

MPPSC Mains Notes

Paper - 1

(Part B)

Unit V:

Geography of
Madhya Pradesh

Geography of Madhya Pradesh

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1. Major Physiographic (Physical) Divisions- Malwa Plateau, Madhya Bharat Plateau, Bundelkhand Plateau, Vindhya Range, Baghelkhand Plateau, Narmada-Son Valley, Satpura Range.

Madhya Pradesh is a state in central India. Its capital is **Bhopal**. It is known as Madhya Pradesh because of its location. The name Madhya Pradesh was given by **Pt. Jawahar Lal Nehru**. It is also known as the “**Heart of India**”. It came into existence on **November 1, 1956** but its present boundaries were carved out on **November 1, 2000** after its bifurcation a new state Chhattisgarh was created. Madhya Pradesh is the second largest state in the country after Rajasthan (area wise).

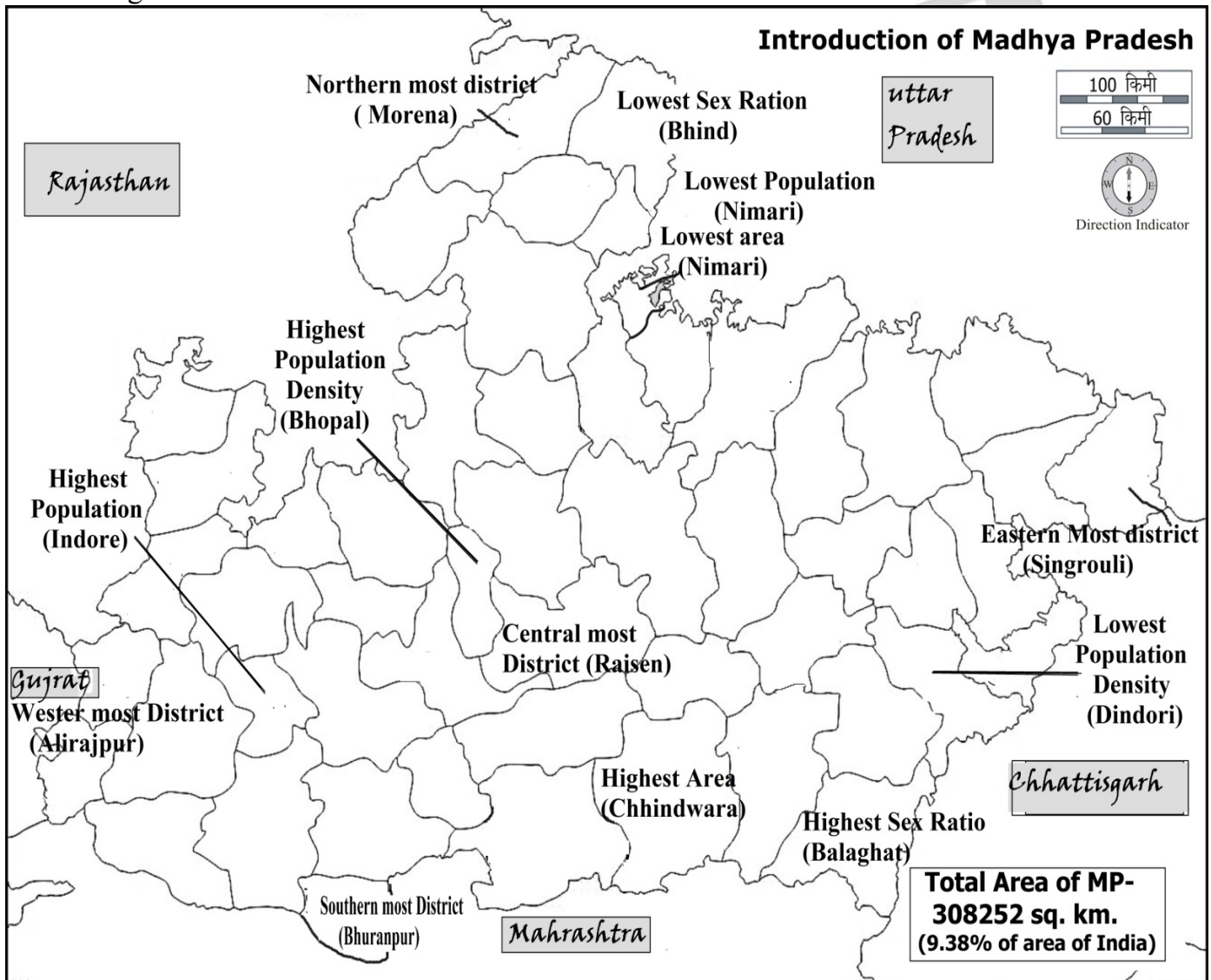
After India's independence, Madhya Pradesh state was created with Nagpur as its capital. This state included the southern part of the present day Madhya Pradesh and Maharashtra. In 1956, on the recommendation of State re-organization commission Madhya Pradesh with its capital Bhopal came into existence. This state was the largest state of India till 2000. In 2000, state was bifurcated to create a new state Chhattisgarh and Rajasthan became geographically largest state of India.

The present state of Madhya Pradesh lies between **21°6' N to 26° 30' N latitudes** and **74°9' E to 82°48'E longitudes**. Its total geographical area is 3,08,252 sq km which is 9.38% of geographical area of India. It divided among the 52 districts of the state. Its extent from East to West is **870 km** and from North to South is **605 km**.



Its Northern boundary is drawn by the Chambal and Southern boundary by the Tapti river. Eastern and Western boundaries are made by hills of Maikal, Kaimur and the state of Gujarat respectively. The Tropic of Cancer divides the state into two equal halves parallel to the river Narmada. It passes through the following 14 districts of the state- Ratlam, Ujjain, Agar malwa, Rajgarh, Sehore, Bhopal, Vidisha, Raisen, Sagar, Damoh, Katni, Jabalpur, Umariya and Shahdol. Singrauli is the only district through which the Standard time Meridian of India line passes (82.5o E longitude). Time difference between east and west extreme points of Madhya Pradesh is 34 minutes.

Medium highland is found in the north of the Chambal River and Son River, which is made of the Deccan Trap, Vindhya rock group, and Granite Gneiss. Steep escarpments are found in the south and southeast, which are known as Vindhychal, Bhandar, and Kaimur range. The northern parts of these escarpments have extensive plateaus. The Satpura Mountain Range is found in the south of the Narmada-Son axis, which is made up of Granite-Gneiss, Gondwana rock group and the Deccan Trap. The eastern part is known as the Maikal range. A plateau is situated in the eastern part of both the divisions of which the northern part is known as the Baghelkhand plateau, and the southern part as Dandakaranya. The first region is made up Gondwana rock group and Pre-Cambrian granite.



