

**Real time estimates for donor assistance
and domestic expenditures for
population activities
(2003)**

Netherlands Interdisciplinary Demographic Institute
(NIDI)
Lange Houtstraat 19
2502 AR The Hague
The Netherlands

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RF team

Jacqueline ECKHARDT-GERRITSEN

Shaheen HOOSENALLY

Ronald HORSTMAN

Eva KIBELE

Mieke REUSER

Leon VERMEULEN

Frans WILLEKENS

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ACRONYMS AND ABBREVIATIONS

ADB	Asian Development Bank
AfDB	African Development Bank
BR	Basic Research
CPP	Costed-Population Package of the ICPD
DAC	Development Assistance Committee
DFID	Department for International Development (UK)
EU	European Union
FC	Financial Co-operation
FP	Family Planning
FRFPA	Financial Resource Flows for Population Activities report
GDP	Gross Domestic Product
HIV/AIDS	Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
IADB	Inter-American Development Bank
ICPD	International Conference on Population and Development (1994)
ICPD+10	Tenth Anniversary of the International Conference on Population and Development (2004)
IMF	International Monetary Fund
IPPF	International Planned Parenthood Federation
JOICFP	Japanese Organisation for International Co-operation in Family Planning
MRY	Most recent year
MSI	Marie Stopes International
NGO	Non-governmental organisation
NIDI	Netherlands Interdisciplinary Demographic Institute
OECD	Organisation for Economic Co-operation and Development
OPEC	Organisation of the Petroleum Exporting Countries
PSI	Population Services International
RF	Resource Flows
RH	Reproductive Health
STD	Sexually Transmitted Disease
SWAp	Sector Wide Approach
UK	United Kingdom
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNDP	United Nations Development Programme
UNF	United Nations Foundation
UNFPA	United Nations Population Fund
UNFPA/UNDP CO	UNFPA/UNDP Country Office
UNICEF	United Nations Children's Fund
UNIFEM	United Nations Development Fund for Women
WB	World Bank
WDR	World Development Report
WHO	World Health Organisation

GLOSSARY OF CONCEPTS AND DEFINITIONS

The following concepts and corresponding definitions are important to not only understand the Resource Flows Project, but also the pilot estimation exercise within the framework of the Resource Flows Project. The definitions have been listed in alphabetical order.

- Costed – population package - Categories of the costed-population package include: family planning services, basic reproductive health services, STDs and HIV/AIDS activities, basic research, data and population and development policy analysis.
- Donor categories - Developed countries; United Nations System; International Foundations and NGOs; Bank grants; Development banks (loans).
- Expenditures - This term represents the actual amount of money that has been disbursed on a specific project/programme.
- Final expenditures - Refer to funds that have been received by developing countries/countries in transition directly from donor Governments or through intermediate donors. The final recipients' maybe domestic governments, national NGOs, or donors' field offices in developing countries/countries in transition. The programmes in which expenditures are made do not necessarily have to be located in developing countries/countries in transition and may include activities, such as research, that benefit more than one developing country and country in transition or region,
- Future Commitments - This term represents the amount of money that has been reserved / budgeted.
- Intermediate donors - This group includes multilateral organisations and agencies incorporated into the United Nations System and international NGOs that channel funds for population assistance from primary donors to the recipients.
- Primary data - This represents information on RF for population activities collected by the RF project from the respective donor and domestic governments, UNFPA/UNDP country offices, foundations and international NGOs, development banks and UN agencies/organisations. Depending on the response of donors, developing countries/countries in transition to past surveys, figures on expenditures and future commitments are completely or partially available in the RF database and are analysed.
- Primary donors - This group includes the OECD/DAC countries and the European Union, as well as international foundations.
- Primary funds - Primary funds refer to the financial resources contributed by a primary donor for population activities. Primary funds maybe provided by a donor either directly to the developing country or country in transition, or to an intermediate donor such as a multilateral organisation/agency or international NGO. Primary funds also include self-generated income of intermediate donors.
- Regions - For donor assistance these are: Sub-Saharan Africa, Eastern and Southern Europe, Latin America and the Caribbean, Western Asia and North Africa, Asia and the Pacific, Global and Interregional. For domestic expenditures these are: Sub-Saharan Africa, Eastern and Southern Europe, Latin America and the Caribbean, Western Asia and North Africa, Asia and the Pacific.
- Secondary data - This represents information that was used to fill in missing data. Once the information extracted from secondary sources was described and evaluated according to its reliability, all primary and secondary data were combined and used for the actual development of the 2003 estimates.
- Self-generated income - This includes funds such as general funds, interest earned on endowments and service fees. In order to avoid double counting projects, we only consider self-generated funds as primary funds for intermediate organisations.

EXECUTIVE SUMMARY

In order to evaluate the achievements of the ICPD at its tenth year anniversary in 2004, it is important to not only report on the accomplishments thus far, but also on what still needs to be attained in order to fully realise the goals set out at ICPD in 1994. For this reason, during the RF review meetings and expert workshop held in The Hague in June 2003, UNFPA requested NIDI to develop 2003 estimates for donor assistance and domestic expenditures for population expenditures under the current project cycle. This report outlines the objective of this pilot estimation exercise, the outputs and the methods applied. The objective of this exercise is to estimate donor assistance and domestic expenditures for population activities for 2003.

NIDI selected 37 donors, including the OECD/DAC countries and the EU, International Foundations and NGOs, Development Banks and UN agencies/organisations, and 26 developing countries/countries in transition for the actual estimation exercise. As for the procedures, NIDI requested each donor for a total figure of population-related assistance in 2002 and 2003. In the case of developing countries/countries in transition, the UNFPA/UNDP Country Offices were requested to procure data on total government expenditures for population activities in 2002 and 2003 and, if possible, to provide a breakdown by CPP category. In the event that donors and developing countries/countries in transition were unable to provide NIDI with this information, NIDI researched secondary sources to arrive at their conclusions. Once collected, the data were assessed for their reliability and completeness. An estimation exercise was then carried out to fill in the missing data with the best available information.

The outputs of the estimation exercise are presented in section three. We assume that donor primary funds are equal to final donor expenditures. As for donor financial flows, the report provides a breakdown by major donor category, by category of population activity and by region. As for domestic financial flows, the report offers 2003 estimates on government expenditures for population activities by region and category of activity. To this, the figures for the 26 countries included from various regions were aggregated to provide a regional representation of population-related expenditures.

It is important to note that the 2003 data may vary substantially to previous data collected by the RF Project due to a different methodology applied. For example, the domestic expenditures could be different because of the inclusion of decentralized expenditures on China. Therefore, all estimates contained in this report should be treated with caution and interpreted within the exercise's context. However, NIDI believes that the overall estimation developed is the most realistic representation of the country/organisation's expenditures on population activities.

The 2003 pilot has set a solid foundation for making future estimations and projections on population expenditures. NIDI is convinced that this exercise provides UNFPA and UNAIDS with a current understanding of required resources to achieve the goals of the ICPD. Furthermore, this report allows the UN agencies/organisations to effectively monitor and evaluate the resource flows to population activities thus far and stress the urgency for additional donor and domestic financial resources to meet the millennium development goals.

1. Introduction

1.1 Background

NIDI is currently in partnership with UNFPA and UNAIDS for the Resource Flows (RF) Project. The current project cycle (2000 – 2003) will come to an end on 31st December 2003. For this reason, earlier this year UNFPA commissioned an evaluation of the RF project to date. In addition, in June 2003 the three partners held a series of meetings and a workshop with UNFPA field representatives and external experts in the field of population activities. Both the evaluation report and the meetings identified the challenges the RF project faces and suggested recommendations to address these challenges.

One of the major outcomes of the meetings was UNFPA and UNAIDS' increasing need for up to date data for resource mobilisation and advocacy purposes. For this reason, NIDI agreed to undertake a pilot estimation exercise under the current project cycle to make real time estimates for donor assistance and domestic expenditures for population activities in 2003. In 2004 under the new project cycle, NIDI will refine the year t estimates as well as expand the exercise to include projections for year t+1.

1.2 Objective and expected outputs

From August to December 2003 a pilot estimation exercise for 2003 has been conducted. The objective of this exercise is to estimate donor assistance and domestic expenditures for population activities for 2003. The estimates have been developed using the best data available.

Given the relatively short time frame for the exercise, NIDI decided to focus on the following:

- a) Selected donors and developing countries/countries in transition. This sample of data has been used to estimate the overall donor assistance and domestic expenditures for population activities.
- b) Estimated donor assistance and domestic expenditures for at least two ICPD costed-population package (CPP) categories – basic reproductive health and STDs and HIV/AIDS activities. Where possible, all four categories are reported.
- c) Estimated donor assistance and domestic expenditures for all regions.

Based on the 2004 RF project proposal submitted in September this year, the outputs of the 2003 estimation exercise are as follows:

REAL TIME ESTIMATES FOR DONORS (year t: 2003)

1. Estimates of total primary funds for population assistance, by major donor category.
(Millions of current and constant \$US)
2. Estimates of primary funds of donor countries for population assistance
(Thousands of current local currency)
3. Estimates of final donor expenditures for population assistance, by category of population activity
(Percentages)
4. Estimates of final donor expenditures for population assistance, by region
(Thousands of current \$US)

REAL TIME ESTIMATES FOR DEVELOPING COUNTRIES AND COUNTRIES IN TRANSITION (year t: 2003)

5. Estimates of Government expenditures for population activities for selected countries, by category of activity
(Thousands of \$US, percentages)
6. Estimates of Government expenditures for population activities, by region and category of activity
(Thousands of \$US, percentages)

2. Estimation framework, data and method

Following the procedure for selecting donors and developing countries/countries in transition for the 2003 estimation exercise, the coverage and quality of the data, the process of data collection and storage and finally, the methodology and analysis of the data used, is explained in the following sections.

2.1 Selection of the sample

Donors and developing countries/countries in transition were selected on the basis of the following selection criteria.

Donors have been selected on the basis of the following criteria¹:

1. Amount of expenditures on population assistance;
2. Participation in at least two out of the three most recent donor surveys (1999, 2000 and 2001);
3. Fair representation of all different organisation types².

Given the fact that the 22 OECD/DAC countries and the European Union (EU) make up more than 80% of the total expenditures on population assistance reported, all these 23 bilateral donors were surveyed, irrespective of their participation to date. With regard to international foundations, international NGOs and UN agencies/organisations, the 'one million \$US benchmark' was applied in combination with criterion 2 on response in previous survey rounds. To guarantee a fair sample of the different organisation types, the four development banks (WB, ADB, AfDB and IADB) were included. To the list of UN agencies/organisations (UNAIDS, UNFPA, and UNIFEM) selected according to the criteria, UNICEF and WHO were added because they are strategic partners in the field. Table A1, A2 and A3 in Annex A provide an overview of data available by donor type.

Finally, in total 26 developing countries/countries in transition were selected for the analysis. The selection procedure applied was on the basis of the following selection criteria, taking into account population size and reporting records:

1. Countries that belong to the group of countries that together cover 80% of the population in developing countries/countries in transition, except for countries that never reported population expenditures in the past.

¹ Source: Collection, Management and Analysis of Data on Donor Assistance and Domestic Expenditures for Population Activities, Proposal 2004, NIDI; submitted to UNFPA.

² The organisation types include bilateral donors, UN agencies/organisations, international foundations, international NGOs and development banks.

2. Countries that belong to the group of countries that constituted 90% of reported expenditures in the three most recent survey rounds, i.e. 1998, 1999 and 2001 and provided estimates for 2003.
3. Countries that reported in the past, have a considerable population size and provided estimates for 2003.

On the basis of the first criterion 21 countries were selected³. Four countries (Guatemala, Peru, Nepal, and Romania) were added to this group following the second criterion⁴. The last criterion was used to balance the geographical distribution of countries within regions. Kenya completes the selection for this reason^{5 6}.

2.2 Data coverage and quality

Donor financial flows

Two third of the OECD/DAC countries (65%) provided complete and reliable expenditure commitments for the total CPP for 2003⁷. Of those who did not provide data for 2003, three countries issued expenditure figures for 2002 (Australia, The Netherlands, Japan) within the framework of the present estimation exercise. In total, five countries did not report in 2002 nor 2003 (EU⁸, Italy, Luxembourg, Norway⁹, United Kingdom). The EU is a special case as they do not have a resource tracking system that is harmonised with the CPP categories.

Only three out of twelve international foundations provided expenditure commitments for 2003. The situation is much better for international NGO's (all reported). Of the UN agencies/organisations UNAIDS, UNFPA and WHO reported 2003 estimates, others provided figures for 2002. For the development banks, only the World Bank (WB) reported 2003 estimates.

It is ensured that by means of extensive follow-up a maximum of reported estimates for donor countries, international NGOs and foundations as well as development banks, were included.

On the whole, the data collected for 2003 from donors is considered accurate and reliable, especially in the case of OECD/DAC countries. In some cases, countries/organisations have either indicated that they are unable to report on 2003 commitments or have not reported at all.

³ The countries that would have belonged to the group but never reported are: Colombia, Argentina, Congo and Myanmar.

