b>ISIC Classes</b>	<b>Value</b>	<b>%</b>
<b>29211</b>	<b>19 000</b>	<b>21.4</b>	<b>1931</b>	<b>42 500</b>	<b>21.4</b>
<b>29221</b>	<b>23 500</b>				
29222	23 300	11.7	1932	23 300	11.7
29229	18 700	9.4	1939	18 700	9.4
29312	14 000	7.1	1924	14 000	7.1
29321	11 000	5.5	1923	11 000	5.5
29330	19 000	9.6	1921	19 000	9.6
29340	27 000	13.6	1922	27 000	13.6
29490	14 000	7.1	1925	14 000	7.1
29600	29 000	14.6	1926	29 000	14.6
<b>Total</b>	<b>198 500</b>	<b>100 0</b>	<b>198 500</b>	<b>100 .0</b>	

The establishment in the example is engaged mainly (21.4% of production) in the "Manufacture of travel accessories, luggage, handbags; saddlery and harness " (ISIC group 1931) and is specialized in both (subclass CPC 29221) the manufacturing of Luggage, handbags and the like, leather, travel sets for personal toilet, sewing or shoe or clothes cleaning, of leather (Leather handbags wallets, checkbook covers and similars of leather ) and (CPC subclass 29211) the manufacturing of Leather saddlery and harness, for any animal (Saddle cloths, tack and accessories for horseback riding ).

The following summary table allows analyzing in general the methodology's application:

<i>Name of products</i>	<i>Product Code</i>	<i>CPC Subclass</i>	<i>ISIC Class value (Thousands of pesos \$)</i>	<i>Production</i>	
<i>Saddle cloths</i>	921101			10.500	
<i>Tack and accessories for horseback riding</i>	2921103			8.500	
	<b>Subtotal</b>	<b>29 211</b>	<b>1931</b>	<b>19.000</b>	
<i>Leather handbags</i>	2922101			5.000	
<i>Wallets, checkbook covers and similars of leather</i>	2922102			6.000	42.500
<i>Leather luggage</i>	2922105			5.500	(21.4%)
<i>Leather briefcases</i>	2922106			7.000	
	<b>Subtotal</b>	<b>29 221</b>	<b>1931</b>	<b>23.500</b>	
<i>Plastic handbags</i>	2922201			12.500	
<i>Plastic luggage</i>	2922205			3.500	
<i>Plastic briefcases</i>	2922206			7.300	
	<b>Subtotal</b>	<b>29 222</b>	<b>1932</b>	<b>23.300</b>	<b>11.7%</b>
<i>Canvas rucksacks</i>	2922901			8.700	
<i>Canvas duffle bags</i>	2922902			10.000	
	<b>Subtotal</b>	<b>29 229</b>	<b>1939</b>	<b>18.700</b>	<b>9.4%</b>
<i>Plastic boots</i>	2931201	29 312	1924	14.000	7.1%
<i>Slippers and similar items(except the leather ones)</i>	2932101	29 321	1923	11.000	5.5%
<i>Leather footwear for men</i>	2933001	29 330	1921	19.000	9.6%
<i>Textiles and rubber footwear for men</i>	2934002	29 340	1922	27.000	13.6%
<i>Leather sports footwear</i>	2949002	29 490	1925	14 000	7.1%
<i>Leather parts-uppers-for footwear</i>	2960001			10 000	
<i>Leather outer-soles</i>	2960002			12 000	
<i>Leather parts for footwear</i>	2960004			7 000	
	<b>Subtotal</b>	<b>29 600</b>	<b>1926</b>	<b>29 000</b>	<b>14.6%</b>
	<b>TOTAL</b>			<b>198 500</b>	<b>100.0%</b>

The application of the ISIC Revision 3 A.C. as well as the new Products Classification (CPC) Version 1.0 in the Annual Manufacturing Survey's statistical production since 2000, involves significant changes in both the methodology of activity's assignment of the surveyed establishments and the interpretation of the information presented in these new classifications. This fact significantly hinders the explanation and discussion of the historical series classified in ISIC Rev. 2; for this reason is essential to create mechanisms that allow relating and standardizing the information, as in the case of the development of correlated tables.

However, this method provides important services when the highest degree of data disaggregation and specificity in the analysis is not required, as the case of EAM. However, it could result slightly impractical in the cases where it is necessary to combine one classification used for the assignment of economic activities with other used for assignation of products and raw materials, in the same survey.

Accordingly, DANE has structured a methodology that systematically enables the Annual Manufacturing Survey's data conversion from the ISIC Rev.2 to the ISIC Rev.3 and CPC, for the period between 1970 and 2000. This is performed in a way which enables practically and efficiently the application and interconnection of the adaptations of these two new classifications with the ISIC Rev 2. This is done for each one of the years, which compose the historical series of industrial activities, products and raw materials reported by the surveyed establishments, eliminating in this way the possibility of inconsistencies and removing the presence of irreparable gaps in the analysis. See Annex B Correlative table ISIC Rev 2 - ISIC Rev 3 A.C.

### **Codification process clarifications**

In order to start the process of classifying new products, the following steps are performed:

1. Filling out the form "Data Sheet of New Products" with the information provided by the production manager or other appropriate person from the technical area. Thus, the elements and knowledge to classify correctly the product are provided.
2. Starting from the correct description of the product, the detailed structure of the CPC is taken as a reference by locating the appropriate section, according to the corresponding product's nature: Agricultural (Section 0), mining (Section 1) or industrial (Sections 2-4).
3. If it is an industrial product, the corresponding section is selected as well:
  - Section 2: Food products, beverages and tobacco; textiles, apparel and leather products.
  - Section 3: Other transportable goods, except metal products, machinery and

equipment. In the case of wood products, paper, petroleum, chemical, rubber, plastic, glass, furniture, etc.

- Section 4: Metal products, machinery and equipment, in the case of basic metals, machinery for general and special purposes, office, accounting and computing equipment, electrical equipment, radio, television and communication equipment, medical devices, precision optical instruments , watches, transportation equipment.

4. Select the corresponding Division (2-digits category) by observing the Section structure.
5. Select the corresponding Group (3-digits category) by observing the Division structure.
6. Select the corresponding Class (4-digits category) by observing the Group structure.
7. Select the corresponding Subclass (5-digits category) by observing the class structure.
8. It is important to confirm that the product to be classified corresponds exactly to this category, according to the subclass description.
9. Check whether the Harmonized System's headings (4-digit code) and / or sub-headings (6-digit code) explicitly contain the product to be classified or that its inclusion can be deduced according to the explanatory notes. If the product's tariff heading (10 digits) is identified, take the first six numbers.

### **Files adequacy**

The records are organized as micro-data in flat files, which contain complete and accurate information. This enables establishing an aggregation criterion of information, that consists of processing and presenting data based on: previously established categorizations (activity, personnel scales, production scales, metropolitan area, legal organization and departments) and main variables (employed personnel, remunerations, wages and salaries, gross output, intermediate consumption, value added, gross and net investment, and energy consumption). However, the information reports can also be generated in accordance with the specific requirements of users.

As a whole, the data report is established through an interactive query system developed in Visual Fox software. In this application, flat files are available and subsequently sent to DANE's data bank, so as to be available to the information users; moreover, for the internal information processing the same database and special processing with applications (SAS, STATA, etc.) are used.

### **Data edition**

The following tools are used for information revision and analysis

1. Historical series of participations and industrial class variations, by each one of the establishments in the survey and for all researched variables.

2. Historical series of industrial class and establishment contributions updated until the month in which the process is performed and once that logistics staff has the preliminary data.

3. Historical series of annual variations on the industrial class level as well as the series on the level of establishments are specifically analyzed and applied by Economic Thematic team; these two series are observed in the following area: Logistic of Self-filling out and Records (LAR).

Once the preliminary information from the EAM is produced, the Economic Thematic team performs the analysis in two ways:

Firstly, the preliminary information obtained is contrasted with the figures released in the previous year. This activity allows quickly identifying atypical changes during the application of EAM processes, the atypical changes and possible inconsistencies are sent to LAR to verify, confirm or correct the obtained information with the respondent source. As a result, the data base becomes consistent and debugged.

Secondly, the statistical series are analyzed at the macroeconomic and sectoral contexts, based on data released mainly by producers associations, and specialized reports issued by ministries or other government offices.

### **Imputation methods**

The imputation method applied for the Annual Manufacturing Survey is the estimation of variance, which allows to identify the cases of non-response or inconsistent responses.

The procedure is done in an automated manner; the non-response estimation and the imputations for atypical cases are made. Then, output tables are created before and after the imputations, analyzing the number of imputations and their final impact. If deviations are very high, the cases are analyzed in detail.

This methodology assumes that in the different aggregation stages, data have temporal autocorrelation and homogeneity. It means the imputation must be consistent with the behavior of historical series and the levels containing the missing data. In the case of imputation of records with no information reported by the establishments, the data growth ratio (Lozano, 2000) is used in the series or in data variation. This procedure is explained as follows:

$$\text{Variation} = \frac{X_T}{X_{T-1}}$$

Where

$X_T$  = Data in the period T

$X_{T-1}$  = Data in the previous period t-1

Based on these considerations, the first variation to be estimated is the one that will have the missing data in relation to data from the previous period, taking into account the historical behavior of the variations series in each enterprise and the historical behavior of the variations within each activity. From this estimate, the missing data will be generated.

The variation of data to be imputed is obtained in terms of the average historical variation in the enterprise and in the activity.

