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NATURAL RESOURCE ACCOUNT OF BIHAR FOR THE YEAR 2020-21 MINERAL & ENERGY RESOURCES

An initiative of Government Accounting Standards Advisory Boardunder the aegis of CAG of India

July 2023

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MESSAGE OF STATE GOVERNMENT

It is a matter of great pleasure that a new initiative has been taken by Government Accounting Standards Advisory Board (GASAB) under the aegis of Comptroller & Auditor General (CAG) of India to assist the state government in preparation of an account of natural resources available in the state to help in the achievement of sustainable development along with protection of the environment.

I hope the initiative will provide a consolidated database on availability, use of natural resources, the revenue generated and expenditure incurred on mitigation of environmental degradation.

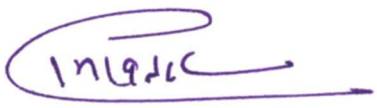
I assure full support of the Department of Mines & Geology, Govt. of Bihar towards preparation and updation of the Natural Resource Accounting (NRA).

(Parmar Ravi Manubhai, I.A.S.)
Additional Chief Secretary,
Mines & Geology Department,
Bihar, Patna

MESSAGE FROM THE ACCOUNTANTS GENERAL

We are happy that the first publication of the Natural Resource Account of the Government of Bihar is prepared. The purpose of this publication is to provide a snapshot of Mineral Profile of State prepared by our office under the directions of GASAB. It provides a broad overview of Importance and implementation of NRA in India, initiative in the State, Asset Account of Mineral and Energy Resources and Future continuity Plan. The information is presented through brief explanations, tables and pictorial presentations.

The Pr. A.G (A&E) office assisted the State Government in preparing the first draft of Asset Account of the Government of Bihar for the year 2020-21 which presents the opening stock, reduction of stock and closing stock on Mineral and Non- Renewable Energy Resources of the State for the year, together with valuation of resources. The Mines & Geology department of the Government of Bihar is primarily responsible for preparation and correctness of the data as this compilation has been prepared directly from the information received from the department and its subsidiary agencies that are responsible to ensure the correctness of such information. The first stage validation and verification of these data is completed by the state departments itself and second stage verification of supporting documents to test check credibility of the data/figures included in the Accounts has been discharged through office of the Accountant General (Audit).



(Praveen Kumar Singh) Pr. ACCOUNTANT GENERAL (A&E)	(Ramawatar Sharma) ACCOUNTANT GENERAL (AUDIT)

Executive Summary

The GASAB Secretariat in CAG's Office has come out with a Concept Paper on NRA in India in July 2020 which, inter-alia, envisaged a three-term plan for implementation of NRA in India in consonance with the strategy enshrined in the System of Economic and Environmental Accounting – Central Framework of the UN.

Besides the plans, the Concept Paper also suggested the templates for preparation of Asset Accounts on Mineral & Energy Resources. Simultaneous to the release of the Concept Paper, pilot studies were initiated (August 2020) in five States, ofwhich, three States namely Goa, Meghalaya and Rajasthan have successfully completed the studies, preparing the model Asset Account on Mineral and Energy Resources in the States.

The final formats of Asset Accounts on Mineral & Energy Resources were released in the shape of a book in October 2021 for implementation in the States. First draft Asset Accounts was targeted for the year 2020-21 to be completed by March2022.

The work on preparation of the Asset Accounts in the State of Bihar_commenced with joint efforts of the Accountants General Offices and the State Government. This Report presents the first draft of the Asset Accounts on Mineral and Energy Resources in the State of Bihar.

Effective implementation of a system of generating Asset Accounts on Mineral and Energy Resources in the States would aid in evidence-based good governance and have the following specific advantages.

- ***Preparation of NRA and meet the commitment made to meeting SDGs and SEEA framework.***
- ***Resources at a glance - a one pager document on State-wise major and minor minerals.***
- ***Compilation of physical and monetary values to enable cross verification of revenues vis-à-vis actual extractions.***
- ***Provide pace of exploitation – to bring out sustainability of resources.***
- ***Analysis of revenue vis-à-vis market value/export value will make it easier to assess and review the royalty rates – to protect State's revenue interest.***
- ***Enable assessment of revenue streams for the future.***
- ***Mine-wise data on resources – pan India.***
- ***Enabler of identification of alternate resources (economic as well as energy).***
- ***Close monitoring on illegal mining, and***
- ***Progress on commitment made at COP 26***

Salient features of the Report:

State NRA Cell was formed during December 2020 with members from PAG (A&E), PAG (Audit), Department of Mines and Geology and other concern departments. ***(Para 3.1)***

Several meetings and workshops were held between officials of PAG (A&E), PAG (Audit) and officials of Mines & Geology department which helped in extracting the required data. ***(Para 3.2)***

Separate detail and subhead have been opened to capture mineral wise information (receipt) on royalty, penalties and application fees. ***(Para 3.3)***

Revenue received from mineral resources during 2020-21 is ₹1708.93 crore which is 27.56 percents of non-tax revenue of the state government. ***(Para 4.4***)

Automated quarterly reporting of NRA data needs to be implemented from April-2022 onwards. ***(Para 6.1)***

There is a need for a robust framework in terms of Rule 45 of Mineral Concession Development Rules as amended in 2011 for ensuring the mapping of use/sale/export of minerals. ***(Para 6.2)***

Collection of all GPS Coordinates of the mine areas has the advantages of enabling district wise mineral map. These maps could be consolidated at the national level providing precise data on availability of resources across the country. At present, the GPS Coordination of all mines are not readily available with the State Government. ***(Para 6.3)***

DISCLAIMER STATEMENT

Preparation of Asset Accounts is part of four-stage implementation strategy coined by the System of Economic and Environmental Accounting – Central Framework. This in turn is part of the Sustainable Development Goals to which India is a signatory. Thus, preparation of Asset Accounts on selective resources is an obligation for the country to be able to meet the international commitments.

The endeavour of Government Accounting Standards Advisory Board under the aegis of institution of Comptroller and Auditor General of India through its Accountants General Offices in States is only aimed at handholding the States in implementing Natural Resource Accounting commencing with the preparation of the first draft of Asset Accounts on Mineral and Energy Resources in a uniform and robust manner. Once the comprehensiveness and reliability of Asset Accounts prepared by the State Government stabilizes, State Government will produce this on regular basis.

The Asset Accounts have been prepared solely based on information/data provided by the concerned departments of the State Government, and GASAB/CAG of India disclaims any responsibility for their correctness/inclusivity.

The verification by Audit Office is a test check that the data/information are supported by primary documents maintained in the offices of the concerned departments and is not an audit of stock of minerals and mining activities in the State.

Sustainability of resources is arrived by dividing the closing stocks of a particular year with annual reduction in that particular year. Hence the years shown in sustainability of resources may vary depending on the production/ reduction of the mineral of the particular year.

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 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.

Agenda 21,

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

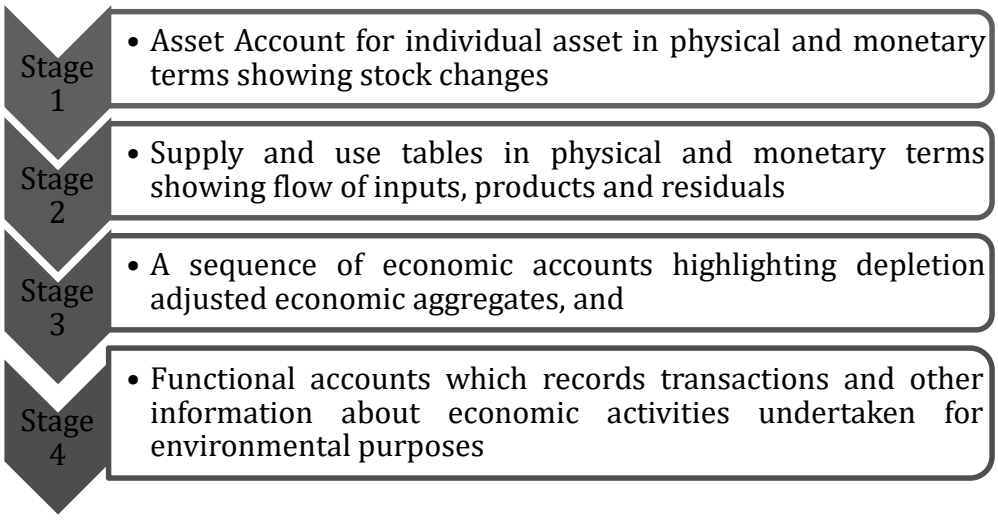
Natural resources play a vital role in the sustainable economic development of any country. They need to be exploited in a sustainable manner so that the future generations can also avail of their advantages. The rampant over –exploitation of these resources in recent times has resulted in harmful impact 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 GDP to arrive at Green GDP. It would assist in taking policy decisions in respect of matter effecting environment directly and indirectly and bring us in a position to use our resources on a more sustainable basis and reducing the negative impact on the environment.

