

# **The Unu-Water Exercise**

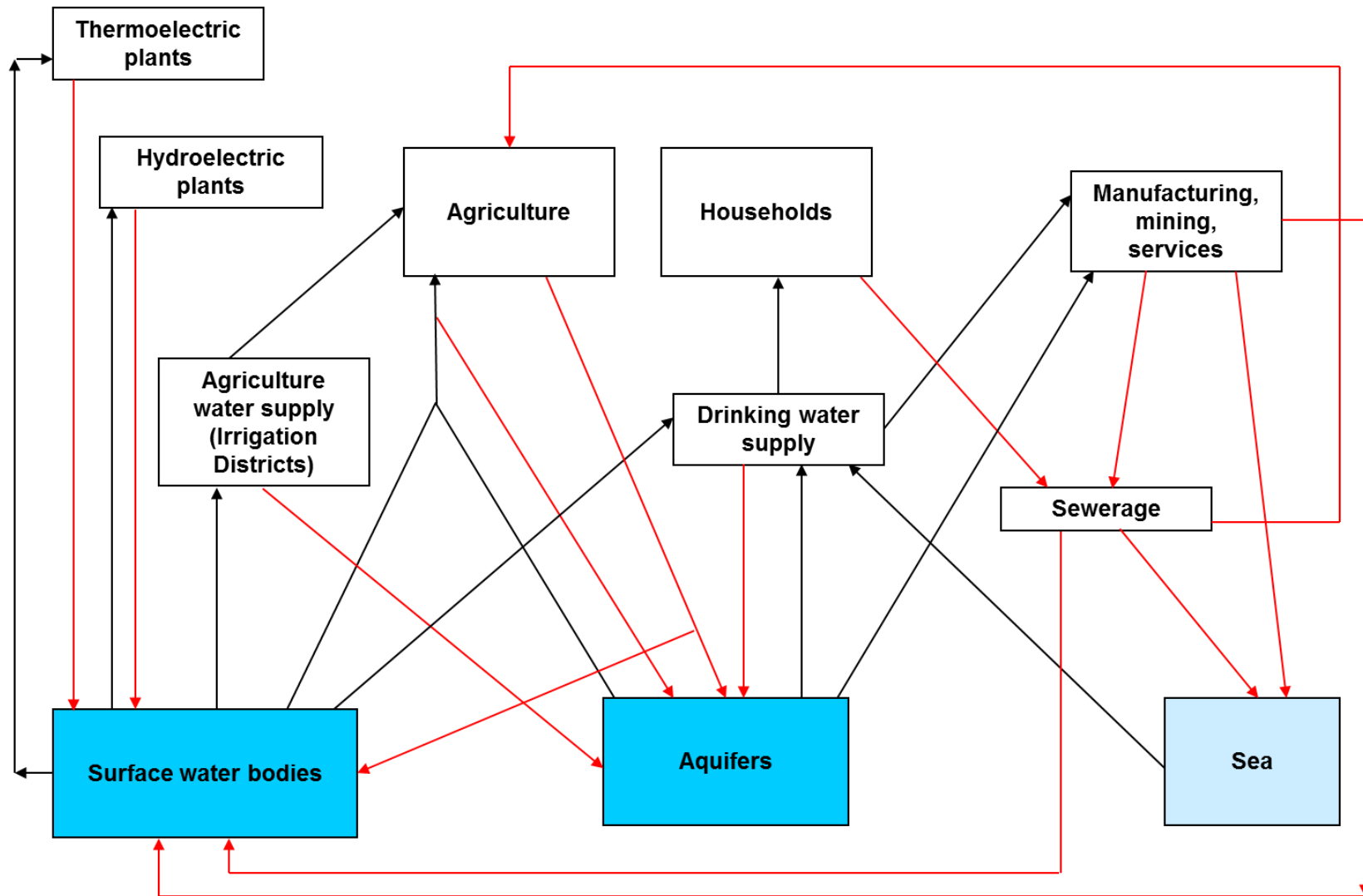
## **A Step-by-Step Introduction to Environmental –Economic Accounts for Water (SEEA-Water)**

