ESA/STAT/AC.117
UNCEEA/1/7

DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS
STATISTICS DIVISION
UNITED NATIONS

First Meeting of the UN Committee of Experts on Environmental-Economic Accounting
New York, 22-23 June 2006
United Nations Secretariat Building, Conference Room C

Report of the User-producer Conference: Water Accounting for Integrated Water Resource Management

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(Voorburg, the Netherlands, 22-24 May 2006)

1. Introduction

1. The User-Producer Conference on Water Accounting for Integrated Water Resource Management was the first of a series of User-Producer Conference planned to be organized by the United Nations Statistics Division (UNSD) under the auspices of the United Nations Committee of Experts on Environmental-Economic Accounting (UNCEEA). It was hosted by Statistics Netherlands in Voorburg from 22-24 May 2006.

2. This report contains the main conclusions and the establishment of the Roundtable on Water Accounting in Section 2 and 3 respectively. The terms of reference of Roundtable, the minutes of the Conference, a summary table of the agreed actions and the agenda and list of participants are presented in the annexes. All presentations and background papers are posted on the UNCEEA website at: http://unstats.un.org/unsd/envaccounting/ceea/upcWater.asp.

3. The conference gathered 57 participants from 22 countries (11 developed and 11 developing countries), 5 non-governmental organizations (NGOs) and 8 international organizations. 19 participants were representatives of national statistical institutes, 16 of national institutions dealing with water issues, 15 of international organizations and 5 from NGOs, academia and other institutions. The complete list of participant is in Annex IV of this report.

4. The conference aimed at raising awareness of water accounting as the hydrological-economic information system in support of Integrated Water Resource Management (IWRM) and developing a dialogue between users and producers of water information on the identification of the information needs for policy making and how the water accounting framework meets these needs.

5. The objectives of the Conference were the following: (a) presenting the draft *System of Environmental-Economic Accounting for Water,* commonly referred to as the SEEAW, which was recently completed by UNSD in collaboration with the London Group on Environmental Accounting, and seek the users' endorsement of the SEEAW as the hydrological-economic framework for integrated water resource management (IWRM); (b) promoting the SEEAW implementation; and (c) establishing a roundtable, under the auspices of the UNCEEA, of countries, international organizations and NGOs responsible for promoting and advancing the implementation of water accounting in countries as well as in the international community.

2. Main conclusions

6. The Conference endorsed the draft *System of Environmental-Economic Accounting for Water* (SEEAW) and recommended its adoption as the international standard for water statistics by the UN Statistical Commission through the UN Committee of Experts on Environmental-Economic Accounting.

7. The Conference recognized the timeliness of such publication in light of the importance of water in the national and international agenda. The recent establishment of Secretary General's Advisory Board on Water and Sanitation, the start of the International Decade for Action: Water for Life 2005-2015, and the launch of series of assessments by the World Water Development Report (2006, 2009, 2012, 2015) are important milestones in the water world.

8. The Conference recognized that the SEEAW provides THE much-needed conceptual framework for organizing hydrological and economic information in support of IWRM.

9. It recognized that the SEEAW provides the basic information needed for the monitoring and assessment of water. European countries have shown that the SEEAW can be used for reporting to the Water Framework Directive (WFD). In particular, the Conference recognized that, by bringing together information from different sources based on a common set of classifications, terminology and accounting tables, the SEEAW fosters the improvement of basic data by allowing for the identification of data overlaps, gaps and inconsistencies. Further, it contributes to the harmonization of data collection practices and inter-institutional cooperation.

10. The Conference noted that, by integrating hydrological and economic information in a common framework using concepts, definitions and classifications consistent within the System of National Accounts (SNA) (the standard framework for economic statistics and indicators), the SEEAW (i) allows for integrated analysis linked to macro-economic policies as opposed to sector-specific analysis, (ii) facilitates mainstreaming of water policies in economic decision making, and (iii) allows for the evaluation of priorities and trade-offs between different sectoral policies.

11. The Conference noted that the SEEAW allows for the derivation of coherent and consistent sets of indicators related to water. An analysis linking the indicators proposed in the 2nd World Water Development Report (WWDR) and the SEEAW showed that a large percentage of indicators of the 2nd WWDR in the challenge areas related to the link between the economy and water resources can be derived from the accounts. In addition, since the indicators are derived from an integrated data system, the SEEAW enables the consideration and quantifications of inter-linkages and further allows for more in-depth analysis of the interactions between the economy and the hydrological system.

12. The Conference underscored that one of the strengths of the SEEAW is that it was developed with the expertise of the statistical community. The role of National Statistical Offices (NSOs) in developing and compiling such a framework was considered fundamental in bringing rigour, reliability, consistency, regularity and independence in the data produced. As independent organizations at arm's length with the policy process, the Statistical Offices ensure that the statistics produced follow statistical standards, are produced and disseminated regularly, and are policy relevant, as they are often the result of consultations with policy makers.

13. The Conference also noted that, by bringing information together from different sources and giving access to this information, the SEEAW enables different stakeholders to have a consistent and transparent common information system. Different interest groups can thus use the same information to argue their position.

14. The Conference noted that, although the SEEAW is a powerful system in support of IWRM, it does not systematically address the link with the social aspects related to water. It was emphasized, however, that it is possible to include social aspects in the water accounting framework, for example, by further disaggregating the household sector on the basis of socio-demographic characteristics (e.g. rural vs. urban, income, etc.) and/or presenting social information

in supplementary tables. Further work is needed to systematically integrate the social dimension in the accounting framework.

15. Other issues were also identified as needing further work. Some of them are practical in nature: they include the consideration that the hydrology and the economy operate at different time and spatial scales and therefore there is a need to reconcile these scales. Others such as the quality accounts and valuation of water are addressed in the SEEAW but there is no consensus on implementation. Practical experiences will help in bringing forward the research agenda.

