

EXECUTIVE SUMMARY

OF

ENVIRONMENTAL IMPACT

ASSESSMENT REPORT

FOR

PUBLIC HEARING

OF

Proposed Limestone Mine

(Area: 582.962 ha.)

**with Limestone Production Capacity of 3.9 Million TPA
and waste / topsoil 225000 CuM per annum (Maximum)
with installation of Crusher 1000 TPH**

At

Villages: Bidiyadih & Bohardihi, Bhurkunda & Godadihi

Tehsil: Masturi,

District: Bilaspur, (Chhattisgarh)

PROJECT PROPONENT

ACC

M/s. ACC LIMITED

Jamul Cement Works

Durg, Chhattisgarh- 490024

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INDEX

POINT NO.	TOPIC	PAGE NO.
1.0	PROJECT DESCRIPTION	1
1.1	INTRODUCTION OF PROJECT PROPONENT	1
1.2	TYPE OF PROJECT	1
1.3	NEED FOR THE PROJECT	1
1.4	BREIF DESCRIPTION OF THE PROJECT	2
1.5	LOCATION MAP	4
1.6	MINE DESCRIPTION	5
1.6.1	MINING LEASE STATUS	5
1.6.2	MINING DETAILS	5
1.6.3	METHOD OF MINING	6
2.0	DESCRIPTION OF THE ENVIRONMENT	6
2.1	PRESENTATION OF RESULTS (AIR, NOISE, WATER & SOIL)	6
2.2	BIOLOGICAL ENVIRONMENT	6
2.3	SOCIO – ECONOMIC ENVIRONMENT	7
3.0	ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES	7
4.0	POST PROJECT ENVIRONMENTAL MONIOTIRNG PROGRAMME	8
5.0	ADDITIONAL STUDIES	8
6.0	PROJECT BENEFITS	8
7.0	ENVIRONMENT MANAGEMENT PLAN	8
7.1	AIR QUALITY MANAGEMENT	8
7.2	WATER QUALITY MANAGEMENT	9
7.3	NOISE MANAGEMENT	9
7.4	TOP SOIL MANAGEMENT	9
7.5	SOLID WASTE GENERATION AND MANAGEMENT	9
7.6	LAND USE PATTERN AT CONCEPTUAL STAGE	10
7.7	GREENBELT DEVELOPMENT AND PLANTATION PROGRAM	10



Executive Summary

1.0 PROJECT DESCRIPTION

1.1 Introduction of Project Proponent

M/s ACC Ltd. is the oldest and one of the largest cement producers in India with annual production capacity of more than 30 Million tonnes per annum (MTPA).

ACC is India's foremost manufacturer of cement and concrete. ACC's operations are spread throughout the country with 17 modern cement factories, more than 40 Ready Mix Concrete plants, 20 sales offices, and several zonal offices. It has a workforce of about 9,000 persons and a countrywide distribution network of over 9,000 dealers. The manufacturing units are backed by a technology support service centre.

Since its inception in 1936, the company has been a trendsetter and important benchmark for the cement industry in respect of its production, marketing and personnel management. Its commitment to environment-friendliness, its high ethical standards in business dealings and its ongoing efforts in community welfare programmes have won it acclaim as a responsible corporate citizen. ACC has made significant contributions to the nation building process by way of quality products, services and sharing its expertise

1.2 Type of Project

M/s. ACC Limited has Proposed Limestone Mine (Area: 582.962 ha.) with Limestone Production Capacity of 3.9 Million TPA and waste / topsoil 225000 CuM per annum (Maximum) with installation of Crusher 1000 TPH at Villages Bidiyadih, Bohardi, Bhurkunda & Godadih, Tehsil Masturi, District Bilaspur, Chhattisgarh.

