



**Office of the Comptroller and Auditor General of India,  
10 Bahadur Shah Zafar Marg, New Delhi - 110 - 124.**

**(Government Accounting Standards Advisory Board)**

### **Minutes of 2<sup>nd</sup> meeting of the Consultative Committee constituted by GASAB**

**Background:** As per the action plans envisaged in the Concept Paper on Natural Resource Accounting (NRA) in India released in July 2020, GASAB Secretariat has brought out a book containing the templates of Asset Accounts on Mineral and Non-Renewable Energy Resources in the States. The books containing the templates were circulated to the State Governments and the State Accountants General Offices in October 2021. The templates were finalised after pilot studies in three States and a virtual meeting of the Consultative Committee in September 2021. The first short term action plan was to prepare the first draft of Asset Accounts in the States for the year 2020-21 by March 2022.

In order to handhold the States in this ambitious exercise besides resolving issues and challenges and addressing the constraints being faced while preparing the first draft of the Asset Accounts, GASAB headquarters has been holding monthly meetings with all the States in which the project is being run since the end of each month from October 2021 onwards. As per the status reported by States as of 30 April 2022, all States except Jharkhand and one UT i.e. J&K have prepared the first draft of Asset Accounts. As per the guidelines issued by GASAB, these Accounts are being run through dual stage validation from the State Governments as well as the Audit Offices.

Additionally, draft guidelines/ Standard Operating Procedures (SoPs) on quarterly data collection methodologies from the district units from April 2022 was prepared and circulated to the State Accountants General Offices for discussion with the State Governments and implementation from April 2022. After detailed deliberation and consultation with the States and the members of the Consultative Committee, the final Guidelines/SoPs have been issued to the States for implementation.

Consequent upon the national declaration at CoP 26 at Glasgow and in view of the importance of monitoring the carbon emissions and generation of renewable energy resources, specific references have been included in the Guidelines/SoPs. A reliable and credible system to capture the information at the State level regularly on these items would immensely help the GoI in consolidating the information and monitor/manage the targets over the years more effectively to meet the international commitments.

To ensure that the State reports capture and present the information uniformly, a structure of report has been prepared by the GASAB Secretariat and circulated on 12 April 2022 to the State Accountants General Offices.

As there has been substantial progress in preparation of the Asset Accounts, 2<sup>nd</sup> meeting of the Consultative Committee was convened to inform the progresses and also to seek further guidance/comments/suggestions of the eminent members of the august Committee as we continue with our endeavour to implement the action plans envisaged in the Concept Paper, as per the targets.

**Date and time :** 3 June 2022 at 11 AM.

**Participants :** Shri K Srinivasan, Deputy CAG & Chairperson, GASAB chaired the meeting. Shri Mukul Sanwal, IAS (Retd) eminent environmentalist was present virtually. Additional Deputy CAG, GASAB Shri Ram Mohan Johri was present. A list of other dignitaries in the Ministries of Government of India, State Governments and Accountants General Offices of NRA Cell besides Officers of GASAB is enclosed at **Annexure - A**.

**Mode:** Hybrid – physical and virtual presence

**Proceedings :** At the outset, Shri S N Biswas, Sr Admin Officer while welcoming the dignitaries to the Office of the Comptroller and Auditor General of India briefly introduced the Deputy CAG & Chairperson, Additional Deputy CAG, GASAB and Shri Mukul Sanwal, IAS (1971). Shri Biswas also provided short introduction about constitution of the Consultative Committee, it's members, details about the first meeting and a brief background on the 2<sup>nd</sup> meeting of the Committee.

In his inaugural address, Shri K Srinivasan, Deputy CAG & Chairperson, GASAB said it was heartening to see the subject of climate change is being addressed jointly through the Consultative Committee constituted by GASAB. The importance of assessing the extent of the problem to understand the problem was discussed in the context that there was only one earth and that of late there has been certain inexplicable weather changes attracting attention of the entire world. The Officer continued that in order to mitigate, there is need to monitor and to monitor we need to measure. The need for bringing science to the forefront and ascertain the issues involved with climate change. The Officer emphasized the need to start measuring in order to understand the works in hand and to decide on targets as to by when the country would be able to achieve certain targets and that is where NRA comes in, the Officer mentioned. GASAB's endeavour to switch towards the pressing cause of environmental accounting in addition to its regular work on conventional accounting and their standards was also highlighted. The continuous support and guidance of the members of the Consultative Committee was

stressed upon without which preparation of the first draft of Asset Accounts in 27 out of 28 States would not have been possible.

Thereafter, in his key-note address Shri Mukul Sanwal commenced with thanking the CAG's institution for having included him as one of the members in this momentous exercise. To start with Shri Sanwal highlighted the timeliness of the whole project of GASAB under the CAG of India due to three reasons. First, preparing us for climate change as equitable sharing of natural resources becomes critical; second, optimum resource use will also be critical in achieving an 'Atmanirbhar' \$ 10 trillion economy and third as an essential element of good governance. The advantageous position of CAG of India as a constitutional authority to bring together sectors, ministries and levels of government that are not responsive to the usual policy initiatives for working together was highlighted. Shri Sanwal also lauded the way the present exercise has been handled and stated it is a tribute to that expectation. The experience gained will be needed as more complex issues are addressed, namely water and electricity flows, supply, demand and leakage. The bureaucrat continued that with the legitimacy, credibility and capacity that the CAG has, expanding into similar areas which are recognized as essential, but no approach has emerged to deal with them, could be considered. While pointing towards the challenges of aggregating the data in a federal state in a new common format, the retired Officer opined that the expertise that the CAG is building in defining new methodologies and implementation strategies will in the coming days be as important, if not more important, than auditing of accounts, and the two will go together.

The meeting continued with a presentation of GASAB by the Additional Deputy CAG, GASAB. The Officer thanked all the Officers for taking out time to attend the meeting physically making it a success. The importance of the continued guidance and support of the Consultative Committee in the overall project especially on preparing Asset Accounts of Mineral and Energy Resources was mentioned. Special reference was made about Shri Mukul Sanwal for sharing his insights and thoughts on the subject. Additional Deputy CAG, while impressing upon the need for measuring the overall resources for their availability and usage stated that only then we would be able to ascertain the gaps and measures needed to mitigate them. The presentation, inter-alia, touched upon the following issues:

- *Need for NRA in helping establishing interrelation between economic and environmental accounting, managing SDGs, attaining international commitments and as an aid to evidence based policy framing*

- *Four-fold strategy coined by the System of Economic and Environmental (Central Framework) in implementing NRA*
- *Involvement of CAG of India in helping the country to implement NRA, work done by GASAB till date and stakeholder consultation process*
- *Resources covered vis-à-vis those suggested by the SEEA (CF)*
- *Key takeaways for the States from the Asset Accounts on Mineral and Energy Resources*
- *Salient features of the tables incorporated in the Asset Accounts*
- *Training, capacity building and handholding the States in preparing the first draft of Asset Accounts for 2020-21*
- *The future plans – as to what is intended from April 2022,*
- *Monitoring mechanism on the progresses made towards the national declaration at the COP – 26 or the Panchamrits,*
- *Status of preparation of Asset Accounts and works in hand.*

Copy of the presentation is enclosed at **Annexure – B**.

After the presentation of GASAB, the draft Asset Accounts as it stands in six States (Gujarat, Madhya Pradesh, Meghalaya, Odisha, Rajasthan and West Bengal) were also presented before the Consultative Committee. The outline of the presentations contained the following:

- *Mineral maps and list of minerals vis-à-vis those covered*
- *Types of mining activities and major players involved*
- *Coordination between the AsG Offices and the State Governments including formation of NRA Cells in the States, training and capacity building*
- *Challenges faced,*
- *The Asset Accounts in tables 1 to 7 (except carbon emission), findings and disclosures, works underway and good practices in the States.*

**During and after the presentations, the following were discussed:**

**Indian Bureau of Mines** pointed out that the national mineral inventory is being brought out by August 2022 and that there is a need to review the opening and closing stock as worked out in the Asset Accounts of the States.

On behalf of GASAB, it was informed that while the starting point of the entire exercise as far as the stock of resources is concerned was based on the previous national mineral inventory of 2015 and that all States have been advised to reconcile the stock of minerals once the national mineral inventory for 2020 is brought out by the IBM. This is to ensure that the Asset Accounts in the States and the national

mineral inventory go hand-in-hand and there is no major variations between the two.

**NRSC** informed the house that they have initiated a project called Integrated Mission for Sustainable Development in 1992 to cover the natural resources and prepared the natural resources management plan for the country. Subsequently, from 2002 the ISRO started accounting for the natural resources in various periodicity like the land use in every five years and land degradation in 10 years. Regarding mineral and energy resources, NRSC is handholding IBM for technology transfer. The NRSC has also developed methodologies for assessing water availability in the entire country along with the Central Water Commission. It was also informed that recently NRSC has come out with accounting of the bio-energy potential from the crop residues.

Deputy CAG and Chairperson, GASAB urged the NRSC representative to kindly share the documents with us and to consider greater collaboration with the NRSC. Additional Deputy CAG appreciated NRSC as one of the vital player on the subject.