In keeping with the 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:



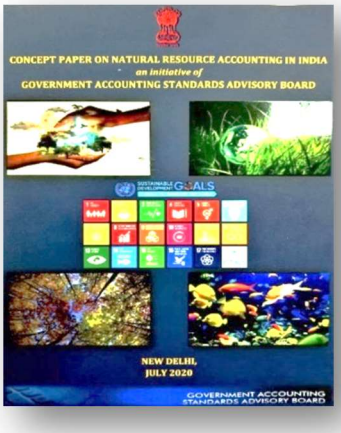
However, while prescribing the aforesaid milestones for implementation of NRA across the world, the SEEA (CF) has also envisaged constraints to be faced by the countries in implementing NRA. SEEA (CF), thus, prescribed for flexibility in designing the accounts based on the specific environmental issues 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 (GASAB) Government Accounting Standards Advisory Board

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 SDGs and Climate Change, international progress on environmental accounting and merger of the concept with economic environmental accounting, progress in other countries.

A Concept Paper on Natural Resource Accounting in India - a product of Government Accounting Standards Advisory Board (GASAB) was published in July 2020. 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 suggestion 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 in consonance with the four stage strategy suggested by the SEEA Framework, as mentioned below:

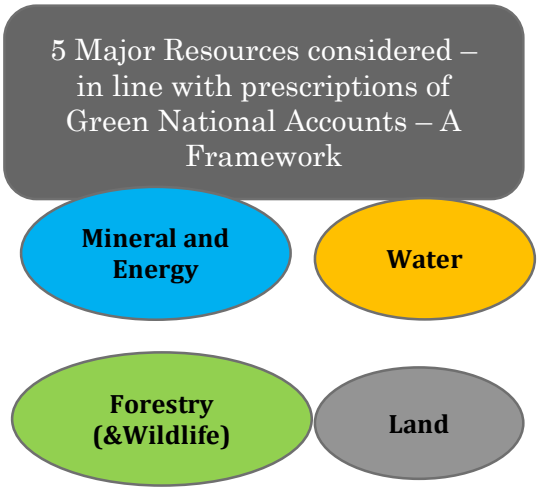
Short term goals	Mid-term goals	Long term goals
1. Preparation of Asset Accounts on Mineral and Energy Resources in States 2. Initiation and preparation of disclosure statement on revenues and expenditure related to natural resources ***(2019-20 to 2021-22)***	1. Preparation of National Asset Accounts on Mineral and Non-Renewable 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, products and residuals ***(2022-23 to 2024-25)***	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. ***(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:

SEEA – CF prescribes seven resources

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



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 ts renewed naturally.

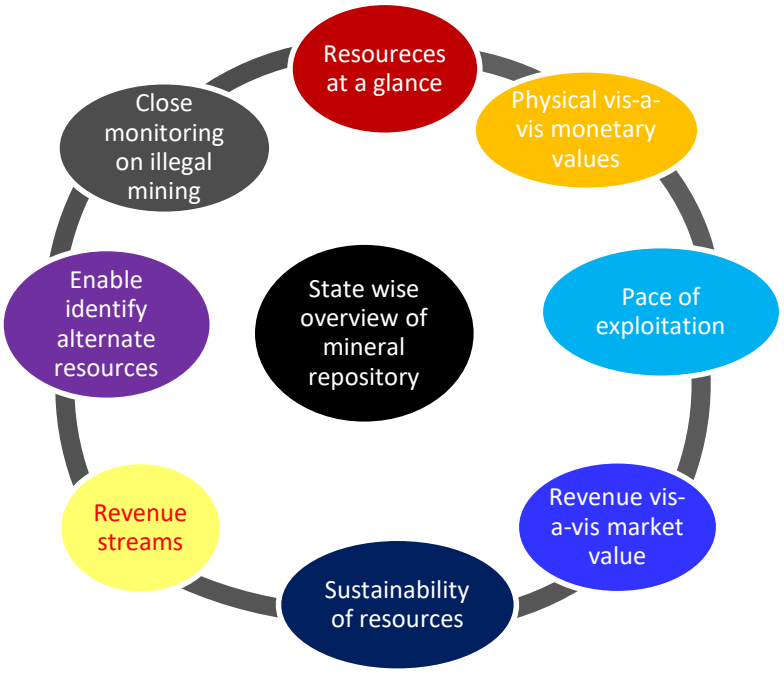
In keeping with the implementation stages as envisaged in the SEEA (CF), the flexibility embedded therein and the importance of resources discussed above coupled with the prescription of SEEA that a country may decide to focus its initial efforts on those accounts that are most relevant to current issues, 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 & Energy Resources, being non-renewable resources have been considered as the first goal

2.5 Advantages of consolidating the Asset Accounts on Mineral & Non-Renewable 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 besides attaining other pressing international obligations like the Sustainable Development Goals 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 years, 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 – in years.

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 State to identify alternate resources – both economic and energy resources.

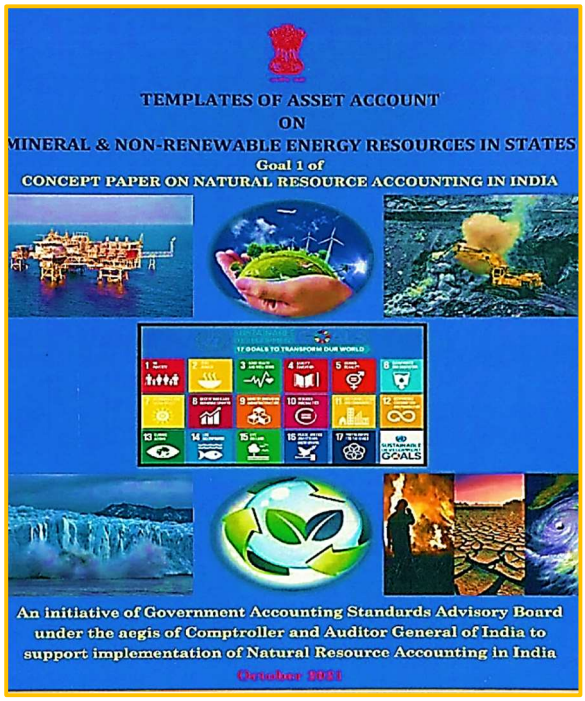
Close monitoring on illegal mining: The inter-operability of supply and

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 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 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 main Tables for capturing the Basic Asset accounts (Table 1), Asset Accounts on physical flows along with sustainability of resources (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), Information on illegal mining (Table 3A), Collection under District Mineral Foundation (Table 4) and Progress in Generation and use of Renewable Energy Resources (Table 5).

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 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 generation of new and renewable energy have been envisaged as Table 5.

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 Centre (NRSC), The Energy and Resources Institute (TERI) etc. Idea of constituting the groups 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 Departments as well. Accordingly, virtual trainings/workshops were continuously held over the time of implementation of the project.

2.10 Onboarding and handholding the States

In order to take the states government on board as one of the most vital stakeholders in the implementation process, the highest echelons in the States were demi-officially informed (September 2021) by the Deputy CAG & Chairperson, GASAB about the endeavor of GASAB and vision of the project which was followed up with virtual presentation to the State. The views/suggestions emanated at this meeting was taken into consideration in updating/modifying the templates.