⁴ Burkina Faso would have belonged to the selection after step 2, but was not followed-up due to time constraints.

⁵ Kenya replaced Burkina Faso.

⁶ Although Belarus was initially included after step 3, country estimates were not received in time. Belarus was therefore excluded again from the selection.

⁷ Greece did report to the RF project for the first time and provided future commitments for 2003 and 2004.

⁸ EU did report but the information was incomplete.

⁹ Norway reported to OECD/DAC. Information still being processed.

Domestics financial flows

Both primary and secondary data were partially available for the estimations. Table 1 provides a general overview of the availability of data by source and type. The use of these data will be discussed in section 2.4.

Table 1: Source and type of data for domestic financial flows

Type of data:	Primary data		Secondary data	
	Reported Population Activity data 2003	(Reported) Population Activity data 2002 or previous years	Health expenditure data 2003 or previous years as amount or as % of GDP	Qualitative information
Source:				
Government report (through UNFPA/UNDP CO)	✓	✓	Not requested	✓
Data on government web sites		✓	✓	✓
Data on other web sites, WB, WHO, etc.			✓	✓
RF case studies or others			✓	✓
Expert opinions				✓
Policy documents				✓

Not all countries could report estimates of expenditures for 2003 within the relatively short time frame (See section 2.3). Twelve out of the 26 selected countries submitted total expenditure estimates for 2003. See Table A4 in Annex A for an overview of countries that reported 2003 expenditure figures.

For several reasons, primary data received from domestic governments is very often incomplete. First, because many countries only provide data on national level expenditures and do not cover population expenditures at the lower administrative levels. Therefore, overall expenditure information is expected to be considerably under-estimated, especially due to a group of large and decentralised countries including China, India, Indonesia, Brazil and Nigeria. Where available adjustment factors will be applied to overcome this problem (See section 3.2.1). Second, due to the tendency towards sector-wide approaches (SWAp), pooled resources and integrated health programmes, the realities of data recording systems are such that the CPP is not universally applied and that categories are not mutually exclusive. For this reason, not all responding government departments/organisations can provide data on expenditures for population activities. Third, completeness of data is influenced by the fact that overhead costs are not always included. Fourth, not all reporting countries could collect data from appropriate government departments/organisations in time. This concerns reported data and estimates for 2003 and earlier years.

As far as secondary data are concerned, data from government sources are regarded reliable and accurate information. Also data from leading institutions and international organisations like WHO, WB and IMF are considered reliable and accurate. The quality of data from other sources including research institutes and experts varies and cannot always be assessed. Data from the latter are used as ancillary data to support and verify the findings, rather than as initial input to the analysis.

2.3 Data collection and storage

Primary and secondary data collection constituted an essential component of the 2003 estimation exercise. Given the different characteristics of donors and developing countries/countries in transition, the RF team applied various approaches that are described below.

Data collection - Donors

Data used within the framework of this estimation exercise mainly refer to financial years 2002 and 2003. To this, 2002 information is currently being collected through the ‘normal’ RF donor survey¹⁰. A separate endeavour gathered primary data for the year 2003 and applied the following procedures.

OECD/DAC countries:

- a) In order to collect information on future commitments for 2003¹¹, the RF team at NIDI sent a specific request (letter) to all OECD/DAC members in September. Considering the tight time schedule for this pilot and to minimise the burden for the respective respondents, no breakdown by category¹² nor by region was requested.
- b) In November, the RF team forwarded a clearance letter to all countries. One letter was directed to those countries that did provide the required information. In those cases data were simply double-checked. A second letter was directed to the remaining countries that had not shown any reaction. The respondents were informed that the RF team would make estimates based on figures reported in previous years. If there was no feedback before the indicated deadline, NIDI assumed that the respective country agreed to the proposed procedure (See also Table A1 in Annex A for reactions on the clearance letters).

International Foundations:

Also in September, the RF team sent an email to all major international foundations to present this new pilot exercise and to ask for data on future commitments in 2003¹³.

International NGOs and UN agencies/organisations:

The most important international NGOs and UN agencies/organisations involved in population activities were approached (via email) in September to request information on their self-generated income in 2003¹⁴.

Development Banks:

Data on 2003 grants have been gathered through the ‘normal’ 2002 donor survey.

¹⁰Most respondents filled in the RF questionnaire; some donor countries requested NIDI to directly retrieve the information from the OECD/DAC database system.

¹¹ Although the RF team also requested data on future commitments for 2004, this information was not used within the framework of the actual 2003 estimation exercise. In addition to the future commitments, the RF team reiterated the need for 2002 expenditure data from those countries that had, at that stage, not yet reported.

¹² However, a couple of OECD/DAC countries did provide specific information on HIV/AIDS.

¹³ Although the RF team also requested data on future commitments for 2004, this information was not used within the framework of the actual 2003 estimation exercise.

¹⁴ Although the RF team also requested data on self-generated income for 2004, this information was not used within the framework of the actual 2003 estimation exercise.

The whole process of primary data collection was characterised by intensive follow-up via email and telephone, in some cases on a daily basis.

Data collection - Developing countries/countries in transition

Data collection for developing countries/countries in transition followed the below-mentioned scheme:

- a) Intensive Internet research during a short period constituted the first step in this process.
- b) Since Internet research delivered only limited amount of information, the RF team sent a letter to the respective UNFPA/UNDP CO in all 29 initially approached countries¹⁵ to kindly request their assistance in collecting the following data (in October):
 - Total government expenditures on population activities in 2002 and, if possible, a breakdown for the four CPP categories.
 - Estimated total government expenditures in 2003 and, if possible, a breakdown for the four CPP categories.

In the case of decentralised countries¹⁶ it was asked to indicate whether the data referred to spending at central or decentralised levels.

In order to facilitate and enhance participation, country-specific information reported to the UNFPA/NIDI/UNAIDS RF project in previous years was attached to the official request:

- Expenditures on population activities of individual government departments/institutions (by year, in local currency or \$US)
- Total government expenditures by population categories and year (in \$US).

If the UNFPA/UNDP CO was unable to provide NIDI with the needed data, contact information for key persons or government institutions and web sites in the population area were asked for.

- c) Subsequently, intensive communication with all 29 UNFPA/UNDP CO - and in some cases with national Government departments - was established in order to follow-up on the RF request.
- d) Data submitted were checked for completeness and reliability by the RF team. When necessary, clarification and/or additional information were requested.

Simultaneously, the RF team conducted secondary data research, with emphasis on RF case study reports, Government web sites as well as WB and WHO publications.

Data storage

In order to comply with the Objective and specific needs of this estimation exercise, the RF database was extended. As for the donors, additional cells were added to the already existing tables to store information on future commitments, currency, sources as well as quality and completeness of data. Regarding developing countries/countries in transition, two new tables were created in MsAccess to keep the following information: data collected at

¹⁵ See Table A4 in Annex A for the list of contacted developing countries/countries in transition.

¹⁶ Brazil, China, India, Mexico and Nigeria.

individual institution and country level, currency, source, data reliability and quality as well as comments. In order to be able to present the outputs of this exercise in tables, the necessary new queries were designed.

Given the importance of documenting all information, every step of the above-mentioned data collection process was recorded in the 'Response Management' section of the RF database, for both donors and developing countries/countries in transition ¹⁷.

2.4 Estimation method

Within the framework of the present estimation exercise financial flows originate from primary and intermediate donors and governments in developing countries/countries in transition. These primary funds/final expenditures ¹⁸ find its ultimate destiny in recipient developing countries/countries in transition. The destiny of funds is presented as expenditures in aggregated formats: geographically (regions) and thematically (CPP categories). For the purpose of exercise, two 2-dimensional tables will be presented: one 2-way table of primary funds/final expenditures by region and one 2-way table of primary funds/final expenditures by population activity.

In order to arrive at the best current estimates of financial flows for 2003, the estimation exercise combines primary and secondary data in a logical and systematic way. It contains three major steps. The aim of the first step is to collect primary data for 2003 from all individual donors and developing countries/countries in transition, at the lowest possible aggregation level. The aim of the second step is to produce reliable estimates for individual donors and developing countries/countries in transition in case primary data for 2003 are not available, but do exist for previous years. Primary data are combined with secondary data. The estimation involves a large number of decisions pertaining to the data and to estimation methods to be applied. (See section 2.4.1). The aim of the third step is to produce aggregated estimates that are consistent while preserving the coherence of the data. This step involves the combination of the reported 2003 primary data and the best estimates generated in the second step. The method is an iterative procedure that is extensively studied and frequently applied when data from different sources need to be combined. It yields the most likely estimate given the incomplete data. (See section 2.4.2)

2.4.1 Rules for estimating financial resource flows

The following rules for estimation were established for donor and domestic financial resource flows. The aim of the rules is to arrive at reliable estimates at the lowest possible level of aggregation and with use of the most recent data possible. The rules are hierarchical and contain four levels. They can be presented graphically in a decision tree. Each node in the tree represents a decision related to information requirement and data availability. Branches refer to conditions of data availability. The tree is constructed recursively. The availability of primary data is situated at the root of the tree. Two branches exist for each possible value. If primary data exist, the procedure stops since the required data are available. If primary data do not exist, the second best information is selected and the availability is determined. Each lower level in the hierarchy indicates a loss of information. Likewise, each level down the hierarchy usually requires more and other auxiliary data needed for estimation. Level A presents the highest and most desirable level, level D the

¹⁷ For both categories, new 'Event' sections were created.

¹⁸ For the purpose of this paper primary funds are considered equal to final expenditures. See section 3.1.1.

lowest level. Decision trees have been used for handling missing data. (Grzymala-Busse J. and M. Hu , 2001; Magnani, 2003)

LEVEL A

Donor and domestic financial resource flows

Primary data requirement: reported estimates of expenditures on population activities for year t (2003)

1. Use reported expenditure commitments or estimated expenditures on population activities¹⁹

LEVEL B

Condition: expenditure data on population activities are missing, incomplete or inaccurate for year t (2003)

B1 Donor financial resource flows

Primary data requirement: reported expenditure data year t-1 (2002)

Secondary data:

- (i) average expenditure growth rate between 2002 and 2003 for donor countries that reported in both years.
- (ii) average expenditure growth rate between 2002 and 2003 for donor countries and all non-DAC donors that reported in both years.

1. For donor countries: estimate expenditure in year t (2003) by applying average expenditure growth rate (i) to the expenditure figure of year (t-1)2002
2. For all non-OECD/DAC donors: estimate expenditure in year t (2003) by applying average expenditure growth rate (ii) to the expenditure figure of year (t-1)2002 (See section 3.1)

B2 Domestic financial resource flows

Primary data requirement: reported expenditure data for year t-1 (2002)

Secondary data:

- (i) GDP for year t-1 (2002)
- (ii) GDP growth rate for year t²⁰
- (iii) Exchange rate local currency to \$US

1. Estimate the total amount spent on population activities in year t (2003) as follows:
 - (1) Multiply the ratio 'reported population activity expenditure amount for year t-1/GDP for the year t-1' with GDP for year t (2003)
 - (2) In absence of the GDP for year t (2003), this will be calculated as the product of the GDP growth rate for year t and the GDP for year t-1.

¹⁹ If a figure is indicated incomplete by the donor government/organisation, and the donor government/organization did not indicate the level of incompleteness but did provide authorization to use the figure, the figure is used but earmarked.

²⁰ Reference: 2003 CIA World Fact book at http://www.photius.com/rankings/gdp_real_growth_rate_0.html, access 20 November 2003.

LEVEL C

Condition: expenditure data on population activities are missing, incomplete or inaccurate for year t (2003) and year t-1 (2002)

C1 Donor financial resource flows

Primary data requirement: reported expenditure data before year t-1 (year t-x)

1. Estimate expenditure in 2003 by using the most recent figure.

It is assumed that while using expenditure figures from years other than 2003, that surplus expenditure due to exogenous factors (for example funds for a census) in a particular year levels out over all donors.

C2 Domestic financial resource flows

Primary data requirement: reported expenditure data on population activities for most recent year (MR Y) in the period t-2 to t-4 (1999-2001).

Secondary data:

- (i) total health care expenditure data for year t (2003)
- (ii) total health care expenditures as a percentage of GDP for the year equal to MR Y
- (iii) GDP for recent years
- (iv) GDP growth rate for year t (2003)

1. Estimate the total amount spent on population activities in year t, by
 - (1) Multiplying the ratio 'reported population activity expenditure figure (MR Y)/total health care expenditure figure for the year equal to MR Y' with the total health care expenditure amount in year t.
 - (2) In case the total health care expenditure data in MR Y is not directly available, estimate this, multiplying the GDP for that year with 'total health care expenditures as a percentage of GDP for the year equal to MR Y'.
2. If 'total health care expenditure for year t' is not available, estimate the total amount spent on population activities in year t as follows.
 - (1) Multiply the ratio 'reported population activity expenditure figure (MR Y)/GDP for the year equal to MR Y' with GDP for year t (2003)
 - (2) In absence of the GDP for year t (2003), this will be calculated as the product of the GDP growth rate for year t and the GDP year t-1.