3. Establishment of the Roundtable on Water Accounting for IWRM

16. The Conference considered very important to promote the SEEAW and advance its implementation in countries. It also noted that the SEEAW is fairly unknown beyond the statistical community. Water policy makers, hydrologists, decision makers in finance ministries have to be informed of the possible applications of the SEEAW. To this end, the Conference agreed to the creation of a Roundtable on Water Accounting whose main objectives are: (a) to promote the SEEAW for assessment and monitoring of hydrological-economic information in support of IWRM; and (b) to advance the implementation and use of the SEEAW in countries. The Roundtable would be formed under the auspices of the UN Committee of Experts in Environmental-Economic Accounting (UNCEEA)[1]. The terms of reference of the Roundtable are presented in Annex I of this report.

Concrete actions for the promotion and implementation of the SEEAW by the Roundtable

17. Concrete actions were agreed by participants to actively contribute to the promotion and implementation of the SEEAW (Annex III present a summary table of the contributions that countries/international organizations offered to undertake together with the timeline). They include:

(a) The establishment of cooperation between UN World Water Assessment Programme (UN-WWAP), the Global Water Partnership (GWP) and UNSD in the area of water. It was noted that on one side UNSD would benefit from the rich field experience and knowledge of WWAP in water issues. On the other side, UN-WWAP would also benefit from having an international statistical standard on water – the SEEAW. This would result in improved information on water in terms of quality and comparability across countries. It was suggested that an appropriate way forward in establishing cooperation between WWAP and UNSD would be to invite UNSD to present the SEEAW in the next UN-Water meeting in Stockholm in August 2006.

(b) The adoption of the SEEAW by countries as the international standard for water statistics. To this end, it is recommended the SEEAW be submitted to the United Nations Statistical Commission for its adoption as an international statistical standard upon recommendation by the UN Committee of Experts on Environmental-Economic Accounting.

[1] The UNCEEA was established by the UN Statistical Commission in March 2005 with the broad objectives of (a) mainstreaming environmental-economic accounting and related statistics; (b) elevating the System of integrated Environmental and Economic Accounting (SEEA) to an international statistical standard; and (c) advancing the implementation of the SEEA in countries. Further information on the UNCEEA is available on the following website: at http://unstats.un.org/unsd/envaccounting/ceea/default.asp

(c) Development of a small set of indicators of common policy interest that can be derived from the standard tables.

(d) Development of a training course at the UNESCO-IHE. UNESCO-IHE offered to develop a one-week training course on the SEEAW. If successful, the course could be extended to a two-three weeks course and become part of the UNESCO-IHE regular training programme.

(e) Preparation of a brochure popularizing the features of the SEEAW describing, in simple terms, the main features of the SEEAW and illustrating with selected indicators and graphs the main two or three messages that would catch the attention of users, in particular policy makers from Ministries of Finance and Ministries of Water Resources.

(f) Translation of the SEEAW in Spanish. The University of Guatemala stressed the importance of translating the SEEAW and suggested that translations could be done by volunteering countries. Guatemala in cooperation with the Dominican Republic has offered to translate the SEEAW in Spanish possibly with the participation of Mexico and assistance of ECLAC.

(g) Advancement of the implementation of the SEEAW in countries in particular through (i) building on on-going IWRM country projects (the World Bank and the African Development Bank have offered to work with UNSD on including the implementation of the SEEAW in their technical cooperation activities); and (ii) the establishment of twinning projects between developed and developing countries or "triangular projects" south-south cooperation with the technical assistance with one developed country.

(h) Promotion of the SEEAW in various international meetings and conferences with the objectives of reaching out to different users and producers of water information. Participants from the organizing agencies/institutions were encouraged to include a presentation on the SEEAW in the meeting/conference agendas.

18. The Conference agreed that the first meeting of the Roundtable would take place in late 2006 possibly back-to-back with other meetings.

Annex I. Draft Terms of Reference of the Roundtable on Water Accounting for IWRM

1. The Roundtable on Water Accounting for Integrated Water Resource Management was created, under the auspices of the UN Committee of Experts on Environmental-Economic Accounting, by the Conference on Water Accounting for Integrated Water Resource Management in Voorburg, the Netherlands in May 2006. The completion of the *System of Environmental-Economic Accounting for Water* and its adoption by the Conference created the momentum for mainstreaming water accounting. The main objectives of the Roundtable are: (a) to promote the System of Environmental-Economic Accounting for Water (SEEAW) for assessment and monitoring of hydrological-economic information in support of Integrated Water Resource Management (IWRM); and (b) to advance the implementation and use of the SEEAW in countries.

2. The programme of work of the Roundtable will focus on the following:

(a) Preparation of an in-depth analysis of lessons learnt from country experiences in the implementation and use of the SEEAW;

(b) Promotion and dissemination of the SEEAW within the users' community at national and international level, including national statistical offices, institutions responsible for collection of water data, ministry of finance, policy makers and academia;

(c) Prioritization of tables, indicators and accounts relevant for international comparisons, recognizing different circumstances in countries and regions;

(d) Preparation of toolkits consisting of: (i) country practices; (ii) training programmes and material; (iii) promotion material; and (iv) communication and dissemination tools and practices;

(e) Implementation of the SEEAW in selected countries, in particular in those countries where there projects on Integrated Water Resource Management are in place.

3. The membership of the Roundtable would include high-level experts in water from national statistical offices, institutions responsible for water policies and collection of information on water, policy makers and international organizations.

4. XXXXX will serve as the Chair of the Roundtable and the United Nations Statistics Division will serve as the Secretariat.

5. The primary means of communication will be electronic but the Roundtable will meet one a year possibly back-to-back to other meetings.

6. The Group will have a limited duration of three years.

7. The Group will submit reports to the UN Committee of Experts on Environmental-Economic Accounting, at times determined by its Chair. These might include progress reports, summaries of conclusions and draft reports. A two way communication between the UNCEEA and the Roundtable will be maintained by which technical issues emerged during the implementation of SEEAW are reported back to the UNCEEA and agreed solutions are reported to the Roundtable.