- The climate of Madhya Pradesh is **Sub-Tropical monsoonal** where the yearly rainfall took place from June to September. The annual rainfall tends to decrease from south to north and

east to west. From March to May, the climate is hot and dry with temperature ranging from 33 to 44° C and during winters temperature lies between 10 to 15° C.

- The main river systems of Madhya Pradesh are the **Chambal**, the **Betwa**, the **Sindh**, the **Narmada** and the **Tapti**. Narmada is the **lifeline of Madhya Pradesh**.
- Nearly one third of the state's area is covered with Tropical Forests ranging between the river Chambal in the north and Tapti in the south.
- Our state is a mineral rich state. Manganese, Coal and Copper are among the more important minerals of Madhya Pradesh.
- Being an agrarian state, a major chunk of population is involved in agriculture or its allied sector. Around 1/3rd of the cultivated land is under irrigation. The major food crops here include jowar, wheat, rice and gram. Among the cash crops, the oilseeds, cotton and sugarcane are important.
- The state is famous for traditional village crafts such as chanderi sarees, attractive pottery, carpets, leather and clay toys. State is highly investing in agro based industries. Being an energy surplus state, diversified cropping, better road and rail connectivity etc, Madhya Pradesh provides favourable atmosphere for industrial development.
- Madhya Pradesh is famous for its legendary tourist destination such as the temples of **Khajuraho**, the **majestic fort of Gwalior**, **Buddhist stupas of Sanchi** and the various wildlife sanctuaries that Madhya Pradesh is peppered with.
- Madhya Pradesh was one of the first states in India to actively engage in securing the **Right to Information** for the public. In 1994, Madhya Pradesh became the first to implement the constitutional system of local Government. (i.e. decentralisation of power).

Position of Madhya Pradesh on the globe:-

With its geographical location at 22.42° N and 72.54° E, Madhya Pradesh is a state of central India. The state shares its borders with the other Indian states of Uttar Pradesh in the north eastern side, Rajasthan in the north western side, Gujarat in the western side, Chhattisgarh in the south eastern side and Maharashtra in the southern side.

The bordering districts of Madhya Pradesh sharing the boundary with other states are as follow –

Districts of Madhya Pradesh sharing border with other states.	
State	District (Madhya Pradesh)
Uttar Pradesh (14 Districts)	Morena, Bhind, Datia, Shivpuri, Ashoknagar, Sagar, Niwari, Tikamgarh, Chhatarpur, Panna, Satna, Rewa, Sidhi and Singrauli
Rajasthan (10 Districts)	Morena, Shivpuri, Guna, Rajgarh, Shajapur, Neemuch, Mandsaur, Ratlam, Jhabua and Sheopur
Maharashtra (9 Districts)	Badwani, Khargone, Khandwa, Betul, Chhindwara, Seoni, Balaghat, Alirajpur and Burhanpur
Chhattisgarh (6 Districts)	Sidhi, Shahdol, Dindori, Mandla, Balaghat and Anuppur.
Gujarat (2 Districts)	Jhabua and Alirajpur

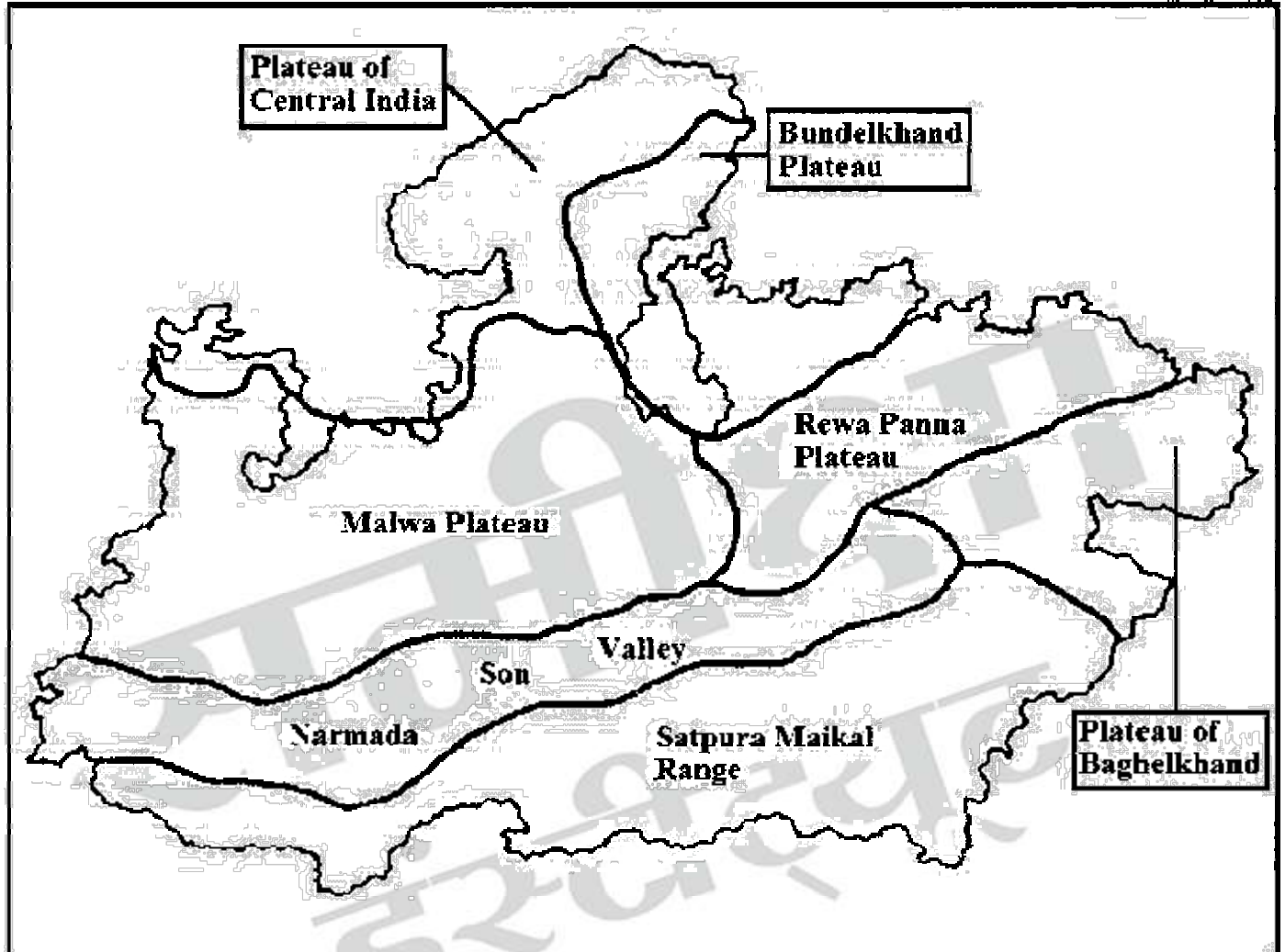
Area:-

This state, often called as the “Heart of India” stretches over an area of 3,08,252 sq. km. in the central part of the country. It accounts for 9.38 % of the land area of the nation. Forest land is 94,689 sq km which is 30% of the total area. Net sown area is 152.23 lakh hectare, Gross cropped area 221.49 lakh hectare, double cropped area 69.26 lakh hectare, irrigated area is 71.211 lakh hectare and cropping intensity 139%.