As per EIA Notification dated 14th September, 2006, the project falls under Category "A", Project or Activity 1(a)(3) (for mine) and 2 (b) (3) (for crusher)

1.3 Need for the Project

- The cement demand in the country is growing at the rate 9-10% (Compound Average Growth Rate CAGR) particularly in the eastern states, due to various infrastructural projects planned by State/Central Governments and also due to rapid growth of industries, the demand is likely to be higher than average for the country.
- Keeping in view, M/s ACC Limited has proposed to put up a new cement plant (clinkerisation) of 2.72 MTPA. In view of the above, Limestone requirement for the plant clinkerisation, will be met from the Chilhati Limestone Mine. Till the setup of a new cement plant, a very small amount of Limestone (approx. 10000 tons- 15000 tons) may be dispatched to Jamul Cement Works of M/s ACC Limited, situated in Durg district of Chhattisgarh.

1.4 Brief Description of the Project

Table – 1
Brief Description of the Project

S. No.	Particulars	Details		
A.	Nature of project	Proposed Limestone Mine		
B.	Size of project			
1.	ML area	582.962 ha		
2.	Proposed Production Capacity	Limestone :3.9 Million TPA Waste/top soil: 225000 CuM per annum		
3.	Crusher	1000 TPH		
C	Project Location			
1.	Villages	Bidiyadh, Bhurkunda, Godadih & Bohardih		
2.	Tehsil	Masturi		
3.	District	Bilaspur		
4.	State	Chhattisgarh		
5.	Coordinates	Pillar No	LATITUDE	LONGITUDE
		Pillar No 52	21°49'28.386"N	82°20'58.0373"E
		Pillar No 128	21°49'21.7197"N	82°19'19.6821"E
		Pillar No 207	21°49'0.9888"N	82°20'6.132"E
		Pillar No 1238	21°49'29.3318"N	82°21'7.9341"E
6.	Toposheet No.	<ul style="list-style-type: none"> Core Zone 64 K/5 Buffer Zone - 64 K/1, 64 K/2 , 64 K/5 & 64 K/6 		
D	Environmental Setting Details (with approx. aerial distance & direction from the mining lease boundary)			
1.	Nearest Habitation	Village Bohardih 350 m in SE direction Village Godadih adjacent to lease area in South direction Village Bhurkunda 80 m in North direction Village Bidiyadh 370 m in NE direction		
2.	Nearest Highway	NH-200 (~9.8 km in NNE direction)		
3.	Nearest Railway Station	Nearest Railway Station: Bilaspur (~30.0 Km NW)		
4.	Nearest Airport	Swami Vivekananda Airport at Raipur (~91 km in SW direction)		
5.	National Park, Wild Life Sanctuaries, Biosphere Reserves, Wildlife corridors, Tiger/Elephant Reserves etc. within 10 km radius study area	There is no National Park, Wild Life Sanctuaries, Biosphere Reserves, Tiger Reserves, and Wildlife Corridors etc. within 10 km radius of the mining lease area.		
6.	Reserve/Protected Forest within 10 km radius study area	None		
7.	Water Bodies within 10 km radius of	➤ No seasonal nallah is passing through the M.L. area.		

S. No.	Particulars	Details
	the mine site	<ul style="list-style-type: none"> ➤ Two seasonal nallah flowing easterly divides the M.L. area into blocks with a safety barrier left along the both sides of nallah. The lease has been granted excluding that part of the area. ➤ A proposed canal (under construction) is passing through the M.L. area. ➤ Kurang Left Bank Canal (Adjacent in West direction) ➤ Lilagarh River (~ 0.25 km in East direction) ➤ Sheonath River (~ 6.5 km in SSW direction) ➤ Various small seasonal village ponds exist within 10 km radius study area.
8.	Seismic Zone	Zone - II [as per IS 1893 (Part - I) : 2002]
E	Cost Details	
1.	Project Cost	Rs. 125 Crores /-
2.	Cost of EMP	Capital cost – Rs. 12.5 Crore/- Recurring cost – Rs. 1.0 Crore/-