**ICAI** asked about the verifiability of the figures being featured in the Asset Accounts.

**GASAB responded** that in view of very well laid out systems in the Mining departments across the country, the district mining officers have demand collection and balance registers which captures each and every detail of quantity permitted, quantity extracted – revenues generated and quantity remaining to be extracted. Besides, these authorities also generate monthly receipt schedule incorporating the revenues remitted into the state exchequer. To that extent, the entire figures of the Asset Accounts could be verified till the last field formation in the Mining departments in the States. And as regards the stock, it was stated that the same has been worked out based on the best and most trusted datasets of the IBM and that systems have been put in place for their continuous reconciliation with the IBM datasets which are the best set of records available in the country on stock of resources. States of Rajasthan and Odisha agreed to the above.

**Shri Neeraj Joshi of ICMAI** suggested that since few decades there is a system of filing of power generation details in xbrl format with the Ministry of Corporate Affairs which could be used for preparation of the tables. This was agreed by all.

Regarding **how to map the revenues of the State vis-à-vis the Asset Accounts**, it was informed that GASAB has written to all the State AsG for coordinating with the State Governments to open sub-heads/object heads below the minor heads to separately capture the figures of royalties, cess, fees, penalties etc so that one on one

referencing between the actual receipts from mining activities vis-à-vis the physical flows could be established. It was also informed that the response of the States has so far been encouraging and that this aspect was being followed up for implementation.

Regarding the discussion on the **stock of riverine resources**, it was informed from GASAB that since the riverine resources are in a continuous process of accumulation and depletion, a separate table has been designed to capture these resources. As a system it was informed that the States are required to prepare mining plans wherein scientific estimation of stock of resources available and those planned for extraction over the years are to be included for GoI approvals. And the States have been instructed to use these stock estimations in the approved mining plans as base or else continue with only the extractions and revenues with suitable disclosures about non-availability of the stock position.

As regards the **variations between the figures of extractions of resources as per the State Government and the IBM**, it was decided that probably there is need to identify the reason for the variations and that greater reconciliations are needed to be institutionalised in reporting of figures to ensure that both the entities' record go hand in hand. **IBM** mentioned that the figures of extraction, production, dispatch and closing stock are captured and reported based on the statutory returns of the lessees.

IBM also informed that the **next national mineral inventory** covering 46 minerals is being brought out in August 2022.

Comments specific to the discussions:

**CGM, Gujarat** suggested the NRA team of Gujarat to approach Gujarat Urja Vikas Nigam Ltd, Energy and Petroleum Department and GARC for comprehensive data on generation of power from various sources for the Table 6 (revised). Shri H Dharmadarshi, PAG (Audit-II), Gujarat added to the discussion stating that the domestic vis-à-vis industries, solar energy resources which is being largely used in the State of Gujarat etc are all available in greater details with the GUVNL.

Regarding the methodology on ascertaining the mined reserves vis-à-vis the mining bans coming up during presentation of Meghalaya, Deputy CAG desired to know the preparedness to monitor the transportation of the mined reserves. It was informed by GASAB wing that in order to address these concerns pertinent for the States of Meghalaya and Goa in particular where consequent to a mining ban, permission was granted to transport the mined reserves, separate table has been designed to capture

mined reserves at the mine site, those transported and closing stock of mined reserve at the mine head. These tables seek to capture the data on mined reserve lying at the mine head yet to be transported and can effectively monitor their transportation and any case of fresh mining.

Before concluding, the Addl Deputy CAG once again conveyed special thanks to all Officers and dignitaries for making it convenient to attend the meeting despite other pressing commitments and for the value additions and engaging discussions which will immensely help in finalizing the Asset Accounts on Mineral and Energy Resources. The Officer made special reference to the target date of 30 June 2022 for completion of the State reports on NRA in the prescribed format and urged all the States to make best efforts to adhere to the targeted timeline.

The meeting ended with vote of thanks to the Chair.

*Enclosures : Annexure A on list of Officers attending the meeting.*

*Annexure B – handout of the presentation of GASAB.*

**Annexure - A**

**Officers attending the 2<sup>nd</sup> meeting of the Consultative Committee of NRA Cell  
(Date 3-6-2022)**

<b>Sl. No.</b>	<b>Name of Office/Organization</b>	<b>Name of Officer's Nominated</b>	<b>Physical/Virtual</b>
1.	GASAB/CAG of India	Shri K Srinivasan, Deputy CAG and Chairperson, GASAB	Physically present
2.		Shri R M Johri, Addl Dy CAG, GASAB	Physically present
3.	Expert in Environmental Accounting	Sh. Mukul Sanwal, IAS (Retd.), 1971	Virtually Present
4.	GASAB/CAG of India	Shri D Bhargav, DG, GASAB	Physically present
5.		Ms Prerna Sood, PD, GASAB	Physically present
6.	Government Account Wing in CAG's Office	Sh. Masroor Ahmad Deputy Director	Physically Present
7.	Commercial Wing in CAG's Office	Ms. Kavita Prasad DG/Comml.-I	Represented by S K Kohli Sr. AO (CA-II)
8.	GASAB/CAG of India	Shri S N Biswas, Sr. AO, GASAB/NRA	Physically present
9.	Ministry of Environment, Forest and Climate Change (MoEFCC)	Ms. Anshu Singh, DDG(Stats)	Physically Present
10.	The Energy and Resources Institute (TERI)	Sh. Souvik Bhattacharjya Associate Director and Senior Fellow	Physically Present
11.	Institute of Chartered Accountants of India (ICAI)	CA. (Dr.) Sanjeev Kumar Singhal, FCA, New Delhi	Physically Present
12.	The Institute of Cost Accountants of India (ICMAI)	CMA Neeraj D. Joshi Council Member, ICAI	Physically Present
13.	National Remote Sensing Centre (NRSC), Hyderabad	Dr. V. Venkateshwar Rao, Deputy Director, RSAA,	Represented by Dr. K. Sreenivas Group Director, SRLUMG, NRSC
14.	Ministry of Petroleum and Natural Gas	Sh. Chandan Mittal Deputy Controller of Accounts	Physically Present



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15.	Ministry of New and Renewable Energy	Dr. Prabir Kumar Dash (Scientist-D, Wind Energy Division, MNRE)	Physically Present
16.	AG (Audit), Meghalaya	Shri. Subbaiah, DAG (AMG-II)	Physically Present
17.	AG (A&E), Jharkhand	Sh. Bharat Chandra Behera, Deputy Accountant General	Physically Present
	State Government Jharkhand	Sh. Rajeev Ranjan, Nodal Officer Additional Secretary Planning and Development	Physically Present
	State Government, Uttarakhand	Sh. S L Patrick, Additional Director Mines and Geology Department	Physically Present
		Sh. Saji Thomas, Sr. DAG	Physically Present
		Smt. Annie Jeejo Sr. A.O.	Physically Present
		Kanishk Vyas A.A.O., AG (A&E)	Physically Present
	AG (Audit-II), Gujarat	H K Dharmadarshi PAG (Audit-II)	Physically Present
	State Government Gujarat	Sh. Roopwant Singh Commissioner Geology & Mining	Physically Present
		Sh. D. K. Patel Additional Director Geology and Mining	Physically Present
Sh. M. R. Wala, Sr. Geologist Industries & Mines Deptt.		Physically Present	
18.	Principal Accountant General(A&E) Odisha	Sh. Ashok Sreeraj Sr. D A G, A/Cs,VLC	Physically Present
	State Government Odisha	Sh. Umesh Chandra Jena Additional Director, Steel & Mines Department	Physically Present
19.	AG (Audit-II) Madhya Pradesh	Sh. Bhushan Balkrishna Bhirud D A G, AMG-III	Physically Present
	State Government Madhya Pradesh	Sh. Vinod Kumar Bagde Supdt. Geologist Department of Mining	Physically Present
		Sh. Anoop Mishra Dy. Director (Mineral Administration) Department of Mining	Physically Present
20.		Sh. Tanmay Jana	Physically Present

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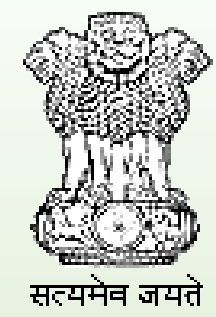
	Principal Accountant General (A&E) West Bengal	Sr. D A G, Admn. Sh. Debotosh Parmanik Sr. A.O.	Physically Present
21.	Accountant General (A&E) Rajasthan	Sh. P. S. Kanawat Sr. D A G, A/Cs, VLC Ramcharan Gupta A.A.O,	Physically Present Physically Present
22.	State Government Rajasthan	Sh. Sushil Hudda Geologist Department of Mines & Geology Sh. Sanjay Agrawal Asth. Director (Statistics) Department of Mines & Geology	Physically Present Physically Present
23.	International Centre for Environment Audit and Sustainable Development (iCED), Jaipur	Sh. Pushkar Kumar Director (Training & Research)	Virtually Present
24.	Ministry of Mines and Indian Bureau of Mines	Dr. A H Ramteke, Joint Director (S), MMS Division, Chief Mineral Economist, India Bureau of Mines	Virtually Present
25.		Sh. D. S. Walde Chief Mineral Economist	Virtually Present
26.		Dr. P. K. Jain, Consultant, IBM	Virtually Present
27.	PAG (Audit)-I, Karnataka	Miss Monali Phadtare, DAG (AMG-III)	Virtually Present
28.		Ms. Kavita Sr. A.O.	Virtually Present
29.	AG (Audit-II)	Smt. Sunita Mary Samson Sr.AO/Civil/AMG-II	Virtually Present
30.	State Government, Karnataka		Virtually Present
31.	AG (Audit-II), Gujarat	Sh. Aaditya Pant Dy. A.G.	Virtually Present
32.		Sh. P. B. Chougule Sr. A.O.	Virtually Present
33.	AG (A&E), Gujarat	Sh. B D Parmar PAG (A&E)	Virtually Present
34.	AG (A&E), Uttarakhand	Sh. D.D. Pandey Sr. Accounts officer	Virtually Present

