



Economic and Social Commission for West Asia



# Environmental Economic Accounts as a Mainstreaming Tool

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# The System of Environmental-Economic Accounts (SEEA)

Measurement framework for the environment and its interrelationship with economy.

Applies accounting rules to environmental information, consistent with international statistical standards and recommendations i.e the SNA, the International Recommendations for Water (IRWS) Statistics and the International Recommendations for Energy Statistics (IRES).

London Group, UNCEAA and UNSD

# SEEA

## Economy

## Territory

### Actors

- Enterprises
- Households
- Government
- Non-profit institutions

### Activities

- Production
- Consumption
- Accumulation

### Instruments

- Financial/Monetary
- Taxes/subsidies
- Financing
- Resource rent
- Permits

### Analytical and Policy Frameworks

- Productivity analysis
- Natural resource management
- Climate change
- Green Growth/Green Economy

## Environment

### Natural Resources (stocks)

- Land
- Water
- Ecosystems
- Soil
- Etc.

### Natural Resource flows

- Materials
- Energy
- Water
- Ecosystem services
- Etc.

Land/  
Resource use/  
Ecosystems

Emissions/  
waste



# SEEA Flexibility

SNA

SEEA

Subaccounts

SEEA-WATER

SEEA-ENERGY

SEEA-FISHERIES

SEEA-FOREST

SEEA-AGRICULTURE

SEEA-LAND and  
ECOSYSTEMS



# UNCEEA Minimum required dataset

Physical flow accounts

- Air emission accounts (at least, greenhouse gas emissions),
- Water accounts
- Energy accounts (with a key focus on the use, table), mineral and energy resources (in physical and monetary units);

Asset accounts

Monetary flow accounts

- Environmental expenditure accounts (EPEA)
- Environmental taxes and emission permits,
- Land (forest) accounts

**Ref.: Initiating a SEEA Implementation Program – A First Investigation of Possibilities . Paper prepared by Bram Edens, Mark de Haan, and Sjoerd Shenau of Statistics Netherlands. ESA/STAT/AC.238. UNCEEA/6/19**



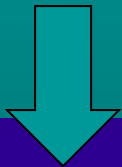
# SEEA for Policy and Research

- Framework for deriving OECD green growth indicators.
- Measuring/monitoring progress in green economy by the Environment Management Group
- The Convention of Biodiversity (CBD) Secretariat to develop a set of indicators derived from the SEEA and to contribute to the development of the SEEA Experimental Ecosystem Accounts.
- Tool for researchers carrying out input-output analyses and as organizing framework for footprint analyses.



# The revised SEEA 2012

PART I  
The Central  
Framework



PART II  
Experimental  
Ecosystem  
Accounts  
(under  
development)

PART III  
Extensions  
and  
Applications  
(under  
development)

Submitted to 43d Statistical Commission February 2012  
to be adopted as statistical standard relies on SEEA  
1993, SEEA 2003. Item 3(e) Process of drafting of the  
SEEA Central Framework



## *Central Framework (Chapters 1 to 6) :*

- **Physical flow accounts:** natural inputs, products and residuals, physical supply and use tables for energy, water and various material flows, including air emissions, water emissions and solid waste
- **Environmental activity accounts and related flows:** Transactions related to environmental activities, Environmental Protection Expenditure Accounts (EPEA), Environmental Goods and Services Sector (EGSS), environmental taxes, environmental subsidies and transfers
- **Asset accounts:** recording stocks and flows on environmental assets: mineral and energy resources, land, soil, timber, aquatic resources, other biological resources, and water resources. Net present value (NPV) approach to the valuation of environmental assets, and discount rates.
- **Integrating physical and monetary accounts**





# Ecosystem accounts

- Aims at integrating information on environmental sustainability and human well-being.
- Need for better understanding of what ecosystems provide in terms of both market and non-market goods and services and what attributes of ecosystems are crucial for maintaining these flows of value to society.
- Part II of the revised SEEA on framework for experimental ecosystem accounts will provide a description of the structure and scope of ecosystem accounts and is coordinated by UNSD, EEA and the WB WAVES Global Partnership



