

CHAPTER 1 INTRODUCTORY

1.1 Natural Resource Accounting – the Concept

Economic growth over decades has largely been an outcome of continued reliance on natural resources. Growth is clearly the major engine to create livelihood options; its reliance on increased resource use has, however, led to many negative externalities. The current paradigm of resource - led economic development sees a coupling between the availability of natural resources and economic growth.

Natural resources play a crucial role for economic development of a country and are crucial for their inbuilt value of inter - generational equity and sustenance.

Over the years, there has been increasing awareness about environmental issues across the globe and a growing concern about the depletion and degradation of the natural resources. This concern gave birth to the idea of sustainable development goals which aims at ending poverty, protect the planet, and ensure that all people enjoy peace and prosperity by 2030. The sustainable development dialogue has brought to the fore the direct and indirect impact of human activity on the environment and there is now a consensus that continuing economic growth and human welfare are integrally dependent on the benefits obtained from the environment. The critical trade - offs between managing ecosystems and environmental resources for future sustainable economic and social development need to be understood for effective policy interventions.

Natural resources play a vital role in the sustainable economic development of any country. They need to be exploited in a sustainable manner so that the future generations can also avail of their advantages.



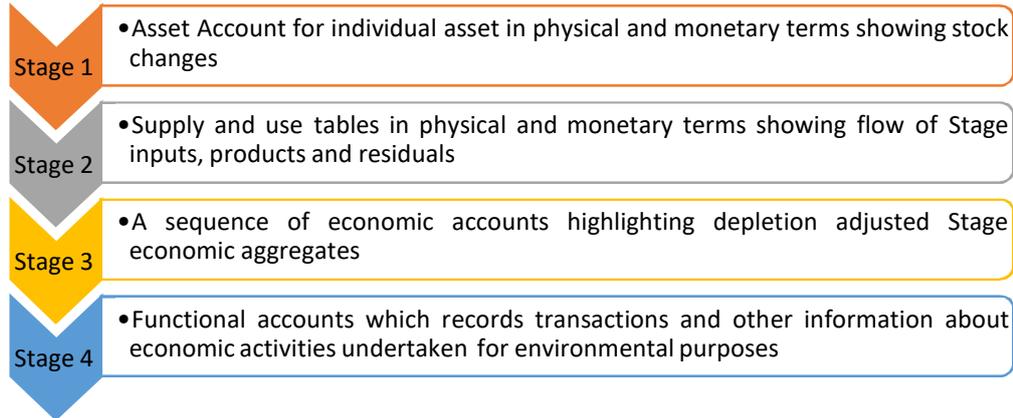
Agenda 21,
Rio +20,
SDGs:
*Integrate
nature into*

The rampant over – exploitation of these resources in recent times has resulted in harmful impact on the environment and issues of climate change and global warming have become a matter of discussions and deliberations round the Globe.

Conventional accounting captures data only of the measurable economic activity. In order to overcome this shortcoming and to capture the intimate interplay between the economic indices and the various components of the natural environment, the concept of NRA has emerged. It is based on the concept “Measurement of a resource leads to its better Management.” The idea is to quantify the damage to the environment so that it can be reduced

from Gross Domestic Product (GDP) to arrive at Green GDP. It would assist in taking policy decisions in respect of matters affecting environment directly and indirectly and provide necessary directions to use our resources on a more sustainable basis and reducing the negative impact on the environment.

In keeping with the related developments, the United Nations has been working towards a universally acceptable framework on environmental resource accounting which culminated into release of the SEEA - CF in 2012 which is the latest internationally accepted framework. The SEEA (CF) prescribes a four - stage implementation process by compiling the following accounts as mentioned below:



However, while prescribing the aforesaid milestones for implementation of NRA across the world, the SEEA (CF) has also envisaged constraints likely to be faced by the countries in implementing NRA. SEEA (CF), thus, prescribed for flexibility in designing the accounts based on the specific environmental issues faced by a Government. Depending upon the specific environmental issues faced, a country may choose to implement only a selection of the accounts included in the SEEA (CF). The SEEA (CF) provides that even if a country desires eventually to implement the full system, it may decide to focus its initial efforts on those accounts that are most relevant to current issues.

CHAPTER – 2

IMPLEMENTATION OF NRA IN INDIA – GASAB’S ENDEAVOUR

2.1 About Government Accounting Standards Advisory Board (GASAB)

The Government Accounting Standards Advisory Board (GASAB) was established in 2002 by the Comptroller and Auditor General of India with the assistance of Government of India to formulate Government accounting standards for improving Government accounting and financial reporting.

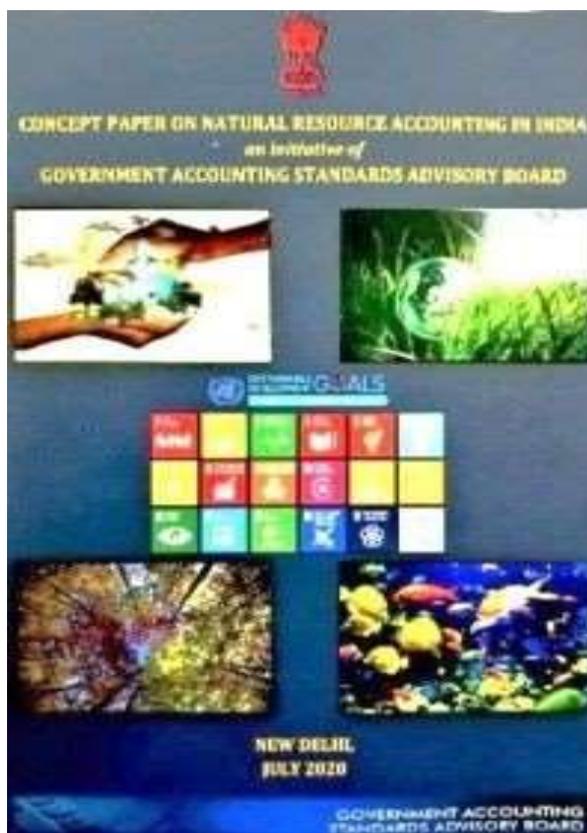
2.2 Concept Paper on NRA in India – released by GASAB

GASAB has taken the initiative (2019) to develop a framework for implementing NRA on priority as a nationally important project. GASAB came out with a Concept Paper on implementation of NRA in India in July 2020. The Paper, *inter - alia*, discussed the concept and its inter - relation with the Sustainable Development Goals (SDGs) and Climate Change, international progress on environmental accounting and merger of the concept with economic environmental accounting, progress in other countries.

Keeping the international as well as national developments on NRA and the mandate of GASAB in suggesting accounting framework for enhancing the quality of decision making and public accountability in view, combined

with the suggestions of Working Group on Environmental Auditing under the INTOSAI to handhold the country in developing NRA, the Concept Paper was a result of GASAB's efforts towards helping the causes of environmental accounting in India, climate change, and sustainable development goals.

GASAB has suggested a well laid out implementation plan divided into three term goals in consonance with the strategy envisaged by the SEEA - CF.

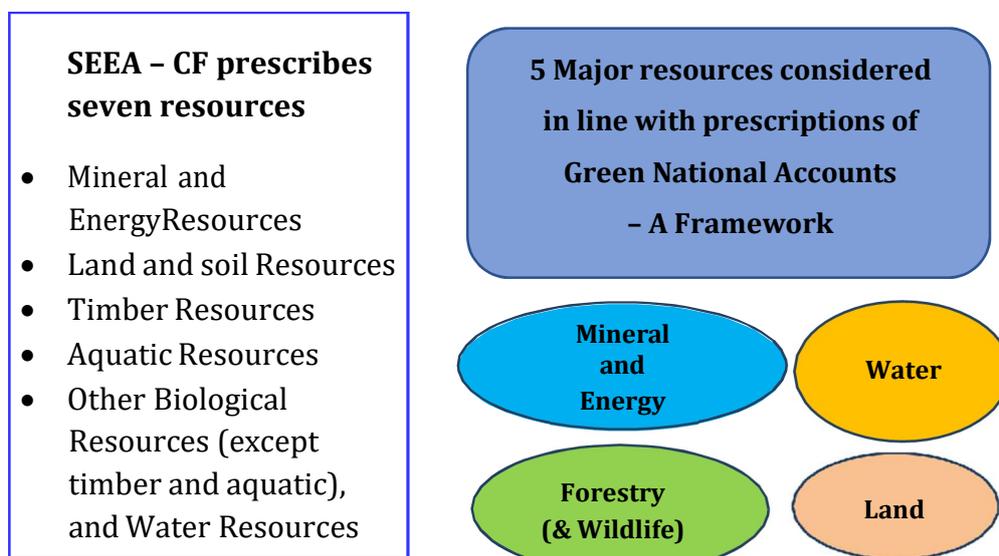


The Paper, *inter - alia*, envisaged short, medium and long - term goals inconsonance with the four - stage strategy suggested by the SEEA Framework, as mentioned below:

| Short term goals | Mid-term goals | Long term goals |
|--|--|---|
| 1. Preparation of Asset Accounts on Mineral and Energy Resources in States. 2. Initiation and preparation of disclosure statement on revenues and expenditure related to natural resources. | 1. Preparation of National Asset Accounts on Mineral and Energy Resources. 2. Preparation of Asset Accounts in respect of other four resources namely water, land and forestry & wildlife resources in the States. 3. Preparation of supply and use tables in physical and monetary terms showing flow of natural resource inputs. | 1. Preparation of the economic accounts highlighting depletion adjusted economic aggregates; and 2. Preparation of functional accounts recording transactions and other information about economic activities undertaken for environmental purposes. |
| (2019 - 20 to 2021 - 22) | (2022 - 23 to 2024 - 25) | (2025 - 26 onwards) |

2.3 Goal 1 of the action plan envisaged in the Concept Paper

The initial stage of implementation strategy of NRA is preparation of the Asset Accounts on individual resources. The SEEA (CF) has listed out seven resources of which five major resources namely Mineral & Energy Resources, Water Resources, Forestry & Wildlife Resources and Land Resources have been considered for taking up initially in the Concept Paper on NRA as mentioned in the table and diagrams below:



2.4 Why - Mineral and Energy Resources

- The Asset Accounts on Mineral & Energy Resources have been considered as the most important goal as it consists of non - renewable resources while other major resources fall in the other group and gets renewed naturally.
- In keeping with the implementation stages as envisaged in the SEEA (CF), the flexibility embedded therein and the importance of non - renewable resources discussed above coupled with the prescription of SEEA that a country may decide to focus its initial efforts on those accounts that are most relevant to current issues, preparation of Asset Accounts on Mineral & Energy resources have been conceptualised as the need of the hour and thus planned as the short - term goal No. 1.



Mineral & Non-Renewable Energy Resources, being non - renewable resources have been considered as the first goal

2.5 Advantages of consolidating the Asset Accounts on Mineral & Energy Resources

- A system of collation of a periodic database in the shape of an Asset Accounts on available natural resources linked with inter – related factors like revenues and costs involved in exploitation of such resources, their sustainability for the future generations would be extremely helpful in monitoring the sustainability of resources, effective decision making, adoption / adaption of SEEA (CF) besides attaining other pressing international obligations like the SDGs and Climate Change.