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35.	PAG (Audit), Uttarakhand	Sh. Yogesh Agrawal, DAG (AMG-II)	Virtually Present
36.		Sh. Ravindra Kumar, Sr. Audit Officer (FINAT)	Virtually Present
37.		Sh. Vikas Dhyani Sr. Audit Officer (FINAT)	Virtually Present
38.	PAG (A&E) West Bengal	Ms. Y. Ray Chaudhuri Pr. A G	Virtually Present
39.	State Government West Bengal	Ms. Sonali Dutta Director, Mines & Minerals	Virtually Present
40.		Sh. Nilabja Roy Superintending Geologist	Virtually Present
41.	AG (Audit), Meghalaya	Ms. Shefali S Andaleeb AG(Audit)	Virtually Present
42.	State Government, Meghalaya	Sh. Ramakrishna Chitturi, Joint Secretary, Finance (Bud. Deptt.)	Virtually Present
		Director of Mineral Resources	Virtually Present
43.	PAG (A&E)-I Madhya Pradesh	Sh. Ravindra Pattar PAG (A&E)-I	Virtually Present
44.	Ministry of Statistics and Programme Implementation (MoSPI)	No representation <sup>1</sup> .	
45.	Ministry of Mines		

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<sup>1</sup> Invitation letter send, receipt confirmed and then followed up telephonically.



# Natural Resource Accounting (NRA)



----A Commitment for Sustainable Development



Earth provided enough to satisfy every man's needs but not every man's greed

- Mahatma Gandhi

# Context



# Context

COURTESY: ANI/DD

NOVEMBER 1, 2021

GLASGOW



# Need for Natural Resource Accounting?

- ✓ Mankind in its quest for rapid economic development has exploited nature to serve its narrow selfish interests and in the process harmed nature. **This has resulted in environmental degradation** leading to **climate change, extreme weather conditions** and **frequent natural disasters**.
- ✓ Conventional accounting captures data only of the measurable economic activity. In order to overcome this shortcoming and to capture the intimate interplay between the manmade environment and the various components of the natural environment, the concept of National Resource Accounting has emerged.
- ✓ It is based on the concept “Measurement of a resource leads to its better Management.”
- ✓ Natural resources play a pivotal role for economic development of a country and are crucial for their inbuilt value of **Inter-generational equity and sustenance**.

# 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**



## Environmental Statistics

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

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

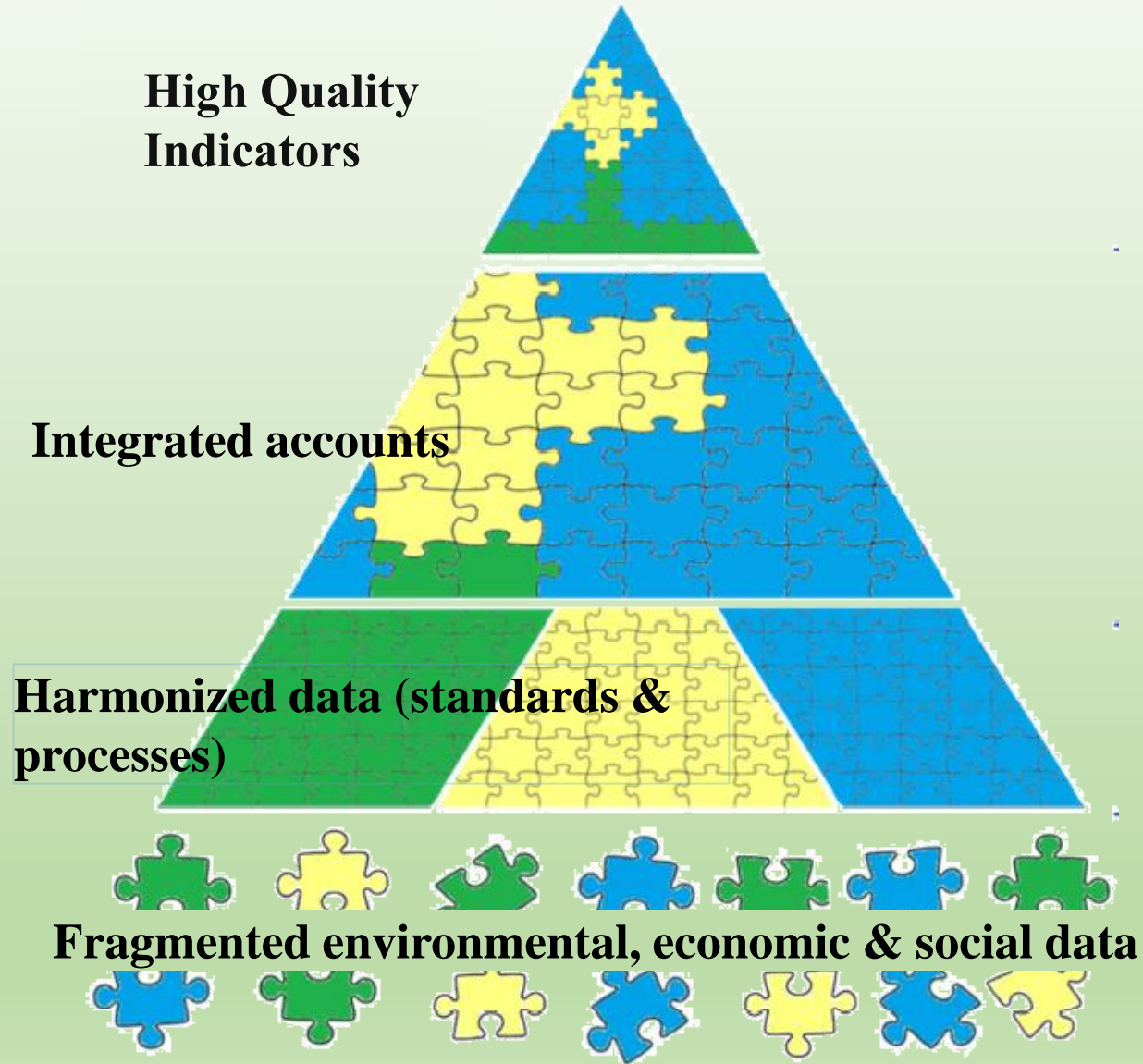
## Eco-Environmental Accounting

- ✓ 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** and helps to identify pieces that are missing
- ✓ Able to help **quantify the adverse impact on environment** due to economic development and aid to sustainable growth

# Natural Resource Accounting



# NRA – Imperative – summing up



- **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 evidence based 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

**Natural Resource Accounting**

# International Accords – our obligations

- United Nations Framework Convention on Climate Change (UNFCCC) – 1992
- Kyoto Protocol – 1997
- Marrakech Accord – 2001
- Kyoto Protocol comes into force – 2005
- Nairobi work programme on adaptation – 2006
- 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

Agenda 21,  
Rio +20, SDGs: *Integrate  
nature into decision  
making!!!*

# International obligations for preparation of NRA

- ✓ GOI have become signatory in 2015-16 (25<sup>th</sup> September 2016) to the UN General Assembly resolution titled, “transforming our world; the 2030 agenda for sustainable development” consisting of 17 Sustainable Development Goals (SDG).
- ✓ There is a current proposal for assessing and measuring SDG no. 12, 13, 14 and 15 linking with the environment and climate change.
- ✓ There are 25 environment related targets which are required to be monitored as per the commitment given by India to the UN.
- ✓ Particular attention is being paid to Target no 15.9 related with accounts. As per **the Target 15.9: By 2020, integrate ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies and [accounts](#)**.
- ✓ The issue is being handled by various Ministries/ Departments including NITI Aayog. CAG report on preparedness has raised red flags on these developments.
- ✓ Efforts made by [different Countries](#)

# SEEA –CF UN mandated Environment Economic Accounting Framework

## SEEA does

- Provide guidance on producing “accounts” for:
  - Natural inputs to the economy,
  - Impacts of the economy on the environment, and
  - Expenditures to mitigate impacts
- Support sustainable statistical infrastructure to **regularly** produce relevant accounts and indicators
- Improve **coherence** by standardizing concepts, classifications and methods
- Reduce **overlaps** in data collection
  - “collect once, use many times”
- Improve **relevance** by linking to SNA



## Relevance

- ✓ Monitors the interactions between the economy and the environment with a consistent set of indicators to support policy makers
- ✓ Can also be used with a limited set of information.