### **Workbook**

13 June 2014  
Rev 8  
(Translation was done with version 2)

## Module I: Basic understanding of the water cycle in the economy

Template for diagram of water flows in the economy



Template for list of data items

<b>IRWS code</b>	<b>Data item</b>
E.1.1 (example)	Abstraction of surface water (example)



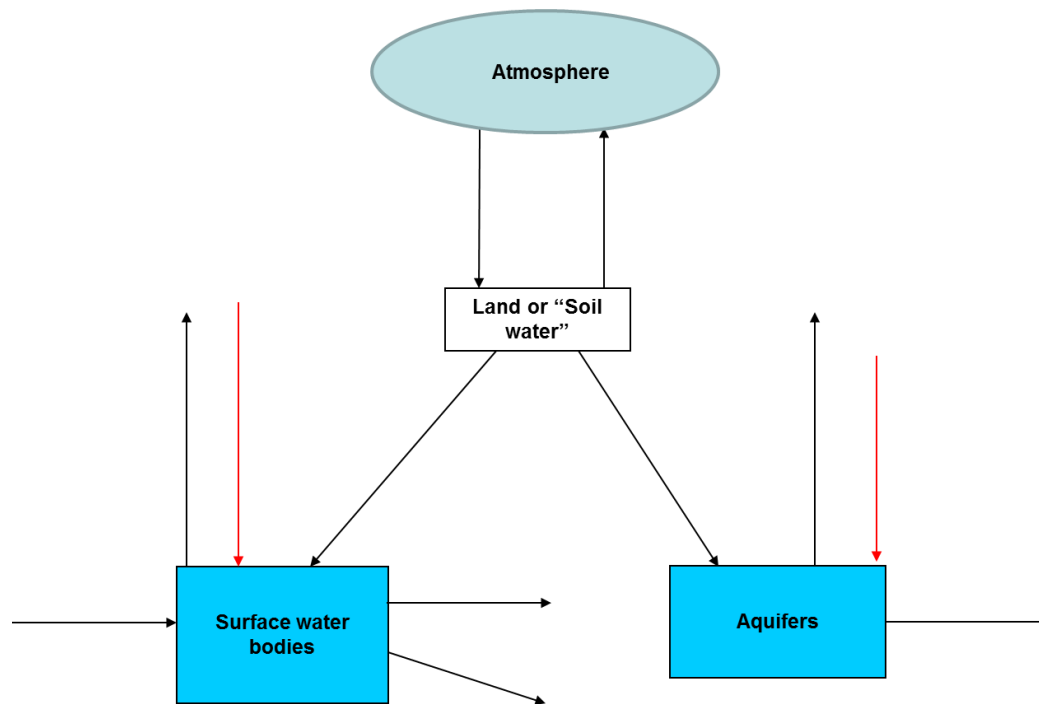
Template for activities and ISIC codes

<b>Activity</b>	<b>ISIC code</b>
Agriculture, forestry and fishing (example)	01 to 03 (example)

Activity	ISIC code

## Module II: Basic understanding of the natural water cycle

Template for diagram of water flows in the natural water cycle



Template for list of data items

<b>IRWS code</b>	<b>Data item</b>
B.1 (example)	Precipitation (example)

### Module III: Monetary supply and use tables

Template for supply table (at basic prices)

	Output					Total production	Imports	Total supply
	Agriculture	Industry and services	Electricity	Water Supply (drinking water)	Sewerage			
Agricultural products								
Industrial and service products								
Electricity								
Water ("drinking")								
Sewerage								

Template for use table (at basic prices)

	Intermediate Consumption					Intermediate consumption	Final Use			Total use
	Agriculture	Industry and services	Electricity	Water Supply (drinking water)	Sewerage		Final consumption	Gross Capital Formation	Exports	
Agricultural products										
Industrial and service products										
Electricity										
Water ("drinking")										
Sewerage										