Source: Site Visit & Pre-feasibility Report

1.5 Location map

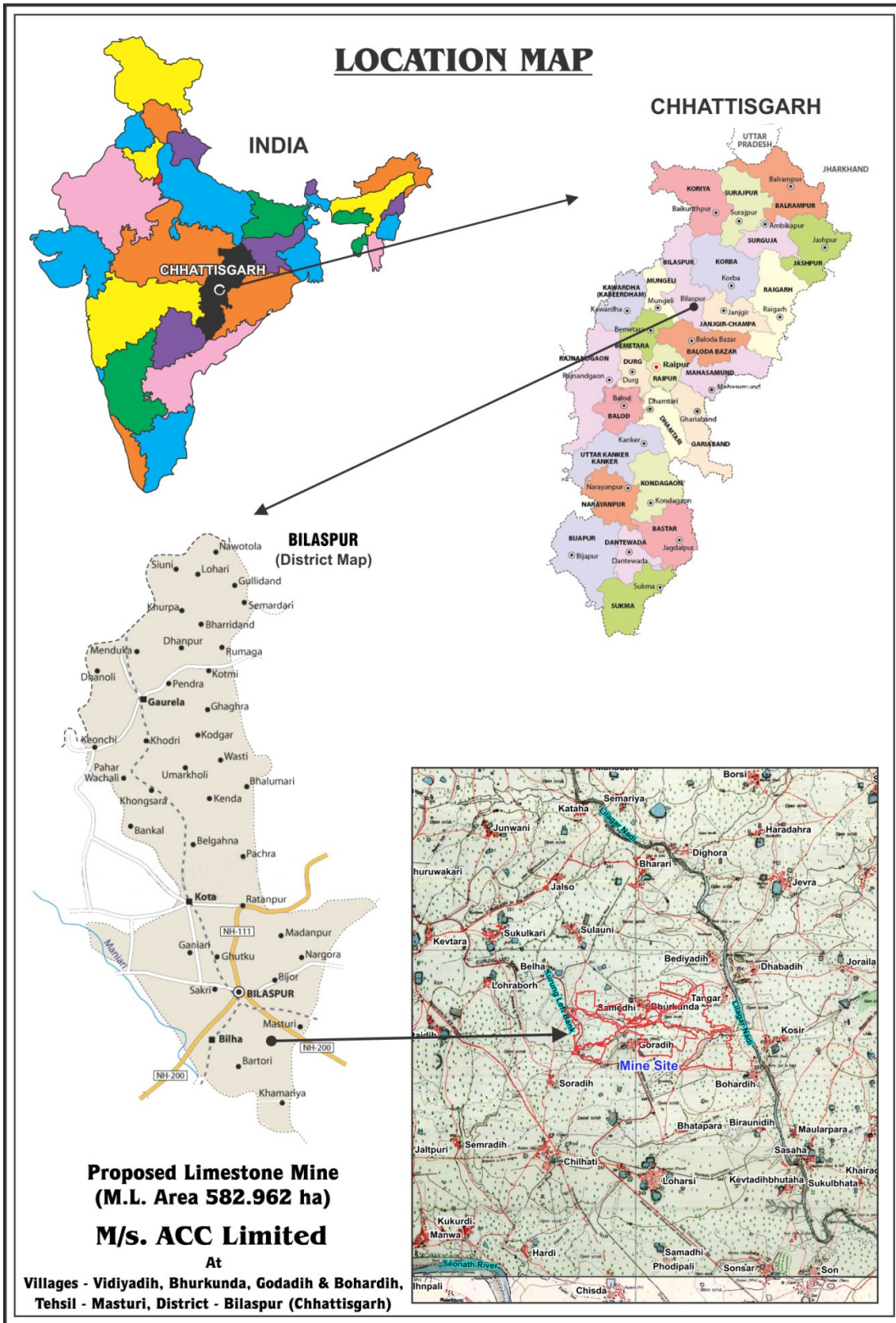


Figure-1: Location map (Showing general as well as specific location of the ML area)