## Consistency and reliability

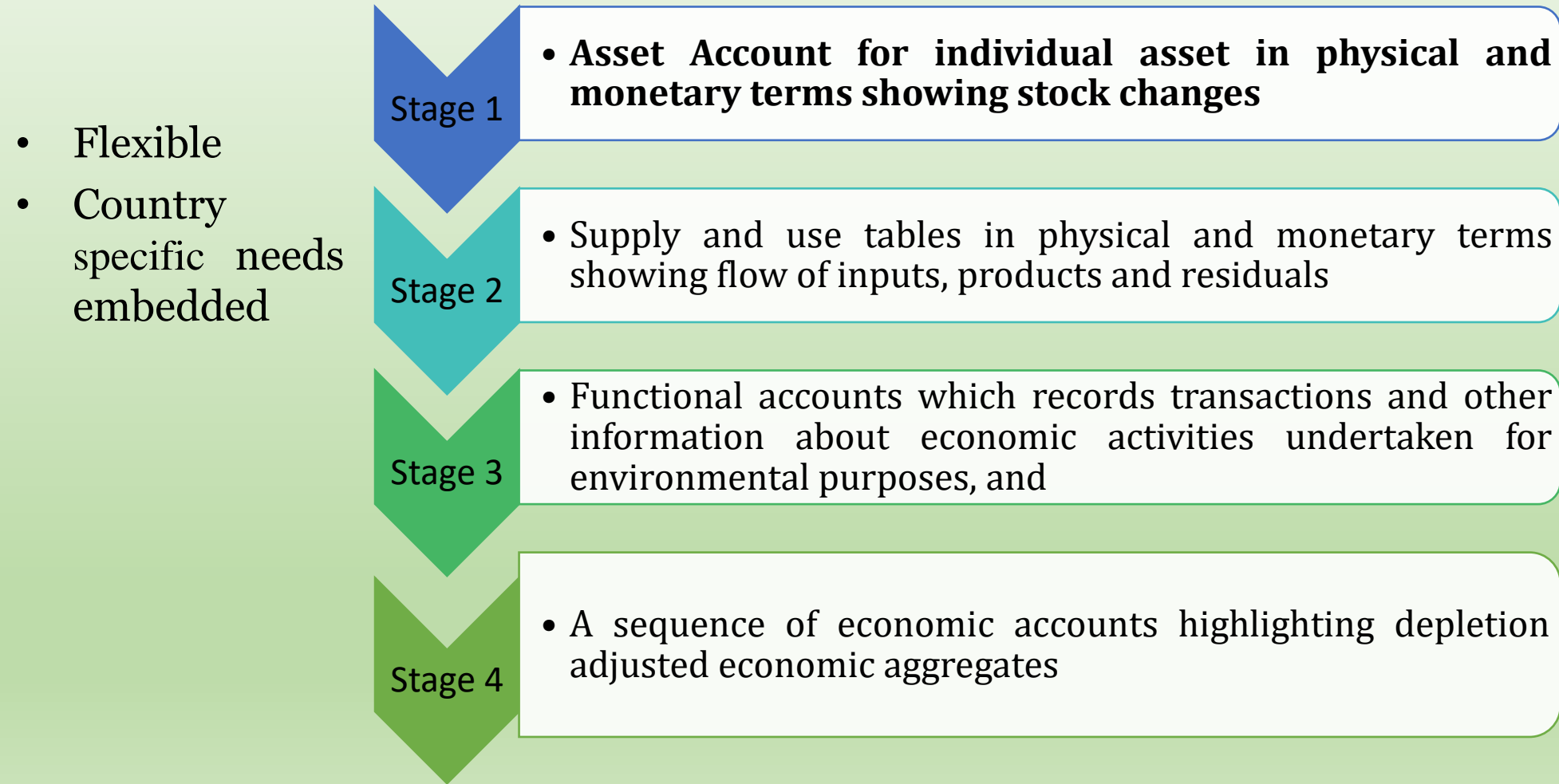
- ✓ Provides checks and balances (supply=use)
- ✓ Ensures data are internally consistent
- ✓ Allows comparisons in time and between countries

## Efficiency

- ✓ Environmental accounts can also be used to strengthen national accounts
- ✓ No additional surveys needed.

# SEEA – CF and suggested implementation strategy

- SEEA – CF – latest international framework for economic-environmental 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

**Natural Resource Accounting**

# INTOSAI- Working Group on Environment Audit (WGEA)

- Working Group on Environmental Audit (WGEA) Report – “Environment Accounting - current status and options for SAIs”.
- SAIs can assist in the development of environment accounts by:
  - ✓ Identify challenges in applying environment accounting
  - ✓ Recommend strategies to overcome challenges
  - ✓ Identifying goals for developing environmental accounts
  - ✓ Identify agencies and organisations that compile information useful for NRA
  - ✓ Identifying best practices in NRA

**CAG is in a unique position to play a critical role to enable the process of preparation on Environmental Accounts**

# **INTOSAI (Founded in 1953 – autonomous, independent and non-political organization Provides institutional framework for Supreme Audit Institutions)- Working Group on Environment Audit (WGEA)**

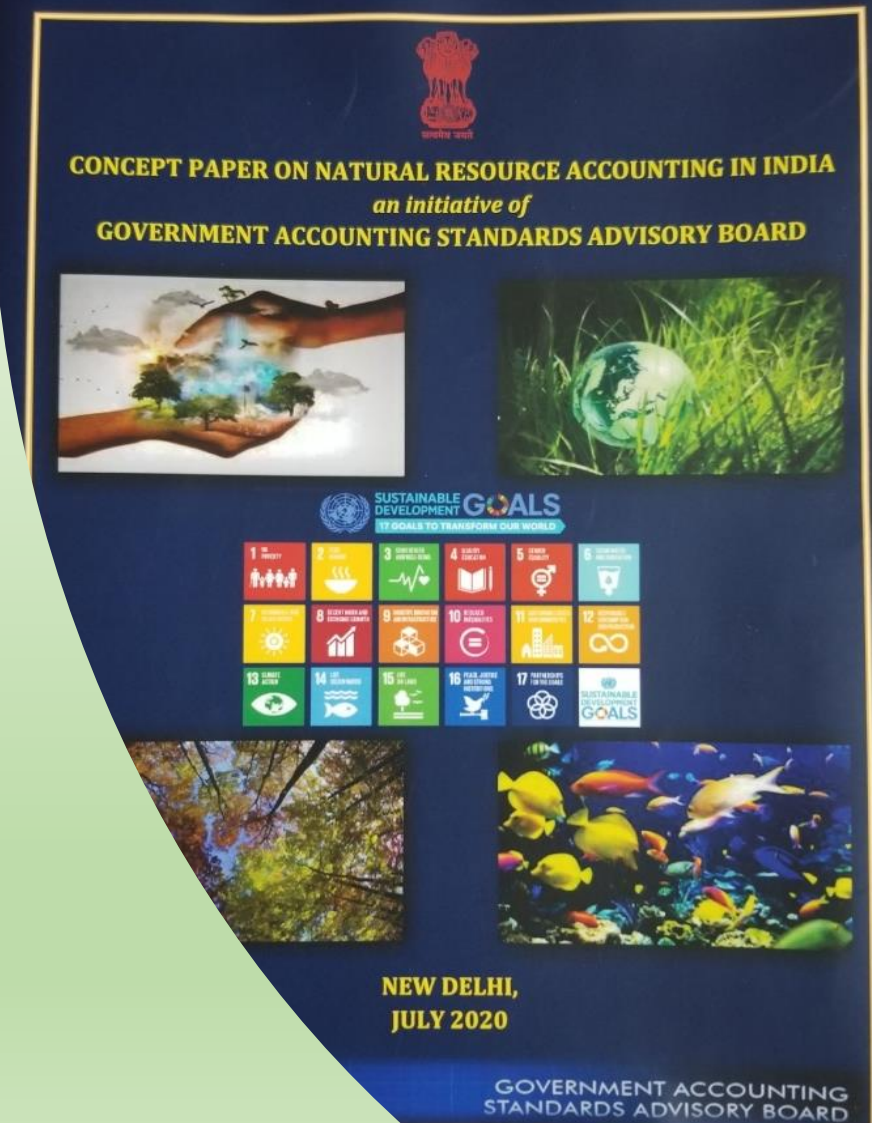
SAI India is a member of the Steering Committee of INTOSAI (WGEA).

INTOSAI publication “Environmental Accounting: Current Status and Options for SAIs” lists four options :-

- ✓ Audit the reliability of environmental accounts and the methodologies used to develop them;
- ✓ Use environmental accounts in program audits to assess the effectiveness of environmental policies and programs and/or whether or not government programs are complying with national laws;
- ✓ Use environmental accounts to determine the government’s compliance with the reporting requirements of international conventions and/or
- ✓ Assess the extent to which program managers are using environmental accounts in decision making and identify opportunities for managers to enhance their use of these accounts.

