CHAPTER 6

FINAL TEMPLATES OF ASSET ACCOUNTS ON MINERAL & NON-RENEWABLE ENERGY RESOURCES – *for implementation in States*

6.1 Final templates – core framework

The templates of Asset Accounts on Mineral and Non-Renewable Energy Resources have been finalised after incorporating the comments of the Consultative Committee members and the experience gained in successful completion of pilots in three States. While the core framework as prescribed by the SEEA – CF has been retained, designs of the sub and detailed tables have been worked out based on country specific needs and other peculiarities besides constraints/data availability etc. Table 1 provides the format for the core framework while Tables 2 and 3 provide templates for compiling the Asset Accounts and subsidiary Asset Accounts to capture data required for the core framework and also to serve as repository of an inclusive informative database for use by policy makers, stakeholders, academia and other interest groups.

Table 1

Basic asset account on Mineral & Non-renewable Energy Resources

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
	*Revaluation of the stock**
	Closing stock of environmental assets

** Only applicable for asset accounts in monetary terms.*

As discussed in some of the preceding Chapters, flexibility is inbuilt in the framework and SEEA suggests that the entities commence preparation of the Asset Accounts with available information which can be reviewed and refined in subsequent years after receipt of updated information. Accordingly, the core framework allows reconciliatory measures like upward and downward re-appraisals, reclassifications, revaluation of stock etc.

Information/data in Table 3 may be filled in first and the resultant consolidated data may be fed in Tables 1 and 2 appropriately.

6.2 Final templates – Asset Accounts and subsidiary Accounts

Table 2

Asset Accounts on physical flows of mineral and non-renewable energy resources along with sustainability of resources

Classification	*Sub-classification (illustrative only and may vary from State to State and Union)*	*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****	*Total extraction*		
				*Govt Sector***	*Private Sector*				
		(in tonnes/cum - as the case may be)							
Major Minerals	*Iron Ore*								
	Manganese								
	Limestone								
	Copper								
	Bauxite								
Fossil fuel	*Coal*								
	Petroleum								
	Natural Gas								
Minor minerals	*Barites*								
	Granite								
	Marble								
	Calcite								
	Fireclay								
	Gypsum								
	Mica								
	sandstone								
	*Sand, stone, boulder, shingle *****								
Other resources, if any	*Not listed above and State specific*								

Information compiled in Table 3 may come in this table in consolidated form.

** - to include - Growth in Stock, discoveries of new stock, reclassifications etc*

*** - Extractions for Government sector may be further classified into extractions for State Government Departments, Central PSEs/State PSUs, Central and State Autonomous Bodies, Municipal bodies and other local authorities*

**** - to include - extractions other than those for **Government** and **Private** Sector such as exports, untaxed extractions (if any) allowed by Government, normal reduction in stock, catastrophic losses, downward reappraisals, cases of illegal mining detected, reclassifications etc*

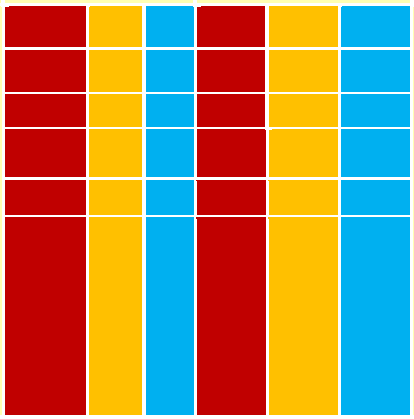
***** - Considering the yearly extraction during the current year*

****** - In certain cases, sand, stone, boulders are extracted from riverine areas and thus these could be listed as renewable resources. However, as these are managed under the Minor Mineral Concession Rules and governed by the Geology & Mining Departments in the States, these resources may also be covered here with appropriate qualifications through notes under the tables.*

Table 3

Subsidiary Asset Accounts linking detailed physical flows in respect of mineral and non-renewable energy resources with the valuation of resources.