# Conceptual framework for ecosystem accounting in SEEA

- (i) Overview of the conceptual framework
- (ii) Physical **asset** accounts for ecosystems and measures of environmental health
- (iii) Physical **flow** accounts for ecosystem
- (iv) **Monetary** valuation



## Fundamental statistical unit

- Ecosystem as a functional unit identified as spatial areas, that has

## *Classifications for ecosystem services and assets CICES*

- provisioning, regulation and maintenance, and cultural.

## *The issue of scale*

- re-scaling existing socio-economic

## Physical asset accounts

statistical units of ecosystem accounts utilize their 'assets' for production of goods and services

## Physical flow accounts for ecosystems

## Monetary valuation

consistency with the SNA  
significant challenges.



# Experimental Ecosystem Accounts

## List of Issues for the revision

Issue 1 – Policy applications of ecosystem accounts

Issue 2 – Structure of accounts

Issue 3 – Land cover mapping, land cover classifications and accounting units

Issue 4 – Carbon, nutrients and soil accounts

Issue 5 – Landscape accounts and ecological potential

Issue 6 – Biodiversity accounts and indexes

Issue 7 – Ecosystem capacity/Total Ecological Potential

Issue 8 – Classification of Ecosystem Services

Issue 9 – Prioritization of ecosystem services

Issue 10 - Principles of monetary valuation  
<http://unstats.un.org/unsd/envaccounting/seearev/>



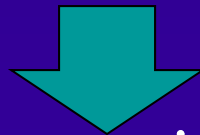
# Ecosystem services

- The functions of ecosystems providing benefits to human well-being Common International Classification for Ecosystem Services (CICES) to integrate and compare across potential data sources for ecosystem service
- CICES consistent with accepted typologies currently in use and compatibility with SEEA.
- CICES cross-tabulated with Central Products Classification (CPC 2), and the Classification of Individual Consumption by Purpose (COICOP).
- Proposal for a different classification for marine ecosystems by Anne Boehnke-Henrichs, Dolf deGroot and Salman Hussain for economic value calculation.
- MA update process and ES applications (InVest, ARIES...).



# The need for environmental–economic accounting in the ESCWA region

- ESCWA member countries rely heavily on non-renewable resources ( oil, natural gas) to assist its economic growth
- ESCWA Average per capita :
  - Conventional water 1,124 m<sup>3</sup> in 2007 (World 7,000 m<sup>3</sup>)
  - CO<sub>2</sub> emissions 4.8 tons in 2007, (World 4.3 tons )
  - Energy consumption 2.1 TOE in 2009 (0.027 in Sudan to 20.9 in Qatar)
  - Land degradation
  - Average annual population growth rate (1.2%) (World 0.3)



Constraints to sustainable development



# Intervention Arenas

- I. Funding
- II. ESCWA's Coordination with UN and Regional Organizations
- III. UNSD Technical Assistance to Regions
- IV. Facilitating Bilateral Cooperation
- V. Advocacy at high level
- VI. Methodological Documents
- VII. Engaging in the revision of SEEA



# I-Funding

ESCWA's Extra Budgetary Projects to Develop Statistical capacity of countries:

- Project on Environment Statistics and Accounts (ESIAP) 2007-2010 with ECLAC
- Project on Energy Statistics and Balance 2011-2013 in ESCWA
- ESCWA projects on green Economy with UNSD and other regional commissions





## II-ESCWA's Coordination with UN and Regional Organizations

on environmental accounting:

- UNSD, ECLAC, UNEP
- Medstat/ Eurostat
- EEA
- LAS
- WB



# IV-Facilitating bilateral cooperation

North-South and South-South

- V-Advocacy at high level



# VI-ESCWA Publications

Framework for Environmental  
Economic Accounting in the  
ESCWA Region



United Nations Economic and Social Commission for Western Asia

إطار للمحاسبة  
البيئية الاقتصادية  
في منطقة الإسكوا



الأمم المتحدة - اللجنة الاقتصادية والاجتماعية لغربي آسيا

<http://www.escwa.un.org/information/publications/edit/upload/sd-09-3.pdf>



# VII-Participation at Revision of SEEA

- At the IRWR and IRES
- At the SEEA Revision:
  - ESCWA input and member countries inputs:
  - Palestine-PCBS (Chapters 2, 3,4,5) Lebanon-CAS (Chapters 3,4,5), Jordan-DOS (Chapter 5)
  - <http://unstats.un.org/unsd/envaccounting/seearev/chapterList.asp?volid=1>

## Environment Statistics, Indicators and Accounts Project (ESIAP)

for ESCWA-Arab Region  
and ECLAC

About ESCWA

Partners

Topics

Contact Us

- » Home
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- » Expected Results
- » ESCWA Activities
- » ECLAC Activities
- » ESIAP Docubase
- » ESIAP Forum
- » ESIAP Database
- » ESIAP Network
- » Questionnaire 2010 on  
Environment Statistics
- » Publications

### Home

"Strengthening National Capacities in Environment Statistics, Indicators and Accounts Project" (ESIAP) in support of progress toward achieving the internationally agreed development goals in the ESCWA and ECLAC Regions" is a development account project that aims to strengthen National Capacities of ESCWA and ECLAC countries in the collection, coverage, dissemination and exchange of reliable, timely and comparable environment statistics, indicators, and accounts taking advantage of an integrated environmental statistical system approach (IESS) to provide policy makers with tools to monitor and ensure environmental sustainability in line with national and internationally agreed development goals (IADGs) such as WSSD and MDGs.

The 2-years project includes missions to countries, expert group meetings, regional and sub-regional workshops, fellowships, development of database and docubase, and the development of a network for experts and institutions in the field to learn from their peers and exchange success stories and lessons learned.

### News

- ✚ Fellowship
- ✚ Missions
- ✚ Project Final Report
  - ☐ ESIAP Final Report
  - ☐ ESIAP Final Report- Annexes
- ✚ Training Workshops
  - ☐ National Workshop on Environment Statistics in Sudan, 2-4 November 2010
  - ☐ UN Regional Meeting on Environment Statistics and Accounts and Evaluation of the ESIAP project, 7-9 April 2010
  - ☐ National workshop on Environment Statistics and Water Accounts in Yemen, 21-24 June 2010
  - ☐ LAS First Meeting of the Arab Working Group on Environment and Sustainable Development Indicators, 15-17 March 2010
  - ☐ Expert Group Meeting on Environmental Accounting for the ESCWA Region, 14-16 October 2009

### Links

International Institute for Sustainable Development  
Gulf Cooperation Council  
Arab Water Council

- ✚ Bahrain
- ✚ Egypt
- ✚ International and Regional Resources
- ✚ Iraq
- ✚ Jordan
- ✚ Kuwait
- ✚ Lebanon
- ✚ Oman
- ✚ Palestine
- ✚ Qatar
- ✚ Saudi Arabia
- ✚ Sudan
- ✚ Syria

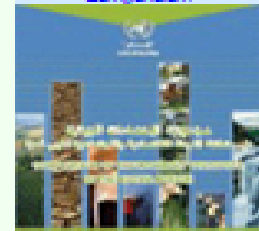
### Info Corner

ES Information



### Arabic

Compendium





# Assessment of Environment SEEA in ESCWA after the project

## 3 years on Water Accounts and EPEA

Country	not started yet	recently started Pilot Accounts	Cover certain components of water accounts	advanced experience (Water accounts inc. Monetary accounts)
UAE, Qatar, Kuwait , Saudi Arabia, Sudan, Yemen	X			
Iraq		X		
Lebanon, Syria, Palestine, Oman, Bahrain			X	
Jordan, Egypt				Started a unit for EEA-