**Module IV: Including taxes and trade margins**

Template for conversion of supply table at basic prices to purchasers' prices

	Output					Total production	Imports	Total supply at basic prices	Import taxes	Trade and transport margins	Taxes less subsidies on products	Non deductible VAT	Total supply at purchasers' prices
	Agriculture	Industry and services	Electricity	Water Supply (drinking water)	Sewerage								
Agricultural products													
Industrial and service products													
Electricity													
Water ("drinking")													
Sewerage													

The use table at purchasers' prices is provided:

	Intermediate Consumption					Intermediate consumption (purchasers' prices)	Final Use			Total use (purchasers' prices)
	Agriculture, ISIC 01-03	Industry and services ISIC 05-99, except 3510, 36, and 37	Electricity, ISIC 3510	Water Supply (drinking water), ISIC 36-A	Sewerage, ISIC 37		Final consumption	Gross Capital Formation	Exports	
Agricultural products, CPC 01-04	3	6				9	17	1	6	33
Industrial and service products CPC 11-99, excl 18, 6911 and 94110	6	16	7	1	1	31	42	33	18	124
Electricity, CPC 6911	2	12		2	1	17	7			24
Water ("drinking"), CPC 18		2				2	4			6
Sewerage, CPC 94110		3				3	3			6
	11	39	7	3	2	62	73	34	24	193

	Agriculture	Industry and services	Electricity	Water Supply (drinking water)	Sewerage	All industries
Total output at basic prices						
Intermediate consumption at purchasers' prices						
<b>Gross Value Added (GVA) at basic prices</b>						

## Module V: Monetary information related to water supply and sewerage

Template for the sequence of economic accounts for the water supply industry

		Receivable	Payable	Balance
P1	Output (at basic prices)			
P2	Intermediate consumption (at purchasers' prices)			
<b>B1g</b>	<b>Gross value added (basic prices)</b>			<b>0.0</b>
D1	Compensation of employees			
D29	Taxes on production			
D39	Subsidies on production			
<b>B2g</b>	<b>Gross operating surplus</b>			<b>0.0</b>
D4	Property income			
D5 to D7	Current transfers			
<b>B8g</b>	<b>Gross saving</b>			<b>0.0</b>
D9	Capital transfers			
P51c	Consumption of fixed capital			
<b>B101</b>	<b>Changes in net worth due to saving and capital transfers</b>			<b>0.0</b>
K	Other flows			
K	Other flows			
<b>B10</b>	<b>Changes in net worth</b>			<b>0.0</b>

Template for the sequence of economic accounts for the sewerage industry

		Receivable	Payable	Balance
P1	Output (at basic prices)			
P2	Intermediate consumption (at purchasers' prices)			
<b>B1g</b>	<b>Gross value added (basic prices)</b>			<b>0.0</b>
D1	Compensation of employees			
D29	Taxes on production			
D39	Subsidies on production			
<b>B2g</b>	<b>Gross operating surplus</b>			<b>0.0</b>
D4	Property income			
D5 to D7	Current transfers			
<b>B8g</b>	<b>Gross saving</b>			<b>0.0</b>
D9	Capital transfers			
P51c	Consumption of fixed capital			
<b>B101</b>	<b>Changes in net worth due to saving and capital transfers</b>			<b>0.0</b>
K	Other flows			
K	Other flows			
<b>B10</b>	<b>Changes in net worth</b>			<b>0.0</b>



Template for changes in net worth (water supply)

		Increases	Decreases	Balance
K	Other flows			
<b>B102</b>	<b>Changes in net worth due to other changes in volume of assets</b>			

B101	Changes in net worth due to saving and capital transfers	
B102	Changes in net worth due to other changes in volume of assets	
<b>B10</b>	<b>Changes in net worth</b>	

Template for changes in net worth (sewerage)

		Increases	Decreases	Balance
K	Other flows			
<b>B102</b>	<b>Changes in net worth due to other changes in volume of assets</b>			

B101	Changes in net worth due to saving and capital transfers	
B102	Changes in net worth due to other changes in volume of assets	
<b>B10</b>	<b>Changes in net worth</b>	



Template for the physical use table

	Agriculture, ISIC 01-03	Industry and services ISIC 05-99, except 3510, 36, and 37	Hydroelectricity, ISIC 3510	Thermoelectricity, ISIC 3510	Water Supply (drinking water), ISIC 36-A	Water Supply (irrigation water), ISIC 36-B	Sewerage, ISIC 37	Households	Environment	Total
Water ("drinking"), CPC 18-A										
Water ("irrigation"), CPC 18-B										
Reuse water										
Surface water										
Groundwater										
Seawater										
Losses										
Wastewater										
Evaporation, transpiration, incorporation into products.										