Particulars	***Classification of minerals (as per the priorities of the State Governments)***	***Physical unit (in tonnes/ cum) extracted showing Govt, Private and other sector***	***Valuation of resources***		
			Revenue receivable (in crore) showing Govt, Private and other sector	***Total revenue implications***	***Average Market value (as ascertained from the IBM or State Statistical Department) %***
			(₹ in crore)		
Opening stock*/availability of resources at the beginning of the year*				*(a)*	*(b)*

Additions during the year: *Growth in Stock* *Discoveries of new stock* *Reclassifications* ***Total Addition :***					
Actual reductions during the year: *Extractions as reported by the State Government Department of Geology & Mining (on recovery of royalty, cess, fees, NPV etc)* *#*				*(c)*	*(d)*
Revenue related to exploitation of resources out of total revenue included in Statement 14 of State Finance Accounts/Statement 8 of Union Finance Accounts pertaining to four major heads[1]				*(e)*	
Other extractions, not taxed (if any)					
Normal reduction in stock *Catastrophic losses including natural and manmade disasters* *Downward reappraisals* *Reclassifications*					
Production loss					
Exports					
Reduction due to mining activities not approved by Deptts $					
Total reduction:				*(f)*	*(g)*

[1] Petroleum, non-ferrous mining and metallurgical industries, coal and lignite heads of receipts

Extractions permitted during the year					
Closing stock				*(h)* ***(Will show future revenue streams for the Govt)***	*(i)*

Notes (General):

The information on extraction of minerals for Government, Private and other Sectors may include data on actual extraction of resources during the year

States may amend the format of the Asset Accounts to suit their need/availability of data; however, the overall framework and the information to be gathered may be kept intact in keeping with the flexibility allowed by SEEA - CF.

Probable sources of information for mineral & non-renewable energy resources : *National Mineral Inventory an Overview as on 01.04.2015 (www.ibm.gov.in); Indian Minerals Yearbook 2018 -State Reviews, Monthly statistics of Mineral Production (www.ibm.gov.in), Coal Directory of India Coal Statistics (www.coalcontroller.gov.in), Energizing India's Progress (www.petroleum.nic.in), Department of Geology and Mining, Environment Forest and Climate Change and Statistics in States.*

- ***Opening Stock of resources:*** *The SEEA (CF) envisages that, ideally, estimates of the opening and closing stocks of an asset should be compiled with information pertaining to the reference dates of the accounting period. However, if information in respect of those dates is not directly available, relevant information may need to be time-adjusted. From time to time, new information will emerge that leads to a change in the assumptions underlying a set of estimates. When additional information is being incorporated, it is important that the estimates continue to reflect the quantities and values that could reasonably be expected at the reference dates. For the opening stock, only proved reserves should be considered. A suggestive methodology for working out the opening balance is provided with this document.*

- ***Additions :*** *Additions in stock includes mainly discoveries in new stock, reclassifications, opening up of new blocks to add with proved reserves, reappraisals etc. Of these, opening up of new blocks may occur in some years; otherwise, additions will more or less remain 'nil'.*

- ***Reductions :*** *The SEEA (CF) prescribes reduction in stock to be enumerated under five distinct categories, i.e. extractions, normal reductions in stock, catastrophic losses, downward reappraisals, and reclassifications. Of these, reduction on account of extraction of resources would be annual phenomenon which may be captured regularly while other causes of reduction may occur once in a while.*

- ***Closing stock :*** *The resultant value of opening stock, plus the additions, reduced by the reductions would lead to closing stock of resources. However, non-ascertainability of opening stock would result in non-determination of the closing stock. Similar to opening stock, appropriate explanation would have to be inserted against reasons hindering calculation of closing stock.*

Notes (Specific references):

(a) Rate of royalty in respect of each of the resources multiplied by opening balance of physical units to appear here. Sub-tables may be prepared as required to work out the figures in respect of each of the resources.

(b) Average market price as available on the website of IBM in respect of each of the resources multiplied by the opening balance of physical units to appear here. Sub-tables may be prepared as required to work out the figures in respect of each of the resources.

