



Introduction to the System of Environmental-Economic Accounting for Water (SEEA-W)

Technical Workshop on the
Preparation of Water Accounts in Latin America

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Michael Vardon
United Nations Statistics Division



Outline

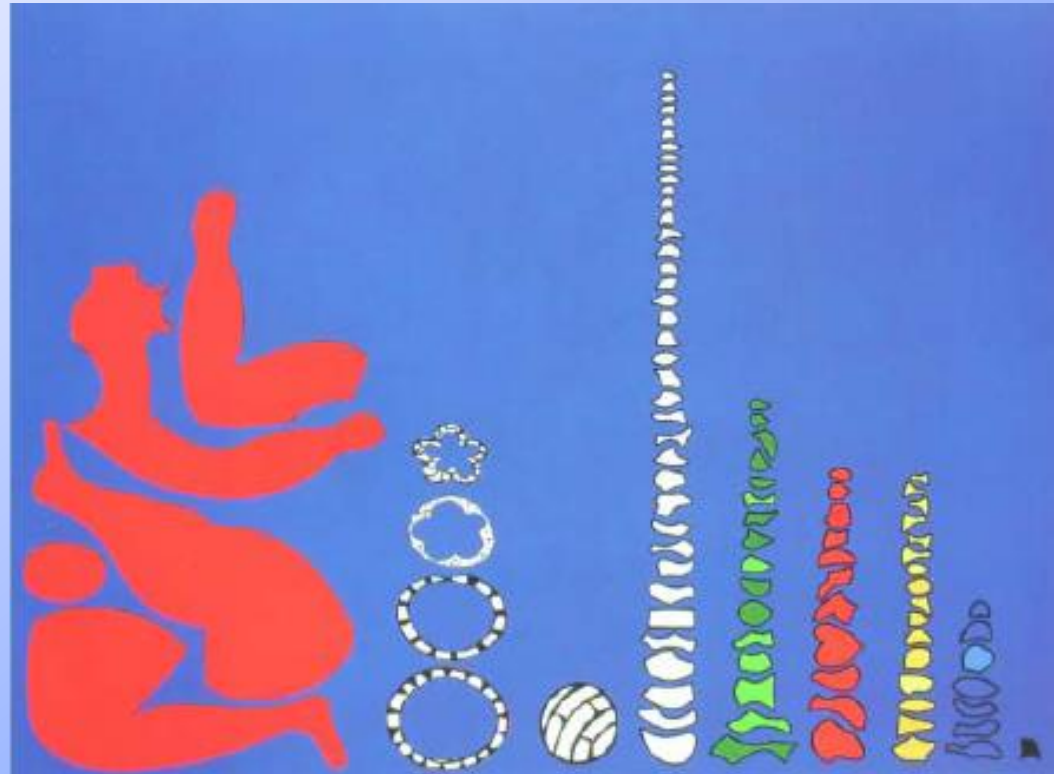
- Why environmental accounting and water accounting?
- The economy
 - Statistical units, enterprises and establishments
 - Classification of units to industry
- The environment
- SEEAW
 - Development
 - Structure standard tables
 - Countries implementing SEEAW
- Lessons from implementation
- Work by UNSD



Environment Statistics

Environment statistics:

- Often developed to answer one particular question or problem
- Difficult to figure out if all information is included
- Not always easy to see the whole picture, or how it relates to other things



Source: Julie Hass



Environmental-Economic Accounting

Environmental accounts:

- Help to make sense of the larger picture
- Help to identify pieces that are missing
- Can make connections to other statistics - especially economic statistics

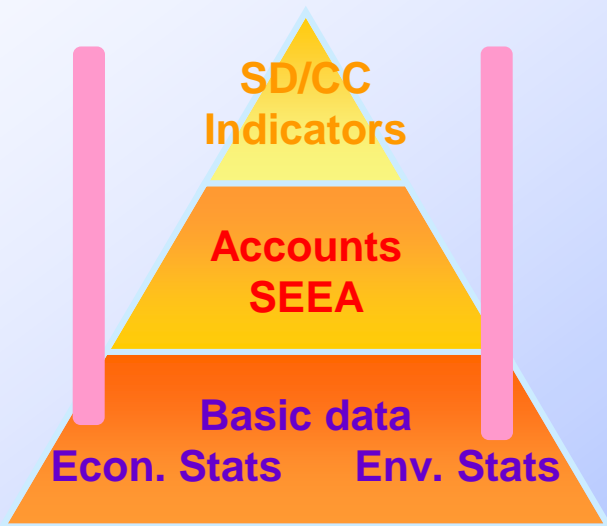


Source: Julie Hass



Why an accounting approach?

policy
relevance



Inter-linkages -
underlying causes

Provides **added value**:

- Integrates basic statistics from different sources and links it with other types of statistics
- Improves statistical quality by guaranteeing consistency (checks and balances)
- Provides policy-makers with coherent time series of data, indicators and descriptive statistics for scenario modeling
- Implicitly defines ownership and hence responsibility for environmental impacts