The model to impute the variation is:

$$\text{Var}_i = \beta_1 \text{Vac} + \beta_2 \text{Vem}$$

Where

$\text{Var}_i$  = the variation imputed in the period t

$\text{Vac}$  = average historical variation inside the activity

$\text{Vem}$  = average historical variation by establishment.

$\beta_i$  = for  $i = 1, 2$  are weight coefficients

The least squares model describes the imputation of missing data variation, as a weighted average of data variations in the establishment and in the activity.

### **Imputation of the observation units**

The missing data are identified when the information obtained from the Annual Manufacturing Survey is checked. Generally, the imputation is done as a total, even if the missing data are total or partial in each one of the surveys applied. Having established this, through a statistical model (variances), a possible value can be calculated for the non-response of each one of the variables in the questionnaire of establishments that have not reported yet the information.

The least squares model takes into account the following aspects: variation by establishment, activity and priority<sup>7</sup>. In the last 5 years, the variation is calculated according to the priority and activity for each one of the variables of the establishment. With this variation, the missing data is imputed, which generates an imputation file for all variables. Once the figure is imputed, this is statistically analyzed; in other words, if this

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<sup>7</sup> The priority one (1) is assigned to the multi-establishments; priorities (2) and (3) are assigned according to the weight by the establishment's production value in the industry total.

figure is consistent with the series trend.

If missing data are partial, the same procedure mentioned above is conducted.

### **Data integration**

The results of the Annual Manufacturing Survey are presented in numerical summaries taking into account both the different thematic aggregations (i.e. ISIC Rev. 3 A.C industrial activity, employed personnel's scale, production's scale and legal organization.) and the geographic aggregation (national total, metropolitan area and department).

### **ISIC Rev. 3 A.C. industrial activity**

Defined as the data aggregation from the assignment of the industrial activity, according to the ISIC Rev. 3 A.C. in which the establishment was classified. See Annex C. Section D. Manufacturing.

### **Scale of employed personnel**

It corresponds to the classification of establishments, according to the number of persons involved in the industrial activity performance.

Since 2000, the establishments are classified in the corresponding scale according to the total number of employed persons in the year, that is, owners and unpaid family members, plus the permanent and temporary staff recruited directly through specialized companies in providing personnel.

### **Scale of production value**

It corresponds to the classification of industrial establishments, according to the production achieved in the year.

Due to the adoption of the ISIC Rev. 3 A.C. from the Central Bank for producing elements such as: The Producer Price Index in June 1999, the Annual Manufacturing Survey's establishment reclassification in ISIC Rev. 3 A.C. and the Monthly Manufacturing Sample's redesigning in 2000, the analysis of the production behavior of industrial establishments and its distribution was carried out through the production value scales. The results of applying it to the 65 ISIC Rev.3 AC industrial classes were high number of establishments in the lower ranks of the scale as well as a large dispersion of the rest of the establishments.

For this reason, it was decided to redefine the production value ranges in such a way that, based on the frequencies observed in the EAM 2000, the establishments could be grouped in the most proportionate possible way, according to their production value, and at the same time could develop the comparison between the new scale and those scales used in the previous years. Since 2000, the ranges of this new scale for each one of ISIC Rev. 3 A.C. classes are annually updated through the production index of the Monthly Manufacturing Sample.

VALUE SCALE SINCE 2000				
(Thousands de pesos)				
1	From	50 000	to	149 999
2	From	150 000	to	299 999
3	From	300 000	to	499 999
4	From	500 000	to	999 999
5	From	1 000 000	to	1 999 999
6	From	2 000 000	to	3 999 999
7	From	4 000 000	to	7 499 999
8	From	7 500 000	to	14 999 999
9	From	15 000 000	to	24 999 999
10	More than	25 000 000	to	

## Legal Organization

Legal organization is a type of organization taken by the enterprise for its operation, according to the Colombian law. The following is a summary of definitions regarding different types of legally recognized partnerships classes in Colombia, based on the Commercial Code (contained in Article 110 and following, Decree 410 of 1971), which are explicitly requested in the EAM form.

**General Partnership:** Composed by two or more persons, associated under a corporate name. All partners jointly and severally take responsibility for the social operations. The corporate name may be composed by the name of all partners, or any of them, adding the words "and associates", "company", "brothers", "and children", "successors" or similar ones.

**Limited partnership:** Composed by one or more general partners who jointly and severally take responsibility for the enterprise. And one or more limited partner(s) who are liable only to the extent of their investments. The name shall be formed with the full name or surnames of one or more manager partners, followed by the words "Limited Partnership" or the abbreviation "S. in C (by its acronym in Spanish)".

**Partnership limited by shares:** The Company's capital is divided into shares of equal nominal value, registered or bearer. The issue, placement, issuance of deeds and trading of shares is subject to the provisions for the corporation. The partnership limited by shares cannot be established nor it can operate with less than 5 shareholders. The corporate name is established as the limited partnership, but adding the words "Partnership limited by shares" or the abbreviation "SCA" ( by its acronym in Spanish).

**Limited liability company:** This kind of companies are formed between two or more

partners (not exceeding 25), whose contributions do not represent freely negotiable papers or deeds. The partners are jointly responsible for the social obligations of the enterprise in relation to the extent of their investments; they conduct their activities under one corporate name or objective, with the word "Limited" or the abbreviation "Ltda" added. Stock Corporation: Stock corporation is a business entity, whose capital is divided into shares of equal value. It is formed by the contribution made by its individual members, called shareholders (not less than 5), who take responsibility only to the extent of their shares. The corporate name shall have a name followed by the words "corporation" or the letters "S.A" (by its acronym in Spanish).

Mixed economy company: Defined as the society which is established with state funds and private capital, subject to the system of private law and the ordinary jurisdiction.

Foreign Branch Company: This type of company is opened by a foreign company within the national territory, for the implementation of ongoing activities subject to the Colombian laws.

Industrial and commercial state enterprise : These enterprises are organisms established or approved by the law for developing industrial or commercial activities, with independent capital composed by goods or common public funds, the products of these or the payment of taxes, fees or contributions with special purpose.

Sole Proprietorship: Legal entity formed by a natural person or a legal entity, which intends part of its assets for performing one or more commercial activities.

De facto association: Defined as the entities which are not composed by a notarial act. This is not a legal entity as such; therefore, the rights acquired and the obligations met shall be exercised by all the "de facto" partners.

Natural person or individual property: legal subject with ability to acquire and exercise the rights, to incur and meet individual obligations of their acts.

Solidarity economy organizations: These organizations are characterized primarily by having established a link partnership based on the principles and purposes specified in the articles. 4 ° and 5 °, Law 454/98. Thus, these enterprises should include the democratic participation and the non-profit premise in their statutes and functioning,; That is: 1) to establish the impossibility of sharing the social reserves and in the event of liquidation, the impossibility of sharing the remnant patrimonial assets. 2) To devote its surplus to the provision of social services, the growth of their reserves and funds, and reimburse to their partners a part of the reserves or funds in proportion to the use of the services or the participation in the company' work, without prejudice to amortise the contributions and keep them in its legal value.

This category includes cooperatives, pre cooperatives, solidarity economy auxiliary institutions, service companies in the form of public administration cooperative, employee

funds public, cooperatives of labour associates, mutual associations, solidarity health enterprises, community enterprises, federations and confederations, associations and labour associative enterprise

Nonprofit organization: This is a legal or social entity created for the purpose of producing goods and services whose surpluses cannot be appropriated by their members, but retained by the nonprofit institution. In case of liquidation, their net assets shall be donated to other institutions, different from their members.

Other: Refers to other legal organizations not covered above. See Appendix D: Legal Organization Establishments

### **3.4 QUALITY CONTROL METHODS**

To meet the ISO 9001/00 standard related to the measurement and monitoring of the quality management system processes, a series of indicators are presented, allowing a higher efficiency in results achievement in the Annual Manufacturing Survey, namely:

Quality Indicator: This indicator shows the approximate quality level reached and / or measured in the EAM processes of critique and capture. This is how the quality control of information sent by each territorial branch is carried out. The consistency of information which is used as an input in order to obtain the research results depends largely on this quality control. The critique process which is performed at DANE's territorial branches consists of checking and verifying the information consistency provided by respondent units. Once data collection and critique processes have concluded, the capture process is carried out, which consists of the electronic storage of critiqued information. The capture or recording procedures are done through a program or application by typing in previously critiqued information. Since these processes are considered to be a vital priority for EAM research, it is required to perform a quality control to ensure the total consistence of information.

The quality indicator in the critique and capture processes is based on the checking stage performed by the EAM Technical Assistant or their delegates in each territorial branch or auxiliary office, taking into account both the information in the questionnaire and the information stored in the system through the application. To carry out the quality control of each process and get an approximate quality indicator, the technical assistant must check the 10% of the forms sent to DANE Central; in other words, 10% of the critiqued and captured forms by each one of the persons responsible for developing these processes.

In order to obtain this indicator, revision of all forms assigned by the system for each operator must be performed. Subsequently, the corresponding analysis must be conducted

for each one of the variables in the data sheet through diagnostics and checks among chapters that the application generates for each one of the respondent units. The technical assistant in charge shall fill out the boxes 5 and 6 of the weighting and indicator obtaining table for each one of the selected forms, as well as verify that the appropriate adjustments are made for each one of the critics or operators in the form and in the capture system.

In the first instance, the quality indicator (CI by its acronym in Spanish) for each Process Responsible (RP by its acronym in Spanish) must be calculated, which is obtained as the arithmetic average of scores for each one of the forms checked by the EAM technical assistant.