# Work done by GASAB ... The Concept Paper on NRA

- A Concept Paper on Natural Resource Accounting was prepared by GASAB
- Paper released on 28 July 2020 by then MoS, Ministry of Environment, Forest & Climate Change, GoI
- Copy endorsed to the Hon'ble Prime Minister of India
- PMO's appreciation received
- Subsequent initiatives/docs –
  - Guidelines/SOPs / Template of Asset Account
  - Mapping of national declaration made at COP 26
  - Structure of Report





# The Concept 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 endeavor 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)

Short term goals	Mid-term goals	Long term goals
<ul style="list-style-type: none"> <li>• <b>Preparation of Asset Accounts on mineral and energy resources in States</b></li> <li>• Initiation and preparation of disclosure statement on revenues and expenditure related to NRA <i>(2019-20 to 2021-22)</i></li> </ul>	<ul style="list-style-type: none"> <li>• Preparation of National Asset Accounts on mineral and energy resources</li> <li>• Preparation of Asset Accounts in respect of other <b>four resources namely water, land and forestry and wildlife resources in the States</b></li> <li>• Preparation of functional accounts recording transactions and other information about economic activities undertaken for environmental purposes.  <i>(2022-23 to 2024-25)</i></li> </ul>	<ul style="list-style-type: none"> <li>• Supply and use tables in physical and monetary terms showing flow of inputs, products and residuals; and</li> <li>• Preparation of the economic accounts highlighting depletion adjusted economic aggregates.  <i>(2025 - 26 onwards )</i></li> </ul>

## Natural Resource Accounting

# *How we proceeded*

## **Planning**

- Resources identified
- Templates finalised – shared with States (October 2021)
- AsG (A&E/Audit) and Depts. – joint effort
- State NRA Cells formed – regular interactions
- Training and capacity building in States - State specific workshops
- Consultative Committee/State NRA Cells – continuous guidance and technical support

## **Execution**

- Detailed guidelines/continuous handholding
- Monthly meetings with all States (6 meetings held till now)
- Fast track response system on queries
- State AsG, NRA Cell members and State Governments – regular interactions

## **Planning the future**

- Guidelines/SOPs for continuous data processing
- Mapping supply and use
- Standardized reporting – grades of minerals to be used uniformly
- Design of data flow, checklists, certifications, supporting documents
- Structure of reports

## **Natural Resource Accounting**

# Stakeholder Consultations

- **Concept Paper/Book on templates/Guidelines shared with**
  - PMO, MoSPI, MoEFCC, MoMines, Indian Bureau of Mines, MoPNG, MNRE, MoCoal, MoCorporate Affairs, Jal Shakti and DoLR, TERI, ICAI, ICWAI, NRSC, Dept. of Environmental Studies – Delhi University
  - All the State Governments (Chief Secretaries/Finance, Mines Secretaries) informed about the endeavor and their response sought
  - All Central and State Universities informed, copies shared, and response sought
  - Senior management of CAG, all GASAB Board members
  - Consultative Committee/
  - State NRA Cells

*Each of the  
comments/suggestions  
taken into consideration*

# 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 all 30 States

## **Consultative Committee on NRA Cell created in GASAB Hq**

- Headed by ADAI, GASAB
- Shri Mukul Sanwal, IAS (Retd)
- Ministries (MoSPI, MoMines, Jal Shakti, DoLR, MoCA, MoEFCC, MoPNG, MNRE)
- ICAI, TERI, NITI, NRSC, GST, Customs, IBM
- Five State Governments (Gujarat, Jharkhand, Karnataka, Meghalaya, and Uttarakhand)/AsG of these five States
- Officers from GA, Commercial Wings and iCED in CAG

# Guidance of Consultative Committee – during first meeting

## Comments/Suggestions

**CGM, Gujarat** - List of minerals may be State-specific and not pre-fixed

**MoSPI** - Need to monitor the production loss as in many cases it is as high as *70 per cent*

## Action taken

AsG were advised to shortlist the minerals (major, minor and fossil fuels) in consultation with the State Governments – Accordingly, States have prioritized their resources to be covered in first draft and planned for inclusion of remaining resources in phased manner

The table 2 in templates were modified to include input for production loss. Further, separate table (Table 4) have been incorporated for capturing extraction and production to ascertain production loss and its percentage

# Guidance of Consultative Committee – during first meeting

## Comments/Suggestions

## Action taken

**IBM** - Information on minor minerals are not streamlined. E&F Deptts. also involved in some States

- ✓ The Asset Accounts are designed to capture data on major, MINOR as well as fossil fuels.
- ✓ All State Asset Accounts to cover MINOR Minerals
- ✓ Guidelines/SoPs issued to ensure quarterly reporting on extraction of resources – including minor minerals
- ✓ Expected to streamline reporting of data on minor minerals
- ✓ E&F Departments in concerned States also covered

**Shri Mukul Sanwal** – Sand, mainly being in river-beds is renewable resources – could be accounted for accordingly  
- Resources may be carefully selected

- ✓ Previously in table 2 sand was listed along with other resources
- ✓ Separate tables (2A and 2B) designed to capture riverine resources like sand, stone, boulders etc
- ✓ Main thrust on extraction as the stock is accumulated and depleted each year
- ✓ Wherever, mining plans in existence, information being gathered and included on stock available
- ✓ All States have been guided to include resources crucial to the respective States.

# Guidance of Consultative Committee – on Guidelines/SoPs

## Comments/Suggestions

### Shri Mukul Sanwal –

- movement of resources could be monitored through remote sensing
- Use of geo-spatial data
- Use of special fastags
- Intensive cross checking
- Incentive scheme for detection of illegal mining – good idea

### Word of appreciation:

*The Guidelines are comprehensive and practical*

*Adherence to timeline - appreciated*

## Action taken

- ✓ NRA Cell expanded to include NRSC. MOU is under process to get handholding of NRSC in capacity building and geo-spatial data extractions for Geo- mapping of mines and implementing concept of geo-fencing to have better control over the supply and use of resources.
- ✓ Use of special fast-tags included in the Guidelines/SOPs as recommendations to the States.
- ✓ Cross verification is embedded in the system prescribed for mapping supply and use – 360 degrees profiling of mineral usage/sales/ consumption is being targeted.
- ✓ Suggested to states that an online system needs to be developed with login facilities for different players so that information can be captured at point of origination and near real time preparation of NRA can be facilitated.
- ✓ Good practices of different states like use of drones by Gujrat shared.



# Guidance of Consultative Committee – on Guidelines/SoPs

## Comments/Suggestions

### MoEFCC–

- Methodology to capture the state level inventory is yet to be formalized by MoEFCC.
- India's national GHG inventory as per IPCC guidelines is communicated periodically to the UNFCCC

### MNRE–

- an additional column may be inserted as 'Others including Biomass, Waste to Energy, Geothermal etc.' for capturing data for Renewable Energy

### iCED, Jaipur –

- Need to report on sand, stone etc separately
- Monitoring of national targets at COP 26

## Action taken

- ✓ Agreed. Table No 6 has been withdrawn for Asset Accounts 2020-21.
- ✓ National compilation would contain the country-specific information to be sourced from the MoEFCC after validation to ensure comprehensive reporting

- ✓ Agreed. Table No 7 now renumbered as Table 6 modified accordingly.

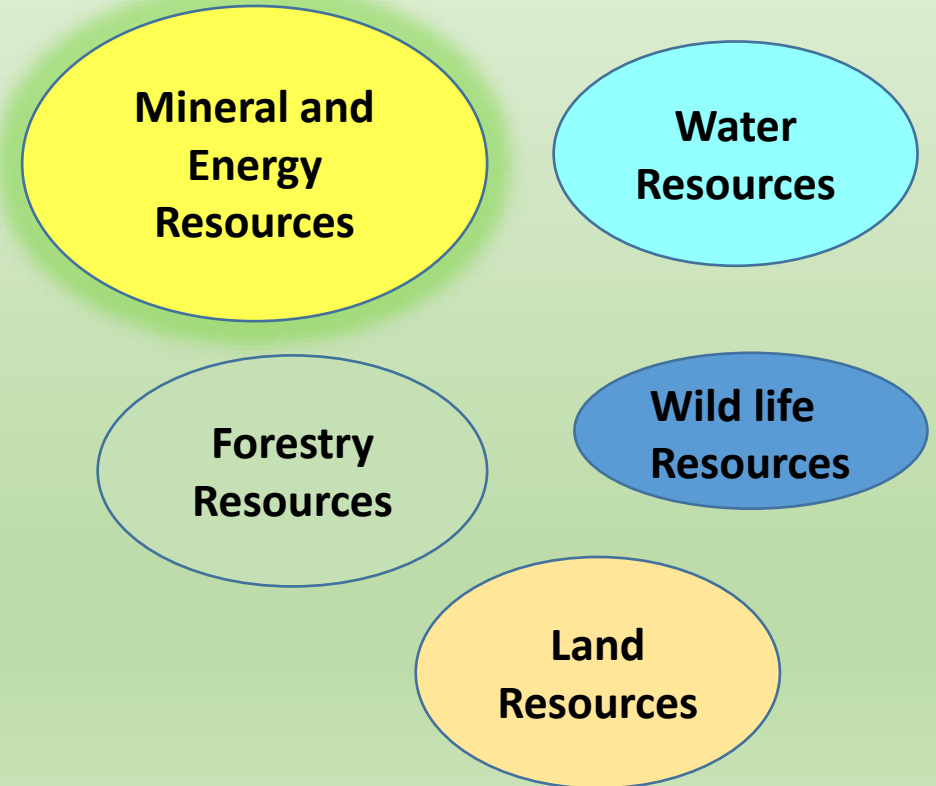
- ✓ Both recommendations already covered in third draft of guidelines