- Besides the above, the Asset Accounts would aid in evidence based good governance with the following specific inputs:



Resources at a glance: The Asset Accounts would enable a one pager document on the resource availability of each State.

Provide invaluable information and datasets on mineral repository and potential of States – could be used to showcase for varied purposes.

Physical flows and monetary values mapped – enabler of working out the value of extracted resources and also to help in monitoring of realisation of revenues *vis – à – vis* extraction of resources to help in identifying cases of leakage of revenue.

Pace of exploitation: Down the line, compilation of Asset Accounts would help in drawing up the pace of exploitation of resources over the years thus bringing out vital inputs like the pattern of resource usage and sustainability of resources.

Revenue *vis-à-vis* market value: Ascribing money value with reference to the royalties / revenues combined with the market value would aid in continuous analysis of the royalty / duty / taxes to help the public exchequer.

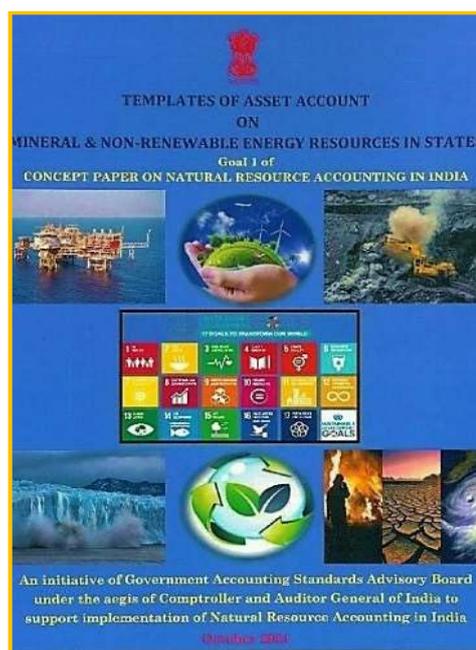
Sustainability of minerals in years – When analysed with revenues, has the potential to point towards revenue streams for future and will also enable States to identify alternate resources – both economic and energy resources.

Close monitoring on illegal mining: The inter - operability of supply and use of resources and their incorporation in the system of preparation of Asset Accounts would enable close watch on illegal mining. This will not only help in optimising resource base but will also help in containing unscientific mining thereby aiding in conservational efforts and restricting environmental degradation.

Thus, to sum up, Asset Accounts, once compiled, would bring out State - wise mineral repository along with other inputs like actual stock of resources, usage pattern, their values, aiding in evidence - based policy framing and most importantly sustainability of resources for future generations.

2.6 Evolution of the final templates

The templates of Asset Accounts on Mineral and 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 by GASAB based on country specific needs and other peculiarities besides constraints / data availability, etc., 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.



The templates, as they stood then, were released in the form of a book titled “Templates of Asset Accounts on Mineral and Energy Resources in States” in October 2021.

The formats were constantly updated with inputs and experiences gained through their implementation in the States from October 2021 through March 2022. The final formats included Six tables for capturing the basic Asset Accounts (Table 1), Asset Accounts on Physical flows (Table 2), Physical Flows of Riverine Resources (Table 2A), Valuation of Riverine Resources (Table 2B), Subsidiary Asset Accounts linking physical flows with valuation of resources (Table 3), Data on Illegal Mining (Table 3A), Analysis of Extraction, Production and Dispatch of Resources (Table 4), Analysis of District Mineral Foundations (Table 5), Progress in Generation and Use of Renewable and Non - Renewable Energy Resources (Table 6).

2.7 Additionalities – monitoring the targets committed to COP – 26

At the United Nations Climate Change Conference of 2021 or the COP 26, the Government of India (GoI) committed the following:

- 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.*

In order to monitor the progresses to attain the above commitments, specific input tables for collecting and collating information on progress on generation of new and renewable energy have been envisaged as Table 6.

2.8 Consultative Process

To ensure wider consultation with diverse stakeholders, GASAB has constituted consultative group in GASAB headquarters consisting of ministries in Government of India, five State Governments and the Accountants General in these States, expert agencies like National Remote Sensing Center (NRSC), the Energy and Resources Institute (TERI), etc.

Idea of constituting the group was to draw technical expertise and inputs from subject experts and academia while steering the implementation process following the action plans suggested in the Concept Paper, with special emphasis on the preparation of Asset Accounts on the Mineral and Energy Resources in the States.

2.9 Training and capacity building

As the Concept Paper envisaged commencement of the project from States, it was important that proper training and capacity building was ensured for the Officers and staff members of not only the Accountants General Offices, but the State Government Department as well. Accordingly, virtual trainings / workshops were continuously held over the timeline of implementation of the project.

2.10 On boarding and handholding the State

In order to take the States on board as one of the most vital stakeholders in the implementation process, the Additional Chief Secretary to the State of Maharashtra, Industry Department was demerit - officially informed (September 2021) by the Deputy C&AG and Chairperson, GASAB about the endeavour of GASAB and vision of the project which was followed up with virtual presentation to the State. The views / suggestions emanated at this meeting were taken into consideration in updating / modifying the templates.

CHAPTER - 3

INITIATIVES IN THE STATE

3.1 Formation of State NRA Cell

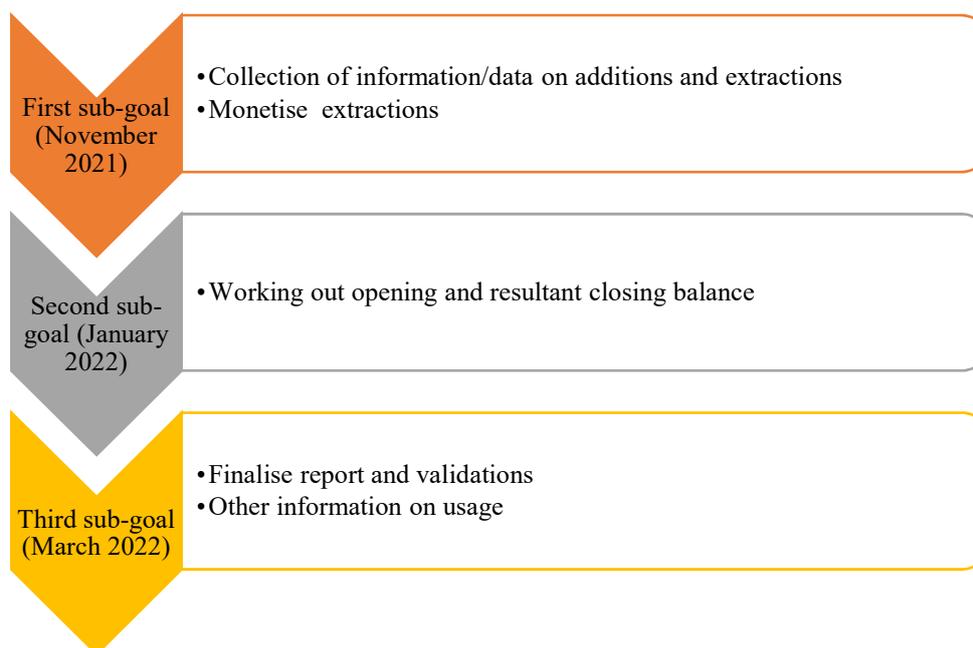
NRA Cell was formed (Annexure - I) in the State consisting of officials from offices of Pr. Accountant General (A&E) - I, Mumbai, Pr. Accountant General (Audit) - I Mumbai, Pr. Accountant General (A&E) - II, Nagpur, and Accountant General (Audit) - II, Nagpur and following State Government Departments.

- Principal Chief Conservator of Forest (Production & Management), Nagpur,
- Directorate of Geology and Mining, Nagpur,
- Chief Auditor, Water and Irrigation, Maharashtra State, Aurangabad.

3.2 Follow up, trainings and capacity building

A) Follow up the work:

There were three sub - goals to be achieved for success of preparation of Asset Accounts as follows:



In order to achieve the above sub - goals, the Accountants General offices took initiative and efforts in constitution of NRA cell. The DGM was guided and sensitised in all respect pertaining to preparation of Asset Accounts.

Working methodology, expectations from this project, its future benefits as well as importance were introduced to the departments. Discussions with DGM were focused on obtaining reliable and comprehensive data for the preparation of Asset Accounts.

- All the updates and modifications of Asset Accounts were shared with the DGM from time to time for speedy and accurate work. Office of the Accountant General (A&E) – II Maharashtra, Nagpur was coordinating with the State Government till the completion of Asset Accounts.
- DGM had contacted their DMOs for requirement of relevant information which was not readily available with them and vigorously pursued to them for information emphasizing need and urgency of the project.

B) Sensitisation of the officers & staff and their training:

The officers and staff were sensitised with personal discussions and trainings regarding overall project. They were explained about the scope of project and its importance in detail. Project was discussed in detail, action plan was prepared, and officials were also trained to collect and compile data while achieving the deadlines.

C) Capacity building

Despite staff shortage, frequent meetings were conducted and necessary inputs were given to the Departments from time to time.

Monthly meetings conducted by GASAB were attended by officials of Accountants General's offices and State Department. In these meetings experiences of various offices involved in preparation of Asset Accounts were shared, which helped not only in alleviating doubts but also in developing sound understanding of the project.

3.3 Innovations and good practices

- Initiatives were undertaken to enhance surveillance through adoption of IT / Digital technologies by DGM, Nagpur and technological interventions like Mineral Management System, Mines Surveillance System, GPS / RFID based VTS, etc. were deployed to curb illegal mining.
- MAHAGEOMIN is the joint venture project of DGM Maharashtra and Maharashtra Remote Sensing Application Center (MRSAC). The main objective of the project is to control the illegal mining. This project was completed in three phases.
 - In the first phase, master plan was prepared by generating geospatial digital database of geology, mineral location and major mineral mining leases using Geo - referenced satellite imagery of the entire

mining lease areas in the State.

- In the second phase, the creation of Land Use / Land Cover layer of each mining lease area and statistics generated, making it easy to study change detection in the mining areas from successive years.
- In the third phase of project, the remote sensing and Geographic Information System (GIS) based database was created and uploaded on MRSAC's web Geo portal.
- Under the guidance of MRSAC, a well - equipped GEO - SPATIAL lab has been established in DGM for monitoring mining activities in the State and creation of database for newly granted mining leases. The project is helpful in identifying excavations outside the granted lease area with the help of recent satellite imageries.
- In addition, Mines Surveillance System has been developed by the GoI and from time to time the GoM (Government of Maharashtra) receives triggers from GoI if excavation is carried out outside the mining lease areas. Based on these triggers, preliminary verification is done through GEOMIN project and accordingly site inspection is carried out and action is taken as per Rules.
- MAHAGEOMIN project was awarded the Gold Category for “Innovative use of GIS for e-Governance”.
- Additionally, to effectively curb the illegal mining, transportation and storage of minerals in the State, flying squads are being formed at the level of DGM, regional and DMO offices.
- The system is providing the modern tools of “Eye in the sky technology” of Remote Sensing and GIS for proper management of natural resources of Maharashtra.