### Quality indicator obtained from each process coordinator

$$IC (RP)_{\text{sample}} = \sum \frac{IC (\text{Forms})}{\# \text{ Forms}}$$

Indeed, the quality indicator (CI) per process for each territorial branch is calculated as the indicators average of each Process Coordinator (RP) in the EAM. If there is a k number of process responsible at the territorial branch then:

$$IC (\text{PROCESS})_{\text{sample}} = \frac{\sum IC (RP)}{K}$$

The total quality indicator per each territorial branch will correspond to the simple average of the indicators obtained from the processes.

$$\text{Quality Indicator per each territorial branch} = \frac{\sum \text{Indicators (Critique+ capture)} * 100}{\# \text{ of indicators}}$$

Reliability indicator: Indicator that assesses the degree of compliance with the research objectives in relation to the sampling coverage of respondent units, the information provided and the quality level of EAM operation processes. In order to determine it the reliability indicator, a simple average of all the indicators applied is calculated (c, either of response, coverage and quality of processes indicators which enable the research

development). From the indicators calculated locally, to the indicators calculated centrally, namely:

Response rate by respondent units (TRF by its acronym in Spanish): Ratio between the number of sources that provide information (FI) plus sources sent with a novelty different from the debt novelty (number 5) (FE) and the total of directory sent to EAM field operation (TD by its acronym in Spanish). The sources that report information correspond to those establishments operating in the country, defined as industrial entities with ten or more employed individuals, or an annually updated production value.

$$\text{TRF} = [(FI + FE) / TD] * 100\%$$

Where:

**FI** = Sources that report information.

**FE** = Sources sent with novelty different from 5

**TD** = Total directory sent to field operation

Central Imputation Index (INIC): The ratio of the number of effective sources (sources without an applied imputation process or any kind of estimation) and the total expected sources.

$$\text{INIC} = [(FES - FNC) / FES] * 100\%$$

Where:

**FES** = Expected sources.

**FNC** = Sources with novelty 5

Local Quality Index (IDCL by its acronym in Spanish): Quality indicator of processes' network<sup>8</sup> which allows the surveys production. This index is generated by checking the quality of work in critique and capture stages. This indicator is calculated from the detection of errors and omissions, considering the effective work volume at the same level of measurement.

Note: For EAM research, the data collection indicator won't be calculated since the reception of information replaces this indicator.

$$\text{IDCL} = (ICC + ICCA) / 2$$

Where:

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<sup>8</sup> Processes network is defined as the chain of processes established by DANE to create and conduct the EAM survey

**IDCL**= Local Quality Index

**ICC** = Critique Quality Index

**ICCA**= Capture Quality Index

**Central Quality Index (IDCC):** Quality Indicator of operation processes involved in EAM research.

The indicator is generated by the sum of errors and omissions in the processes developed at Territorial Branches and auxiliary offices (treatment of a non-compliant product, according to quality requirements), detected at the central level.

$$\text{IDCC} = [(\text{FES} - \text{TPNC}) / \text{RES}] * 100\%$$

Where:

**TPNC**= Sum of omissions and errors in central production process.

**FES** = Expected forms

Reliability Indicator (ICFA): Degree of effectiveness of the EAM production processes. Simple average of all quality indicators of processes' network, which ensures the survey development, from those indicators calculated at DANE Territorial Branches to those calculated at DANE Central. This is an indicator that supports the decision making related to the elimination of errors as well as the creation of strategies for the survey's continuous improvement and sustainability in the long term.

$$\text{ICFA} = (\text{TRF} + \text{INIC} + \text{IDCL} + \text{IDCC}) / 4$$

Where:

**TRF**= Sources response rate

**INIC**= Central Non - Imputation Index

(Applied for annual periodicity)

**IDCL**= Local Quality Index

**IDCC** =Central Quality Index

# Analysis and discussion of results 4

## 4.1 STATISTICAL ANALYSIS

### **Descriptive Analysis**

The descriptive analysis firstly consists of calculation of all indicators measured through the survey variables, which determine the sectoral economic structure and describe the characteristics of the observed population.

### **Coherence Analysis**

Prior to dissemination of information, an analysis of consistency from the obtained data is done with macroeconomic indicators of the respective year. as Also, contrast with both the primary sector behavior as raw material supplier and the primary sector behavior as domestic / foreign trade , as a supplier of industrial goods is performed .

With the purpose of analyzing the EAM information to be disseminated, DANE interacts with different nationwide and abroad organisms to solve concerns about data and identify possible improvements in the survey. Among the organisms, the following can be highlighted:

**Industry Advisory Committee:** Composed by information users such as: National Department of Planning, Central Bank of Colombia, Ministry of Finance, industry guilds, academies and research centers.

**DANE's National Accounts Division:** Main internal user of EAM information for the calculation of national aggregations

Industrial Establishments.

International Organisms.

Ministries.

### **Analysis of produced statistics**

For each one of the variables, the analysis at the level of micro data is done with available historical series of the industrial establishment. Atypical data requires special debugging,

establishing the justification or the correction of data.

A second analysis at the aggregate level consists on observing the results consistency of the establishment, bearing in mind aspects such as: Industrial class, the scale of production and its personnel. By industrial class, at geographical level, the results consistency is established by department, metropolitan area and national total. Moreover, by having the results in advance from Monthly Manufacturing Sample, different consistency exercises are done at level of source and aggregate, which give more strength to the quality of information obtained.

The behavior of the statistics produced is presented through the main variables described above.

- Number of establishments
- Employed personnel
- Accrued remunerations (wages, salaries and social contributions) by the employed personnel.
- Gross production
- Intermediate consumption
- Value added
- Investment (Gross and Net)
- Electricity consumed
- Fixed assets value

# Dissemination

# 5

## 5.1 DATA REPOSITORY ADMINISTRATION

Having consolidated the information from the territorial branches, the quality of information is verified. When inconsistencies arise, information debugging process starts. Once the information is debugged, the corresponding output tables are delivered to the respective team in charge of doing the processing stage through the SAS application; then the preliminary tables are generated. Finally, the checking and correction processes are applied before generating the final output tables for subsequent dissemination.

Moreover, DANE has centralized administration and dissemination of all statistical information as a result of their surveys, in data banks distributed in all major cities of Colombia, where the access to consult information regarding the Annual Manufacturing Survey is available.

The information from the Annual Manufacturing Survey is used by a large number of researchers, due to the great amount of industrial information this survey possess. This strength was consolidated by designing a data panel which shows the history of establishments through time and the behavior of different variables of the industrial sector. This framework is presented at the level of micro data and has quantitative and qualitative variables that allow any type of aggregation.

This work is based on standardization of variables that have composed the EAM form since 1977 and becomes an additional tool for researchers to access the survey. The EAM information is updated each year with the final information, which is then released.

A new updated panel derived from the old one, which contains some specific survey variables used for calculating the industry profitability and productivity for period 1982-1998. This new panel has indices calculated by the authors and transformed variables, which can be accessed through the following DANE website link:

<http://www.dane.gov.co/files/investigaciones/industria/eam/pasos.html>

## 5.2 DISSEMINATION PRODUCTS AND INSTRUMENTS

The Annual Manufacturing Survey (EAM) dissemination products and instruments are presented below:

**Output tables:** In the output tables, the analysis of variations is done concerning: The most relevant variables in relation to the previous year, the sums checking, calculation of indicators and matching among different tables (see Annex F). This information also applies to the Annual Directory of Manufacturing Industry, Press Release and Preparation of tabulated information.

**EAM results released at DANE webpage “ [www.dane.gov.co](http://www.dane.gov.co):** The webpage shows the final tables where the final series of the main variables applied for each one of the activities are found; in addition, a summary of definitive information (tabulated information) is presented .

**Application for historical information consultation via web:** This application contains the information previously described so that each user can access the information in a more summarized manner, classified according to what each one of them wishes to know.

Once the consent from DANE Director for data releasing is obtained, DANE Press Division sends the press releases and Thematic Area updates the data in the output tables released on the DANE webpage, where the series of main variables for each one of the economic activities can be found.

This information is provided by internal and external customers, categorized as follows:

DANE's internal users  
Marketing and Editions  
Systems  
Data Bank  
Press Office  
National Accounts  
External users  
Government  
Guilds and Productive sector  
Researchers  
Media  
International Organizations

# Related Documentation

## 6

The related documentation concerning the EAM is presented as follows:

Processes Development: This document is a guide for EAM survey, which dynamically describes the interaction and interrelationship of processes and sub-processes required to carry out the execution of activities involved in this survey by applying the methodology of context and levels diagrams.

*(Path: \\192.168.1.4\pdfs\dimpe\eam\DOCUMENTACIONBASICA\MODELOFUNCIONAL\LEVANTAMIENTODE PROCESOS\GC-EAM-MFU-01.pdf)*

Methodological datasheet: summary of EAM basic parameters.

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Procedure to produce and analyze results: Presents the survey results through the processes of consolidation, validation, debugging, calculation, checking and analysis of information processed.

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# Glossary

(The translation of definitions is for reference purposes only)

**Apprenticeship contract:** Special type of contract considered in labour rights as a way in which a natural person (apprentice- student) is trained in a legal entity, supported by an enterprise (Natural or legal employer).

**Classification:** The grouping of objects in homogenous sets according to the established criteria and the classification purpose. The comprised groups are exhaustive; cover the whole elements of the universe, are mutually exclusive and each object corresponds to only one same level category.

**Coding:** The assignation of alphanumeric codes to identify different categories in a classification. For Annual Manufacturing Survey, information is presented as four digits codes, where each one of them corresponds to: Section, division, group and class.

