

# Environment Statistics: Status and opportunities for Asia & the Pacific

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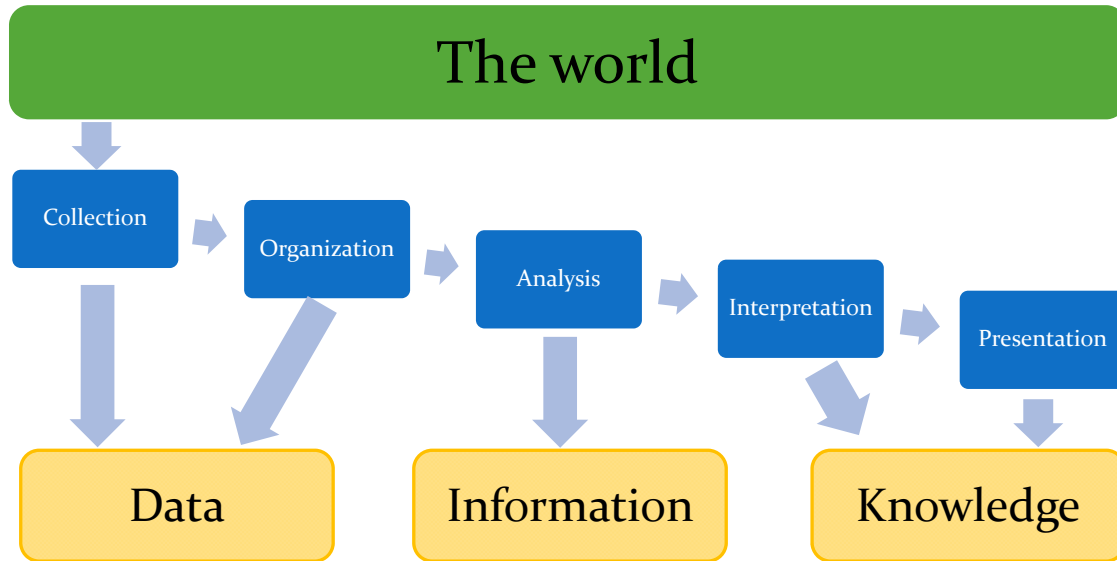
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## Highlights of Presentation

- Environmental statistics are:
  - *interdisciplinary* and *inter-institutional*
  - *transformed* by the need for integrated decision making
- Requires well-functioning and integrated National Statistical Systems
- We have (some of) the technology!
- ***ESCAP can support you in this transformation***

## Statistics are more than $\chi^2$ and databases!



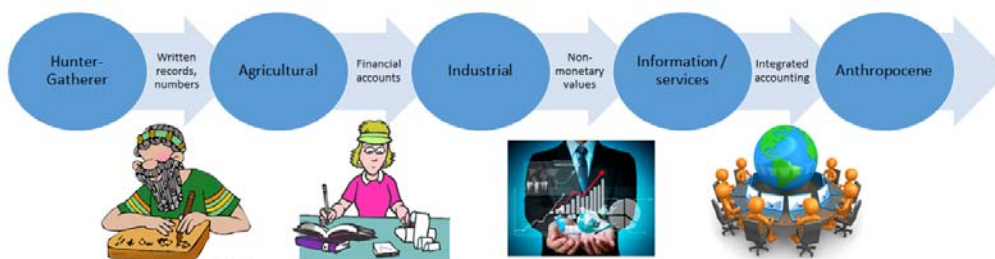
## Observations on accounting:

*...if accountants adopted integrated thinking when advising businesses, there will be a blockbuster movie about accountants because they will have enabled **human society to move as a sustainable society into the twenty-second century***

- Jane Gleeson-White, 2015. *Six Capitals: The revolution capitalism has to have – or Can accountants save the planet?*

*If we managed our economy the way we manage our environment, we'd still be hunter-gatherers.*