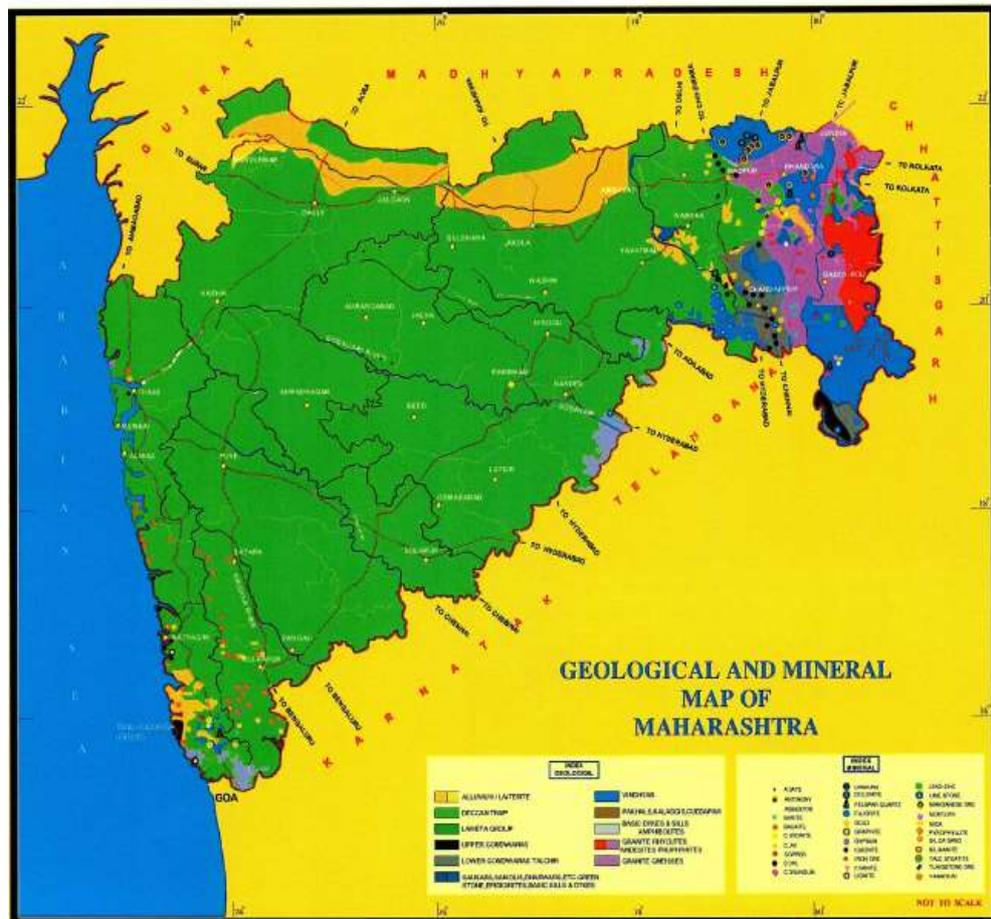
CHAPTER – 4

MINERAL PROFILE OF STATE AND SHORTLISTING OF RESOURCES

4.1 Mineral Profile of Maharashtra

The significant minerals available in Maharashtra are Iron ore, Coal, Manganese, Bauxite, Limestone, Dolomite, Kynite, Silica sand and Sillimanite and other minerals are Clay, Copper, Chromite, Fluorite, etc.

Map 1: Map showing availability of minerals along with their geographic distribution in various parts of the State of Maharashtra:



Source: Data provided by the DGM. Minerals for which Geo - Fencing completed are shown

Note: District wise details of minerals in Annexure – II.

4.2 Strategic importance of minerals for the State

Minerals are engine of economic growth. Maharashtra is one of the economically progressive and leading industrial State in the country because of range of minerals and natural resources like coal, limestone, manganese, iron ore and other minerals found in the State. The availability of metallic minerals like iron ore, manganese, bauxite, limestone, etc. has been instrumental in setting up of various industries ¹ in the State.

The Government of Maharashtra (GoM) is the owner of mineral wealth wherever found and mineral rights vest with the State. Accordingly, in view of strategic importance of minerals for economic development, the GoM has issued a policy for promotion of sustainable mining & new investments in mineral sector. The GoM can assign the right of extraction of minerals to anybody under the provisions of MM (DR) Act, 1957 and rules made thereunder. The GoM has framed “Maharashtra Mineral (Prevention of illegal mining, transportation & storage) Rules, 2001” to stop illegal mining, possession, storage, trading & transportation of major minerals. Under these Rules, a person dealing with business of mineral is required to obtain dealers registration from concerned Regional Dy. Director, Geology and Mining of the region. Other measures like transit pass, flying squads, etc. are introduced to stop illegal mining. As per Sustainable Sand Mining Guidelines 2016 issued by Ministry of Environment Forest and Climate Change (MOEFCC), GoI, district survey reports are prepared for granting sand ghats & mining leases before e-auction. Further to ensure ecological responsibility through systematic, scientific & sustainable mining, mine inspections are being done by the officials of State DGM & IBM.

Anybody extracting or removing any mineral without any lawful authority amounts to illegal mining and is liable to be punished under the provisions of the Rules.

4.3 Mining process followed in the State

A) Mineral Exploration:

- In order to locate the occurrences of various major and minor minerals in the State of Maharashtra, geological surveys are carried out initially. Subsequently detailed geological mapping is carried out in mineral bearing areas followed by pitting / trenching and drilling. Drilling is undertaken to know the length, breadth and depth of the mineral deposits and resultantly establishing the mineral reserves. Samples collected

¹ M/s Associated Cement Co. Ltd, Yavatmal, M/s Ultratech Cement Co. Kusumb, M/s Ultratech Cement Co. Chandrapur, Ambuja Cement Ltd. Chandrapur, Iron Ore Industry, Gadchiroli

during mapping, pitting / trenching, and drilling are chemically analysed in the departmental laboratories to know the grade of the minerals.

- The Government through the State Geological Programming Board and the Central Geological Programming Board co-ordinates its activities with the Department and Undertakings of the GoI carrying out mineral exploration work so that there is no overlapping of any mineral exploration activities by different agencies in the State of Maharashtra.
- The Mineral Exploration activities are carried out through the regional offices of the directorate located in various parts of the State.

B) Permission for Mining lease:

- Procedure for granting lease for the purpose of undertaking mining operations is as under:
 - a) On receipt of financial bids from the eligible bidders, the department will award the lease to the selected bidder through the auction process.
 - b) Maximum area for one or more mining leases covering a total area of not more than ten sq. km in a State is allotted to eligible bidder.
 - c) Mining lease may be granted for the minerals other than coal and lignite for a period of fifty years.
 - d) A mining lease can be renewed for a period of not exceeding twenty years (as amended) in each case.

C) Permit for grant of reconnaissance prospecting license or mining lease:

- After receipt of the application for grant of reconnaissance permit (i.e., permit granted for the purpose of undertaking reconnaissance operations), prospecting license or mining lease, in the District Collector's office, in triplicate, one copy of the same application is forwarded to the Industries, Energy and Labour Department and another to the DGM, Nagpur. The District Collector has to submit detailed land enquiry report regarding such application to the GoM.
- After receipt of land enquiry report, the same is scrutinised by the DMO and final report is submitted to the Industries, Energy and Labour Department, Mumbai through the DGM, Nagpur. On the basis of the report and recommendations of the DGM, reconnaissance permit, prospecting license or mining lease is granted or refused to the applicant by the State Government. If a mineral for which prospecting license or mining lease is applied for is included in the first Schedule of the MM (DR) Act 1957, then prior approval of Central Government is required for grant of reconnaissance permit, prospecting license, Mining lease or its renewal.

D) Temporary permits for Minor Minerals:

The State Government has delegated powers to the competent officers for grant of temporary permits for minor minerals. Accordingly, District Collector, Executive Engineer, Divisional Forest Officer, Assistant Collector, Sub - Divisional Officer (SDO) and Tahsildar are empowered to grant temporary permits for removal of specific quantities of minor minerals.

E) Transportation of resources:

Every leaseholder or permit holder has to obtain the transit pass. Such transit pass shows the details of the lease holder / permit holder, date, vehicle number transporting the material, quantity, time, etc. Such pass is counter signed by DMO / Concerned Tahsildar / SDO. Any vehicle carrying mineral without any such transit pass is treated as illegal and action against such truck owner is taken as per Rules.

4.4 Contribution of mineral resources in the revenues Resources of the State

Receipts of yields from extraction of mineral resources is depicted here in a time - series data of 5 preceding years along with trend analysis.

Table A(i): Mineral Revenue Realised for Major and Minor Minerals for the Financial Year 2016 - 17 to 2020 - 21

| (Rs. in Crore) | | | | | | | | |
|----------------|---------|---------------|-------------|------------|---------------|-------------|------------|-------------------|
| Sr. No. | Year | Major Mineral | | | Minor Mineral | | | Total Achievement |
| | | Target | Achievement | Percentage | Target | Achievement | Percentage | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| 1 | 2016-17 | 1400 | 943.32 | 67.38 | 2190.00 | 2028.52 | 92.63 | 2971.84 |
| 2 | 2017-18 | 1400 | 1243.76 | 88.84 | 2403.45 | 2217.47 | 92.26 | 3461.23 |
| 3 | 2018-19 | 1400 | 1451.03 | 103.65 | 2375.00 | 2494.43 | 105.03 | 3945.46 |
| 4 | 2019-20 | 1540 | 1518.65 | 98.61 | 2372.00 | 2362.96 | 99.62 | 3881.61 |
| 5 | 2020-21 | 1671 | 1347.44 | 80.63 | 3558.00 | 2779.17 | 78.11 | 4126.61 |

Source: Data provided by the DGM

**Natural Resource Accounts of Maharashtra
on Mineral & Energy Resources**

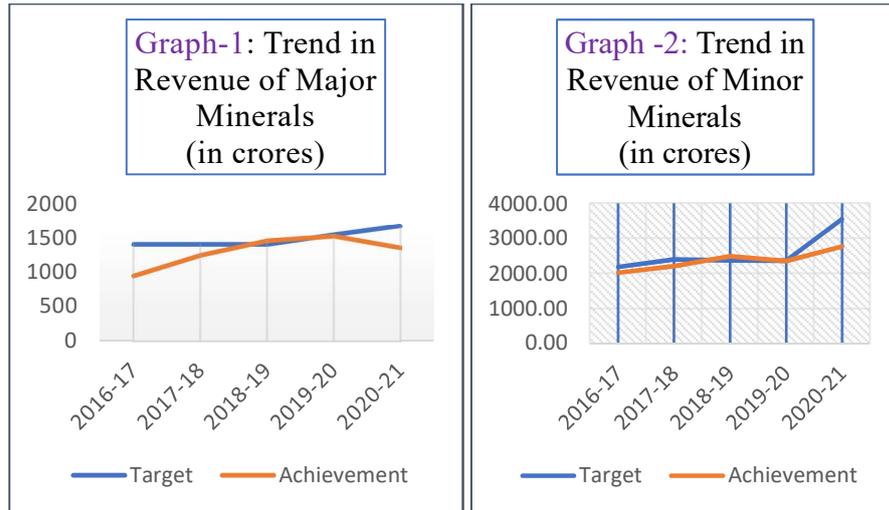


Table A(ii): Analysis of Non - Tax Revenue of the Mineral Resources to Total Revenue of the State

(Rs. in Crore)

| Year | Total Revenue of the State | Non-Tax Revenue of Mineral Resources | % of Non - Tax Revenue to Total Revenue |
|---------|----------------------------|--------------------------------------|---|
| 2016-17 | 204693.14 | 3104.79 | 1.52 |
| 2017-18 | 243653.56 | 3556.42 | 1.46 |
| 2018-19 | 278996.27 | 4056.71 | 1.45 |
| 2019-20 | 283189.58 | 3982.45 | 1.41 |
| 2020-21 | 269467.91 | 3918.31 | 1.45 |

Source: Finance Accounts

It is seen that the contribution of Non - tax revenue from mineral resources to the total revenue of the state decreased from the year 2017 - 18 to 2019 - 20 and increased from the year 2020 - 21.