1.6 MINE DESCRIPTION

1.6.1 Mining Lease Status

- An order regarding grant of mining lease was issued in favor of M/s. ACC Limited vide letter no. F- 3-86/2007/12(1) dated 10.08.2009 by Dept. of Mineral Resources, Chhattisgarh Government.
- Mining Lease deed was executed in favor of M/s ACC Ltd. for an area of 582.962 ha vide letter no. 2047/ML/2009 dated 21.10.2009 for 30 years.
- A letter regarding extension of mining lease period from 30 to 50 years has been issued by Collector Bilaspur, Chhattisgarh vide letter no. 1928/ML/SN/2015 dated 27.10.2015. Copy of mining lease documents is enclosed as Annexure I.
- High Court of Chhattisgarh at Bilaspur under Writ Petition (C) No. 1090 of 2014 states the following-
 - In view of the above, the writ petition is disposed of with a direction to the Secretary of Water Resources Department, Govt. of Chhattisgarh to consider the petitioner's representation/application as early as possible.
 - It is made clear that this Court has not expressed any opinion on the merits of the case and the respondent authorities shall decide the representation, on its own merits strictly in accordance with law, without treating any observation made in this order as opinion on the merits of the case.

1.6.2 Mining Details

Table – 2 Mining Details

S. No.	Particulars	Details
1.	Method of mining	Fully Mechanized Opencast mining
2.	Total Geological Reserves	182.74 Million Tonnes
3.	Total Mineable reserves	145.11 Million Tonnes (cement grade)
4.	Proposed Life of the Mine	~ 40 years
5.	Bench Height	1.5 to 2 m (OB Bench) 6-10 m (Ore Bench)
6.	Working Bench Width	15-20 m
7.	Ultimate Pit Slope	45°
8.	Elevation Range	235 m to 260 m AMSL
9.	General Ground Level	237 mRL
10.	Water Table	4 m to 7 m bgl
11.	Ultimate Working Depth	220 mRL
12.	Stripping Ratio waste:mineral	Aprox 0.1 m cu / T
13.	Number of Working Days	300 days/year
14.	Number of shifts per day	2

Source: Modified Mining Plan & Progressive Mine Closure Plan

1.6.3 Method of Mining

The Method of Mining will be Open Cast Working with formation of benches by fully mechanized means. The Mechanized method of opencast mining with deep hole blasting and secondary breaking by Hydraulic breaker, (if required) will be adopted. The Dumpers will be used for loading and transport of material to the proposed crushers of 1000 TPH capacity to be installed within lease area. The crushed limestone will be supplied to the proposed Cement plant by covered conveyor belt. Till setup of cement plant, small quantity of limestone (approx. 10000-15000 tons) may be dispatched to Jamul Plant of ACC Limited situated at Durg District, Chhattisgarh by Road

2.0 DESCRIPTION OF THE ENVIRONMENT

2.1 Presentation of Results (Air, Noise, Water & Soil)

Baseline study of the study area was conducted during Summer Season, March – May, 2018.

The Air quality monitoring for all the 12 sampling stations shows that the concentrations of PM₁₀ and PM_{2.5} for all the 12 AAQM stations were found 53.8 to 87.6 µg/m³ and 23.7 to 42.3 µg/m³ respectively. The concentrations of NO₂ and SO₂ were found to be in range of 11.8 to 22.2 µg/m³ and 6.2 to 14.0 µg/m³, respectively

Ambient noise levels were measured at 12 locations around the Mine site. Noise levels varied from 51.4 to 54.5 Leq dB(A) during day time and from 40.9 to 44.3 Leq dB(A) during night time.

The ground water analysis for all the 8 sampling stations shows that pH varies from 7.29 to 8.09, total hardness varies from 117.30 mg/l to 535.50 mg/l & total dissolved solids varies from 231 mg/l to 618 mg/l, conductivity varies from 279 mg/l to 942 mg/l, chloride varies from 26.13 to 308.77 mg/l, SO₄ varies from 6.07 to 34.03 mg/l, Fluoride 0.40 to 0.85 mg/l.