LEVEL D

Condition: expenditure data on population activities are missing, incomplete or inaccurate for all years

D1 Donor financial resource flows

1. If never reported, eliminate donor country/organisation from estimation.

D2 Domestic financial resource flows

1. Use the population expenditure figure from a comparable country, based on similar per capita government expenditures on health or per capita total expenditure on health.

(Taking into consideration other development indices). The figure for this comparable country can be derived following the rules stated here.

After having used the above rules, the following rules apply:

Central/ decentral expenditure distribution

1. If the estimate represents expenditures at central government level only and data on the distribution between central and decentral government expenditures are available, adjust the estimate for decentralised expenditures.

Categories for population activities

2. Expenditure figures for the four CPP categories can be derived in similar ways, according to the rules stated here.
3. Where appropriate and required the percentage distribution of a previous year is applied to year t, assuming that the distribution remains the same in time.
4. Information for a specific category may be derived from secondary sources. For example, expenditures on HIV/AIDS may be published on the web.

Figure 1: Decision tree donors

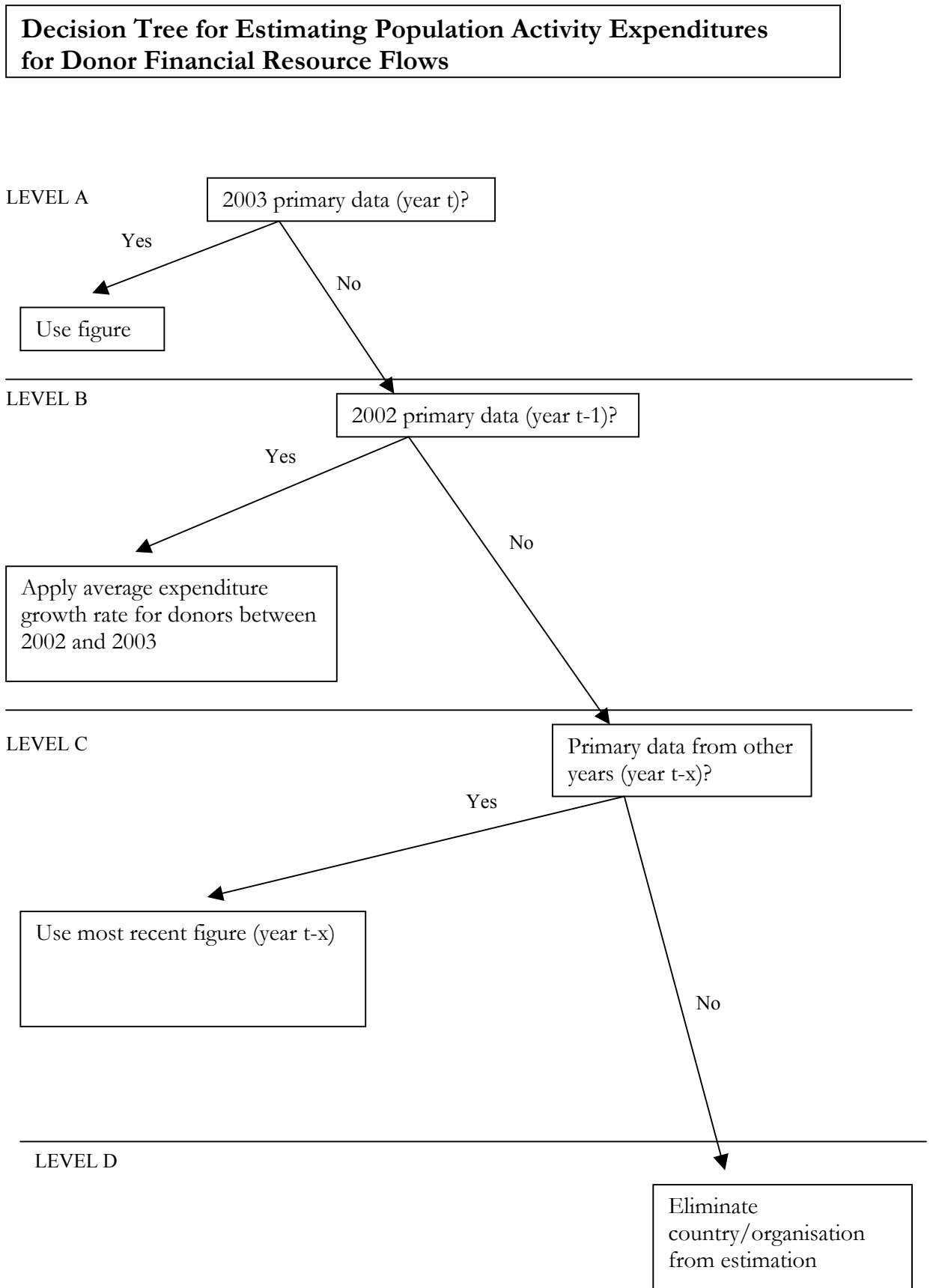
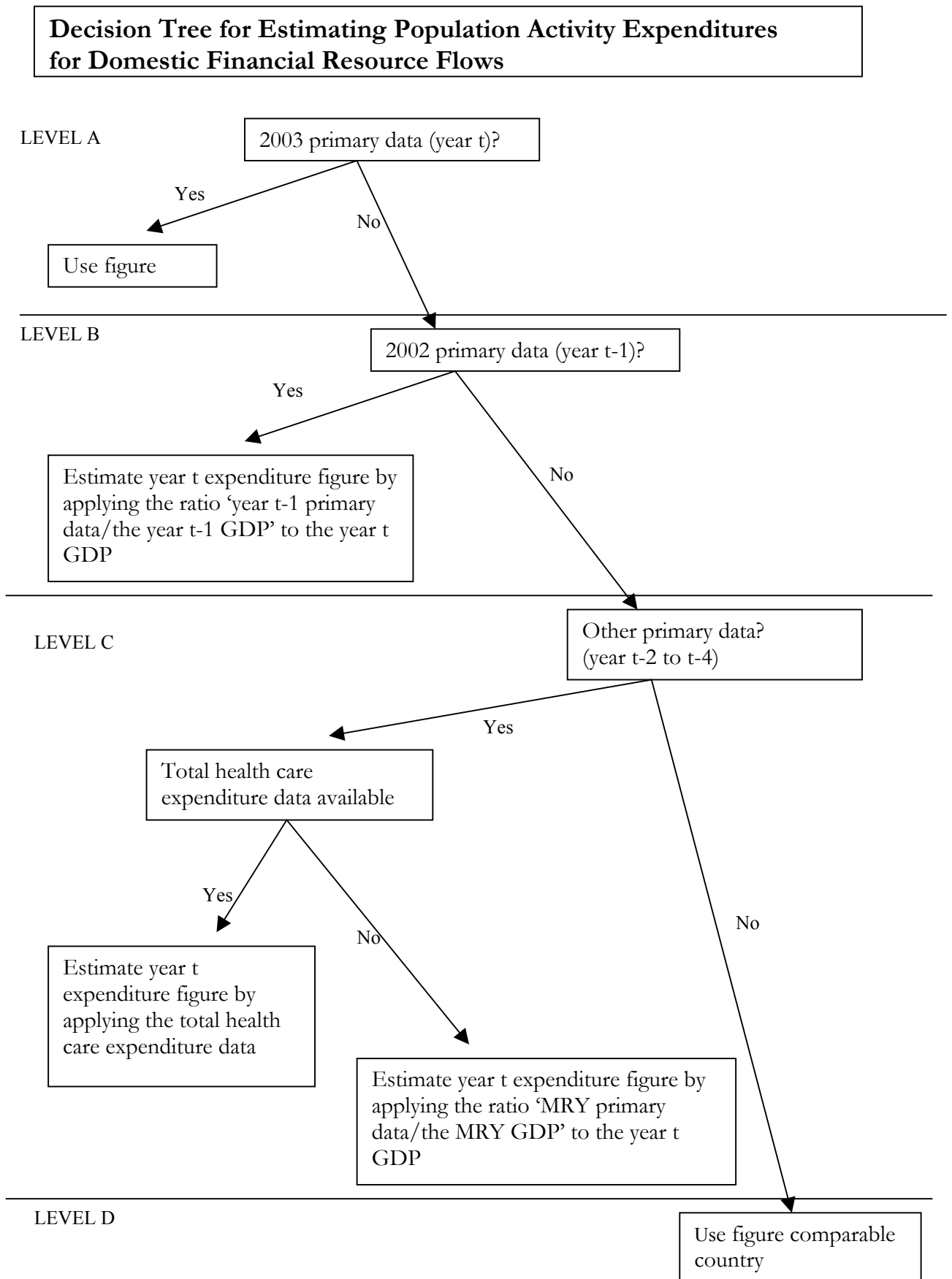


Figure 2: Decision tree developing countries/countries in transition

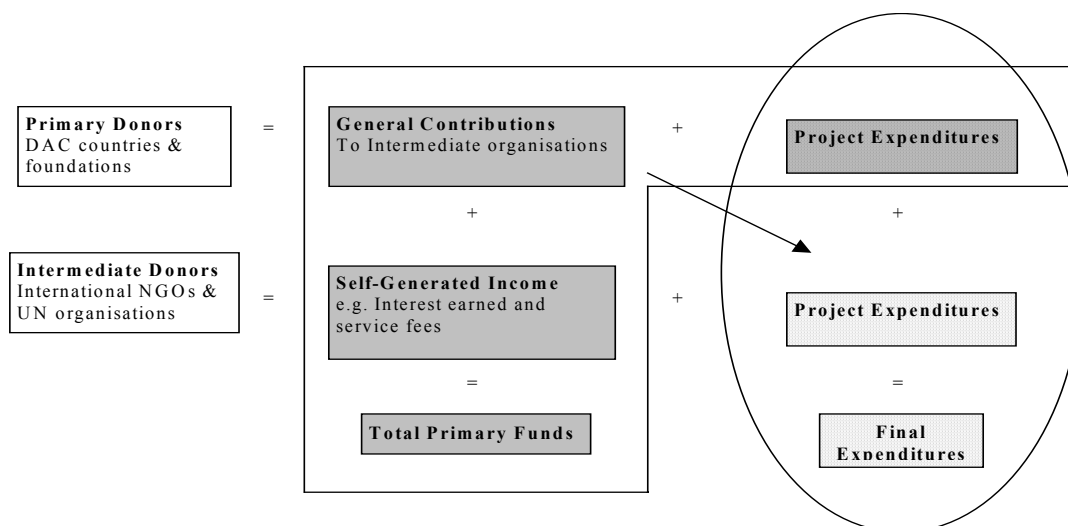


2.4.2 Producing aggregated data broken down by category and region

In this section we describe the estimation of primary funds and final expenditures in 2003 by CPP category and the primary funds and final expenditures by region of the world. The expenditures by activity *and* region are not estimated.

The total project expenditures are assumed to be equal to total primary funds. The distinction between Primary Funds and Final expenditures is visualised in figure 3.

Figure 3: Total primary funds and final expenditures



In a regular survey, the total expenditures vary slightly from primary funds due to two reasons:

- Theoretically, the total general contributions of primary donors to intermediate organisations should equal the expenditures of intermediates minus their self-generated income. In practice however, one or the other can be over- or underreported.
- The disbursements of resource flows from donors to intermediate organisations do not necessarily occur in the same year as the disbursements of the intermediate organisation. This time lag can also be a reason for small differences between total project expenditures and primary funds.

The differences between the two concepts can only be determined at project level. As the 2003 figures are estimated at organisation level and not at project level, we assume that the absolute level of total project expenditures is equal to total primary funds.

Donors

In the applied methodology, the total primary funds for 2003 are estimated bottom-up, which means on basis of primary and secondary data. This will give the total amount of primary funds in 2003 for each of the 23 OECD/DAC members and the four remaining donor categories (Foundations, International NGOs, UN system and Development Banks). The sum is the overall total primary funds. Besides, we also asked donors for their future commitments on HIV/AIDS activities for 2003. This information is used to determine the percentage of HIV/AIDS spending in 2003.

In this exercise, the total primary funds are assumed to be equal to the total final expenditures (See section 3.1.1). Except for some HIV/AIDS expenditures reported, the primary funds/final expenditures allocated in 2003 to each CPP category and to each of the

six regions are not known. They are estimated as follows. The distribution of total project expenditures to the four CPP categories is partly based on reported information of HIV/AIDS activities in 2003 and partly based on trend analysis. The distribution of project expenditures to the six regions is only based on trend analysis, as no information of regional distribution for 2003 is available. The underlying assumption for both distributions is that if a donor spends more funds on one specific category or region, it will decrease funds for another category or region. This reflects actual development assistance policies, where emphasis is often shifted within a fixed budget.

The primary funds/final expenditures spent by each donor and the aggregates per category and per region represent the row and column totals of the two-way origin/destination matrix described above. In order to estimate the primary funds/final expenditures donors allocate to each category and region, we use the iterative proportional fitting method based on the proportions of the 2002 data. The results are presented in Tables C1 and C2 in Annex C.