CHAPTER 3
INITIATIVES IN THE STATE

3.1 Formation of State NRA Cell

State NRA Cell was formed in the month of December 2020 under the guidelines of GASAB (Annexure-A) and subsequently reformed with members from PAG (A&E) and PAG (Audit) under the supervision of Principal Accountants General and respective Sr. Deputy Accountants General along with members from different departments of state government such as Mines & Geology department, Environment forest and climate change department, Water Resources department, Minor water resources department and Energy department (Annexure-B).

3.2 Follow up, trainings and capacity building

Several meetings and workshops were held with the State Department for extracting the relevant data for the NRA account 2020-21. All aspect of Asset Account has been discussed in the workshops/meetings organized by this office in the light of directions given in the concept papers released by GASAB. The officials from Pr. AG (A&E) have visited the concerned department many times to discuss the points of importance and to bring clarity in the Asset Account.

3.3 Innovations and good practices

- The officials of Mines & Geology department were proactive in resolving the issues that arose during the process of preparation of Asset Accounts which in turn facilitated in preparing a correct and true Asset Accounts as per the Guidelines /SoPs issued by GASAB.
- After request of Mines department permission for opening separate Detail and Sub-heads has been granted by Pr.A.G.(A&E) office to capture Mineral wise information(receipts) on royalties, penalties, application fees etc.

CHAPTER 4
MINERAL PROFILE OF STATE AND SHORTLISTING OF RESOURCES

4.1 Mineral profile of Bihar

The important mineral occurrences in Bihar as per IBM database, are coal in Rajmahal coalfield; limestone in Kaimur (Bhabhua), Monghyr & Rohtas districts; mica in Nawada district; quartz/silica sand in Bhagalpur, Jamui, Monghyr & Nalanda districts; quartzite in Lakhisarai, Monghyr & Nalanda districts; and talc/ soapstone/steatite in Monghyr district. Besides, occurrences of bauxite in Monghyr & Rohtas districts; china clay in Bhagalpur & Monghyr districts; felspar in Gaya, Jamui & Monghyr districts; fireclay in Bhagalpur & Purnea districts; gold in Jamui district; granite in Bhagalpur, Gaya, Jahanabad & Jamui districts; iron ore (haematite) in Bhagalpur district; iron ore (magnetite) in Gaya & Jamui districts; lead zinc in Banka & Rohtas districts; and pyrites in Rohtas district are reported.

GSI carried out exploration for coal, REE, limestone and chromite in Bhagalpur, Kaimur, Rohtas and Gaya districts. However as far as production is concerned Limestone is the only major mineral produced in Bihar.

No mineral map is currently available for the minerals available in Bihar. For the financial year 2020-21, all sand ghats are GPS enabled but Geo-tagging was not done.

Recently e-auction for FY 2022-23 settlement of sand ghats is under process and after settlement of sand ghats, GPS enabled/Geo-tagged mineral map of the State will be prepared.

Availability of minerals in various part of the state as per information provided by state government is given below:-

Availability of Minerals in Bihar

Sl. No.	District	Mineral found in district
1	Bhagalpur	Brick Earth and Sand
2	Banka	Brick Earth and Sand
3	Munger	Brick Earth and Sand
4	Jamui	Brick Earth and Sand
5	Lakhisarai	Brick Earth and Sand
6	Sheikhpura	Brick Earth and Stone
7	Rohtas	Lime Stone, Brick Earth and Sand
8	Kaimur	Brick Earth and Sand
9	Gaya	Brick Earth, Stone and Sand

Sl. No.	District	Mineral found in district
10	Aurangabad	Brick Earth, Stone and Sand
11	Jehanabad	Brick Earth and Sand
12	Arwal	Brick Earth and Sand
13	Patna	Brick Earth and Sand
14	Bhojpur	Brick Earth and Sand
15	Buxar	Brick Earth and Sand
16	Nalanda	Brick Earth and Sand
17	Nawada	Brick Earth, Stone and Sand
18	Siwan	Brick Earth and Sand
19	Saran	Brick Earth and Sand
20	Gopalganj	Brick Earth and Sand
21	Bettiah	Brick Earth and Sand
22	Motihari	Brick Earth and Sand
23	Muzaffarpur	Brick Earth and Sand
24	Vaishali	Brick Earth and Sand
25	Darbhanga	Brick Earth and Sand
26	Madhubani	Brick Earth and Sand
27	Samastipur	Brick Earth and Sand
28	Sitamadhi	Brick Earth and Sand
29	Sheohar	Brick Earth and Sand
30	Begusarai	Brick Earth and Sand
31	Khagaria	Brick Earth and Sand
32	Purnia	Brick Earth and Sand
33	Araria	Brick Earth
34	Kishanganj	Brick Earth and Sand
35	Katihar	Brick Earth
36	Saharsa	Brick Earth and Sand
37	Supaul	Brick Earth and Sand
38	Madhepura	Brick Earth and Sand

4.2 Strategic importance of minerals for the State

Importance of mineral reserve:-

a. Bihar has huge deposits of sand - an important building material - used for both constructions as well as filling purposes. Districts falling south of the river Ganga have yellow sand used for construction whereas districts falling north of the river Ganga have predominantly white sand which is primarily used for filling purposes.

b. Stone is another important construction material necessary for infrastructural development.

c. Limestone is used for manufacturing cement.

d. Brick Earth is used for manufacturing of Brick.

e. Though some other minerals exist in Bihar like coal, mica, quartz/silica, yet these are not included at present.

Contribution towards Socio-economics

a. Generation of employment.

b. Bihar is the land of perennial rivers with high rate of deposition of sediments. Bihar also being a flood prone area, it is necessary to remove large depositions of sand on an annual basis to mitigate the disastrous effect of floods.

c. Contribution to infrastructural development of the state.

4.3 Mining process followed in the State

Mining process as per Bihar Minerals (Concession, Prevention of Illegal Mining, Transportation & Storage) Rules, 2019 in respect of Minor mineral:

- **Survey of the area**: Survey and demarcation of the area under a mineral concession shall be done by the mineral concession holder and verification of the same shall be done by the competent authority. No mining or quarrying operation shall commence before verification of the boundaries of the applied area for grant of mining lease or quarry permit.
- **Mining Plan:** Each Mineral Concession Holder/Government/ Corporation as the case may shall have to submit a Mining Plan, to the Department/Mining Officer before commencing the mining operation. Such mining plan shall be prepared by any Recognized Qualified Person.
- **Fixation of Minimum Reserve Value:** The fixation of minimum reserve value shall be as decided by the Department from time to time.
- **Tendering of mining lease:** Any mineral concession in the form of a mining lease shall be settled by means of public auction cum tender only

through e-bidding mode and as per the procedure laid in the latest notification issued by the State Government in this regard or as decided by the State Government in this regard from time to time.

- **Duration of mineral concessions**: The duration of the mineral concessions for minor minerals shall be 5 years.
- **Observance of terms & conditions of mining plan/ environmental clearance** —The settlee shall observe the terms and conditions of the mining plan as well as the terms and conditions laid in the Environmental Clearance pertaining to the concerned settlement.
- **Payment of bid/settlement amount**
    a) ***Procedure for grant of a mining lease except sand:*** The bid amount shall be deposited in yearly basis in equal instalments and each instalment shall be deposited sixty days before the completion of one year from the date of execution of the lease during the first year followed by the same procedure in the consecutive years. Provided that leases executed before the commencement of this rule shall continue to deposit yearly instalments before 31st January of every year.
    b) ***Procedure for grant of a mining lease sand:*** — (i) The settlee shall make payment of the settlement amount as laid down in the Tender Document.

The settlee shall pay extra royalty for the quantity of mineral extracted and dispatched in excess of the quantity equivalent to bid amount.

- **Default in payment—**If any instalment shall not be deposited before prescribed period, 24 percent simple interest shall be charged up to two months and after that action for cancellation shall be taken.
- **Failure on the part of the successful bidder**—In case the successful bidder fails to deposit the required security deposit along with other payable taxes within the prescribed time limit as referred to in the prevailing

notification of the State Government in this regard, his security deposit shall be forfeited and a fresh settlement process through public auction shall be initiated.