Template for the asset account

		Artificial reservoirs	Lakes	Rivers and streams	Aquifers	Land or "soil water"	TOTAL
<b>Opening stock of water</b>							
<b>Additions to stock</b>							
B.1	Precipitation						
B.2	Inflows from other countries						
D	Inflows from other inland water resources						
H.1	Returns from the economy						
<b>Reductions in stock</b>							
C.1	Evaporation and/or transpiration (evapotranspiration)						
C.2.1	Outflows to other countries						
D	Outflows to other inland water resources						
C.2.2	Outflows to the sea						
E.1	Abstractions						
<b>Closing stock of water</b>							

Template for the physical sequence of accounts

<b>1</b>	<b>Renewable water</b>	<b>Resources</b>	<b>Uses</b>	<b>Balance</b>
B.1	Precipitation			
B.2	Inflows from other countries or territories (OECD-Eurostat q. 4)			
C.1	Evapotranspiration			
<b>Bal01</b>	<b>Total Renewable Water Resources (TRWR)</b>			

<b>2</b>	<b>Outflowing TRWR &amp; returns</b>	<b>Resources</b>	<b>Uses</b>	<b>Balance</b>
	Total Renewable Water Resources (TRWR)			
H.1	Returns of water to inland water resources			
E.1 (offstream)	Abstractions from inland water resources (offstream)			
E.1 (instream)	Abstractions from inland water resources (instream)			
<b>Bal02</b>	<b>Outflowing TRWR &amp; returns</b>			