**Directory:** Electronic file containing the data of all variables that DANE registered through different media: Confecámaras, surveys, mini-surveys, data collection by telephone, guilds directories, and magazines. This information concerns: ID (NIT “Tax Identification Number”, trade name, corporate name), geographical location (department, municipality, address, telephone number, e-mail), other additional variables (economic activity, sales, employed personnel) and economic establishments (industrial, commercial or services).

**Enterprise:** Economic unit which under a legal constitution, in one or more locations, develop, control and manage directly or indirectly the set of activities and resources of its property; required for the development of its economic or corporate function.

**Integral salary**<sup>9</sup>: “When the employee’s salary is equal to or higher than 10 minimum monthly legal wages (MMLW), the parties may agree (in writing) that the employee receives an integral salary which, besides remunerating the nominal salary, compensates every month the fringe benefits such as severance payments and its interests, overtime, legal and extralegal service bonuses, and in general any amount that the employee could be entitled to receive under the nominal salary regime, except for vacation payments, social security and family compensation contributions, which in any case must be paid regardless of the method of remuneration”.

**Imputation:** Statistical process used to assign any value to the variables of records that have incomplete information in the applied surveys and was not possible to obtain it directly from respondent sources. This procedure is applied in few cases, inferior to 2% and taking into account the specific methodologies for each case.

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<sup>9</sup> Campbell C. Legal Aspects of Doing Business in Latin America. Volume 1, par 151, 2007. Yorkhill Law Publishing.

**ISIC Rev.3 A.C. Activity:** Kind of classification aimed to establish a structure where the statistics from economic activities developed by different nationwide production sectors must be presented. The term activity used in this context is defined as a production process or a set of actions which make up a group of goods and services.

**Local commercial unit:** For statistical purposes, local commercial unit corresponds to the sum of establishments of a same enterprise, which develop its economic activity in a same city.

It is important to take into account that offices or establishments exclusively devoted to the sales of products manufactured by them are considered ancillary units; however, if those offices or establishments in addition of selling their products, re sell (sell and purchase) other goods in such proportion higher than 60% of their total income; they must be considered as commercial units. Therefore they must be counted as components of trade local units.

**Local services unit:** Corresponds to the sum of establishments belonging to a same enterprise, which are exclusively devoted to the service providing to third parties, in a same geographical location.

**Location/ Emplacement:** Physical place or a group of non-adjacent places that belong to an enterprise, in a geographical area.

**Novelties:** Novelties are known as possible states or conditions of economic units in data collection time which can affect the survey results.

**Principal Activity:** The activity of an enterprise is the one that contributes the most to the entity's value added, or the activity whose value added exceeds that of any activities carried out in the establishment. The final products resulting from the principal activity are known as: Principal products or associated products.

**Reference year:** A **reference** year is the time period for which statistical results are collected or calculated it comprises the year surveyed.

**Respondent unit:** From 1992, the Annual Manufacturing Survey takes into account enterprise as respondent unit, which in statistical terms are defined as the proper or administrative economic unit that under a legal denomination develop, control and manage directly or indirectly the set of activities and resources of its property; required for the development of its economic or corporate function.

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- *Process Development. Annual Manufacturing Survey (EAM), DANE, 2008.*
- *Output tables. Annual Manufacturing Survey (EAM), DANE, 2008.*
- *Validation Specifications. Annual Manufacturing Survey (EAM), DANE, 2008.*

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<sup>10</sup> For reference purpose only



CAPITULO IV - ACTIVOS FIJOS, INVERSIONES E INNOVACION TECNOLÓGICA DURANTE 2006 (miles de pesos)

Número de orden

NORDEMP

Numeral 1. Activos fijos e inversiones realizadas

E

CONCEPTO	Terrenos (1)	Edificios y estructuras (2)	Maquinaria y equipo industrial (3)	Equipo de informatica y comunicacion (4)	Equipos de oficina (5)	Equipo de transporte (6)	TOTAL (1+2+3+4+5+6) (7)
A. VALOR AJUSTADO EN LIBROS (a 31de diciembre de 2006)							
<b>B. Inversiones en activos fijos realizadas durante el año (ajustadas por inflacion):</b>							
1) Valor compra de activos							
	a) Nuevos						
	b) Usados						
2) Producidos o construidos para uso propio							
3) Valor causado en el año por las construcciones en curso							
4) Valor causado en el año por la maquinaria en montaje							
5) Valor causado por mejoras y reformas a los activos							
6) Total inversiones en activos fijos (1 a 5)							
<b>C. Ajustes causados en el año que modifican el valor contable de los activos fijos</b>							
7) Ajustes por inflacion causados en el año 2006							
8) Valorizaciones y desvalorizaciones							
9) Retiros y traslados							
<b>D. Ventas de activos fijos realizadas durante el año</b>							
10) Valor ajustado en libros de los activos vendidos							
11) Depreciación acumulada de los activos vendidos							
E. VALOR AJUSTADO EN LIBROS (a 31 de diciembre de 2006)							
F. Depreciación causada en 2006 (después de ajustado el activo)							

Numeral 2. Innovación tecnológica adquirida por la empresa durante 2006

DETALLE	PROCEDENCIA		
	Nacional	Extranjero	TOTAL
12) Adquisición de maquinaria y equipo nuevo destinado a la modernización tecnológica de la producción de la empresa			
13) Adquisición de equipos de laboratorio y otros equipos especiales, utilizados en actividades de investigación y desarrollo tecnológico			
14) Adquisición de nuevas tecnologías de información y comunicaciones			
15) Asesoría y capacitación en nuevas tecnologías para el personal ocupado			
16) Gastos en control, aseguramiento y certificación de la calidad			
17) Tecnología desarrollada por la empresa			
18) TOTAL ( renglones 12 a 17)			

Numeral 3. Personal vinculado a las actividades de investigación, desarrollo e innovación tecnológica durante el 2006

DETALLE	NIVEL DE ESTUDIOS		
	Profesional	Maestría	Doctorado
19) TOTAL personal NACIONAL ocupado por la empresa en actividades de investigación, desarrollo e innovación tecnológica			
20) TOTAL personal EXTRANJERO ocupado por la empresa en actividades de investigación, desarrollo e innovación tecnológica			
21) TOTAL ( renglones 19 y 20)			

ANEXO 1- IMPORTACIONES Y EXPORTACIONES DE SERVICIOS, REALIZADAS EN 2006 (miles de pesos)

Si durante 2006 realizó compras o ventas de servicios al exterior, indique según el ítem, el valor en miles de pesos (sin impuestos) de dicha transacción

TIPO DE SERVICIO	Valor importación	Valor exportación	TIPO DE SERVICIO	Valor importación	Valor exportación
1) Servicios de arrendamiento no financiero			8) Servicios de arrendamiento de explotación		
2) Servicios de telecomunicaciones			9) Servicios de publicidad		
3) Servicios de construcción			10) Asesoría en construcción e ingeniería		
4) Servicios de seguros			11) Asesoría y consultoría legal, económica o administrativa		
5) Servicios comerciales (compra y venta)			12) Asesoría y consultoría técnica		
6) Servicios de informática			13) Otros		
7) Regalías y derechos de licencia			TOTAL (Renglones 1a 13)		



Número de orden

## CAPÍTULO IV - OTROS COSTOS Y GASTOS DE LA ACTIVIDAD INDUSTRIAL CAUSADOS DURANTE 2006

En los valores parciales no incluya impuestos indirectos (IVA y consumo)

CONCEPTO	Costos y gastos de producción	Gastos de administración y ventas	Total costos de producción administración y ventas
	(1)	(2)	(3)
1) Materias primas, materiales y empaques consumidos			
2) Costo de venta de productos no fabricados por el establecimiento			
3) Costo de venta de materias primas, materiales y empaques vendidos sin transformar			
4) Costos y gastos de productos elaborados por terceros (incluye trabajadores a domicilio)			
5) Costos y gastos por servicios contratados con terceros (outsourcing) excepto los de manufactura			
6) Muestras gratis			
7) Honorarios y servicios técnicos			
8) Arrendamiento de bienes inmuebles			
9) Arrendamiento sin opción de compra de maquinaria y equipo (bienes muebles)			
10) Seguros (excepto los de prestaciones sociales)			
11) Servicio de agua (agua, alcantarillado y aseo)			
12) Servicios de comunicaciones (teléfono, correo, fax, beeper, radio teléfono, celular e internet)			
13) Propaganda y publicidad			
14) Mantenimiento, reparaciones, accesorios y repuestos consumidos			
15) Costos y gastos de transporte de productos y materias primas			
16) Regalías causadas (derechos de autor, franquicias, marcas, patentes, etc.)			
17) Impuestos de industria y comercio			
18) Impuesto predial, vehículos, 4 x 1000, etc.			
19) Gastos para provisión de cartera, inventarios y otros			
20) Intereses causados sobre préstamos			
21) Utilidad o pérdida en ventas o retiros de activos fijos			
22) Otros costos y gastos no incluidos antes (especifique en observaciones). No incluye depreciación			
23) TOTAL (rangiones 1a 22)			

## CAPÍTULO V - ENERGÉTICOS CONSUMIDOS DURANTE 2006

## Numeral 1. Energía eléctrica

Energía comprada		Energía generada (Kwh)	Energía vendida		Energía consumida (kwh) = (1+3-4) (6)
Cantidad (Kwh) (1)	Valor (miles de pesos) (2)		Cantidad (Kwh) (4)	Valor (miles de pesos) (5)	
C5R1C1	C3R1C3	C5R1C2	C5R1C3	C6R1C5	C5R1C4