8. A trust fund will be established to finance the activities of the Roundtable.

Annex II. Minutes of the Conference

Opening session

The Conference was opened by Mr. Cheung, Director of UNSD. He emphasized the importance of this conference in moving forward the water accounting framework as being the internationally accepted framework for hydrological-economic information in the users' community. He emphasized that the contribution of UNSD to the water community is the development of a conceptual framework for organizing information related to water and the harmonization of methodologies on data collection which would ultimately lead to the improvement of the basic information on water and to more reliable and consistent indicators on water.

Mr. van der Veen, Director General of Statistics Netherlands (CBS), briefly outlined the long-term experience of CBS in the development and implementation of water accounts. He acknowledged the fact that the international community has come a long way with the publication of the SEEAW on water accounting and was pleased that CBS was part of this activity through the London Group on Environmental Accounting.

Ms. McGlade, Executive Director of the European Environment Agency (EEA) described the importance of integrating information on water, biodiversity and human well-being as well as integrating spatial and temporal distributions to address water issues. She stressed the usefulness of the SEEAW in addressing many important aspects of water and contributing to key environmental policy questions by identifying, for example, the cost of environmental protection, the environmental performance of an economy (in terms of compliance to national standards and international conventions), the efficiency/effectiveness of environmental policies and instruments etc. Ms. McGlade reiterated that EEA is both a user and a producer of water accounts. EEA provides information on a number of modules of the accounts such as the asset accounts, quality accounts and ecosystem services, and emissions to water. At the same time, EEA uses the water accounts for integrated assessment, scenario modelling and bridging policy users and data producers. Ms. McGlade described the current initiative in Europe in establishing Environmental Data Centres on different environmental fields. The EEA, Eurostat, Joint Research Centre and DG Environment have agreed on shared responsibilities in the different fields.

Keynote speakers

Lord Hunt, Professor at University College London and House of Lords, London, described the new approaches to deal with environmental challenges and how the water accounting fits within theses approaches. He noted that the objectives of the Conference on water accounts are in line with the trend of government agencies at different level (local, national and international) to use a wide range of information, regulation, financial instruments and reporting on achievements against targets for environmental policies. The main feature of the accounts is integration which enables several aspects of water management to be considered simultaneously.

Mr. Lenton, Chair of the Technical Committee of the Global Water Partnership (GWP), put the SEEAW in the context the Millennium Development Goals (MDGs) and IWRM. He noticed that, even though there is a specific target for water (target 10 of the MDGs on access to safe drinking water and sanitation), water resources affect all the MDGs. While there is an internationally agreed framework for the definition and measurement related to target 10

(developed by the Joint Monitoring Programme of Unicef and WHO), a conceptual framework for water in its broader role in the MDGs is missing. He noted that the SEEAW fills this gap.

Mr. Lenton stated that the SEEAW provides the much needed framework for the assessment and monitoring of water and it would be an important step forward that the SEEAW be accepted as the international framework for hydrological and economic information. The creation of the Roundtable on Water Accounting would be an appropriate mechanism to advance the promotion and implementation of the SEEAW. He also noted that some issues need to be fully addressed in the accounts. They include: the expansion to the social dimension of water, water quality, temporal variability, and in particular, how to deal with extreme events and disaster risk reduction, and spatial variability.

Thematic sessions

The Conference was organized on the basis of selected issues identified by the international community and most notably by the United Nations Secretary General's Advisory Board on Water and Sanitation and UN Water as thematic priorities to be addressed in order to achieve the water-related millennium development goals (MDGs) and the time bound targets set at the World Summit on Sustainable Development. The Conference discussed in terms of the information needs for decision making the following policy themes: Water Accounting for Integrated Water Resource Management (IWRM); Economic mechanisms for water policies and efficiency of water allocation; Wastewater emissions and water quality; Water governance; and Assessment and monitoring (including national and international indicator programmes).

Session 1 Water Accounting for Integrated Water Resource Management

The objectives of this session were to describe the water accounting framework and the SEEAW, the concept of IWRM and how the SEEAW can be used in its support. The experiences of Australia and the Netherlands were presented as examples of uses of the water accounts.

Summary of presentations

UNSD presented the structure of the SEEAW and the process of developing the SEEAW, as well as the consultation and review processes that it has undergone. The SEEAW is divided in two parts: the first part presents the accounts for which considerable practical experience and consensus on best practices has emerged. The second part discusses those modules which are still experimental, that is for which either because of lack of practical experience, scientific knowledge, consistency with the 1993 SNA or a combination of those reasons, it was not possible to reach an agreement on concepts as well as on how to implement them. Areas of further work, namely methodological refinements, the promotion and implementation were discussed. While the advancement of the methodological work would be carried out within the mandate of the UNCEEA and in cooperation with the London Group on Environmental Accounting, the promotion and implementation of the accounts would be done through the Roundtable comprising users and producers of water information.

UNSD presented on behalf of UNDSD, the secretariat of UN Water, the concept of IWRM and the links between the SEEAW and IWRM. UNDSD stressed the important contribution of the SEEAW to the monitoring and assessment for IWRM and suggested as way forward the following activities: (a) the endorsement of the SEEAW as a strong conceptual framework for hydrological-socio-economic information in support of IWRM at national and basin level by UN Agencies and other regional agencies; (b) the establishment by UN Agencies and other regional agencies of a formal mechanism to promote the implementation and use of the SEEAW, at the national level,

with active participation of DESA, especially for water-stressed/developing countries; (c) the preparation by UNDSD of an operational manual for physical water accounting (focusing on the hydrological part of water resources and water infrastructure) in line with the SEEAW as part of a tool kit for promotion and implementation; and (d) the creation of a sub-group under UNCEEA in support of the SEEA.

The representative of CBS, the Netherlands, described how the water accounts are used in the Netherlands to report to the Water Framework Directive (WFD). CBS compiles and publishes annually economic accounts, emission accounts and water abstraction and water returns accounts at national and river basin level. These accounts are used by the Institute for Inland Water Management and Wastewater Treatment (RIZA) to prepare reports for the WFD.