Topographical condition of Madhya Pradesh:-

Madhya Pradesh is divided into the following geographical zones

- (I) Central High Land
- (II) Satpura – Maikal Range
- (III) Eastern Plateau or Baghelkhand Plateau



Central Highlands

The Central Highlands are spread between the Narmada-Sone valley and the Aravali ranges to the west in a triangular form. The highlands slope towards the north and drain into the Yamuna. The central highlands region in the state includes the following uplands:

Narmada Sone Valley

It is a narrow and long valley extending through almost the whole of the state from east to west. Sone valley forms the upper part; Shahdol and Sidhi districts lie in this valley. The lower part forms the Narmada valley. It has an average elevation of 300 m above MSL and is covered with alluvial soil. Jabalpur, Mandla, Narsinghpur, Hoshangabad, Raisen, Khandwa, Khargone and Barwani districts lie in this region. The Sone valley is narrower than Narmada valley and alluvial deposit is also comparatively poor and thin, therefore Narmada valley is more important than Sone valley for agricultural activities. To the north of this valley lie the Central Highlands, to the south the Satpura-Maikal ranges and to the south-east, the eastern plateau.

- This region drained by Narmada and Son river.

- it covers 86,000 square kilometre which is 27.92% of the area of MP.
- Vindhyan, Kaimur and Banda hills in the north while Satpura ranges are situated in the south. Baghelkhand in the East.
- Mandla, Jabalpur, Hoshangabad, Khargone, Khandwa, Harda, Barwani, Dhar and Dewas are present in this region
- The average rainfall varies from 55 to 140 cm
- The region is made up of Vindhyan, Cuddapah Rock group and Deccan trap. Black soil is found in this region.

Rewa-Panna plateau:-

Rewa Panna Plateau is also known as Vindhyan plateau and lies to the southeast of Bundelkhand plateau.

It covers the area of 31,955 square kilometre which is 10.3% of the area of MP. Damoh, Satna, Rewa, Panna and Sagar constitute this region. Climate is the continental type and rainfall is around 100 to 127 CM. Laterite soil prominent in this region. Wheat, Jowar and oilseeds are the major crops. Tons, Kane and son are the major river. Most of the river originated from the Kaimur ranges. The Chachai falls is the highest fall in the state on the river Bihad, a tributary of river son is located in this region. The maximum height of the plateau is 750 m. Limestone and diamonds are found in this region.

Bundelkhand plateau:-

Bundelkhand plateau situated at the east of Central India plateau and on North East of Rewa Panna plateau. its approximate area is 23,733 square kilometre which is about 7.7 % of the area of MP. Chhatrapur, Tikamgarh, Niwari, Datia, Shivpuri and some parts of Guna are present in this area. at and some marginal slope topography is found. Most areas of this plateau are 800 The area consists of granite rocks of archean age and genesis. Rock phosphate also found in this area. The average height varies from 150 to 450 metres above the sea level. Siddha baba is the highest peak in this region. Type of climate is continental and rainfall varies between 75 to 100 cm. Betwa, Ken and Sindh are the prominent rivers of this area. Mixed soil is more prevalent. Jowar, Wheat and lentils are grown for this region.

Central India plateau:-

Plateau of Central India situated in the northeast of Malwa plateau, it covers the northern part of the lower basin of Chambal river. its approximate area is 32,896 square kilometre which is roughly about 10.68% of the area of MP. District present in this area are Bhind, Murena, Gwalior, Shivpuri, Guna and Mandsaur. It is composed of Vindhyan rock groups with the Deccan trap in the south while Bundi and Karoli hills in the West. Chambal, Kali, Sindh and Parvati are the most important rivers of this region. Alluvial soil is the most prominent. This area has a subtropical forest. Babul, Kher and Sheesham are some trees present in this area. continental type of climate. wheat, barley and Jowar are the most important crop of this area. The average elevation is between 150 and 300 meter while the maximum elevation reaches up to 500 m. The average rainfall accounts for 57.5 to 75 cm. Average summer temperature ranges between 40 to 42.5 degree Celsius while in winter 8 to 10 degree Celsius.

Malwa plateau:-

Malwa plateau situated in the Western Region of the state and formed by the rocks of Deccan trap. It covers 28% of the state area which is approximately 88,222 square kilometre. It starts from north of Narmada and covers Raisen, Shajapur, Rajgarh, Ujjain, Dewas, Ratlam, Dhar, Jhabua, Mandsoor and some part of Guna and Sagar district. Its average height varies from 350 to 450 m. Chambal, Mahi, Shipra and Parvati are the most prominent rivers in this area. The climate type of this region is tropical monsoon with average rainfall between 120-130 cm. Black soil is majorly found in this region. Soybean, Wheat, Cotton, Groundnut, Gram and Sugarcane are the major crops. Average temperature ranges from 40 to 42.5 degree Celsius in summer and 10 to 12 Celsius in winter. Chanderi and Ashok Nagar are located in this area. Banknote press which is located in Dewas is part of this area.

Satpura-Maikal ranges

Satpura Maikal range situated south of the Narmada valley. The total area of this region is 34,000 square kilometre which is around 11% of the area of MP. Balaghat, Chhindwara, Betul, Khandwa and Khargone are present in this region. Satpura Maikal ranges rise in Gujarat running East through the border of Maharashtra and Madhya Pradesh to the east Chhattisgarh. Tapi is the most prominent river for this region. Rajpipla Satpura and Maikal range founded in this area. The slope is sharp toward north while gentle

toward the south Rainfall varies between 125 to 175 cm. Due to high rainfall, the region is rich in forest and therefore large populations are dependent on forest resources. Dharwad rocks group and Deccan trap-rocks are present in this area. Jowar wheat rice and cotton are the main agricultural crops in this area. Dhoopgarh 1350 metre is the highest point of these ranges

Eastern plateau

The eastern plateau region comprises Baghelkhand Plateau lying between Maikal ranges and Chhattisgarh plain area with an elevation of 1033 m above sea level. Baghelkhand Plateau situated in the eastern region of Madhya Pradesh and South of Son river and Son valley. It covers around 26,000 square kilometre which is around 7% of the area of Madhya Pradesh. Shahdol, Umriya, Sidhi, Singrauli and Dori are present in this area. It is made up of Gondwana and Vindhyan Rock groups The Tropic of Cancer passes through the middle of this plateau. Monsoon type climate and the rainfall varies between 125 to 175 cm Red and yellow soil is mainly found in this region. Baghelkhand is the energy capital of Madhya Pradesh. Singrauli situated in this region, only area rich in coal resources