- Michael Bordt, 2015

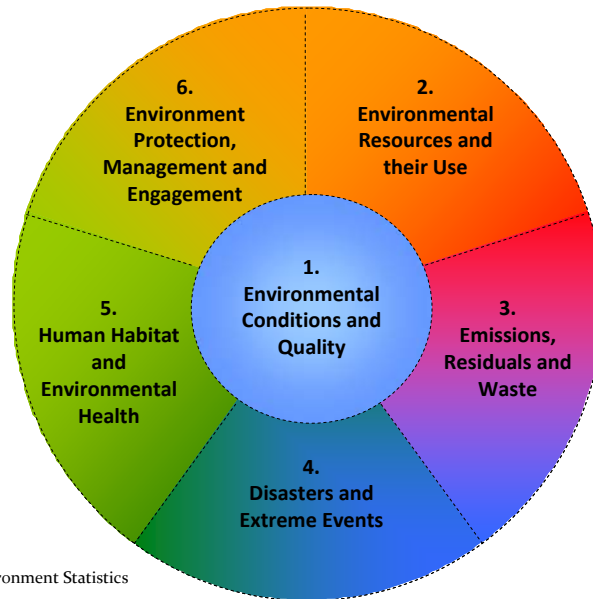


## Scope: Environment statistics are interdisciplinary and inter-institutional

Environment statistics encompass:

- the state of the environment,
- our dependence on it,
- our impact on it,
- it's impact on us (even negative ones), and
- how we protect and manage it.

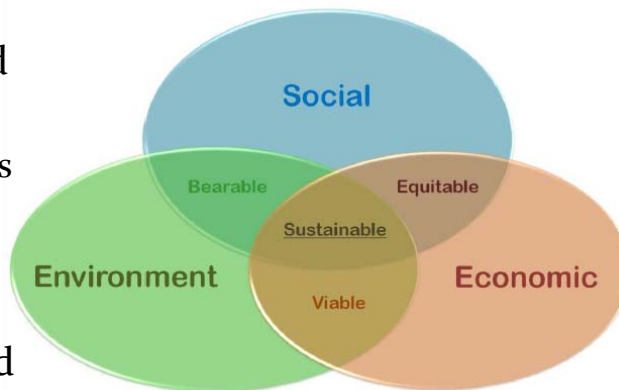
**Information from many institutions using different methods, concepts and classifications**



FDES: Framework for the Development of Environment Statistics

## The need for integration: example

- People need water, food and energy
  - While limiting impacts on climate change
- **Viable** energy options may limit **equitable** access to water and food while contributing to **unbearable** climate change
- **Local optimization doesn't work any more!**



New **statistical tools** enable us to quantify these linkages and understand the trade-offs.

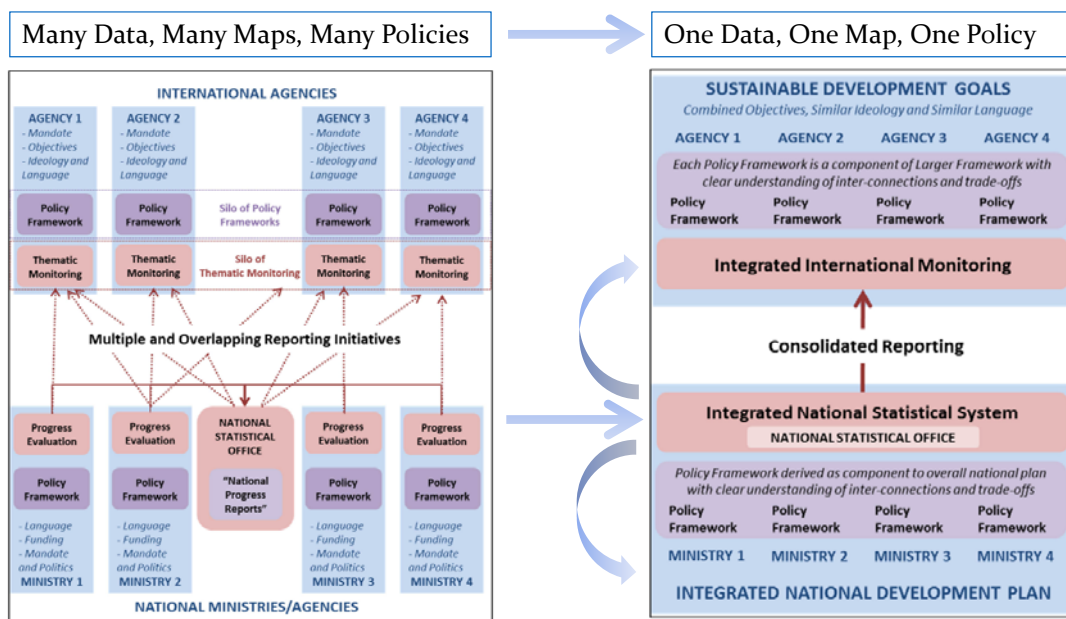
# About parts and integration

*“Both the science of parts and the science of the integration of parts are essential for understanding and action. Those more comfortable in exercising only one of these have the responsibility to understand the other. Otherwise:*