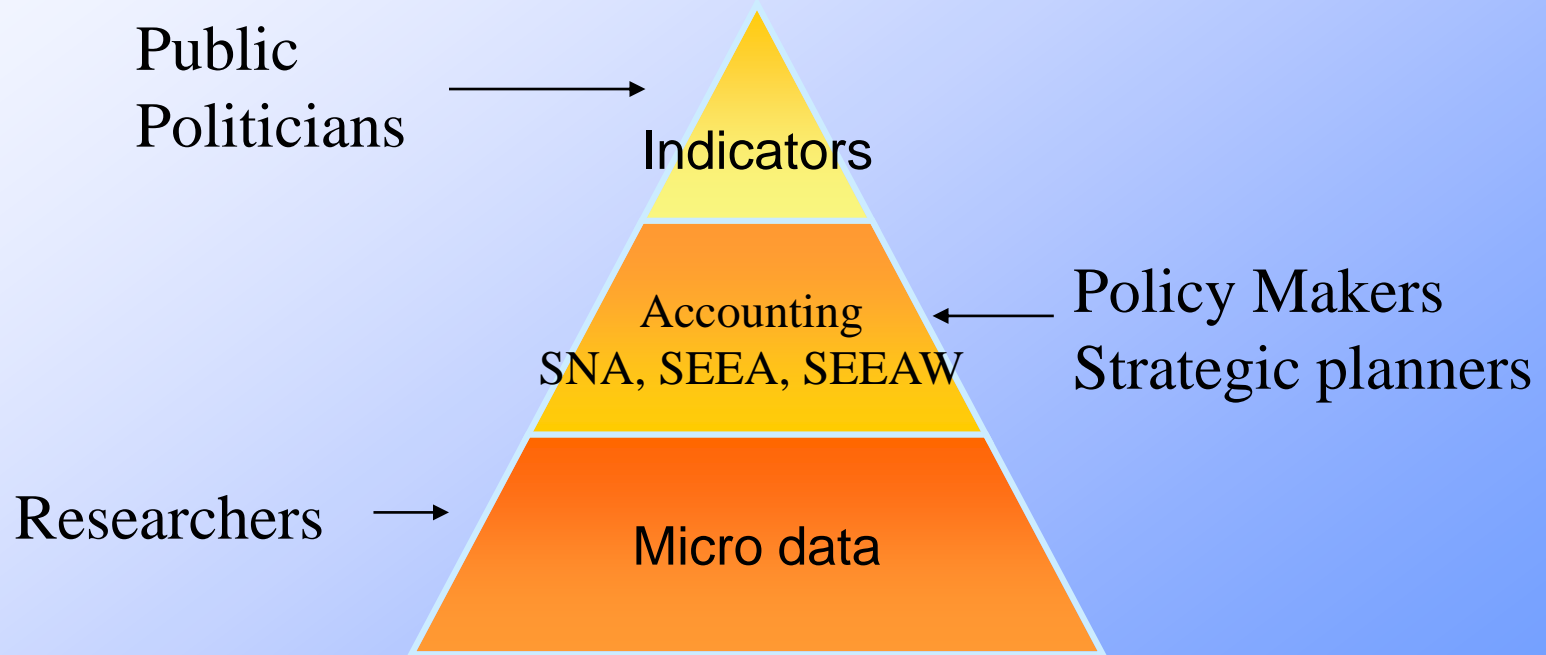
Indicators and policy uses of SEEAW

Source of pressure on water resources:

- Macro trends in total water use, emissions, water use by natural source and purpose, etc.
'Decoupling' economic growth and water use, pollution
- Industry-level trends: indicators used for environmental-economic profiles
- Technology and driving forces: water intensity/productivity and total (domestic) water requirements to meet final demand
- International transport of water and pollution



