

[TO BE COMPLEMENTED WITH MORE DETAILS  
ABOUT THE ACTION PLAN AND EXAMPLES]

## **Chapter 5      INCORPORATING WATER ACCOUNTS AND STATISTICS TO THE REGULAR STATISTICAL PRODUCTION PROCESS**

This chapter discusses the different aspects to consider for the implementation of a process of regular production of water accounts and statistics. The chapter addresses the issues related with the establishment of a long term program of implementation of the accounts within the National Statistics System (NSS), involving several steps that include strategic planning; coordination, monitoring and reporting; and improving statistical systems.

Different tools to achieve the implementation will be discussed in this chapter, such as the National Strategies for the Development of Statistics (NSDS), which is the most widely used tool for statistical planning in developing countries, but its concepts are applicable to developing and developed countries.

### **I. Strategic planning**

- Assessment of the current status of the NSS in the production of water accounts and statistics
- Institutional arrangements
- Developing the statement of strategy
- Action plan
- Monitoring and evaluation

### **II. Implementation process**

- Action plan
- Monitoring and evaluation

### **III. Tools for implementation**

- National Strategies for the Development of Statistics (NSDS)
- National Quality Assurance Frameworks (NQAF)
- Statistical Data and Metadata Exchange (SDMX)
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## **I. Strategic planning**

The previous chapters of these Guidelines provide recommendations on how to collect data and compile it to produce information relevant for water policies. However, producing water accounts and statistics once is not enough. It is necessary to develop a process of sustained and regular production of the information, so that trends can be identified and policies can be designed or evaluated. It is therefore necessary to implement a long-term strategy.

The long-term strategy should start with the assessment of the current status of the National Statistics System (NSS) in the production of water accounts and statistics. Based on the assessment a strategy for the production of water accounts and statistics should be developed, and the strategy should lead to action plans, which have to be implemented and then managed with regular feedback, monitoring, and adaptation.

The data necessary for water accounts and statistics come from a wide variety of sources, which involve a wide variety of actors. Therefore the implementation strategy has to seek the involvement of all the relevant stakeholders. It will require coordinating mechanisms, which will vary depending, among other things, on how the different water policy and management tasks are shared by the different government agencies.

### **Assessment of the current status of the NSS in the production of water accounts and statistics**

The first step in the implementation of the long-term strategy is the assessment of the current status of the NSS in the production of water accounts and statistics. The results of preliminary or pilot accounts should provide a sound basis for the assessment.

The assessment should address the following issues:

- Policy needs of information
- Legal and institutional framework, linkages, and coordination
- Methodologies and quality of statistics.
- Taking stock of the existing capacity for the data needs and to fill data gaps.
- Identify key statistical outputs against agreed quality criteria.

The policy needs of information can be evaluated with the four quadrants for grouping water information presented in Chapter 1. For the legal and institutional framework, linkages, and coordination it is important to identify the mandates of the agencies providing the data described in Chapter 3. The issue of institutional arrangements is addressed below. The methodologies are described in the System of Environmental Accounts for Water (SEEA-Water) and in the International Recommendations for Water Statistics (IRWS).

## **Institutional arrangements**

Institutional arrangements are instrumental for the implementation of a process of production of water accounts and statistics because in most statistical systems an important proportion of the statistics are produced outside the national statistical agencies by other government departments or quasi-government organizations. Water accounts and statistics require data from numerous sources therefore, improving the coherence of input statistics can contribute significantly to the quality of the accounts. As the use of administrative data increases, the national statistical agency will become more dependent on data from outside sources and arrangements are needed to ensure that administrative data are collected in a way that is consistent with the needs of statisticians and are timely available.

The institutional, organizational and legal conditions of the various countries can be different. These various conditions may be reflected in different legislative frameworks and codes of practice. Strategic planning helps to establish in the national statistical system formalized institutional arrangements to address the coherence of water related statistics across the entire national statistical system, delegate responsibility from collection to data exchange, to compilation and dissemination for an efficient process management of the statistical programme. Process management is used as a tool for gradual improvement to the sequence of production processes and focuses on optimizing each process in the production sequence to ensure that the quality of the final product meets the requirement of users for coherent and accurate economic data and better integrated economic accounts.