The representative of the Australian Bureau of Statistics (ABS) noted that Australia has been producing reports on water since 1963. ABS has been compiling and publishing water accounts in line with the SEEAW since 2000. The accounts undergo an extensive review process before they are published which gives the ABS and end users confidence in the results. The water accounts are an integral part of the Australian Water Resource Assessment and are used by policy makers for water management.

Panel and general discussion

The Conference endorsed the SEEAW. In particular, it agreed that it provides the much needed conceptual framework for hydrological-economic information in support of IWRM. The SEEAW successfully integrates hydrological and economic information in a common framework using concepts, definitions and classifications consistent within the System of National Accounts (SNA), which is the standard framework for economic statistics and indicators. Being rooted in the SNA, it allows for integrated analysis linked to macro-economic policies, rather than sector-specific analysis. Further, being rooted in the framework of the *Integrated Environmental-Economic Accounting*, commonly referred to as SEEA-2003, it facilitates the analysis of links with other resources, such as land, fish, energy etc.

The Conference noted that the SEEAW is fairly unknown outside the statistical community, thus the importance of developing a communication strategy for the SEEAW was stressed.

Some specific points raised during the discussion were the following:

- *The meaning of integration*. Integration has a very broad meaning and can in principle involve many different topics and actors. The risk of wanting to integrate too much is that the system may become unmanageable in practice. It was noted that it is useful to prioritize areas to be integrated and the SEEAW represents a starting point as it focuses in the integration of economic and hydrological information.
- *Social dimension of water*. By focusing on the interaction between the economy and the environment, the SEEAW does not fully develop the link with the social aspects related to water. It is possible, however, to include some social aspects in the accounting framework, for example, by further disaggregating the household sector on the basis of socio-demographic characteristics (e.g. rural vs. urban, income, etc.) and/or presenting this information in supplementary tables. Further work is needed to fully develop the link between the SEEAW and the social dimension.

- *Use of environmentally-adjusted aggregates*. Environmentally-adjusted aggregates, such as aggregates adjusted for water degradation, may be powerful tools to convey a message to users including policy makers. However, it was recognized that their calculation goes beyond the scope of official statistics because of the unresolved methodological and conceptual issues in their calculation. The SEEAW, being a statistical standard, would provide the basic information for the users to calculate environmentally-adjusted aggregates for their purposes. It was strongly recommended that in such cases, the methodology used and the shortcoming of such indicators would be clearly mentioned.

Session 2 Economic mechanisms for water policies and efficiency of water allocation

Summary of presentations

The World Bank presented economic mechanisms for water policies with focus on the Middle East and North African region, a water-scarce region where demand continues to grow and already exceeds renewable water supply. Despite progress in water management in the region, major management challenges remain and water reforms are not high on the political agenda. Efficient water allocation cannot always be achieved through the regulation of water prices. It is often necessary to establish water allocation schemes based on tradable water rights. To achieve flexible allocation schemes countries need to address: (a) scarcity of resources to mobilise water, (b) scarcity of organizational capacity to manage water; and (c) scarcity of external accountability of the service providers to their users and of governmental agencies to their constituents.

The representative of Egypt described the Integrated Irrigation Improvement and Management Project (IIIMP) in Egypt aimed at improving irrigation and drainage systems using an IWRM approach. The project covers also technical aspects (ensuring that adequate infrastructure is available and improving the operational and maintenance procedures), institutional organization (strengthening local decision-makers with an organizational structure necessary to manage water at local level), and environmental impacts (assessing the impact of the project on the environment).

The representatives of the National Statistical Office and the Ministry of Water Resources of China made a joint presentation outlining the water policy concerns in China and the plans to implement selected modules of the SEEAW to address those issues. Water issues in China include: uneven distribution of water resources, water scarcity, water pollution, high risk of floods, and water quality. In response to these issues, China is planning to implement the following modules of the SEEAW: physical supply and use tables, emission accounts, asset accounts, and environmental protection expenditures. The project, in collaboration with UNSD, would start at the sub-river basin level, and be expanded to the national territory in a second stage.

The representative of Statistics South Africa presented the experience of South Africa in the compilation of water accounts and how the SEEAW has been adapted to reflect more closely the policy concerns in the country. The water accounts have also been used as an input in the discussion of water allocation among South Africa, Namibia and Botswana.

The representative from Vrije University, the Netherlands, presented the Water Economic Modelling for Policy Analysis (WEMPA) project on the estimation of the direct and indirect economic costs of the implementation of the WFD measures in the Netherlands. The model uses the information in the Dutch water accounts and the national accounts produced by Statistics Netherlands together with information on the abatement technologies from experts.

Panel and general discussion

The conference noted that the SEEAW, by linking the economy with the hydrological system according to the SNA framework, provides a complete set of information on the economy of water. For example, it provides information on costs/revenues of water distribution and wastewater treatment, taxes, subsidies which are needed for policies of cost recovery.

Equity aspects of water can be explicitly identified by disaggregating the household sector. The simplified tables presented in the SEEAW allow flexibility in addressing specific issues that are relevant to specific countries by allowing further disaggregations. It was noted that some indicators, such as those on accountability and governance, are outside the domain of water accounts.

The discussion covered also the following specific points:

- The importance of information on rain-fed agriculture for water management. This information is already explicitly recoded in the standard tables of the SEEAW.
- Green, blue and virtual water. It was recommended to make explicit the link between the information provided by the water accounts with the concepts of blue, green and virtual water.