- *the science of parts can fall into the trap of providing **precise answers to the wrong question** and*
- *the science of the integration of parts into providing **useless answers to the right question.**”*

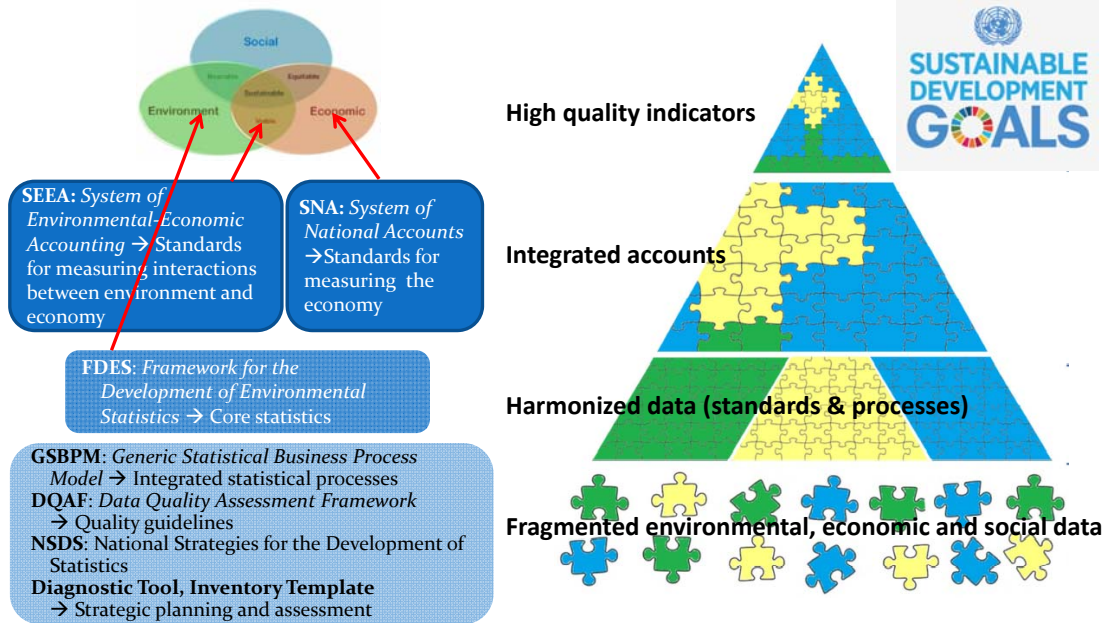
CS Holling, 1998, *Two Cultures of Ecology*

# Transformative agenda for official statistics



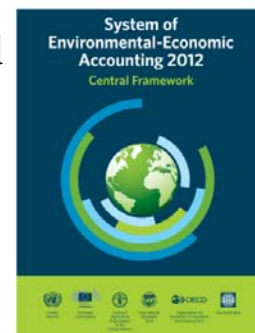
Source: Adapted from UNSD

# Statistical tools for integration



# SEEA Features

- A coherent measurement framework linked to SNA:
  - Common concepts, classifications and methods
- Based on accounting principles & systems theory:
  - Stock/flow → asset/use
  - Double/quadruple entry → supply = use
  - Time of recording
  - Consistent units of measure & valuation rules
- Flexible and modular
  - Selected and adapted components to needs
  - Don't need to be complete to be useful



