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## TECHNICAL ASSISTANCE IN THE CONTEXT OF THE URUGUAY ROUND

Statement by Mr. W.E. Siebeck, Special Representative  
of the World Bank

The following statement dated 21 July 1988 has been received from the World Bank with the request that it be circulated to the members of the Committee.

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SOFTWARE FOR MARKET ANALYSIS  
AND RESTRICTIONS ON TRADE

Assistance to the developing countries in the Uruguay Round

Introduction

To negotiate effectively in the Uruguay Round of Multilateral Trade Negotiations - the first such round in which many developing countries are playing an active part - the developing countries need information on the trade barriers they face, as well as their trade statistics. Just as importantly, they need the capacity to handle and analyse such extensive information. They have to be able to answer quickly questions such as: What are the major markets for our key exports? Who are our competitors? What are the levels of tariffs faced by these exports? Do we get GSP treatment for our exports? Do these exports face non-tariff barriers and, if so, what kind? Where can more information be obtained on the operation of such barriers? What would happen to our trade if there were certain changes in the trade regimes of these markets as a consequence of the Uruguay Round? The answers to these questions are vital in determining a country's negotiating strategy and attitudes to matters that will arise in the negotiations.

In this context, the Bank's view is that it is desirable to help developing countries expand their capacity to answer these questions rationally for themselves. Accordingly, the Bank is preparing to provide developing countries with a software system which would answer questions on conditions of market access for a country's exports.<sup>1/</sup> Known as SMART (Software for Market Analysis and Restrictions on Trade), this software system is designed for personal computers (PCs) and for the use of persons with little experience with computers or knowledge of trade and tariff classification systems - in other words, it is "user friendly" and requires minimal training. The idea of preparing software for use on PCs is to make the costs of the hardware affordable by governments with restricted resources. Indeed, many developing countries already make use of PCs.

The software would draw on data currently collected or encoded by the secretariats of GATT and UNCTAD from national governments and published official sources. Once these data are brought together, extracts of the essential information required for each exporting country would be placed on diskettes. The diskettes would then be supplied to the developing countries for use with the SMART software.

In the initial phase, the Bank has been joined in the development of the system by the UNCTAD secretariat. It has asked the GATT secretariat to join in subsequent phases of SMART development.

While the SMART system is destined in the first instance for use by developing countries, experience gathered in discussions with the governments of other countries suggests that they also may benefit from the

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<sup>1/</sup> A separate software system - SINTIA - for the analysis of a country's own trade policies has recently been released by the Bank. This system, originally designed for use by Bank economists, may also be of use to negotiators in evaluating the effects of concessions they may make in trade negotiations.

system. Research institutions in both developed and developing countries may find the system useful. In addition, the system will be of use to the secretariats of GATT and UNCTAD, as well as the staff of the Bank and other international organizations.

It is planned to provide a first version of the system to a number of developing countries with an active interest in the Uruguay Round negotiations. This will take place in the six-month period starting September 1988. In the same period, extensive testing and improvement of the system will take place within the international organizations. A user manual will be prepared. The general release of the first revised version is expected by mid-1989.

#### The concept of SMART

The basic idea of the SMART system is to provide information on trade, tariffs and non-tariff barriers (NTBs) in markets covered by the system. The system will be of general use in answering questions on conditions of market access in foreign markets. This can be of help in identifying market opportunities. However, the importance attached to the development of the system at this stage is that it has application in helping developing countries formulate negotiating positions in the Uruguay Round - and hence facilitating their participation in the negotiating process.

The Uruguay Round is concerned with a wide variety of issues. However, the negotiations on trade barriers are an important part of the round. Tariffs may well be handled through a general or formula approach - first developed in the Kennedy Round and used also in the Tokyo Round. However, in the past, experience has shown that there have been many exceptions to the general tariff-cutting formula. The success of exporters in preventing their products from being excluded from the general tariff-cutting exercise depends to a large extent on their participation. This includes, among other things, making clear requests for the inclusion of items in which they have strong export interests. For this they need to know about the trade and tariff situation in their overseas markets, including their position relative to that of competitors. They need the ability to focus on broad statistics about the markets and the capacity to hone in on items in which they have special interests which are subject to relatively high tariffs and/or other trade barriers. They then need to be able to express that interest in terms of the tariff nomenclature and trade regulations of the importing country.