It is seen that Revenue of Mineral Resources as provided by DGM varied with those recorded in the Finance Accounts, which needs reconciliation.

4.5 Short - listing of resources for this study

All the minerals available in Maharashtra have been incorporated in the Asset Accounts for the year 2020 - 21. As the opening balances of minor minerals could not be provided by Revenue & Forest Department despite request, stock balances for the same could not be worked out and shown in the report.

CHAPTER 5

ASSET ACCOUNTS OF MINERAL AND ENERGY RESOURCES OF MAHARASHTRA

5.1.1 Scope

In preparation of Asset Accounts on Minerals and Energy Resources of Maharashtra for the year 2020 - 21 by the State, the Office of the Accountants General had assisted as a hand holding exercise. While preparing the Asset Accounts, Major Minerals, viz., Iron Ore, Manganese Ore, Limestone, Bauxite, Fluorite, Kynite, Sillimanite, Sand (Stowing) and Fossil Fuel coal were included. The Asset Accounts also includes the Minor Minerals such as Ordinary Sand, Stone (bricks), Boulder, Dolomite, Quartz and Silica Sand, Laterite, Murum, Ordinary Clay, Jamba Chira. All the minerals available in Maharashtra have been incorporated in the Asset Accounts of minerals and energy resources for the year 2020 - 21.

5.1.2 Objectives

The objectives are as follows:

- To prepare the Asset Accounts of mineral and energy resources of the State for better monitoring of resource extractions, usage, contain illegal mining and revenue optimization in the interest of the State.
- To assist the country / State in attaining the international commitment on becoming SEEA framework compliant and for effectively mapping the SDG indicators.
- To assist the policy makers with comprehensive dataset on availability, usage and sustainability of mineral for evidence - based decision making.
- To provide inputs for monitoring the progresses towards national commitment made at the COP 26 on reduction in carbon emission and increase in generation and usage of renewable energy resources.

5.1.3 Methodology of data collection and compilation of physical flows

- The data for the preparation of Assets Accounts was provided by office of the DGM, Nagpur. DGM receives monthly / yearly accounts of production / extraction / sale of major and minor minerals from DMOs. Hence, the information on extraction / production was readily available with the DGM and easily accessible.

- As the opening stock of minerals as on 01/04/2020 was not available with the DGM Office, the opening balance of 1st April 2015 available on IBM portal for the major minerals was taken as a base for calculation and the figures of production provided by DGM for the five years from 2015 - 16 to 2019 - 20 were deducted from the opening balance of 1st April 2015. The amount arrived as closing balance as on 31st March 2020 was taken as opening balance of 1st April 2020 for preparing Asset Accounts for the year 2020 - 21.
- The opening balances of minor minerals were not provided by the Revenue & Forest Department hence closing balance for the same could not be worked out.
- The DGM did not possess bifurcation of extraction of mineral ores and production, therefore stated that both were the same. In the absence of the information, Asset Accounts have been prepared on the basis of production figures.

5.1.4 Methodology of monetization of physical flows

- The State Government receives revenue from mining activity in the form of royalty, dead rent, surface rent, etc. The lessees have to pay royalty charges to DGM based on State wise average sale price of major minerals at different mineral wise rates. In case of non - working mines, lessees have to pay dead rent. The lessees directly sell their production of major minerals to the purchaser at different rates or market rates as per their discretion which is captured through their reports by the IBM as average sale value.
- Monetization of resources has been done by the following two methods for incorporating the same in the NRA report for the year 2020 - 21.
- Royalty method - Per quantum value (Rates as per notification 459 dated 1st September 2014 of GOI) x Average sale price (ASP) to arrive at the value of royalty for particular mineral x quantum of minerals prescribed in tonnes.
- Average sale price - ASP was captured from the monthly returns received from the DMOs in the year 2020 - 21. Yearly average value of ASP of each mineral was then multiplied by quantum of mineral production of each mineral to get the monetary value of each mineral.

5.1.5 Dual stage validation and limited verification of data

- As per the GASAB guidelines, the Asset Accounts on Mineral and Energy Resources involved two stages of validation and limited verification after data collection and filling in the templates. The first stage of validation by the State Government and second stage of limited verification by AsG offices.
- The Pr. Accountant General (A&E) - II, Nagpur has verified the data received from the DGM and assisted the State Government in preparing the Asset Accounts in the templates prescribed by GASAB. The Asset Accounts prepared was shared with the DGM for first stage validation process. On receipt of Asset Accounts, the DGM has verified the information shown in the Asset Accounts with respect to the data available with them and returned the same duly validated with some additions / modifications to Pr. Accountant General (A&E) - II. The Asset Accounts received after first stage validation were again scrutinised with reference to the modifications suggested by the DGM. The revised Asset Accounts was then taken up for second stage limited verification process.
- After verification of the supporting documents submitted by the DGM to test check the credibility of the data / figures included in the accounts, some observations were brought out for further finalisation of Asset Accounts.
- After the completion of Dual validation and limited verification process by DGM and the AsG offices, Asset Accounts were rechecked by AsG office. All the points were discussed with the department. DGM was requested to resubmit the Asset Accounts taking into consideration some of major changes. On receipt of the revised Asset accounts from DGM, same were again scrutinised thoroughly and final asset accounts were prepared.

5.1.6 Challenges and limitations

- As mentioned in para 5.1.3, the opening stock of minerals as on 01/04/2020 was not available with the DGM Office, the opening balance of 1st April 2015 available on IBM portal for the major minerals was taken as a base for calculation and the figures of production provided by DGM for the five years from 2015 - 16 to 2019 - 20 were deducted from the opening balance of 1st April 2015. The amount arrived as closing balance as on 31st March 2020 was taken as opening balance of 1st April 2020 for preparing Asset Accounts for the year 2020 - 21.
- The opening balances of minor minerals were not provided by the Revenue & Forest Department hence closing balance for the same could

not be worked out.

- Mineral wise details of amount receivable and received in DMF were not available.
- The details of valuation of riverine resources were not available.

5.2 Asset Accounts on Mineral & Energy Resources

5.2.1 Highlights

- The Asset Accounts for the year 2020 - 21 was prepared on the basis of the information provided by the DGM. All the minerals available in Maharashtra are covered in this report.
- The DGM has provided breakup of extraction / production for Government / Private Sector separately.
- The details of opening stock on 1st April 2015 for all the minerals were obtained from IBM website for working of opening balance for 2020 - 21.
- The Asset Accounts for the year 2020 - 21 including methodology of working out opening balances of minerals as on 1st April 2015 are tabulated in the following tables:
- **Methodology** of working out the opening balance with available information
- **Number of Mines** covered in each Minerals
- **Table 1:** Basic Asset Accounts
- **Table 2:** Asset Accounts on physical flows along with sustainability of resources.
- **Table 2A:** Riverine resources - Physical flows
- **Table 2B:** Riverine resources - Valuations
- **Table 3:** Subsidiary Asset Accounts linking detailed physical flows with the valuation of resources
- **Table 3A:** Table showing information on illegal mining
- **Table 4:** Collection of District Mineral Foundations (DMF)
- **Table 5:** Progress in generation and use of renewable and non - renewable energy resources.

**Natural Resource Accounts of Maharashtra
on Mineral & Energy Resources**

5.2.2 Asset Account - Tables

Detailed tables of Asset Accounts are given below:

Table B: Methodology of working out the opening balance with available information

| | | | | | | | | | Figures in Tonnes |
|----------------|----------------------|--|------------------------------|-----------|-----------|-----------|-----------|---|----------------------|
| Major/Minor | Name of Minerals | Opening stock as on 1 April 2015 *2 | Annual extractions during *3 | | | | | Closing stock as on 31 March,2020 *4 | |
| | | | 2015-16 | 2016-17 | 2017-18 | 2018-19 | 2019-20 | | Total (4+5+6+7+8) |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| Major Minerals | Iron ore | 11283000 | 1515936 | 1198102 | 790932 | 1672954 | 1078619 | 6256543 | 5026457 |
| | Manganese | 10867000 | 656496 | 417306 | 729294 | 752115 | 717479 | 3272690 | 7594310 |
| | Limestone | 424035000 | 13240361 | 11998216 | 14149755 | 14959939 | 14547828 | 68896099 | 355138901 |
| | Bauxite | 11281000 | 2248942 | 1892763 | 2181970 | 885733 | 689776 | 7899184 | 3381816 |
| | Chromite | NA | 90 | 1 | 0 | 0 | 0 | 91 | NA |
| | Fluorite | 224824 | 0 | 1175 | 1314 | 1079 | 1315 | 4883 | 219941 |
| | Kyanite | 212881 | 2901 | 3253 | 7818 | 4552 | 3098 | 21622 | 191259 |
| | Sand Stowing | NA | 59799 | 603655 | 598700 | 2862063 | 579530 | 4703747 | NA |
| | Sillimanite | 181002 | 9019 | 6196 | 4541 | 13164 | 14192 | 47112 | 133890 |
| Fossil fuel | Coal | 5953390000 | 38186497 | 40558912 | 42218492 | 49818245 | 76868216 | 247650362 | 5705739638 |
| Minor Minerals | Sand | NA | 30374173 | 12232402 | 9030853 | 9889729 | 2892816 | 64419973 | NA |
| | Stone (Bricks) | NA | 17575080 | 6086136 | 4394386 | 4271048 | 12751700 | 45078350 | NA |
| | Boulder | NA | 52759527 | 79066444 | 83717844 | 91845085 | 93390970 | 400779870 | NA |
| | Dolomite | 8301000 | 212066 | 301870 | 472244 | 468890 | 465667 | 1920737 | 6380263 |
| | Fire Clay | NA | 0 | 0 | 13600 | 0 | 0 | 13600 | NA |
| | Quartz & Silica sand | 15188000 | 383538 | 448813 | 448861 | 1440450 | 1124057 | 3845719 | 11342281 |
| | Shale | NA | 231083 | 0 | 40897 | 57656 | 44234 | 373870 | NA |
| | Laterite | NA | 278000 | 1349200 | 396672 | 1809659 | 2252671 | 6086202 | NA |
| | Murum | NA | 24937944 | 34381889 | 47353846 | 62660768 | 76792487 | 246126934 | NA |
| | Ordinary clay | NA | 508134 | 1654916 | 12355226 | 7168639 | 7340964 | 29027879 | NA |
| TOTAL | | 6434963707 | 183179586 | 192201249 | 218907245 | 250581768 | 291555619 | 1136425467 | 6095148756 |

