Natural Resource Accounting – Concept and implementation in India - with emphasis on preparation of Asset Accounts on Mineral & Energy Resources in the States (Short term Goal No. 1)

Virtual presentation to the Chief Secretaries

Government Accounting Standards Advisory Board, CAG of India

10 September 2021
Natural Resource Accounting (NRA) – Idea, need and importance

Economic Accounting
✓ Conventional accounting captures data only of the measurable economic activity.
✓ Doesn’t weigh environmental inputs
✓ Resources taken for granted

Eco-Environmental Accounting
✓ Intends to capture the intimate interplay between various components of the natural environment and the economy
✓ Can connect to other datasets to provide invaluable information on the larger picture connecting environment with the economy
✓ Able to help quantify the adverse impact on environment due to economic development and aid to sustainable growth

“Measurement of a resource leads to its better Management.”

Environmental Statistics
✓ Often developed with particular question or objective
✓ Do not cater to larger picture
✓ Difficult to inter-relate with other datasets

Natural Resource Accounting
Mankind in its quest for rapid economic development has manipulated nature to serve its economic interests and in the process harmed nature. This has resulted in environmental degradation – leading to climate change, extreme weather conditions and frequent natural disasters.

Importance of judicious use of resources – their controlled usage and sustainability for future generations. Gave birth to the idea of Sustainable Development (SD).

Accounting of Natural Resources – One of the most crucial element of SD is that it provides an outline of resource bases, pace of usage with an eye on their sustainability and embeds environmental aspects into the economic indices.

Broadly contains 3 steps: 1) Physical Accounting which involves listing as the very first step. 2) Monetary Valuation and 3) Integration with Economic Accounting.

The idea is to quantify the adverse impact of economic development on environment and adjust/reduce it from GDP to arrive at Green GDP, essentially signifying impact of economic development on environment and sustainable growth.
International Accords – our obligations

- Earth Summit at Rio 1992
- United Nations Framework Convention on Climate Change (UNFCC) – 1992
- Kyoto Protocol – 1997/2005
- Marrakech Accord – 2001
- Earth Summit at SA 2002
- Kyoto Protocol comes into force – 2005
- Start of five year commitment period on Kyoto Protocol – 2008
- Follow up action plan on Kyoto Protocol (Bali Action Plan) – 2009
- Convention of parties – Copenhagen Accord – 2009
- Rio +20 – 2012
- SEEA (CF) – adopted in 2012

✓ GOI – signatory (25th September 2016) to UN General Assembly resolution titled, “transforming our world; the 2030 agenda for sustainable development”

✓ SDGs consisting of 17 goals and 169 associated targets.

✓ Four of 17 goals directly relate to natural resource accounting and sustainability of these resources.

✓ There are 25 environment related targets which are required to be monitored.

✓ Particular attention on Target no 15.9 related with accounts.

Agenda 21, Rio +20, SDGs: Integrate nature into decision making!!!
Interrelation between economy and environment - Quantifies the non-renewal damage to the environmental resources and assists in determination of development in real terms.

Aid to policy framing – sound database – to help policy makers to understand the potential impact of their decisions

Managing SDGs - four of 17 goals directly related to sustainability of natural resources

Combating Climate change – Asset and flow accounts have been recognized as a useful framework for monitoring, measuring and analyzing climate change.

International commitments
  – SDGs
  – Become part of the group of elite countries in generating Asset Accounts
SEEA – CF and suggested implementation strategy

- SEEA – CF – latest international framework for economic-environmental accounting
- Flexible
- Country specific needs embedded

Why SEEA

✓ Relevance
✓ Consistency and reliability
✓ Efficiency

- Stage 1: Asset Account for individual asset in physical and monetary terms showing stock changes
- Stage 2: Supply and use tables in physical and monetary terms showing flow of inputs, products and residuals
- Stage 3: A sequence of economic accounts highlighting depletion adjusted economic aggregates, and
- Stage 4: Functional accounts which records transactions and other information about economic activities undertaken for environmental purposes