Geology of Madhya Pradesh :

The oldest group of rocks comprising of Archaeans and Proterozoic formation constitute nearly 45% area of the State. The next younger formation of Carboniferous to lower Cretaceous comprising Gondwana Super Group covers 10% area while the formation of Cretaceous to Paleocene comprising mostly of Deccan Trap basalt constitutes 38% area of the State. A brief geological succession can be expressed as follows:

Geological Succession :

Period/Sub Period	Age	Geological Formation	Associated Mineral Deposits
Recent Pliocene	1 M.Y. to 18 M.Y.	Alluvium, Laterite & Bauxite	Ground Water Bauxite deposits of Rewa, Satna etc.
Cretaceous to Palaeocene	64 to 97 M.Y.	Deccan Trap Basalt, Bagh, Lametas (Infra - trappean)	Gem varieties of Quartz, Road material, Limestone deposit of Dhar, Jabua district.
Upper Carboniferous to lower Cretaceous	97 to 320 M.Y.	Gondwana Supergroup	Coal deposits of Betul, Sidhi, Shahdol and Chhindwara, Jabalpur, districts. Clay deposits of Katni, Shahdol district etc.
Proterozoic - III	570 to 900 M.Y.	Bhander Group, Rewa Group	Limestone deposits of Damoh, Katni districts etc. Conglomeratic Diamond field of Panna district.
Proterozoic	900 to 1800 M.Y.	Kaimur Group, Semri Group	Diamoniferous kimberlites of panna distt., limestone deposits of mandsaur, Rewa, Satna distt. Lead-zinc deposits of Damoh distt.
Proterozoic I to II	-	Gwalior Group, Bijawar Group, Chilpi Group	Rock Phosphate of Sagar distt. Dolomite deposit of Mandla district, Iron ore deposit of Jabalpur district (uneconomic) Minor occurrences of Mn ore.
Proterozoic - I	1600 to 2500 M.Y.	Sausar Group, Aravalli Group	Manganese deposit of Balaghat and Chhindwara distt., Copper deposit of Balaghat. Phosphorite and Mn deposits of Jabua distt.
Archaean to Proterozoic - I	-	Sakoli Group Bundelkhand granite	Pyrophyllite-Diaspore of Tikamgarh, Chhatarpur distt., Granite for cutting / polishing.
Archaean	Older than 2500 M.Y.	Amgaon Group peninsular gneisses, Older granites and Migmatites	

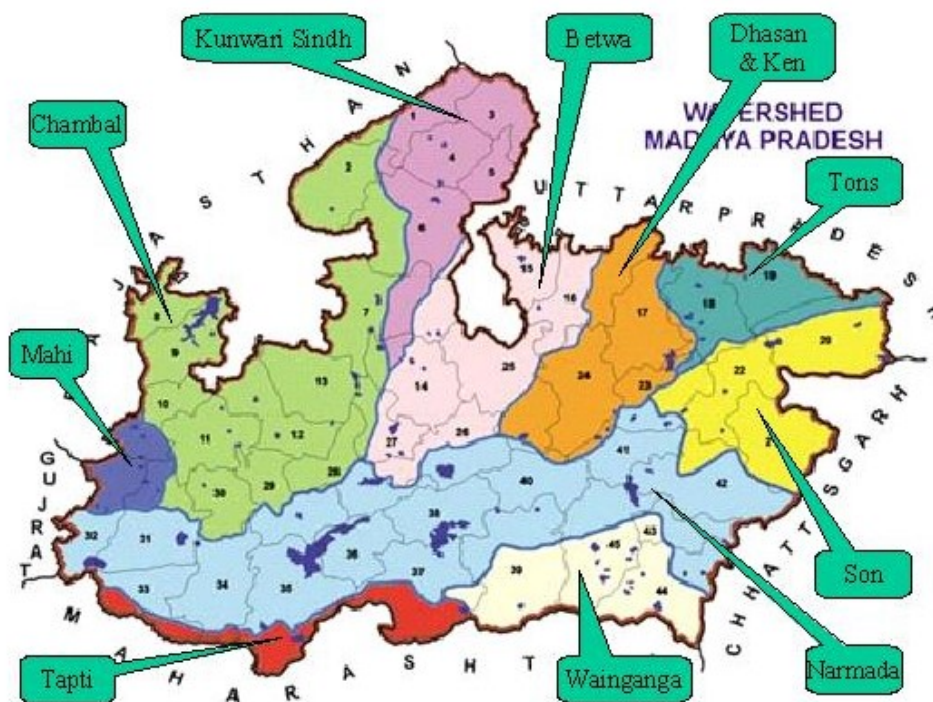
2. Major Rivers and Their Tributaries

The state of Madhya Pradesh has an extensive network of rivers having great river basins and watersheds of a number of rivers. Ten major rivers of India originate from the state. Drainage system in Madhya Pradesh includes some major rivers traversing through the state like Narmada river, Tapti river, Chambal river, Betwa river, Kali Sindh river, Son river etc.

The ranges of Vindhya and Satpura play a major role as watershed for rivers. The Chambal, Sindh, Betwa and Ken rivers flow northward and meet Yamuna, whereas the river Sone falls directly into Ganga, Narmada, Tapti and Mahi rivers flow westward and fall into the Arabian Sea, whereas the Wainganga and Pench river meets Godavari in the South.

River Basins in Madhya Pradesh

There are five major river basins in Madhya Pradesh – Ganga basin, Narmada basin, Tapti basin, Godavari basin and Mahi basin.



1. GANGA BASIN

River Ganga originates from the ranges of Himalayas at Gangotri and meets Bay of Bengal. The basin extends into **11 states** viz. Uttarkhand, Uttar Pradesh, Haryana, Himachal Pradesh, Delhi, Rajasthan, Madhya Pradesh, Jharkhand, West Bengal, Bihar, Chattisgarh.

The Ganga basin can further be classified into three sub-basins as Yamuna, Tons and Sone in Madhya Pradesh.