- 1) As per the Govt of India Notification dtd 10.02.2015, three major minerals were converted into minor minerals. Dolomite, Quartz & Silica Sand, and Pyrophyllite were identified as major minerals in 2015. Therefore, their opening balances were available on the IBM website. However, opening balances of minor minerals were not available on IBM website.
- 2) Opening balances of proven reserve on 01/04/2015 were obtained from IBM website.
- 3) Annual extraction figures have been obtained from DGM.
- 4) Closing stock has been worked out by deducting five years annual extraction (from 2015-16 to 2019-20) from the opening balances of 01-04-2015.
- 5) No additions were reported by the DGM.

Source: Data received from the DGM for the period from 2015-16 to 2019-20.

Table – C: Number of Mines Covered for each of the Mineral

| Name of Minerals | Operational Mines | Non - Operational Mines | Total No. of Mines |
|---|-------------------|-------------------------|--------------------|
| Bauxite | 6 | 25 | 31 |
| Bauxite Aluminous Laterite | 0 | 1 | 1 |
| Bauxite / Laterite | 0 | 1 | 1 |
| Coal | 23 | 1 | 24 |
| Fluorite | 1 | 0 | 1 |
| Iron Ore | 8 | 20 | 28 |
| Iron ore & Laterite | 0 | 1 | 1 |
| Iron Ore & Manganese Ore | 0 | 2 | 2 |
| Kynite | 1 | 0 | 1 |
| Kynite, Silliminite | 2 | 0 | 2 |
| Kynite, Silliminite, Corundum, Pyrophyllite | 1 | 3 | 4 |
| Limestone | 10 | 22 | 32 |
| Limestone & Dolomite | 3 | 4 | 7 |
| Limestone & Shale | 2 | 0 | 2 |
| Manganese ore | 27 | 14 | 41 |
| Sand (Stowing) | 11 | 0 | 11 |
| Grand Total | 95 | 94 | 189 |

Source: Data received from the DGM

- The DGM and IBM are not having the month wise and mineral wise details of extraction, production and dispatch. Hence, the year wise production has been incorporated in the Asset Accounts.
- While all mines were taken into account for working out balances, for production, only working mines were considered.

Table 1: Basic asset account on Mineral & Non-Renewable energy Resources

| Particular | Major Minerals | | | | | | | Minor Mineral *2 | | | | | | | Total *3 | | | | | | | | | | |
|---|----------------|-----------|-----------|---------|----------|---------|--------|------------------|-------------|-------------|----------|----------|----------------|----------|----------|----------|-----------------|--------|----------|---------|---------------|--------------|------|------------|---|
| | Iron ore | Manganese | Limestone | Bauxite | Fluorite | Kyanite | Sand | Stovings | Sillimanite | Fossil Fuel | Coal | Sand | Stone (bricks) | Boulder | | Dolomite | Barz and Silica | Sand | Laterite | Murum | Petinary Clay | Black Shamba | Chir | Slate | |
| Opening Stock of Environmental Asset *1 | 5026457 | 7594310 | 355138901 | 3381816 | 219941 | 191259 | NA | 133890 | 570573968 | NA | NA | NA | 6380263 | 11342281 | NA | NA | NA | NA | NA | NA | NA | NA | NA | 6095148756 | |
| Growth in stock | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Discovery of new stock | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Upward reappraisals | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reclassifications | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total additions of stock | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reduction of stock *1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Extraction | 1238721 | 1042323 | 13619056 | 453012 | 1052 | 1145 | 322692 | 1111 | 4743498 | 7142118 | 11242346 | 94386297 | 606116 | 1049350 | 1357304 | 63826087 | 14647252 | 708540 | 2012300 | 1440000 | 262531820 | NA | NA | 6029701872 | |
| Normal loss of stock | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Catastrophic losses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Downward reappraisals | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Reclassification | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| Total reduction in stock | 1238721 | 1042323 | 13619056 | 453012 | 1052 | 1145 | 322692 | 1111 | 4743498 | 7142118 | 11242346 | 94386297 | 606116 | 1049350 | 1357304 | 63826087 | 14647252 | 708540 | 2012300 | 1440000 | 262531820 | NA | NA | 6029701872 | |
| Valuation/Revaluation of the stock | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Closing stock of environment asset | 2787736 | 6551987 | 341519845 | 2928804 | 218889 | 190114 | NA | 132779 | 565804640 | NA | NA | 5774147 | 10292931 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | 6029701872 | |

Note:
1) Opening Stock (operational & non-operational), Reduction (operational) of Stock and Closing Stock of Asset have been taken from Table No.2
2) Minor Minerals does not have the Opening Balances, hence, the closing stock is not calculated
Source: Data provided by the DGM

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Table 2: Asset accounts on physical flows of mineral and 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 *2 | Addition stock *3 | Reduction in stock (extraction) | | | Closing stock of proved reserves *5 | Sustainability of resources in years (closing stock vis-a-vis total extractions) *6 | |
|----------------------|--|--|----------------------|---------------------------------|------------------|------------------|--|--|------------------|
| | | | | extracted by/for *4 | | Other extraction | | | Total extraction |
| | | | | Govt. Sector | Private Sector | | | | |
| (in tonnes) | | | | | | | | | |
| Major Minerals | Iron ore | 5026457 | 0 | 16943 | 1221778 | 0 | 1238721 | 3787736 | 3.06 |
| | Manganese | 7594310 | 0 | 538056 | 504267 | 0 | 1042323 | 6551987 | 6.29 |
| | Limestone | 355138901 | 0 | 49700 | 13569356 | 0 | 13619056 | 341519845 | 25.08 |
| | Bauxite | 3381816 | 0 | 0 | 453012 | 0 | 453012 | 2928804 | 6.47 |
| | Fluorite | 219941 | 0 | 1052 | 0 | 0 | 1052 | 218889 | 208.07 |
| | Kyanite | 191259 | 0 | 540.09 | 605 | 0 | 1145 | 190114 | 166.04 |
| | Sand Stowing | NA | 0 | 0 | 322692 | 0 | 322692 | NA | NA |
| | Sillimanite | 133890 | 0 | 0 | 1111 | 0 | 1111 | 132779 | 119.51 |
| Fossil fuel | Coal | 5705739638 | 0 | 180480 | 47254518 | 0 | 47434998 | 5658304640 | 119.29 |
| Minor Minerals *1 | Ordinary Sand | NA | 0 | 0 | 7142118 | 0 | 7142118 | NA | NA |
| | Stone (Bricks) | NA | 0 | 0 | 11242346 | 0 | 11242346 | NA | NA |
| | Boulder | NA | 0 | 0 | 94386297 | 0 | 94386297 | NA | NA |
| | Dolomite | 6380263 | 0 | 0 | 606116 | 0 | 606116 | 5774147 | 9.53 |
| | Quartz& Silica sand | 11342281 | 0 | 0 | 1049350 | 0 | 1049350 | 10292931 | 9.81 |
| | Laterite | NA | 0 | 0 | 1357304 | 0 | 1357304 | NA | NA |
| | Murum | NA | 0 | 0 | 63826087 | 0 | 63826087 | NA | NA |
| | Ordinary clay | NA | 0 | 0 | 14647252 | 0 | 14647252 | NA | NA |
| | Black stone | NA | 0 | 0 | 708540 | 0 | 708540 | NA | NA |
| | Jambha Chira | NA | 0 | 0 | 2012300 | 0 | 2012300 | NA | NA |
| | Slate | NA | 0 | 0 | 1440000 | 0 | 1440000 | NA | NA |
| TOTAL | | 6095148756 | 0 | 786771 | 261745049 | 0 | 262531820 | 6029701872 | |

Note:

- 1) Minor Minerals do not have the Opening Balances hence, the closing stock is not calculated.
- 2) Opening stock of proven reserves (operational and non-operational) taken as calculated in methodology.
- 3) There is no addition in stock for the year 2020-21 as per information received from DGM.
- 4) Extraction (operational) figure is taken as provided by the DGM.
- 5) Closing stock of proven reserves have been worked out by deducting extraction figure from the opening stock of 01-04-2020.
- 6) Sustainability of Resources in Years = Closing Stock of Proved Reserves / Total Extraction

**Natural Resource Accounts of Maharashtra
on Mineral & Energy Resources**

Table 2A: Riverine resources - Physical Flows

| Classification | Grade- wise sub- 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 | Sustainability of resources in years(if ascertainable) |
|-----------------------|---|---|---------------------------------|--------------------|-------------------|----------------------------------|---------------------|--|---|
| | | | | Extracted by/for | | Other extraction including | Total extraction | | |
| | | | | Govt Sector | Private Sector | | | | |
| (in tonnes) | | | | | | | | | |
| Riverine resources | Sand | NA | Nil | Nil | 7142118 | Nil | 7142118 | NA | NA |
| | boulder | NA | Nil | Nil | 94386297 | Nil | 94386297 | NA | |

Source : The data received from the DGM

Table 2B: Riverine resources - Valuations

| Particulars | Grade- wise sub- classification | Physical unit extracted showing Govt, Private and other sector as in table 2A (in Tonnes) | | | Valuation of resources (Rs. in crores) | | | District Mineral Foundation (Rs. in crore) | |
|-------------|------------------------------------|---|-------------------|--------------|---|---|----------------------|--|--------------------|
| | | Govt Sector | Private Sector | Other Sector | Revenue receivable | Total revenue receivable | Average Market value | Amount receivable | Amount received |
| | | | | | | | | | |
| Sand | NA | 0 | 7142118 | 0 | Mineral wise valuation not available with the Department | Average Market value of Minor Minerals are not available with the Department only | NA | NA | |
| boulder | NA | 0 | 94386297 | 0 | | | | | |