The coordination and governance functions and responsibilities of the lead statistical agency in the country can be carried out more efficiently if this role is supported by institutional arrangements such as advisory committees, relationship meetings, memorandums of understanding, service level agreements and through technical cooperation. These mechanisms of structured communication, coordination and governance arrangements between all suppliers of data and statistics producers at the national level provide cohesion across the statistical system for the production of integrated economic statistics.

High-level management support and commitment is a crucial condition for adopting integration as an objective for the statistical system and for setting up a flexible and adaptable programme for integrated economic statistics. As part of building a strong system of management culture of values, norms and shared beliefs to support integration, senior management should focus on labour relations, human resources issues, recruitment of professionals, provision of training to all classes of staff and the development of training material since integration will change the roles and responsibilities of staff involved in the production of economic statistics.

## **Developing the statement of strategy**

A statement of strategy, taking into account the national and regional policy needs, is an important step to establish a road map for developing the required scope, detail and quality of water accounts and statistics needed. For this purpose it is proposed that countries establish a statement of strategy for the implementation of the 2012 SESA, and within the SESA the SESA-Water, and supporting statistics at the national level. This statement can be incorporated in the review of the National Strategy for the Development of Statistics (NSDS) that will be described below.

The statement of strategy aims to establish the set of actions to accomplish statistical and institutional goals for the sustainable improvement of the water accounts and statistics programmes, while ensuring adherence to best practices in official statistics.

In developing the statement of strategy, consultations are needed, preferably in a national seminar, with all stakeholders, policy planners and other users including the academia and business community. Such a discussion is expected to help the national statistical office to prioritize the problem areas and ultimately write a plan for the improvement of the supporting statistics with a view to compile water accounts and statistics within the framework of the 2012 SEEA, SEEA-Water, and the International Recommendations for Water Statistics (IRWS).<sup>1</sup>

The statement of strategy should include a mandate, a mission statement, values, high level goals, specific goals, and required activities. The mission statement, values, and high level goals can be part of a larger program, not only for water, which may include a whole set of environmental accounts and statistics. The required activities are part of the action plan, which is described below.

## **II. Implementation process**

### **Action plan**

The strategies have to be properly and effectively implemented through a costed and time-bound action plan, including, if needed, a financial plan incorporating proposals for external assistance.<sup>2</sup>

The International Recommendations for Water Statistics (IRWS) provides guidelines for implementation, which are useful for developing the action plan. Based on the strategic plan, priorities need to be set in order to develop a list of required activities. Priorities should be established in terms of data items, geographic areas of the country where the accounts will be prepared, frequency of data production, and the disaggregation by industries. See section E of Chapter V of the IRWS.

Since most likely the action plan will include activities to be developed by different government or quasi government agencies, it is important to clarify the roles and responsibilities of each of the actors. As explained above, institutional arrangements are necessary for the execution of the strategic plan. See section F of Chapter V of the IRWS for a more detailed explanation of issues regarding roles and responsibilities of the actors involved in the preparation of water accounts and statistics.

The list of recommended data items presented in Annex I of the IRWS can be used as a checklist for developing the action plan. Each data item can be assigned a priority, and responsibilities can be assigned to the different agencies to collect the data with quality specifications and within a time frame. The following tables provide general guidelines for the development of an action plan based on

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<sup>1</sup> United Nations Statistics Division. Developing a global programme for the implementation of the 2008 SNA and supporting statistics

<sup>2</sup> Paris 21 Secretariat.- A Guide to Designing a National Strategy for the Development of Statistics (NSDS).- November 2004

the list of data items of the IRWS. Priorities will change depending on the characteristics of each country, as well as the existing policies. Chapter 3 presents a more detailed explanation of the data collection issues for each data item.