The analysis results of soil shows that soil is neutral to slightly alkaline in nature, the pH value ranges from 7.02 to 7.78, the soil texture is sandy loam at the sampling locations. The organic matter % ranges from 0.87 % to 1.13 %. The concentration of Nitrogen are good at all the sampling locations, as it ranged from 198.65 kg/ha to 348.17 kg/ha and Phosphorous found very less amount i.e. from 12.36 to 32.14 kg/ha, whereas the Potassium is found to be ranging from 205.14 to 391.49 kg/ha. These results show that the area has average soil quality.

2.2 Biological Environment

Flora: Species which are most commonly found in the study area are: *Neem, Aamla, Aam, Karanj, Jamun, Iml, Amaltas, Ashoka, Bargad.etc*

Fauna: Species which are most commonly found in the study area are Nilgai, Mongoose, lizard etc.

2.3 Socio-Economic Environment

The population as per 2011 Census records is 91402 (for 10 km radius buffer zone). Scheduled Caste fraction of the population of the study area (10 km) is 26100 (28.55%) and Scheduled Tribe 12482 (13.65%). Percentage of literacy is 62.99% and that of workers those actually engaged in occupation is 48.53% including, 48.65% of Main workers & 51.34 %of marginal workers. Rest 51.47 % of the total population, are considered as non-workers.

3.0 ANTICIPATED ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

- ☞ **Impact on Air Environment** - The key air emissions from the mining activities (drilling, blasting, loading, haulage, crushing and transportation) are Particulate Matter, Oxides of Nitrogen (NO_x) and Sulphur dioxide (SO₂). Gaseous emissions will be generated from Machineries & transportation of vehicles. Use of proper mitigation measures will be taken like controlled blasting, water sprinkling during transport activities regular maintenance of equipments & development of green belt along the road sides to control fugitive emissions.
- ☞ **Impact on Water Environment** – Two seasonal nallah flowing easterly divides the M.L. area into blocks with a safety barrier left along the both sides of nallah. The lease has been granted excluding that part of the area. Therefore, diversion of nallah will not be required. There will be no discharge of waste water outside the lease area, Therefore, no significant impact of proposed mining on surface water. Very small quantity of domestic waste water generated from mine office will be disposed off in soak pit via septic tank. The general ground level is 237 mRL and Water table level is 4 m bgl to 7 m bgl. Ultimate working depth of the mining operation will be approx 210 mRL Ground water table will not be intersected. Moreover, the mineral limestone and associated rocks do not contain any toxic substance.
- ☞ **Impact of Noise & Vibration**- Blasting shall be carried out by using NONEL detonators, which controls air blast and ground vibration effectively and by optimizing the blasting parameters & explosive charge per delay to control the fly rock and ground vibration. No secondary blasting will be conducted. Rock breaker will deployed for breaking of Oversize boulders generated during blasting. Moreover vibrations and noise generated by blasting will be monitored regularly.
- ☞ **Impact on Land Environment** – Opencast mining activities may alter the landscape in mining lease area but will not have any significant impact on the surface features of the surrounding areas.
- ☞ At the conceptual stage, out of total excavated area of 360 ha. about 54 ha area will be backfilled and Remaining area i.e. 306 ha will be converted as water reservoir.
- ☞ At the end of the life of mine total 127 ha (54 ha on backfilled area, 43 ha around lease periphery and 30 ha on non mineralized area) area will be covered under greenbelt and plantation

4.0 POST PROJECT ENVIRONMENTAL MONITORING PROGRAMME

Table 4
Post Project Monitoring

S. No.	DESCRIPTION	FREQUENCY OF MONITORING
1.	Ambient Air Quality	Fortnightly
2.	Water Quality and Level	Quarterly
3.	Noise Level Monitoring	Quarterly
4.	Vibration Monitoring	On every blast

5.0 ADDITIONAL STUDIES

Additional Studies i.e. Hydro –Geological Study, Risk Assessment & Disaster Management Plan, Land use and land cover study, Ecology and Biodiversity, Rehabilitation and Resettlement Plan are covered in Draft EIA/EMP Report as per the Terms of references granted by MoEFCC, New Delhi vide letter no. J-11015/45/2018-IA.II (M) dated 17.07.2018 in favor of M/s. ACC Limited.