# Environment statistics components

<b>SEEA-CF</b> (Central Framework)	<ul style="list-style-type: none"> <li>• <b>Assets</b></li> <li>• <b>Physical flows</b></li> <li>• <b>Monetary flows</b></li> </ul>	<ul style="list-style-type: none"> <li>• Minerals &amp; Energy, Land, Timber, Soil, Water, Aquatic</li> <li>• Materials, Energy, Water, Emissions, Effluents, Wastes</li> <li>• Protection expenditures, taxes &amp; subsidies</li> </ul>
<b>SEEA Water;</b> <b>SEEA Energy;</b> <b>SEEA Agriculture, Forestry and Fisheries</b>	Add sector detail	As above for Agricultural, Forestry and Fisheries sectors
<b>SEEA-EEA</b> (Experimental Ecosystem Accounting)	Adds spatial detail and ecosystem perspective	Extent, Condition, Ecosystem Services, Carbon, Water, Biodiversity
<b>FDES</b> (Framework for the Development of Environment Statistics)	Basic statistics for above plus...	<ul style="list-style-type: none"> <li>• Extreme events and disasters</li> <li>• Human settlements and health</li> <li>• Protection, management &amp; engagement</li> </ul>

# International platforms for integration



## ESCAP Vision

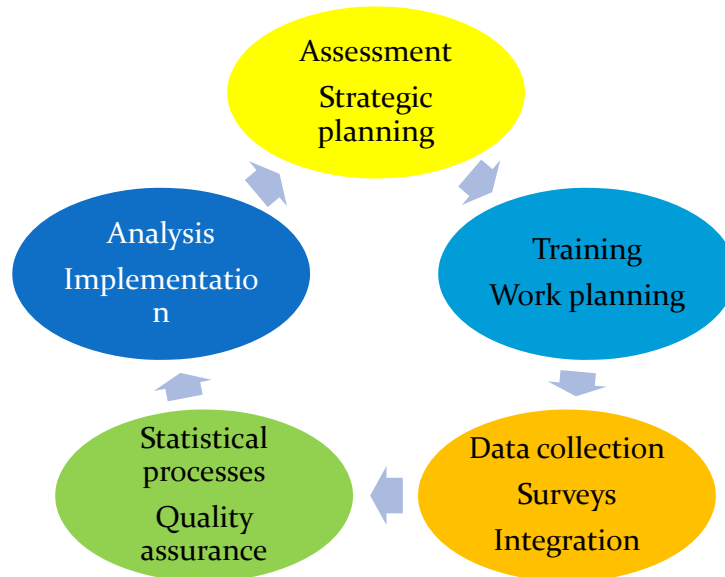
*...to be the most comprehensive multilateral platform for promoting cooperation among member States to achieve inclusive and sustainable economic and social development in Asia and the Pacific*



## ESCAP: Statistics Division

- Coordinates the ESCAP **Committee on Statistics**
  - Key trends
    - *ESCAP Statistical Database*
    - *Statistical Yearbook for Asia and the Pacific*
    - *Did You Know?*
  - **Data** requirements and international **standards** for analysis
  - **Capacity building / Advisory services** on
    - Economic
    - ***Environment, Agriculture and Disaster***
    - Population, Social and Gender
    - Civil Registration and Vital Statistics
    - Modernization of statistical production and services
    - Statistical governance
- Co-manage Statistical Institute for Asia and the Pacific (SIAP)

## Advisory services



## Integrating our work through SDGs

- Statistics are **required** to monitor and report on national policy priorities and SDGs
- An **opportunity** for NSOs to strengthen capacity
- ESCAP:
  - Sub-regional workshops support **linking** SDG indicators to national development priorities (economic, social, environment)
  - In-depth sub-regional workshops on **environment statistics**: strategic planning, training, work planning
    - Diagnostic Tool, Inventory template, SEEA, FDES