Natural Resource Accounting
<table>
<thead>
<tr>
<th>Opening stock of environmental asset</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth in stock</td>
<td></td>
</tr>
<tr>
<td>Discoveries of new stock</td>
<td></td>
</tr>
<tr>
<td>Upward reappraisals</td>
<td></td>
</tr>
<tr>
<td>Reclassifications</td>
<td></td>
</tr>
<tr>
<td>Total addition stock</td>
<td></td>
</tr>
</tbody>
</table>

**Reduction of stock**

- Extractions
- Normal loss of stock
- Catastrophic losses
- Downward reappraisals
- Reclassification
- Total reduction in stock
- Revaluation of the stock*

**Closing stock of environmental assets**
NRA – how are we involved

International Association of Supreme Audit Institutions (INTOSAI) - Founded in 1953 – autonomous, independent and non-political organisation

- Provides institutional framework for Supreme Audit Institutions

Working group on Environmental Auditing (WGEA) – under International Association of Supreme Audit Institutions (INTOSAI) suggested (2010)

Where NRA is not developed

✓ To Assist the Government in developing the NRA
✓ Identifying challenges in applying environmental accounting
✓ Recommending strategies to overcoming challenges
✓ Identifying best practices in NRA

CAG

Constitutional mandate under Article 150 to advice on forms of accounts

Section 23 of CAG’s DPC Act- Guidelines for general principles for Govt Accounting

GASAB

- Mandated to formulate Government Accounting Standards and other pronouncements with a view to improve Governmental accounting and financial reporting
- To enhance the quality of decision-making and public accountability.
NRA – how other countries have progressed

- Different countries have adopted different approach based on their country specific need – flexibility allowed in SEEA – CF
- Major thrust on mineral and energy resources – non-renewable resources
- Flexibility adopted – country specific needs (selection of resources, incremental processes)
  - Australia – stressed on Water Accounts, Philippines – selective minerals
- Bigger countries generating Accounts at national and provincial levels
- Developed countries have reached to the level of generating Green GDP

Some specific instances on compilation of Natural Resource Asset Accounts in countries (June 2019)
## NRA – Efforts in India

### MoSPI

- **8 Studies**
  - (mostly on quality aspect)
- **Expert Committee**
  - (Green National Accounts in India - A Framework)
- **EnviStats India 2018-19**
  - Physical assets (compilation of info available with various agencies/ministries)
- **NCAVES**
  - Being implemented in the State of Karnataka in collaboration with UN

### CAG/GASAB

- Decision in 34th Board Meeting
- Work initiated in 2019
- A Concept Paper prepared in 2020
- Specific road map for implementation of NRA in India
- Action Plans divided into three-pronged goals (2020-2030)
- An exercise to handhold the GoI/States in implementing NRA
- As an aid to good governance
The Paper

- A Concept Paper on Natural Resource Accounting was prepared by GASAB Secretariat
- Paper released on 28 July 2020 by MoS, Ministry of Environment, Forest & Climate Change, GoI
- Copy endorsed to the Hon’ble Prime Minister of India
- PMO congratulated GASAB on embarking on such a difficult topic
Stakeholder Consultations

- Four drafts (Nov’19, Jan’20, April’20 and July’20) – to ensure optimum consultation
- **Paper shared and inputs sought**
  - Delhi University, TERI, ICAI, MoSPI, MoMines, MoEFCC, Jal Shakti and DoLR
  - All the State Governments (Finance Secretaries) informed about the endeavour
  - Senior management of CAG, all GASAB Board members
- **Paper peer reviewed**
  - by iCED and DG, E&SD Audit
  - Suggestions/comments incorporated before finalisation
Creation of NRA Cells

NRA Cell in the States

– Jointly by the AsG Audit and A&E Offices with representation from the State Government (departments of mines, land records, water resources, environment forests and climate change), statistics department

– Already functional in 20 States. Remaining AsG co-ordinating with the State Governments

NRA Cell created in GASAB Hq

– Headed by DAI & Chairperson, GASAB

– Ministries (MoSPI, MoMines, Jal Shakti, DoLR, MoCA, MoEFCC)

– ICAI

– Five State Governments selected across the country (Gujarat, Jharkhand, Karnataka, Meghalaya, and Uttarakhand)/AsG of these five States