Audiences for information

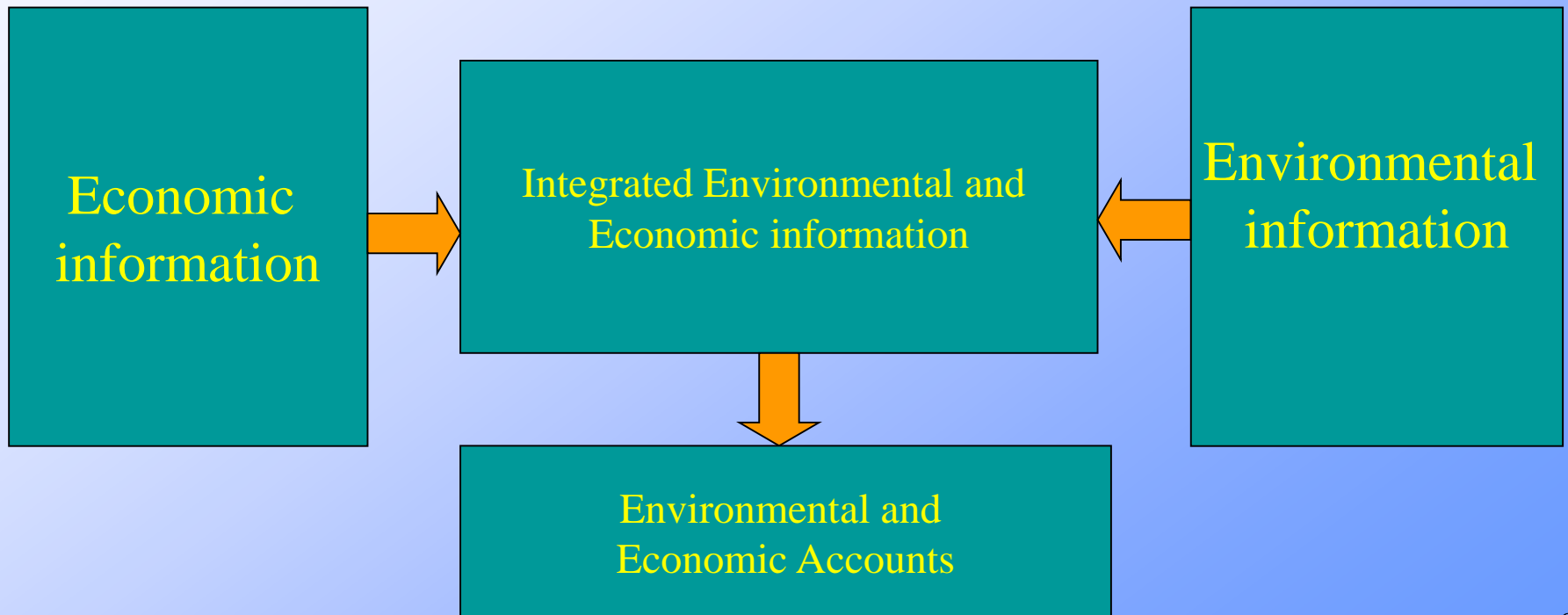


Indicators are part of communicating information



Water accounting

- Brings together economic and environmental information





Need to understand the building blocks of environment and economic statistics

- These are large fields and require knowledge and experience to fully master
- It is possible to understand some of the basics relatively quickly



Statistical Units

A statistical unit is an entity about which information is sought and for which statistics are ultimately compiled. It is the unit at the basis of statistical aggregates to which tabulated data refer.

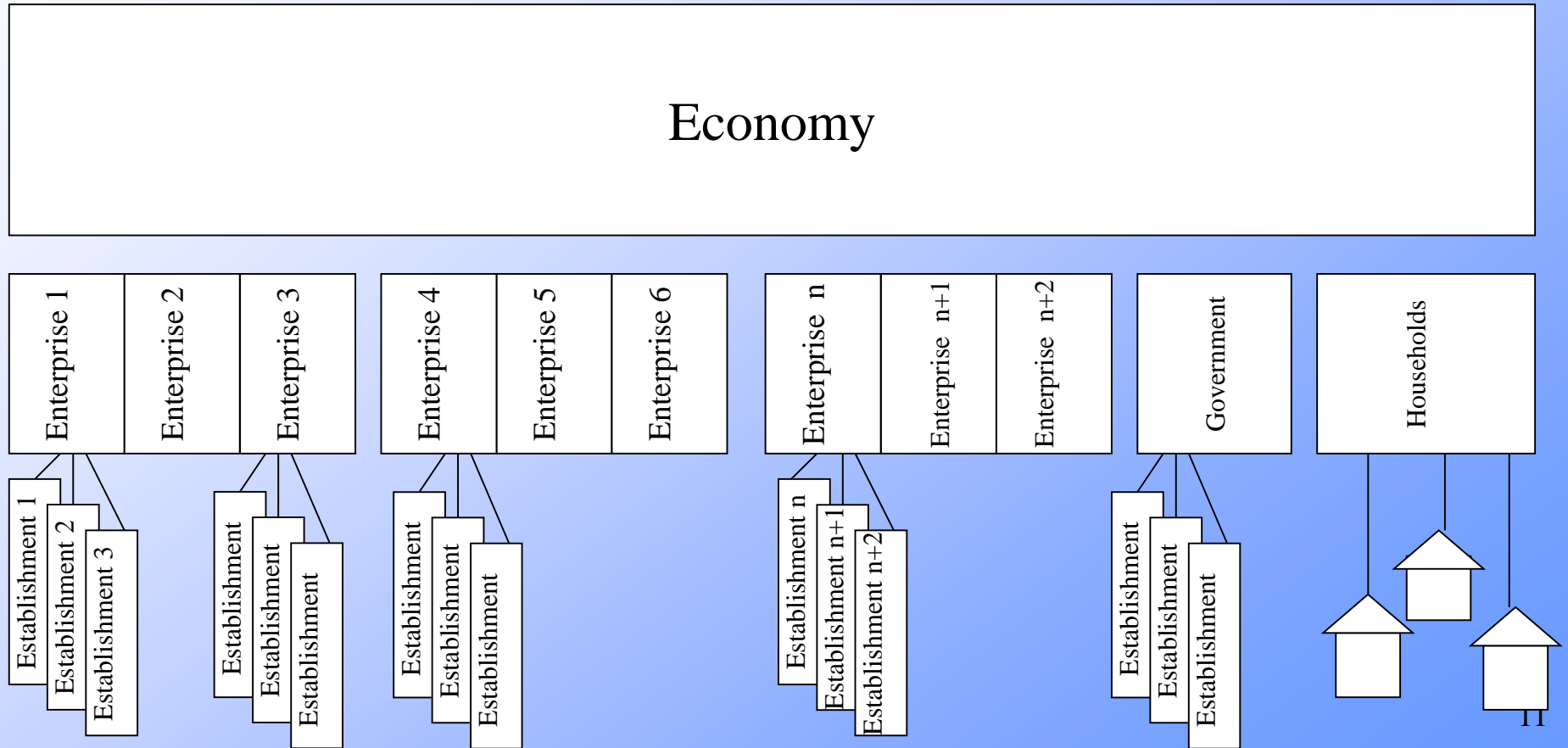
These units can be divided into two categories:

(a) *observation units* – identifiable legal/organizational or physical entities which are able, actually or potentially, to report data about their activities;

(b) *analytical units* – entities created by statisticians (also referred to as *statistical constructs*), often by splitting or combining observation units in order to compile more detailed and more homogeneous statistics than it is possible by using data on observation units. Analytical units are not able to report data themselves about their activities, but there exist indirect methods of statistical estimation.



Units of the economy





Enterprises

Definition

- An institutional unit in its capacity as a producer of goods and services is known as an enterprise. An enterprise is an economic transactor with autonomy in respect of financial and investment decision-making, as well as authority and responsibility for allocating resources for the production of goods and services. It may be engaged in one or more economic activities at one or more locations. An enterprise may be a sole legal unit.