(c) Total of column 4 in respect of extraction of resources to appear here.

(d) Average market price as available on the website of IBM in respect of each of the resources multiplied by the resources extracted during the year to appear here.

(e) - Revenues earned by the entities by way of royalties, taxes and duties on extraction of mineral resources as reported through the Finance Accounts may be incorporated here. As the Indian Finance Accounts are maintained on cash basis, actual amount of revenue received during the year may only be incorporated here. This will be same as (c) as it depicts the total revenues realised by the entity on exploitation of resources. Reasons for variation with total receipts incorporated in Finance Accounts which includes lease rents and other administrative charges may be appropriately clarified through notes.

(f) and (g) - may be same as (c) and (d).

(h) Rate(s) of royalty/ies in respect of each of the resources multiplied by closing balance of physical units to appear here. Sub-tables may be prepared as required to work out the figures in respect of each of the resources.

(i) Average market price as available on the website of IBM/ available with the States/Union in respect of each of the resources multiplied by the closing balance of physical units to appear here. Sub-tables may be prepared as required to work out the figures in respect of each of the resources.

 # - please refer to preceding table - extraction of resources may be shown separately for ***Government, Private*** *and* ***Others Sectors*** *which mainly includes exports, untaxed extractions etc*

% - The IBM compiles and releases average market value of minerals on monthly basis. Besides, the Statistical Departments in the States maintain the market prices of minor minerals. The average of these prices could be used to fill in these columns. Sub-tables may be prepared as required to work out the figures in respect of each of the resources.

$ - Information may be gathered from all possible sources as discussed in Table 1 of Para 7.3 including those detected by the administrative Departments like Mining, Police, Environment & Forests and also from other sources like NHAI, PWD, Inspection Reports of Accountant General (Audit) etc – examined and incorporated in this row with suitable notes.

There is a system of generating flags pointing towards illegal mining in the States by the IBM in collaboration with National Remote Sensing Center. These flags may be followed up to ascertain follow up done by the State Governments and volume of illegal mining detected – for incorporation in this row.

Also, NRA Cell may carry out independent joint verification to ascertain loss of natural resources due to illegal mining following up the flags of IBM which have not been attended to by the State Governments. The results may be appropriately disclosed here with necessary notes.

If necessary, the National Remote Sensing Center, Hyderabad may be collaborated to assess the extent of illegal mining and results thereof included in this table. Notes to that extent may be included.

However, the cross verifications may be subject to availability of time and resources.

While working on the illegal mining aspects, sub-judice cases may be given special attention and appropriate disclosures regarding the same should be made in the accounts. In such cases, working out the revenues may be avoided till final verdict of the court cases.

- *Physical unit may be reckoned as per the usual practice, like standard cubic meter for natural gas, tonnes for metallic and non-metallic minerals, cubic feet for timber, cubic meter for minor minerals and so on.*

6.3 Working out the opening balances

The IBM provides the stock of minerals (metallic, non-metallic and fuel minerals) every five years and latest such database as of April 2015 is available/being uploaded which could be held as the base. The Department of Geology and Mining in the States maintain the data on extraction of resources, month wise. These data can be collected for the years till the accounting year to arrive at the opening balance. In case of non-availability or difficulty in availability of data on extraction of minerals from the State Government Department, monthly production data of minerals available on the website of the IBM could be reduced to arrive at the opening stock of 1 April 2020. The following table has the details.

Methodology of working out the opening balance with available information

Name of minerals	Opening stock as on 1 April 2015	Annual extractions during					Closing stock as on 31 March 2020 or opening stock of 1 April 2020
		2015-16	2016-17	2017-18	2018-19	2019-20	
Minerals economically important for each States may be included in the Asset Accounts	Stock of minerals as of 1 April 2015 available in the website of IBM for major minerals and data available with the State Government departments on minor minerals to be considered	Figures to be obtained from the district mining offices under the Department of Geology and Mining					Resultant balance of deduction of annual productions of three years from the opening balance