Developing countries/countries in transition

For estimating domestic resource flows, the approach focuses on primary and secondary data for the selected countries following the rules explained in section 2.4.1.

An alternative approach to estimate the government expenditures on population activities per country would be to use a trend analysis. Basic conditions to use such a trend analysis are that there are several points in time for which data are available and this information should be perfectly comparable over time in the sense of coverage and definitions. However, for most developing countries/countries in transition this is not the case as the data received since 1996 are unstable, fluctuating and often missing for several years. Therefore the use of trend analysis for per country domestic resource flows is not considered here.

In order to estimate total regional population expenditures the expenditures of the non-selected countries are based on expenditures per capita in the selected countries from the same geographical region. The underlying assumption is that per capita expenditures on population activities in one country are comparable to the average per capita expenditures of the region. The approach that uses data from comparable populations or economies in order to obtain estimates of health expenditures was adopted by the WB for the 1993 World Development Report "Investing in Health" (WDR-93). For a total of 46 countries out of 127 countries included in the WDR-93, important parts of health expenditures were estimated 'out of sample' using a simple multivariate model (Berman, 1997, p.13). In the future, comparing countries not only on geographical location, but also on economic and political situation as well as cultural similarities could refine this method.

Another possible approach would be to not only compare with other developing countries or countries in transition, but to also use the information of donor expenditures to a certain country. In order to do so, one should first study whether donor and domestic expenditures supplement or rather substitute each other. In other words, do donors spend much on a specific category, for example HIV/AIDS, in a certain country to complement the local emphasis on HIV/AIDS, or do they rather 'fill the gaps' where domestic flows are lacking? Since this assessment of donor and domestic expenditure behaviour requires much more study, preferably per individual country, this is beyond the scope of this paper.

3. Estimates for donor assistance and domestic expenditures for population activities

3.1 Donors

The population expenditures for donors for 2003 are estimated mainly based on reported future commitments of total primary funds. The non-reported figures are estimated using an average growth rate. The primary funds of donor countries (OECD/DAC countries) for 2002 are compared with the future commitments for 2003. Those countries that reported in both years have shown an increase of 6.9 %. This increase is also applied to the 2002 data of those donor countries that did not report 2003 commitments, under the assumption that they will show the same increase. However, it might be that this growth rate is slightly over-estimated if the donors that responded have above average population expenditures. The growth rate used for other donors (Foundations, International NGOs, UN agencies/organisations and Development Banks) is based on the total increase of all donors from 2002 to 2003 inclusive. This is because for the other donors only a few organisations reported 2003 figures, which makes the sample to calculate a growth rate very small. For example, only four foundations reported 2003 data of which the Bill and Melinda Gates foundation, by far the largest reporting foundation, reported a large decrease of 25%. It seems incorrect to apply this decrease to all foundations, assuming they would follow this trend. Therefore, it was decided to apply a general all-donors growth rate for all foundations, International NGOs, UN agencies/organisations and Development Banks. The reported growth rate for all donors from 2002 to 2003 is 1.6%.

The distribution of categories and regions is estimated on the basis of reported commitments for HIV/AIDS and linear regressions. The breakdown of categories and regions per individual donor is estimated by use of an iterative proportional fitting method based on the proportions of 2002 data. (See also section 3.1.3)

3.1.1 Estimates of total primary funds for population assistance by major donor category

Total donor primary funds for population assistance in 2003 are estimated at 2,752 million current \$US. The next table shows the estimates of total primary funds for population assistance by major donor category.

Table 2: Primary funds for population assistance by major donor category, 1993-2003

Primary funds for population assistance, by major donor category, 1993 –2003 ^a (Millions of current and constant \$US)											
Donor category	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002 ^j	2003 ^k
Developed countries ^b	777	977	1,372	1,369	1,530	1,539	1,411	1,598	1,720	2,180	2,329
United Nations system ^c	66	107	111 ^d	18 ^e	49	35 ^f	31 ^g	77 ^g	96 ^h	33	28
Foundations/NGOs	124	117	85	141	106	124	240	299	241	470	393
Bank grants	NA	NA	6	8	9	10	9	1	3	2	2
Total											
(Current \$US)	966	1,201	1,574	1,535	1,694	1,707	1,691	1,975	2,060	2,685	2,752
(Constant 1993 \$US) ⁱ	966	1,171	1,492	1,414	1,525	1,513	1,467	1,657	1,680	2,157	2,210

a Figures were rounded off and may not add to totals. NA indicates information not available for that year.

b The developed countries category includes the total of UNFPA's income from developed countries, since any contribution to UNFPA is regarded as having been earmarked for population assistance. Beginning with 1994, the European Union is included with developed countries.

c The United Nations system category includes contributions to population activities, mainly from UNAIDS, UNICEF, UNFPA and WHO that are part of general funds (not earmarked for population activities) from developed countries, developing countries and interest earned on income.

d Figures for primary funds for population assistance for UNICEF were not provided for 1995. As a result, 1995 figures are estimated at the 1994 level.

e UNICEF only provided data on project expenditures. Data on income were not provided.

f UNICEF and WHO did not provide data on income.

g WHO did not provide data on income.

h UNICEF did not provide data on income.

i The selection of 1993 as a base year for indicating constant dollars relates to the ICPD costed package year and serves only to permit an estimate of changes in real values, offsetting fluctuations caused by inflation and exchange rate variations.

For 2003, the 2002 constant exchange rate is used.

j 2002 data are still preliminary and contain estimates for EU and Greece

k Estimated figures

3.1.2 Estimates of primary funds of donor countries for population assistance

The estimated primary funds of donor countries are partly based on reported future commitments and partly based on estimates by NIDI (See also section 2.4).

Table 3: Estimates of primary funds of donor countries for population assistance, 1996-2003

Primary funds of donor countries for population assistance, 1996-2003 (Thousands of current local currency)										
Donor Country	Local Currency	1996	1997	1998	1999	2000	2001	2002	2003 ¹	2002 and 2003 currency
Australia	Australian Dollar	43,103	60,792	70,801	47,311a	25,198	25,286f	38,979	41,669	Australian Dollar
Austria	Austrian Shilling	9,116	7,044	22,089	18,722b	12,972	15,053f	913	1,000	Euro, ECU
Belgium	Belgian Franc	169,520	351,096	368,375	395,474	689,076	21,306e	46,717	46,717	Euro, ECU
Canada	Canadian Dollar	50,207	47,796	57,216	55,286	55,603	19,652	79,556	59,663	Canadian Dollar
Denmark	Danish Crown	365,555	310,320	402,826	382,819	360,824	406,595	470,854	369,070	Danish Crown
Finland	Finnish Mark	91,411	89,993	123,523	111,382	127,295	157,670	25,798	21,287	Euro, ECU
France	French Franc	85,058	85,058c	85,058c	49,112b	87,818	9,211e	88,652	87,616	Euro, ECU
Germany	German Mark	144,510	212,362	219,620	219,887	204,266	121,429e	110,977	58,540	Euro, ECU
Greece	Greek Drachma							40,000 h	40,000	Euro, ECU
Ireland	Irish Pound	455	-	-	1,976	3,618	6,990	12,486	55,000	Euro, ECU
Italy	Italian Lira	5,566,000	3,752,310	11,085,877	18,255,535	52,256,849	54,176,849f	54,176,849 g	57,915,052	Italian Lira
Japan	Japanese Yen	8,845,239c	8,845,239c	11,634,854	12,722,755	14,082,702	14,018,049	19,335,383	20,669,524	Japanese Yen
Luxembourg	Luxembourg Franc	36,400	36,400c	154,508	125,448	468,743	253,653f	253,653 g	271,155	Luxembourg Franc
Netherlands	Netherlands Guilder	188,326	285,724	236,517	239,552	405,973	147,547e	174,058	186,068	Euro, ECU
New Zealand	New Zealand Dollar	1,777	2,725	4,315	4,375	5,047	5,112	7,085	5,910	New Zealand Dollar
Norway	Norwegian Crown	298,500	384,056	538,677	480,986	527,725	386,284	386,284 g	412,937	Norwegian Crown
Portugal	Portuguese Escudo	38,390	414d	1,244d	440d	400d	689d	571	600	US Dollar
Spain	Spanish Peseta	979,578	979,578c	645,450	1,478,600	1,118,668	16,069e	3,486	333	Euro, ECU
Sweden	Swedish Crown	388,434	406,000	622,240	508,978	670,144	581,220	593,271	626,000	Swedish Crown
Switzerland	Swiss Franc	20,188	24,130	25,832	26,733	27,146	39,716	36,341	37,000	Swiss Franc
United Kingdom	British Pound Sterling	68,742	71,705	76,029	59,142	111,868	56,230	56,230 g	60,110	British Pound Sterling
United States	United States Dollar	637,696	662,360	619,729	603,003	658,614	951,012	981,873	1,124,000	US Dollar

a The 1999 figure for Australia includes only expenditures for projects exclusively dedicated to population activities and excludes expenditures for the population component in integrated development projects.

b Austria and France reported information only on contributions to multilateral donors in 1999. No information on project expenditures were provided.

c Information on expenditures for population assistance was not provided or fully reported; figure is estimated based on the latest year for which data were reported.

d United States dollar.

e Euro.

f Information on expenditures for population projects and programs were not provided or fully reported. Figures are estimated based on project and program data from the year 2000.

g All data (general contributions and project expenditures) copied from 2001

h Data for Greece are based on the future commitments reported for 2003

i Estimated figures

3.1.3 Estimates of final donor expenditures for population assistance by category of population activity

The estimated distribution of CPP categories of donor expenditures is partly based on trend analysis and partly based on reported future commitments for HIV/AIDS activities. The linear regression on the absolute amounts of total donor expenditures per category from 1996 to 2002 inclusive gives us estimated figures for 2003. Although we won't use these absolute 2003 amounts, since the total expenditures will be estimated bottom-up per donor, we can calculate the 2003 distribution of categories. The trend in CPP categories of donor assistance (from 1996 to 2002) has shown a clear shift from family planning and to a lesser extent Basic Reproductive Health towards HIV/AIDS activities.

Only based on linear trend analysis the distribution for 2003 would be:

Table 4: Estimated distribution of CPP categories in 2003 based on linear trend analysis

	FP	RH	HIV/AIDS	BR
Estimated distribution 2003 (%) based on linear trend analysis.	25.1	23.6	43.3	8.0

However, the expenditures on HIV/AIDS activities have shown a very steep increase in the most recent years, which is somewhat weakened by the linear trend. Therefore NIDI decided to use the reported HIV/AIDS future commitments to estimate total expenditures in this category. The donors that did reply showed a large increase of the share of HIV/AIDS spending in their 2003 expenditures. For those donors that did not report future commitments on HIV/AIDS for 2003 the 43.3 % from the trend analysis is used. It is assumed that the organisations that reported their funds on HIV/AIDS for 2003 have higher commitments than those who did not report. Therefore, the high growth rate of the reporting organisations is not turned over to the non-reporting donors.

Using the reported increase for the reporting donors and the 43.3% for the non-reporting donors, the overall HIV/AIDS percentage for 2003 would become 49.3%. The other three categories are decreased proportionally, which gives the following results.

Table 5: Actual estimated distribution of CPP categories for 2003

	FP	RH	HIV/Aids	BR
Actual estimated distribution 2003 (%).	22.4	21.1	49.3	7.2

The table of category distribution over time would be as follows:

Table 6: Final donor expenditures for population assistance, by category of population activity, 1996-2003

Final donor expenditures for population assistance, by category of population activity, 1996 - 2003 ^{a,b} (in percentages)								
	1996	1997	1998	1999	2000 ^c	2001	2002 ^g	2003 ^h
Family planning services	37%	40%	43%	37%	29%	30%	24%	22%
Basic reproductive health services	33%	27% ^d	22% ^e	30% ^f	29% ^f	24%	24%	21%
Sexually transmitted diseases and HIV/AIDS activities	16%	18%	20%	23%	32%	39%	42%	49%
Basic research, data and population and development policy analysis	14%	15%	15%	11%	9%	8%	10%	7%
Total activities	100%	100%	100%	100%	100%	100%	100%	100%
(Millions of current \$US)	1,511	1,632	1,681	1,655	1,781	2,051	2,948	2,752

a Percentages have been rounded off and may not add to 100 per cent.

b The development banks are not included in the final expenditures shown, as the banks' loan agreements are often disbursed over several years.

c 2000 data differ from the figures in the 2000 report, due to additional information received.

d Basic reproductive health care services for Sweden and the Netherlands included family planning services.

e Basic reproductive health care services for Sweden included family planning services.

f Basic reproductive health care services for Sweden and the United Kingdom included family planning services.

g 2002 data are still preliminary data and contain estimates for EU and Greece

h Estimated figures

3.1.4 Estimates of final donor expenditures for population assistance by region

In contrast to the information on categories, there is no exogenous nor reported information on regional distribution for 2003. Therefore, a linear regression is used from

1996 to 2002 inclusive to estimate the distribution of expenditures per region for 2003. For the regions, we can see an increasing emphasis on Sub-Saharan Africa and a trend towards more global/interregional projects and programmes.