- **Online Sand Portal**—The settlee shall make sale of sand to all consumers (small, medium or large) either through online or offline mode. All transactions/payments, excavation, production / transportation, stocking details shall be captured through the departmental online real time monitoring system. Sale of sand shall be controlled by electronic documentation linked to a central documentation monitoring facility and all lessees shall upload a monthly progress report on the departmental portal without fail.
- **Installation of Weighbridges and Transportation**—Each sandghat may have an electronic weighbridge, integrated with central server. However, for adjacent sandghats, department may allow use of common weighbridge. Any vehicle found carrying sand without proper weighment slip/e-challan shall be liable to be seized under the provisions of the Mines and Minerals (Development and Regulation) Act, 1957 or the rules made there under. Transportation shall be carried out through covered carriers only and no wet sand shall be loaded in carriers. The Competent Authority shall impose fine equivalent to market price of sand loaded in the said carrier for any transportation of wet sand and sand transported uncovered from the transporter.
- **E-Challan:** The movement of all minor minerals, whether by Mineral Concession Holder or by the Corporation, shall be monitored through e-challan in Form G or in the prescribed format.
- **Task Force:** Task Force constituted at State, Division and District level to ensure implementation of rules and regulation formed by the State Government and shall monitor the excavation, trade and availability of minor minerals in the state/divisions/districts.

4.4 Contribution of mineral resources in the revenues of the State

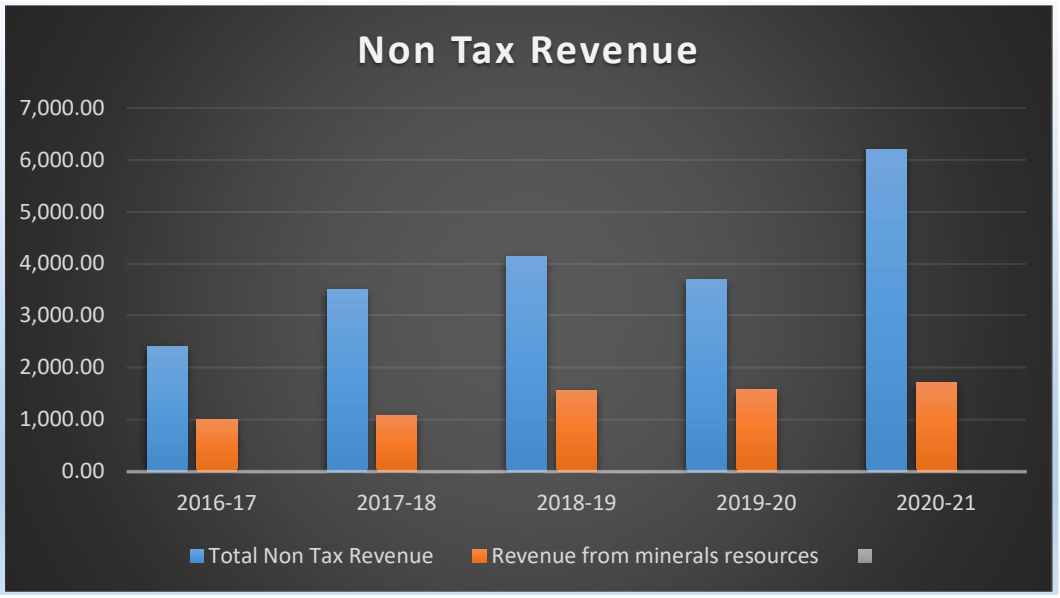
During the period between 2016-17 to 2020-21, receipts from non-ferrous mining and metallurgical industries vis a vis' total non-tax receipts of the Bihar State is illustrated below:

(₹ in crore)

Year	Total Non-Tax Revenue	Revenue from minerals resources	Percentage share of revenue from mineral resources
2016-17	2,403.12	997.60	41.51
2017-18	3,506.74	1,082.67	30.87
2018-19	4,130.56	1,560.65	37.78
2019-20	3,699.60	1,572.07	42.49
2020-21	6,201.38	1,708.93	27.56

Source: *State Finance Account of particular year.*

Thus, during 2020-21 the receipts from mining constituted 27.56 *percent* of the total non-tax receipts of the State Government.



4.5 Short-listing of resources for this study

This being the first year, not all the resources available in the state could be included in the report. Four minerals namely limestone, sand, stone, jalwa quartz have been included in the Asset Account for 2020-21. Whereas the robustness and inclusivity of the data collection mechanism and the comprehensiveness of the datasets has been given priority and thus, the coverage on resources have been limited to those against which complete and reliable data was available.

CHAPTER 5

ASSET ACCOUNT OF MINERAL AND ENERGY RESOURCES OF BIHAR

5.1.1 Scope

The scope of the project is to prepare the Asset Account for the Mineral and Energy resources for the year 2020-21 in Bihar. This involved the work of ascertaining the opening stock of minerals, growth /discovery of the mineral, reduction of minerals due to extraction, arriving at the closing stock of the mineral, ascertaining the market value of the minerals and sustainability of Minerals.

The analysis of royalties and average market values is intended to highlight the gap between the revenues received by the States and prices at which the products are sold in the market. The State can use the analysis to review royalty rates at periodic intervals in the best interest of revenues of the State.

State government has provided the name of major and minor minerals for which Asset Account is to be prepared for the year 2020-21, any minor mineral which could not be taken in this Asset Account is planned to be included in subsequent years. Asset Accounts for the year 2020-21 includes Limestone as major mineral and Sand, Stone and Jalwa quartz as minor minerals.

5.1.2 Objectives

The objectives are as follows:

- To prepare the Asset Account 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 becomingSEEA framework compliant and for effectively mapping the SDG indicators.
- To assist the policy makers with comprehensive dataset on availability, usage andsustainability of mineral for evidence-based decision making.
- To provide inputs for monitoring the progress towards national commitment made at the COP on generation and usage of renewable energy resources.

5.1.3 Methodology of data collection and compilation of physical flows

The data has been compiled by the Mines & Geology Department for table-1 to table-4 and table -5 by the Energy Department. Several meetings were held with the Mines Department in that course. Many times, the officials from NRA Cell visited the Mines & Geology Department in order to sort out the obstacles being faced in collection of data. The cell remained continuously in touch with the Nodal officers of concerned offices specially the Mines & Geology Department. For the completion of Table-5 the Energy Department & Environment, Forest and Climate Change Department was consulted. Many times, even the District Mining Offices were consulted for understanding the basic terms and procedures followed in the Mining work. Assistance was provided to the Mines and Geology Department in completing the tables of Asset Account. The numerical value and the calculation of figures were verified in a limited manner by offices of the Pr. Accountants General to ensure that supporting data exist against the information incorporated in the table by the state government.

The team from AG's offices visited six districts (Rohtas, Aurangabad, Gaya, Bhojpur, Patna and Sheikhpura). The data has been verified on the basis of figures provided by department and assurance of field units. Sample selected districts have covered approx. 77.41 *percent*, 83.76 *percent* and 100 *percent* figure of minerals excavation of sand, stone and limestone respectively out of figures of total mineral excavation during the financial year 2020-21 for respective minerals.

5.1.4 Methodology of monetisation of physical flows

The royalty and average market value is worked out on the basis of figures provided by department and assurance of field units.

- Royalty Rate of limestone is calculated on ₹ 80/- per MT.
- Royalty Rate of sand is calculated on ₹ 75/- per M^3
- Royalty Rate of Stone is calculated on ₹ 100/- per M^3
- Royalty Rate of Jalwa Quartz, Quartzite is calculated on ₹ 150/- per M^3
- Average Market Value of sand is calculated on ₹ 175/-per MT (₹ 700/- per 100 CFT)

5.1.5 Dual stage validation/ limited verification of data

When first draft Asset Account was prepared by Mines department and sent to this office it was verified in a limited manner with the figures available with Department of Planning & Development (Directorate of Economics and Statis-

tics). It was observed that difference of figures existed and when it was examined with the figures of district mining offices, many differences came to light which was reported to the Mines department with request to remove the discrepancies and send revised Asset Account. After that the department has sent the revised Asset Account on 24-05-2022 which has been verified in a limited manner.