– Shri Mukul Sanwal, IAS (Retd)

– Officers from GASAB, GA and Commercial Wings and iCED in CAG

– CGA, MoF
The Paper – Key elements

- Discusses the need for NRA vis-à-vis its importance towards the SDGs, Climate Change
- Brief on developments on NRA and international endeavour led by UN
- Detailed road map on the way forward segregated into specific actionable points
- Designs of the tentative templates of Asset Accounts on selected resources along with detailed discussions on issues/responsibility centers/probable source of data in respect of each of the resources
- Sample Asset Accounts prepared with available data
- Valuation methodologies – international practices and best approach for India
- Probable issues and challenges – possible ways to overcome them
- Bringing the private sector under the ambit of NRA
The Paper – envisaged three term specific action plans

Spans over 10 years (2020-30) – converges with SDGs set by UN General Assembly (2015-30)

<table>
<thead>
<tr>
<th>Short term goals</th>
<th>Mid-term goals</th>
<th>Long term goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Preparation of Asset Accounts on mineral and energy resources in States</td>
<td>• Preparation of National Asset Accounts on mineral and energy resources</td>
<td>• Supply and use tables in physical and monetary terms showing flow of inputs, products and residuals; and</td>
</tr>
<tr>
<td>• Initiation and preparation of disclosure statement on revenues and expenditure related to NRA (2019-20 to 2021-22)</td>
<td>• Preparation of Asset Accounts in respect of other three resources namely water, land and forest resources in the States</td>
<td>• Preparation of the economic accounts highlighting depletion adjusted economic aggregates. (2025 - 26 onwards)</td>
</tr>
<tr>
<td></td>
<td>• Preparation of functional accounts recording transactions and other information about economic activities undertaken for environmental purposes. (2022-23 to 2024-25)</td>
<td></td>
</tr>
</tbody>
</table>

Natural Resource Accounting
SEEA – CF prescribes seven resources

- Mineral and Energy Resources
- Land and soil Resources
- Timber Resources
- Aquatic Resources
- Other Biological Resources (except timber and aquatic), and
- Water Resources

5 Major Resources considered – in line with prescriptions of Green National Accounts – A Framework

- Mineral and Energy Resources
- Forestry (Wildlife) Resources
- Land Resources
- Water Resources

Natural Resource Accounting
• Virtual workshops under Knowledge Center at RTI, Prayagraj - more than 100 participants from State NRA Cells

• National Workshop on NRA at iCED – special emphasis on Mineral & Energy Resources - Speakers from IBM, NRSC, TERI, GASAB /State AG of Rajasthan presented the pilot study

• State specific workshops organized in Gujarat and Karnataka - exchange of expectations/issues with States - Officers/staff of AsG Offices including the Officers of State Governments participated

• Other States requested to consider similar workshops

• Virtual presentations on NRA for the highest echelons in the States and AsG
Templates of Asset Accounts on Mineral & Energy Resources – Goal 1

- Mother table of Asset Accounts – Retained same as prescribed by SEEA - CF
- Sub/detailed tables designed by us to suit country specific needs by capturing/providing
  - physical flows and monetary values
  - actual extractions/depletion
  - extractions for different sectors
  - closing stock of mineral reserves – annually
  - Domestic sales/consumption vis-à-vis exports data
  - Info on sustainability of resources – in years
- Two pronged valuation suggested – revenue and ASP
- Illegal mining embedded – all sources …departments, audit and IBM flags
- Linking with the Finance Accounts – possible

Natural Resource Accounting
Templates of Asset Accounts on Mineral & Energy Resources – Key takeaways

- One pager document on State-wise resources – otherwise scattered
- Physical and monetary values compiled
- Pace of exploitation – over the years
- Analysis of revenue vis-à-vis market value/export value
- Making it easier to analyse and review the royalty rates – arrest windfall gains and protect State’s revenue interest
- Sustainability of resources – in years
- Enable assessment of revenue streams
- To enable States to identify alternate resources (energy/economic)
- Close monitoring on illegal mining
- Once compiled – enable State-wise overview of mineral repository
Guidance to pilot States – lessons for States