Again the absolute level of total expenditures is determined bottom-up from all individual donors. The application of these distribution figures to the estimated total expenditures, provides the following figures for 2003:

Table 7: Final donor expenditures for population assistance, by region and channel of distribution, 1996-2003

Final donor expenditures for population assistance, by region and channel of distribution, 1996-2003 ^a								
(Thousands of current \$US)								
Region	1996	1997	1998	1999	2000 ^b	2001	2002 ^{d,e}	2003 ^f
Africa (sub-Saharan)	421,580	463,855	468,618	431,968	528,024	605,466	734,201	739,691
Asia and the Pacific	367,478	365,118	405,287	415,124	391,829	396,994	477,812	450,757
Latin America and the Caribbean	196,575	208,676	237,075	182,603	156,534	188,603	243,828	215,701
Western Asia and North Africa	103,755	118,098	116,967	85,322	105,009	114,233	149,994	123,108
Eastern and Southern Europe	24,588	22,533	26,859	27,196	22,089	35,259	39,403	40,956
Global/Interregional	396,796	453,774	425,714	512,925	577,259	710,668	1,302,843	1,181,864
TOTAL	1,510,771	1,632,053	1,680,520	1,655,138	1,780,743	2,051,223	2,948,081	2,752,078

a Figures and percentages have been rounded off and may not add to totals or 100 per cent. An asterisk indicates final expenditures of 1 than 0.5 but more than 0 per cent.

b 2000 data differ from the figures in the 2000 report, due to additional information received.

c The figure for 1993 total final expenditures includes \$US 3,178,000 reported by Sweden as a lump sum for all its bilateral expenditures

d The channels from the USA and Germany are estimated based on 2001 data.

e 2002 data are still preliminary and data for EU and Greece are estimated

f Estimated figures

3.2 Developing countries and countries in transition

3.2.1 Estimates of Government expenditures for population activities for selected countries by category of activity

Government expenditures for population activities were estimated for the 26 selected developing countries/countries in transition. The estimation rules for estimating domestic flows were applied, resulting in twelve countries with own reported estimates of total government expenditures. For the other countries estimates were produced using secondary data. Reported and estimated government expenditures are listed in table D1 Annex D.

For almost all countries the data present government expenditures on population activities at central level. Developed countries/countries in transition, especially the larger decentralised ones including China, Brazil, Nigeria, India and Indonesia, are therefore subject to an expected major under-estimation of their country estimate, and consequences for regional and global estimates.

In the case of China, the estimate is inflated to accommodate decentralised expenditures. According to Wong (2002), where she references to all sectors, central government

expenditures represents 30 percent of total government expenditures. Application of this percentage to the estimated expenditure on population activities for China yields a substantial increase for China of 5.0 billion \$US. The 30/70 central/de-central distribution may even be a conservative figure for the health sector in China. A case study on China by the UNFPA/NIDI/UNAIDS RF (2000) project shows that for the State Family Planning Commission de-central expenditures cover 95% and 97% of all their expenditures in 1996 and 1998 respectively. Obviously nearly all expenditures on family planning by the State Family Planning Commission take place at non-central levels. This may apply to other categories, but further information is not available.

3.2.2 Estimates of Government expenditures for population activities by region and category of activity

Given the impact of the application of the adjustment factor for decentralised government expenditures in China, the analysis for regional and global estimates is conducted both with and without the de-centralised expenditures for China. Results by region and category are shown in Table 8 and 9. Still this global government expenditure level on population activities is expected to be under-estimated, since other countries were not adjusted for non-central expenditures.

Table 8: Estimates of Government expenditures for population activities, by region and category of activity, 2003

Estimates of Government expenditures for population activities, by region and category of activity, 2003					
2003	Family planning services	Basic reproductive health services	STDs and HIV/AIDS activities	Basic research, data and population and development policy analysis	Total expenditures (thousands \$US)
Africa (sub-Saharan)	11%	6%	77%	5%	191,126
Asia and the Pacific	84%	7%	3%	5%	3,105,008
Latin America and the Caribbean	6%	5%	85%	4%	685,734
Western Asia and North Africa	58%	14%	15%	14%	160,001
Eastern and Southern Europe	9%	19%	69%	3%	189,601
Total	65%	7%	23%	5%	4,331,469

Note: Percentages have been rounded off and may not add to 100 per cent.

Table 9: Estimates of Government expenditures for population activities, by region and category of activity, including estimate for decentralised expenditures in China, 2003

Estimates of Government expenditures for population activities, by region and category of activity, including estimate for decentralised expenditures in China, 2003					
2003	Family planning services	Basic reproductive health services	STDs and HIV/AIDS activities	Basic research, data and population and development policy analysis	Total expenditures (thousands \$US)
Africa (sub-Saharan)	11%	6%	77%	5%	191,126
Asia and the Pacific	91%	3%	1%	5%	8,846,728
Latin America and the Caribbean	6%	5%	85%	4%	685,734
Western Asia and North Africa	58%	14%	15%	14%	160,001
Eastern and Southern Europe	9%	19%	69%	3%	189,601
Total	82%	4%	10%	5%	10,073,189

Note: Percentages have been rounded off and may not add to 100 per cent.

As far as the global distribution between population activity categories is concerned, both conditions (with and without decentralised expenditures in China) show similar patterns. We observe that expenditures on population activities by domestic governments are mostly determined by expenditures in family planning, followed by expenditures on HIV/AIDS. Regional differences are apparent though. Whereas we observe a relative high expenditure level on family planning in Asia and the Pacific and Western Asia and North Africa, the regions Sub-Saharan Africa, Latin America and the Caribbean and Eastern and Southern Europe are dominated by high expenditures on HIV/AIDS.

3.2.3 Estimate of global expenditures

In the past, UNFPA calculated an estimate of global domestic expenditures. The method used was as follows:

For each developing country or country in transition the most recent ever reported data for government and NGO spending are used. (Time range: 1996 to 2001). To include non-reporting countries in the regional totals the expenditures data of the reporting countries is applied to the non-reporting countries, weighted by population size. Hence, the underlying assumption is made that population expenditures per capita is equal between the different countries of a specific region. All five regions added would give global total of domestic government and NGO spending on population activities. Another 14 % is added to account for private and out-of-pocket expenditures.

Still this global government expenditure level on population activities is expected to be under-estimated, since other countries were not adjusted for non-central expenditures.

The total global figure for domestic expenditures, including besides domestic governments also NGOs and the private sector is estimated at 5.2 billion \$US without the adjustment for decentralised government expenditures in China and 11.7 billion \$US with this adjustment factor (See Annex D).

The results of the current estimation exercise are not completely comparable with those reported in previous reports on resource flows, because of different assumptions and methods. The domestic estimates presented in this paper only concern government expenditures. To arrive at the total global estimate, the UNFPA method is used for estimating NGO and private/out-of-pocket expenditures. NIDI recognises the shortcomings of this method for estimating a global estimate and in the project proposal 2004 it proposes to improve this method. However, at this moment a more sophisticated estimation method for NGO and private expenditures is beyond the scope of this paper.

4. Conclusions and recommendations

The presented report reflects the 2003 pilot estimation exercise conducted by NIDI within the framework of the current project cycle and, as requested by UNFPA, delivers the desired tables on resource flows for population activities.

The major results of the 2003 pilot estimation exercise include:

1. Total donor primary funds for population assistance in 2003 – 2.75 billion current \$US.
2. Table 6 in section 3.1.3 demonstrates the increase in expenditures on HIV/AIDS activities (49%) with a relative decrease in the other three activities, particularly family planning activities (22.4%).
3. Total domestic government expenditures for all regions per category of activity (excluding estimated decentralised expenditures for China) – 4.3 billion current \$US. If however, the decentralised estimations for China are included this figure is – 10 billion current \$US.

In submitting this report, NIDI would like to draw caution to the conclusions presented in the report. It is important to recognise the 2003 pilot estimation exercise as an additional endeavour, recently included in the current project cycle. The assumptions and methodology used were specifically developed for this exercise according to the availability, reliability and accuracy of primary and secondary data. NIDI put much effort into the very time consuming task of ensuring optimum coverage of data. Therefore, although NIDI believes that the estimations reported are the most realistic representation of donor assistance and domestic expenditures on population activities, these data must be seen as independent to previous resource flows data and caution should be taken in doing a trend analysis. Having said this, NIDI would like to stress the difference in the reliability of data between donor assistance and domestic expenditures. On the whole, data on donor assistance is fairly reliable and accurate, particularly in the cases of the OECD/DAC countries. As for domestic expenditures, the data available are less complete, accurate and reliable. For this reason, the RF team needed to rely more heavily on secondary data to achieve the required estimations.

NIDI would like to highlight the strengths of the exercise as well as the areas that require improvement in the future. With regard to the strengths, the RF project has a comprehensive and well functioning database that served as a solid foundation to develop the 2003 pilot estimation exercise. Furthermore, the current database proved flexible enough to adapt to the needs of the estimation exercise. More specifically, the current database could easily be expanded to include future donor and domestic commitments to population activities. These databases will be further developed as the estimation exercise is refined in the following years. With regard to the estimation methodology, state of the art techniques and models, which were developed in the field of economic and demographic

accounts, were applied. The commitment of the selected respondents to the RF project together with the multidisciplinary RF team allowed NIDI to efficiently deliver the desired output within the short time frame allocated. The established network of relations with the field that enabled the collection of most of the data is considered another important strength.

Despite the achievements above, NIDI recognises several areas that require additional attention and improvement in the future. Most importantly, NIDI notes that in the next estimation exercise, the RF team will request the selected donors for a breakdown of final expenditures according to region and for all four population activities instead of just HIV/AIDS as was done in the current exercise. In addition, NIDI realises the need for additional time to effectively and efficiently execute the project. To elaborate further, the pilot exercise indicated that more time is required to explore secondary sources that may result in alternative scenarios. For example, to explore the extent to which the RF exercise is unable to capture decentralised population expenditures and, if necessary, the possibility to use similar countries as a proxy for a country that did not respond, thereby providing a more realistic representation of expenditures on the CPP activities. Furthermore, NIDI recognises the need for sufficient time to well prepare the respondents so that they can effectively collect the required data and deliver the desired outputs within the assigned time frame. NIDI believes that implementation of suggested improvements in combination with the available experience will allow the RF team to more effectively and efficiently execute the following estimation exercise scheduled for next year

The 2003 pilot estimation exercise has allowed NIDI to develop a sound methodology and technique that can be used to further refine the estimation exercise and develop projections in the new project cycle.

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ANNEX

A: Data coverage

Table A1: Data coverage - donors

* Combination of 2002 data and amounts reported in 2001. ** Incomplete Data

OECD/DAC countries	Population expenditures		Future Commitments			
	2002 Total	2002 HIV/AIDS	2003 Total	2003 HIV/AIDS	2004 Total	2004 HIV/AIDS
Australia	✓*					
Austria	✓	✓	✓	✓		
Belgium	✓		✓			
Canada	✓		✓	✓	✓	✓
Denmark	✓*		✓**		✓	
EU	✓**		✓**			
Finland	✓		✓		✓	
France	✓		✓		✓	✓
Germany	✓		✓		✓	
Greece			✓	✓	✓	✓
Ireland	✓		✓	✓	✓	✓
Italy						
Japan	✓					
Luxembourg						
Netherlands	✓					
New Zealand	✓		✓	✓	✓	✓
Norway						
Portugal	✓		✓			
Spain	✓		✓	✓		✓
Sweden	✓		✓		✓	
Switzerland	✓		✓		✓	
UK						
USA	✓*	✓	✓	✓	✓	✓

Table A2: Data coverage - donors

International Foundations	Population expenditures	Future Commitments			
	2002 Total	2003 Total	2003 HIV/ AIDS	2004 Total	2004 HIV/AIDS
B. & M. Gates Foundation	✓	✓	✓		
Ford Foundation					
Hewlett Foundation					
Mac Arthur Foundation	✓				
Mellon Foundation					
OPEC	✓	✓			
Packard Foundation					
Rockefeller Foundation	✓				
Turner Foundation					
UNF	✓	✓	✓		
Wellcome Trust					
World AIDS Foundation					

Table A3: Data coverage - donors

International NGOs	Self-generated income				
	2002 Total	2003 Total	2003 HIV/AIDS	2004 Total	2004 HIV/AIDS
IPPF	✓	✓		✓	
JOICFP	✓	✓		✓	
MSI	✓	✓		✓	
PSI	✓	✓		✓	
UN agencies/organisations	Self-generated income				
	2002 Total	2003 Total		2004 Total	
UNAIDS	✓	✓			
UNFPA	✓	✓			✓
UNICEF	✓				
UNIFEM					
WHO	✓	✓			✓
Development Banks	Grants				
	2002	2003		2004	
WB	✓	✓			✓
ADB					
AfDB					
IADB					

Table A4: Data coverage - developing countries/countries in transition

In order to collect primary data on population expenditures in 2002 and 2003, the RF team at NIDI contacted the following developing countries/countries in transition:

* Incomplete information.