Session 3 Wastewater emissions and water quality

Summary of presentations

The representative of the UNEP-Global Programme of Action for the Protection of the Marine Environment from Land-based Activities (UNEP-GPA) gave a general overview of: (i) the activities of UNEP-GPA; (ii) issues related to wastewater emission and water quality with focus on the impacts of emissions on coastal areas; and (iii) information needs to address marine pollution. The need for harmonization of definitions and data collection for wastewater emissions was stressed: data are often scattered and not adequate for time series analysis, there are no consistent monitoring networks at regional level, and information has often different temporal and spatial reference. To address marine pollution, emissions have to refer to regional seas. In practice, however, emissions are reported at national level and it is difficult to disaggregate nationally reported data to coastal regions and river basins. The needs for reliable and high quality information on the discharges of treated and untreated sewage and emission of nutrients to address marine pollution were also discussed.

The representative of the EEA presented the SEEAW water quality accounts and the EEA's activities in the area. The quality accounts are dealt with in part II of the SEEAW that is they are not part of the standard presentation. They are considered still experimental and are presented in the SEEAW in terms of issues in implementation illustrated by country practices. One of the outstanding issues is the standardization of determinands defining water quality, given that their selection and interpretation are context-dependent. A starting point could be the standardization of water services/functions based on country experiences.

The representative of the Austrian Umweltbundesamt described how the policy interest of wastewater emissions has shifted from the calculation of selected indicators to a more in-depth analysis of the inter-linkages between emissions and the associated economic costs. Wastewater emission accounts allow for in-depth analysis of cost-efficient measures to reduce emissions, assessment of the socio-economic impacts of emissions and modelling of the effects of changes in production technologies. At least at European level, data are often available on wastewater emission because of national reports on the status of the environment and international reporting

obligations such as the Water Framework Directive (WFD), the Urban Waste Water Treatment Directive, and the European Pollutant Emission Register. Ways to further develop emission accounts include: (i) using, to the extent possible, existing data collections (which are usually legally binding); (ii) modifying existing data collections (and their legal basis), if necessary (coverage, sector-specific aggregation); and (iii) demonstrating the usefulness of the accounts to policy makers, including for reporting to the WFD.

A representative from the Ministry of Housing, Spatial Planning and the Environment (VROM) of the Netherlands presented the Pollutant Release and Transfer Register (PRTR) in the Netherlands. According to the PRTR, emissions to air and water are collected by industries and provide an input in the accounts. The PRTR is an effective tool in designing policies, monitoring the results, informing the public and reporting to international reporting obligations on emissions to air and water.

Panel and general discussion

Emission accounts were considered particularly relevant for addressing policy issues and responding to international obligations. The integration of physical and monetary information of the SEEAW in the hybrid tables was considered very useful as it allows for measuring analysis of the inter-linkages between emissions and expenditures to reduce them.

It was recommended using to the extent possible existing data for the compilation of the accounts and to develop techniques to populate the tables even with little data, for example, by using coefficients of wastewater emissions. For countries, where emission data are not available, coefficients could be borrowed from a country having a similar structure of the economy.

Session 4 Water governance

The existence of a well-designed legal framework for water, both at national and international level, facilitates the design of policies as well as regular collection of information and is a key element for the development of IWRM plans as well as of an integrated information system such as the SEEAW. During this session, countries presented their experiences from an institutional perspective in developing information systems for water.

Summary of presentations

The representative from the Ministry of Environment of the Dominican Republic described the experience of the Dominican Republic in starting the implementation of water accounts and establishing a formal organizational set-up among the various institutions related to water. A previous project on indicators had already initiated cooperation among various agencies dealing with water information. The project also identified the need to move beyond statistics and indicators towards an accounting system which would allow for the analysis of inter-linkages. The development of the water accounts gave impetus in establishing a formal agreement between institutions. The agreement has been signed by the Governor of the Central Bank and the Minister of the Environment and Natural Resources as well as the National Statistical and Meteorological Offices, the National Institute for Hydraulic Resources and other agencies responsible for water and sanitation. The project will be lead by the Ministry of Environment and Natural Resources.

The representative of the Agencia Nacional de Aguas (ANA), Brazil, described the organization of water institutions in Brazil from the local level (river basin), state level to the national level and the legal framework. Brazil has embraced IWRM and ANA has developed a water information system at river basin level. It was recognized that it may be worthwhile to link

this information system, including information on prices and water rights to the national accounts concepts.

The representative of the Water Data Centre (WDC), the Republic of Moldova, presented the establishment of an institutional arrangement for the development of an integrated information system in the Republic of Moldova. Before starting the implementation of water accounts, an assessment of the water information in the country was undertaken. The assessment showed that there were un-coordinated sets of statistics dispersed in different government institutions; data produced by individual agencies to meet the need of their own users; duplication of data collection (surveys, various studies, inventories, monitoring), inconsistent definitions and classifications, and poor data quality (no surveys on households, lack of coverage of small business etc.). As a result of this assessment, the WDC representing a national database on water resources was established. The WDC centralises all data and data bases on water in line with the SEEAW. The creation of such database and the underlying institutional agreement has contributed to the improvement of water information in the country and facilitated water management.

The representative of ABS outlined the institutional and legal framework in Australia. Water accounting has been embraced by the National Water Initiative (NWI) as it meets the information needs of different water systems in respect to planning, monitoring, trading, environmental management and off-farm management. Further, the NWI calls for the development and implementation of water resources accounting that can be reconciled annually and aggregated to produce a national water balance. The integration of the different stakeholders' perspectives can be helped but not ensured by having basic building blocks such as statistical standards, geographical standards, environmental accounting frameworks, etc., but the NSOs can aid integration by being a trusted advisor to all players and offering an integrated information system which is reliable, credible, relevant, transparent etc.

Panel and general discussion

The Conference noted that the experiences in the establishment of an institutional arrangement vary a great deal among countries and there is not a single institutional framework that can be used for the implementation of the accounts. The water accounts encourage the creation of or strengthen the inter-institutional organizational framework. They ensure a transparent and rigorous data sharing system. Political will and the sense of ownership of the various institutions sharing information were considered very important elements for the establishment of successful institutional arrangements and the implementation of the accounts.

