Subregional Seminar on the Trade Statistics Database
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**Report of the subregional seminar on
The trade statistics database**

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REPORT OF THE SUBREGIONAL SEMINAR ON
THE TRADE STATISTICS DATABASE

The third in a series of three subregional seminars to report on the achievements of Project NET/00/081 was held on 2 and 3 December 2002 at the Hilton Hotel in Kingston, Jamaica. Attending the meeting were chief statisticians and trade statistics personnel from the northernmost countries of the Caribbean Development and Cooperation Committee (CDCC) subregion. The seminar, in addition to reporting progress on the project and demonstrating the mechanism of the query routine in the trade database created through the project, showcased two trade analysis packages whose elements of analysis could be implemented with the data from the database created under the project.

Attending the seminar were participants from the statistical offices of Jamaica, Belize and the British Virgin Islands. A list of participants is annexed to this report.

Agenda item 1:
Welcome remarks

Mr. Lancelot Busby, Economic Affairs Officer, Economic Commission for Latin America and the Caribbean/Caribbean Development and Cooperation Committee (ECLAC/CDCC) secretariat opened the seminar and welcomed the participants. He reminded the seminar of the origins of the project, pointing out the frequent complaint of the paucity of statistics on the Caribbean. He noted that the Government of the Netherlands had been consistent in its assistance to the Caribbean in the area of trade. He referred the meeting to an earlier project funded by the Dutch on the promotion of trade and investment in Latin America and the Caribbean. The project funding of the trade database was a demonstration of the consistency of the Dutch in the belief that a good trade database would be useful as a tool to a wide variety of decision makers, including trade negotiators and investors. He hoped that the trade statistics database that was already on the world-wide web and was being fine-tuned would be the first in a number of databases on the Caribbean that would move the Caribbean from being a "data poor" subregion to a "data-rich" one. He expressed the hope that the seminar would be a fruitful one.

Agenda item 2:
Consideration and adoption of the Agenda

The meeting adopted the agenda as proposed. Mr. Lancelot Busby of the ECLAC/CDCC secretariat assumed the Chair. The agenda was as follows:

1. Welcome remarks

2. Consideration and adoption of the agenda

3. Presentation of objectives of project and database design - An overview of work accomplished

4. Consultant's report - Assessing the job

5. Consultant's report – Terms of reference, approach to work and achievements

6. Other project activities

7. Description and demonstration of the database engine

8. Analysis of Trade Data – Part 1

9. Analysis of Trade Data – Part 2

10. A road map for future work

11. Discussion on modalities for the future transfer of data to ECLAC

12. Closing remarks from participants and from ECLAC

Agenda item 3:
- Presentation of objectives of project and database design
- An overview of work accomplished

The ECLAC/CDCC secretariat presented an overview of the project and its accomplishments, tracing its evolution. Attention was drawn to the fact that the project had produced a database that was substantial. Although information for all years for all countries was not available, the database was functional. The challenges encountered in collecting the data were highlighted. They included the issue of confidentiality as perceived by the smaller countries involved in the database coverage. In like manner, the successes were noted and the countries thanked for the part that they had played in ensuring the success of the project. At the time of presentation, some 20 million records had been stored in the database. The secretariat observed that in addition to providing data on trade and transportation, the database allowed the

use of analytical tools based on other software packages to provide insights into the evolving nature of markets. Those insights would assist countries to strategize their approaches to the market. Based on the progress made in the project, the probability of sustainability of the initiative would be increased if a successor phase that sought to improve data quality while training the key stakeholders to deliver quality data the first time were put in place. The successor phase would also train a number of persons in the Caribbean to be proficient in the use of the database engine and contribute to the continuing development of the software. The assistance of ECLAC Headquarters in making available the services of Mr. Serge Poulard of the Latin American and Caribbean Demographic Centre (CELADE) to work with the project team in Port of Spain was acknowledged. The secretariat also reported on the interest of all countries to produce index numbers of volume and value of trade. Many had tried but had abandoned their efforts because of measurement problems experienced. The meeting was informed of some of the techniques being tried to produce an index that would maintain comparability in measurement over time. The secretariat reported that in the two previous seminars, ECLAC had been requested to look into a methodology that would yield a more accurate index.