<b>Physical data items for inland water stocks (data item A)</b>
<b>Brief description:</b> Amount of water stored in artificial reservoirs, lakes, aquifers, and snow.
<b>Sources of data:</b> Agencies in charge of water resources management, which usually collect data of levels in artificial reservoirs and lakes, as well as indirect measurements of the groundwater level.
<b>Data processing required:</b> Estimates of the volume of water stored in artificial reservoirs and lakes based on the measured levels for specific dates (e.g. beginning of accounting year for several years). It may also be necessary to make some estimates of the volume of water stored in aquifers and estimates of amount of snow at specific dates.
<b>Priorities:</b> In a first stage only the volume of water in a few artificial reservoirs and lakes may be reported, and then a more complete inventory of reservoirs and lakes may be elaborated with the corresponding volumes. Changes in volume are usually more relevant than the volumes themselves and therefore it is important to develop long time series. In a second phase estimates of volumes in aquifers and in snow, when applicable, can be performed. In a third stage the volume of soil water may be estimated, as well as water in wetlands.
<b>Relevant agencies:</b> <ul style="list-style-type: none"> <li>• Water management agency or water resources ministry</li> </ul>
<b>Statistical projects to be developed:</b> <ul style="list-style-type: none"> <li>• Inventories of artificial reservoir and lakes.</li> <li>• Inventory of aquifers.</li> <li>• Inventory of wetlands.</li> <li>• Inventory of snow areas and glaciers.</li> </ul>

<b>Physical data items for flows into and out of the territory (data items B and C)</b>
<b>Brief description:</b> Precipitation, inflows of water from other countries, evapotranspiration, outflows of water to the sea and other countries.
<b>Sources of data:</b> Data about precipitation is usually collected by meteorological agencies. Inflows and outflows from and to other countries is monitored by agencies in charge of water management. In some transboundary watersheds there are international commissions that monitor the flows. It may be necessary to include the Ministry of Foreign Affairs.
<b>Data processing required:</b> Volumes of precipitation by geographic areas (i.e. the data collected in stations has to be interpolated to estimate volumes), volumes of inflows and outflows from and to countries during the year, including surface and groundwater (groundwater may be difficult to determine). Estimates of the volume of evapotranspiration, which may be calculated as a residual of estimates of surface and subsurface runoff. The volume of water flowing to the sea may be estimated from the measurements in stream gages.
<b>Priorities:</b> In a first stage it is important to calculate the normal or long term average precipitation in volume for the country and relevant subnational areas. Typically this is done with the aid of a

<p>geographical information system. Data of surface inflows and outflows to and from country should be readily available.</p> <p>In a second stage the volume of surface water flowing to the sea may be estimated.</p> <p>In a third stage subsurface inflows and outflows may be estimated by developing hydrologic studies in selected areas of the country.</p>
<p><b>Relevant agencies:</b></p> <ul style="list-style-type: none"> <li>• Meteorological organization.</li> <li>• Water management agency or water resources ministry.</li> <li>• Ministry of Foreign Affairs in case of transboundary watersheds.</li> </ul>
<p><b>Statistical projects to be developed:</b></p> <ul style="list-style-type: none"> <li>• Precipitation statistics by areas</li> <li>• Statistics of inflows and outflows from/to neighboring countries/</li> <li>• Statistics of outflows to the sea.</li> </ul>

<p><b>Physical data items for flows into and out of the territory (data items B and C)</b></p>
<p><b>Brief description:</b> Precipitation, inflows of water from other countries, evapotranspiration, outflows of water to the sea and other countries.</p>
<p><b>Sources of data:</b> Data about precipitation is usually collected by meteorological agencies. Inflows and outflows from and to other countries is monitored by agencies in charge of water management. In some transboundary watersheds there are international commissions that monitor the flows. It may be necessary to include the Ministry of Foreign Affairs.</p>
<p><b>Data processing required:</b> Volumes of precipitation by geographic areas (i.e. the data collected in stations has to be interpolated to estimate volumes), volumes of inflows and outflows from and to countries during the year, including surface and groundwater (groundwater may be difficult to determine). Estimates of the volume of evapotranspiration, which may be calculated as a residual of estimates of surface and subsurface runoff. The volume of water flowing to the sea may be estimated from the measurements in stream gages.</p>
<p><b>Priorities:</b> In a first stage it is important to calculate the normal or long term average precipitation in volume for the country and relevant subnational areas. Typically this is done with the aid of a geographical information system. Data of surface inflows and outflows to and from country should be readily available.</p> <p>In a second stage the volume of surface water flowing to the sea may be estimated.</p> <p>In a third stage subsurface inflows and outflows may be estimated by developing hydrologic studies in selected areas of the country.</p>
<p><b>Relevant agencies:</b></p> <ul style="list-style-type: none"> <li>• Meteorological organization.</li> <li>• Water management agency or water resources ministry.</li> <li>• Ministry of Foreign Affairs in case of transboundary watersheds.</li> </ul>
<p><b>Statistical projects to be developed:</b></p> <ul style="list-style-type: none"> <li>• Statistics of precipitation by areas. Long time series should be compiled. Monthly data is useful to identify seasonal variations.</li> <li>• Statistics of inflows and outflows from/to neighboring countries/</li> <li>• Statistics of outflows to the sea.</li> </ul>