(i) YAMUNA SUB BASIN-The major rivers of Yamuna sub-basin in Madhya Pradesh are Chambal, Ken, Dhasan, Betwa, Sindh Kunwari, Paisuni and Jamni, details of which are given as below-

❖ **Chambal River** –

- The **965 km.** long Chambal is the most important river of western Madhya Pradesh. This river was referred to as **Charmavati** in ancient Hindu Texts.
- River Chambal is the largest tributary of Yamuna river rises from the **Janapav Mountain in the Vindhya Range, (Mhow, Indore)** and flows north through Ujjain, Ratlam and Mandsaur, before entering Rajasthan.
- It re-enters Madhya Pradesh after meandering through parts of Rajasthan and touches Morena and Bhind, then Chambal River meets Yamuna River near **Itawa Uttar Pradesh.**
- It also forms the ravines in Morena and Bhind by forming deep pits in alluvial rocks through gully erosion. Its major tributaries are Banas, Parvati, Kali, Shipra and Sindh. Three major dams have been constructed on this river –
 - ✓ Gandhi Sagar Dam - Mandsaur
 - ✓ Jawahar Sagar Dam - Kota
 - ✓ Rana Pratap Sagar - Chittaurgarh
- ❖ **Sindh**
 - River Sindh originates from **Sironj tehsil of Guna** district and meets Chambal River near Etawah.
 - Its total length is **470 km** in which 461 km is in Madhya Pradesh Its major tributaries are Mahaur, Parwati, Pahuj and Kunwari.
- ❖ **Kunwari**
 - This river originates from **Shivpuri.**
 - Kunwari River often spelled as “Kwari river” flows in Bhind, Morena districts of Madhya Pradesh.
 - The river merges into **Sindh River in the Etawah district.**
- ❖ **Kshipra**
 - Kshipra River is one of the sacred rivers of India. Holy city **Ujjain** is situated on the bank of this river.
 - The Shipra starts its journey from **Kakri Bardi hill near Indore** and meets Chambal River at Madhya Pradesh-Rajasthan boundary in **Mandsaur district.**
 - This river is **195 km.** long.
 - It is also known as **Ganga of Malwa.** After every 12 year the Simhastha Kumbh Fair takes place on the bank of Kshipra River in Ujjain.
 - Its major tributaries are **Khan and Gambhir.**
- ❖ **Betwa**
 - Its ancient name was **Vetrawati.** River Betwa originates from **Kumra village of Raisen district** and meets Yamuna at Hamirpur in Uttar Pradesh.
 - Its total length is **590 km** in which 239 km is in Madhya Pradesh. Its major tributaries are Halali, Beena, Dhasan, Ken and Sindh.
 - Betwa River is also known as **Ganga of Madhya Pradesh** (in terms of pollution).
- ❖ **Dhasan**
 - The river has been mentioned as **Dashama** in ancient texts.
 - River Dhasan originates from **Begumgunj Tehsil of Raisen** district of Madhya Pradesh and flow south to North till it joins Betwa near Hamirpur of Uttar Pradesh.
 - Total length of the river is **365 km,** out of which 240 km. lies in Madhya Pradesh.
 - **Lehchura Dam** is built on this river near Harpalpur of Chhatarpur district.
- ❖ **Ken**
 - Ken River originates near the village of **Ahircawan** on the North West slopes of Bhandar range in Katni district and meets Yamuna River near Chillah of Fatehpur district of Uttar Pradesh Its total length is **472 km.** out of which 292 km. lies in Madhya Pradesh.
 - Ken River forms 150-180 m. deep gorge by cutting Bijawar - Panna hills.
 - Raneh fall is located on Ken River near Chhatarpur district. Its major tributaries are Sonar, Bewa, Katni, Urmi, Patan, Kopra etc.

- ❖ **Paisuni and Baidhan**— These two rivers originate in Satna and Panna districts respectively and meet Yamuna River below Banda District.
- ❖ **Jamni** — Jamni is one of the important tributary of river Betwa. It originates from Sagar district and meets Betwa River near Orchha. Its total length is 201 km, out of which 29 km. lies in Madhya Pradesh.

(ii) TONS SUB BASIN— Its ancient name was Tamsa. Tons river rises in a tank at Tamakund in Kaimur range in Satna district. The river meets Ganga in Sirsa after flowing 264 km. Belan, Mahan, Behad, Sellar are its major tributaries.

(iii) SONE SUB BASIN— Its ancient name was Swarna nadi. River Son originates from Maikal ranges near Amarkantak of Anuppur District and meets Ganga River near Patna after flowing 784 km. Its major tributaries are Gopad, Banas, Rihand, Johila etc.

2. NARMADA BASIN -

- It is the longest river of Madhya Pradesh and **fifth largest river of India**. It originates from Amarkantak Plateau of Maikal range in Anuppur district. Its total length is **1312 km**. out of which **1077 km**. lies in Madhya Pradesh.
- Narmada river has more than 40 tributaries approx. Tawa, Shakkar, Kolar, Barna, Doodhi are some of the major tributaries.
- The largest tributary of Narmada is **Tawa**.
- After flowing in Madhya Pradesh, Maharashtra and Gujarat, it falls into **Gulf of Cambay** in Arabian Sea.
- It is a west flowing river which forms estuary instead of Delta.
- Its ancient names are Rewa, Maikalsuta, Namodos, and Somodevi in ancient times, The Narmada is also referred as the **Lifeline of Madhya Pradesh and Gujarat**.

3. TAPTI BASIN -

- River Tapti originates from **Multai hill of Betul district** and falls into **Gulf of Cambay in Arabian Sea**. Total length of the river is **724 km** out of which 332 km. lies in Madhya Pradesh.
- It also flows in Gujarat and Maharashtra. Purna and Barna are its major tributaries.
- It is also a west flowing river along with Narmada and forms estuary instead of Delta, same as Narmada.

4. GODAVARI BASIN

Total drainage area of Godavari Basin is **23,388 sq. km**. Major rivers of Godavari basin-

- a) **Wainganga**— It originates from **Mundara village of Seoni district** situated on Paraswada plateau. After flowing in Madhya Pradesh it takes Wardha River in Maharashtra. Its total length is 570 km. The confluence of Wainganga and Wardha River is known as **Pranhita**. Kanhanriver is its major tributary.
- b) **Kanhan**— It originates from **Damua town of Chhindwara district**. Its total length is 275 km. After flowing in Madhya Pradesh, it joins Wainganga at the village of Ambora of Nagpur district.
- c) **Pench**- It originates from **Junnardeo of Chhindwara district**. It separates Pench National Park in two equal parts. It falls into Kanhan River.

5. MAHI BASIN -

- Mahi River originates from Minda village of Dhar district. After flowing 158 km in Madhya Pradesh, it flows in Rajasthan and Gujarat.
- It falls into Gulf of Cambay in Arabian Sea.
- It is one of the West flowing rivers in India along with Tapti & Narmada.
- **It cuts Tropic of Cancer twice.**