<http://unstats.un.org/unsd/isdts/docs/StatisticalUnits.pdf>



Establishments

Definition

- The establishment is defined as an enterprise or part of an enterprise that is situated in a single location and in which only a single productive activity is carried out or in which the principal productive activity accounts for most of the value added.
- In other words, an establishment can be defined, ideally, as an economic unit that engages, under a single ownership or control - that is, under a single legal entity – in one, or predominantly one, kind of economic activity at a single physical location - for example, a mine, factory or workshop.

<http://unstats.un.org/unsd/isdts/docs/StatisticalUnits.pdf>



Industrial Classification – what is an industry?

- An industry is a grouping of establishments engaged in the same or similar kinds of activities
- The classification used in national accounts and water accounts is the International Standard Industrial Classification (ISIC)
- In this industry includes agriculture, mining, manufacturing and service industries such as banking and hotels



ISIC – International Standard Industrial Classification

- Enterprises and establishments are classified using ISIC Revision 4 according to the goods and services they produce

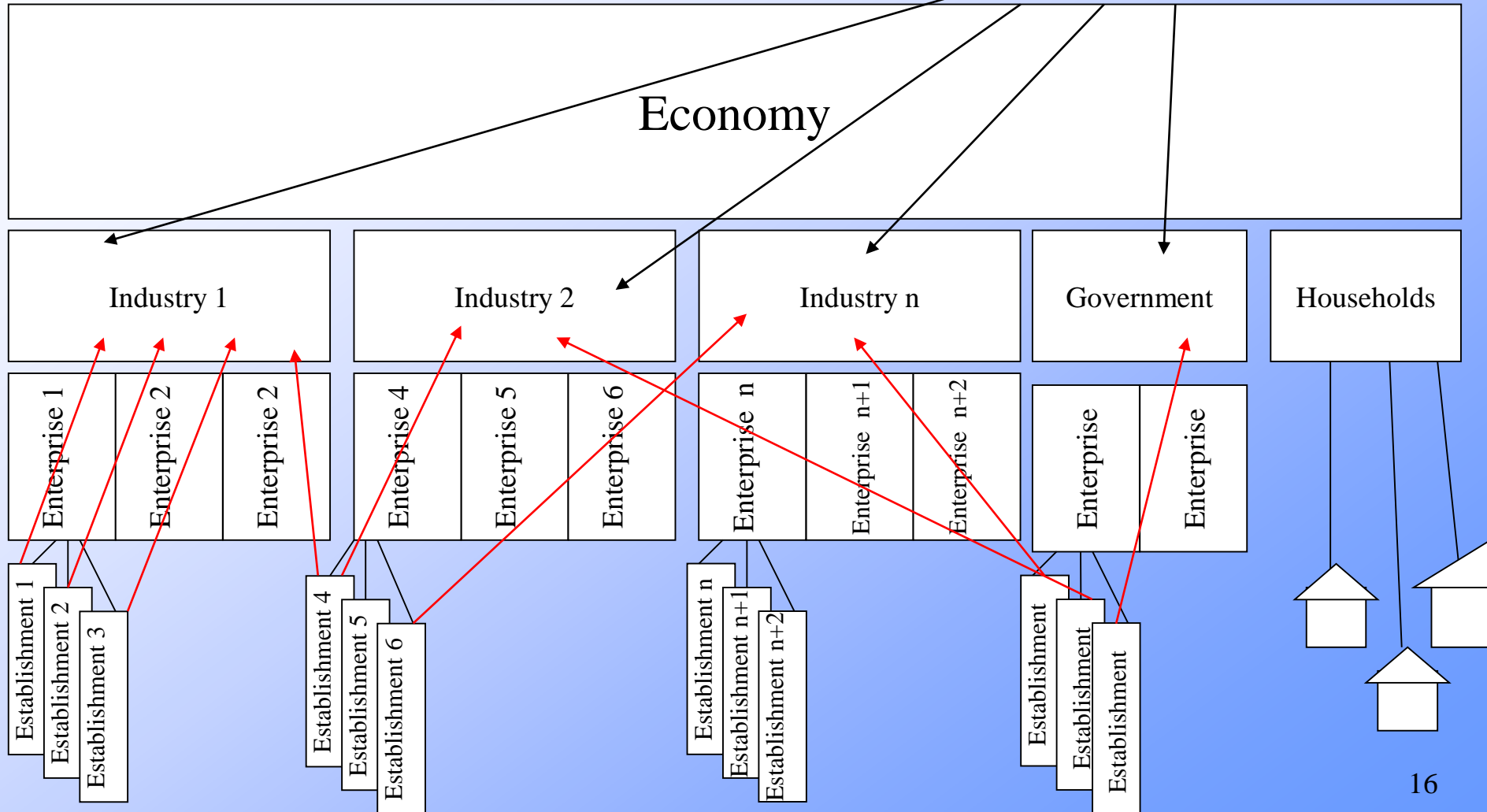
<http://unstats.un.org/unsd/cr/registry/default.asp>

- Sometimes all establishments of an enterprise are classified to the same ISIC code
- Sometimes establishments of the one enterprise are classified to different ISIC classes.



