



India's Experience with SEEA-EEA

National Statistical Office, India

Issues of the day

- Decisions are becoming more **integrated**:
 - SDGs, green economy, climate, biodiversity, nexuses
- Need **integrated**, ongoing, reliable information to decide on trade-offs
 - Develop or conserve? Where to develop?
 - Short-term vs. Long-term benefits? Who benefits?
- National Statistical Offices are under pressure
 - **Fragmented** statistics; Require standardization



Strengths of National Statistical Office

- “*Fundamental principles of official statistics*” foster:
 - Culture of quality, impartiality, confidentiality, relevance
 - Trust by government, business and civil society
- Tools and expertise to work with **complex** data
- Elaborate data collection **processes** (surveys, accounts, administrative data) that could be adapted for environment accounts/statistics
 - Custodians of the **National Statistical System & SDG** monitoring and reporting



Weaknesses/ Threats in Implementation

- Information comes from many institutions using different methods, concepts and classifications
- Alignment required of concepts, classifications and methods
- High degree of harmonization required to ensure coherent datasets
- Non-availability of timely information makes users resort to other 'not-so-sound' statistical releases without assessing the 'fitness for use'



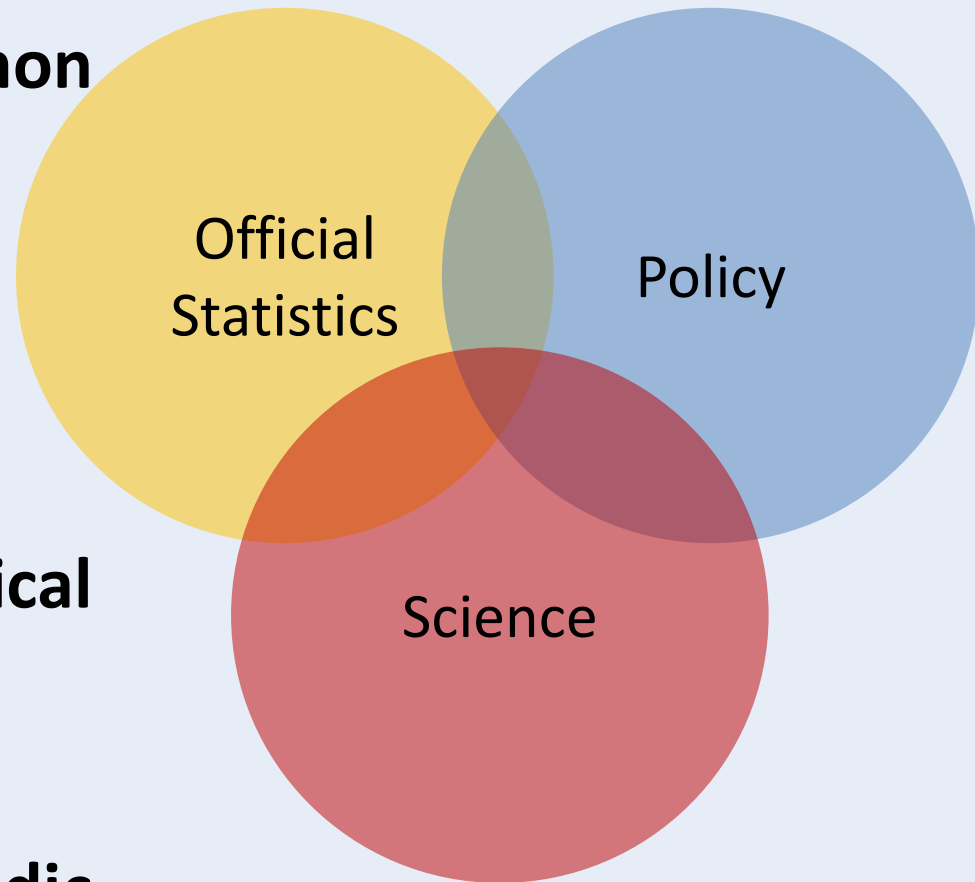
OPPORTUNITIES

MEAs/ International Obligations	SEEA accounts
Sustainable Development Goals	<ul style="list-style-type: none"> Land cover/Land use accounts; Ecosystem service supply and use accounts; Water & Waste Accounts; Material Flow account; Ecosystem extent and condition account; Biodiversity accounts
UNCCD	<ul style="list-style-type: none"> Land cover or land use accounts; ecosystem condition accounts; Carbon accounts