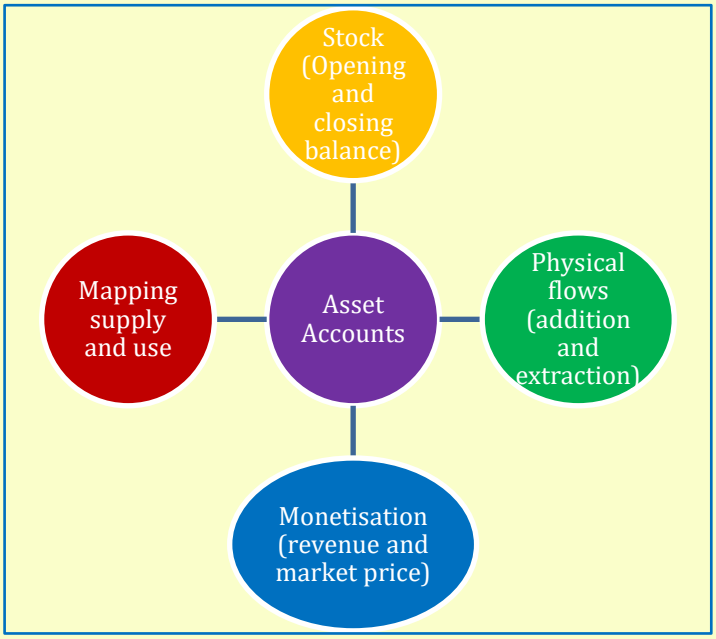
CHAPTER 7

WAY FORWARD –

Milestones and timelines

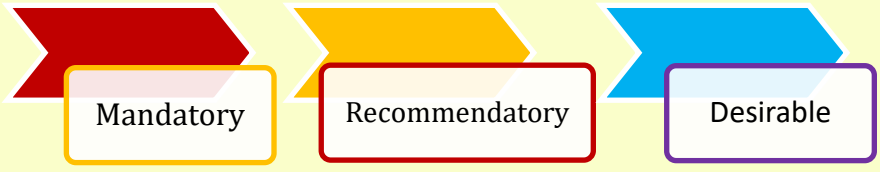
7.1 Way forward – the imperatives

Milestones and timelines envisaged for achieving Goal No. 1 under short term goals, i.e. preparation of first Asset Accounts on Mineral and Non-Renewable Energy Resources in the States for the year 2020-21 by March 2022 evidently calls for strategic planning keeping in view the imperatives with flexibilities allowed in SEEA framework and challenges associated with this untrodden task.



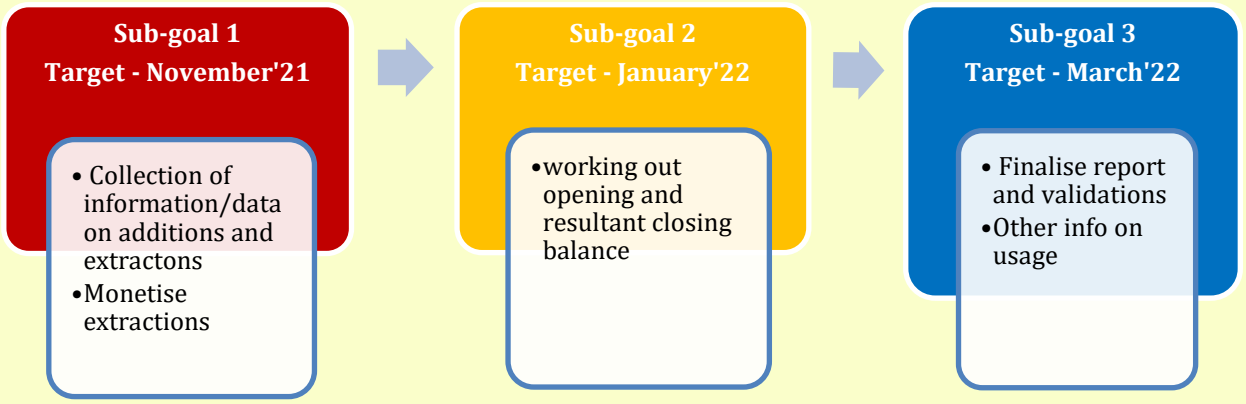
Preparation of a foolproof Asset Accounts would largely depend upon four main pillars for success. These are ascertaining the opening stock of resources, information on physical flows or additions and reductions, monetising the physical flows of resources and end-to-end encrypting the supply and use and verifying veracity of data.