6.0 PROJECT BENEFITS

The project activity will help in meeting the growing demand of cement & hence help in the economic growth of the country. It will be helpful in the development of basic needs of the local area like education, Health & family welfare, women empowerment, Natural resource management, water conservation, roads etc. It will result in growth of the surrounding areas by increasing direct and indirect employment opportunities in the region including ancillary development and supporting infrastructure.

7.0 ENVIRONMENT MANAGEMENT PLAN

7.1 Air Quality Management

- Drilling machines will be equipped with wet drilling arrangements and bag filter arrangements.
- Controlled Blasting will be adopted with the optimum use of explosive energy which will help in reducing air pollution
- Haul roads & loading & unloading areas will be regularly sprayed with water to arrest dust from becoming air-borne.
- Development of green belt/plantation around mine boundary and other places will be carried out to control the air pollution
- Personal Protective Equipment like dust masks will be provided to all employees.
- Periodic air quality monitoring will be carried out

7.2 Water Quality Management

- Very small quantity of domestic waste water generated from mine office will be disposed off in soak pit via septic tank.
- Ground water level and quality on seasonal basis will be assessed in the open/dug wells to evaluate the impacts of ongoing operations.
- No waste water will be generated due to the mining and allied operations

7-3 Noise Management

- Drilling will be done with sharp drill bits to achieve optimum drilling performance and to reduce noise generation at source.
- Ground vibrations will not affect the structures in the vicinity of ML area as blasting will be done in accordance with the standards prescribed by DGMS for controlled blasting.
- Explosives charge per hole and per delay will be maintained as per DGMS guidelines.
- NONEL will be used to control ground vibrations, noise & fly rocks.
- Blasting will be carried out during day time only.
- Proper maintenance, oiling and greasing of machines at regular intervals will be done to reduce generation of noise.
- Planting of trees will be done along the mining lease boundary for controlling noise apart from acting as barrier for propagation of noise outside the mine pit boundary.
- All mines employees will be provided with earplugs/earmuffs.
- Periodical monitoring of noise will be carried out regularly

7-4 Top Soil Management

Top soil will be removed and stacked properly within the lease boundary. It will be used for plantation on dumps/bund & green belt development.

7-5 Solid Waste Generation and Management

- Wastes comprise of Overburden soil and Top soil.
- 225000 CuM waste will be generated per annum. Part quantity of OB / IB will be removed and stacked along the periphery of the mining lease within 7.5 meter from mine boundary to form the bund and also in the dumps in inside lease area. There will be plantation on these bunds
- Overburden will be backfilled in about 54 ha of excavated area and will be stacked along the periphery of the mining lease within 7.5 meter from mine boundary to form the bund and also in the dumps in inside lease area. There will be plantation on these bunds.

7.6 Land use pattern at conceptual stage

- At the conceptual stage, out of total excavated area of 360 ha. about 54 ha area will be backfilled and Remaining area i.e. 306 ha will be converted as water reservoir.

- At the end of the life of mine total 127 ha (54 ha on backfilled area, 43 ha around lease periphery and 30 ha on non mineralized area) area will be covered under greenbelt and plantation
- Local and Indigenous plant species will be planted in consultation with forest department.
- An area of 136.962 ha will remain undisturbed.

7.7 Greenbelt Development and Plantation Program

- At the end of the life of mine total 127 ha (54 ha on backfilled area, 43 ha around lease periphery and 30 ha on non mineralized area) area will be covered under greenbelt and plantation
- Following Local species & fruit bearing species will be planted as per CPCB guidelines such as Neem, Aamla, Aam, Karanj, Jamun, Imli, Amaltas, Ashoka, Bargad.etc