5.1.6 Challenges and limitations

During the check, discrepancies were noticed in some of the districts between the data obtained in the tables and those available with the District Mining Offices. The team observed that the District Survey Report in respect of mineral reserves were not prepared. Discrepancies in figures of extraction of minerals and reserves were also noticed. Since DSR in respect of mineable reserves are not prepared, Opening Stock (as on 01.04.2020) and Closing Stock (as on 31.03.2021) of environmental assets could not be worked out. In some districts the dispatch register was not updated and they were not able to provide the monthly returns.

- Figure of extraction of stone during 2020-21 in Gaya district could not be verified as entry of extraction in dispatch register was not updated and monthly return was not available.
- Monthly extraction/dispatch register of stone was not properly maintained and duly verified and signed by the Mining Officer in Aurangabad district. On further verification of monthly report/returns and register it was also noticed that in several months closing stock of preceding month was not taken as opening stock in succeeding month, even unit of extracted quantity not mentioned in several months return.
- BREDA, Energy Department has sent the data for progress of generation and use of Renewable Energy Resources in Table-5. The department has sent the data on 14.07.2022 based on which the final table was prepared.

5.2 Asset Accounts on Mineral & Energy Resources

Five tables have been prepared for compilation of Asset Accounts 2020-21. The state government has provided the data for these tables whose names are as follows-

Table-1: Basic Asset Account on Mineral and Energy Resources.
Table-2: Asset Account on physical flow of Mineral and Energy Resources along with sustainability of resources.
Table-2A: Riverine resources - physical flows.
Table-3: Subsidiary Asset Accounts linking detailed physical flows in respect of Mineral and Energy Resources with the valuation of resources.

Table-4: Tables showing analysis of district mineral foundation**.**

Table-5: Progress in generation and use of renewable energy resources.

Table showing analysis of extraction, production and dispatch of limestone could not be prepared by the state.

5.2.1 Highlights

- The share of generation/use of renewable to total energy requirement for the year 2020-21 was 20 percent.
- There was variations between the total royalty receivables on the reduction/extraction of the mineral resources and the receipts under 0853- Non-ferrous mining and metallurgical industries as per State Finance Account.
- During the year 2020-21, there was no reduction/extraction to stock of Jalwa Quartz.
- Stock is worked out and included in Tables.

5.2.2 Asset Account – the tables

Table 1

Basic asset account on Mineral & Non-Renewable Energy Resources
(Figures in MT)

Particulars	Names of resources			
	Lime Stone	Sand	Stone	Jalwa Quartz
Opening stock of environmental asset	11807619.33	211513951.90	195578878.30	2894495.00
Growth in stock				
Discoveries of new stock				
Upward reappraisals				
Reclassifications				
Total addition of stock				
Reduction of stock				
Extractions	999870.30	28135900.58	14054253.69	NIL
Normal loss of stock				
Catastrophic losses				
Downward reapprais-als				
Reclassification				
Total reduction in stock	999870.30	28135900.58	14054253.69	NIL
Valuation of the stock*(₹ in crore)	7.99	149.40	99.50	NA
Closing stock of environmental assets	10807749.03	183378051.30	181524624.60	2894495.00

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

Note:- (i) Figure of limestone is received from District Mining Office, Rohtas.
(ii) Figure of Jalwa Quartz, Quartzite is received from Mining Plan of Lakhisarai District.
(iii) Figure of sand and stone is received from all 38 District Mining Offices.
(iv) District wise extraction/reduction of mines as provided by state government in respect of Sand (**Annexure-C**), Stone (**Annexure-D**), Limestone (**Annexure-E**) and Quartz (**Annexure-F**) during the year 2020-21.

Table - 2
Asset Accounts on physical flows of Mineral and Non-Renewable Energy Resources along with sustainability of resources

Classification	Name of minerals with grades(wherever available)	Opening stock of proved re-serves	Addition to stock*	Reduction in stock				Closing stock of proved re-serves	Sustainability of resources in years****
				Extracted by/for		Other extrac-tions***	Total extraction		
				Govt Sec-for-**	Private Sector				
		(in MT)							
Major Minerals	Lime-stone	11807619.33			999870.30		999870.30	10807749.03	11
Fossil fuel									
Minor minerals	Sand	211513951.90			28135900.58		28135900.58	183378051.30	
	Stone	195578878.30			14054253.69		14054253.69	181524624.60	
	Jalwa Quartz	2894495.00			NIL		NIL	2894495.00	NA
Other resources, if any									

Note:- Total number of Limestone mine- 01
Total number of Stone mines- 36
Sustainability= CB/Extraction

Table - 2A

Suggestive formats for capturing riverine resources - physical flows

Classification	Name of minerals with grades (wherever availble)	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)
				Ex-tracted by/for		Other extraction in-cluding exports	Total extraction		
				Govt Sector	Private Sector				
		(in MT)							
Riverine resources	Sand	211513951.90			28135900.58		28135900.58	183378051.30	

Table - 2B

Suggestive formats for capturing riverine resources – Valuations

Particu-lars	Name of minerals with grades (wherever available)	Physical unit extracted showing Govt, Pri-vate and other sector as in table 2A(CFT)	Valuation of resources			District Mineral Foundation	
			Reve-nue re-ceive d throu gh auc-tion	Total revenue received	Average pit head value	Amou nt re-ceiva-ble	Amou nt re-ceived
			(₹ in crore)				
Inputs as in Table 3 may be broadly followed	Sand	28135900.58	678.65	678.65	492.38#	13.57	12.29

Average pit head value of sand is calculated on ₹175/- per MT (₹ 700/- per 100 CFT) as provided by state government.

Table - 3

Subsidiary Asset Accounts linking detailed physical flows in respect of Mineral and Non-Renewable Energy Resources with the valuation of resources

Particulars	Name of minerals with grades (wherever available)	Physical unit (in tones) extracted showing Govt., Private and other sector	Valuation of resources		
			Revenue received (in crore) from auction	Total revenue receivable as per royalty rate	Average Market value (as ascertained from the IBM or State Statistical Department) %
		in MT	(₹ in crore)		
Opening stock/availability of resources at the beginning of the year	Limestone	11807619.33		94.46*	NA
	Sand	211513951.90		1123.16**	3701.49#
	Stone	195578878.30		1384.72***	NA
	Jalwa Quartz, Quartzite	2894495.00		30.74****	NA
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, Petroleum, Environment and Forest (on recovery of royalty, cess, fees, NPV etc) #	Limestone	999870.30	10.79	7.99	NA
	Sand	28135900.58	678.65	149.40	492.38
	Stone	14054253.69	79.11	99.50	NA
	Jalwa Quartz, Quartzite	Nil	Nil	Nil	Nil

Particulars	Name of minerals with grades (wherever available)	Physical unit (in tones) extracted showing Govt., Private and other sector	Valuation of resources		
			Revenue received (in crore) from auction	Total revenue receivable as per royalty rate	Average Market value (as ascertained from the IBM or State Statistical Department) %
		in MT	(₹ in crore)		
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]				1,708.93	
Other extractions, not taxed (if any)					
Normal reduction in stock Catastrophic losses including natural and manmade disasters Downward reappraisals Reclassifications					
Production loss					
Final production					
Dispatch of finished products					
Exports					
Reduction due to mining activities not approved by Deptts. $					
Total reduction:	Limestone	999870.30	10.79	7.99	NA
	Sand	28135900.58	678.65	149.40	492.38
	Stone	14054253.69	79.11	99.50	NA
	Jalwa Quartz, Quartzite	Nil	Nil	Nil	Nil

Particulars	Name of minerals with grades (wherever available)	Physical unit (in tones) extracted showing Govt., Private and other sector	Valuation of resources		
			Revenue received (in crore) from auction	Total revenue receivable as per royalty rate	Average Market value (as ascertained from the IBM or State Statistical Department) %
		in MT	(₹ in crore)		
Extractions permitted during the year					
Closing stock	Limestone	10807749.03		86.46	NA
	Sand	183378051.30		973.75	3209.11
	Stone	181524624.60		1285.22	NA
	Jalwa Quartz, Quartzite	2894495.00		30.74	NA

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

* *Royalty Rate of limestone is calculated on* ₹80/- per MT

** Royalty Rate of sand is calculated on ₹ 75/- per M^3

*** Royalty Rate of stone is calculated on ₹100/- per M^3(Tender was conducted prior to 17.09.2019, thus the rate of royalty is considered as per BMMC Rules 1972)

**** Royalty Rate of Jalwa Quartz, Quartzite is calculated on ₹ 150/- per M^3

Average Market Value of sand is calculated on ₹175/- per MT (₹700/- per 100 CFT)

- Conversion from MT to M^3

$$1MT = \frac{25(CFT)}{35.31} M^3$$

Table 4
Tables showing analysis of district mineral foundation

Name of Mine/Mineral/ District	Volume of minerals on which DMF was realisable	Rate at which DMF realisable	Total DMF realisable	Total DMF realised	Variations, if any	
			₹ in crore			*Per centage*
Limestone, Stone, Sand, and Brick kiln from districts	NA	Limestone 30% of Royalty, Stone and sand 2% of settlement amount, Brick Kiln 2% of consolidated royalty	19.85	15.45	(+)4.40	(+)22.18*

*It means Total DMF realised is 22.20% less than Total DMF realisable.