Units and industry classification

International
Standard Industrial
Classification





National Accounts

- National Accounts aggregate the information on the economy, obtained from the units of the economy, into a standard format from which well known indicators are derived
- Gross Domestic Product is the best known of the indicators from the national accounts
- Use of international standard System of National Accounts (SNA), classifications (e.g. ISIC) and table formats allows for meaningful comparisons over time and between countries

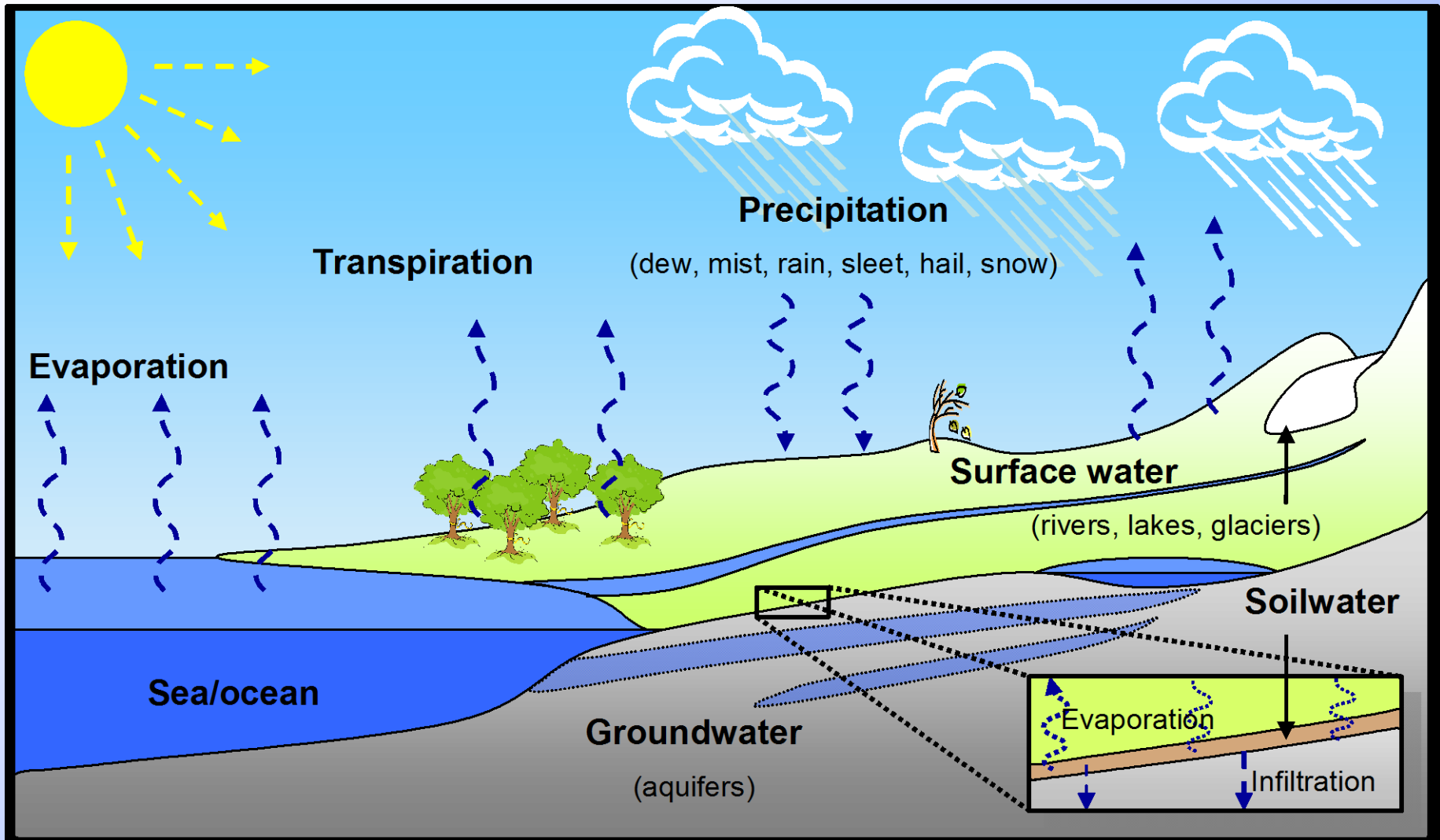


The environment

- The environment has 4 components
 - Land
 - Atmosphere (Air)
 - Water
 - Life (biodiversity)
- Energy, and solar energy are also important in environment statistics
- The components of the environment interact with each other and with the economy