<b>Natural transfers of water between inland water resources (data item D)</b>
<b>Brief description:</b> Flows of water within inland water resources
<b>Sources of data:</b> Estimates of water flows are made by the agencies in charge of water management based on measurements from stream gages. Water balances of budgets are performed in order to do these estimates.
<b>Data processing required:</b> Results of water budgets or water balances in watersheds or hydrographic regions.
<b>Priorities:</b> These data items may not be necessary in a first stage. An estimate of the total amount of renewable water resources may be made with coefficients.
<b>Relevant agencies:</b> <ul style="list-style-type: none"> <li>• Water management agency or water resources ministry.</li> </ul>
<b>Statistical projects to be developed:</b> <ul style="list-style-type: none"> <li>• Delimitation of water sheds.</li> <li>• Hydrographic network with stream gage data.</li> </ul>

<b>Physical data items for flows from the environment to the economy (data item E)</b>
<b>Brief description:</b> Abstractions of surface and groundwater, abstraction of soil, and collection from precipitation and from the sea.
<b>Sources of data:</b> The agency in charge of providing water abstraction permits should have administrative records of volumes of surface and groundwater abstracted, as well as estimates of the actual volumes abstracted. Water utilities and water management agencies may have inventories of desalination plants with operating flows to estimate the abstractions from the sea. Water management agencies and ministries of agriculture may perform estimates of the amount of water required by crops, from which abstractions of soil water may be estimated.
<b>Data processing required:</b> Estimates of abstractions based on records available and additional information.
<b>Priorities:</b> In a first stage only surface and groundwater abstracted by agriculture, water utilities, manufacturing industries, and thermoelectric (i.e. nucleoelectric, carboelectric, gas, etc.) power plants may be reported. In a second stage the amount of water turbinated in hydroelectric plants may be reported, as well as the amount of water abstracted by desalination plants. In a third stage the amount of water collected from precipitation may be estimated.
<b>Relevant agencies:</b> <ul style="list-style-type: none"> <li>• Water management agency or water resources ministry.</li> <li>• Water utilities, or water utility association or regulator.</li> <li>• Agency of Electricity Production.</li> <li>• Ministry of Agriculture</li> </ul>

<p><b>Statistical projects to be developed:</b></p> <ul style="list-style-type: none"> <li>• Inventory of water utilities and surveys.</li> <li>• Inventory of crop lands with types of crops and water requirements (e.g. based on analysis of satellite images and complemented by agricultural surveys).</li> <li>• Inventory of desalination plants and surveys.</li> <li>• Incorporate data about water in economic censuses.</li> </ul>
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<p><b>Physical data items for flows of water within the economy, and losses (data items F, G, and I)</b></p>
<p><b>Brief description:</b> Amount of water supplied (and received) by economic activities. Wastewater discharged to sewers, for treatment or for reuse.</p>
<p><b>Sources of data:</b> Water and wastewater utilities. Data may be concentrated by a water utility association or by a regulator. Water suppliers for irrigation. Wastewater utilities and operators of wastewater treatment plants.</p>
<p><b>Data processing required:</b> Estimates of water supplied to households and to industries by water utilities, based on administrative records (including desalinated water). Estimates of water supplied to agriculture by water suppliers for irrigation, based on administrative records. Estimates of losses in drinking water supply networks (may be reported as unaccounted for water or non-revenue water). Estimates of losses in conveyance canals for irrigation.</p>
<p><b>Priorities:</b> In a first stage amount of drinking water supplied by utilities to households and other industries (after losses are discounted). Amount of water supplied by water suppliers for irrigation.</p>
<p><b>Relevant agencies:</b></p> <ul style="list-style-type: none"> <li>• Water utilities, or water utility association or regulator.</li> <li>• Wastewater utilities.</li> <li>• Water suppliers for irrigation or associations of irrigators.</li> </ul>
<p><b>Statistical projects to be developed:</b></p> <ul style="list-style-type: none"> <li>• Inventory of water utilities and surveys.</li> <li>• Inventory of desalination plants and surveys.</li> <li>• Inventory of water suppliers for irrigation or associations of irrigators.</li> <li>• Inventory of wastewater treatment plants and surveys.</li> <li>• Incorporate data about water in economic censuses</li> </ul>