Rivers of Madhya Pradesh at a Glance

S.No.	River	Length	Origin	Termination	Tributaries
1	Narmada	1,312 kms (1,077 kms in MP)	Amarkantak (Anuppur)	Near gulf of combay (Arabian sea)	Left bank- Burhner, Banjar, Tawa, Small Tawa, Kundli, Dev, Doodhi Right Bank – Hiran, Tindoni, Barna
2	Chambal	1040 kms	Janapav Hills near Mhow (Indore)	In Yamuna near Etawah (Uttar Pradesh)	Banas, Parvati, Kali, Shipra and Sindh.
3	Tapti	724 kms (Total)	Multai hills of Betul district	Near gulf of combay (Arabian sea)	Purna and Barna
4	Sone	784 kms	Amarkantak (Anuppur)	Deenapur hills in Bihar (In Ganga river near Patna)	Gopad, Banas, Rihand, Johila
5	Betwa	590 kms	Kumra village (Raisen)	In Yamuna River at Hameerpur	Halali, Beena, Dhasan, Ken and Sindh
6	Tawa	380 kms	Pachmarhi (Mahadeo hills)	In Narmada River	Denva, Malini, Sukhtawa, Kalibheet
7	Shipra	195 kms	KakariBardihill(Indore)	In Chambal river	Khan and Gambheer
8	Parvati	150 kms	In Sehore district	In Chambal river	
9	Kali Sindh	150 kms	Bagali village (Dewas)	In Rajasthan in Chambal river	
10	Sindh		Siroj (In Guna river)	In Uttar Pradesh in Chambal river	
11	Ken	472 kms.	Vindhyachal Mountain	In Yamuna river	Sonar, Bewa, Katni, Urmi, Patan, Kopractc,
12	Wainganga	570 kms.	Paraswara Plateau (Seoni)	In Godavri river	Kanhan, Pench
13	Wardha		Vardhan peak (Betul)	Wainganga river (In Maharashtra)	
14	Shakkar		Amarwara (Chhindwara)	In Narmada river	
15	Chhoti Tawa		In Betul	In Narmada river	
16	Gar		Lakhana (Seoni)	In Narmada river	
17	Kunwari		Shivpuri Plateau	In Sindh river	
18	Dhasan		Raisen	In Betwa river river	Ur and Kethan
19	Tons/ Tamasa	264 kms	Kaimur Hills (Satna)	In Ganga river	Belan
20	Mahi	583 kms (total)	Dhar	In Gulf of cambay	Ujas

Cities and their Riverbanks

City	River	City	River
Balaghat	Wainganga	Ujjain	Khipra
Barwani	Narmada	Sonekatch	Kali Sindh
Sanchi	Betwa	Guna	Betwa
Sheopur	Chambal	Ratlam	Chambal
Vidisha	Betwa	Mandla	Narmada
Jabalpur	Narmada	Mow	Chambal
Orchha	Betwa	Hoshangaba	Narmada
Dhar	Narmada	Shajapur	Parvati
Maheshwar	Narmada	Omkareshwar	Narmada
Rajgarh	Parvati	Multai	Tapti
Burhanpur	Tapti	Dewas	Kali Sindh
Orchha	Betwa	Shivpuri	Sindh

OTHER RIVERS OF MP

- **Asan River** - tributary of Chambal River and flows in Morena.
- **Baidhan** - The river originates in Panna District and meet river Yamuna below Banda District.
- **Bina River** is the major tributary of Betwa River.
- **Banjar** - Tributary of Narmada River.
- **Beda** - Tributary of Narmada River.
- **Budhna River** is the major tributary of Betwa River.
- **Goi** - Tributary of Narmada River.
- **Gopad** - River is one of the major tributaries of river Sone.
- **Halali** - Halali River is a tributary of the Betwa River. It was formerly known as Thal River.
- **Jamni** - Jamni River originates in Sagar District. Jamni River is a main tributary of the Betwa River and enters Lalitpur District near Madanpur village. It meets Betwa river near town of Orchha.
- **Jobat** - Tributary of Narmada River.
- **Johilla** - River is one of the major tributaries of river Sone.
- **Kaliasot River** is the major tributary of Betwa River.
- **Heran** - Tributary of Narmada River.
- **Kanhar** - Kanhar River is a tributary of the Son River
- **Kolar** - Tributary of Narmada River.
- **Kuno** - Kuno River is one of the main tributaries of the Chambal River. It flows through the Kuno Wildlife Sanctuary from south to north, draining the Sheopur district in Madhya Pradesh.
- **Kunwari River** - Kwari River (also spelled as Kuwari or Kunwari River) flows through Morena and Bhind districts of Madhya Pradesh in central India. The start or origin place of the river is located at Devpura village.
- **Mahuar** is Major tributaries of Sindh River.
- **Mān** - Tributary of Narmada River.
- **Pahuj** is Major tributaries of Sindh River.
- **Paisuni** - The river originates in Satna District and meet river Yamuna below Banda District.
- **Parbati** is Major tributaries of Sindh River.
- **Purna River** is one of the chief tributaries of Tapti River originating from Betul district Madhya Pradesh.

- **Pench** - Pench River is an Indian tributary of the Banganga River. It originates in the Chhindwara district of Madhya Pradesh and flows across Pench National Park, which is a reserve for the Tiger Project of India.
- **Rehar** - River is one of the major tributaries of river Sone.
- **Sagar River** is the major tributary of Betwa River.
- **Shakkar** - Tributary of Narmada River.
- **Sher** - Tributary of Narmada River.
- **Sip** along with Parvati, Kuno are the main tributaries of the river Chambal.
- **Sukta** - Tributary of Narmada River.
- **Tawa** - The Tawa is the Narmada's longest tributary, at 172 km. It rises in the Satpura Range of Betul and flowing north and west, joins the Narmada at the village of Bandara Bhan in Hoshangabad District.
- **Tendoni** - Tributary of Narmada River.
- **Vaisali River**: It flows in Bhind District and Gwalior districts. It originates in Gwalior district near Behat. It meets Sindh River.

समीक्षा
इंस्टीट्यूट

3. Climate- Seasons, Temperature, Rainfall.

Climate of Madhya Pradesh:-

Climate of Madhya Pradesh is heavily influenced by the Tropic of Cancer that passes through the state. Climatic conditions of Madhya Pradesh are highly variable. The summers are extreme hot, the winters are extreme cold and the rainfall is either extreme or drought situation prevails.

Like other parts of India, Madhya Pradesh also has three major seasons – Summer, Monsoon and Winter, but the duration varies. During summer (March-June), the temperature in the entire state ranges above 29.4°C. In general, the eastern parts of Madhya Pradesh are hotter than the western parts. The regions like Gwalior, Morena and Datia record temperature of over 42°C in the month of May. The humidity is relatively very low and the region usually experiences frequent mild dust storms. The south-west Monsoon usually breaks out in mid June and the entire state receive a major share of its rainfall between June and September. The south and south-east regions tend to experience a higher rainfall whereas the parts of north-west receive less. Mandla, Balaghat, Sidhi, Jabalpur and other extreme eastern parts receive more than 150 cm rainfall. The districts of western Madhya Pradesh receive less than 80 cm rainfall.

In the state Winters and rainy seasons are very short, while summers are comparatively long. The Tropic of Cancer passes through the middle of Madhya Pradesh. Thus, along with the shifting of the sun towards the northern Hemisphere and the Southern Hemisphere, climatic conditions change on a large scale. The impact of the Great Himalayas takes place extensively throughout Madhya Pradesh particularly during the winters. At the same time, Tropic of Cancer also has a great influence on the climatic conditions of the state.