Keeping in view activities involved in the compilation process of Asset Accounts vis-à-vis the challenge that this is a completely unchartered area and also keeping the scope of flexibility enshrined in the SEEA framework in mind, the four components of preparation of Asset Accounts are classified under three distinct categories, one – activities those are mandatory during the period, second is what is recommended while the third one is desirable as the implementation process begins and goes along.



7.2 Goal 1 – preparing the Asset Accounts for 2020-21 by March 2022

In view of discussions in preceding paragraph, the Goal 1 on preparation of Asset Accounts on Mineral & Non-Renewable Energy Resources for the year 2020-21 by March 2022 is targeted to be taken up as follows:



Sub-goal 1 – Target of completion by November 2021:

Sub-goal 1.1 Physical Flows (mandatory): The most vital component of an Asset Account is the physical flow during the reporting period. Further, the data/information on actual extractions are readily available with the departmental units/State-level Offices. These information can, therefore, be quickly collected and compiled thereby enabling preparation of the basic additions and extractions of resources for the year 2020-21.

Sub-goal 1.2 Monetising the extractions (mandatory): The physical flows on extractions may be monetised on Government revenues and average market/sales price. While average royalty rates/duties/fees etc applicable to the concerned resources during the year may be used for working out the revenues attributable to the resources extracted, average figures of actual market/sales price as captured by the IBM (monthly figures of major minerals available on the website of IBM) may be used for attributing market value to the resources. For minor minerals, information of market values could be obtained from the State Statistics Department.

Sub-goal 2 – Target of completion by January 2022:

Sub-goal 2.1 Opening balances (recommended): Methodology suggested for opening balance in Chapter 6 could be useful in working out the balances. As the data available in National Inventory of Minerals is used to reducing the extractions as provided by the Department, the figures of stock may be 'tentative' for the Asset Accounts 2020-21. Based on the opening balances and the additions/extractions, the closing stock may be worked out which may also be marked as 'tentative'.

The IBM is expected to bring out the National Inventory of Minerals as on 1 April 2020 by mid-2022, the Asset Accounts of subsequent year 2021-22 would be ascertained by reducing the actual extractions incorporated in Asset Accounts 2020-21 from the balances brought

out in the National Inventory of Minerals as of April 2020. Thus, in light of the flexibility provided by SEEA framework, while the balances of Asset Accounts 2020-21 would be 'tentative' the same will be reconciled with the available data of National Inventory of Minerals as on April 2020 during next year using the tools like upward and downward reappraisals/reclassifications as available in the basic table of Asset Accounts prescribed by SEEA, thus, making it real-time figures.

As regards the minor minerals which are not captured in the National Inventory of Minerals, information would need to be gathered from the concerned Departments.

Sub-goal 3 – Target of completion by March 2022:

Sub-goal 3.1 Finalisation of Asset Accounts and validations (mandatory): Upon compilation of the physical flows and balances, the report may be shared with the State Government for validations and further inputs, if any. All efforts may be made to finalise the report by March 2022. Information which are not readily available may be skipped and necessary notes on unavailability of those information may be inserted in the Accounts.