## Numeral 2. Otros energéticos

Fuente de energía	Unidad de medida	Cantidad	Valor en miles de pesos	Fuente de energía	Unidad de medida	Cantidad	Valor en miles de pesos
1) Petróleo crudo (Castilla, Cicuco)	Galón			9) Carbón coque	Tonelada		
2) Diesel Oil - ACPM	Galón			10) Carbón vegetal	Tonelada		
3) Fuel Oil	Galón			11) Leña	Tonelada		
4) Gasolina	Galón			12) Bagazo de caña	Tonelada		
5) Querosén	Galón			13) Cascarella de arroz	Tonelada		
6) Gas natural	M <sup>3</sup>			14) Cascarella de café	Tonelada		
7) Gas propano - GLP	Libra			15) Residuos de palma	Tonelada		
8) Carbón mineral	Tonelada			16) TOTAL (rangiones 1 a 15)			

CAPÍTULO VI - VALOR DE EXISTENCIAS (miles de pesos)		Valor de los inventarios del establecimiento (sin incluir impuestos indirectos, IVA, consumo)	
Tipo de inventario:	<input type="checkbox"/> 1 Permanente <input type="checkbox"/> 2 Periódico	A 31 de diciembre de 2005	A 31 de diciembre de 2006
CLASE DE EXISTENCIAS (no incluya materiales indirectos)			
1) Materias primas, materiales y empaques (a precio de costo sin incluir impuestos indirectos)			
2) Productos en proceso (a precio de costo sin incluir impuestos indirectos)			
3) Productos terminados (a precio de costo sin incluir impuestos indirectos)			
4) Productos no fabricados por el establecimiento (a precio de costo sin incluir impuestos indirectos)			
<b>5) TOTAL ( renglones 1 a 4 )</b>			

CAPÍTULO VII - ACTIVOS FIJOS, INVERSIONES E INNOVACIÓN TECNOLÓGICA DURANTE 2004 (n)							
Numeral 1. Activos fijos e inversiones realizadas							
CONCEPTOS	Terrenos (1)	Edificios y estructuras (2)	Maquinaria y equipo Industrial (3)	Equipo de informática y comunicación (4)	Equipos de oficina (5)	Equipo de transporte (6)	TOTAL= (1+2+3+4+5+6 (7)
<b>A. VALOR AJUSTADO EN LIBROS (a 31 de diciembre 2005)</b>							
<b>B. Inversiones en activos fijos realizadas durante el año (ajustadas por inflación)</b>							
1) Valor compra de activos	a) Nuevos						
	b) Usados						
2) Producidos o construidos para uso propio							
3) Valor causado en el año por las construcciones en curso							
4) Valor causado en el año por la maquinaria en montaje							
5) Valor causado por mejoras y reformas a los activos							
6) Total inversiones en activos fijos (1a5)							
<b>C. Ajustes causados en el año que modifican el valor contable de los activos fijos</b>							
7) Ajustes por inflación causados en el año 2006							
8) Valorizaciones y desvalorizaciones causadas en el año							
9) Retiros y traslados causados							
<b>D. Ventas de activos fijos realizadas durante el año</b>							
10) Valor ajustado en libros de los activos vendidos							
11) Depreciación acumulada de los activos vendidos							
<b>E. VALOR AJUSTADO EN LIBROS (a 31 de diciembre de 2006)</b>							
<b>F. Depreciación causada en 2006 (después de ajustado el activo)</b>							
<b>Numeral 2. Innovación tecnológica adquirida por el establecimiento durante 2006</b>							
DETALLE	PROCEDECIA						
	Nacional	Extranjero	Total				
1) Adquisición de maquinaria y equipo nuevo destinado a la modernización tecnológica de la producción del establecimiento							
2) Adquisición de equipos de laboratorio y otros equipos especiales, utilizados en actividades de investigación y desarrollo tecnológico							
3) Adquisición de nuevas tecnologías de información y comunicaciones							
4) Asesoría y capacitación en nuevas tecnologías para el personal ocupado							
5) Gastos en control, aseguramiento y certificación de la calidad							
6) Tecnología desarrollada por el establecimiento							
<b>18) TOTAL ( renglones 1 a 17 )</b>							
<b>Numeral 3. Personal vinculado a actividades de investigación, desarrollo e innovación tecnológica durante 2006</b>							
DETALLE	NIVEL DE ESTUDIOS						
	Profesional	Maestría	Doctorado				
19) TOTAL personal NACIONAL ocupado por el establecimiento en actividades de investigación, desarrollo e innovación tecnológica							
20) TOTAL personal EXTRANJERO ocupado por el establecimiento en actividades de investigación, desarrollo e innovación tecnológica							
<b>21) TOTAL ( renglones 19 y 20 )</b>							

**CAPÍTULO VIII - PRODUCTOS, SUBPRODUCTOS Y TRABAJOS REALIZADOS POR EL ESTABLECIMIENTO DURANTE 2006**

Nombre de los productos, subproductos y trabajos industriales realizados en el año 2006 (1)	Código (debe ser blanco)	Unidad de medida (2)	Producción efectuada en el año		Ventas y transferencias de productos, realizadas durante el año				Existencias a 31 de dic.
			Cantidades producidas (según unidad de medida, columna 2) (3)	Valor de producción (a precio de venta en fábrica, sin impuestos indirectos) (4)	Cantidad vendida (según unidad de medida, columna 2) (5)	Valor unitario de venta en fábrica (según unidad de medida, columna 2) (6)	Valor ventas totales (a precio de venta en fábrica, sin impuestos indirectos) (7)	% Vendido al exterior (8)	Cantidad enviada o recibida en transferencia (según unidad de medida, columna 2) (9)
<b>Si el establecimiento elabora otros productos, o los prediligenciados no corresponden, por favor relacionélos</b>									
1									
2									
3									
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12									
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18									
19									
20									
21									
22									
23									
24									
Valor de otros productos y subproductos obtenidos	OP								
<b>VALOR TOTAL DE LA PRODUCCION</b>					<b>TOTAL VENTAS INDUSTRIALES</b>				

**OTROS INGRESOS DERIVADOS DE LA ACTIVIDAD INDUSTRIAL (en miles de pesos), sin incluir impuestos indirectos (IVA y consumo)**

DETALLE	VALOR	DETALLE	VALOR
25) Ingresos por venta de productos no fabricados por el establecimiento		26) Valor cobrado por elaboración de productos para terceros que suministraron materias primas para su manufactura (discrimínelos en los renglones 1 al 22)	
26) Ingresos por venta de Materias primas, materiales y empaques sin transformar		29) Ingresos causados por la elaboración de actividades diferentes a la manufactura (discrimine en el anexo 1)	
27) Valor cobrado por servicios industriales prestados a terceros (discrimínelos en los renglones 1 al 22 indicando el tipo de servicio y valor cobrado)		30) TOTAL (renglones 25 a 29)	

## Annex B ISIC Rev.2 / ISIC Rev. 3 A.C. Correlative Tables

DIVISION	GROUP	CLAS	DESCRIPTION	MAJOR DIVISIONS
15	151		Manufacture of food products and beverages	311- 312  Manufacture of food products except beverages
			Production, processing and preservation of meat and fish	
		1511	Production, processing and preserving of meat and meat products	
		1512	Processing and preserving of fish and fish products	
	152		<b>Processing of fruit, legumes, vegetables, oils and fats</b>	
		1521	Processing of fruit, legumes and vegetables products	
		1522	Manufacture of vegetable and animal oils and fats	
	153	1530	Manufacture of dairy products	
	154		Manufacture of grain mill products, starches and starch products, and prepared animal feeds	
		1541	Manufacture of grain mill products	
		1542	Manufacture of starches and starch products	
		1543	Manufacture of prepared animal feeds	
	155		Manufacture of bakery products, macaroni, noodles, couscous and similar farinaceous products	
		1551	Manufacture of bakery products	
		1552	Manufacture of macaroni, noodles, couscous and similar farinaceous products	
	156		<b>Manufacture of coffee products</b>	
		1561	Coffee hulling	
		1562	Decaffeination	
		1563	Coffee roasting and grinding	
		1564	Manufacture of other coffee products	
	157		<b>Sugar mills and refineries</b>	
		1571	Manufacture and refining of sugar	
		1572	Manufacture of panela	
	158		<b>Manufacture of other food products</b>	
		1581	Manufacture of cocoa, chocolate and sugar confectionery	
		1589	Manufacture of other food products n.e.c.	
159		<b>Manufacture of beverages</b>		
	1591	Distilling, rectifying and blending of spirits; ethyl alcohol production from fermented materials		
	1592	Manufacture of non-distilled fermented beverages		
	1593	Manufacture of malt, beer and other malt beverages		
	1594	Manufacture of soft drinks; production of mineral waters		
16	160	1600	<b>Manufacture of tobacco products</b>	314 Manufacture of tobacco