Table 5

Data for Progress of Generation and use of Renewable Energy Resources

Sector (a)	Energy Requirement by the sector during the year (MWh) (b)	Total Energy requirement in the state (in MWh)	Energy Generated (MWh)						% of share of non- RE/RE re-sources vis-à-vis total requirement		Energy Surplus/ Deficit (MWh)	Remarks
			Energy/Fossil fuel sources (MWh)	Renewable Energy (Solar/Wind/Bio-mass)				Total RE	Non-RE	RE		
				Solar	Wind	Hydel	others (incl. Bio-mass/WTE/ Geothermal)					
Industries	3103000.00	24342000.00	29343110.00	206530.00	1134040.00	3366650.00	154200.00	4861420.00	121.00	20.00	-	Demand Met
Domestic	16454000.00											
Agricul-ture	1244000.00											
Commer-cial	2398000.00											
Traction and Rail-ways	66000.00											
others	1077000.00											

5.2.3 Findings of the study

- Total energy requirement in the state is 2,43,42,000.00 MWH.
- Generation/use of renewable energy
  =2,06,530.00+11,34,040.00+33,66,650.00+1,54,200.00=48,61,420.00 MWH
  i.e 4861420/24342000×100=19.97%
- Sandghats/Rivers are settled through e- auction and total sand extracted during the FY 2020-21 is 28135900.58 MT and auctioned amount received for the same is ₹ 678.65 Crore (in Table-2b).
- Against the requirement of average market prices, the state government could only provide pit head value which is not only less than actual sale price of sand/stone but hindered analysis of auction revenues generated by the state.
- Total CB of sand for FY 2020-21 is 183378051.30 MT and total revenue receivable according to royalty rate is ₹ 973.75 crore and average market value/Pit head value is ₹ 3209.11 crore (in table-3).
- Monthly extraction/dispatch registers of stone were neither properly maintained nor duly verified and signed by the Mining Officer in some District Mining Offices. On further verification of monthly report/returns and register it was also noticed that in several months closing stock of preceding month was not taken as opening stock in succeeding month, even unit of extracted quantity not mentioned in several months return.
- It was observed that there was lack of coordination/monitoring mechanism between Department & District Mining Offices.
- Entry of extraction in dispatch register was not updated and monthly return was not available in some District Mining Offices.
- Though the IBM database shows presence of various other minerals like coal, mica, bauxite etc. in different parts of state, yet the information provided by the state government for the asset account did not include the same. On being inquired, it was ascertained that these are non-working mines which in many cases lies inside the restricted forest area.

5.2.4 Recommendations

A system of regular issue of market value of all the minerals by the District Offices may be developed to assess the correct market value of the resources of the State.

Since, the receipts from mining activities constitute a substantial portion of the State Government's revenue, it is recommended that the State Government may undertake geo-fencing of all mine area within a fixed time frame to ensure effective monitoring of mining activities and also maximizing the revenue.

Reporting mechanism should be established for all minerals to keep check on over-extraction of minerals against the permitted extractions during the year to have a greater control on illegal mining.

Entry of extraction in dispatch register should be updated and monthly return may be prepared correctly as these are the basic documents on the basis of which asset account is compiled. DSR in respect of Mineable reserves should be prepared so that Opening stock and closing stock of environmental assets can be ascertained.

Since the mineral resources like coal, mica, bauxite are explored and exist in IBM database, the same may be included in the stock of minerals from next asset account with necessary pre-condition and simultaneously regular reconciliation of data with IBM should be put in place for greater reliability.

CHAPTER 6
FUTURE CONTINUITY PLAN

6.1 Guidelines/SoPs issued by GASAB

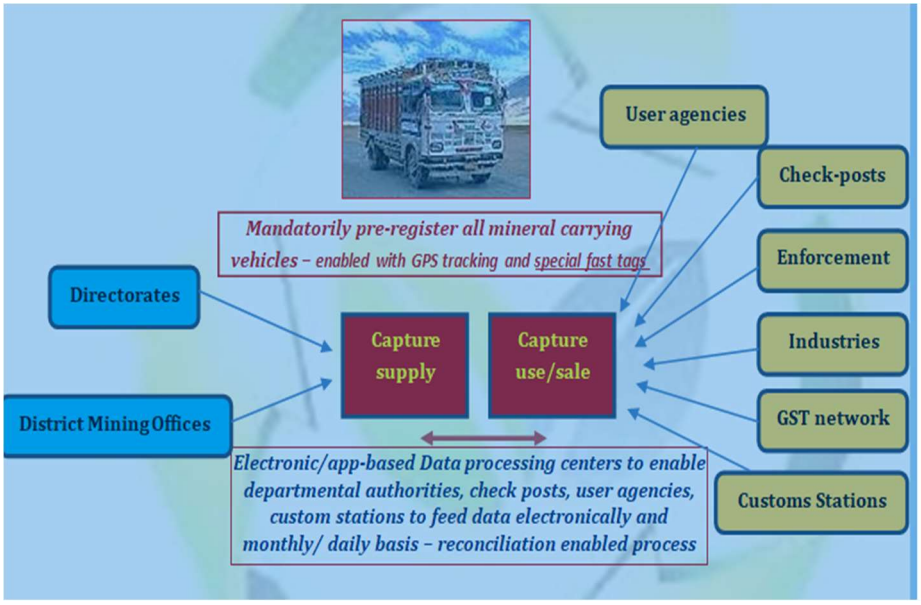
Asset Accounting process for Mineral and Energy Resources is to be a continuous process now onwards. Hence, there is a need for instituting systems and procedures for regularly capturing the data on physical flows of resources, while other inputs like addition in stock, average revenues, market prices, extractions not approved by the DMG 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. These 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 resources 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 Energy Resources consists of substantial part of State's receipt and largely help the entities welfare fund and other planned activities of the State. 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.

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 flowchart:



Source: GASAB

The DMG agreed to furnish the data as envisaged in the guidelines circulated by GASAB and issued a memo to all ADMGs to furnish the required information and required change management in e-permit system is in process.

6.3 Quarterly Reporting Framework.

From the April 2022, the quarterly reporting framework for Asset Account on Minerals and Energy Resources has to be implemented as suggested by the GASAB.

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

At present, the DMG will collect the information from all ADMG Offices and submit the quarterly report to AG office manually. A meeting was held with Joint Director, DMG 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, optimisation 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 re-use. 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 detail 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.