Countries contacted	2002 primary data available (reported through UNFPA/UNDP CO)		2003 primary data available (reported through UNFPA/UNDP CO)		2003 estimate developed
	Total	By category	Total	By category	
Bangladesh			✓	✓	
Belarus					
Brazil					✓
China	✓*				✓
Egypt	✓*	✓*	✓	✓*	
Ethiopia					✓
Guatemala	✓	✓	✓	✓	
India			✓	✓	
Indonesia					✓
Iran					✓
Kenya			✓	✓	
Malaysia					
Mexico	✓				
Morocco					

continued

Countries contacted	2002 primary data available (reported through UNFPA CO)		2003 primary data available (reported through UNFPA CO)		2003 estimate developed
	Total	By category	Total	By category	
Nepal			✓	✓	
Nigeria					✓
Pakistan					✓
Peru	✓*		✓	✓*	
Philippines			✓*	✓*	✓
Poland					✓
Romania			✓	✓	
Russian Federation					✓
South Africa					✓
Sudan					✓
Tanzania			✓	✓	
Thailand					✓
Turkey			✓	✓	
Ukraine			✓	✓	
Vietnam			✓	✓	

The shaded countries were excluded from the actual 2003 estimation exercise.

B: Detailed description of method

Real time estimates for donor assistance and domestic expenditures for population activities

Estimation framework and method

1. Introduction

‘Current estimates’ of financial resources flows (RF), i.e. resource flows in 2003, are based on a combination of data from various sources, including evidence based on past trends, RF survey data on commitments, annual development plans, aid expenditure plans and intentions, etc. This appendix presents an analytical framework for generating estimates by combining data from various sources. Each source of data, although incomplete and inadequate, contributes to the current estimate. Since the current estimates are not directly observed but predicted from whatever data are available, the resource flows in 2003 represent a *synthetic database*. The proposed framework is based on two basic ideas. The first idea is that the resource flows in 2003 (the synthetic database) may be predicted from the available data using regression models. It involves a modelling approach to the missing data problem. The second idea is that, in order to assure that the predicted resource flows are internally consistent and consistent with whatever information on the flows is reliable and available, an accounting framework should be adopted. Accounts have a great advantage; they must balance. The two ideas are briefly discussed.

In conventional regression models, the dependent variable is related to a set of independent variables. In the proposed method, the dependent variable is the expected flow of resources of a given type by origin and destination. The origin is the source of funds (e.g. primary donors; financing agencies). The destination is the recipient of funds or use of funds (e.g. the four categories of the ICPD costed population package; or the country of destination; or category of final recipient [final expenditures]). The type of flow may refer to the distribution channel (i.e. bilateral, multilateral/multi-bilateral, NGO). In the proposed framework, the independent variables are not explanatory variables (as in conventional regression models), but relate to data availability and data type. Since the origins of funds are relatively few, the origin may be represented by a discrete variable. A discrete variable is a variable with a finite (limited) number of values. The values are often referred to as categories and the variable as a categorical variable. The destination (e.g. use of funds) and type of funds are discrete variables too. As a result, the problem of predicting current resource flows from various sources has become a problem of categorical data analysis. Categorical data analysis is an established field of statistics (See e.g. Agresti, 1996; Long, 1997). Log-linear models and logit models are examples of regression models for categorical data. Since the available data are incomplete, the data analysis is not straightforward and generally available statistical software cannot be used. A comprehensive approach to regression analysis with missing data was proposed by Little and Rubin (1987). The analytical framework presented in this paper is consistent with their approach. The method is also consistent with the biproportional adjustment method (RAS method) used for updating input-output tables in economics (flows of resources between sectors of the economy) (Bacharach, 1970); the iterative proportional fitting (IPF) often used in sociology; and the method of

entropy maximization used in geography for estimating flows of resources (people and money) and goods between regions (Wilson, 1970) and, more recently, in econometrics (Golan et al., 1996). For a review of the literature, see Willekens (1994). The link between these models and the log-linear model has been established 20 years ago (Willekens, 1983) and the method has found its way in several texts (See e.g. Rees and Woods, 1986). The regression approach (which includes the log-linear model) has important advantages. First, the coefficients of the regression model measure the contribution of the data to the predicted flow of resources. Second, since the coefficients of the regression model are estimated from the data using the maximum likelihood method, the predicted resource flows are the *most likely* given the incomplete data. Third, the method of predicting resource flows from various sources is rooted in established statistical theory.

The data from the various sources need to be connected. There are two major aspects of this problem. The first relates to the harmonisation of categories and definitions used to classify resources and expenditures. A discussion of issues of harmonisation is beyond the scope of this paper. The second concerns the methods used to derive current estimates of the resource flows (prediction of flows). Funds originate at a certain location (e.g. donor) and they may pass through multiple channels of assistance before reaching the final recipient (UNFPA, 2002, p. 6). Data on expenditures compiled from the sources of expenditures (e.g. donors, government, NGOs, households) generally differ from data compiled from recipients (e.g. governments, NGOs, institutions, households). The first set of data is based on the supply of funds whereas the second is based on the receipt of funds (which may or may not be related to the resource requirements or need for funds). The approach where data are compiled separately from sources of funds (origin) and recipients (destination), has been referred to as the T-approach (Berman, 1997, p. 17). It differs from the approach adopted in National Health Accounts, which focuses on *flows of funds* from sources of spending to recipients (uses) of the funds. Berman (1997) refers to health accounts as 'sources and uses' matrices since they are cross-classifications of financial resources by origin of funds and destination of funds (recipients). The UNFPA/NIDI/UNAIDS Resource Flows project adopts a supply-oriented approach that focuses on sources of spending. Information on the uses of funds is provided by the sources of funds and not by the recipients. Hence the information concerns the *allocation* or distribution of funds and not the collection or mobilisation of funds by recipients. Donors allocate funds to different beneficiaries while recipients receive payment (income) from different sources. The growing importance of results-based management requires a better costing of reproductive health interventions (UNFPA, 2002, p. 47). A transition from a T-approach to a National Health Account would contribute to a better linkage between input (expenses), output (level of service delivery) and outcome (effect of service delivery on health status of population).

The data on flows of funds from donors, governments or NGOs to final recipients may be organised in an account or set of accounts. An account is an origin-destination table or flow table. The integration of statistical data from several sources into a synthetic database is a well-known problem in the compilation of statistics. Much of the work has been carried out within the context of the construction of economic or socio-demographic accounts (See e.g. United Nations, 1975). Huigen et al. (1988) review examples of combining data from different sources and conclude: "In each of these examples data from one source contradict data from another source, and the data from both sources should be combined in one or another way. Usually this is done by constructing an estimator which is a function of the data in both sources and which is optimal in some sense." (p. 28). This general principle has been applied in various fields,

migration being one of them (Willekens, 1994). The establishment of a coherent and consistent data set on resource flows that combines data from various sources is analogous to the development of financial accounts. The application of accounting principles assures that the relations between the data in the database are correctly specified. The techniques developed in the field of economic accounts and demographic accounts may be extended to accounts of resource flows and health accounts. The method presented on this paper is based on methods developed for the construction of a synthetic database on migration by combining data from various sources. Developments of the method have been described by Willekens (1982, 1994, 1999) and Rogers et al. (2003).

The method is described in the following sections. Section 2 briefly describes the tabulation of available data. Section 3 presents the modelling approach to the combination of data from various sources.

2. Tabulation of data from secondary sources

The first step in combining data from various sources is to determine the flow data to be predicted. The data are the current (2003) resource flows. They will be referred to as the *synthetic database*. The first step is therefore to determine the data in the synthetic database. The database takes the format of a **multidimensional table**, e.g. flows of funds or expenditures by origin, destination, and type of funds. The table is often referred to as an account, e.g. reproductive health account. The entries of the table are

- i. Origin of funds
 - Primary donors: 22 developed donor countries and EU that are members of the OECD/DAC; International foundations
 - Development banks
 - Intermediate donors: Multilateral agencies/organisations; International NGOs
 - Domestic country governments
 - (Local NGOs)
 - (Households; out-of-pocket)
- ii. Destination of funds: category of population activity
 - Family planning services
 - Basic reproductive health services
 - STD and HIV/AIDS activities
 - Basic research, data and population and development policy analysis
- iii. Destination: region
 - Africa (sub-Saharan)
 - Asia and the Pacific
 - Latin America and the Caribbean
 - Western Asia and North Africa
 - Eastern and Southern Europe
 - Global/Interregional

In principle, this **3-dimensional table** is sufficient to produce all the tables listed in the Project Proposal (Output in 2003). It is certainly sufficient to implement the proposed method for predicting current (2003) resource flows. The required tables are similar to those used in the annual report on 'Financial Resource Flows for Population Activities'. It often happens that funds are awarded in one year and spent by the recipient in a later year. That is particularly true for foundations that provide multi-year grants. To

accommodate funds that are provided by a donor in one year and spent by an intermediate donor or the final recipient in another year, a distinction is made between *primary funds* and *final expenditures* (UNFPA, 2002, p. 6). Primary funds refer to the financial resources contributed by a primary donor to an intermediate donor or the final recipient in a developing country or country in transition. Primary funds also include self-generated income of intermediate donors as well as contributions they receive from donor countries that are not members of the OECD/DAC. Final expenditures refer to funds that have been received by recipients in developing countries/countries in transition from primary donors or intermediate donors. The final recipients may be governments, national NGOs, or donor's field offices in developing countries/countries in transition. Primary funds include funds made available in a single year but intended to be expended over several years. If funds that are provided in a given year are spent in the same year, primary funds and final expenditures coincide.

In combining data from different sources, at least two data types are generally distinguished (Willekens, 1999, pp. 264ff):

- a. **Main data:** partial observations on current (2003) expenditures. The information should be reliable. Sources of main data include budgets, appropriations, and expected spending by spending agencies. Main data include primary data as defined in the main report. It may also include secondary data that pertain to aggregations of primary data. The partial observations on current spending generally relate to aggregate categories of expenditures. For instance, in national accounts, health expenditures include expenditures for reproductive health and HIV/AIDS. Some of the spending on reproductive health may be included in the expenditures for education. The trend towards integration of services, consistent with the ICPD call for the integration of reproductive health with basic health services, and the increasing use of sector-wide approaches (SWAs) in development assistance, makes it increasingly difficult to distinguish among the components of the costed package (UNFPA, 2002, p. 8 and p. 30). The proposed method assures that the current (2003) estimates, i.e. the data in the synthetic database, are fully consistent with the main data since the main data are believed to be accurate and to represent current spending.
- b. **Auxiliary data:** data sources used to improve the predictions of current (2003) spending. They belong to the class of secondary data as defined in the main report. Auxiliary data may be data on actual spending in a recent year or number of recent years, data that are not as reliable as the main data, data on comparable populations or economies (e.g. based on the case studies), and expert opinions on current spending. The approach that uses data from comparable populations or economies in order to obtain estimates of health expenditures was adopted by the World Bank for the 1993 World Development Report "Investing in Health" (WDR-93). For a total of 46 countries out of the 127 countries included in WDR-93, important parts of health expenditures were estimated 'out of sample' using a simple multivariate model (Berman, 1997, p. 13)¹.

¹ Berman observes that "The reason why 32 countries were reported to spend 1.6% of GDP from private sources was that the regression model 'predicted' 1.6 as the average proportion of GDP." (Berman, 1997, p. 13). Berman continues: "Country estimates were derived from a combination of sources and estimates from earlier years had to be inflated up to 1990 figures, usually the national GDP inflator. There were few reliable and comprehensive country studies on national health expenditures. Rather, the analysts combined consultancy reports, recent survey results and data reported to international organisations, such as WHO, ILO, IMF and others." (Berman, 1997, p. 13). The current exercise of generating 2003 estimates of expenditures for the ICPD costed package is analytically not much different from the preparation of the WDR-93 'Investing in health'.

The main and auxiliary data should be tabulated in a multidimensional (3-dimensional) table that is consistent with the ultimate database (synthetic database). The tables will have many empty cells and often the available information consists of aggregations of cells. The proposed method uses these incomplete and preliminary data to determine the most likely values of expenditures in 2003 that are part of the ICPD costed-population package.

An important aspect of the combination of data from various sources is data description (meta-data). In order to estimate current spending, a detailed description is necessary of the data that are available. It should include the source of the figure, the precise meaning of the figure (absolute figure, percentage of what?), the unit (national currency of US dollar, current dollar, etc.), and the degree of confidence in the figure or estimate. Each figure is characterised by a set of attributes (meta-data) and the attributes must be documented in order to be able to adequately combine data from various sources. Ideally, a typology of data is developed (Willekens, 1999, p. 245).