The Conference considered the role of NSOs in developing such a framework fundamental in bringing trust, reliability, consistency, regularity and independence in the data produced.

Session 5: Assessment and monitoring, and indicator programmes

Summary of presentations

The coordinator of the UN-WWAP gave an overview water issues and the importance of their assessment and monitoring. The 2nd World Water Development Report (WWDR), which was recently released, provides a comprehensive assessment of the state of the worlds' freshwater resources from various perspectives: social, economic, environmental etc. In defining and assessing the wide range of water issues a common problem was the comparability of data and indicators across countries. Linking the initiatives of UNSD and UN-WWAP would be win-win situation with both parties benefiting from the cooperation.

UNSD described the advantages of deriving hydrological- economic indicators from the SEEAW: the integration of water-related information in a common framework according to the same concepts, classification and definition, allows for the derivation of sets of indicators which are precisely defined, consistent and interlinked thus allowing for further analyses. A comparison of the indicators proposed in the 2nd WWDR and those derived from the SEEAW shows that a large percentage of these indicators can be derived from the accounts.

The chair of the Monitoring Group of the EU Water Initiative (EUWI) described the EU initiative defining indicators to monitor progress towards the achievement of specific targets such as the Millennium Development Goals (MDGs) or the World Summit on Sustainable Development (WSSD).

ABS mentioned that Australia has been producing information on water much in line with the SEEAW for the past four decades. National Water Accounts have been compiled by ABS since 2000 and have been extensively used in modeling exercises such as predicting future water demand given assumptions on economic and population growth, analyzing the impact on economic production of reduced water availability for particular industries and assessing the economic and technical efficiency of water saving measures. Governments (national and local), industry groups, academics and researchers from the private sector use the accounts. Water accounts will form part of the National Water Initiative Baseline Assessment (biennially).

The representative of the Ministry of Ecology and Sustainable Development of France described the monitoring and assessment of water quality in France. France has a long tradition in monitoring water quality. The national network for river quality includes 1700 monitoring sites and a large number of quality indicators which are monitored at a regular frequency. The WFD has introduced requirements on monitoring and assessment of water quality in Europe and the French SEQ-eau is being adjusted to fulfil these requirements. The WFD represents an important opportunity for harmonizing reporting, including OSPAR, EIONet, OECD/Eurostat Questionnaire. The quality accounts in the SEEAW which draw heavily on the French water quality evaluation system can be used for reporting to the WFD.

The representative of Statistics Germany presented the German approach to indicator of sustainable development and the use of the environmental accounts for deriving these indicators. Headline sustainable development indicators are mainly a communication tool directed to the general public and the media. In order to make integrated analysis (diagnosis, forecasting, policy formulation), it is necessary to have an underlying detailed and integrated database. The accounting system with its three principle parts, the National Accounts and the Integrated Environmental-Economic Accounting (SEEA) and the Socio-economic Accounting (SEA) provides an ideal framework to meet these data requirements. In Germany, a considerable proportion of sustainable development indicators is already embedded into the accounting data set.

Panel and general discussion

The Conference noted that there are many approaches for assessment, monitoring and reporting on water. Key characteristics of an information system established according to the accounting framework are: (i) the full integration of the information using common concepts definitions and classifications and thus the derivation of a coherent and consistent set of indicators; and (ii) the relevance for cross-sector policy making and reporting.

During the Conference the importance of social indicators to address water issues was stressed. It was noted that social indicators can be presented in supplementary tables to the core

SEEAW accounts. Further work needs to be done in order to fully expand the accounting framework to the social aspects of water.

The Conference noted that there are advantages in deriving indicators from the accounting framework as opposed to loose sets of indicators derived from different sources and often defined to respond to specific purposes. These advantages are: consistency of the indicators and the possibility to analyse their inter-linkages.

The Conference recognized that the SEEAW foster the harmonization of concepts and data collections thus improving time series and comparisons across countries.

Annex III. Timeline for deliverables

The table below outlines the detailed time schedule agreed at the conference and the tasks of countries and organizations

	Output		Timeframe
1.	Propose to UN Water that the SEEAW be put on the agenda of its meeting in August 2006 in Stockholm, with the objective of harmonizing the activities of the agencies in UN-Water with the SEEAW	Gordon Young to write a letter to the Chair and Secretariat of UN Water	June 2006
2.	The adoption of the SEEAW by countries as the international standard for water statistics. To this end, it is recommended the SEEAW be submitted to the United Nations Statistical Commission for its adoption as an international statistical standard upon recommendation by the UN Committee of Experts on Environmental-Economic Accounting.	UNSD and UNCEEA	March 2007 by the UN Statistical Commission
3.	Develop a small set of indicators to be derived from the set of standard tables	All	
4.	Develop a brochure popularizing the features of the SEEAW and illustrating with selected indicators and graphs the main two or three messages that would catch the attention of users	UNSD/ UNESCO-IHE and selected participants	End of 2007
5.	Develop a training programme on SEEAW	UNESCO-IHE and UNSD	September-December 2006
6.	Present the SEEAW in international meetings and Conferences	Possible meetings are listed in para. 17(h)	August – December 2006
7.	Develop an implementation strategy in selected number of countries including: (a) Countries where IWRM projects are ongoing (b) Twinning projects between developed and developing countries	World Bank/African Development Bank/UNSD All	On-going
8.	Translation of the SEEAW in Spanish	Guatemala in cooperation with the Dominican Republic and possible participation of Mexico	To be contacted
9.	First meeting of the Roundtable	UNSD	4th Quarter of 2006 back-to-back with other meetings

Annex IV. Conference Programme

Monday, 22 May 2006

9:00-9:30 **Registration**

9:30-11:00 **Opening**

- Mr. Paul Cheung (Director, UNSD/DESA)
- Mr. Gosse van der Veen (Director General, Statistics Netherlands)
- Ms. Jacqueline McGlade (Executive Director, EEA)

Keynote Speakers

- Mr. Julian Hunt (Professor, University College London and House of Lords, London)
- Mr. Roberto Lenton (Chair, Technical Committee, GWP)