<p><b>Physical data items for flows from the economy to the environment (data item H)</b></p>
<p><b>Brief description:</b> Estimates of the returns to inland water resources, to the sea, and to land.</p>
<p><b>Sources of data:</b> Estimates from amounts of water abstractions and water consumption.</p>
<p><b>Data processing required:</b> Estimates from amounts of water abstractions and water consumption.</p>
<p><b>Priorities:</b> In a first stage estimate the returns of water from agriculture, manufacturing and sewers, based on water abstractions and water consumption coefficients. Returns from hydroelectric plants are the same as the amount of water turbinated. Identify the amount of water</p>



discharged to the sea (discharges may be identified by the authorities), and possibly to land.
<b>Relevant agencies:</b> <ul style="list-style-type: none"> <li>• Ministry of Environment</li> <li>• Navy or agency in charge of coastal areas (for discharges to the sea).</li> <li>• Wastewater utilities.</li> </ul>
<b>Statistical projects to be developed:</b> <ul style="list-style-type: none"> <li>• Inventory of wastewater treatment plants and surveys.</li> <li>• Inventory of discharge points.</li> <li>• Study to find water consumption coefficients.</li> </ul>

<b>Data items for flows of waterborne pollution (data items J and K)</b>
<b>Brief description:</b> Amount of water supplied (and received) by economic activities. Wastewater discharged to sewers, for treatment or for reuse.
<b>Sources of data:</b> Water and wastewater utilities. Data may be concentrated by a water utility association or by a regulator. Water suppliers for irrigation. Wastewater utilities and operators of wastewater treatment plants.
<b>Data processing required:</b> Estimates of water supplied to households and to industries by water utilities, based on administrative records (including desalinated water). Estimates of water supplied to agriculture by water suppliers for irrigation, based on administrative records. Estimates of losses in drinking water supply networks (may be reported as unaccounted for water or non-revenue water). Estimates of losses in conveyance canals for irrigation.
<b>Priorities:</b> In a first stage, estimates of amounts of point source organic pollution (e.g. measured as BOD and/or COD) generated by households and industries. Amount of pollution retained in wastewater treatment plants based on treatment efficiencies. In a second stage, amounts of other types of point source pollution (e.g. nutrients and heavy metals). In a third stage, amounts of non point source pollution (e.g. from fertilizers and pesticides in agriculture).
<b>Relevant agencies:</b> <ul style="list-style-type: none"> <li>• Water utilities, or water utility association or regulator.</li> <li>• Wastewater utilities.</li> <li>• Ministry of Agriculture (for non point pollution).</li> </ul>
<b>Statistical projects to be developed:</b> <ul style="list-style-type: none"> <li>• Inventory of wastewater treatment plants and surveys.</li> </ul>