The Hydrological Cycle

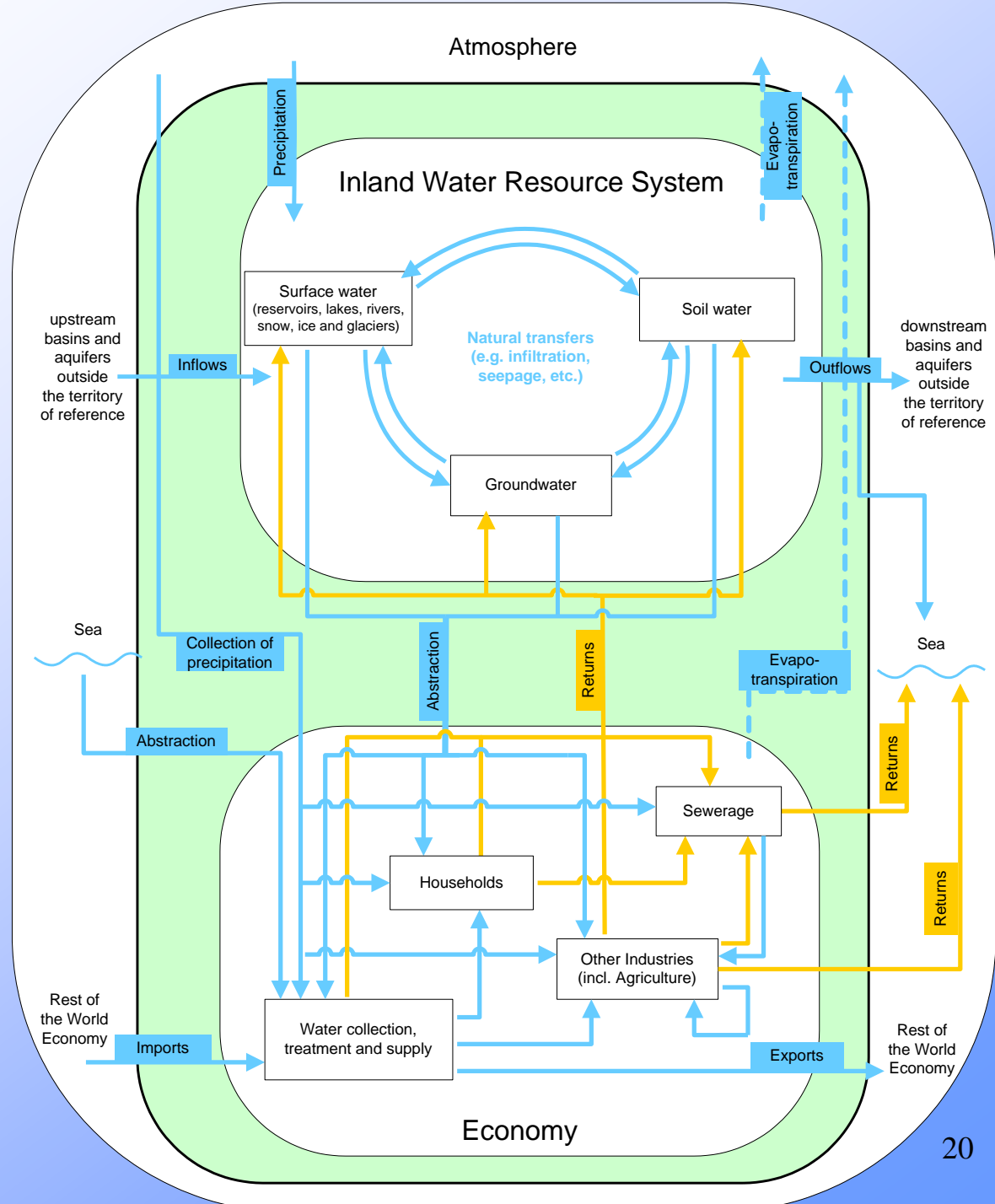




SEEA

- Integrates information on the economy and environment

<http://unstats.un.org/unsd/envaccounting/SEEAWDraftManual.pdf>





SEEA Water – an interim international statistical standard

- Part 1 of SEEA Water was adopted by the United Nations Statistical Commission in March 2007 as an interim statistical standard
- Part 2 contains the elements of SEEA Water for which there is less country experience and there is still some debate
- SEEA Water has been recognized as useful by the users of information: at the 5th World Water Forum the experiences of several countries with SEEA Water was presented and the Session 6.4.2 concluded that it was an important part of the way forward.



44 Countries have, or are planning, water accounts

Global Assessment of Water Statistics and Water Accounts (GAWSWA)

<http://unstats.un.org/unsd/statcom/doc09/BG-WaterAccounts.pdf>

- Andorra
 - Australia
 - Austria
 - Bahamas
 - Botswana
 - Canada
 - China
 - Colombia
 - Denmark
 - Dominican Republic
 - Egypt
 - France
 - Germany
 - Guatemala
 - Hungary
 - Iraq
 - Israel
 - Italy
 - Jordan
 - Mexico
 - Namibia
 - Netherlands
 - New Zealand
 - Peru
 - Philippines
 - Portugal
 - Singapore
 - South Africa
 - Spain
 - Sweden
 - Switzerland
 - Trinidad and Tobago
 - Ukraine
 - Armenia
 - Estonia
 - Greece
 - Lebanon
 - Mauritius
 - Norway
 - Occupied Palestinian Territory
 - Romania
 - Tunisia
 - Turkey
 - United Kingdom
- Plus 4 (Data not from GAWSWA)
- Bahrain
 - Brazil
 - Oman
 - Panama



SEEAW – Structure and focus of workshop

9 Chapters, 2 parts:

- Part 1
 - Ch 1. Introduction
 - Ch. 2 Water Accounting Framework
 - Ch. 3 Physical Supply and Use Tables
 - Ch. 4 Emission Accounts
 - Ch. 5 Hybrid and Economic Accounts
 - Ch. 6 Asset Account
- Part II
 - Ch. 7 Quality Account
 - Ch. 8 Valuation
 - Ch. 9 Policy use



12 Standard Tables

Our focus will be on tables 1-4, 7 and 12

1. Physical supply
2. Physical use
3. Gross and net emissions
4. Emissions by ISIC 37
5. Hybrid (Monetary and Physical) supply
6. Hybrid use
7. Hybrid supply and use
8. Hybrid water supply and sewerage for own use
9. Government accounts for water related collective consumption services (Monetary)
10. National expenditure for waste management (Monetary)
11. Financial accounts for waste water management (Monetary)
12. Asset account (Physical)

12 Supplementary tables



Supplementary tables and further disaggregation of data items

- The 12 SEEAW standard tables are the minimum data that countries are encouraged to compile
- Supplementary tables are presented
- Data items and industries can be further disaggregated