Summer:-

The summers start around middle of February and end in July where the first outbreak of monsoon takes place. During the summer season, the temperature reaches more than 45 degree Celsius. The southern part of Madhya Pradesh (south of Tropic of Cancer) receives much solar energy in which Khandawa, Khargone, Ujjain, etc. are the hottest places. North Gwalior receives large amount of solar energy and it is the hottest place of the northern part of the state. Morena district, Gwalior, and Datia receives around 42.5 degree Celsius isotherm, while 40 degree Celsius isotherm passes in western part of Madhya Pradesh including, Shajapur District, Dewas District, Ratlam District, Mandsaur District, Mandla District, Seoni, etc. The hill towns of the state such as Pachmarhi and Amarkantak experience around 34 degree Celsius temperature. When the Sun shifts towards the Northern Hemisphere, Madhya Pradesh experiences tremendous heat till the month of July. The temperature reaches up to 49 degree Celsius in some parts of Madhya Pradesh while the average temperature remains at 40 degree Celsius.

Monsoon:-

The state also experiences monsoon rainfall. The winds blow from Bay of Bengal and cover the entire state. The intensity of the rainfall reduces towards the west. The highest rainfall occurs in the extreme east. The maximum rainfall is about 152.4 cm, while the minimum is about 20 to 25 cm. The duration of rainfall also varies. In the last week of June, the monsoon outbreak and reaches the eastern part of the state, while, in the extreme western part, the monsoon reaches in the middle of July. In the western part, during winters, the rainfall occurs due to western disturbances whereas in the eastern part during the similar period, rainfall occurs due to easterlies, the wind blowing from the plain of Siberia. Cities like Jabalpur followed by Rewa district and Sagar experiences maximum rainfall. While Indore, Ratlam district, Gwalior and Bhopal experiences comparatively lower rainfall. Interestingly, the intensity of rainfall is very less in the entire state and most of the districts are drought prone. Rainy season varies from east to west. In the eastern part of Madhya Pradesh, the first outbreak of monsoon takes place in the mid June, while in the west monsoon reaches up to mid July. Most of the rainfall occurs due the winds blow from Bay of Bengal. Only few part of the western region of Madhya Pradesh rainfall takes place due to the winds blowing from the Arabian Sea. Jhabua district, Dhar district, Khargone, and Rajgarh district receive below 6 cm rainfall. In the hills of Satpura, the average rainfall recorded is 23 cm during the month of August. The state has experienced both flood and drought conditions. Winters are very short. Winters start in the mid November and lasts up to the mid February. Impact of winters is just negligible. Rainfall also occurs during the winters due to western disturbances.

Winter:-

During the winters, when the entire country is swamped by cold waves, the temperature of Madhya Pradesh is regulated by the same waves coming from the Great Himalayas and an average of 15 degree Celsius is recorded throughout the state. The winter season starts from the month of November. The temperature remains low in the northern parts of the state in comparison to the southern parts. The daily maximum temperature in most of the northern part in the month of January remains between 15 and 18°C. The climate is generally dry and pleasant with a clear sky.

Madhya Pradesh has three different climates and is dominated by CSA (Climate-smart agriculture):-

Hot-summer Mediterranean climate:- Gwalior, Jabalpur, Sagar, Singrauli, Rewa

Tropical savanna climate:- Indore, Bhopal, Dewas, Khandwa, Ujjain

Hot semi-arid climates:- Burhanpur, Bhind, Khargon, Sabalgarh,

Koppen- Geiger MP - 3 division

Classification	Climate Code	Area
Humid warm Mediterranean Climate	Cwg	Jabalpur, Gwalior, Singrauli, Katni, Rewa
Tropical Savanna Climate	Aw	Indore, Bhopal, Dewas, Ratlam, Ujjain
Humid Hot Dry Climate	BSh	Burhanpur, Bhind, Morena, Khargone

CLASSIFICATION BASED ON THE VARIATIONS OF CLIMATE

Climate Zone	Summer Season	Winter Season
1. Northern Plains Region	Extreme Hot	Extreme Cold
2. Malwa Plateau Region	Modrate Hot	Modrate Cold
3. Vindhya- Satpura Hilly Region	Modrate Hot	Extreme Cold
4. Narmada Valley Region	Extreme Hot	Modrate Cold

1. NORTHERN PLAINS

- Due to being located away from the sea, the climate of the northern plains is of continental type, due to which summers are hotter and winters are colder.
- The average temperature of the northern plains region remains between 40°C-45°C in summer and 15°C-18°C in winter.
- Shivpuri, Gwalior, Guna, Bhind, Morena are the major cities of this region.

2. MALWA PLATEAU

- Due to the temperate climate in Malwa region, summers are neither too hot nor winters are too cold.
- The average temperature of Malwa region is between 38°C-40°C in summer and 20°C-25°C in winter.
- Chinese traveler Fa Hien has called the climate of Malwa the best climate in the world.
- Indore, Dewas, Ujjain, Sehore, Ratlam etc. are the major cities of this region.
- Malwa is the most developed region of Madhya Pradesh due to ideal climate.

3. VINDHYA SATPURA MOUNTAIN REGION

- In the Vidhya mountain region, summers are generally hot and winters are colder.
- The average temperature of this region ranges between 35-38°C in summer and 15-20°C in winter.
- Pachmarhi and Amarkantak of Madhya Pradesh come under this hilly region.

4. NARMADA VALLEY REGION

- Due to its location near the Tropic of Cancer, the summers in the Narmada Valley region are hot but the winters are generally cool.
- The average temperature of this region is 38-40°C in summer and 15-20°C in winter.
- Hoshangabad, Jabalpur, Harda, Narsinghpur, Khandwa are the major cities of which region.

4. Soils of Madhya Pradesh- Types and Distribution, Soil Erosion and Soil Conservation.

Soils of Madhya Pradesh vary as per the structure, colour, texture and composition in the different regions. Madhya Pradesh is that part of the peninsular plateau of India where residual soils are found in an extensive area. The rock formation determines the soil structure and composition in this state. As a result of this organic materials are found at a large scale in soils. In this state the problem of soil erosion is almost negligible but due to excessive use of the land, the problem of soil erosion is accelerating. Madhya Pradesh comprises of a variety of soils ranging from rich clayey to gravelly. According to the survey done in the state, the major groups of soils found in the state can be divided into five major categories namely:-

- Alluvial Soil
- Black Soil or Regur Soil (medium and deep black, shallow and medium black, mixed red and black coloured)
- Mixed Soil
- Red and Yellow Soil
- Laterite Soil

Alluvial Soil:-

This soil mostly found in the North -Western Districts of Madhya Pradesh. Especially in the plains of Bundelkhand and Chambal region or deposition of soils brought by the rivers. It is the most fertile soils. In Madhya Pradesh this soils is found in Gwalior, Shivpuri and Bhind and Morena, brought by the river Chambal and its auxiliary rivers. Such soils are poor in Nitrogen and Phosphorous hence need proper use of fertilizers. Water retention capacity of such soils is also very poor. Due to lack of Nitrogen, biotic components and phosphorus, the vegetal cover over the part of land is very thin.