<b>Monetary flows in water and sewerage services (data items L to P)</b>
<b>Brief description:</b> Sales (or “revenue”) collected by drinking water and sewerage utilities, expenditures, taxes, and subsidies. Value of assets for water supply and sewerage, depreciation, capital expenditures, and investment grants. Fees collected by irrigator associations and suppliers

of water for irrigation, expenditures, taxes, and subsidies.
<b>Sources of data:</b> Drinking water and sewerage utilities. Data may be concentrated by a water utility association or by a regulator.
<b>Data processing required:</b> Estimate the value of infrastructure used for drinking water supply, for sewerage, and for irrigation.
<b>Priorities:</b> In a first stage financial flows of water and sewerage utilities. In a second stage estimates of the value of infrastructure, as well as consumption of fixed capital (depreciation).
<b>Relevant agencies:</b> <ul style="list-style-type: none"> <li>• Water utilities, or water utility association or regulator.</li> <li>• Wastewater utilities.</li> <li>• Water suppliers for irrigation or associations of irrigators.</li> </ul>
<b>Statistical projects to be developed:</b> <ul style="list-style-type: none"> <li>• Inventory of drinking water supply networks.</li> <li>• Inventory of sewerage networks.</li> <li>• Inventory of artificial reservoirs (used for drinking water supply and for irrigation)</li> <li>• Economic censuses to drinking water and sewerage industries (design or improvement).</li> </ul>

<b>Tariffs and charges for water supply and sewerage services (data item R)</b>
<b>Brief description:</b> Tariff structures for drinking water and sewerage services.
<b>Sources of data:</b> Water and wastewater utilities. Data may be concentrated by a water utility association or by a regulator. Municipal or state governments.
<b>Data processing required:</b> Collection of tariff structures published.
<b>Priorities:</b> In a first stage the average price of water and sewerage in selected cities.
<b>Relevant agencies:</b> <ul style="list-style-type: none"> <li>• Water utilities, or water utility association or regulator.</li> <li>• Wastewater utilities.</li> <li>• Municipal and state governments.</li> </ul>
<b>Statistical projects to be developed:</b> <ul style="list-style-type: none"> <li>• Water price surveys to state and municipal authorities.</li> </ul>

<b>Data items for the main source of drinking water and sewage disposal used by population (data items S and T)</b>
<b>Brief description:</b> Population that uses improved water and improved sanitation, disaggregated by type of water source and sanitation facilities used.

<b>Sources of data:</b> Administrative records of water and wastewater utilities. Population and housing census data, household surveys. These are MDG indicators, therefore several reports should exist.
<b>Data processing required:</b> Extract data from census about the different sources of drinking water, as well as the way in which sewage is disposed of by households.
<b>Priorities:</b> In a first stage data at national level for rural and urban population. In a second stage subnational disaggregation.
<b>Relevant agencies:</b> <ul style="list-style-type: none"> <li>• National Statistics Offices (for population and housing censuses and household surveys)</li> <li>• Water utilities, or water utility association or regulator.</li> </ul>
<b>Statistical projects to be developed:</b> <ul style="list-style-type: none"> <li>• Analysis of data from population and housing censuses.</li> <li>• Analysis of data household surveys.</li> <li>• Incorporation of new questions in population and housing censuses and household surveys</li> </ul>

[PROVIDE COUNTRY EXAMPLES: Australia, Canada, Netherlands, Mexico]

### **Monitoring and evaluation**

The most important consideration is to see strategic management as a continuous process and the preparation of the initial document represents only the beginning. To be effective statistical systems must remain flexible and respond to new demands for data and a changing environment. Any medium-term plan, therefore, will inevitably require modification in the light of experience. The strategic management process, therefore, needs to build in mechanisms to monitor and evaluate progress, to review the strategy and to make modifications when required<sup>3</sup>.

The continuous process of improvement of water accounts and statistics requires constant feedback from the users of the information. Many users of the information are also suppliers of the data required for the accounts, such as the ministries and agencies for water. It is key to evaluate how the information produced has an impact on policy decisions, as well as to identify the information gaps.

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<sup>3</sup> Paris 21 Secretariat.- A Guide to Designing a National Strategy for the Development of Statistics (NSDS).- November 2004

Administrative records from water and wastewater utilities and from water ministries or agencies may be invaluable sources of data. They may replace existing censuses and surveys, providing accurate data at lower costs. Therefore, a constant dialogue has to be established with the relevant agencies. In many cases there are intermediate organizations who collect the data, such as water utility associations or regulators of the water supply and sewerage industries.