The Chair, in response to a question of the periodicity of the database reporting, stated that data collection would be annual.

Agenda item 4:
Consultant's report - Assessing the job

Mr. Joe Babooram, Consultant, presented his report in two parts, the first of which recalled the preparatory work and feasibility considerations that would inform of the likely success of the project. Investigative data had been collected by means of a questionnaire that established the ability of the countries to provide trade data and the hardware endowment of the countries to process trade statistics. Mr. Babooram reported on the first meeting of an ad hoc expert group that had advised the project team to opt for the transaction file rather than the annual consolidated file as the former would be able to yield the data on transportation. The database that had been produced for demonstration at the seminar was the result of those consultations. Mr. Babooram highlighted the characteristics of the data submitted, drawing attention to the different coding schemes used across countries and justifying the need to normalize the data.

The meeting was cautioned that care should be taken at the customs and statistical office sites to observe the difference between country of consignment and country of origin and ensure that the correct coding was used.

Agenda item 5:
Consultant's report – Terms of reference, approach to work and achievements

Mr. Joe Babooram, Consultant, presented a detailed account of his terms of reference and proceeded to report on implementation. He discussed the mechanics and complexities of data collection, highlighting the challenges posed by widely varying specifics of data capture. Among the challenges were the following:

- Many formats used for supplying the data to ECLAC. Formats included ACCESS, EXCEL, DBASE 7, ASCII and DBASE IV.

- Poor documentation of record layout that accompanied the files.

- The above diversity increased the effort necessary to secure the normalization of the data.

- The derivation of a common file design and the identification of an acceptable software package for use in creating the database.

- The methodology for creating the databases and delivering them to the webpage designer at ECLAC.

- The identification of data requirements.

- The identification of beneficiaries of the project intervention.

- Future work necessary to sustain the significant achievements of the project.

The emphasis of the Customs Department on the collection of duties resulted in an underestimate of the need for accurate non-duty data. The result was increased work for the Statistical Office to rectify faulty input data. In a previous project the United Nations Conference on Trade and Development (UNCTAD) had embarked on a number of seminars aimed at training brokers, customs and statistical staff to get the data recording right the first time and, by so doing, improve the quality of data. The data collected was a reflection of the improvement in data capture. There remained, however, the need to sustain such training. Such activity should form part of a second phase of the project. The Consultant informed the meeting that some 15 million records had been included in the database up to the date of the seminar and more countries' data were to be added. He promised to compile a list of the errors encountered during the phase of cleaning the country data as submitted for the benefit of the statistical offices.

In response to the disclosure that the Caribbean Community (CARICOM) had recently prepared a revised Common External Tariff (CET) document, Mr. Babooram suggested that it would be advantageous if ECLAC could obtain a copy for use in examining the new mapping of item numbers.

Agenda item 6:
Other project activities

The ECLAC/CDCC secretariat reported on the study *"The Netherlands Antilles: Trade and Integration with CARICOM"* which formed part of the activities of the Dutch-funded Trade Database Project.

The Dutch Government had been interested in deepening the relations between the Dutch territories in the Caribbean, in particular the Netherlands Antilles, and the member countries of CARICOM. To this end, resources had been provided to undertake a study of existing trade relations between the two sets of countries. The objective was to recommend an optimal form of association between the Netherlands Antilles and CARICOM.

Because the trade database was in the process of being developed, the study necessitated visits to the five islands that comprised the Netherlands Antilles, namely Bonaire, Curacao, Saba, St. Eustatius and Dutch St. Maarten in order to gather trade data as well as other information relevant to the study.