Annexure-A

बिहार सरकार
वित्त विभाग
आदेश

संo संo-ब-16/NRA-83/2020 ..... पटना, दिनांक-

Government Accounting Standards Advisory Board, नई दिल्ली के पहल के तहत Concept Paper on Natural Resource Acconting in India में दिये गये दिशा-निर्देश के अनुसार प्राकृतिक संसाधनों के परिसम्पत्तियों का लेखा तैयार करने हेतु वित्त विभाग में "Natural Resource Accounting (NRA) Cell" का गठन निम्नवत किया जाता है:-

क्रम संख्या	पदाधिकारी का पदनाम/विभाग	पद
1	प्रधान सचिव, वित्त विभाग	अध्यक्ष
2	प्रधान सचिव/सचिव, खान एवं भू-तत्व विभाग या उनके प्रतिनिधि	सदस्य
3	प्रधान सचिव/सचिव, पर्यावरण, वन एवं जलवायु परिवर्त्तन विभाग या उनके प्रतिनिधि	सदस्य
4	प्रधान सचिव/सचिव, योजना एवं विकास विभाग (अर्थ एवं सांख्यिकी) या उनके प्रतिनिधि	सदस्य
5	प्रधान सचिव/सचिव, राजस्व एवं भूमि सुधार विभाग(अभिलेख) या उनके प्रतिनिधि	सदस्य
6	प्रधान सचिव/सचिव, जल संसाधन विभाग या उनके प्रतिनिधि	सदस्य
7	प्रधान महालेखाकार (लेखा परीक्षा), बिहार या उनके प्रतिनिधि	सदस्य
8	प्रधान महालेखाकार(लेखा एवं हक०), बिहार या उनके प्रतिनिधि	सदस्य
9	सचिव (संसाधन), वित्त विभाग	सदस्य सचिव

ह०/-
(एस० सिद्धार्थ)
प्रधान सचिव

ज्ञापांक- संoसंo-ब-16/NRA-83/2020 ...838..... विo/पटना, दिनांक- 10/12/2020

प्रतिलिपि- माननीय उपमुख्य(वित्त) मंत्री के विशेष कार्य पदाधिकारी/प्रधान सचिव/सचिव, खान एवं भू-तत्व विभाग/पर्यावरण, वन एवं जलवायु परिवर्त्तन विभाग/योजना एवं विकास विभाग/राजस्व एवं भूमि सुधार विभाग/जल संसाधन विभाग/प्रधान महालेखाकार(लेखा परीक्षा), बिहार/प्रधान महालेखाकार(लेखा एवं हक०), बिहार/सचिव (संसाधन), वित्त विभाग/संयुक्त आयुक्त (लेखा)-सह बजट पदाधिकारी, वित्त विभाग/सभी उप बजट नियंत्रक-सह-उप सचिव, वित्त विभाग/सभी सहायक बजट नियंत्रक, वित्त विभाग को सूचनार्थ एवं आवश्यक कार्यार्थ प्रेषित।

10/12/2020
(एस० सिद्धार्थ)
प्रधान सचिव

Annexure-B

	NAME (Shri)	DESIGNATION	E-MAIL
1.	Shambhu Dayal	Sr. Account Officer	dayals.bih.ae@cag.gov.in
2.	Sanjay Kumar	Sr. Account Officer	kumars1.bih.ae@cag.gov.in
3.	Vinod Kumar Rajak	Sr. Audit Officer	rajakvinod.bih.sca@cag.gov.in
4.	Trilochan Kumar Ghosh	Sr. Audit Officer	ghoshtk.bih.sca@cag.gov.in
	Subodh Kumar	Sr. Audit Officer	kumarsubodh.bih.sca@cag.gov.in
5.	Diwan Jafar Hussain Khan	Joint Secretary, Mines & Geology Department	biharmines@gmail.com
6.	Kamaljeet Singh	Conservator Of Forest, Working Plan, Environment Forest and Climate Change Department	cfwppatna@gmail.com
7	Gyan Prakash Lal	Joint Director, Water Resource Department	jdhydrologypatna@gmail.com
8	Narendra Kumar	Chief Engineer, Minor Water Resource Department	ce.pmg_bin@gov.in
9	Khagesh Chaudhary	Chief Engineer, Energy Department	energy@bihar.gov.in
10	Mithilesh Mishra	Additional Secretary, Finance Department	finsecy-bih@nic.in