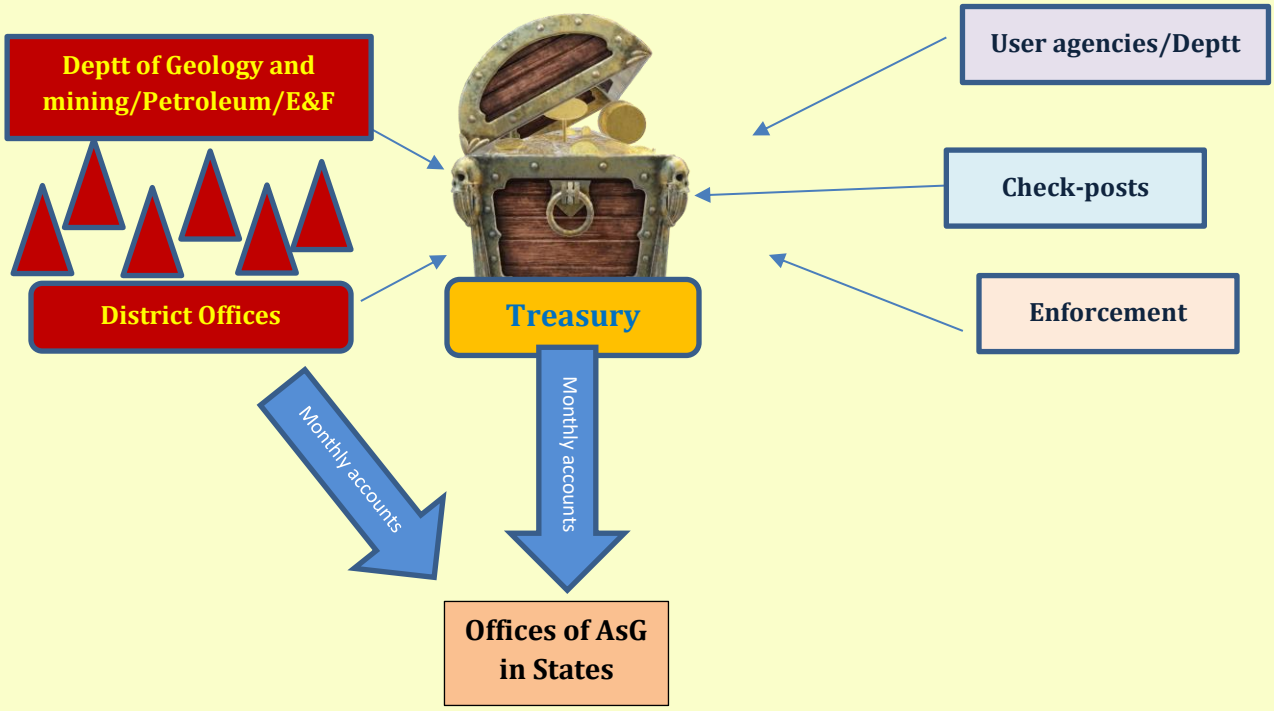
Sub-goal 3.2 Include other information on illegal mining etc (desirable): The formats of Asset Accounts in Chapter 6 require collection of additional information on illegal mining through cross verification of information from the user agencies etc. Due to paucity of time, these activities are marked as 'desirable' for the current Asset Accounts for 2020-21. However, for the subsequent year's Accounts, these are mandatory activities to highlights gaps in the processes and systems besides revenue leakages. These are discussed in details in succeeding para.

7.3 Systems and processes for ensuring consistent dataflow on supply and use of resources

While some leverages will be applicable for Asset Accounts 2020-21 being a greenfield area and time-constraints, necessary systems and processes would have to be put in place well before April 2022 so that automated systems of data capture for Asset Accounts 2022 onwards could be enabled and installed well in time. These are discussed in the succeeding paragraphs.

Capturing the physical flows regularly

The Departments of Geology and Mining/Petroleum/Environment and Forests and their field units in the districts are principal source of revenues accrued to the State exchequer through issue of mining permits, auction of mines, yet revenues are also accrued under the mining and related heads through other user agencies/departments, check posts and enforcement activities of the departments. The principal departments managing the mineral and non-renewable energy resources, the treasuries furnish monthly accounts of receipts to the Accountants General Offices which are compiled in annual receipts of the State from mineral and non-renewable energy resources - as depicted through the block diagram below:



Thus, there is a well-defined system of reporting the receipts in the States. Slight tweaking of the system to enable capturing the physical volume of mineral and non-renewable energy resources besides the revenues in their reporting framework of district offices/directorate of geology and mining/petroleum/Environment and Forests would aid in constant capturing of the physical flows of mineral and non-renewable energy resources in the directorates as well as in AsG offices. These information can form the basic database of annual physical flows of resources.