The findings of the study revealed that the level of trade between the Netherlands Antilles and CARICOM was not significant. For example, during the 1990s the Netherlands Antilles exported 14% of its total exports to CARICOM and imported 5% of its total imports from CARICOM. Most of the Netherlands Antilles' trade was with the European Union, North America and Latin America. Oil was the main export as well as the main import. Crude oil went into the Netherlands Antilles for refining and the refined products went back out, showing as imports and exports, respectively. The main CARICOM exporters to the Netherlands Antilles were Trinidad and Tobago, Suriname, Jamaica and Barbados. The main imports from CARICOM comprised fish, oil products, cereals, pharmaceuticals and motor vehicle parts.

Major factors militating against increased exports from the Netherlands Antilles to CARICOM were tariff barriers (the CARICOM CET rates ranged from 10-40%), non-tariff barriers (e.g. import licensing), high transportation costs (freight rates) and the homogeneous production structures of the two sets of countries.

The study was based on data that were available only for the last two years of the 1990s. It could have benefited from a longer time series which would have allowed for more detailed analysis of the Netherlands Antilles' trade and competitiveness. The trade database under construction contained data that would have been used by the consultant had it been available at the time of his study. A major weakness of the study was the absence of analysis of trade in services between the Netherlands Antilles and CARICOM. The lack of detailed data on trade in services might have contributed to that situation.

Despite those shortcomings, the study recommended "associate member" status for the Netherlands Antilles in CARICOM, leading to the establishment of a free trade arrangement between the two groups, especially in light of the planned creation of the Free Trade Area of the Americas (FTAA) in 2005.

Agenda item 7:
Description and demonstration of the database engine

Mr. Serge Poulard of CELADE located at ECLAC Headquarters in Santiago, Chile, presented to the meeting a description of the database engine and the website look and feel. He traced the short history of the engine from its early days as the REDATAM engine for census and survey type applications to its contemporary versatility in handling hierarchical databases. He demonstrated the ease with which programming could be done and showed that fact by programming an output to a data request made by one participant at the session. That output was presented after less than two hours' programming effort. He demonstrated the speed of the engine, which was an advantage for web queries. Mr. Poulard reiterated the design of access to the database, pointing out the varying levels of access that would be permitted. He reiterated the previous statement of the secretariat that the ECLAC trade database would not be used to deflect requests for information away from the national statistical offices. The meeting benefited from a demonstration of the ease of preparing a query to yield an analysis of trade by trading blocs or regional groupings.

In answer to the question of which data source would have the greater validity, the clarification was made that if the database were properly updated and maintained, it would track revisions that the countries made to their data but could not reflect in hard copy as it was too expensive to re-print an annual trade statistics report. The database should therefore be the preferred source of data.

The secretariat clarified that it would not be desirable for countries to have the capability of writing to the database as that level of access would bring with it an increased probability of compromising the integrity of the database. The speed, versatility and functionality of the database engine were highlighted by the secretariat and it was stated that work on the preparation of the documentation of the query routine would commence in a short time.

Participants were able to test the database through a "hands-on" experience. Questions raised about the possibility of including in the query outcomes data on volumes traded led to the acceptance of the implied recommendations. Other recommendations were that the secretariat should seek to reveal data on re-exports in addition to the domestic exports being revealed. The secretariat agreed to the suggestion that it should state that the database presented data for domestic exports only although data on re-exports had been captured but not revealed by the queries. Further programming would have to be done to reveal re-export data.

In answer to suggestions for more derived data to be included in the database, the secretariat cautioned that a database was not intended to perform every calculation conceivable, but rather to answer queries and perhaps provide some value-added analytical extras. The secretariat informed the meeting that on the subject of percentages, the indicator of market share did in fact present the trade performance in percentages.

Participants inquired whether in succeeding rounds of data collection the database could be expanded to include more variables. The secretariat responded that it was possible as long as the data conformed to the structure of the database. In terms of data capture from the single

administrative document or the invoices, that was possible. Countries would have the option of agreeing and supplying the additional data.

In answer to the question of whether indicators of competitiveness could be obtained from the database, the secretariat clarified that those indicators had already been worked into the database and were available. The secretariat clarified that a query that examined the trade in any given item between the reference country and a third country could be addressed by the database that would be made available to the country statisticians. That query would have to be addressed to the chief statistician of the country because of the access bar that had been placed on data at a level of disaggregation lower than the three-digit level.