Source : The data received from the DGM

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Table 3: Subsidiary Asset Accounts linking detailed physical flows in respect of mineral and energy resources with the valuation of resources

| Particulars | Classification of minerals (as per the priorities of the State Govt) | Figures as provided by DGM | Physical Extraction | | Valuation of Resources | | | | | |
|--|--|----------------------------|---------------------|-------------------|------------------------|----------------|----------|------------------------------|----------------------------|---|
| | | | | | Revenue receivable | | | Total Revenue receivable * 1 | Total Revenue implications | Average Market Value (as ascertained from the DGM) *3 |
| | | | | | Govt | Private | Others | | | |
| 1 | 2 | 3 | | 4 | | | | | 8 | 9 |
| | | (in Tonnes) | | (Rs. in Crore) | | | | | (Rs. Per Tonne) | |
| Opening stock/availability of resources at the beginning of the year | Major Mineral | | Govt sector | Pvt sector | | | | | | |
| | Iron ore | 5026457 | 16943 | 1221778 | 1140.16 | 207.28 | 0 | 1347.44 (Rs. 807.86) | | 2480.40 |
| | Manganese | 7594310 | 538056 | 504267 | | | | | | 11046.45 |
| | Limestone | 355138901 | 49700 | 13569356 | | | | | | 348.86 |
| | Bauxite | 3381816 | 0 | 453012 | | | | | | 548.39 |
| | Fluorite | 219941 | 1052 | 0 | | | | | | 9131.23 |
| | Kyanite | 191259 | 540.09 | 605 | | | | | | 3833.69 |
| | Sand Stowing | 0 | 0 | 322692 | | | | | | 117.50 |
| | Sillimanite | 133890 | 0 | 1111 | | | | | | 2268.00 |
| | Fossil fuel | | | | | | | | | |
| | Coal | 5705739638 | 180480 | 47254518 | | | | | | 1916.50 |
| | Minor Minerals | | | | | | | | | |
| | Sand | 0 | 0 | 7142118 | 0 | 2779.17 | 0 | 2779.17 | Not Available | |
| | Stone (Bricks) | 0 | 0 | 11242346 | | | | | | |
| | Boulder | 0 | 0 | 94386297 | | | | | | |
| | Dolomite | 6380263 | 0 | 606116 | | | | | | |
| | Quartz& Silica sand | 11342281 | 0 | 1049350 | | | | | | |
| | Laterite | 0 | 0 | 1357304 | | | | | | |
| | Murum | 0 | 0 | 63826087 | | | | | | |
| | Ordinary clay | 0 | 0 | 14647252 | | | | | | |
| Black stone | 0 | 0 | 708540 | | | | | | | |
| Jambha Chira | 0 | 0 | 2012300 | | | | | | | |
| Slate | 0 | 0 | 1440000 | | | | | | | |
| Total | | 6095148756 | 786771.09 | 261745049 | 1140.16 | 2986.45 | 0 | 4126.61 | a= 157013.26 | b= 1116020.13 crore |
| Addition during the year | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| Growth in stock | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| Discoveries of new | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| Reclassification | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| Total Addition | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0.00 |
| Actual reductions during the year *2 | Major Mineral | | | | | | | | | |
| | Iron ore | 1238721 | | | | | | | | |
| | Manganese | 1042323 | | | | | | | | |
| | Limestone | 13619056 | | | | | | | | |
| | Bauxite | 453012 | | | | | | | | |
| | Fluorite | 1052 | | | | | | | | |
| | Kyanite | 1145 | | | | | | | | |
| | Sand Stowing | 322692 | | | | | | | | |
| | Sillimanite | 1111 | | | | | | | | |
| | Fossil fuel | | | | | | | | | |
| | Coal | 47434998 | | | | | | | | |
| | Minor Minerals | | | | | | | | | |
| | Sand | 7142118 | | | | | | | | |
| | Stone (Bricks) | 11242346 | | | | | | | | |
| | Boulder | 94386297 | | | | | | | | |
| | Dolomite | 606116 | | | | | | | | |
| | Quartz& Silica sand | 1049350 | | | | | | | | |
| | Laterite | 1357304 | | | | | | | | |
| | Murum | 63826087 | | | | | | | | |
| | Ordinary clay | 14647252 | | | | | | | | |
| | Black stone | 708540 | | | | | | | | |
| | Jambha Chira | 2012300 | | | | | | | | |
| | Slate | 1440000 | | | | | | | | |

Natural Resource Accounts of Maharashtra on Mineral & Energy Resources

| Table - 3 - contd. | | | | | | | | | |
|---|--|----------------------------|--|------------------------|---------|--------|---------------------------------|----------------------------|--|
| Particulars | Classification of minerals (as per the priorities of the State Govt) | Figures as provided by DGM | Physical Extraction (in Tonnes) | Valuation of Resources | | | | | |
| | | | | Revenue receivable | | | Total Revenue receivable * 1 | Total Revenue implications | Average Market Value (as ascertained from the DGM) *3 |
| | | | | Govt | Private | Others | | | (Rs. Per Tonne) |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | |
| Extractions as reported by the State Govt Dept of Geology and Mining petroleum, Environment and Forest (On recovery of royalty, cess, fees NPV etc) | | | Not Applicable | 0 | 0 | 0 | 0 | e= 4126.61 | d= 11054.97 crore |
| Revenue related to exploitation of resources out of total revenue included in Statement 14 of State Finance Accounts/ Statement 8 of Union | | | | | | | | e= 3918.31 | |
| Other extractions not taxed (if any) | | | | | | | | | |
| Normal reduction in stock | | | | | | | | | |
| Catastrophic losses including natural and manmade disasters | | | | | | | | | |
| Downward reappraisals | | | | | | | | | |
| Re-classifications | | | | | | | | | |
| Production loss | | | | | | | | | |
| Exports | | | | | | | | | |
| Reduction due to mining activities not approved by departments | | | | | | | | | |
| Total reduction | | 262531820 | | 1140.16 | 2986.45 | 0 | 4126.61 | f = 1570.92 | g = 11054.97 crore |
| Extractions permitted during the year | Major Mineral | | | | | | | | |
| | Iron ore | | | | | | | | |
| | Manganese | | | | | | | | |
| | Limestone | | | | | | | | |
| | Copper | | | | | | | | |
| | Bauxite | | | | | | | | |
| | Chromite | | | | | | | | |
| | Fluorite | | | | | | | | |
| | Kyanite | | | | | | | | |
| | Sand Stowing | | | | | | | | |
| | Sillimanite | | | | | | | | |
| | Fossil fuel | | | | | | | | |
| | Coal | | | | | | | | |
| | Petroleum | | | | | | | | |
| | Natural Gas | | | | | | | | |
| | Minor Minerals | | | | | | | | |
| | Barites | | | | | | | | |
| | Granites | | | | | | | | |
| | marble | | | | | | | | |
| | Calcite | | | | | | | | |
| | Gypsum | | | | | | | | |
| | Mica | | | | | | | | |
| | Sandstone | | | | | | | | |
| | Sand | | | | | | | | |
| | Stone (Bricks) | | | | | | | | |
| | Boulder | | | | | | | | |
| | Shingle | | | | | | | | |
| | Dolomite | | | | | | | | |
| | Corundum | | | | | | | | |
| | Fire Clay | | | | | | | | |
| | Quartz& Silica sand | | | | | | | | |
| | Felspar | | | | | | | | |
| | Shale | | | | | | | | |
| | Laterite | | | | | | | | |
| | Murum | | | | | | | | |
| | Ordinary clay | | | | | | | | |
| | Black stone | | | | | | | | |
| | Jambha Chira | | | | | | | | |
| | Slate | | | | | | | | |
| | Pyrophyllite | | | | | | | | |
| Total | | | | 1140.16 | 2986.45 | 0 | 4126.61 | | |

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| Table - 3 - contd... | | | | | | | | | | |
|------------------------------|--|----------------------------|---------------------|------------------------|---------|---------------------|------------------------------|----------------------------|---|--|
| Particulars | Classification of minerals (as per the priorities of the State Govt) | Figures as provided by DGM | Physical Extraction | Valuation of Resources | | | | | Average Market Value (as ascertained from the DGM) *3 | |
| | | | | Revenue receivable | | | Total Revenue receivable * 1 | Total Revenue implications | | |
| | | | | Govt | Private | Others | | | | |
| 1 | 2 | 3 | (in Tonnes) | | | (Rs. in Crore) | | (Rs. Per Tonne) | | |
| 4 | 5 | 6 | 7 | 8 | 9 | | | | | |
| Closing stock of Minerals *2 | | | | h= 191329.62 | | i= 1104968.96 crore | | | | |
| | Iron ore | 3787736 | Not Applicable | | | | | | | |
| | Manganese | 6551987 | | | | | | | | |
| | Limestone | 341519845 | | | | | | | | |
| | Copper | 0 | | | | | | | | |
| | Bauxite | 2928804 | | | | | | | | |
| | Chromite | 0 | | | | | | | | |
| | Fluorite | 218889 | | | | | | | | |
| | Kyanite | 190114 | | | | | | | | |
| | Sand Stowing | 0 | | | | | | | | |
| | Sillimanite | 132779 | | | | | | | | |
| | Fossil fuel | | | | | | | | | |
| | Coal | 5658304640 | | | | | | | | |
| | Petroleum | 0 | | | | | | | | |
| | Natural Gas | 0 | | | | | | | | |
| | Minor Minerals | | | | | | | | | |
| | Barites | 0 | | | | | | | | |
| | Granites | 0 | | | | | | | | |
| | marble | 0 | | | | | | | | |
| | Calcite | 0 | | | | | | | | |
| | Gypsum | 0 | | | | | | | | |
| | Mica | 0 | | | | | | | | |
| | Sandstone | 0 | | | | | | | | |
| | Sand | 0 | | | | | | | | |
| | Stone (Bricks) | 0 | | | | | | | | |
| | Boulder | 0 | | | | | | | | |
| | Shigle | 0 | | | | | | | | |
| | Dolomite | 5774147 | | | | | | | | |
| | Corundum | 0 | | | | | | | | |
| | Fire Clay | 0 | | | | | | | | |
| | Quartz& Silica sand | 10292931 | | | | | | | | |
| | Felspar | 0 | | | | | | | | |
| | Shale | 0 | | | | | | | | |
| | Laterite | 0 | | | | | | | | |
| | Murum | 0 | | | | | | | | |
| | Ordinary clay | 0 | | | | | | | | |
| | Black stone | 0 | | | | | | | | |
| | Jambha Chira | 0 | | | | | | | | |
| | Slate | 0 | | | | | | | | |
| | Pyrophyllite | 0 | | | | | | | | |
| Total | | 6029701872 | | | | | | | | |

Note:

1. Revenue Receivable figures have been obtained from DGM (Value of 'c')
2. Extraction and closing stock figures have been worked out from the data provided by the DGM (details in table no. 2).
3. Average market value has been taken as provided by DGM.
4. Value of 'a' = Rate of Royalty x OB
5. Value of 'b' = Average Market price x OB
6. Value of 'c' = Total Revenue receivable
7. Value of 'd' = Average Market price x Extraction
8. Value of 'e' = Revenue received during the year as per Statement 14 of Finance A/c 2020-21
9. Value of 'f' = Rate of Royalties x Extractions
10. Value of 'g' = Average Market price x Extractions
11. Value of 'h' = Rate of Royalty x CB
12. Value of 'i' = Average Market price x CB