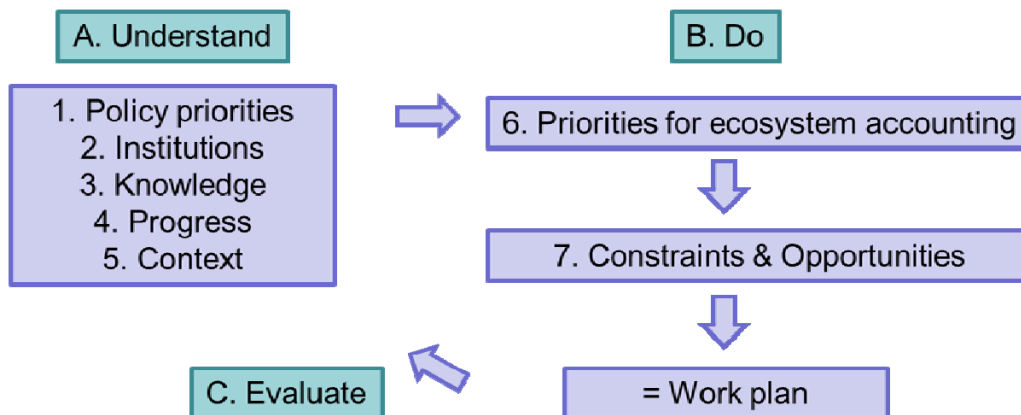
# Initiatives on environment statistics

Stage	Countries
<b>Requested</b>	Myanmar, Kiribati, Vietnam, Philippines
<b>Planned</b>	Sub-regional assessment/training
<b>Assessment</b>	FSM, Malaysia, Maldives, Palau, Samoa, Vanuatu
<b>Training</b>	Malaysia (with UNSD); Pacific Sub-region
<b>Implementation</b>	Fiji, Nepal
<b>UNSD Pilot</b>	Bhutan, Indonesia, Vietnam

# Basic tools

## Diagnostic Tool

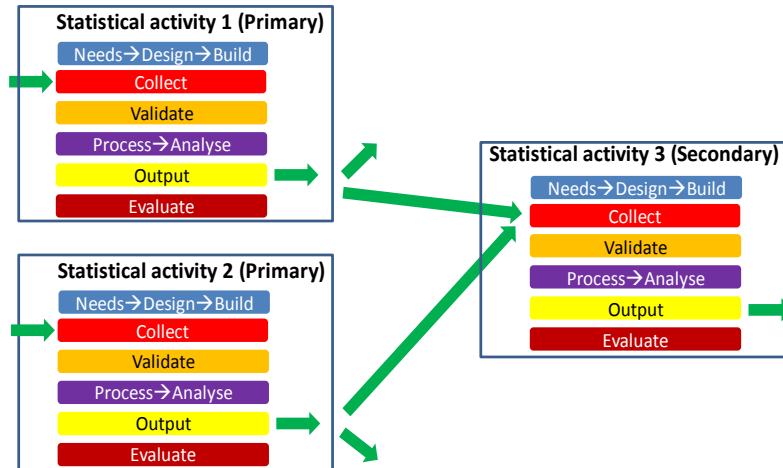
- Guide conversation about priorities



# Basic tools

## Inventory template for environment statistics

- To document external statistical “supply chain”



# Basic tools

## Statistical and institutional mechanisms

- Leadership
- Funding
- Monitoring
- Implementation plan



## Advanced tools

- Indicators, reporting, communications
- Surveys, administrative data
- SEEA Accounts
- Statistical processes (GSBPM)
- Data exchange (SDMX)
- Geographic Information Systems (GIS)
- Modelling
- “Big data” & alternative data sources