Secondly, introduction of a system of reporting the physical volumes of resources procured/used by the user agencies/departments and volumes of resources on which fines/penalties besides royalties/duties/fees are collected by check-posts/enforcement wing to the principal administrative departments– would help installing a system of cross verification of usage of resources. This has been discussed in greater details in the succeeding paragraph.

Capturing other information on supply and use

The SEEA framework embeds a system of continuous verification of supply and use of natural resources. A system of collection of information on use/sale/exports of resources is felt necessary for effectively monitoring the flow and use of resources.

Mapping of supply and use essentially hinges upon continuous and more importantly automated systems of real-time dataflow into the system on mineral and non-renewable energy resources – as prioritized by respective States. It is only then it will be possible to

ensure 360-degree mapping of extractions vis-à-vis consumption and sales for assuring reliability of datasets generated by way of Asset Accounts.

There are instances of highly reliable systems of e-permit mechanisms in States with real-time verifications at the check-posts, point of consumption to cross verify the actual movements vis-à-vis those authorised on payment of due share of royalties, taxes and duties to the State exchequer.

The following table suggests the data-collection methodology to monitor the supply and use.

Table 1

Suggestive methodology of data collection on use/sale/exports of mineral & non-renewable energy resources (may vary from State to State)

Name of mineral	Total volume allowed for extraction during the year/ Volume actually extracted	Used in construction by user agencies@	Consumed by major public/private sector entities#	Exported out of State/ Country$	Total use/sale/ exports	Variation between col 6 and col 2

Notes :

@ - this may include Works Divisions (roads and buildings), PHE, Rural Development, CPWD, NBCC, NHAI etc.

- Major industries under Public Sector/Private Sector using mineral and non-renewable energy resources may be covered.

$ - Intra/inter-state and international check post's data may be covered.

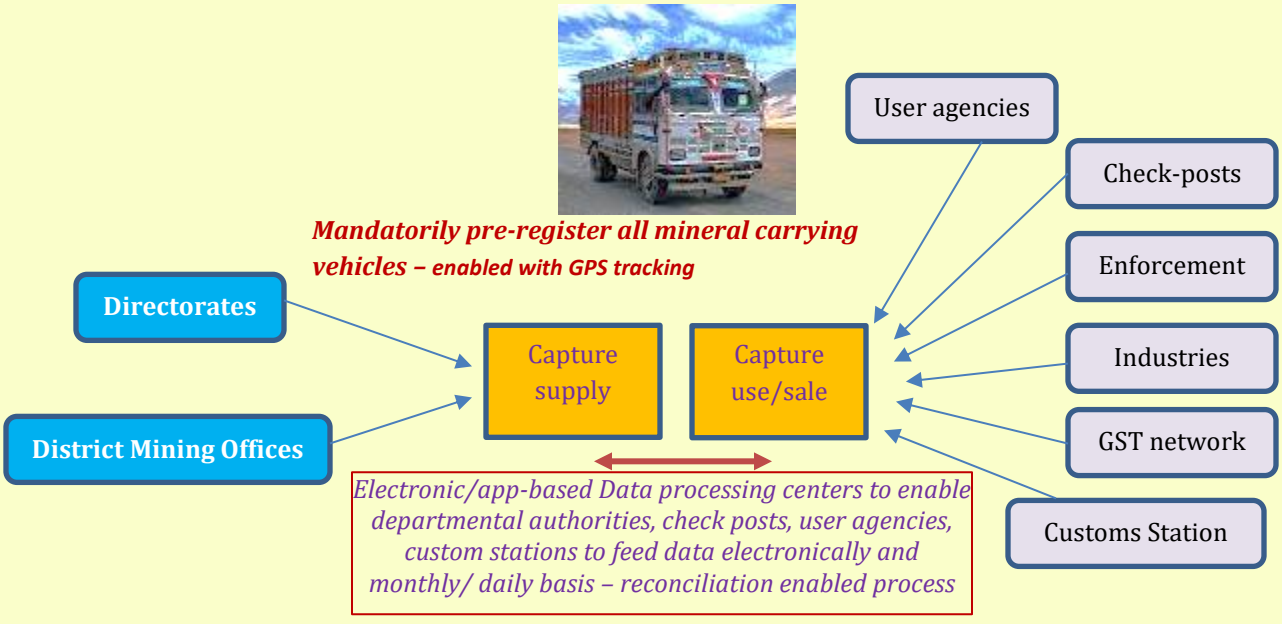
Some of the indicative areas recommended for the States to ponder upon to increase vigilance over mining to optimize revenue streams by ensuring automated systems of data gathering are pointed out below.