Physical water use: Standard Table I

		Industries (by ISIC categories)						Physical units		
								Households	Rest of the world	Total
		1-3	4-10	11-17	18-29	30-33	34-39			
		1-3	4-10	11-17	18-29	30-33	34-39	Households	Rest of the world	Total
From the environment	U1 - Total abstraction (=a.1+a.2= b.1+b.2):									
	a.1- Abstraction for own use									
	a.2- Abstraction for distribution									
	b.1- From water resources:									
	Surface water									
	Groundwater									
Within the economy	Soil water									
	b.2- From other sources									
	Collection of precipitation									
	Abstraction from the sea									
U=U1+U2 - Total use of water										



Physical water supply: Standard Table II

Physical units

		Industries (by ISIC categories)						Hou seh olds	Rest of the worl d	Tota l
		1-3	5- 33, 41- 43	35	36	37	38,3 9, 45- 99 Tota l			
Within the economy	S1 - Supply of water to other economic units <i>of which:</i> Reused water Wastewater to sewerage									
To the environment	S2 - Total returns (= d.1+d.2) d.1- To water resources Surface water Groundwater Soil water d.2- To other sources (e.g. Sea water)									
S - Total supply of water (= S1+S2)										
Consumption (U - S)										



Water emissions: Standard Table IV

Physical units

Pollutant	Industries (by ISIC categories)						Hou seh olds	Rest of the wor ld	Tota l
	1-3	5- 33, 41- 43	35	36	38, 39, 45- 99	Tota l			
Gross emissions (= a + b)									
a. Direct emissions to water (= a1 + a2 = b1 + b2)									
a1. Without treatment									
a2. After on-site treatment									
<i>b1. To water resources</i>									
<i>b2. To the sea</i>									
b. To Sewerage (ISIC 37)									
d. Reallocation of emission by ISIC 37									
e. Net emissions (= a. + d.)									



Hybrid water use: Standard Table VI

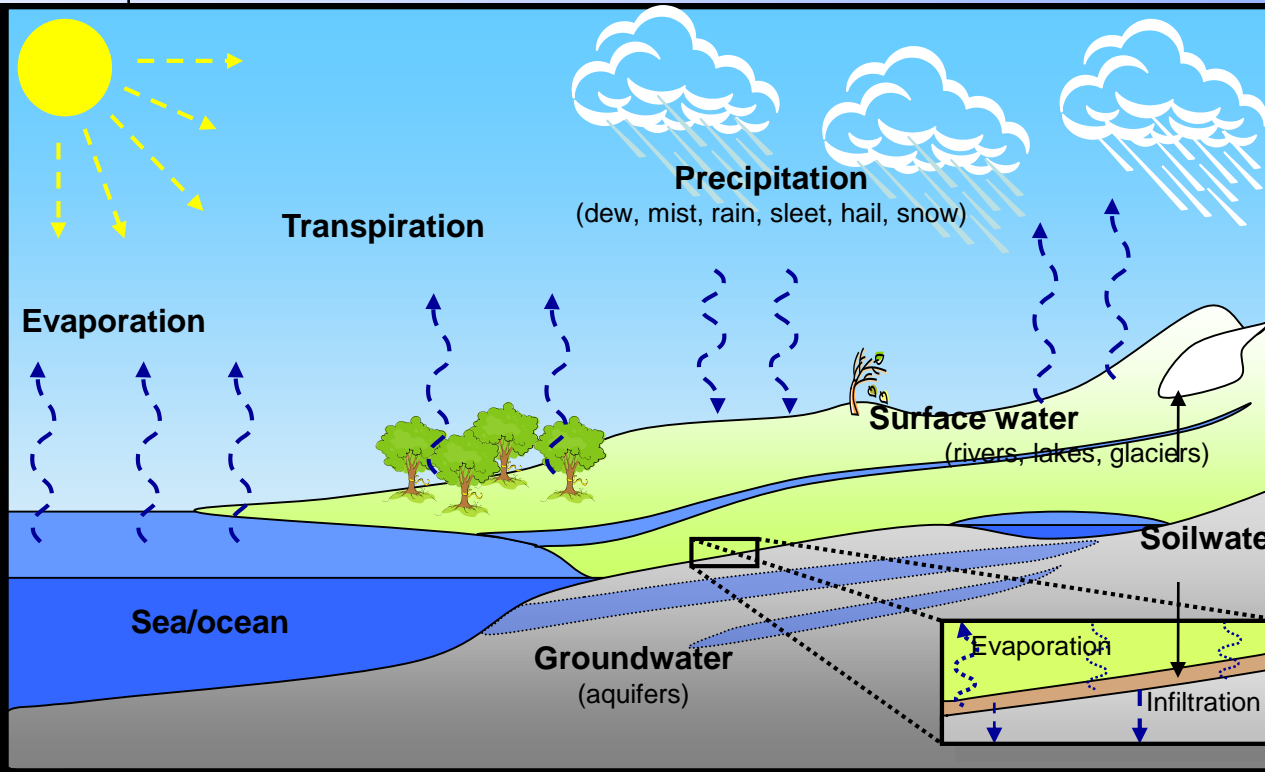
Physical and monetary units

	Intermediate consumption of industries (by ISIC categories)							Actual final consumption						Tot al use s at pur cha ser' s pric e	
	1-3	5- 33, 41- 43	35		36	37	38, 39, 45- 99	Total industry	Households						Govern ment
			Tot al	of which: Hydro					Final cons umpt ion expe nditu res	Socia l transf ers in kind from Gover nmen t and NPIS Hs	Total				
Total intermediate consumption and use (monetary units) <i>of which:</i> Natural water (CPC 1800) Sewerage services (CPC 941) Total value added (monetary units)															
Total use of water (physical units) U1 - Total Abstraction <i>of which:</i> a.1- Abstraction for own use U2 - Use of water received from other economic units															