17			<b>Manufacture of textiles</b>	321 Manufacture of textiles	
	171	1710	Preparation and spinning of textile fibers		
	172	1720	Weaving of textiles		
	173	1730	Finishing of textiles produced in other production unit		
	174				<b>Manufacture of other textiles</b>
		1741			Manufacture of articles with textiles produced in other production unit, except wearing apparel
		1742			Manufacture of carpets and rugs for floors
		1743			Manufacture of cordage, rope, twine and netting
	1749		Manufacture of other textiles NEC		
175	1750	Manufacture of knitted and crocheted fabrics and articles			
18			<b>Manufacture of wearing apparel; dressing and dyeing of fur</b>	322 Manufacture of wearing apparel except footwear	
	181	1810	Manufacture of wearing apparel, except fur apparel		
	182	1820	Dressing and dyeing of fur; manufacture of articles of fur		
19			<b>Tanning and dressing of leather; manufacture of footwear; manufacture of travel accessories, luggage, handbags, saddlery and harness</b>	323 Manufacture of leather, products of leather and fur, except footwear	
	191	1910	Tanning and dressing of leather		
	193				<b>Manufacture of foot wear</b>
		1931			Manufacture of leather footwear, with any type of sole, except sports shoes
		1932			Manufacture of footwear made of textile material, with any type of sole, except sports shoes
		1939			Manufacture of footwear made of rubber, except sports shoes
	192				Manufacture of plastic footwear, except sports shoes
		1921			Manufacture of sports shoes, including molding
		1922			Manufacture of footwear parts
		1923			Manufacture of footwear n.e.c
		1924			<b>Manufacture of travel accessories, luggage, handbags; saddlery and harness</b>
		1925			Manufacture of travel accessories, luggage, handbags; saddlery
		1926			Manufacture of travel accessories, luggage, handbags, made of
	1929		Manufacture of travel accessories, luggage, handbags and similar		
20			<b>Processing of wood, manufacture of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials</b>	331 Manufacture of wood and wood and cork products, except furniture	
	201	2010	Sawmilling, planning and impregnation of wood		
	202	2020	Manufacture of veneer sheets; manufacture of plywood, laminboard, particle board and other panels and boards		
	203	2030	Manufacture of builders' carpentry and joinery		
	204	2040	Manufacture of wooden containers		
	209	2090	Manufacture of other products of wood; manufacture of articles of cork, straw and plaiting materials		

21			<b>Manufacture of paper, paperboard and paper and paperboard products</b>	341 Manufacture of paper and paper products
	210		Manufacture of paper, paperboard and paper and paperboard products	
		2101	Manufacturing of paper pulp, paper and paperboard	
		2102	Manufacture of corrugated paper and paperboard, containers and packages of paper and paperboard	
	2109	Manufacture of other articles of paper and paperboard		
22			<b>Publishing, printing and reproduction of recorded media</b>	342 Printing, publishing and allied industries
	221		Publishing	
		2211	Publishing of books, brochures, musical books and other publications	
		2212	Publishing of newspapers, journals and periodicals	
		2213	Publishing of recorded media	
		2219	Other publishing	
	222	2220	Printing	
	223		Service activities related to printing	
		2231	Art, design, composition	
		2232	Photo mechanics and analog printing	
		2233	Bookbinding	
		2234	Surface finishing or coating	
		2239	Other related service activities n.e.c	
224	2240	Reproduction of recorded material		
23			<b>Manufacture of coke, refined petroleum products and nuclear fuel</b>	
	232		Manufacture of refined petroleum products	
		2321	Manufacture of refined petroleum products, inside the refinery	353 Petroleum refineries
		2322	Manufacture of petroleum derivatives, outside the refinery	354 Manufacture of miscellaneous products of petroleum and coal
24			<b>Manufacture of chemicals and chemical products</b>	
	241		Manufacture of basic chemicals	351 Manufacture of industrial chemicals
		2411	Manufacture of basic chemicals, except fertilizers and inorganic nitrogen compounds	
		2412	Manufacture of fertilizers and inorganic nitrogen compounds	
		2413	Manufacture of plastics in primary forms	
		2414	Manufacture of synthetic rubber in primary forms	
	243	2430	<b>Manufacture of man-made fibers</b>	
	242		<b>Manufacture of other chemical products</b>	352 Manufacture of other chemical products
		2421	Manufacture of pesticides and other agro-chemical products	
		2422	Manufacture of paints, varnishes and similar coatings, printing ink and mastics	
2423		Manufacture of pharmaceuticals, medicinal chemicals and botanical products		
2424		Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations		
	2429	Manufacture of other chemical products n.e.c.		

25	251		Manufacture of rubber and plastics products	355 Manufacture of rubber products	
			Manufacture of rubber products		
		2511	Manufacture of pneumatic rubber tires		
		2512	Retreading of used tires		
		2513	Manufacture of basic types of rubber		
	2519	Manufacture of other rubber products n.e.c			
	252			<b>Manufacture of plastics products</b>	356
2521			Manufacture of basic types of plastic	Manufacture of plastic products not elsewhere classified	
2529			Manufacture of plastics products n.e.c		
26			<b>Manufacture of other non-metallic mineral products</b>		
	261	2610	Manufacture of glass and glass products	362 Manufacture of glass and glass products	
				<b>Manufacture of non-metallic mineral products n.e.c.</b>	
	269	2691	Manufacture of non-structural non-refractory ceramic ware	361 Manufacture of pottery, china and earthenware	
		2692	Manufacture of refractory ceramic products	369 Manufacture of other non-metallic mineral products	
		2693	Manufacture of structural non-refractory clay and ceramic products		
		2694	Manufacture of cement, lime and plaster		
		2695	Manufacture of articles of concrete, cement and plaster		
		2696	Cutting, shaping and finishing of stone		
		2699	Manufacture of other non-metallic mineral products n.e.c.		
27			<b>Manufacture of basic metallurgical products</b>		
	271	2710	Manufacture of basic iron and steel	371 Iron and steel basic industries	
		273			Manufacture of basic precious and non-ferrous metals
	2731		Manufacture of basic precious		
	272		Manufacture of basic non-ferrous metals	372 Non-ferrous metal basic industries	
					<b>Casting of metals</b>
	2721		Casting of iron and steel		
	2729		Casting of non-ferrous metals		
28			<b>Manufacture of fabricated metal products, except machinery and equipment</b>		
	281		Manufacture of structural metal products, tanks, reservoirs and steam generators	381	
		2811	Manufacture of structural metal products		
		2812	Manufacture of tanks, reservoirs and containers of metal, except those used to contain or transport goods		
		2813	Manufacture of steam generators, except central heating hot water boilers		
	289			<b>Manufacture of other fabricated metal products; metal working service activities</b>	Manufacture of fabricated metal products, except machinery and equipment
		2891		Forging, pressing, stamping and roll-forming of metal; powder metallurgy	
		2892		Treatment and coating of metals; general mechanical engineering on a fee or contract basis	
2893			Manufacture of cutlery, hand tools and general hardware		
	2899		Manufacture of other fabricated metal products n.e.c.		

29	291		Manufacture of machinery and equipment n.e.c.	382	Manufacture of machinery except electrical
			Manufacture of general purpose machinery		
		2911	Manufacture of engines and turbines, except aircraft, vehicle and cycle engines		
		2912	Manufacture of pumps, compressors, taps and valves		
		2913	Manufacture of bearings, gears, gearing and driving elements		
		2914	Manufacture of ovens, furnaces and furnace burners		
		2915	Manufacture of lifting and handling equipment		
		2919	Manufacture of other general purpose machinery		
	292		Manufacture of special purpose machinery		
		2921	Manufacture of agricultural and forestry machinery		
		2922	Manufacture of machine-tools		
		2923	Manufacture of machinery for metallurgy		
		2924	Manufacture of machinery for mining, quarrying and construction		
		2925	Manufacture of machinery for food, beverage and tobacco processing		
		2926	Manufacture of machinery for textile, apparel and leather production		
2927		Manufacture of weapons and ammunition			
2929		Manufacture of other special purpose machinery n.e.c.			
30	300	3000	Fabricación de maquinaria de oficina, contabilidad e informática		
	293		Manufacture of domestic appliances n.e.c.		
		2930	Manufacture of domestic appliances n.e.c.		
31			<b>Manufacture of electrical machinery and apparatus n.e.c.</b>	383	Manufacture of electrical machinery apparatus, appliances and supplies
	311	3110	Manufacture of electric motors, generators and transformers		
	312	3120	Manufacture of electricity distribution and control apparatus		
	313	3130	Manufacture of insulated wire and cable		
	314	3140	Manufacture of accumulators and electric batteries		
	315	3150	Manufacture of electric lamps and lighting equipment		
	319	3190	Manufacture of other electrical equipment n.e.c.		
32			<b>Manufacture of radio, television and communication equipment and apparatus</b>	385	Manufacture of professional and scientific and measuring and controlling equipment not elsewhere classified, and of photographic and optical goods
	321	3210	Fabricación de tubos y válvulas electrónicos y de otros componentes electrónicos		
	322	3220	Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy		
33	323	3230	<b>Manufacture of television and radio receivers, sound or video recording or reproducing apparatus, and associated goods</b>		
	331		Manufacture of medical appliances and instruments and appliances for measuring, checking, testing, navigating and other purposes, except optical instruments		
		3311	Manufacture of medical and surgical equipment and orthopedic and prosthetic appliances		
		3312	Manufacture of instruments and appliances for measuring, checking, testing, navigating and other purposes, except industrial process control equipment		
	3313	Manufacture of industrial process control equipment			
332	3320	Manufacture of optical instruments and photographic equipment			
333	3330	Manufacture of watches and clocks			

34			<b>Manufacture of motor vehicles, trailers and semi-trailers</b>	384 Manufacture of transport equipment
	341	3410	Manufacture of motor vehicles and their engines	
	342	3420	Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers	
	343	3430	Manufacture of parts and accessories (luxuries) for motor vehicles and their engines	
35			<b>Manufacture of other transport equipment</b>	
	351		Building and repairing of ships and boats	
		3511	Building and repairing of ships	
		3512	Building and repairing of pleasure and sporting boats	
	352	3520	Manufacture of railway and tramway locomotives and rolling stock	
	353	3530	Manufacture of aircraft and spacecraft	
	359		Manufacture of transport equipment n.e.c.	
		3591	Manufacture of motorcycles	
		3592	Manufacture of bicycles and invalid carriages	
	3599	Manufacture of other transport equipment n.e.c.		
36			<b>Manufacture of furniture; manufacturing n.e.c.</b>	332 Manufacture of furniture and fixtures, except primarily of metal
	361		Manufacture of furniture	
		3611	Manufacture of home furniture	
		3612	Manufacture of office furniture	
		3613	Manufacture of furniture for business and services	
		3614	Manufacture of mattresses and bed bases	
		3619	Manufacture of other furniture n.e.c.	
	369		<b>Other manufacturing n.e.c.</b>	390 Other Manufacturing Industries
		3691	Manufacture of jewelry and related articles	
		3692	Manufacture of musical instruments	
3693		Manufacture of sporting goods		
3694		Manufacture of games and toys		
	3699	Other manufacturing n.e.c.		
37			<b>37 Recycling</b>	

1. This table allows the general relation the ISIC Rev 3 with ISIC Rev 2 major divisions; however, this homologation is not one by one
2. It includes groups 231 “Manufacture of coke oven products” and 232 “Manufacture of refined petroleum products” In the group 231 there are no sources included in the survey.
3. There are no sources included in the survey
4. There are no sources included in the survey. ISIC Rev 2 did not include the recycling activity.