# Resources to be covered

## 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



# Stages in the process of mining operations – Understanding the process

**Mineral Concession**

- Post-auction Mineral Concession application
- LoI,MDPAand lease deed grant
- Surface Right (NOC) post lease grant

**Clearances**

- Environ. & SPCB Clearances
- Forest Clearances
- Mining Plan

**Production**

- Run- of - Mines
- Sized ore
- Fines ( Natural & Crushed)

**Approval**

- Chemical Analysis
- Due Clearances
- Royalty Payments

**Dispatch**

- Road and Rail
- Conveyor & NGT

**Verification**

- Check Gate
- EnRoute
- Surveillance

**Receipt**

- Industries, Ports
- Stockists, Storage

After the auction, the IT system manages all aspects of business, mineral regulation & administration online

Evolved over the years strictly following all Central and State Mining Rules

# Mines & Mineral Management System



# Asset Accounts on Mineral & Energy Resources – Key takeaways by States

- One pager document on State-wise resources – other wise scattered
- **Physical flow** and monetary values compiled – enable CV of revenues vis-à-vis Extractions
- Pace of exploitation – over the years
- Analysis of revenue vis-à-vis market value/export value
- Enable assessment of revenue streams
- Stock and sustainability of resources – in years
- To enable States to identify alternate resources (energy/ economic)
- Close monitoring on illegal mining
- Enabler of State-wise overview of mineral repository
- Geo tagged mineral map of the country – enable geo fencing
- Monitoring progresses towards national declaration at COP 26

Lets have a look at the Tables 1 to 5

# Table - 1

Particulars	Names of resource(s)
Opening stock of environmental asset	
Growth in stock	
Discoveries of new stock	
Upward reappraisals	
Reclassifications	
Total addition of stock	
Reduction of stock	
Extractions	
Normal loss of stock	
Catastrophic losses	
Downward reappraisals	
Reclassification	
Total reduction in stock	
Valuation/Revaluation of the stock* (revenue receivable/actual market price) – as in table 3	
Closing stock of environmental assets	

- Mother table of Asset Accounts – Retained same as prescribed by SEEA – CF
- Ease of international comparisons
- Scope for revisions in subsequent years – upward and downward reappraisals

## Table – 2 (Physical flows)

Sub/detailed tables designed by us to suit country specific needs by capturing/providing

- physical flows and sustainability
- 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

Classification	Grade- wise sub- classification (may vary from State to State)	Opening stock of proved reserves	Addition to stock	Reduction in stock			Closing stock of proved reserves	Sustainability of resources in years	
				Extracted by/for		Other extractions/exports			Total extraction
				Govt Sector	Private Sector				
(in tonnes/cum - as the case may be)									
Major, minor and fossil fuels									

# Table – 2A

Designed to capture physical flows of riverine resources

- Opening stock not ascertainable – most of the cases
- Accumulation of resources as estimated in mining plans to be captured
- Closing stock – if possible to be captured from the mining plans
- Separate table designed for valuation of the riverine resources

Grade- wise classification (may vary from State to State)	Available reserves at the beginning of the year (as per mining plans)	Accumulation during the year	Reduction in stock				Remaining reserves at the end of the year
			Extracted by/for		Other extraction including exports	Total extraction	
			Govt Sector	Private Sector			
(in tonnes/cum - as the case may be)							
Sand							
boulder							
Shingle							
Others							



## Table – 3 (Valuations)

Sub/detailed tables designed by us to suit country specific needs by capturing/providing

Two-pronged valuation suggested—revenues and Average Sale Price (captured by IBM – to be used for major minerals)

To capture production loss

To capture illegal mining detected by State Governments

Particulars	Grade- wise sub- classification (may vary from State to State)	Physical unit (in tonnes/ cum) extracted showing Govt, Private and other sector	Valuation of resources		
			Revenue receivable showing Govt, Private and other sector	Total revenue receivable	Average Market value  (as ascertained from the IBM/ State Statistical Department)
(₹ in crore)					

## Table – 4 (Extractions - productions)

Extraction and processing of ores to be analysed

To ascertain production loss

To monitor stock of raw ores and processed ores separately

Name of resource (s) with detailed grades	Opening stock at the beginning of the year		Extraction during the year	Production during the year	Production loss/variatio ns between extraction and production		Dispatch during the year	Closing stock at the end of the year	
	Raw ores	Processed ores			In volume	In per cent		Raw ores	Processed ores
	Physical units					Physical units			

## Table – 5 (DMF etc)

District mineral foundation trust – collected as part of royalty for welfare of local affected people

Table to capture data on DMF realizable on volume of minerals and DMF actually realised

Table to bring out variations in DMF collections

Challenges – Not all States have readily available data, being streamlined

Name of Mine/Mineral/ District	Volume of minerals on which DMF was realisable	Rate at which DMF realisable	Total DMF realisable	Total DMF realised	Variations, if any	
					In ₹	Percentage

# Training, capacity building and sensitization (*post release of Concept Paper*)

- 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
- Dy CAG informed the State Chief Secretaries/Addl Dy CAG wrote to State AsG
- Virtual presentations on NRA held for the State CSs/Addl CS, Finance/Mines between 31 Aug and 10 Sept 2021 – all 30 States covered

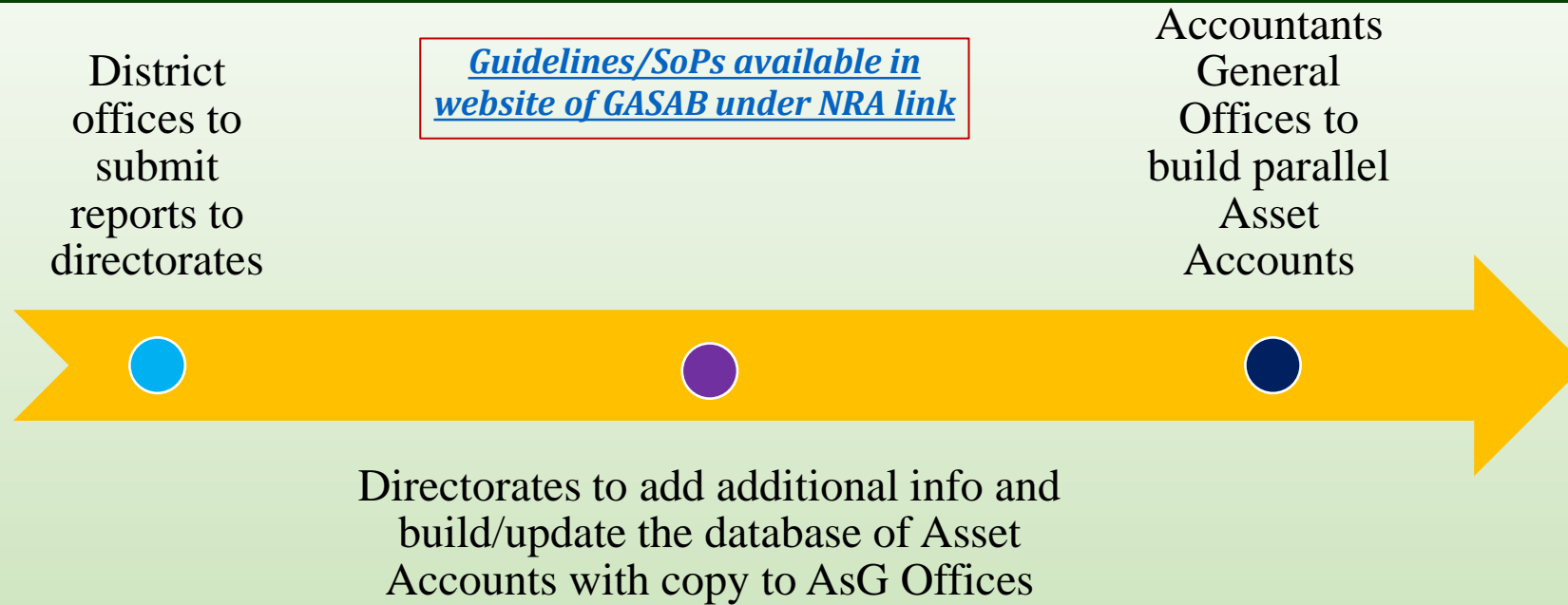
## **Response of the States**

- Ready to take part
- State specific workshops will help – 5 such workshops organized
- Valuable database to be generated
- Targets and timelines achievable (March 2022)

# Handholding the States – Oct'21 till date

- Monthly meetings with all States – every month (6 meetings)
- Progresses in States being monitored, constraints discussed, targets set, continuous guidance and handholding
- State Governments actively participating in the meetings
- Chaired by Addl Dy CAG - interacting with all State AsG/State Governments
- A number of guidance notes, clarifications issued between October 2021 till date
- Guidelines/SoPs for preparation of Asset Accounts prepared and circulated
- Constant guidance sought from the Consultative Committee members – circulated to the States