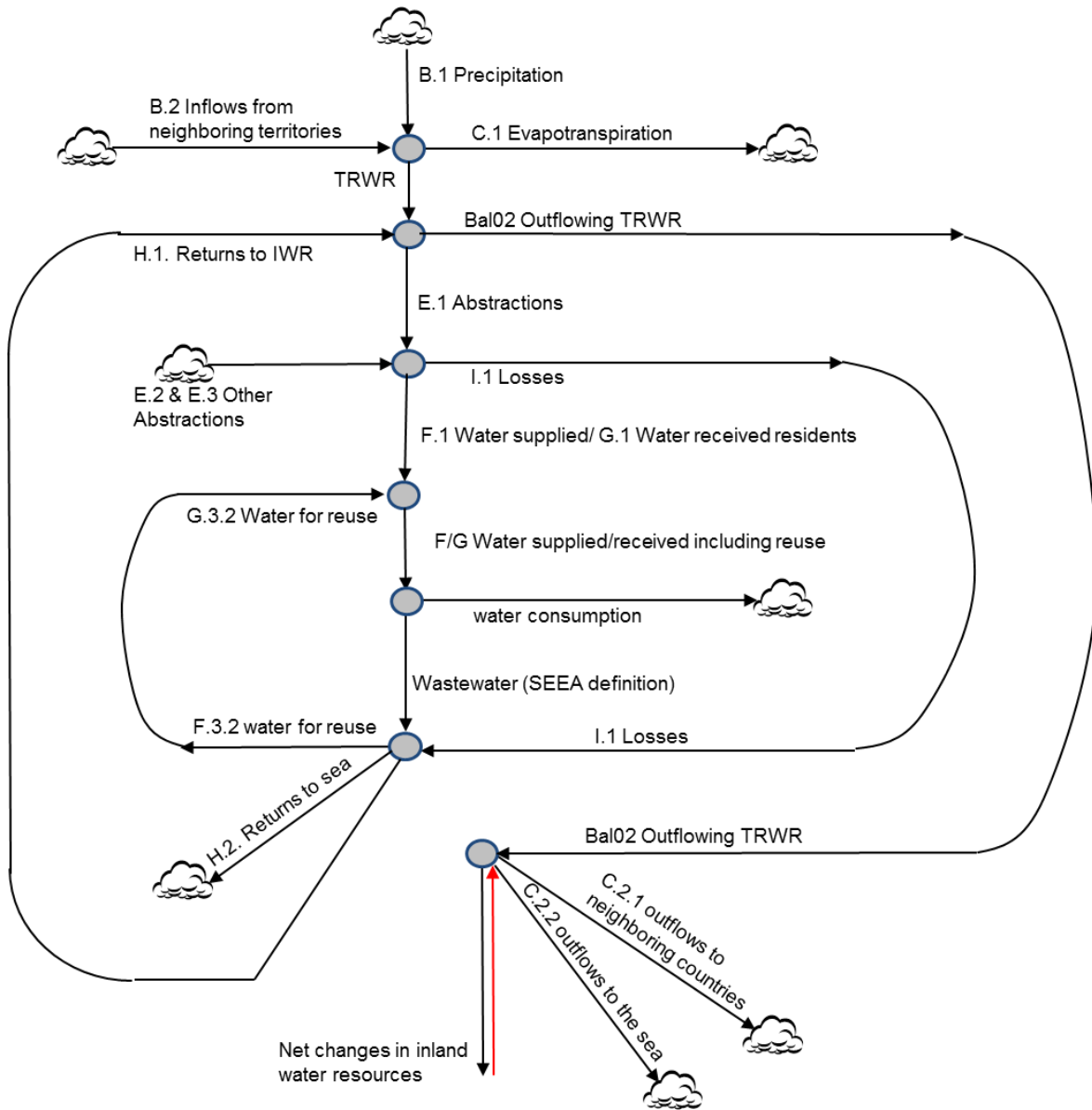
<b>3</b>	<b>Water supplied and received</b>	<b>Resources</b>	<b>Uses</b>	<b>Balance</b>
E.1 (offstream)	Abstractions from inland water resources (offstream)			
E.1 (instream)	Abstractions from inland water resources (instream)			
E.2 & E.3	Abstractions from other sources (sea & precipitation)			
G.2	Imported water			
F.3.2/G.3.2	Reused water			
I.1	Losses in transportation and distribution			
F.2	Exported water			
<b>Bal 03</b>	<b>Water supplied or self supplied to resident users</b>			

<b>4</b>	<b>Wastewater generated</b>	<b>Resources</b>	<b>Uses</b>	<b>Balance</b>
Bal 03	Water supplied/received by resident users			
	"Water consumption"			
<b>Bal04</b>	<b>Wastewater (as defined in SEEA, regardless of quality)</b>			

<b>5</b>	<b>Final balance of wastewater</b>	<b>Resources</b>	<b>Uses</b>	<b>Balance</b>
Bal04	Wastewater (as defined in SEEA, regardless of quality)			
I.1	Losses in transportation and distribution			
H.2	Returns to the sea			
F.3.2/G.3.2	Water for reuse			
<b>H.1</b>	<b>Returns of water to inland water resources</b>			