3. Prediction method

In this section, the method is described to predict current (2003) resource flows from main and auxiliary data sources. The basic idea is to specify a statistical (regression) model of the data and to estimate the parameters of the model (regression coefficients) from the available data. Once the synthetic database (data to be predicted), the main data and the auxiliary data are determined and arranged in a multidimensional table, the prediction involves two steps (Willekens, 1999, pp. 243ff):

- a. Specify a model for the data in the synthetic database. The model is a regression model. The type of regression model depends on the flow data. If the expenditures are expressed as counts of funds in (millions of) current US dollars, the regression model is a Poisson regression model. If the expenditures are expressed in percentages of a total, the regression model is a logit model. In the expected output 2003, both count data and percentages are used.
- b. Determine the most likely model generating the data in the synthetic database. In other words, estimate the most likely values of the regression coefficients.

A detailed description of the model specification and the statistical inference is beyond the scope of this paper. The reader is referred to Willekens (1999) and Rogers et al. (2003). In this section, we present a brief overview of the method using a simple example. Suppose we want to know how many funds foreign donors and domestic sources (governments, NGOs) spend in 2003 on two categories of population activities: (1) family planning services, basic reproductive health services, and basic research, data and population and development policy analysis); and (2) STD and HIV/AIDS activities. We do not distinguish between primary funds and final expenditures. In 2000, final expenditures on population projects and programmes in recipient countries, excluding development bank loans, amounted to \$US1.8 billion (1.753) (UNFPA, 2002, p. 13). Almost one third (32 percent) of all assistance in 2000 was expended for STD/HIV/AIDS activities (UNFPA, 2002, p. 29). Funding for STD/HIV/AIDS increased steadily since 1995, from 9 percent to 32 percent. The UNFPA/NIDI mail survey showed that in 1999, governments in developing countries/countries in transition reported spending almost \$US3.5 billion (3.493) on population projects and programmes, 14 percent of which is spent on STD/HIV/AIDS activities. Using supplementary data and case studies, UNFPA produced a rough estimate of global domestic resource flows

for population activities (government and NGOs) of \$US7.5 billion. It added to the contribution of private resources, estimated at 14 percent of the domestic total (\$US 1.1 billion) (UNFPA, 2002, p. 43)¹¹. The global total for domestic resources for population activities in 1999/2000 is therefore \$US8.6 billion. Assuming that the funds in 2000 are the same as in 1999, the total final world-wide expenditures for population activities in developing countries and countries-in-transition is \$US10.4 billion, 83 percent generated in by governments, NGOs, the corporate sector and private households (including out-of-pocket expenditures for reproductive health and STD/HIV/AIDS services and commodities) in developing countries and countries-in-transition. It is not known how much is spent on reproductive health etc. and on STD/HIV/AIDS activities. We suppose that 86 percent is spent on family planning, reproductive health services and basic research, data and population and development policy analysis, and 14 percent on STD/HIV/AIDS activities (distribution based on government expenditures). The information is combined in Table B1.

Table B1: Final expenditures for population activities, 2000 (billion \$US)

Origin	Destination		
	Family planning etc.	STD/HIV/AIDS	Total
Foreign donors	1.19	0.56	1.75
Domestic sources	7.40	1.20	8.60
Total	8.59	1.76	10.35

Suppose foreign donors appropriate \$US3.0 billion for population activities in 2003 and domestic sources commit \$US9.0 billion. The AIDS agenda and the pledges to the Global Fund launched in June 2001 are expected to result in a substantial increase in spending for STD/HIV/AIDS activities. In 2002, approximately \$US2.8 billion was expected to be spent on HIV/AIDS activities (Alagiri, 2002, p. 4). We assume that in 2003, \$US3.5 billion is earmarked or appropriated for STD/HIV/AIDS spending. At the same time, the expected end of world population growth by the middle of the current century and the very low fertility in many donor countries may motivate donors to reduce funds for family planning, reproductive health services and basic research, data and population and development policy analysis. The expected total expenditure for this set of activities is \$US8.5 billion. This information on the current (2003) expenses may be arranged in a contingency table (Table B2).

Table B2: Final expenditures for population activities, 2003 (billion \$US)

Origin	Destination		
	Family planning etc	STD/HIV/AIDS	Total
Foreign donors			3.0
Domestic sources			9.0
Total	8.5	3.5	12.0

¹¹ The UNFPA report does not mention the 14 percent figure. It might be Conly et al. (1995). Quoting Conly et al. (1995), Potts et al. (1999) report that consumer spending in the private sector amount to 14 percent of global domestic resources spent on family planning. The figure is based on sources for 79 countries.

The generation of current (2003) estimates by source of funds and type of population activity is now reduced to the problem of generating values for the empty cells of a contingency table. In this simple example, the main data consist of the marginal totals in Table B2. Table B1 showing actual expenses in 2000 may serve as an auxiliary data source. The actual flows in 2000 are not of any use because the substantial changes in levels of funding envisaged and, more particularly, the shift in priorities from family planning and reproductive health to HIV/AIDS treatment and prevention. We may assume however that the weight attached to STD/HIV/AIDS relative to family planning and reproductive health by developing countries/countries in transition relative to donor countries is in 2003 not much different from that in 2000. If that is the case, the structure of resource flows in 2003 is not much different from the structure in 2000 although the sizes (levels) of flows are very different. In this simple example, the structure of the resource flows is summarised by the odds ratio. The odds ratio for the 2000 flows is the ratio of the foreign over domestic expenses for family planning and reproductive health divided by the ratio of the foreign over domestic expenses for STD/HIV/AIDS. The odds ratio is $[1.19/7.40] / [0.56/1.20] = 0.34$. It means that the odds that funds for family planning and reproductive health come from foreign donors rather than domestic sources is much lower (about one third), of the odds that funds for STD/HIV/AIDS come from foreign donors rather than domestic sources. In other words, the weight attached by foreign donors to STD/HIV/AIDS rather than family planning and reproductive health is 3 times the weight attached by domestic governments, NGOs and the private sector (with weight being measured in terms of the amount of money allocated). If the same relative weight applies in 2003, the structure of the resource flows in 2000 can be applied to complete Table B2. The method of iterative proportional fitting preserves the data structure (Willekens, 1982, p. 75). The procedure is illustrated in the Annex I. After a few iterations, the most likely resource flows in 2003, given the main data on 2003 and the auxiliary data on 2000, are shown in Table B3. The constraints imposed by the main data are met (marginal totals) and the 2000 structure of resource flows is preserved.

The IPF is an algorithm used to predict the dependent variables under a log-rate model. Log-rate models constitute a particular class of log-linear models (See e.g. Yamaguchi, 1991). The model is also discussed by Willekens (1999, p. 254) and additional references are provided in that paper. The log-rate model may be solved using SPSS by specifying the auxiliary data as an offset.

Table B3: Final expenditures for population activities, 2003 (billion \$US)

Origin	Destination		
	Family planning etc.	STD/HIV/AIDS	Total
Foreign donors	1.60	1.40	3.0
Domestic sources	6.91	2.09	9.0
Total	8.5	3.5	12.0

4. Conclusion

In the paper a method is proposed to derive current (2003) estimates of resource flows for population activities using data from various sources. A distinction is made between main data that represent information on the 2003 resource flows and auxiliary data that are used to fill in the missing data. The proposed method involves the explicit or implicit specification of a regression model that relates the data to be predicted to the available

information. In the paper, the model is a log-linear model and its variant applied is the log-rate model. The model remains implicit. The IPF algorithm that is often used to solve log-rate models is discussed, however.

The method is illustrated using a very simple example. It is assumed that the structure of resource flows observed in 2000 applies to 2003. Changes may be introduced in the model following two approaches. The first is to use expert opinion to determine the direction of change and the level of change in the odds ratio. The second approach is to specify a regression model relating the odds that a source of funds (foreign or domestic) is allocated to family planning or reproductive health or to STD/HIV/AIDS to explanatory variables. The model is a logit model since the logarithm of the odds is the logit. Logit models are equivalent to logistic regression models. Statistical packages, such as SPSS, facilitate the application of logit models and logistic regression models.

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ANNEX I			
ITERATIVE PROPORTIONAL FITTING			
MAIN DATA			
		Destination	
Origin	FP/RH	STD/HIV/AIDS	Total
Foreign			3,00
Domestic			9,00
Total	8,50	3,50	12,00
AUXILIARY DATA			
		Destination	
Origin	FP/RH	STD/HIV/AIDS	Total
Foreign	1,19	0,56	1,75
Domestic	7,40	1,20	8,60
Total	8,59	1,76	10,35
ITERATIVE PROPORTIONAL FITTING			
iter = 1a			
		Destination	
Origin	FP/RH	STD/HIV/AIDS	Total
Foreign	2,04	0,96	3,00
Domestic	7,74	1,26	9,00
Total	9,78	2,22	12,00
iter = 1b			
		Destination	
Origin	FP/RH	STD/HIV/AIDS	Total
Foreign	1,77	1,52	3,29
Domestic	6,73	1,98	8,71
Total	8,50	3,50	12,00
iter = 2a			
		Destination	
Origin	FP/RH	STD/HIV/AIDS	Total
Foreign	1,62	1,38	3,00
Domestic	6,95	2,05	9,00
Total	8,57	3,43	12,00
iter = 2b			
		Destination	
Origin	FP/RH	STD/HIV/AIDS	Total
Foreign	1,60	1,41	3,01
Domestic	6,90	2,09	8,99
Total	8,50	3,50	12,00
iter = 3a			
		Destination	
Origin	FP/RH	STD/HIV/AIDS	Total
Foreign	1,60	1,40	3,00
Domestic	6,91	2,09	9,00
Total	8,50	3,50	12,00

C: Donor financial flows

Table C1: Estimates of Donor expenditures for population activities, estimated breakdown by category of activity (in \$US)

	Family Planning	Reproductive Health	HIV/AIDS	Basic Research	Total 2003
Australia	1,264,943	4,121,385	15,359,028	1,922,340	22,667,695
Austria	0	757,477	186,523	0	944,000
Belgium	0	8,826,263	26,120,757	9,153,998	44,101,018
Canada	2,273,003	12,941,989	19,014,614	3,775,697	38,005,304
Denmark	1,814,368	31,299,870	11,641,130	2,116,523	46,871,890
European Union	52,748,113	39,979,332	78,464,192	25,471,882	196,663,520
Finland	687,845	9,282,441	2,119,013	8,005,360	20,094,660
France	2,144,332	4,776,894	71,909,177	3,878,904	82,709,307
Germany	29,407,928	17,961,553	7,623,285	268,995	55,261,760
Greece	12,692,466	10,038,250	319,330	14,709,954	37,760,000
Ireland	1,089,788	4,598,060	43,536,745	2,695,407	51,920,000
Italy	1,961,539	3,040,161	21,763,962	0	26,765,663
Japan	492,437	140,418,632	22,046,302	2,398,820	165,356,191
Luxembourg	795,908	580,078	4,639,002	0	6,014,988
Netherlands	3,347,895	69,588,478	99,513,793	3,197,638	175,647,804
New_Zealand	175,404	794,727	1,759,877	12,303	2,742,310
Norway	3,432,646	11,309,977	36,792,398	495,059	52,030,080
Portugal	0	0	600,000	0	600,000
Spain	4,561	147,181	158,476	4,134	314,352
Sweden	13,827,048	15,833,588	34,817,364	0	64,478,000
Switzerland	7,625,926	9,686,853	6,515,221	0	23,828,000
United Kingdom	10,526,734	14,533,306	65,164,500	0	90,224,540
United States	413,851,012	79,347,287	572,664,328	58,137,373	1,124,000,000
Foundations	29,175,048	61,845,060	198,536,656	39,138,088	328,694,851
International NGOs	19,445,640	19,052,850	11,393,525	14,097,020	63,989,035
UN Organisations	6,979,148	8,618,955	5,658,636	7,104,972	28,361,712
Development Banks	0	1,680,253	0	351,747	2,032,000
Total	615,758,849	581,075,315	1,358,307,390	196,937,124	2,752,078,678

Table C2: Estimates of Donor expenditures for population activities, estimated breakdown by region of destination (in \$US)