# The future plans - What is intended from April 2022



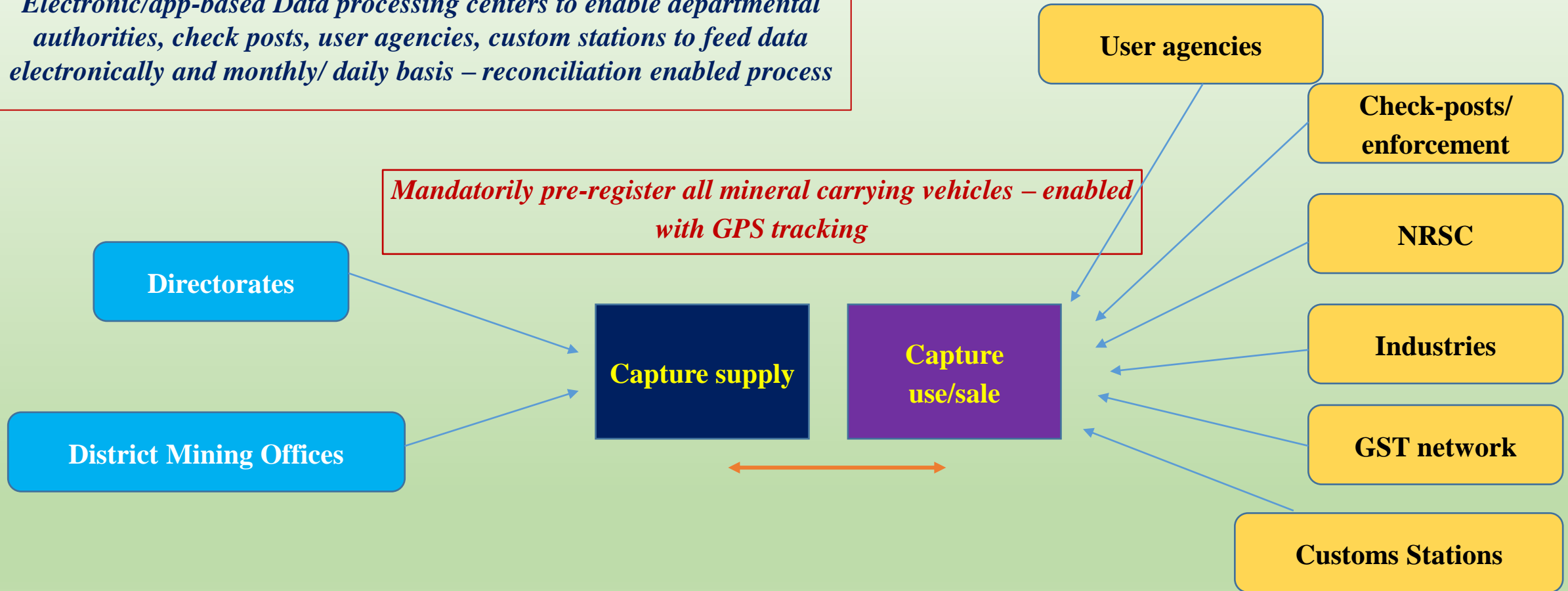
- [Reporting requirements](#) listed and circulated
- All remaining minerals to be covered in phased manner
- [Standard gradation](#) of minerals to be adhered to while reporting
- [Checklists](#), [certifications](#)- district/directorates, corroborated with supporting documents
- Many State Governments already agreed to while others are being coordinated with by the AsG Offices

# Automation process envisaged-2022 onwards

## *Ambitious plan to map supply and use*

*Electronic/app-based Data processing centers to enable departmental authorities, check posts, user agencies, custom stations to feed data electronically and monthly/ daily basis – reconciliation enabled process*

*Mandatorily pre-register all mineral carrying vehicles – enabled with GPS tracking*



**Natural Resource Accounting**

# Recommendation to the States – effective watch over extractions

## Statutory Approach

- Automate the permit system
- Bar coding of permits, real time sharing, cancellation of used permits, pre-regn of carriage vehicles
- Mandatory verification of permits at end use – stringent penal measures
- Use of drones/satellite imagery to detect illegal mining
- An end to end online system to capture all data at point of origination by login and near real time compilation of NRA

## Short term approach

- Identify and list evasion prone resources (sand, iron ore, coal etc)
- Pick up one or two resources each year
- Identify all possible contact points – exit check posts, ports, consuming industries, user agencies etc
- Gather comprehensive data from all sources
- Cross verify with the supply data captured through the monthly reporting mechanism

## Long term approach

- Statutory approach and short term approach to be implemented
- Systemize data collection mechanism from all possible exit/export points, consuming industries, user agencies, bulk sellers etc
- Build systems of regular collection of data and cross verification with supply figures to raise real time flags for detections and preventive actions



# Monitoring National Declaration at COP 26

## - *the Panchamrit*

1. *India will take its non-fossil energy capacity to 500 GW by 2030.*
2. *India will meet 50 percent of its energy requirements from renewable energy by 2030.*
3. *India will reduce the total projected carbon emissions by one billion tonnes from now till 2030.*
4. *By 2030, India will reduce the carbon intensity of its economy by more than 45 percent.*
5. *By the year 2070, India will achieve the target of Net Zero.*



- **Need to monitor the targets emphasized in the Guidelines/SoPs**
- **India's national GHG inventory as per IPCC guidelines is communicated periodically to the UNFC**
- **State level inventorization methodology is yet to be formalized by MoEFCC – SOME STATES WORKING OUT**

*To source info on carbon emission from MoEFCC for national compilation – may provide figures of 2020-21*

# Table – 6

## (Generation of renewable energy resources)

Sector-wise energy requirement vis-à-vis how the need is met

Generation of renewable energy resources – to provide progress

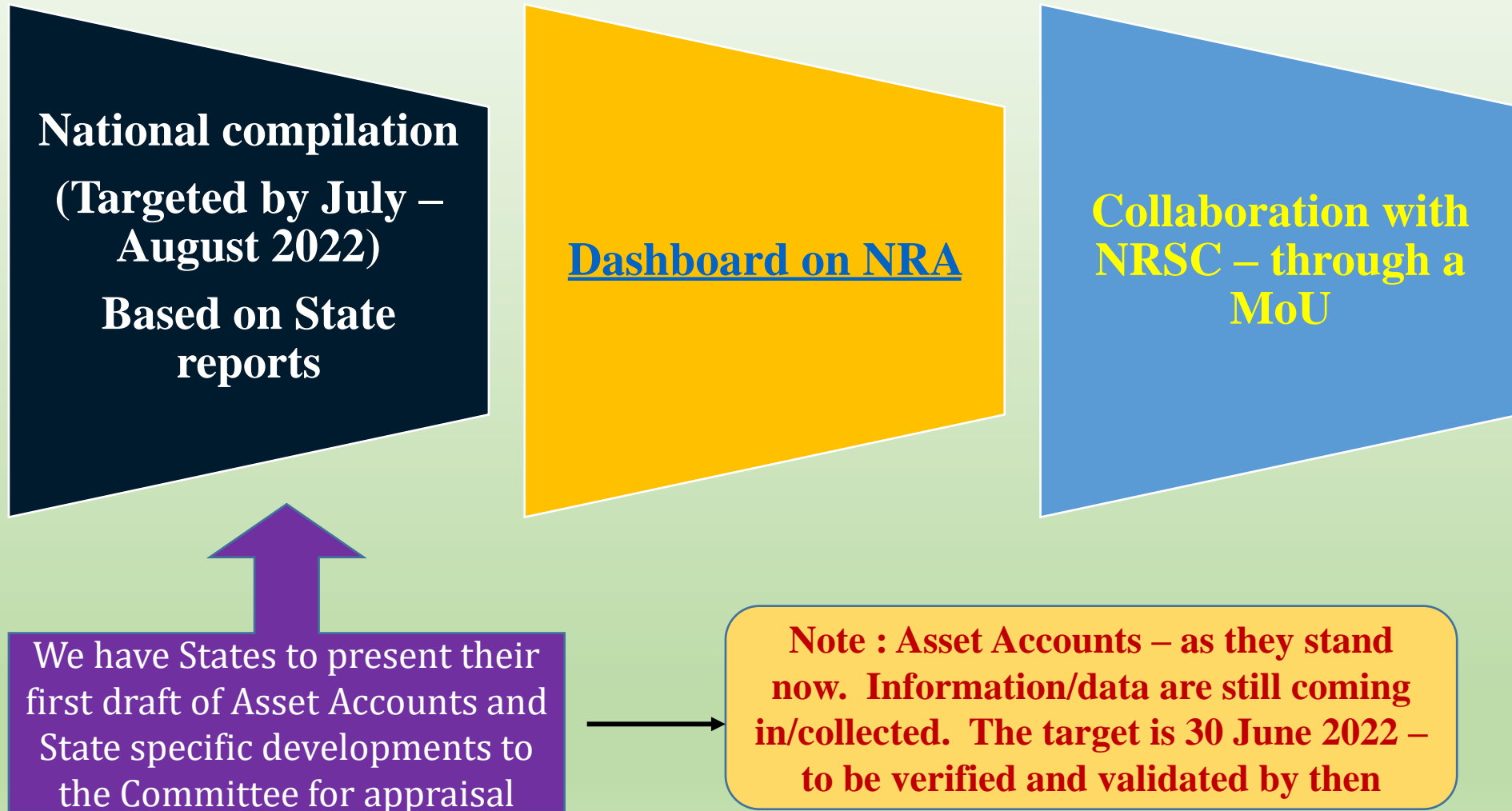
Sector	Energy requirement by sector during the year (in MWH/GWH)	Total energy requirement in the State (in MWH/GWH)	Generation/additional generation of energy during the year ( in MWH/GWH)		Percentage share of non-renewable and renewable energy resources vis-à-vis total requirement
			Non-renewable (N/R) energy/Fossil fuel sources (MWH/GWH)	Renewable energy	
				Solar/Wind/Hydel/Others incl Bio Mass, Waste to energy, Geothermal etc	
Industries					
Domestic					
Agriculture					
Commercial					
Traction and Railways					
Others					