UNFCCC	<ul style="list-style-type: none"> Land cover or land use accounts; Carbon accounts; Residual Flow Accounts; Water accounts
CBD - Aichi Targets	<ul style="list-style-type: none"> Biodiversity accounts; Water & Carbon accounts; Ecosystem extent and condition accounts; Material Flow accounts
Ramsar Convention	<ul style="list-style-type: none"> Ecosystem extent and condition accounts; Waste Accounts
CITES	<ul style="list-style-type: none"> Biodiversity accounts
REDD+	<ul style="list-style-type: none"> Carbon & Forest accounts; Ecosystem extent account
United Nations Forum on Forests (UNFF)	<ul style="list-style-type: none"> Ecosystem condition accounts; Forest asset accounts; Carbon accounts; SEEA-Water; Accounts of the Protected Areas
Waste related MEAs	<ul style="list-style-type: none"> Residual Accounts
IPBES	<ul style="list-style-type: none"> Biodiversity accounts; Ecosystem service supply accounts; Residual Accounts
IUCN	<ul style="list-style-type: none"> Biodiversity Accounts with focus on threatened species



Role of NSO in Implementation of SEEA-EEA

- Setup Collaborations
- Identify and Evolve common objectives across systems
- Understand strengths
- Develop capacities
- Develop statistical infrastructure
- Identify data and methodological gaps



Setup systems for periodic statistics

NSO India's Activities



Allocation of Business Rules: MOSPI

Development of Environment

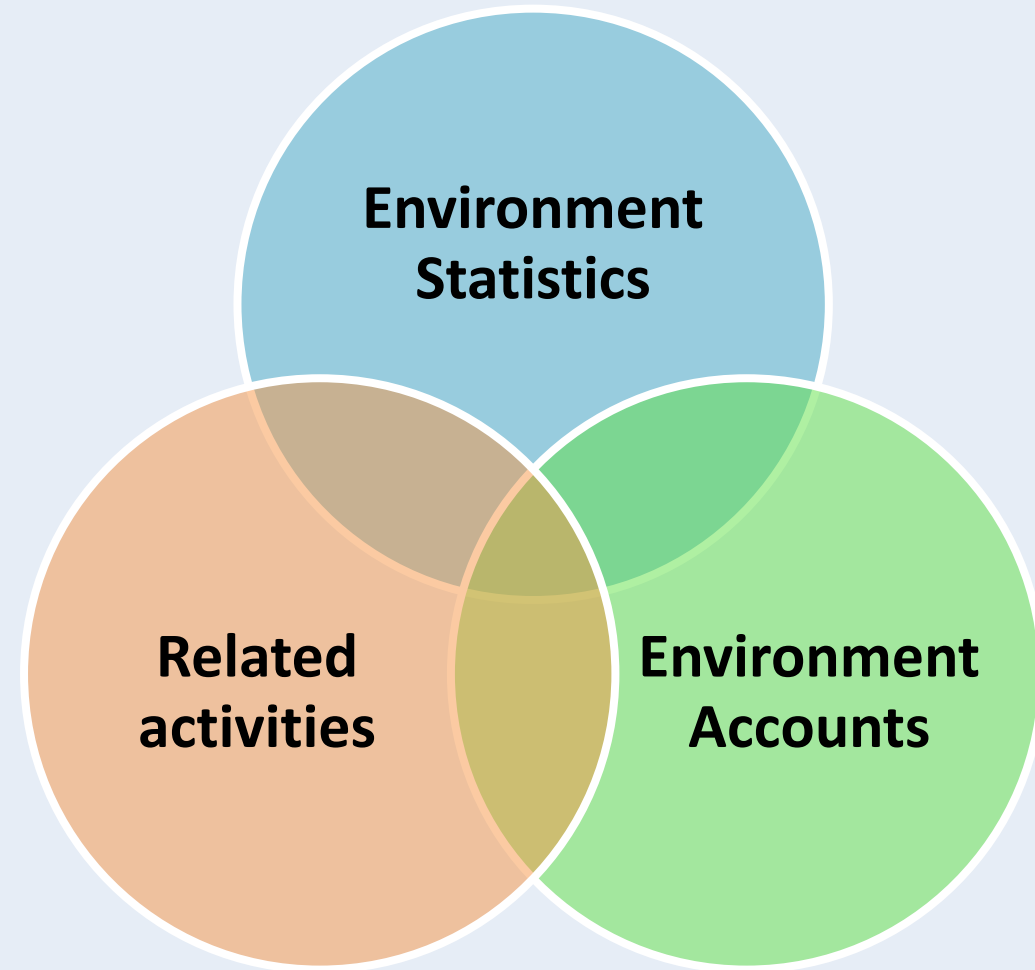
Statistics



**Development of methodology,
concepts and preparation of**

National Resource Accounts for

India



Environmental Accounting in India

- Numerous studies conducted on Natural Resource Accounting since 2000
- Studies done by various Ministries & Institutes
- Covering different ecosystems – forests, mangroves, marine areas, inland wetlands, croplands
- Also on accounting of air, water and land quality
- 2011-13 – Expert Group under Dr. Partha Dasgupta