Objectives and organization of the Conference (UNSD and Statistics Netherlands)

Presentation of participants

11:00-11:30 Coffee break

11:30 - 1:00 **Session 1 - Water Accounting for Integrated Water Resource Management**

This session features the presentation of the *System of Environmental-Economic Accounting for Water*, commonly referred to as SEEAW, prepared by UNSD in collaboration with the London Group on Environmental Accounting. The SEEAW integrates economic and hydrological information in a common system using concepts, definitions and classifications of the System of National Accounts, while respecting the fundamental principles of hydrology. SEEAW is a useful tool for integrated water resource management (IWRM) whose adoption has been called for by Agenda 21 and reaffirmed by the Johannesburg Plan of Implementation (JPOI) of the World Summit on Sustainable Development (WSSD). Further, the Water Framework Directive (WFD) of the European Commission requires EU countries to establish water policies so as to ensure that all water meet "good status" by 2015. In so doing, countries have to develop integrated river basin management plans based on sound information.

During this session, the water accounting framework, the general concept of IWRM and its information needs as well as how the water accounting meets those needs will be presented. Developing and developed countries will share their experience in applying IWRM.

Chair: Mr. Paul Cheung (Director, UNSD/DESA)

Presentations:

- Ms. Alessandra Alfieri (Head, Environmental Accounting Unit, UNSD/DESA)
- Mr. Manuel Dengo (Chief, Water Natural Resources and SIDS, UNDSD/DESA)
- Mr. Jan Berdowski (Head of Section, Statistics Netherlands)
- Ms. Gemma Van Halderen (Assistant Statistician, Australian Bureau of Statistics)

1:00-2:30 Lunch break

2:30-3:30 **Session 1 - Water Accounting for Integrated Water Resource Management (Cont'd)**

Panel Discussion:

- Mr. Walter Radermacher (Chair, UNCEEA and Vice President, Statistics Germany)
- Mr. Roberto Lenton (Chair, Technical Committee, GWP)
- Ms. Jacqueline McGlade (Executive Director, EEA)
- Mr. Ivo Havinga (Chief, Economic Statistics, UNSD/DESA)
- Mr. Gordon Young (Coordinator UN-WWAP)
- Mr. Vijay Jagannathan (Sector Manager, Water and Environment, World Bank)

3:30-4:00 Coffee break

4:00-5:00 **Session 1 - Water Accounting for Integrated Water Resource Management (Cont'd)**

5:00 Welcome cocktail

Tuesday, 23 May 2006

9:00-11:00 **Session 2 - Economic mechanisms for water policies and efficiency of water allocation**

Agenda 21 calls for the introduction of "suitable cost-recovery mechanisms, taking into account efficiency and equity through demand management mechanisms". The JPOI encourages countries to "employ the full range of policy instruments, including regulation, monitoring, voluntary measures, market and information-based tools, land-use management and cost recovery of water services, without cost recovery objectives becoming a barrier to access to safe water by poor people, and adopt an integrated water basin approach" (para 26b). Article 9 of the WFD calls for countries to "take account of the principle of recovery of the costs of water services, including environmental and resource costs". Increasing demand for water is exerting severe pressure on water resources leading to tensions and conflicts among users both within a country as well as between countries. Policies aiming at water conservation and alleviation of scarcity often involve decisions on water allocations between competing uses (e.g. households, industries, rest of the world, environment) including those of countries sharing water resources.

During this session, issues and information needs in formulating water policies in terms of pricing/cost-recovery, financing and hydraulic infrastructures will be discussed based on country practices. Mechanisms in water allocation (e.g. direct regulations, economic or market regulations) and information needs for designing those policies will also be discussed. Countries will present their experience in designing water allocation policies

Chair: Mr. Walter Radermacher (Chair, UNCEEA and Vice President, Statistics Germany)

Presentations:

- Mr. Vijay Jagannathan (Sector Manager, Water and Environment, World Bank)
- Mr. Yosry Khafagy (Procurement Specialist, PMU-IIIMP, Egypt)
- Ms. Minfeng Gao (Ministry of Water Resources, China) and Ms. Yixuan Wang (National Bureau of Statistics, China)
- Ms. Aneme Malan (Manager, Application of National Accounts, Statistics South Africa)
- Mr. Vincent Linderhof (Economic Researcher, Vrije Universiteit, The Netherlands)

Panel Discussion:

- Mr. Kees Zeelenberg (Head of Section, Statistics Netherlands)
- Mr. David Molden (Principal researcher, IWMI)
- Mr. Jean Louis Weber (Project Manager, EEA)
- Mr. Ivo Havinga (Chief, Economic Statistics, UNSD/DESA)

11:00-11:30 Coffee break

11:30-12:30 **Session 3 - Wastewater emissions and water quality**

Emissions to water are increasingly a source of great concern for countries as they affect the quality of receiving waters. Agenda 21 encourages countries to "initiate effective water pollution prevention and control programmes, based on an appropriate mixture of pollution reduction-at-source strategies, environmental impact assessments and enforceable standards for major point-source discharges and high-risk non-point sources, commensurate with their socio-economic development". The WFD calls upon countries to reduce and control pollution from all sources like agriculture, industrial activities and urban areas.

During this session, policies on emissions to water and water quality and their information requirements will be discussed. Countries will present their experiences on using emission and quality accounts for policy making.