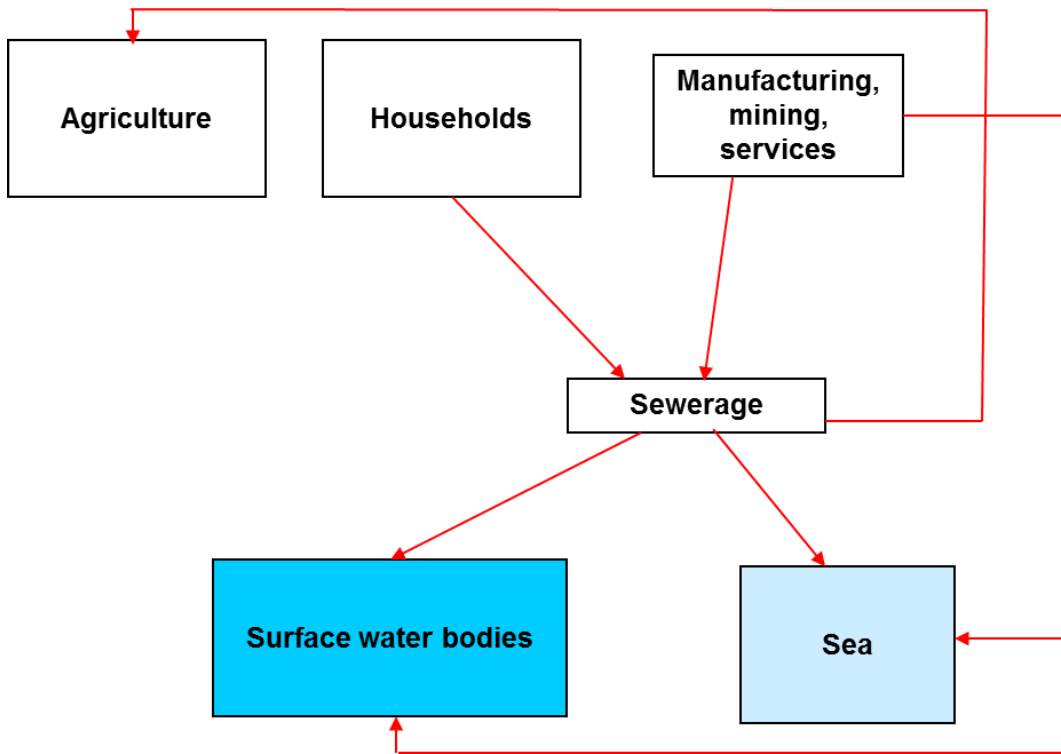
<b>6</b>	<b>Final balance of discharges</b>	<b>Resources</b>	<b>Uses</b>	<b>Balance</b>
Bal02	Outflowing TRWR & returns			
C.2.1	Outflows to neighboring countries or territories			
C.2.2	Outflows to the sea			
<b>Bal05</b>	<b>Net changes in Inland Water Resources</b>			

<b>7</b>	<b>Balance Sheet</b>	<b>Opening</b>	<b>Changes</b>	<b>Balance</b>
A.	Inland water resources			



## Module VII: Waterborne pollution

Template for diagram of pollution flows



Physical supply table for pollution releases and emissions (thousand tons per year)

	Agriculture, ISIC 01-03	Industry and services ISIC 05-99, except 3510, 36, and 37	Hydroelectricity, ISIC 3510	Thermoelectricity, ISIC 3510	Water Supply (drinking water), ISIC 36-A	Water Supply (irrigation water), ISIC 36-B	Sewerage, ISIC 37	Households	Environment	Total
<b>Emissions by test or parameter</b>										
BOD <sub>5</sub>										
<b>Releases within the economy</b>										
BOD <sub>5</sub>										



Physical use table for pollution releases and emissions (thousand tons per year)

	Agriculture, ISIC 01-03	Industry and services ISIC 05-99, except 3510, 36, and 37	Hydroelectricity, ISIC 3510	Thermoelectricity, ISIC 3510	Water Supply (drinking water), ISIC 36-A	Water Supply (irrigation water), ISIC 36-B	Sewerage, ISIC 37	Households	Environment	Total
<b>Emissions by test or parameter</b>										
BOD <sub>5</sub>										
<b>Releases within the economy</b>										
BOD <sub>5</sub>										

### Module VIII: Basic Indicators

Template for combining physical and monetary information

	Agriculture, ISIC 01-03	Industry and services ISIC 05-99, except 3510, 36, and 37	Hydroelectricity, ISIC 3510	Thermoelectricity, ISIC 3510	Water Supply (drinking water), ISIC 36-A	Sewerage, ISIC 37	Households
Gross Value Added (GVA) at basic prices (bk/year)							
Water used (hm <sup>3</sup> /year)							
Releases (thousands of tons BOD <sub>5</sub> /year)							
GVA/water used (kulkis/m <sup>3</sup> )							
GVA/organic pollution releases (kulkis/kg BOD <sub>5</sub> )							