Participants wished to know what plans existed for the maintenance of the database. The secretariat clarified that the database engine was owned by ECLAC and was widely used for other applications, like the population and housing census. It was fully supported by ECLAC. The data series was envisaged to continue for as long as external conditions allowed.

On the subject of the access bar, participants wished to know if data could be generated at a level lower than three digits within the public access domain. The secretariat clarified that the programming excluded public access beyond the third digit. If countries agreed that public access should be granted to the fourth digit, it could be made available in the private access domain, however, each country would have access to the lowest level of disaggregation of its own data only.

The secretariat observed that if the statisticians of two or more countries wanted to share data at the eight-digit level they could make the necessary arrangements among themselves. In those arrangements, the sharing of passwords would be a dangerous practice that should not be encouraged. All access to data at the eight-digit level would have to be gained through the statistician in the country of reference.

Participants inquired whether they could include a link to the database on their web pages, to facilitate wider use of the data. The secretariat welcomed the idea.

The secretariat clarified in answer to requests for presentational cosmetics of data that the database did not consider "camera-ready" presentation to be an important consideration that should drive the programming of the engine. Presentation could be enhanced through the use of data captured in Excel format, outside of the database.

Agenda item 8:
Analysis of Trade Data - Part 1 – MAGIC

Agenda items 8 and 9 were presented with the aid of computers in a "hands-on" approach to the training.

The ECLAC/CDCC secretariat presented a demonstration of MAGIC (Module for the Analysis of the Growth of International Commerce). The analysis package had three modules and was completely symmetric. The modules were:

- Country information
- Product information and
- Product by country information

MAGIC had been developed after CAN (Competitive Analysis of Nations) and attempted to extend the analysis of trade flows beyond the capabilities of CAN. MAGIC had been developed in 1995 and was designed to be user-friendly. It offered queries on both imports and exports and contained information on country of origin. It was designed to trace the evolution of market shares and perform share analysis. MAGIC uses a dataset that encompasses the years 1990 – 2001 and is based on the Harmonized System. Data at the item level are stored and the level of detail is 10 digits. Data can be aggregated up to the 8, 6, 4 and 2 digit levels in real time. It analyses the trade data of all countries and can address country groupings when examining products. The modules were characterized by symmetry. They provided indicators to visualize the data and indicators to analyze the data. Among the analysis indicators were:

- Value and volume
- Market share
- Specialization
- Relative unit values
- Duties

The aspect of the demonstration that impressed the minds of the participants the most was the applicability of the indicators to the database that was being built. The demonstration brought to the group a new view of trade statistics and the possibility of analysis that would help a country to strategize its next moves in its trade relations with other countries.

Agenda item 9:
Analysis of Trade Data - Part 2 - CAN

CAN (Competitive Analysis of Nations), a global trade database with value added in the form of a toolbox analysis was introduced by the secretariat. The package was developed by ECLAC and used COMTRADE, the official trade database maintained by the United Nations Statistical Office. The raw data extracted from that database were the dollar value of imports by year, by commodity and country of origin as presented in Standard International Trade Classification (SITC) Rev. 2 format.

CAN2002 was presented as having 82 reporting countries. They reported on all countries of origin of their imports and provided information on imports from 193 countries. The database covered over 90% of world trade. Differences between the exports of one country and the recording of what should be the same goods imported into the receiving country would differ by the cost, insurance and freight value recorded in the imports whereas the exports would have been recorded on the free on board valuation. In order to smooth out fluctuations in quantities and average unit values from year to year, each data point was arranged to be the three year moving average, centred on the year captioned. For example, the 1990 data point would have been the average of the period 1989 – 1991.

The program afforded the following types of analysis:

- Market share analysis and trends of key products
- Analysis of export and import composition
- Trade specialization analysis
- Comparisons between "trade rivals"
- Competitiveness matrices.

The indicators as used in CAN might be utilized in the trade database under construction and were useful in assessing the country's position in the market. Such an assessment would guide strategy.