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Table 3A: Table showing information on illegal mining

| Recovery for the period 01/04/2020 to 31/03/2021 (Rs. In Lakhs) | | | | | | |
|---|--|--|-----------------------------|------------------|------------------|---|
| Name of District | Authority which detected the offence (Deptt/Police/Enforcement/Others) | Detection of illegal mining by the departmental authorities on which challans issued and offence report registered | | | | |
| | | Name of minerals with grades (if available) | Physical quantity/volume *1 | Revenue involved | Amount recovered | Provisions under which compounding done |
| Mumbai (Suburban) | Not Available | | 9 | Not Available | 9.33 | Not Available |
| Thane | | | 288 | | 423.8 | |
| Palghar | | | 214 | | 160.42 | |
| Raigad | | | 405 | | 192.62 | |
| Ratnagiri | | | 70 | | 263.79 | |
| Sindhudurg | | | 184 | | 157.27 | |
| Nasik | | | 371 | | 616.29 | |
| Dhule | | | 265 | | 363.27 | |
| Nandurbar | | | 84 | | 79.34 | |
| Jalgaon | | | 744 | | 532.59 | |
| Ahmednagar | | | 580 | | 693.21 | |
| Pune | | | 952 | | 329.69 | |
| Satara | | | 426 | | 313.4 | |
| Sangli | | | 321 | | 180.14 | |
| Solapur | | | 367 | | 118.01 | |
| Kolhapur | | | 207 | | 170.03 | |
| Aurangabad | | | 266 | | 365.1 | |
| Jalna | | | 269 | | 276.09 | |
| Parbhani | | | 251 | | 185.7 | |
| Beed | | | 198 | | 195.47 | |
| Nanded | | | 350 | | 366.16 | |
| Hingoli | | | 177 | | 125.24 | |
| Osmanabad | | | 137 | | 122.12 | |
| Latur | | | 156 | | 265.53 | |
| Amravati | | | 437 | | 389.03 | |
| Akola | | | 208 | | 168.11 | |
| Washim | | | 113 | | 126.43 | |
| Buldhana | | | 337 | | 516.93 | |
| Yavatmal | | | 406 | | 363.14 | |
| Wardha | | | 299 | | 285.56 | |
| Bhandara | | | 231 | | 512.14 | |
| Chandrapur | | | 707 | | 665.19 | |
| Gadchiroli | | | 360 | | 294.75 | |
| Gondia | | 456 | 294.04 | | | |
| Total | | | 10845 | | 10119.93 | |

Note:

- 1) Number of cases detected is taken in the column 'Physical Quantity / Volume'.

Collection of District Mineral Foundations

The rates of District Mineral Fund is ten *per cent* of royalty paid in respect of mining leases / prospecting – cum - mining lease granted on or after 12th January, 2015 and thirty *per cent* of the royalty paid in respect of mining lease granted before 12th January, 2015 for major mineral and ten *per cent* of royalty paid in respect of minor mineral.

Table 4: Analysis of District Mineral Foundations

| Name of the Mine/Mineral/District | Volume of minerals on which DMF was realisable | Rate at which DMF realisable | Total DMF realised (in | Rs in crore | |
|-----------------------------------|--|------------------------------|------------------------|----------------------------|------------|
| | | | | Variations if any In Rs | Percentage |
| Mumbai (Sub) | Not Provided by DGM | | 25.31 | --- | --- |
| Thane | | | 31.41 | --- | --- |
| Palghar | | | 16.47 | --- | --- |
| Raigad | | | 55.21 | --- | --- |
| Ratnagiri | | | 19.67 | --- | --- |
| Sindhudurg | | | 39.65 | --- | --- |
| Nashik | | | 16.95 | --- | --- |
| Dhule | | | 4.55 | --- | --- |
| Nandurbar | | | 2.84 | --- | --- |
| Jalgaon | | | 17.28 | --- | --- |
| Ahmadnagar | | | 5.07 | --- | --- |
| Pune | | | 34.26 | --- | --- |
| Satara | | | 8.77 | --- | --- |
| Sangli | | | 10.93 | --- | --- |
| Solapur | | | 16.62 | --- | --- |
| Kolhapur | | | 28.49 | --- | --- |
| Aurangabad | | | 14.83 | --- | --- |
| Jalna | | | 10.24 | --- | --- |
| Parbhani | | | 10.99 | --- | --- |
| Hingoli | | | 5.23 | --- | --- |
| Beed | | | 15.53 | --- | --- |
| Nanded | | | 12.54 | --- | --- |
| Osmanabad | | | 16.98 | --- | --- |
| Latur | | | 8.75 | --- | --- |
| Amravati | | | 21.23 | --- | --- |
| Buldhana | | | 11.23 | --- | --- |
| Akola | | | 14.83 | --- | --- |
| Washim | | | 6.33 | --- | --- |
| Yavatmal | | | 398.57 | --- | --- |
| Nagpur | | | 611.50 | --- | --- |
| Wardha | | | 14.30 | --- | --- |
| Bhandara | | | 48.07 | --- | --- |
| Gondia | | | 8.03 | --- | --- |
| Chandrapur | | 873.44 | --- | --- | |
| Gadchiroli | | 18.30 | --- | --- | |
| Total | | | 2454.40 | --- | --- |

Source: Data received from the DGM

Note: The DMF realisable is not available with the DGM, hence the DGM certified DMF realisable and realised are same.

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Table 5: Progress in Generation and use of Renewable and Non - renewable Energy Resources for FY 2020 - 21

| Sector | Energy requirement by sector during the year (MUS) | Total energy requirement in the State (MUS) | Generation/additional generation of energy during the year 2020-21 | | | | | | Percentage share of non-renewable and renewable | | Energy surplus (MUS) |
|-----------------------|--|---|--|------------------|----------------|---------------|--|-----------------|---|----------------------|----------------------|
| | | | Non-renewable (N/R) energy/Fossil fuel sources (MUS) | Renewable energy | | | | | Non-renewable Energy (%) | Renewable energy (%) | |
| | | | | Solar (MUS) | Wind (MUS) | SMHY (MUS) | Others including Bio Mass, Waste to Energy, Geothermal, etc. (MUS) | Total (MUS) | | | |
| Industries | 41786.12 | 109513.42 | 117566.99 | 4893.13 | 5533.11 | 400.54 | 4091.32 | 14918.10 | 86.38 | 13.62 | NIL |
| Domestic | 22117.03 | | | | | | | | | | |
| Agriculture | 33924.02 | | | | | | | | | | |
| Commercial | 5064.90 | | | | | | | | | | |
| Traction and Railways | 72.80 | | | | | | | | | | |
| Others | 6548.56 | | | | | | | | | | |
| Total | 109513.42 | 109513.42 | 117566.99 | 4893.13 | 5533.11 | 400.54 | 4091.32 | 14918.10 | 86.38 | 13.62 | NIL |

Source: Data received from MSEDCL

Note:

- 1) The above information is pertaining to sale by MSEDCL to various categories of Consumers i.e. Industrial, Domestic, Commercial etc.
- 2) The Energy requirement is considered as sale by MSEDCL to various categories of consumers.
- 3) The above information is in terms of Mus i.e. Million Units of Energy terms i.e. actual energy purchased or sold as the case may be.

5.2.3 Findings of the study

- DGM, Nagpur had allotted 165 mines of major minerals other than coal to the lessees during the year 1960 - 61 for 20 to 30 years. Out of which, lease of 79 mines had not been renewed / extended. These were neither put to a fresh auction. As per revised amendments (March 2015) in the Mines and Minerals (Development and Regulation) Amendment Act 1957, mines lease should be granted for a period of 50 years for the minerals other than coal. In this connection, the DGM, Nagpur had directed 79 lessees to execute the extension of mining lease. However, none of the lessees have been granted

extension in lease period (30th June 2022).

- The Integrated Lease Management System (ILMS) is an integrated web portal designed mainly to track the mineral production and generate accurate and real time MIS data to ensure transparency in revenue generation from royalty collection. ILM System is available with DGM but they are not receiving the data related to royalties from DMOs (30th June 2022). Hence, they were not able to provide details of royalty on sale of minerals, dead rent, surface rent and other taxes received / receivable / outstanding at appropriate rate in respective year.
- There was no robust system of collection of information by DGM from DMOs and lessees and its reconciliation (30th June 2022).
- There were differences in figures of extraction, sale of the major minerals of the State Government Department and records of IBM. As the month wise details of the same are not available with the DGM and IBM, the analysis of differences in the figure of extraction could not be worked out.
- There were no additions in the stock of minerals for the year 2020 - 21 which indicates lack of exploration during the year.
- The DGM is still (30th June 2022) in the process of updating the Lease wise information of extraction / production, sale, royalty, dead rent, surface rent and other taxes receivable data (30th June 2022).
- Opening balances and average market value of minor minerals were not available with the Revenue & Forest Departments.
- Mineral wise data of illegal mining was not available with the DGM (30th June 2022).

5.2.4 Recommendations

- Making provisions for regular review of inoperative leases at fixed intervals for determining the leases, which have been inoperative for more than the permissible time limit to prevent blockage of mining areas.
- The data may be updated using ILM System for making available real time information of permits in the check - posts so that the mining passes produced by the transporters at the check - posts can be verified before allowing movement. The details of royalties on sale of minerals may be received from the DMOs and updated in the System.
- Annual / Monthly returns of the minerals may be mandatorily submitted to DGM by all the DMOs. The DGM may arrange to check and reconcile the differences in figures, if any, on monthly basis with IBM.

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- Grade wise details of production of minerals may be properly maintained in the interest of proper revenue calculation.
- Lease wise information of extraction / production, sale, royalty, dead rent, surface rent and others due receivable data may be updated in the ILMS by the DGM.
- Opening balances and average market value of major and minor minerals may be updated and maintained regularly. The mining plans of the resources could be used to ascertain the opening stock.
- Details of physical flow and valuation of riverine minerals may be regularly maintained by the Revenue and Forest Department for inclusion in the Asset Account.
- Mineral wise data of illegal mining may be maintained, and enhancement of penal measures may be taken for restricting the cases of illegal mining.

