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SOUTH AMERICAN TRANSPORT STATISTICS SYSTEM (SETAS)

Analysis of pilot project

The SETAS pilot project was carried out by the ECLAC Transport Unit, between October 1999 and May 2000 to assess the feasibility of constructing a transport statistics information system for South America. As this would entail a major effort to establish common statistical procedures and criteria between countries, the pilot project attempted to assess the potential of using informatics techniques for standardizing a significant set of regional transport statistics variables.

The pilot phase involved specialized transport statistics institutes from Bolivia, Brazil and Chile — the countries chosen to participate in the initial stage of the project. There was also participation by staff members from the Latin American Integration Association (LAIA), and from the ECLAC Statistics and Economic Projections Division, the Electronic Information Centre and the Transport Unit of the Natural Resources and Infrastructure Division.

This edition of the FAL Bulletin explains on the components of the SETAS pilot project and the results obtained. For further information on the SETAS project, please contact José María Rubiato: email jrubiato@eclac.cl or Myriam Echeverría: email mecheverria@eclac.cl. For information on informatics development, please contact Gabriel Pérez: email gperez@eclac.cl.

INFORMATION TECHNOLOGY STANDARDIZATION AS A STARTING POINT

The traditional approach to this type of initiative involves statistical standardization of the data.

This requires collaborative work from all participating countries and the institutions involved, to ensure that common codes and procedures are used throughout the region. Given the structural changes implied by such an initiative, many years' effort would be needed to achieve the goal.

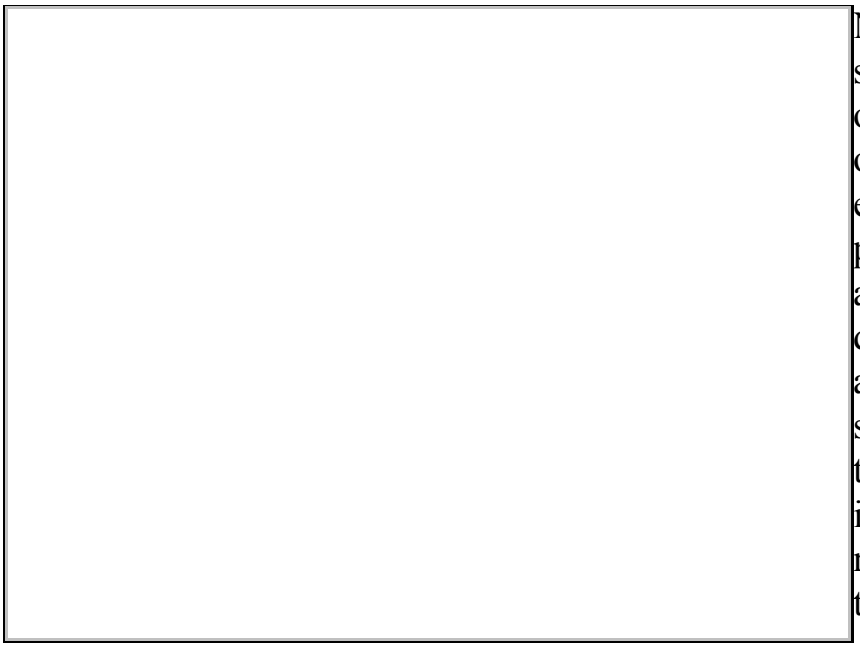
Notwithstanding the importance of statistical data standardization and the need to create common administrative procedures among the region's countries, in order to collect adequate standardized transport information, We argue that, given the advances made in information technology, part of the "complexity" of statistical systems can be transferred to informatics systems. The key idea here is to standardize as much as possible through automated data procedures, while standardizing statistically at the same time. This "informatics standardization" is achieved through data translation tables that transform values into standardized data.

AIMS OF THE PILOT PROJECT

- To design an informatics system capable of **interpreting and assimilating the different types of data** produced by existing national statistical systems.
- **To minimize the costs of adapting** national systems and steadily develop regional standardization without interrupting the work of data-producing centres in each country.
- **To gradually harmonize and standardize the data** collected. A later aim would be to carry out activities of technical assistance and methodological development for implementing the best procedures for collecting homogeneous data — by applying, for instance, advanced statistical techniques, for example.

ANALYSIS OF DEVELOPMENT STAGES

The system has been designed within the framework proposed by the Expert Group meeting held at ECLAC headquarters in October 1999 and presented in FAL Bulletin No. 159, November 1999.



Note: The diagram shows the system's operating platform. Users, of any type, connect to the system over the Internet. Once they have entered and validated their access privileges, their information request is answered, using the SETAS database, depending on their query or the access privileges they hold. The system redirects the query or the user to the databases of specialized institutions in each country, if the data request concerns a specific national topic.

SETAS was conceived as an information system using informatics tools to process national data to obtain global figures that are comparable between countries of the region. The system uses a database engine that stores and processes information supplied by different sources.