	Africa (SubSaharan)	Asia and the Pacific	Eastern and Southern Europe	Global/Interregi onal	Latin America and the Carribbean	Western Africa and North Africa	Total
Australia	2,188,168	14,661,678	0	5,817,849	0	0	22,667,695
Austria	0	0	0	944,000	0	0	944,000
Belgium	10,819,387	1,093,543	0	29,859,618	2,239,836	88,633	44,101,018
Canada	19,384,057	9,436,319	3,473,437	0	5,277,433	434,058	38,005,304
Denmark	24,682,476	15,084,815	0	0	2,260,708	4,843,891	46,871,890
European Union	52,301,200	93,100,376	0	8,617,421	13,978,021	28,666,503	196,663,520
Finland	4,322,418	6,688,941	878,625	6,311,050	1,497,184	396,443	20,094,660
France	12,040,533	1,838,826	1,011,679	67,089,903	659,019	69,347	82,709,307
Germany	0	0	0	55,261,760	0	0	55,261,760
Greece	0	0	0	37,760,000	0	0	37,760,000
Ireland	51,920,000	0	0	0	0	0	51,920,000
Italy	21,706,898	0	685,604	0	363,930	4,009,230	26,765,663
Japan	37,826,527	73,599,045	0	0	28,398,992	25,531,627	165,356,191
Luxembourg	2,095,704	2,891,175	0	187,179	647,374	193,557	6,014,988
Netherland	73,250,877	14,288,628	2,212,357	75,962,458	4,084,632	5,848,854	175,647,804
New Zealand	626,887	2,115,423	0	0	0	0	2,742,310
Norway	22,647,440	2,880,768	0	22,321,503	3,454,116	726,253	52,030,080
Portugal	600,000	0	0	0	0	0	600,000
Spain	142,063	4,035	9,784	2,807	155,664	0	314,352
Sweden	22,512,806	554,455	3,092,161	36,231,491	2,087,087	0	64,478,000
Switzerl	0	605,608	0	23,222,392	0	0	23,828,000
United Kingdom	3,547,587	3,228,259	863,674	71,927,691	10,633,405	23,924	90,224,540
United States	312,085,756	176,039,113	27,398,080	440,498,273	121,188,574	46,790,204	1,124,000,000
Foundation	52,773,093	21,589,311	236,043	237,608,162	13,780,508	2,707,734	328,694,851
Global/Interregional	6,494,988	5,436,259	570,499	47,073,285	2,414,779	1,999,226	63,989,035
UN Organisations	5,168,128	5,515,563	523,759	13,782,926	2,584,053	787,283	28,361,712
Development Banks	567,919	127,252	0	1,336,829	0	0	2,032,000
Total	739,691,198	450,756,767	40,955,583	1,181,864,527	215,701,115	123,109,490	2,752,078,680

D: Domestic financial flows

Table D1: Estimates of Government expenditures for population activities for selected countries by category of activity (in 1,000 \$US)

Country or Region	Year	Population	Family Planning	Reproductive Health	HIV/AIDS	Basic Research	Total Population Expenditures
Ethiopia	2003	67,3	5.104	5.098	36.855	299	47.356
Kenya	2003	31,3	611	601	1.929	1.180	4.321
Nigeria	2003	132,8	0	0	14.549	0	14.549
South Africa	2003	43,6	0	8	0	2.017	2.024
United Republic of Tanzania	2003	35,2	4.554	126	17.484	1.335	23.499
Total referential countries: Africa (sub-Saharan)	2003	310,2	10.269	5.833	70.817	4.831	91.750
Total population: Africa (sub-Saharan)	2002	646,2	21.391	12.151	147.521	10.063	191.126
Bangladesh	2003	135,7	100.689	75.959	19.431	24.731	220.827
India	2003	1.048,3	68.447	33.613	6.101	95	108.255
Indonesia	2003	211,7	21.331	633	1.900	5.092	28.957
Islamic Republic of Iran	2003	65,5	9.418	0	1.268	1.046	11.733
Nepal	2003	24,1	4.860	4.764	4.432	918	14.975
Pakistan	2003	144,9	37.403	28.636	1.169	2.800	70.008
People's Republic of China	2003	1.281,0	2.035.090	16.281	2.442	101.903	2.155.716
People's Republic of China, including decentralised expenditures	2003	1.281,0	6.783.633	54.270	8.140	339.677	7.185.720
Philippines	2003	79,9	1.169	5.362	784	3.193	10.508
Thailand	2003	61,6	4.040	16.277	43.287	2.505	66.109
Viet Nam	2003	80,5	15.447	8.046	4.042	2.072	33.038
Total referential countries: Asia and the Pacific	2003	3.133,3	2.297.895	189.572	84.857	144.355	2.720.127
Total population: Asia and the Pacific	2002	3.576,6	2.623.034	216.395	96.863	164.780	3.105.008
Total population: Asia and the Pacific, including decentralised expenditures China	2002	3.576,6	8.043.467	259.760	103.368	436.197	8.846.728
Brazil	2003	174,5	0	0	302.320	0	302.320
Guatemala	2003	12,0	12.127	12.860	1.780	2.761	29.528
Mexico	2003	100,9	6.185	7.331	21.311	6.310	41.136
Peru	2003	26,7	6.389	1.150	19.723	5.239	32.501
Total referential countries: Latin America and the Caribbean	2003	314,1	24.701	21.341	345.135	14.310	405.485
Total population: Latin America and the Caribbean	2002	531,3	41.773	36.091	583.672	24.200	685.734
Egypt	2003	69,1	9.771	9.771	11.100	8.880	39.522
Sudan	2003	32,4	1	433	58	203	696
Turkey	2003	69,6	33.482	0	36	1.249	34.731
Total referential countries: Western Asia and North Africa	2003	171,1	43.254	10.204	11.194	10.332	74.948
Total population: Western Asia and North Africa	2002	365,2	92.339	21.784	23.897	22.057	160.001
Poland	2003	38,6	4.327	8.654	6.931	2.100	22.012
Romania	2003	22,4	627	2.669	29.872	0	33.167
Russian Federation	2003	144,1	817	820	5.951	39	7.626
Ukraine	2003	48,7	0	330	2.564	53	2.946
Total referential countries: Europe	2003	253,8	5.771	12.473	45.318	2.191	65.752
Total population: Europe	2002	731,8	16.640	35.966	130.677	6.318	189.601
Total Developing World		5.851,2	2.795.177	322.386	982.630	227.418	4.331.469
Total Developing World, including decentralised expenditures China		5.851,2	8.215.611	365.751	989.135	498.835	10.073.189

Table D2: Estimate of global domestic expenditures (in 1,000 \$US)

Year	Country	Total NGO Expenditures (1000 USD)	Total population 2002 (millions)	Total population (millions) in 2001 in countries responded	Population coverage (%)	Total NGO Expenditures per region ('000 \$US)	Total Government expenditures ('000 \$US)	Private sector estimate (14 % of total expenditures)	Total global estimate 2003
	Africa (sub-Saharan)								
	Angola								
1999	Bénin	366.04			6.4				
1997	Botswana	199.63			1.6				
2001	Burkina Faso	2,723.52			11.9				
2001	Burundi	1,774.93			6.5				
1997	Cameroon	260.99			15.2				
1999	Cape Verde	230.86			0.44				
1998	Central African Republic	129.22			3.8				
	Chad								
	Comoros								
	Congo								
	Congo, Democratic Republic of the								
	Cote d'Ivoire								
	Equatorial Guinea								
2001	Eritrea	321.38			3.8				
2001	Ethiopia	4,588.04			64.5				
	Gabon								
	Gambia								
2001	Ghana	2,286.09			19.7				
1998	Guinea	310.23			8.3				
	Guinea-Bissau								
2001	Kenya	4,937.49			31.3				
1998	Lesotho	853.84			2.1				
	Liberia								
2001	Madagascar	828.47			16.4				
2001	Malawi	1,552.72			11.6				
2001	Mali	1,372.04			11.7				
1999	Mauritania	341.78			2.7				
	Mauritius								
2001	Mozambique	2,695.08			18.6				
2001	Namibia	1,469.04			1.8				
1999	Niger	407.25			11.2				
2001	Nigeria	2,338.10			116.9				
	Reunion								
2001	Rwanda	969.15			7.9				
	Sao Tome and Principe								
2001	Senegal	1,330.92			9.7				
	Seychelles								
1999	Sierra Leone	88.23			4.6				
1999	South Africa	2,648.32			43.8				
1997	Swaziland	488.38			0.9				
2001	United Republic of Tanzania	8,088.25			36				
1997	Togo	531.49			4.7				
1999	Uganda	2,007.21			24.0				
2001	Zambia	600.45			10.6				
	Zimbabwe								
	Total Africa (sub-Saharan)	46,739	646.20	508.7	78.7%	59,375	191,126	35,070	285,572

	Asia and the Pacific								
	Afghanistan								
1999	Armenia	77.11		3.8					
	Azerbaijan								
2001	Bangladesh	5,968.10		140.4					
	Bhutan								
	Brunei Darussalam								
2001	Cambodia	2,689.51		13.4					
1999	People's Republic of China	2,807.79		1,285					
	Cook Islands								
	Fiji								
	French Polynesia								
	Guam								
2001	India	7,179.46		1025.1					
2001	Indonesia	856.64		214.8					
2001	Islamic Republic of Iran	195.53		71.4					
1997	Kazakhstan	91.98		16.1					
	Kiribati								
	Democratic People's								
1996	Republic of Korea	2.06		22.4					
	Korea, Republic of								
	Kyrgyzstan								
	Lao People's Democratic								
	Republic								
	Macau								
2001	Malaysia	2,802.74		22.6					
	Maldives								
	Marshall Islands								
	Micronesia, Federated States								
	of								
2001	Mongolia	217.96		2.6					
	Myanmar								
2001	Nepal	10,868.99		23.6					
	Niue								
2001	Pakistan	5,974.16		145.0					
	Palau								
1997	Papua New Guinea	108.05		4.9					
1999	Philippines	2,953.13		77.1					
	Samoa								
	Solomon Islands								
	Sri Lanka								
	Tajikistan								
2001	Thailand	1,975.67		63.6					
	Tokelau								
	Tonga								
	Trust Territory of the Pacific								
	Islands								
	Turkmenistan								
	Tuvalu								
	Uzbekistan								
	Vanuatu								
2001	Viet Nam	1,070.73		79.2					
	Total Asia and the Pacific	45,839.60	3,576.60	3,211.0	89.8%	51,059	3,105,008	441,849	3,597,916
	Total Asia and the Pacific,								
	including decentralised								
	expenditures China	45,839.60	3,576.60	3,211.0	89.8%	51,059	8,846,728	1,245,690	10,143,477

Latin America and the Caribbean									
	Anguilla								
1996	Antigua and Barbuda	231.08		0.1					
	Argentina								
	Aruba								
1998	Bahamas	108.54		0.308					
1998	Barbados	300.00		0.268					
	Belize								
	Bermuda								
2001	Bolivia	3,768.75		8.5					
1999	Brazil	6,708.31		172.6					
	British Virgin Islands								
2001	Chile	2,156.81		15.4					
	Colombia								
	Costa Rica								
1999	Cuba	56.26		11.2					
	Dominica								
	Dominican Republic								
1996	Ecuador	224.94		12.9					
1997	El Salvador	6,278.00		6.4					
1998	Grenada	166.48		0.1					
2001	Guatemala	4,995.84		11.7					
1998	Guyana	243.04		0.763					
2001	Haiti	5,047.39		8.3					
2001	Honduras	5,303.57		6.6					
1996	Jamaica	6.00		2.6					
2001	Mexico	10,825.65		100.4					
	Montserrat								
	Netherlands Antilles								
2001	Nicaragua	2,779.32		5.2					
1997	Panama	167.95		2.9					
2001	Paraguay	1,592.05		5.6					
2001	Peru	5,222.46		26.1					
	Puerto Rico								
	Saint Kitts and Nevis								
1998	Saint Lucia	184.16		0.1					
	Saint Vincent and the								
1998	Grenadines	72.15		0.1					
1996	Suriname	6.00		0.4					
1998	Trinidad and Tobago	792.01		1.3					
	Turks and Caicos Islands								
	Uruguay								
	Venezuela								
Total Latin America and the Caribbean		57,236.76	531.30	399.8	75.3%	76,059	685,734	106,651	868,444
Western Asia and North Africa									
1998	Algeria	406.83		30.8					
	Bahrain								
	Cyprus								
1999	Djibouti	376.70		0.644					
2001	Egypt	1,464.03		69.1					
	Iraq								
	Israel								
2001	Jordan	1,709.04		5.1					
	Kuwait								
	Lebanon								
	Libyan Arab Jamahiriya								
2001	Morocco	1,228.62		30.4					
	Oman								
	Palestine								
	Qatar								
	Saudi Arabia								
	Somalia								
2001	Sudan	1,082.62		31.8					
1999	Syrian Arab Republic	536.30		16.6					
	Tunisia								
2001	Turkey	591.67		67.6					
	United Arab Emirates								
2001	Yemen	504.46		19.1					
Total Western Asia and North Africa		7,900.27	365.20	271.1	74.2%	10,641	160,001	23,890	194,532

Europe									
1999	Albania	543.19		3.1					
1999	Belarus	12.73		10.1					
	Bosnia and Herzegovina								
1998	Bulgaria	135.87		7.9					
	Croatia								
	Czech Republic								
2001	Estonia	110.10		1.4					
	Georgia								
	Hungary								
2001	Latvia	180.10		2.4					
2001	Lithuania	44.05		3.7					
	Macedonia, The former Yugoslav Republic of								
	Moldova, Republic of								
1999	Poland	285.54		38.6					
1999	Romania	814.86		22.4					
1996	Russian Federation	564.41		144.7					
	Slovakia								
	Slovenia								
1999	Ukraine	272.58							
	Total Europe	2,963.43	731.80	234.3	32.0%	3,749	189,601	27,069	220,419
Grand Total									
		160,679.17	5,851.10	4,624.9	79.0%	200,883	4,331,470	634,529.49	5,166,883
Grand Total including estimates for decentralised levels in China									
		160,679.17	5,851.10	4,624.94	79.04%	200,883.48	10,073,190	1,438,370	11,712,444