## Module IX: Dynamic behavior

Template for recording time series

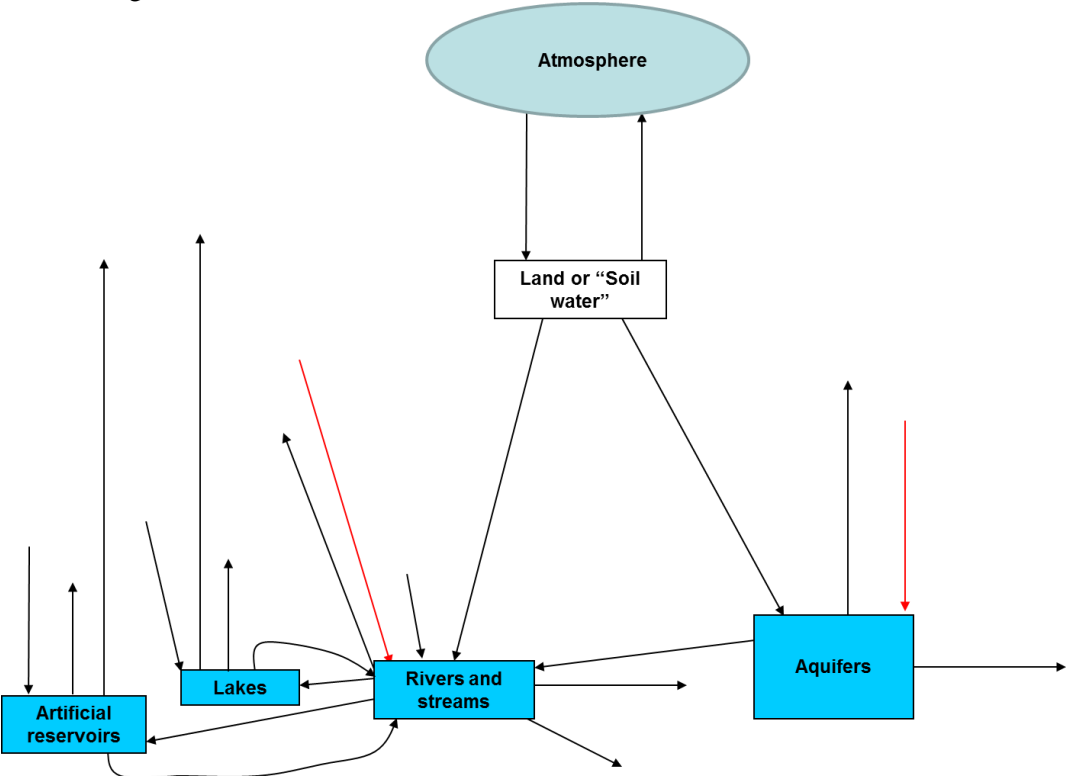
Year	1	2	3	4	5
B.1 Precipitation					
D.5 Surface runoff (20% of B.1)					
D.6 Infiltration (5% of B.1)					
B.2 Inflows					
H.1 Returns					
C.1 Evapotranspiration (B.1-D.5-D.6)					
C.2.1 Outflows to other countries					
C.2.2 Outflows to the sea					
E.1 Abstractions					

Additions to stock (B.1+B.2+H.1)					
Reductions in stock (C.1+C.2.1+C.2.2+E.1)					
Difference					

Initial stock of inland water resources					
Closing stock of inland water resources					

# Module X: Adding Details to the Accounts

Template for the diagram



Template for the asset account table

		Artificial reservoirs	Lakes	Rivers and streams	Aquifers	Land or "Soil water"	TOTAL
	<b>Opening stock of water</b>						
	<b>Additions to stock</b>						
B.1	Precipitation						
B.2	Inflows from other countries						
D	Inflows from other inland water resources						
H.1	Returns from the economy						
	<b>Reductions in stock</b>						
C.1	Evaporation and/or transpiration (evapotranspiration)						
C.2.1	Outflows to other countries						
D	Outflows to other inland water resources						
C.2.2	Outflows to the sea						
E.1	Abstractions						
	<b>Closing stock of water</b>						