Physical water assets: Standard Table XII

physical units

		EA.131 Surface water					EA.133 Soil water	
		EA.1311 Reservoirs	EA.1312 Lakes	EA.1313 Rivers	EA.1314 Snow, Ice and Glaciers	EA.132 Groundwater		Total
Opening Stocks								
Increases in stocks								
Returns from the economy								
Precipitation								
Inflows								
from upstream territories								
from other resources in t territory								
Decreases in stocks								
Abstraction								
<i>of which Sustainable use</i>								
Evaporation/Actual evapotranspiration								
Outflows								
to downstream territories								
to the sea								
to other resources in the territory								
Other changes in volume								
Closing Stocks								



Some common problems in compilation of water accounts

- Classification of units to industry in the case of multiple activities, especially those engaged in the activities of water supply, sewerage and hydro-electricity generation
- In most countries national accounts do not separate the water supply and sewerage industries
- In many countries the units supplying water or sewerage services are operated by government and in some they are incorrectly classified to government administration
- Spatial referencing – economic data refers to administrative boundaries while hydrological data refers to river basins
- Recording of losses in distribution and the flows for use of water in hydro-electricity and water for cooling
- Boundary between environment and the economy, especially artificial reservoirs



International Recommendations for Water Statistics (IRWS)

- UNSD is developing IRWS
- The IRWS will define and support the compilation of basic statistical data to support the SEEAW and the water indicators used by international agencies (e.g. the FAO, World Bank and UN MDGs)
- It will provide information on the concepts, sources and methods needed for basic water statistics
- It will also provide practical guidance on the compilation of water accounts and indicators
- A draft of the IRWS should be available for discussion in mid-2008.
- An expert group meeting is planned to discuss the draft



Key findings of the Global Assessment and lessons from countries implementing SEEAW

1. Build on existing knowledge and recognise that a range of different systems are already in place
2. Cooperation is essential
3. High level support is needed
4. An agency needs to take the lead
5. A phased approach is needed and pilot or experimental accounts are very useful
6. A lot of progress can be made quickly



Build on existing knowledge and recognise that a range of different information systems are already in place

- Many institutions already have information
- Countries have developed information systems to meet their own data needs for management, including international obligations
- These institutions need to understand that their data is valuable and that others could use it for their purposes



Cooperation is essential

- The majority of countries report cooperation with other agencies in the production of water accounts (68%)*
- Despite this the lack of cooperation or data sharing was identified as an issue in 32% of countries for water accounts*
- Data are usually dispersed in many agencies (e.g. agricultural agencies collect information on irrigation water, water ministries collect information to construct water balances, etc.)*
- In many countries there are data gaps and in some countries there is duplication of statistical activity*

Cooperation is needed

- Within statistical offices
- Between statistical offices, water departments, economic/planning departments and agricultural departments
- With the water supply industry
- With the scientific and research communities
- Between users and producers of information

*Data from the Global Assessment of
Water Statistics and Water Accounts

<http://unstats.un.org/unsd/statcom/doc09/B-G-WaterAccounts.pdf>



High level support is needed

- The water accounts require a high degree of coordination within and between agencies, and so high level support helps to ensure that:
 - The proper legal and administrative processes are developed and used for the sharing and integration of data and that the duplication of activity is reduced between different agencies
 - Within agencies it paves the way for internal cooperation
 - There are no “turf wars” between or within agencies
- Resources need to be devoted to the production of the accounts.



An agency needs to take the lead

It is usual for one agency to take the lead in the coordination and production of the accounts.

- In the majority (53%) of case the agency is most often the NSO*
- The lead agency does the preliminary work, including learning the details of the SEEAW and investigating the available data

*Data from the Global Assessment of
Water Statistics and Water Accounts

<http://unstats.un.org/unsd/statcom/doc09/B-G-WaterAccounts.pdf>



A phased approach is needed and pilot or experimental accounts are very useful

- Start with the accounts that address the issues of most importance to countries:
 - In water scarce countries it has been water supply and use and asset accounts. In industrialized countries it has been pollution and emission accounts.
- Pilot accounts enable indicators and other policy uses to be demonstrated with data



A lot of progress can be made quickly

- Many countries already have much of the data needed to compile water accounts
- For example, China, Mexico, Jordan and Dominican Republic were all able to produce preliminary accounts within 6 months
- In addition it appears that UNSD/UNEP, OECD/Eurostat and the EEA already collect much of the data needed to produce some of the water accounts
- As such for many countries and agencies is a matter of re-arranging current data to match the format of the standard tables and to ensure they are consistent with the definitions and classifications of SEEAW
- In this process data gaps and deficiencies may be identified and, if important enough, these can be addressed



UNSD activity to support the implementation of the SEEAW

(In accordance with the SEEAW Implementation Plan presented to the UNSC in 2008)

- Conducting of regional workshops
- Targeted country assistance
- Development of International Recommendations for Water Statistics
- Development of a knowledge-base to house practical material and countries experiences on the compilation of water statistics and accounts



Contact details

Michael Vardon

Adviser on Environmental-Economic Accounting

United Nations Statistics Division

New York 10017 USA

Room DC2 1532

Phone: +1 917 367 5391

Fax: +1 917 363 1374

Email: vardon@un.org