The frequency to publish the accounts and statistics is an important element to consider. The additional resources needed to increase the frequency of publication may well offset the value of maintaining a network of information suppliers and users of the information, the latter providing a constant feedback to the process.

### **III. Tools for implementation**

#### **National Strategies for the Development of Statistics (NSDS)**

An NSDS is expected to provide a country with a strategy for strengthening statistical capacity across the entire national statistical system (NSS). The NSDS will provide a vision for where the NSS should be in five to ten years and will set milestones for getting there. It will present a comprehensive and unified framework for continual assessment of evolving user needs and priorities for statistics and for building the capacity needed to meet these priorities in a more coordinated, synergistic and efficient manner. It will also provide a framework for mobilising, harnessing and leveraging resources (both national and international) and a basis for effective and results-oriented strategic management of the NSS.<sup>4</sup>

NSDS is the most widely used tool for statistical planning in developing countries, but its concepts are applicable to developing and developed countries. It provides guidance for developing a strategic plan of implementation, which allows the NSS to respond to policy needs.

The NSDS is designed through a participatory process led by national authorities, in close collaboration with key actors in the NSS. Whether the NSDS approach is successful or not depends to a great extent on:

- i) a significant political commitment at the highest level; ii) the degree to which the country is committed to this approach and the intensity of the dialogue between producers and users; iii) the mobilisation of necessary resources; and iv) the quality of the dialogue with technical and financial partners (TFPs).<sup>5</sup>

#### **National Quality Assurance Frameworks (NQAF)**

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<sup>4</sup> Paris 21 Secretariat.- A Guide to Designing a National Strategy for the Development of Statistics (NSDS).- November 2004

<sup>5</sup> Paris 21 Secretariat.- The NSDS Approach in a Nutshell.

Quality of official statistics is a central concern for all national statistical offices (NSOs). At the 2010 session of the United Nations Statistical Commission, it was proposed that NSOs developed a National Quality Assurance Framework (NQAF) for the production of their official statistics. An expert group meeting was organized to develop guidelines for the implementation of NQAF.

Regarding the concept of quality, over the past twenty years or so, statistical agencies have arrived at a consensus that the concept of quality of statistical information is multi-dimensional and that there is no one single measure of data quality. Examples of the common quality dimensions or components include: relevance; accuracy; reliability; timeliness; punctuality; accessibility; clarity, interpretability; coherence; comparability; credibility; integrity; methodological soundness; and serviceability. The dimensions of quality are overlapping and interrelated and, therefore, the adequate management of each of them is essential if information is to be fit for use<sup>6</sup>.

NQAF have to implement measures for:

- Managing the statistical system, to ensure that there is coordination within the National Statistical System (NSS).
- Managing the institutional environment, to ensure that there is professional independence, impartiality, objectivity, and transparency, among others.
- managing the statistical processes, to ensure methodological soundness, cost-effectiveness, and soundness of implementation.
- managing the outputs, to ensure that the statistics are relevant, accurate and reliable, as well as accessible..

### **Statistical Data and Metadata Exchange (SDMX)**

The UN Statistical Commission has recognised and supported the SDMX standards and guidelines as ‘the preferred standard for the exchange and sharing of data and metadata.’ The aim of the Statistical Data and Metadata Exchange (SDMX) initiative is to create and maintain technical and statistical standards and guidelines, together with IT architecture and IT tools, to be used and implemented by the sponsor or other organisations dealing with statistical data and metadata. Combined with modern IT technologies, these SDMX standards and guidelines should improve efficiency when managing statistical business processes. After 10 years of SDMX, the SDMX standards and guidelines reached a good level of maturity and are ready for broad implementation.

The SDMX technical and statistical standards and guidelines, combined with IT architecture and IT tools, facilitate the efficient exchange and sharing of statistical data and metadata. SDMX plays a leading role in supporting the integration of statistical business processes. This is gaining importance in many statistical organisations around the world, also as a result of increasing resource constraints.

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<sup>6</sup>Expert Group on NQAF. Guidelines on NQAF. 2008

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