The application interface, both for queries and for data updating and modification by official SETAS sources, has been developed for access via the Internet, since this is an effective low-cost medium for database access compared to other alternatives such as implementing a private data network.

DESCRIPTION OF USER INTERFACE

Information access is structured on two tiers: a higher level giving access to data catalogued by transport mode; and a lower access level where the information is displayed.

Clicking on one of the icons gives access to aggregated and disaggregated information, classified as follows:

INFRASTRUCTURE AND EQUIPMENT: this heading shows aggregate information on physical infrastructure, such as airports, ports, length of paved highways, from at least two pilot project countries.

FIRMS: this displays aggregate information for each country, by firm: for example, the number of staff employed by Brazilian railway companies.

TRAFFIC: this contains data on volumes transported by each transport mode, measured by number of passengers, tons, or some other indicator (passengers-km, for example).

Comparable data can be distinguished within these categories, i.e. regional data held in the SETAS database, and non-comparable or disaggregated information which does not necessarily come from the system's database. This information is filtered again, this time by country — for example, links to Internet sites, specific maps or on-line documents published by specialized transport institutes in the different countries. This procedure was conceived from the outset of the project and specifies the existence of three types of database: (i) a SETAS database containing standardized, homogeneous and comparable data; (ii) another SETAS database with non-standardized information and links or references to Internet sites; and (iii) databases belonging to specialized national institutes, not managed by the project. Remember, the aim is to generate regional statistics, the hope being that the SETAS database containing unstandardized information will gradually shrink during the course of project, and eventually only hold references and links to external sources relating to national databases held by specialized institutes. The intention has never been to replace these, or to duplicate their content, but instead to support their work in order to develop a regional informatics standard aimed at producing higher quality regional statistics.

The prototype presented here is in the development and evaluation phase, with access restricted to participants in the pilot project working group; for the time being it is not accessible to other potential users of the system.

FOLLOW-UP PROPOSALS

One of the first obstacles identified in developing the system was the scant documentation available on national informatics systems, as regards description of the data model and the variables covered — in other words definition of variables, units of measurement, population and geographic coverage, data collection method — basically all information needed to validate the significance, coverage and importance of the statistical information contained in the variable. Although it was possible to construct the prototype presented here, this scenario makes it difficult to structure an informatics system of SETAS characteristics without previously undertaking a series of prior actions.

In view of this, the following actions are considered necessary:

Decide on the priorities and information needs of the countries, in the national and regional domains. This will make it possible to design and orientate future work on aspects of common interest, so as to obtain results that are useful to a majority of users.

Provide technical assistance to countries on the design, maintenance and management of data systems and transport databases. This is crucially important for future SETAS

development. There is growing demand for transport statistics and informatics development, which the project could lead and co-ordinate. In many respects, the development of transport information systems is still in its infancy, so countries need help in incorporating new technologies to enable them to fully exploit the human and material resources available to them.

Create a network of statistical institutions. This has the aim of disseminating experiences and methodologies developed in other countries, which could serve as a guide or model for future developments both in the informatics domain and in the statistical field**.**

SOME CONCLUSIONS FROM THE SETAS PILOT PROJECT

In view of the goals set for the SETAS project in its original and complete conception, the following appraisal can be made of the work undertaken to date:

It is clear that an initial level of standardization is feasible using information technology tools, such as databases. Nonetheless, the quality and viability of such standardization varies with the quality of data supplied by individual sources, in terms of both data consistency and measurement units used, and in the attached metadata. If this information is made available in a suitable and timely fashion, it will be possible to achieve an initial approach to comparability between variables from different countries, in the hope that statistical work aimed at standardizing variables and developing common regional procedures will eventually allow full comparability.

The main difficulties encountered in this development relate to the scant or non-existent documentation on computerized transport information systems, together with delays by individual sources in making information available, and institutional problems relating to the free provision of statistical data.

The system has been developed so as to obtain maximum benefit from national systems, and so far it has not been necessary to alter existing systems. Countries have only been asked to provide data to the statistical information system without specifying any particular format. The system makes the transformations needed for adequate data storage in accordance with underlying data models. In this way, the costs of adapting national systems are minimized, and regional standardization can proceed without interfering in the work of each country. Although the level of standardization achieved is neither sufficient and nor satisfactory as judged by the project goals, it can definitely be stated that as long as data are supplied in a suitable and timely fashion, it will possible to generate a representative set of transport indicators that are comparable between the countries of the region.

There is a clear need to coordinate the various initiatives in the statistics and information technology fields, whether national or regional, in order to gradually construct a transport statistics information system standard. SETAS can thus be structured not only as a South American transport information network providing regional statistical data, but it can also serve to centralize and distribute methodologies, tools and experiences, relating to both information

technology and statistics, in support of actions and future developments in these areas in all countries of the region.