Non-tariff barriers will be handled differently. Exporting countries need to know that they exist and what products they affect (expressed in the tariff nomenclature of the importing country). It may be necessary to find out why they have been applied and some of the details of their operation. SMART will not provide all this information, but it will provide the public information source from which the data base has been constructed as well as some notes on the barriers (yet to be entered in the data bases).

The SMART system provides these types of information, which have hitherto not been available publicly for analysis in computers (i.e. while the data is not confidential it has not been made available in machine-readable form), as well as the capacity to handle the information from large data bases. Where such information has been available in the past - from GATT or UNCTAD - it has been provided in response to specific

requests. These requests have typically been processed by computer programmers and analysts with the help of specially prepared computer programs to extract data from large data bases held in mainframe computers. By contrast, SMART is designed to allow persons with little computer experience to address a complex range of negotiating questions with the maximum degree of flexibility on a personal computer.

In the past, GATT has supplied approved tariff data as printed information to approved developing countries. In a similar way, UNCTAD has supplied limited NTB information. SMART is designed to assemble all this information in a single system and will, therefore, simplify the tasks of the Geneva negotiators in reviewing the data. However, SMART's major value will be its powerful analytical features which will help trade policy makers in capitals to develop overall trade strategies for the negotiations.

#### The features of SMART

The functions of SMART are to read the basic trade, tariff and NTB data from the diskettes and to make simple manipulations of these data. The basic design was completed by mid-1988 and most of the features have been implemented. Using a series of "menus", the user makes a choice from among the selections offered or responds to requested instructions to help define the information he or she is seeking. This process would continue until a request is fully defined. The computer would then either display information on the screen, print the information on a desk-top printer or save the information for future use.

SMART comprises a number of facilities for examination and analyses of data, as well as several "managerial" functions. These broad categories of facilities are the following: VIEW, REQUEST, REPORT, SIMULATE, UTILITY, TUTORIAL and OVERVIEW.

The VIEW facility allows the user to examine the most basic information at the tariff-line level on trade, tariffs and non-tariff barriers in an individual market. The user first decides on which market he or she requires information, and then on a product or list of products. Products may be selected in the tariff classification of the importer<sup>2/</sup> or in the Standard International Trade Classification (SITC). After selecting a market and a product or list of products, the user can view the most elemental, tariff-line level information on (i) trade, (ii) tariffs, (iii) non-tariff barriers - each of these in considerable detail - or a composite set of information on trade, tariffs and NTBs, but with less detail. The user would then be able to scroll through the basic data or data sub-set and print the information from the screen at any time.

The REQUEST facility allows the user to design a specific, more complex, request for information and to recall that request later (for modification, if desired). A request might be used in the REPORT facility for printing tables or in the SIMULATE facility for conducting analyses of changes in the trading partner's regimes. The REQUEST facility would also allow the user to define aggregate product or NTB groups so that convenient summary information could be tabulated.

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<sup>2/</sup> The system will accept data classified in the Harmonized System when these become available. No adaptation of the software will be required for this purpose.

The REPORT facility prepares tables which can be printed on a small desk-top printer or saves the data in several possible ways for future use, e.g. in a word-processing or spreadsheet package. The REQUEST facility would allow a printing of the most elemental data - i.e. information on each tariff line - but tabulated more conveniently than the individual panels in the VIEW facility. It would also print pre-grouped data, if so chosen in the REQUEST facility. If it is desired to see pre-grouped data, then the REPORT facility would compute trade-weighted average tariff rates, and the percentage of trade in a particular product group affected by NTBs of a particular kind. Such summary information for broad industry groups may be useful in narrowing the focus of a negotiating request, or in helping officials prepare reports on the negotiations.

The SIMULATE facility gives approximate estimates of the possible trade effects of reductions in tariffs or the removal of trade restraints under assumptions to be defined by the end-user. This does not give hard and fast answers on the effects of changes in trade policy, but does give the user an idea of possible magnitudes of effects in a consistent analytical framework, as well as the sensitivity of the results to various parameters. As an illustration, a simulation might indicate that there would be a certain decline in exports to a particular market because of a reduction in the GSP preferential margin, but it would also show the gains from reductions in non-zero GSP rates for the same product or gains from reductions in rates affecting other, non-GSP products.