- **Installing an automated e-permit system with necessary bar-coding for verification at the check-posts/railway yards/customs stations/material acceptance points of industries etc.**
- **Automated systems could be installed for making available real time information of permits in the check posts (both intra and inter-State/customs check posts at international borders) so that the mining passes produced by the transporters at the check-posts can be verified before allowing movement**

- **Systems need to be put in place to prevent transportation of minerals with duplicate mining passes by making it mandatory to pre-register GPS enabled carriage vehicles with the Mining Departments**

- **The unladen weight of the vehicles should be captured so that the mineral carried could be easily ascertained by reducing the unladen weight and the Gross vehicle weight slip obtained from the weigh-bridges and carried by the vehicle**
- **Automated/manual systems need to be installed for regular flow of information from the points of consumption/sales/inter-state or outside the country movements to ensure end-to-end veracity of actual extraction data (Table 1 above and discussion under para 7.4 refers)**
- **Make it mandatory to produce electronically verifiable e-permits for consumption, inter-state/international movement of minerals. Else, recovery of full royalty/taxes/duties etc along with penalty as applicable may be strictly enforced**
- **Enhancing the quantum of penal measures to act as high deterrent on illegal mining activities**
- **Enact stringent penal measures, wherever not available, on departmental authorities/personnel/agencies including their authorised personnel for not ensuring valid e-permits or royalty/penalty collections while allowing transportation/ purchase/ consumption-similar to Income Tax Act.**

The suggested framework – illustrative only



Thus, while the processing center capturing data on supply would gather information on minerals allowed by the authorities and validly extracted by miners/users; the

processing center instituted to capture actual use/sale of minerals would gather data from all sources on usage/sale within State/exports/movement through checkgates etc. The GST mechanism requires transporters to generate UA Bills before initiating movement of goods. Mapping the data captured in the GST database is highly recommended. Electronic/app-based systems installed to capture data periodically, daily/weekly/ monthly would enable continuous processing of data/information into the systems. While ensuring optimum flow of receipts to State exchequer, a reconciliatory mechanism would help raise flags on variations between both the data sets pointing towards investigations on mining activities not authorised by the departments. The diagram is illustrative only and the States may consider including more sources like the data with the GST authorities and Income Tax authorities to deepen the system of cross verification in the revenue interest of the State as well as ensuring scientific mining and sustainability of resources.

7.4 Way forward – summing up

Thus, the action plan for preparing the first Asset Accounts for the year 2020-21 would be more reliant on data collection, compilation and validations firstly on physical flows and then on ascertaining the stock subject to availability of time/resources. Secondly, the NRA Cells in the States alongwith other related stakeholders would like to quickly work on the designs, preferably electronic models/apps on input forms, for data capturing – not only from the Departments administering the resources, but also the user agencies, check-posts, enforcement wings, industries etc (as in Table 1 above and block diagram in preceding paragraph) to enable installing e-system without human interface before commencement of year 2022-23. This will assist in making the overall process of data collection/compilation and validations easier from 2022 onwards - with end-to-end system-based automated processing and capture of information for the subsequent year's Asset Accounts.