The meeting registered its enthusiasm with the capabilities of CAN and MAGIC.

Agenda item 10:
A road map for future work

The secretariat addressed the construction of index numbers and summarized the reactions to this issue during the collection of the trade databases by the secretariat. All countries had been interested in constructing index numbers of volume and value of trade but had abandoned their efforts when faced with widely fluctuating average unit values. Among the suggestions exchanged were the following:

- Reduction in the number of items selected as indicator items;
- Careful attention to the unit of measurement;
- Reduction of average unit value fluctuations by establishing acceptance regions for average unit value variability;
- Measuring average unit value change (calculating index numbers) by region;
- Other approaches being researched

Future work would include the following:

1. Elaboration of the indicators demonstrated as well as further analytical work along the lines as demonstrated in CAN and MAGIC, on the basis of Caribbean

data collected in the facility that had recently come into being and which was being demonstrated at the seminar.

2. Preparation of tables that include volumes (Quantity A and B)
3. Inclusion of HS as basis for a query
4. Recommendations for training in REDATAM engine
5. Technical Assistance in use of CAN and MAGIC
6. Higher quality data as input into the database
7. Greater interaction between Customs, Statistical Office and Customs Brokers in the filling of all data

Recommendations

1. Participants recommended that a way be found to bring to the attention of the CARICOM Heads of Government the capabilities of CAN and MAGIC and elicit their stated support for the delivery of increased trade analysis capabilities to relevant officials at country level. The suggested route to the Heads was the Committee on Trade and Economic Development (COTED) forum of CARICOM. The meeting agreed that ECLAC/CDCC and the CARICOM Secretariat should collaborate to a greater extent on the development of trade analysis.

2. The participants voiced general satisfaction and pleasant surprise at the demonstrations of the analyses of trade and resolved to inform their ministries of trade of the existence of the facility. The outcome of such information would be a number of requests to train trade economists and personnel in the private sector to use the database more fully. That suggestion was proposed as a possible "downstream" phase two project activity. Participants commended ECLAC/CDCC and the Dutch Government for their foresight in mounting the project and requested an extension of the database to provide the features of CAN and MAGIC as well as to train Caribbean people in the expert use of the database engine.

3. Participants drew attention to the usefulness of some reporting in the Harmonized System. The secretariat clarified that that output format was possible. Only a very small programming effort was required to produce the requested output.

4. Analysis by Broad Economic Category would assist countries in their analysis of trade statistics. Participants agreed that it would be advantageous if each item of import could be mapped to an industry importing the item. As a necessary input to the mapping exercise, updated copies of the Broad Economic Category and other nomenclatures as recently provided by the United Nations would be sent to ECLAC/CDCC for redistribution to all statistical offices in the subregion.

Agenda item 11:
Discussion on modalities for the future transfer of data to ECLAC

The meeting considered the transfer of trade data to ECLAC and agreed that the best medium was the CD ROM. The meeting was informed that CD ROM burners had been acquired by the project to be given to those countries that experienced a problem in delivering the data in the requested format and on the requested medium. The participants agreed that in the second round of data collection the data would be submitted on CD ROM.

Agenda item 12:
Closing remarks from participants and from ECLAC

Mr. Lancelot Busby of the ECLAC/CDCC secretariat thanked the participants for their strong support of the project. Their efforts had helped to make the project deliverables the success that they had been. Their efforts had helped to make the challenge of constructing a normalized trade and transportation database the success that it had been, notwithstanding the possibility of further increases in the quality of the incoming data. He promised that the recommendations of the meeting would be included in the report of the seminar and would go forward at the time of the closeout of the project. He also proposed that the report of the seminar would be included in the outreach documentation of ECLAC for the greater awareness of as many high-level government officials as possible. He wished participants from overseas a safe return journey and promised future collaboration on the index number issue.

Participants expressed their delight at having participated in the construction of the database. They pledged their support of the database by their reports to their governments and their campaigns for the use of the indicators as per the MAGIC and CAN packages.

Annex

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