The simulation capability uses a simple partial equilibrium model, operating at the tariff-line level, to compute the trade creation and trade diversion effects of changes in a trading partner's import regime. The user can either accept a set of elasticities provided with the software or amend them according to his or her own knowledge. He or she is encouraged to vary the elasticity assumptions to understand how the results depend on such parameters. In addition to these parameters, the user is asked to define trade policy scenarios, covering changes in tariff rates under alternative formulae that may be applied in the Uruguay Round. There is an option for defining differential treatment for developed and developing countries. Finally, the user is asked to decide on how the basic results may need to be modified because of the presence of non-tariff barriers which may have an inhibiting effect on trade growth even after tariff rate reductions.

There will be several UTILITY functions. The first of these permits the loading of data from diskettes on to the hard disk of the PC. SMART then uses the data directly from the hard disk; it is not necessary to load diskettes each time information is sought on another market. The second feature of UTILITIES indicates what information has already been stored on the hard disk in this way. A further facility, yet to be included, would allow the user to revise the data. This might be used, for example, by countries verifying the accuracy of the data held about their own trade regimes in the main data bases. This could then be fed back into the main data bases to maintain their accuracy.

The OVERVIEW gives a basic introduction to the system, of value for first-time users, as well as for demonstrations. It gives basic information on data sources, as well as contact points for further information.

The TUTORIAL, yet to be developed, is intended to provide guidance on the use of the system, so that the user does not need to refer continuously to an instruction manual. It will also have a self-training function.

#### Ease of use

The system is easy to use, and can be utilized with minimum knowledge of computing or trade classifications. At each stage, there is pop-up HELP panel to guide the user on the next steps. In addition, at each stage the computer screen gives an indication of the purpose of a set of function keys, such as the HELP key already mentioned. Other keys allow the user to ESCAPE from an unintentional error, to terminate or EXIT from a SMART session, or to PROCEED to the next stage when the user is ready.

It is estimated that basic training could be completed in under half a day, but this depends on the extent of previous experience with personal computers. A fuller training session of one to two days would include hands-on training to cover not only keyboard functions but also explanations of tariff classifications as well as the interpretation of various summary statistics and the trade policy simulations.

#### Data coverage

Initially, the data to be covered by the system are imports data, tariff data and NTB data for the common group of industrialized countries covered by the GATT Tariff Study and the UNCTAD data files on non-tariff barriers. Thus, there would be files for Australia, Austria, Canada, the EC and its members, Finland, Japan, New Zealand, Norway, Sweden, Switzerland and the United States. These countries presently constitute the major markets for developing country exports. However, it is envisaged to extend the country coverage to selected developing countries. This will not be implemented in the first phase solely because of resource constraints and the desire to implement an operational system as quickly as possible for the Uruguay Round.

In the first version of the SMART system, it is envisaged that only sub-sets of the full original data sets would be supplied. For example, the trade data for the Swedish market prepared for Mexico would only show items which are currently imported from Mexico, or where there are no imports from Mexico but some kind of non-tariff measure affects the product. For each such item, it would then show Swedish total imports, imports from Mexico, imports from the three principal suppliers other than Mexico, and imports from developing countries as a whole and the world as separate groups. Tariff information would be similarly restricted. Data would only be included for the most recent year for which they are available.

The reason for restricting the data sets in this way is space limitations. A normal PC today can use only floppy disks, albeit in conjunction with a hard disk. In a future development, it may be feasible to provide more comprehensive data sets on CD-ROMs (read only compact disks, or optical disks).

The trade data would be at the tariff-line level for each market for the most recent year (mostly 1986). The system will use trade and tariff data collected for the GATT Tariff Study but it would be possible to utilize data received directly by the Bank from national sources.

The tariff data would be a sub-set of the full tariff information held in the relevant GATT files. The GATT secretariat has been asked to seek access to the Tariff Study files for the specific purpose of SMART and some countries have already agreed. The information to be included would be post-Tokyo MFN rates, currently applied MFN rates, GSP rates, and the rate applying to the individual trading partner (e.g. the Lome rate in EEC markets, etc.). It is planned to show whether or not tariff rates have been bound in earlier rounds of GATT negotiations.

The NTB information would be extracted from the UNCTAD computer files based on published information from national sources. The data to be included will not be the full historical data set but only those barriers in force at the end of the last update of the files. The sources of the information will be included, as well as the scope of application of the measure - i.e. whether it applies only to one country or whether it is global in application. It is intended to include certain notes regarding NTBs. These would relate to the method of application of the NTB or the GATT justification.