Chair: Mr. Peter van de Ven (Head, National Accounts, Statistics Netherlands)

Presentations:

- Mr. Cees van de Guchte (Senior Programme Officer, UNEP-GPA)
- Mr. Jean Louis Weber (Project Manager, EEA)
- Mr. Michael Nagy (Deputy Head, Unit Surface Waters, Umweltbundesamt, Austria)
- Mr. Pieter van der Most (Expert, Ministry of Environment, The Netherlands)

12:30-2:00 Lunch break

2:00-3:00 **Session 3 - Wastewater emissions and water quality (Cont'd)**

Panel Discussion:

- Mr. Rudy Vannevel (Director's Assistant, International Water Reporting, Belgium)
- Mr. Walter Radermacher (Chair, UNCEEA and Vice President, Statistics Germany)
- Mr. Hendrik Jan Dijkerman (Statistics Netherlands)
- Ms. Ilaria DiMatteo (Statistician, Environmental Accounting Unit, UNSD/DESA)

3:00-3:30 Coffee break

3:30-5:30 **Session 4 - Water governance**

The existence of a well-designed legal framework for water, both at national and international level, facilitates the design of policies as well as regular collection of information. Water-related information and policies are often decentralized among various level of government which may also include public corporations. The establishment of an integrated approach to water management requires institutional arrangements, including the design of an integrated information system. Such a system would greatly enhance the value and quality of information collected to meet users' needs and improve the efficiency of collection, processing, storage, retrieval and dissemination of information to users.

During this session, the impact of the existence (or non-existence) of institutional and legal frameworks in the countries/regions on IWRM and on the establishment of an integrated information system will be discussed. Countries will present their experiences in establishing inter-institutional mechanisms.

Chair: Mr. Ivo Havinga (Chief, Economic Statistics, UNSD/DESA)

Presentations:

- Ms. Olga Luciano (Director, Ministry of Environment and Natural Resources, Dominican Republic)
- Ms. Gisela Forattini (Director's Assistant, Agencia Nacional de Aguas, Brazil)
- Ms. Jana Tafi (Project Leader, Water Data Centre, The Republic of Moldova)
- Ms. Gemma Van Halderen (Assistant Statistician, Australian Bureau of Statistics)

Panel Discussion:

- Mr. Rudy Vannevel (Director's Assistant, International Water Reporting, Belgium)
- Mr. Al Barwani (Water Resources Expert, Ministry of Regional Municipalities & Water Resources, Oman)
- Mr. Nguyen Chi (Director General, Department of Water Resources Management, Vietnam)
- Mr. David Molden (Principal researcher, IWMI)
- Ms. Alessandra Alfieri (Head, Environmental Accounting Unit, UNSD/DESA)
- Mr. Vijay Jagannathan (Sector Manager, Water and Environment, World Bank)

7:00 **Dinner**

Wednesday, 24 May 2006

9:00-11:00 **Session 5 – Assessment, monitoring and indicator programmes**

"Water resources assessment, including the identification of potential sources of freshwater supply, comprises the continuing determination of sources, extent, dependability and quality of water resources and of the human activities that affect those resources. Such assessment constitutes the practical basis for their sustainable management and a prerequisite for evaluation of the possibilities for their development. There is, however, growing concern that at a time when more precise and reliable information is needed about water resources, hydrologic services and related bodies are less able than before to provide this information, especially information on groundwater and water quality. Major impediments are the lack of financial resources for water resources assessment, the fragmented nature of hydrologic services and the insufficient numbers of qualified staff. At the same time, the advancing technology for data capture and management is increasingly difficult to access for developing countries. Establishment of national databases is, however, vital to water resources assessment and to mitigation of the effects of floods, droughts, desertification and pollution. (Agenda 21, para 18.23). Agenda 21, the JPOI and the WFD emphasize the importance of monitoring and assessment of water and call for countries to establish and/or further develop programmes for the monitoring of water resources.

At the international level several initiatives have been put in place, the most notable ones include the Joint Monitoring Programme of WHO-UNICEF to monitor progress towards achieving the Millennium Development Goals as well as the vast range of indicators put forward in the World Water Development Report of 2003 and 2006.

During this session, existing water assessment mechanisms as well as various indicators initiatives at the international as well as national level with focus on water will be presented. National experience in developing water databases for the assessment and monitoring of water resources, including major impediments in the implementation will be discussed. Country will share their practices in using the accounting framework for deriving indicators as well as discuss the strength and weaknesses of the accounts in addressing users' needs.

Chair: Mr. Ivo Havinga (Chief, Economic Statistics, UNSD/DESA)

Presentations:

- Mr. Gordon Young (Coordinator, UN-WWAP)
- Mr. Umberto Triulzi (Chair, Monitoring and Reporting Group, EU Initiative)
- Ms. Gemma Van Halderen (Assistant Statistician, Australian Bureau of Statistics)
- Mr. René Lalement (Head, Water Information System Taskforce, Ministry of Ecology and Sust. Development, France)

11:00-11:30 Coffee break

11:30-12:30 **Session 5 – Assessment, monitoring and indicator programmes (Cont'd)**

Presentations:

- Mr. Walter Radermacher (Chair, UNCEEA and Vice President, Statistics Germany)
- Ms. Ilaria DiMatteo (Statistician, Environmental Accounting Unit, UNSD/DESA)

Panel Discussion:

- Mr. René Lalement (Head of Water Information System Taskforce, Ministry of Ecology and Sust. Development, France)
- Ms. Olga Luciano (Director, Ministry of Environment and Natural Resources, Dominican Republic)
- Mr. David Molden (Principal Researcher, IMWI)
- Mr. Maurice Mubila (Principal Statistician, AFDB)
- Mr. Jean Louis Weber (Project Manager, EEA)
- Mr. Pieter Everaers (Director, External Relations Statistics, Eurostat)

- Mr. Umberto Triulzi (Chair, Monitoring and Reporting Group, EU Initiative)
- Ms. Alessandra Alfieri (Head, Environmental Accounting Unit, UNSD/DESA)

12:30-2:00 Lunch break

2:00-3:00 **Session 6 - Establishment of a roundtable for the promotion of water accounts**
Moderator: Mr. Walter Radermacher (Chair, UNCEEA and Vice President, Statistics Germany)

3:00-3:30 Coffee break

3:30-4:00 **Session 6 - Establishment of a roundtable for the promotion of water accounts (Cont'd)**

4:00-4:30 **Adoption of the report and closing**

Annex V. List of participants

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