CHAPTER 6

FUTURE CONTINUITY PLAN

6.1 Guidelines / SoPs issued by GASAB

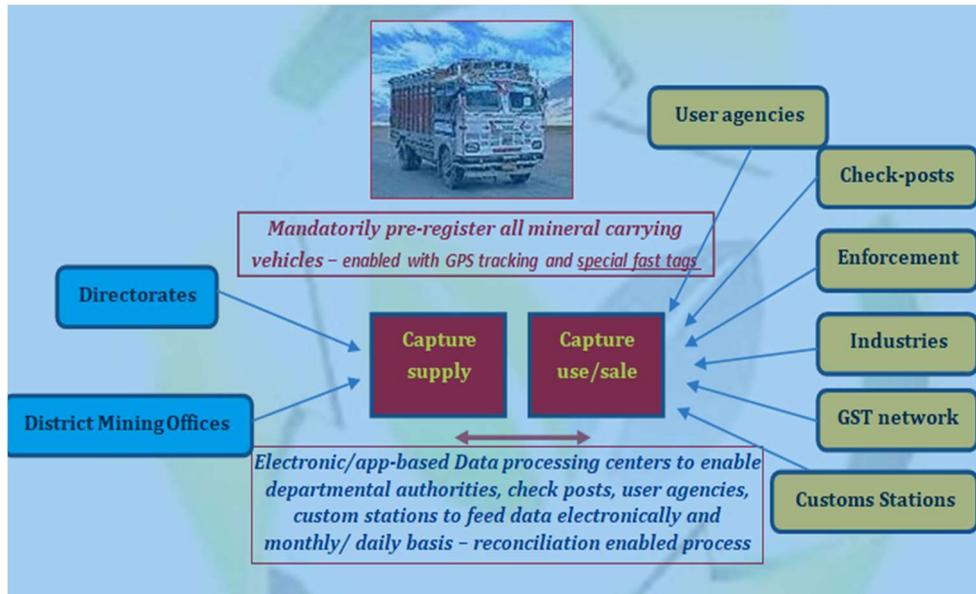
Asset Accounting process for Mineral and Energy Resources is to be a continuous process now onwards. Hence, there is a need for instituting systems and procedures for regularly capturing the data on physical flows of resources, while other inputs like addition in stock, average revenues, market prices, extractions not approved by the DGM and subsequently detected by various agencies could be collected from different sources while finalizing the Asset Accounts.

GASAB has issued Guidelines / SoPs in June 2022 suggesting methodologies for quarterly reporting framework and novel initiative of mapping the supply and use of resources. This will ensure timely collection and collation of data for the Asset Accounts. The mapping of supply and use of resources will enable 360 degrees profiling of mineral extraction and their use for effective management and optimisation of revenues for the State exchequer. These are discussed in the succeeding paragraph.

6.2 Need for mapping the supply and use / sale / export

Revenues from minerals and non - renewable energy resources consists of substantial part of State's receipt and largely help the entities welfare fund and other planned activities of the States. Hence, it is imperative to implement cross - verification mechanism to prevent misuse of resources and optimize revenue yields from exploitation of minerals. A robust framework must be put in place to ensure zero tolerance on resource and revenue pilferage. There is a need for automating the systems and processes for capturing the supply / dispatch of resources allowed by the administrating department.

Map 2: A suggested mechanism for enhancing the control measures for optimizing monitoring on resource sale / use / consumption for better resource management and revenue yields to be adopted as per the following flow:



Source: GASAB

6.3 Quarterly Reporting Framework

From the April 2022, the quarterly reporting framework for Asset Account on Minerals and Energy resources has been suggested by the GASAB.

The DGM has agreed to implement the quarterly reporting framework for the Asset Account from April 2022. Prescribed formats have been circulated to District Mining Offices to submit their information on asset account on quarterly basis to DGM.

At present, the DGM will collect the information from all DMOs and submit the quarterly report to AG office manually. A meeting was held with Joint Director, DGM and all the points were discussed in detail for the preparation of Asset Account for the year 2021 - 22 and report for quarter ending June 2022. The department has assured their full co - operation in this regard.

6.4 Recommendations for improving management of mineral and energy resources of the State and optimization of revenue yields therefrom

The following approaches are recommended to make the system robust and inclusive in the best interest of conservation, sustainability of resources, optimization of revenues for the State exchequer.

a) Statutory approach

- The State as part of enhanced statutory controls over mining activities, extractions / productions / dispatch and revenue yields should automate the e-permit system, with bar - coding of permits real time information sharing on permits issued pre - registration, GPS tagging of carriage vehicles with unladen weight and special fast tags for easy monitoring of minerals carried at the weigh bridges.
- The State may consider making it mandatory for the check posts (both intra and inter - State / customs check posts at international borders) / receiving points at industries to e-verify the permits – making them invalid for reuse. Else, movement / receipt should be allowed only upon full payment of royalty, fees, fines, etc.
- The State may consider enacting laws for making the lease holders / their personnel, departmental officials, industries / their personnel authorised to receive produces - personally liable for recovery of royalty, fees, fines, etc., in cases of movement / acceptance / consumption of minerals without valid permits / multiple use of permits. Also, enhancing the nature and quantum of penal measures to act as high deterrent on illegal mining activities.
- The State may consider introducing rewards scheme in the lines as prevalent in Central Excise and Customs Department for suitably rewarding the informers / Officers / whistle blowers leading to detection of illegal mining.

b) Other approach:

The following could consist of the probable steps (in addition to those taken / being taken by the States) leading to a complete monitoring mechanism on usage / sale of mineral produces.

- Statutory interventions for ensuring strict monitoring on permitted mining activities and deterring illegal mining and their sale/use as discussed under statutory approach.

- Mapping the contact points through which minerals are passed within and outside the State / country, user agencies, consuming industries, wholesale / bulk selling points (getting them registered similar to the practice in Forest Department to register the sawing mills).
- Establishing seamless flow of information from these sources to the Directorates managing the resources on usage and sale of resources and their continuous validation *vis – à – vis* the e-permit system.
- Installing systems for automated verification mechanisms as above to raise red flags on unauthorised supply / consumption of minerals – issuing notice for further action.

For further details, recommendation in Chapter VII of compendium of Asset Accounts on Mineral and Energy Resources released by GASAB in October 2022 may be referred (<https://gasab.gov.in/gasab/pdf/Compendium-of-Asset-final.pdf>).

c) Need for GPS / Geo - tagged district - wise mineral maps

The GPS / Geo - tagged district - wise mineral map would help in consolidation at the national level for providing precise data on availability of resources across the country along with their pace of extractions, revenue generations, market values, available stock of resources. Mine and Resource wise collection of GPS co-ordinates will help in creation of resource - wise maps by each States with mine indicators as per their GPS co-ordinates.

Gradually, other data sets like that of Indian Bureau of Mines, Directorate of Hydrocarbons, etc. could be possible to be mapped into these GPS enabled mapping system for resources. Requisite mapping could be enabled navigating the readers to the latest Asset Accounts providing information on total stock of resources in the district, annual extraction, revenue realised, and other details captured through our Asset Accounting processes in the districts and compiled State - wise. State of Maharashtra has prepared district wise mineral map with GPS / Geo - tagged.

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Annexures

1) State NRA Cell - list and contact details - **Annexure - I**

Annexure - I

| Sr. No. | Name | Designation | Name of the Office | Email ID | Mobile No. |
|---------|------------------------|----------------------------|--|--|----------------------------|
| 1 | Shri Dinesh H. Mate | Sr. Dy. Accountant General | O/o the P.A.G. (A&E) - II, Maharashtra, Nagpur | matedh@cag.gov.in | 9822115508 |
| 2 | Ms. B Manimozhi | Dy. Accountant General | O/o the A.G. (Audit) - II, Maharashtra, Nagpur | manimozhib@cag.gov.in | 9444367868 |
| 3 | Shri Ashutosh Dwivedi | Dy. Accountant General | O/o the P.A.G. (A&E) - I, Maharashtra, Mumbai | ashutoshdwivedi@cag.gov.in | 022-22033900 8838446944 |
| 4 | Shri R. Y. Selukar | Sr. Accounts Officer | O/o the P.A.G. (A&E) - II, Maharashtra, Nagpur | selukarry.mh2.ae@cag.gov.in | 9960083525 |
| 5 | Smt. Lata Hiwale | Sr. Accounts Officer | | hiwalelp.mh1.ae@cag.gov.in | 9820811989 |
| 6 | Shri Y. Siril Paul Bob | Sr. Accounts Officer | | sirilpaulboby.mh2.ae@cag.gov.in | 9423103556 |
| 7 | Shri G. C. Sinku | Sr. Audit Officer | O/o the A.G. (Audit) - II, Maharashtra, Nagpur | sinkugc.mh2.sca@cag.gov.in | 7588444900 |
| 8 | Shri R. B. Kukde | Sr. Audit Officer | | rbkukde.mh2.au@cag.gov.in | 7588747774 |
| 9 | Smt. J. S. Salvi | Sr. Accounts Officer | O/o the P.A.G. | salvijs.mh1.ae@cag.gov.in | 9757352576 |

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| | | | | | |
|---|---------------------------|------------------------|---|--|--|
| 10 | Smt. Hema Kuty | Asst. Accounts Officer | (A&E) - I, Maharashtra, Mumbai | kuttyhk.mh1.ae@cag.gov.in | 9869138199 |
| Representation from State Government Administrative Department | | | | | |
| 11 | Shri Jeet Singh | P.C.C.F | Principal Chief Conservator of Forest (Production & Management) , Nagpur. | pccfpmngp@mahaforest.gov.in | 9422271814 |
| 12 | Smt. Anjali Nagarkar | Director | Directorate of Geology and Mining, Nagpur | director@mahadgm.gov.in dgm@mahadgm.gov.in | 9112291520 , 0712-2220755/2220750, |
| 13 | Shri Rajendra Katpalliwar | Chief Auditor | Water and Irrigation, Maharashtra State, Aurangabad. | cemwrdc@gmail.com | 9422132301 , 0240-2379153 |

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Annexure – II

| Name of Minerals | Working Mines | Dormant Mines | District Name | Whether Geo - tagging done or not |
|-------------------------|----------------------|----------------------|----------------------|--|
| Coal | 25 | 1 | Nagpur | Yes |
| | | | Chandrapur | Yes |
| | | | Yavatmal | Yes |
| Limestone | 23 | 11 | Chandrapur | Yes |
| | | | Gadchiroli | Yes |
| | | | Yavatmal | Yes |
| | | | Nagpur | Yes |
| | | | Nanded | Yes |
| Manganese Ore | 26 | 17 | Nagpur | Yes |
| | | | Bhandara | Yes |
| Iron Ore | 8 | 21 | Gadchiroli | Yes |
| | | | Chandrapur | Yes |
| | | | Gondia | Yes |
| | | | Sindhudurg | Yes |
| Kynite / Sillimanite | 4 | 3 | Bhandara | Yes |
| Bauxite/laterite | 5 | 28 | Kolhapur | Yes |
| | | | Raigad | Yes |
| | | | Satara | Yes |
| | | | Ratnagiri | Yes |
| | | | Thane | Yes |

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| | | | | |
|--------------|----|---|------------|-----|
| | | | Sangli | Yes |
| Fluorite | 1 | 0 | Chandrapur | Yes |
| Dolomite | 3 | 4 | Nagpur | Yes |
| | | | Yavatmal | Yes |
| | | | Gadchiroli | Yes |
| Sand stowing | 11 | 0 | Gadchiroli | Yes |
| | | | Bhandara | Yes |
| | | | Gondia | Yes |
| | | | Nanded | Yes |