\* Only Proved Reserves to be considered
\* Opening balance – methodology suggested in Concept Paper (reduce from the resources stock available as of 2015)
  – Extractions (actual) to be collected from the Department(s) (more authentic)
  – Additions – rare (new discoveries) – to be collected from the Department
\* Use royalty and actual sale value (IBM website/State authorities) for valuing stock
\* SEEA – allows flexibility .... skip information not readily available - to be gathered in subsequent years
\* Methodology – to be mentioned clearly in the Report on Asset Accounts

Preparing the Asset Accounts
- Joint teams of Audit/A&E
- Assistance from State Govt

Information source
- IBM/ministries in GoI
- State Government Deptts

Validation
- State Government
- Audit office
- Challenges
- Non-availability of ready to use data

Natural Resource Accounting
Results of Pilots – inputs for States

**GOA**
- Unable to compile major minerals physical flow account – mining ban
- Minor minerals stock position not ascertainable
- Break up of extraction not maintained (Available in other two pilot States)

**Rajasthan**
- Variation between the revenue involvement and actual market value (roughly 10 times) clearly brought out
- Extensive coverage of minerals along with sub-minerals

**MEGHALAYA**
- Mapping of physical flows vis-à-vis revenue involved - short collection of receipts ₹ 40 crore in one year
- Sustainability of minerals in years brought out
- Illegal extraction detected – 4,284 MT of coal and more than 1 lakh tones of limestone illegally extracted
- Recommendations made to State Government based on study
  - Mines Deptt to reconcile figures with Land Customs Station to plug leakages
  - More close coordination needed between the Mines & Geology Department and E&F Department to exchange data on extraction of minerals from their respective jurisdiction

Sample pilot study reports
Goa  Meghalaya  Rajasthan  Uttarakhand

New Screen developed by AP

Natural Resource Accounting
Concerted efforts during Pilots – to continue

Validation by StateGovt Deptts/Audit Office

Co-ordinated with State Govts

Impressed upon the idea and expectations

Preparation of Asset Accounts

Compilation – suggestions/inputs of State included

Joint teams formed – initially focused on physical accounts

Data collected – G&M, Coal, Petroleum and RO of IBM

Identified the resources

GASAB Headquarter

Detailed guidelines

Working out of OB

Continuous training/workshops

Speedy clarifications

In touch with field teams

Mid-term appraisals

Final product
Status as of now

- Templates of Asset Accounts on Mineral & Energy Resources updated with inputs from pilot studies shared with NRA Cell members (April 2021)
- Comments received from DG Commercial, MoSPI, IBM, Ministry of Mines, MoEFCC, All five States, Shri Mukul Sanwal
- Comments suggestive in nature – appreciation for the design of the templates
- Draft formats of templates updated based on comments/suggestions – recirculated to the members (20 July 2021)
- Templates – under final touch
Way forward

2020-21 Asset A/cs
• The final templates of Asset Accounts on M&E Resources to be circulated by September 2021
• States have the flexibility to make changes to the formats (subject to retaining the overall framework and ease of compilation/comparability among States)
• Targeted completion – March 2022 (for first Asset Accounts for the year 2020-21)
• State specific workshops – similar to Gujarat/Karnataka may be held to enable detailed brainstorming and deliberations

2021-22
• Plan automation processes for data capturing (AP model)

Other endeavour
• Parallel work on preparation of disclosure statement
Way ahead – expectation from States

Operational issues

- Close co-ordination between the State AsG and the Government Departments
- State Government may please support with required data/information
- Close monitoring and supervision from State Governments
- Need for installing **systems for regular data capture** on extractions/usage/sale –
  - Possible way out – map physical flows while reporting revenues monthly (extractions), automate processes of inputs from user agencies, check posts, customs department etc sources to **systemize data capture on usage/sale of resources** to cross verify extractions and **monitor illegal mining**

Co-ordination issues

- Nomination of Officers of State Govt for the NRA Cell
- To enable closer coordination and steer implementation

Natural Resource Accounting
THANK YOU!