Outcome of the Expert Group

Recommendation:

- Account for not just the Reproducible or “Manufactured” Capital or Human Capital, but also the Natural Capital
- Compilation of the accounts envisaged in SEEA

Result:

- An Inter-Ministerial Group (IMG) for assessment of datasets required for compilation of these accounts and guiding the compilation
- EnviStats India : Environment Accounts released in 2018 and 2019



Impact of the NCAVES Project

- Identification of
 - existing ecosystem accounting initiatives and literature in India
 - data sources that could help in compiling ecosystem accounts
 - institutions and agencies active in this field
- Helped build collaborations across agencies like M/o Environment, Remote Sensing Centre, Water Commission, etc.
- Helped attract attention on the need for implementation of SEEA-EEA



EnviStats India: Environment Accounts

2018 : Asset / Extent Accounts

- Land – land cover: stock and change
- Minerals – proved and probable reserves, remaining resources of all minerals
- Water – availability in river basins and groundwater
- Forest – forest cover, growing stock of timber & carbon

2019 : Quality – soil and water; Ecosystem services – cropland and nature-based tourism


EnviStats
India 2019
Volume - II Environment Accounts



GOVERNMENT OF INDIA
MINISTRY OF STATISTICS AND PROGRAMME IMPLEMENTATION
NATIONAL STATISTICAL OFFICE
(SOCIAL STATISTICS DIVISION)
www.mospi.gov.in



Pilot Study in Karnataka

- **To compile a set of ecosystem extent and condition accounts by ecosystem type, as also the services they provide**

Ecosystem Covered	Ecosystem Services	Entity
Forest Agriculture Wetlands	Provisioning Services	Raw material; Food; Fresh water; Timber; NTFP; Litter; Fishery; and Fuel wood
Estuary Coastal Urban	Regulating Services	Local climate regulation; Air quality; Carbon sequestration; Erosion prevention; and Maintenance of soil fertility
	Cultural Services	Tourism; Aesthetic appreciation and inspiration for culture, art and design; and Habitat services



Other Activities



Use of Big Data

NSO

- Use of Flickr data in InVEST for nature-based tourism

MoEFCC

- Tiger Census 2018
- 44,000 field staff conducted 318,000 habitat surveys covering 381,400 km²
- Camera traps placed at 26,760 locations collected almost 35 million photos
- Machine learning experts used to speed up species identification, and spatial analysis experts to estimate the populations of tigers and their prey
- Use of an artificial intelligence software called CaTRAT (Camera Trap data Repository and Analysis Tool)
- Other outcomes of the Tiger Census include assessment of the extent and condition of tiger habitats



National Strategy On Artificial Intelligence

- Envisages to use AI for several applications including those which have a direct impact on the flow of ecosystem services
- Crop Selection, where AI-based solutions are ideal for selecting crops based on parameters like soil type, monsoon dates, availability and affordability.
 - Crop Monitoring, where data can be collected using technologies like IoT, drones, and satellite imaging, from the fields, and then monitored and analysed by AI-based applications to identify the right solutions.



NSO's National Integrated Information Portal

Data Collection

A fully integrated and automated NIIP module that would have interface for multiple users like:

1. State bodies, Departments, Government institutions, Research organizations etc. for access to integrated, accurate and user-friendly statistics, dashboards etc.
2. MoSPI internal users for data exchange, collection, analysis etc.

Functional Focus

NIIP would enable MoSPI to manage data through its lifecycle by ensuring functionalities for:

1. Data migration, cleansing and validation ensuring data quality
2. Data compilation, tabulation and analysis, thus enabling rapid dissemination
3. Data management, metadata guidelines, tabulation plans and other technical details for processing the data using analytical tools , enabling insights generation across users

Information Dissemination

NIIP is envisaged to become a platform of choice for all stakeholders.

1. Users will access the platform using a portal to access accurate and user-friendly statistics, reports and other information
2. Other key features will include e- Book, content management, document management, learning management, geo-spatial information etc. enhancing user experience and providing stakeholders with a complete view





**National Forum on
Natural Capital Accounting & Valuation of Ecosystem Services**

New Delhi, India

August 20-21, 2020



Data for Development