# Status of Asset Accounts 2020-21 – ending April 2022

*We commenced from first week of November 2021 after circulation of booklet on templates to the State Governments*

Asset Accounts prepared and are under verification/validation	Asset Accounts partially prepared
<b><i>27 States/1 UT</i></b>	<b><i>1 State</i></b>
<i>Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Goa, Gujarat, Haryana, Himachal Pradesh, Jammu &amp; Kashmir, Karnataka, Kerala, Madhya Pradesh, Maharashtra, Manipur, Meghalaya, Mizoram, Nagaland, Odisha, Punjab, Rajasthan, Sikkim, Tamil Nadu, Telengana, Tripura, Uttar Pradesh, Uttarakhand, West Bengal</i>	<i>Jharkhand</i>

# On the Cards



**Natural Resource Accounting**

# Other elements of short-term goals

**- Disclosure statement**  
**- Object heads to capture royalties, penalties, fees etc**  
**(work initiated)**

**Involving the Public/  
Private Sector**  
**(Interaction with MoCA initiated)**

# *Challenges – Preparing the Asset Accounts on Mineral & Energy Resources*

- System prevalent – but non-compliances observed
  - Extraction and royalty figures – was to be readily available as per the system in place where the DCBs should capture all data
  - More time consumed in validation of data
  - Variation between Departmental and IBM figures – should have been identified by now and reconciliation process instituted
  - Royalty receivable and royalty actually received not readily available
  - Average market value (required for working out the GSDP) not available in many States
- Consolidated data not available in the Directorates
- Many State Government departments reported manpower crunch – absence of officers and staff in the mines area
- Absence of cross verification mechanism – non detection of illegally mined products being transported/exported
- Geo-tagging/fencing not yet complete – making satellite monitoring difficult

# Other challenges

➤ Some bottle necks:

- *Data availability, Data reliability,*
- *Valuation of non-monetized natural resources,*
- *Plethora of Agencies involved in data collection and*
- *Shortage of Skilled Manpower*
- *Shortage of equipment and training facilities*



**“YOU DON’T OVERCOME  
CHALLENGES  
BY MAKING THEM SMALLER  
BUT BY MAKING  
YOURSELF BIGGER.”**

**JOHN C. MAXWELL**

QUOTESEVERLASTING.COM

“The only limit is our willingness to act and the time to act is now.”

The objective 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.

Towards a better and sustainable future for all by 2030.....

**THANK YOU!**

**Valuable suggestions are needed**





# Layout of Dashboard on Natural Resources (mineral and energy resources)

Conceptualised and under development

Dropdown Menu

Concept Paper on NRA –  
an endeavour of GASAB

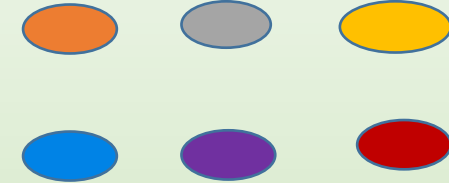
Booklet on templates on  
Asset Accounts on Mineral  
and Non-Renewable Energy  
Resources

Guidelines/SoPs on  
quarterly flow of  
data/information

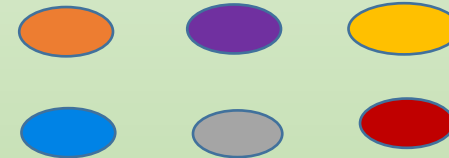
Monitoring national  
declaration at COP 26  
(the *Panchamrit*)



Major minerals covered



Minor Minerals covered



Fossil fuels covered



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# The monthly reporting mechanism – *resource wise and mine wise*

- Name of resource/mine – showing separately major minerals, fossil fuels, minor minerals and other resources (as the case may be)
- GPS co-ordinates of the mine area
- Proved reserve as on 1-4-2022
- Name of lease holder/periodicity of lease
- Quantity allowed for extraction (gross)
- Qty extracted till previous month (with detailed sub-classification of minerals)
- OB of extracted resources/finished products for the current month (with detailed sub-classification of minerals)
- Quantity extracted during the month (with detailed sub-classification of minerals)
- Quantity dispatched during the month – showing separately Government sector, Private sector, others usage, exports

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*For this, suitable mechanism need to be evolved at the district level for monitoring dispatch/usage of resources for various sectors like Government, Private, Export etc. need to be installed, if not in place*

# The monthly reporting mechanism – *Checklists*

- **A checklist could be used to ensure that the reports/returns are correct with the following inputs (illustrative and not exhaustive):**
  - That all economically and socially important minerals and non-renewable energy resources as agreed by the NRA Cell to form the Account has been covered,
  - That all the mine areas under the district, whether active or dormant, have been included,
  - That the total extractions allowed shown in the reports/returns tallies with the records available in the districts/directorates,
  - That total extractions carried out during the period and those dispatched are corroborated with records/documents, photocopies of which are supplied along with the monthly reports/returns,
  - An assurance from the lease holders that the figures mentioned in the extraction and dispatch figures are true and fair picture of the actual figures and that no excess extraction and dispatch has taken place to the best of their knowledge,
  - That the closing stock of extracted resources and the finished products are actually those available at the mine/production site.

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# The monthly reporting mechanism – *resource wise and mine wise*

- Revenue remitted on account of resource extraction/dispatch – to be verified/reconciled with the treasury figures supported with schedule of receipts
- Variations/percentage variations
- Closing stock of extracted resources/finished products (with detailed sub-classification of minerals)
- Comments (if any) including detailed information on detection of illegal mining in the area

## • Riverine resources –

- Flow concept –
- Stock often not available
- Only extractions are reported
- Mining plans – mandated by GoI requires ascertaining the available resources
- Can be used suitable as opening stock – with suitable disclosures



# The monthly reporting mechanism – *certifications, supporting documents etc*

## ***Certifications:***

- ✓ That all resources/mining areas including dormant mines are covered in the report
- ✓ Data has been verified with the records of the district office
- ✓ Data is reconciled with that of the lease holder's records
- ✓ Resources have been extracted/dispatched after prior payment of requisite royalties and other Government dues
- ✓ The receipts mentioned in this report tallies with that reported through the monthly accounts and verified/reconciled with the schedule of receipts

**Directorates to add** information like additions/growth in stock, explorations, catastrophic losses, opening stock of proved reserves, total receipts/market value, illegal mining detected.

## **Supporting documents:**

- Copies of the monthly accounts showing total receipts during the month.
- Supporting proof of information/figures as provided in the monthly report/returns.
- Copies of schedule of receipts (monthly).

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# Standardised reporting

- Standard gradation of major minerals like coal, iron ore etc wherever practicable should be followed (as graded by IBM)

Iron Ore	Limestone	Manganese Ore	Marble
Below 55 % FE	Cement	Below 25 % Mn	White colour
55% to below 58% FE	LD, SMS and BF	25% to below 35% Mn	Off colour
58% to below 60% FE	Chemical	35% to below 46% Mn	
60% to below 62% FE		46% Mn and above	
62 & to below 65% FE			
Above 65% FE			

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# International experience in compilation of Natural Resource Accounting

Country	International experience in Natural Resource Accounting Resources involved	Time series	Level at which A/cs prepared	Periodicity	Costs (in US\$/INR in lakh )	Other info
Australia	Mineral & Energy Resources/ Water Resources	1995-2016	National	Annual	75,000/ 57.00	<ul style="list-style-type: none"> <li>Follows SEEA Domestic/industry water data</li> <li>Self extracted water data</li> <li>Expenditure on distribution</li> </ul>
Physical & monetary accounts						
Canada	Mineral & Energy Resources	1961 - 2017	National and Provincial	Annual	1,50,000/ 114.00	<ul style="list-style-type: none"> <li>Follows SEEA</li> <li>Figures added to National Balance Sheet</li> </ul>
Physical & monetary accounts						
Netherlands	Only energy (natural gas and oil accounts)	1990-2017	National	Annual	11,500/ 8.74	<ul style="list-style-type: none"> <li>Follow SEEA</li> <li>Government revenue parameter for monetary accounts</li> </ul>
Physical and monetary accounts						
United Kingdom	Energy (natural gas and oil) accounts Timber and fish account	1989-2016 Monetary accounts from 2011	National	Annual	NA	<ul style="list-style-type: none"> <li>Follow SEEA</li> </ul>
Physical & monetary accounts						
Philippines	Only energy (select) and mineral (select) accounts		National	Annual	NA	<ul style="list-style-type: none"> <li>Selected mineral (gold, copper, chromium and nikel) and energy (coal, oil &amp; natural gas) accounts</li> </ul>
Physical accounts for energy resources and both physical and monetary accounts for mineral						

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