SMART will also be able - without modification - to use data from the Integrated Data Base now being created in GATT.

#### Preparation of data for SMART

The data on specific markets would be downloaded to floppy disks for use on PCs. A major effort will be required to convert the basic data and concordances, including those data to be provided by UNCTAD and GATT, to work with the SMART program. UNCTAD has prepared software to read the existing large data bases and write sub-sets for each developing country seeking to use the SMART system. As noted above, the idea of producing sub-sets is to facilitate data handling on a PC.

The production of the data diskettes could be prepared by any one of the collaborating international organizations with an interest in the project and with a right of access to the data. However, in order to reduce the burden on existing staff, the data diskettes could also be prepared by the International Computing Centre (ICC) in Geneva. The ICC is used by GATT, UNCTAD and the Bank for mainframe computing and data storage. The main data sets compiled by GATT and UNCTAD are currently stored on the ICC computer banks. Hence, ICC, if authorized, could provide the service of downloading the data to diskettes on a fee for service basis (estimated at \$60 per exporter data set).

#### Equipment requirements of SMART

The SMART system would need the following basic equipment:

- an IBM XT with a 10 MB hard disk and 640 K RAM (or a compatible personal computer)
- IBM DOS 2.2 or higher
- a colour or monochrome monitor
- a graphics card, compatible with the monitor

An IBM compatible printer with an 80 character carriage is desirable, but not essential. (If a printer is to be used, then there would need to be for the PC a printer adapter internal board compatible with the printer.)

It is estimated that the most basic system could be purchased for less than \$1,200.00, but could cost several thousand dollars for more advanced systems. Prices vary as between countries.

#### Dissemination and training

The Bank is preparing a program for the first dissemination of the SMART system to developing countries and for training in their capitals. While the system is designed for ease of use, the prior experience and capacity of users is expected to vary widely; a short training course will likely be needed to cover the operation of the software package as well as the ways in which trade officials can make use of the package. In this initial dissemination phase, a two-day course by a systems analyst and a trade economist would be necessary. Initial training would be carried out in about 20 countries.

Following the initial dissemination and training, it is expected that a final version of the first PC version would be made available generally, together with a professionally written manual. Legal questions concerning copyright and pricing need to be resolved, as well as technical aspects of production of the software diskettes and the printing of the manual. Arrangements will need to be made with IBM concerning the distribution of its software package, the EZVU Runtime Facility, which has been used in the design of SMART.

After the full general release of the system, it is envisaged that two regional training seminars would be held for countries not covered by the original training in capitals. This would be to train those who would undertake further dissemination and training in their home countries.

#### Future developments

In the period following the initial dissemination, work is expected to continue on improving the operation of the first version, rather than adding new features. At this stage, a two-part manual would be prepared. One part would be on the technical operation of the system and keyboard functions. The second part would cover the substantive use of the system, explaining how to get certain kinds of information, as well as how to interpret various pieces of information or summary statistics. The improved version with the manual is scheduled for release in early 1989.

Following the general release of this first PC version, work would begin on various improvements. These would cover the software and the data. One option, mentioned earlier, would be to load the full data, rather than the extracts described earlier, on CD-ROMs, although this would entail substantially higher manufacturing costs. Access to the full data sets would permit the user to answer many more questions, and in essence to address more directly the barriers faced by competitors, so that he would have a better idea of his position in the foreign market. It would mean that the user would need to purchase a CD-ROM reader at a cost of some \$700. The much higher cost of preparing CD-ROM disks would need to be recovered in the costing of the data. As an alternative to this approach,

it may be possible to use expanded communications linkages between PCs and mainframe computers and permit a PC user to address the full data sets in the mainframe computer. This would obviate the need to download the main data sets to CD-ROMs.

With a comprehensive data set, the main SMART software itself would have to be revised to read such information and to present it in the different facilities of SMART. With fuller data sets, additional analytical capabilities could be included.

Apart from enhancing the volume of data on given markets and improving the system, it is intended to expand the system to cover additional markets, including major developing country markets. There is a growing demand for such information by developing and developed countries, based on a growing perception that neighbouring developing countries are taking on greater significance as markets.

World Bank Geneva Office  
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