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## Annex C Group codes and Industrial Classes

### SECTION D- MANUFACTURING (DIVISIONS 15 A 37)

#### **D Manufacturing**

##### **15 *Manufacture of food products and beverages***

##### **151 Production, processing and preservation of meat and fish**

1511 Production, processing and preserving of meat and meat products

1512 Processing and preserving of fish and fish products

##### **152 Processing of fruit, legumes, vegetables, oils and fats**

1521 Processing of fruit, legumes and vegetables products

1522 Manufacture of vegetable and animal oils and fats

##### **153 Manufacture of dairy products**

##### **154 Manufacture of grain mill products, starches and starch products, and prepared animal feeds**

1541 Manufacture of grain mill products

1542 Manufacture of starches and starch products

1543 Manufacture of prepared animal feeds

##### **155 Manufacture of bakery products, macaroni, noodles, couscous and similar farinaceous products**

1551 Manufacture of bakery products

1552 Manufacture of macaroni, noodles, couscous and similar farinaceous products

##### **156 Manufacture of coffee products**

1561 Coffee hulling

1562 Decaffeination

1563 Coffee roasting and grinding

1564 Manufacture of other coffee products

##### **157 Sugar mills and refineries**

1571 Manufacture and refining of sugar

1572 Manufacture of panela

##### **158 Manufacture of other food products**

1581 Manufacture of cocoa, chocolate and sugar confectionery

1582 Manufacture of other food products n.e.c.

##### **159 Manufacture of beverages**

1591 Distilling, rectifying and blending of spirits; ethyl alcohol production from fermented materials

1592 Manufacture of non-distilled fermented beverages

- 1593 Manufacture of malt, beer and other malt beverages
- 1594 Manufacture of soft drinks; production of mineral waters
  
- 16 *Manufacture of tobacco products***
- 160 Manufacture of tobacco products
  
- 17 *Manufacture of textiles***
- 171 Preparation and spinning of textile fibers**
- 172 Weaving of textiles**
- 173 Finishing of textiles produced in other production unit**
- 174 Manufacture of other textiles**
- 1741 Manufacture of articles with textiles produced in other production unit, except wearing apparel
- 1742 Manufacture of carpets and rugs for floors
- 1743 Manufacture of cordage, rope, twine and netting
- 1749 Manufacture of other textiles n.e.c
  
- 175 Manufacture of knitted and crocheted fabrics and articles**
  
- 18 *Manufacture of wearing apparel; dressing and dyeing of fur***
- 181 Manufacture of wearing apparel, except fur apparel
- 182 Dressing and dyeing of fur; manufacture of articles of fur
  
- 19 *Tanning and dressing of leather; manufacture of footwear; manufacture of travel accessories, luggage, handbags, saddlery and harness***
  
- 191 Tanning and dressing of leather**
  
- 192 Manufacture of foot wear**
- 1921 Manufacture of leather footwear, with any type of sole, except sports shoes
- 1922 Manufacture of footwear made of textile material, with any type of sole, except sports shoes
- 1923 Manufacture of footwear made of rubber, except sports shoes
- 1924 Manufacture of plastic footwear, except sports shoes
- 1925 Manufacture of sports shoes, including molding
- 1926 Manufacture of footwear parts
- 1929 Manufacture of footwear n.e.c
  
- 193 Manufacture of travel accessories, luggage, handbags; saddlery and harness**
- 1931 Manufacture of travel accessories, luggage, handbags; saddlery and harness
- 1932 Manufacture of travel accessories, luggage, handbags, made of synthetic materials, plastic and imitation fur
  
- 1939 Manufacture of travel accessories, luggage, handbags and similar articles made of materials n.e.c
  
- 20 *Processing of wood, manufacture of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials***
  