# EPE for Jordan

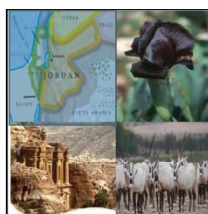
Distr.  
LIMITED

E/ESCWA/SD/??/

ORIGINAL: ARABIC



اللجنة الاقتصادية والاجتماعية لغربي آسيا (الإسكوا)



نفقات القطاع العام على البيئة

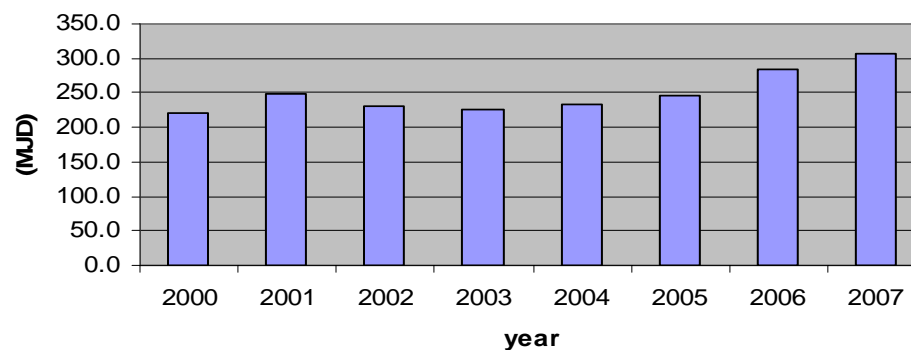
دراسة حالة: الأردن

Public Environmental Expenditures

Case Study: Jordan

2009

Total Public Environmental Expenditures (MJD)



Total Public Environmental Expenditures (MJD)

[http://css.escwa.org.lb/sd/1097/Env\\_Exp\\_Jordan\\_Ar.pdf](http://css.escwa.org.lb/sd/1097/Env_Exp_Jordan_Ar.pdf)



		Industries (by ISIC categories)					Househol ds	Total	
		1	36	37	others	Total			
From the environme nt	U1 - Total abstraction	506	294	0.0	49.0	849	0.0	849	
	a.1- Abstraction for own use	506	0.0	0.0	49.0	555	0.0	555	
	a.2- Abstraction for distribution	0.0	294	0.0	0.0	249	0.0	249	
	b.1- From water resources:	506	294	0.0	49.0	849	0.0	849	
	* Surface water	261	80	0.0	4.0	345	0.0	345	
	* Groundwater	245	214	0.0	45.0	504	0.0	504	
	*Soil water	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	b.2- From other sources	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	* Collection of precipitation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	* Abstraction from the sea	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Within the economy	U2 - Use of water received from other economic units	91	0.0	113	0.0	202	147	351
		<i>of which:</i> Reused water	91	0.0	0.0	0.0	91	0.0	91
Wastewater to sewerage		0.0	0.0	113	0.0	113	0.0	113	
Total use of water = U1+U2=		1200							






		Industries (by ISIC categories)					Households	Total
		1	36	37	other s	Total		
Within the economy	S1- Supply of water to other economic units	0.0	147	91	23	271	90	351
	<i>of which:</i> Reused water	91	0.0	0.0	0.0	91	0.0	91
	Wastewater to sewerage	0.0	0.0	0.0	23	23	90	113
To the Environment	S2- total returns= (D1+D2)	60	140	6	5	211	0.0	211
	D1- to water resources	60	140	6	5	211	0.0	211
	* surface water	5	10	6	5	23	0.0	23
	* ground water	50	10	0.0	0.0	60	0.0	60
	* soil water	5	120	0.0	0.0	125	0.0	125
	D2- to other sources	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total supply of water = S1+S2=		562						
Water consumption= total use – total supply		638						