## Advisory approach for environment statistics

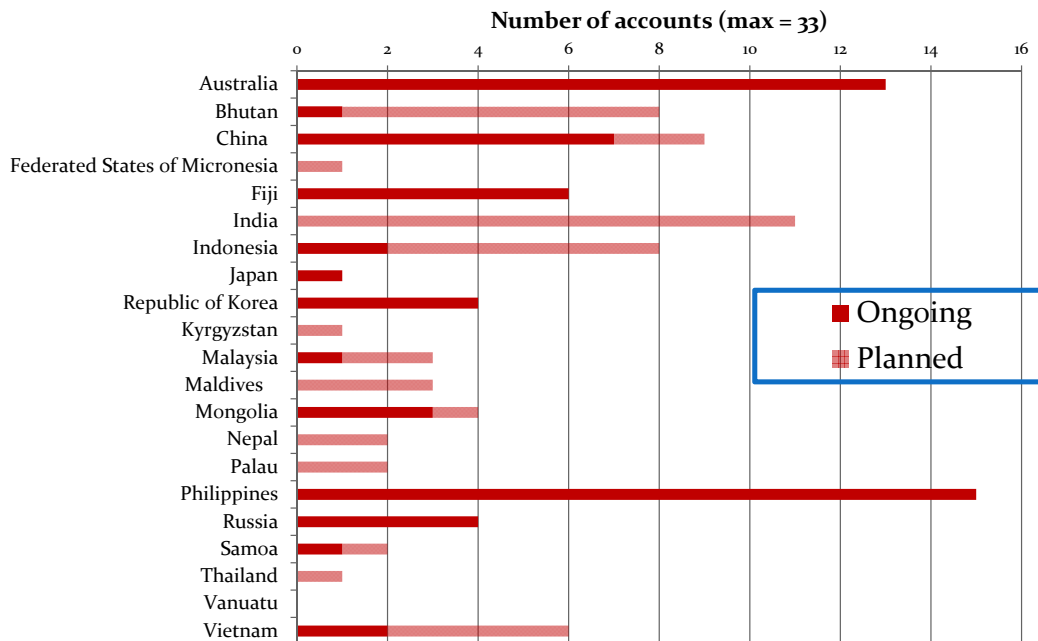
1. **Letter of introduction** → all NSOs and ACPR (Advisory Committee of Permanent Representatives)
  - Informal request for services
  - Teleconference to focus on requirements
  - Formal request for services
2. **Scoping/Assessment**
  - **Diagnostic Tool:** Vision, stakeholders, policy priorities, available data/knowledge, technical capacity, constraints, opportunities → priority statistics
  - **Inventory Template:** Metadata for environmental databases
3. **Training/Work Planning**
  - High-level stakeholder meeting → Work Plan
  - Focussed training (country & sub-regional)

# Regional\* SEEA implementation

- Globally, 54/85 countries have **ongoing** SEEA accounts
  - 15/85 are **planning** SEEA accounts
- Asia/Pacific region (23 responses)
  - 14 with ongoing SEEA accounts (+5 planning)
- Regional initiatives to advance SEEA implementation
  - ESCAP
    - Committee on Statistics encouraged implementation
    - Member country requests
  - UN DA programme on statistics and data
  - UNEP/SCBD/UNSD project (2014-15) in 3 regional pilots
  - World Bank WAVES

\*UNSD 2015 Global Assessment; 85 countries responding (44% response rate).

## Asia and the Pacific SEEA Progress (preliminary)



## Conclusions

- ESCAP is here to help in improving environment statistics
  - Start with self-assessment (Diagnostic Tool)
  - Request services
  - Work on basic tools & capacity building
- We can
  - assist with assessment, inventory, work planning, training & implementation
  - work with you and partners to develop proposals for funding

## References

- ESCAP: <http://www.unescap.org/>
- FDES: <http://unstats.un.org/unsd/environment/fdes.htm>
- GSBPM:  
<http://www.unece.org/stat/platform/display/metis/The+Generic+Statistical+Business+Process+Model>
- Gleeson-White, Jane. 2015. *Six Capitals: The revolution capitalism has to have – or can accountants save the planet?* <https://janegleesonwhite.com/six-capitals/>
- Holling, C.S., *Two Cultures of Ecology*.  
<http://www.ecologyandsociety.org/vol2/iss2/art4/>
- IMF-DQAF: <http://dsbb.imf.org/Pages/DQRS/DQAF.aspx>
- NSDS (Paris21): <http://www.paris21.org/>
- SEEA: <http://unstats.un.org/unsd/envaccounting/seea.asp>
  - Training materials:  
<http://unstats.un.org/unsd/envaccounting/workshops.asp?fType=2>
- World Bank WAVES: <https://www.wavespartnership.org/>

Thank you

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## Highlights of Presentation

- Environmental statistics are *interdisciplinary* and *inter-institutional*
- Environmental statistics are being *transformed* by the need for integrated decision making
- This transformation requires well-functioning and integrated National Statistical Systems
- We have (some of) the technology!
- ***There is a demand for support. How can we collaborate?***

# Constraints and opportunities



## Constraints

1. No statistical standards for many social and environmental SDG indicators
  - SNA, SEEA and FDES don't cover all SDGs
  - Indicators don't use international standards (use sectoral standards)
2. Countries overwhelmed by demands for statistics from ESCAP and other international organizations
3. General lack of data (from NSO perspective)