Annexure-C

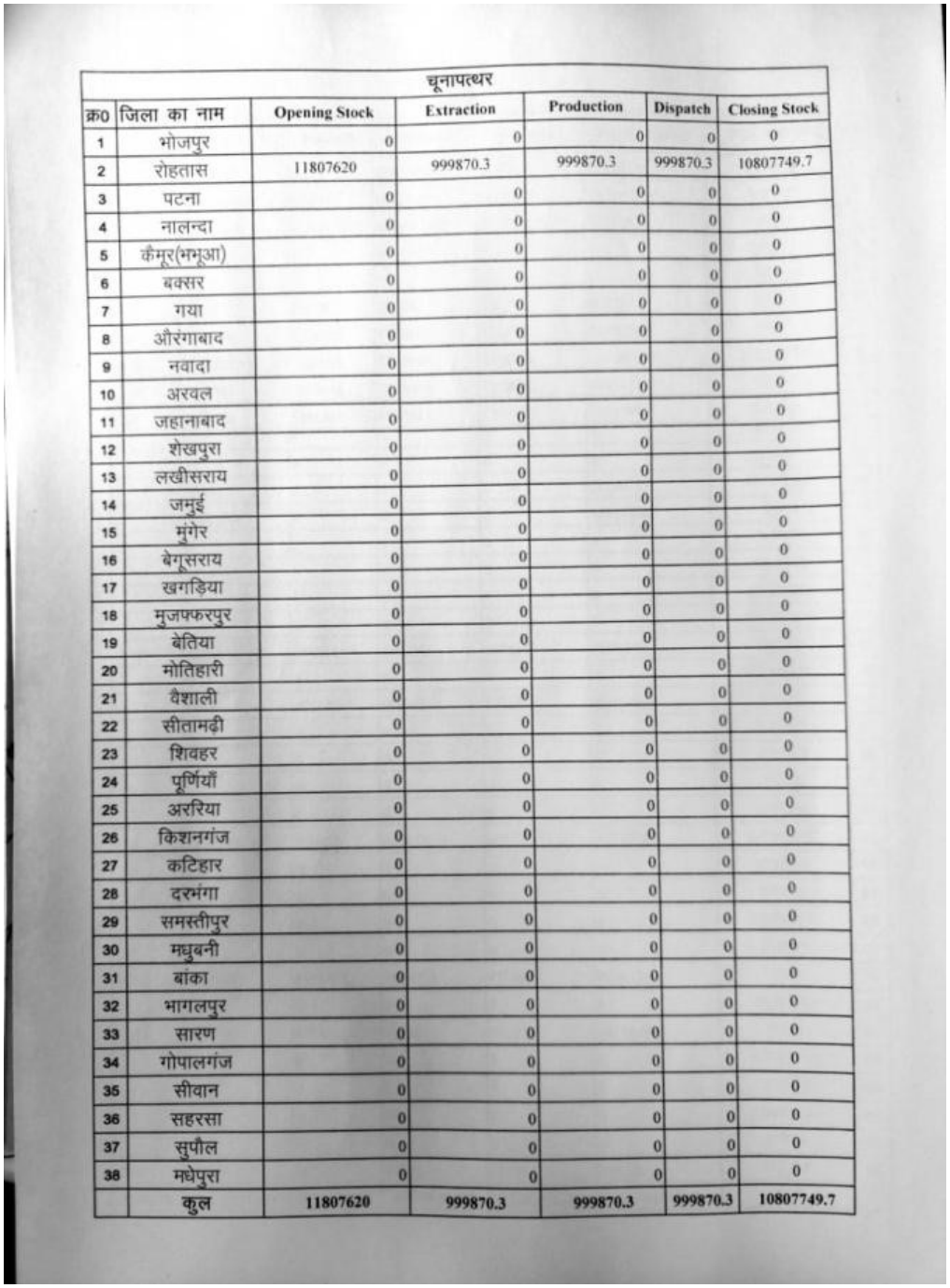
बालू

क्र0	जिला का नाम	Opening Stock	Extraction	Production	Dispatch	Closing Stock	DMF (in lakh)
1	भोजपुर	26396789	3707432	3707432	3707432	22689357	4.27
2	रोहतास	14942207.84	4019274	4019274	4019274	10922933.84	347.54
3	पटना	35455794	5865050.58	5865050.58	5865050.58	29590743.42	245
4	नालन्दा	0	0	0	0	0	
5	कैमूर(भभूआ)	0	0	0	0	0	
6	बक्सर	102299	87372	87372	87372	14927	2.94
7	गया	43996546	3348217	3348217	3348217	40648329	60.86
8	औरंगाबाद	15497063.05	4840233	4840233	4840233	10656830.05	319.88
9	नवादा	4147000	2108123	2108123	2108123	2038877	19.46
10	अरवल	7991517	1165853	1165853	1165853	6825664	54.5
11	जहानाबाद	0	0	0	0	0	
12	शेखपुरा	0	0	0	0	0	
13	लखीसराय	7360592	0	0	0	7360592	
14	जमुई	18837438	0	0	0	18837438	
15	मुंगेर	0	0	0	0	0	
16	बेगूसराय	0	0	0	0	0	
17	खगड़िया	0	0	0	0	0	
18	मुजफ्फरपुर	0	0	0	0	0	
19	बेतिया	1986769	342743	342743	342743	1644026	10.34
20	मोतिहारी	0	0	0	0	0	
21	वैशाली	667328	256270	256270	256270	411058	13.82
22	सीतामढ़ी	0	0	0	0	0	
23	शिवहर	0	0	0	0	0	
24	पूर्णियाँ	0	0	0	0	0	
25	अररिया	0	0	0	0	0	
26	किशनगंज	8524124	575536	575536	575536	7948588	4.24
27	कटिहार	0	0	0	0	0	
28	दरभंगा	0	0	0	0	0	
29	समस्तीपुर	0	0	0	0	0	
30	मधुबनी	0	0	0	0	0	
31	बांका	9253119	1784979	1784979	1784979	7468140	130.6
32	भागलपुर	0	0	0	0	0	
33	सारण	14868780	18574	18574	18574	14850206	15.88
34	गोपालगंज	0	0	0	0	0	
35	सीवान	0	0	0	0	0	
36	सहरसा	0	0	0	0	0	
37	सुपौल	0	0	0	0	0	
38	मधेपुरा	1486586	16244	16244	16244	1470342	0.13
	कुल	**211513951.9**	**28135900.58**	**28135900.58**	**28135900.6**	**183378051.3**	**1229.46**

Annexure-D

पत्थर						
क्र0	जिला का नाम	Opening Stock	Extraction	Production	Dispatch	Closing Stock
1	भोजपुर	0	0	0	0	0
2	रोहतास	0	0	0	0	0
3	पटना	0	0	0	0	0
4	नालन्दा	0	0	0	0	0
5	कैमूर(भभूआ)	41951250	0	0	0	41951250
6	बक्सर	0	0	0	0	0
7	गया	18763204	3779825	3779825	3779825	14983379
8	औरंगाबाद	9664398.94	1469660	1469660	1010895.87	8194738.94
9	नवादा	49872731.49	2281556.82	2281556.82	1910063.06	47591174.67
10	अरवल	0	0	0	0	0
11	जहानाबाद	0	0	0	0	0
12	शेखपुरा	69077293.84	6523211.87	6523211.87	6110088.61	62554081.97
13	लखीसराय	0	0	0	0	0
14	जमुई	0	0	0	0	0
15	मुंगेर	0	0	0	0	0
16	बेगूसराय	0	0	0	0	0
17	खगड़िया	0	0	0	0	0
18	मुजफ्फरपुर	0	0	0	0	0
19	बेतिया	0	0	0	0	0
20	मोतिहारी	0	0	0	0	0
21	वैशाली	0	0	0	0	0
22	सीतामढ़ी	0	0	0	0	0
23	शिवहर	0	0	0	0	0
24	पूर्णियाँ	0	0	0	0	0
25	अररिया	0	0	0	0	0
26	किशनगंज	0	0	0	0	0
27	कटिहार	0	0	0	0	0
28	दरभंगा	0	0	0	0	0
29	समस्तीपुर	0	0	0	0	0
30	मधुबनी	0	0	0	0	0
31	बांका	6250000	0	0	0	6250000
32	भागलपुर	0	0	0	0	0
33	सारण	0	0	0	0	0
34	गोपालगंज	0	0	0	0	0
35	सीवान	0	0	0	0	0
36	सहरसा	0	0	0	0	0
37	सुपौल	0	0	0	0	0
38	मधेपुरा	0	0	0	0	0
	कुल	**195578878.3**	**14054253.69**	**14054253.69**	**12810872.5**	**181524624.6**

Annexure-E



चूनापत्थर						
क्र0	जिला का नाम	Opening Stock	Extraction	Production	Dispatch	Closing Stock
1	भोजपुर	0	0	0	0	0
2	रोहतास	11807620	999870.3	999870.3	999870.3	10807749.7
3	पटना	0	0	0	0	0
4	नालन्दा	0	0	0	0	0
5	कैमूर(भभूआ)	0	0	0	0	0
6	बक्सर	0	0	0	0	0
7	गया	0	0	0	0	0
8	औरंगाबाद	0	0	0	0	0
9	नवादा	0	0	0	0	0
10	अरवल	0	0	0	0	0
11	जहानाबाद	0	0	0	0	0
12	शेखपुरा	0	0	0	0	0
13	लखीसराय	0	0	0	0	0
14	जमुई	0	0	0	0	0
15	मुंगेर	0	0	0	0	0
16	बेगूसराय	0	0	0	0	0
17	खगड़िया	0	0	0	0	0
18	मुजफ्फरपुर	0	0	0	0	0
19	बेतिया	0	0	0	0	0
20	मोतिहारी	0	0	0	0	0
21	वैशाली	0	0	0	0	0
22	सीतामढ़ी	0	0	0	0	0
23	शिवहर	0	0	0	0	0
24	पूर्णियाँ	0	0	0	0	0
25	अररिया	0	0	0	0	0
26	किशनगंज	0	0	0	0	0
27	कटिहार	0	0	0	0	0
28	दरभंगा	0	0	0	0	0
29	समस्तीपुर	0	0	0	0	0
30	मधुबनी	0	0	0	0	0
31	बाँका	0	0	0	0	0
32	भागलपुर	0	0	0	0	0
33	सारण	0	0	0	0	0
34	गोपालगंज	0	0	0	0	0
35	सीवान	0	0	0	0	0
36	सहरसा	0	0	0	0	0
37	सुपौल	0	0	0	0	0
38	मधेपुरा	0	0	0	0	0
	कुल	11807620	999870.3	999870.3	999870.3	10807749.7

Annexure-F

क्वार्टजाइट						
क्र0	जिला का नाम	Opening Stock	Extraction	Production	Dispatch	Closing Stock
1	भोजपुर	0	0	0	0	0
2	रोहतास	0	0	0	0	0
3	पटना	0	0	0	0	0
4	नालन्दा	0	0	0	0	0
5	कैमूर(भभूआ)	0	0	0	0	0
6	बक्सर	0	0	0	0	0
7	गया	0	0	0	0	0
8	औरंगाबाद	0	0	0	0	0
9	नवादा	0	0	0	0	0
10	अरवल	0	0	0	0	0
11	जहानाबाद	0	0	0	0	0
12	शेखपुरा	0	0	0	0	0
13	लखीसराय	2894495	0	0	0	2894495
14	जमुई	0	0	0	0	0
15	मुंगेर	0	0	0	0	0
16	बेगूसराय	0	0	0	0	0
17	खगड़िया	0	0	0	0	0
18	मुजफ्फरपुर	0	0	0	0	0
19	बेतिया	0	0	0	0	0
20	मोतिहारी	0	0	0	0	0
21	वैशाली	0	0	0	0	0
22	सीतामढ़ी	0	0	0	0	0
23	शिवहर	0	0	0	0	0
24	पूर्णियाँ	0	0	0	0	0
25	अररिया	0	0	0	0	0
26	किशनगंज	0	0	0	0	0
27	कटिहार	0	0	0	0	0
28	दरभंगा	0	0	0	0	0
29	समस्तीपुर	0	0	0	0	0
30	मधुबनी	0	0	0	0	0
31	बांका	0	0	0	0	0
32	भागलपुर	0	0	0	0	0
33	सारण	0	0	0	0	0
34	गोपालगंज	0	0	0	0	0
35	सीवान	0	0	0	0	0
36	सहरसा	0	0	0	0	0
37	सुपौल	0	0	0	0	0
38	मधेपुरा	0	0	0	0	0
	कुल	**2894495**	**0**	**0**	**0**	**2894495**