# Hybrid accounts for supply and use of water, Egypt, 2009 (Billions Egyptian Pounds, MCM)

جدول الحسابات المختطة الريادي لعرض واستخدام المياه ، مصر ، ( 2009مليار متر مكعب)

	Industries (by ISIC categories)								Rest of the world	subsidies on products, trade and transport margins	n		Capital Formation	Total
	ISIC 1-3	ISIC 5-33, 41-43	ISIC 35		ISIC 36	ISIC 37	ISIC 38,39, 45-99	Total industry			Households	Government		
			Total	of which: Hydro										
<b>1. Total output and supply</b> (Billions EP) <i>of which:</i>	137.6	749.0	22.1	3.3	1.7	9.0	367.0	1,286.4	363.0	70.0				1,719.4
1.a. Natural water (CPC 1800)	-	-	-	-	1.7	-	-	1.7	-	-0.1				1.6
1.b. Sewerage services (CPC 941)	-	-	-	-	-	9.0	-	9.0	-	-				9.0
<b>2. Total intermediate consumption and use</b> (Billions EP) <i>of which:</i>	72.9	419.4	9.9	1.1	1.1	1.7	157.8	664.0	403.0		452.8	53.6	146.0	1,719.4
2.a. Natural water (CPC 1800)	-	-	-	-	-	-	-	-	-		-	-		
2.b. Sewerage services (CPC 941)	-	-	-	-	-	-	-	-	-		0.1	-		
<b>3. Total value added (gross)</b> (= 1-2) (Billions EP)	64.7	329.5	12.2	1.8	0.6	7.3	209.2	622.4	-					622.4
<b>4. Gross fixed capital formation</b> (Billions EP) <i>of which:</i>	6.6	65.7	13.1		11.8	10.5	23.7	131.4						131.4
4.a. for water supply		-			11.8	0.0		11.8						11.8
4.b. for water sanitation		-				10.5								
<b>5. Stocks of fixed assets for water supply</b> (Billions EP)		-			197.1	0.0								
<b>6. Stocks of fixed assets for water sanitation</b> (Billions EP)		-				132.5								
<b>7. Total use of water</b> (Millions m³)	61.6	1.4	8.6	-	8.2	4.4			-		5.8	-		
7.a. (U1) Total Abstraction	61.6	0.7	8.6	-	8.2	-					-	-		
<i>of which:</i> 7.a.1- Abstraction for own use	-	-	8.6	-	-	-					10.8	-		
7.b. Use of water received from other economic units	-	0.7	0.0	-	-	4.4			-		5.8	-		
<b>8. Total supply of water</b> (Millions m³)	27.0	0.7	8.6	-	8.2	4.4		235.9	-		4.1	-		240.0
8.a. Supply of water to other economic units	-	0.7	-	-	5.7	-		6.4	-		3.7	-		10.1



# Challenges in SEAA-Ecosystems Accounts Implementation in MSs

1. Slow process: of Central Framework, only water accounts not including monetary accounts are in place
2. Legislation and Reinforcement
3. Accounting requirements for Monetary Accounts, EPE, Taxes Transfers, Subsidies, Permits, Licenses
4. Use of common concepts, definitions and classifications within and across countries
5. Quality of data
6. Established sustainable system for national coordination
7. Need for aggregate indicator



# Role of Organizations to Implement SEEA

1. Awareness raising to the different governmental institutions (high level and technical staff)
2. Additional Funding (World Bank to develop project like COED for MENA)
3. Pilot projects
4. Technical assistance on development and implementation of the SEEA subaccounts according to country's priorities
5. Sharing Data /Questionnaires and verifying and checking data, contacting and following-up with countries for clarifications and corrections



# Role of Organizations to Implement SEEA

6. Mapping of activities and organizing joint trainings and missions on Accounts (training material, bilingual, coordinated assistance)
7. Adding countries concerns and comments in manuals and recommendations
8. Web Portal on Environmental Accounting for each region and sharing lessons learned



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