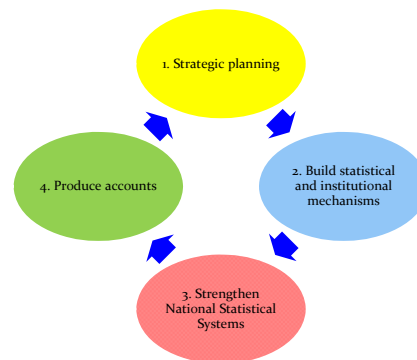


## Opportunities

1. Develop statistical standards across SDGs → International Statistical System
2. Coordinate knowledge about & demands on target countries
  - ESCAP focal points
  - Internal training program
3. Focus on statistical development (2-3 year programs) to build environmental statistics capacity of National Statistical Systems with NSO as focal point

# Implementing the measurement framework

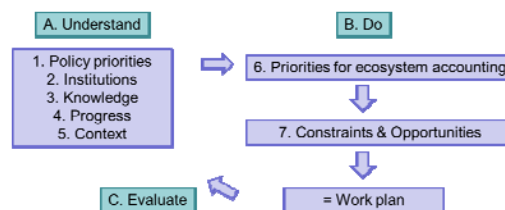
## 4 stages



### 1. Strategic planning (Diagnostic Tool):

Iterative understanding of priorities and capacities

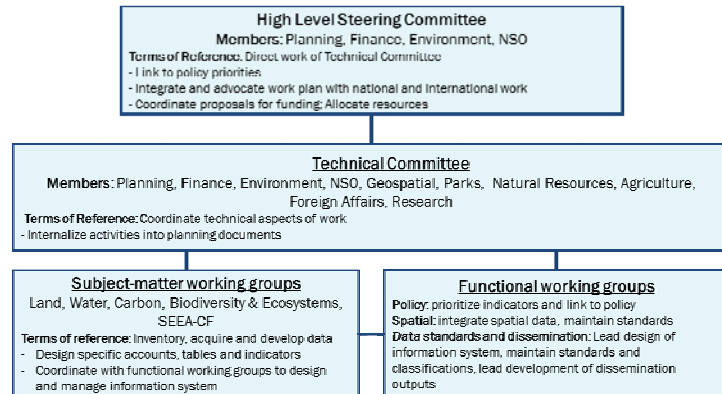
- National vision
- Engage NSS



# Implementing the measurement framework

## 2. Build statistical and institutional mechanisms

- Leadership
- Funding
- Monitoring
- Implementation plan

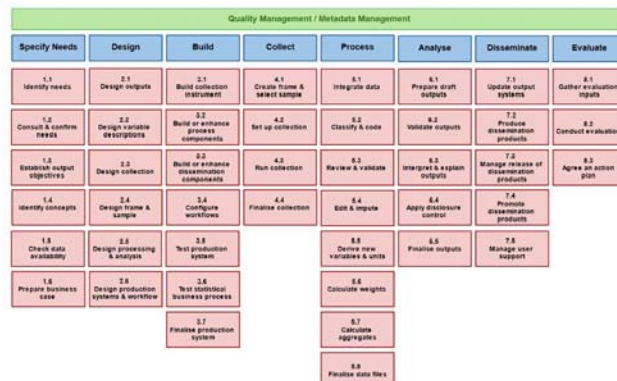


# Implementing the measurement framework

## 3. Strengthen National Statistical Systems

- International guidance on statistical production
- Share data
- Centralize processes
- Quality guidelines

Generic Statistical Business Process Model (GSBPM)