- 201 Sawmilling, planing and impregnation of wood**

**202** **Manufacture of veneer sheets; manufacture of plywood, laminboard, particle board and other panels and boards**

**203** **Manufacture of builders' carpentry and joinery**

**204** **Manufacture of wooden containers**

**209** **Manufacture of other products of wood; manufacture of articles of cork, straw and plaiting materials**

**21** ***Manufacture of paper, paperboard and paper and paperboard products***

**210** **Manufacture of paper, paperboard and paper and paperboard products**

2101 Manufacturing of paper pulp, paper and paperboard

2102 Manufacture of corrugated paper and paperboard, containers and packages of paper and paperboard

2109 Manufacture of other articles of paper and paperboard

**22** ***Publishing, printing and reproduction of recorded media***

**221** **Publishing**

2211 Publishing of books, brochures, musical books and other publications

2212 Publishing of newspapers, journals and periodicals

2213 Publishing of recorded media

2219 Other publishing

**222** **Printing**

**223** **Service activities related to printing**

2231 Art, design, composition

2232 Photo mechanics and analog printing

2233 Bookbinding

2234 Surface finishing or coating

2239 Other related service activities n.e.c

**224** **Reproduction of recorded material**

**23** ***Manufacture of coke, refined petroleum products and nuclear fuel***

**231** **Manufacture of coke oven products**

**232** **Manufacture of refined petroleum products**

2321 Manufacture of refined petroleum products, inside the refinery

2322 Manufacture of petroleum derivatives, outside the refinery

**233** **Processing of nuclear fuel**

**24** ***Manufacture of chemicals and chemical products***

**241** **Manufacture of basic chemicals**

2411 Manufacture of basic chemicals, except fertilizers and inorganic nitrogen compounds

2412 Manufacture of fertilizers and inorganic nitrogen compounds

2413 Manufacture of plastics in primary forms

2414 Manufacture of synthetic rubber in primary forms

**242 Manufacture of other chemical products**

2421 Manufacture of pesticides and other agro-chemical products

2422 Manufacture of paints, varnishes and similar coatings, printing ink and mastics

2423 Manufacture of pharmaceuticals, medicinal chemicals and botanical products

2424 Manufacture of soap and detergents, cleaning and polishing preparations, perfumes and toilet preparations

2429 Manufacture of other chemical products NEC

**243 Manufacture of man-made fibers**

**25 *Manufacture of rubber and plastics products***

**251 Manufacture of rubber products**

2511 Manufacture of pneumatic rubber tires

2512 Retreading of used tires

2513 Manufacture of basic types of rubber

2519 Manufacture of other rubber products NEC

**252 Manufacture of plastics products**

2521 Manufacture of basic types of plastic

2529 Manufacture of plastics products NEC

**26 *Manufacture of other non-metallic mineral products***

**261 Manufacture of glass and glass products**

**269 Manufacture of non-metallic mineral products NEC**

2691 Manufacture of non-structural non-refractory ceramic ware

2692 Manufacture of refractory ceramic products

2693 Manufacture of structural non-refractory clay and ceramic products

2694 Manufacture of cement, lime and plaster

2695 Manufacture of articles of concrete, cement and plaster

2696 Cutting, shaping and finishing of stone

2699 Manufacture of other non-metallic mineral products NEC.

**27 *Manufacture of basic metallurgical products***

**271 Manufacture of basic iron and steel**

**272 Manufacture of basic precious and non-ferrous metals**

2721 Manufacture of basic precious

2729 Manufacture of basic non-ferrous metals

**273 Metals casting**

2731 Iron and steel casting

2732 Non-ferrous metals casting

**28 *Manufacture of fabricated metal products, except machinery and equipment***

**281 Manufacture of structural metal products, tanks, reservoirs and steam generators**

2811 Manufacture of structural metal products

2812 Manufacture of tanks, reservoirs and containers of metal, except those used to contain or transport goods

2813 Manufacture of steam generators, except for central heating hot water boilers

**289 Manufacture of other fabricated metal products; metal working service activities**

2891 Forging, pressing, stamping and roll-forming of metal; powder metallurgy

2892 Treatment and coating of metals; general mechanical engineering on a fee or contract basis

2893 Manufacture of cutlery, hand tools and general hardware

2899 Manufacture of other fabricated metal products n.e.c.

**29 Manufacture of machinery and equipment NEC**

**291 Manufacture of general purpose machinery**

2911 Manufacture of engines and turbines, except aircraft, vehicle and cycle engines

2912 Manufacture of pumps, compressors, taps and valves

2913 Manufacture of bearings, gears, gearing and driving elements

2914 Manufacture of ovens, furnaces and furnace burners

2915 Manufacture of lifting and handling equipment

2919 Manufacture of other general purpose machinery

**292 Manufacture of special purpose machinery**

2921 Manufacture of agricultural and forestry machinery

2922 Manufacture of machine-tools

2923 Manufacture of machinery for metallurgy

2924 Manufacture of machinery for mining, quarrying and construction

2925 Manufacture of machinery for food, beverage and tobacco processing

2926 Manufacture of machinery for textile, apparel and leather production

2927 Manufacture of weapons and ammunition

2929 Manufacture of other special purpose machinery NEC

**293 Manufacture of domestic appliances NEC**

**30 Manufacture of office, accounting and computing machinery**

**300 Manufacture of office, accounting and computing machinery**

**31 Manufacture of electrical machinery and apparatus NEC**

**311 Manufacture of electric motors, generators and transformers**

**312 Manufacture of electricity distribution and control apparatus**

**313 Manufacture of insulated wire and cable**

**314 Manufacture of accumulators and electric batteries**

**315 Manufacture of electric lamps and lighting equipment**

**319 Manufacture of other electrical equipment NEC**

**32 Manufacture of radio, television and communication equipment and apparatus**

**321 Manufacture of electronic valves and tubes and other electronic components**

- 322 **Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy**
- 323 **Manufacture of television and radio receivers, sound or video recording or reproducing apparatus, and associated goods**
- 33 ***Manufacture of medical, precision and optical instruments, watches and clocks***
  - 331 **Manufacture of medical appliances and instruments and appliances for measuring, checking, testing, navigating and other purposes, except optical instruments**
    - 3311 Manufacture of medical and surgical equipment and orthopedic and prosthetic appliances
    - 3312 Manufacture of instruments and appliances for measuring, checking, testing, navigating and other purposes, except for industrial process control equipment
    - 3313 Manufacture of industrial process control equipment
  - 332 **Manufacture of optical instruments and photographic equipment**
  - 333 **Manufacture of watches and clocks**
- 34 ***Manufacture of motor vehicles, trailers and semi-trailers***
  - 341 **Manufacture of motor vehicles and their engines**
  - 342 **Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers**
  - 343 **Manufacture of parts and accessories (luxuries) for motor vehicles and their engines**
- 35 ***Manufacture of other transport equipment***
  - 351 **Building and repairing of ships and boats**
    - 3511 Building and repairing of ships
    - 3512 Building and repairing of pleasure and sporting boats
  - 352 **Manufacturing of railway and tramway locomotives and rolling stock**
  - 353 **Manufacturing of aircraft and spacecraft**
  - 359 **Manufacture of transport equipment NEC**
    - 3591 Manufacture of motorcycles
    - 3592 Manufacture of bicycles and invalid carriages
    - 3599 Manufacture of other transport equipment NEC
- 36 ***Manufacture of furniture; manufacturing NEC***
  - 361 **Manufacture of furniture**
    - 3611 Manufacture of home furniture
    - 3612 Manufacture of office furniture
    - 3613 Manufacture of furniture for business and services
    - 3614 Manufacture of mattresses and bed bases
    - 3619 Manufacture of other furniture NEC

**369 Other manufacturing NEC**

3691 Manufacture of jewelry and related articles

3692 Manufacture of musical instruments

3693 Manufacture of sporting goods

3694 Manufacture of games and toys

3699 Other manufacturing NEC

**37 *Recycling***

**371 Recycling of metal waste and scrap**

**372 Recycling of non-metal waste and scrap**

**Note: In activites 2330, 3520, 3710 and 3720 there are no sources included for the EAM.**

### Annex D Legal Organization of Establishments

EAM LEGAL ORGANIZATION UNTIL 2000		LEGAL ORGANIZATION ADOPTED IN SINGLE COVER PAGE (Caratula unica)	
01	Natural person or individual property	09	Sole proprietorship
		11	Natural person
02	De facto Corporation	10	De facto corporation
03	General partnership	01	General partnership
04	Stock corporation	05	Stock corporation
05	Limited partnership	02	Limited partnership
06	Partnership limited by shares	03	Limited partnership by shares
07	Limited liability company	04	Limited liability company
08	Solidarity Economy	12	Solidarity economy organization
		12,1	Cooperative
		12,2	Precoperative
		12,3	Solidarity economy auxiliary institutions
		12,4	Service enterprises as cooperative administrations
		12,5	employee fund
		12,6	Cooperatives of labour associates
		12,7	Mutual associations
		12,8	Solidarity health enterprise
		12,9	Community enterprise
		12,10	Federation and Confederation
12,11	Labour associative enterprise		
09	Non-profit organization	13	Non-profit organization
10	Other	99	Other
		06	Mixed economy company
		07	Foreign branch company
		08	State Industrial and commercial enterprises

### Annex E Metropolitan Areas

Code	Metropolitan Areas
1	Barranquilla - Soledad - Malambo - Puerto Colombia
2	Bogotá, D.C. – Tocancipá - Soacha - Mosquera - Cajicá - Sopó - Madrid - Funza- Chía - Sibaté - Cota - Facatativá - La Calera - Zipaquirá - Gachancipá - Bojacá - Tabio
3	Bucaramanga – Girón - Floridablanca - Piedecuesta
4	Cali – Yumbo – Jamundí - Palmira
5	Cartagena
6	Manizales – Chinchiná - Villamaría - Neira - Palestina
7	Medellín - Itagüí - Envigado - Bello - Sabaneta - Girardota – La Estrella – Copacabana - Barbosa - Caldas
8	Pereira – Santa Rosa de Cabal- Dosquebradas
9	Remainder of the country
10	Cúcuta - Los Patios - Villa del Rosario - El Zulia

## **Annex F Annual Manufacturing Survey (EAM) Output tables**

The following list presents the most important output tables concerning the Annual Manufacturing Survey EAM.

Table 1: Colombia. Summary of principal variables. Industrial groups, employed personnel scale, production value scale, legal organization, departments, metropolitan areas.

Table 2: Colombia. Principal variables. Industrial groups and classes, industrial groups and employed personnel scale, industrial groups and production value scale, legal organization of establishments and industrial groups, departments and industrial divisions, metropolitan areas and industrial groups, Departments and employed personnel scale, departments and production value scale, industrial groups disaggregated by department.

Table 3: Colombia: Employed personnel by type of contract and gender: Industrial groups and classes, industrial groups disaggregated by department.

Table 4: Colombia. Remunerated personnel by industry, type of contract and gender: Industrial groups and classes, industrial groups disaggregated by department.

Table 5: Colombia. Non-remunerated personnel by industry, by type of contract and gender: Industrial groups and classes, industrial groups disaggregated by department.

Table 6: Colombia. Remunerated personnel by industry, occupational category and gender. Groups and industrial classes, departments and industrial groups.

Table 7: Colombia. Employers' remuneration by type of contract, occupational category; industrial groups and classes, industrial groups disaggregated by department.

Table 8. Colombia. Other costs and expenditures of employed personnel by occupational category: Industrial groups and classes, industrial groups disaggregated by department.

Table 9: Colombia. Value of intermediate consumption components: Industrial groups and classes, industrial groups disaggregated by department.

Table 10: Colombia. Electricity consumption, generation, purchase and sale and consumption of other energy sources: Groups and industrial classes.

Table 11: Colombia. Asset value at the beginning of the year, gross investment, depreciation, net investment, valuation, depreciation and inflation adjustments, and assets' value at the end of the year; industrial groups and classes.

Table 12: Colombia. Acquisitions value, transfers received and sent for the establishment's own use by class (land, other non depreciable goods, buildings and structures, machinery and equipment, transport equipment, office and informatics equipment, and other depreciable goods): Industrial groups and classes.

Table 13: Colombia. Salas value, withdrawals and transferences sent, by asset class (Land, other non depreciable goods, buildings and structures, machinery and equipment, transport equipment, office and informatics equipment, and other depreciable goods): Industrial groups and classes.

Table 14: Colombia. Gross investment value by class (land, other non-depreciable goods, buildings and structures, machinery and equipment, transport equipment, office and informatics equipment, and other depreciable goods): Industrial groups and classes.

Table 15: Colombia. Accrued depreciation value by class, (Land, other non-depreciable goods, buildings and structures, machinery and equipment, transport equipment, office and informatics equipment, and other depreciable goods): Industrial groups and classes.

Table 16: Colombia. Net investment's value by class (Land, other non-depreciable goods, buildings and structures, machinery and equipment, transport equipment, office and informatics equipment, and other depreciable goods): Industrial groups and classes.

Table 17: Colombia. Assets' value at the end of the year, by class (Land, other non-depreciable goods, buildings and structures, machinery and equipment, transport equipment, office and informatics equipment, and other depreciable goods): Industrial groups and classes.

Table 18: Colombia. Valorization, depreciation and fixed assets' inflation adjustments by class (Land, other non-depreciable goods, buildings and structures, machinery and equipment, transport equipment, office and informatics equipment, and other depreciable goods): Industrial groups and classes.

Table 19: Colombia. Administration and sales expenditures, industrial groups and classes, industrial groups disaggregated by departments and metropolitan areas.

Table 20: Colombia. Sales and purchases done nationwide and abroad; Industrial groups and classes, industrial groups disaggregated by departments and metropolitan areas.

Table 21: Colombia. Operation costs and expenditures, administration and sales, industrial groups and classes, industrial groups disaggregated by departments and metropolitan areas.

Table 22: Colombia. Stocks value on January 1<sup>st</sup> and December 31<sup>st</sup> by class (Raw materials, products in process and finished products), according to industrial groups and classes.

Table 23: Colombia. Purchase and consumption of raw materials, materials and packaging during the year; raw materials, materials and packaging consumed and purchased according to the type of item. National Total

Table 24: Colombia. Production and selling of items during the year, as well as stocks of

products finished by December 31<sup>st</sup>. Production and sales of items during the year and stocks of products finished by December 31<sup>st</sup>.