## Implementing the measurement framework

### 4. Produce accounts

- Partnerships
- Get started
- Learn by doing
- Incremental improvement



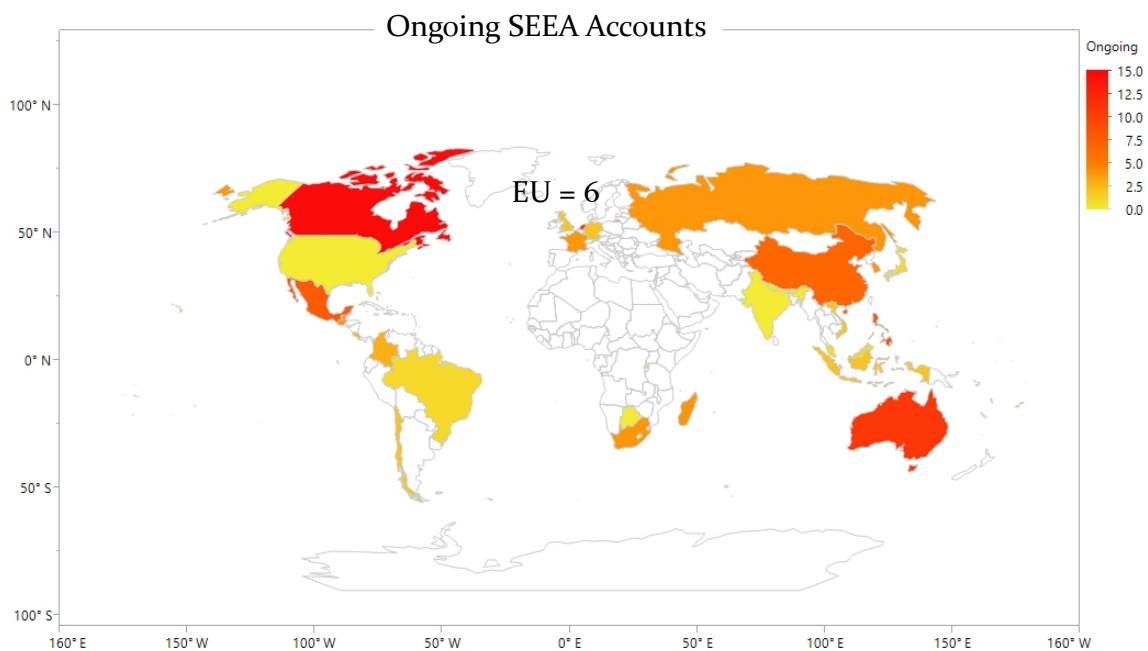
## History (1970s-1990s)

- NSOs engaged to provide *objective* source for environment and natural resource information
  - Supply driven (e.g., mapping population by drainage area)
  - Indicator driven (e.g., pollution indices)
  - Environment or Economy
  - Disjoint, opportunistic (many indicators, many processes)
  - **Organizing frameworks:** State of Environment (OECD), Pressure/State/Response, FDES (UNSD)
  - Opportunities for new surveys (expenditures, households)
  - **Many countries are still in this mode of multiple disjoint indicators and statistical processes**

# History (1990s-present)

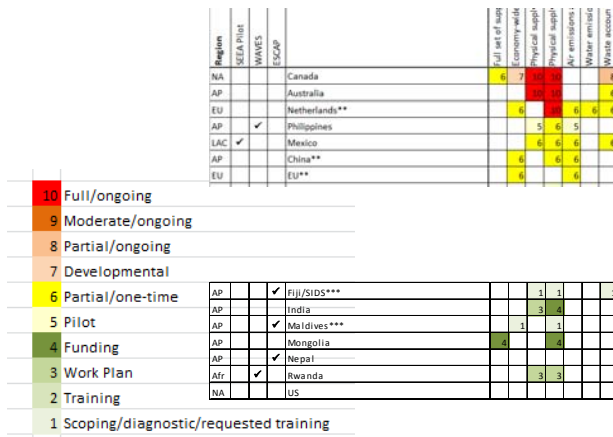
- Integrated decisions (SDGs, biodiversity, green economy, climate change)
  - Demand driven (e.g., contribution to national wealth; trade-offs)
  - Account driven (e.g., asset, stock/flow, link to National Accounts)
  - Environment **and** Economy → trade-offs
  - Integrated and coherent: Common concepts and classifications; ongoing statistical processes; links to national policies
  - **Measurement frameworks:** SEEA\* (Central Framework), SEEA-EEA (Ecosystems), SEEA-Energy, SEEA-Water, SEEA-Agriculture
  - More focussed surveys (water use, activities, wastes) & maps
  - **At least 54 countries are producing ongoing SEEA accounts**
    - Accepted by most international SD platforms (TEEB, WAVES, CBD)

\*SEEA: System of Environmental Economic Accounting (UN, EC, FAO, IMF, OECD, WB)



Source: Author compilation

# Heat map of countries by account



Account / Country	SEEA Central Framework										SEEA Experimental Extension Accounting																																																																																														
	Physical Flow					Account					Monetary Flow					Environmental Extension Accounting																																																																																									
China	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

Source: Author compilation