Black Soil or Regur Soil:-

Soils of Madhya Pradesh Medium and deep black coloured soil is extensively found in the Valley of Narmada River, Malwa Plateau, and Satpura mountain range, which contains about 20 to 60 percent clay and has a depth of near about 1 to 2 metres. It is also known as Regur (Humus) soil. Black soil are composed of Basaltic rocks mainly found in the Deccan Trap (Malwa Plateau). It is distributed is nearly 47.6 percent of the land of Madhya Pradesh. Such soils mainly consists of Iron and lime rocks. The presence of Iron gives it the Black colour and the presence of lime increases its moisture retention capacity therefore needs less irrigation. Cotton and soya bean are most suitable crops to be grown in such soil. The quantity of Calcium, Magnesium, Aluminum, Iron, Potassium and Magnesium Carbonate is more in black soil but it lacks in Nitrogen, Phosphorous and Carbonic elements. Soil erosion is lesser in Black soil, Black soil are reclassified in following sub type :

Area of Black Soil- Bhopal, Betul, Barwani, Chhindwara, Damoh, Dhar, Dewas, Vidisha, Shajapur, Jabalpur, Khandwa, Raigarh, Mandsaur, Narsingpur, Raisen, Sidhi, Shivpuri, Seoni, Sehore, Sagar, Guna, Indore, Ujjain, Ratlam, Jhabua.

1. Normal Black Soil :

This soil founded in northern Malwa plateau and Nimar regions of Madhya Pradesh. It is the moist extensively found black soil and its fertility level is medium.

2. Layered Black Soil:

It is a clay type smooth black soils found in Chhindwara, Seoni, Betul area. The fertility level of such soil is also medium.

3. Dark Black Soil:

Found in Narmada Valley, Satpura ranges and Southern Malwa Plateau fertility status of these soils is very low.

This soil is highly fertile for the production of wheat, oilseeds, and jowar crops. Shallow and medium black coloured soils constitute the maximum part of the black soil. It is comparatively less fertile than the medium deep black soil. The whole northern part of the Malwa plateau and Nimad region comprises this soil. It is 15 cm to one metre depth and the colour of soil is grey or light black. Mixed red and black soil spreads about 75 lakh hectares land comprising the Satpura region. Most of the part of the region has very shallow soil. Three districts namely Chhindwara district, Betul district, and Seoni district comprise this type of soil.

Mixed Soil:-

Vindhya region and the central part of the state of Madhya Pradesh have a deposition of mixed soil composed by red, yellow and black soils. The entire Baghelkhand region including Balaghat district, Mandla district, Dindori district and Shahdol district of the state have a deposition of red and yellow soils. A mixture of red, yellow and black soils is found in many parts of the state. This type of soils has very less amount of nitrogen, phosphorous and carbonic elements. So the soils is not fertile. As the soils is not fertile wheat and other crops cannot be grown, so crops, which need lesser quantum of nitrogen, phosphorous and carbonic elements, are grown as such soils such as corn, Bajra etc.

Areas of mixed soils: Sheopur, Morena, Bhind, Gwalior, Shivpuri.

Red and Yellow Soil:-

It is mostly found in Bundelkhand and Baghelkhand regions of the state. Its yellow colour is due to the presence of ferric oxide and its red colour is due to the presence of compounds produced after the oxidation of Iron. Its fertility level's low because it is poor in Nitrogen and Humus. Rice is mostly grown in such soils. This soils covers almost 36.5 percent of the state. Rice is grown in most part of the state on these soils. The pH level of these soils is between 5.5 to 8.5.

Areas of red-yellow soils – Mandla, Balaghat, Shahdol, Sidhi, Katni, Umaria.

Laterite Soils:-

This type of soils is found in the North Western part of the state like Shivpuri, Gwalior, Bhind and Morena. The amount of Nitrogen, Organic matter and Phosphorous is less. So vegetation is less in such soils. This soil is suitable for crops like Wheat, Sugarcane, Cotton etc. The proportion of sand, slit and clay.

Soil Erosion:-

Soils erosion is the phenomenon of continuous deterioration in the soil due to the shifting of soil through various environmental forces, one of the main factors of soil erosion is Deforestation. Roots of the plants and trees hold the soils in its place and they also sustain the adverse effects of atmospheric forces and therefore prevent soils erosion. But due to extensive deforestation

soil erosion is becoming a grave danger to the human civilization, especially in the areas where soils are of light and medium texture. The scene is no different in Madhya Pradesh, which is facing rapid soils erosion in its northern part along the Chambal and its tributaries. Large scale gully erosion can be seen in the belt around the districts of Gwalior, Morena and Bhind. Since the soils of this area are light and lack vegetation thus water takes away soils with its flow and results in erosion. Soils erosion not only disturbs the topographic and ecological balance but a large part of fertile sub surface land also goes waste through Run off. Thus it is a social, environmental and economical problem of the present era. The only way to counter this menace is to create a healthy nature friendly ecological environment around us.

Soil degradation

- Soil degradation is the decline in soil quality caused by its improper use, usually for agricultural, pastoral, industrial or urban purposes.
- Soil degradation is a serious global environmental problem and may be exacerbated by climate change.
- It encompasses physical (soil erosion), chemical (salinity and alkalinity, pollution) and biological deterioration (pollution and deterioration of vegetal cover).

Soil Salinity and Soil Alkalinity

- In Saline and Alkaline Soils, the topsoil is **impregnated** (soak or saturate with a substance) with saline and alkaline efflorescences (become covered with salt particles).
- Undecomposed rock fragments, on weathering, give rise to **sodium, magnesium and calcium salts and sulphurous acid**.
- Some of the salts are transported in solution by the rivers.
- In regions with low water table (due to over irrigation in canal irrigated areas), the salts percolate into the subsoil, and in regions with good drainage, the salts are washed away by flowing water.
- But in places where the drainage system is poor, the water with high salt concentration becomes stagnant and deposits all the salts in the topsoil once the water evaporates.
- In regions with the high sub-soil water table, injurious salts are transferred from below by the capillary action as a result of evaporation in the dry season.
- In canal irrigated areas plenty of the water is available, and the farmers indulge in over irrigation of their fields.
- Under such conditions, the groundwater level rises and saline and alkaline efflorescences consisting of salts of sodium, calcium and magnesium appear on the surface as a layer of white salt through capillary action.

Desertification

- Desertification is the spread of desert-like conditions in arid or semi-arid areas due to man's influence or climatic change.
- A large part of the arid and semi-arid region lying between the Indus and the Aravalli range is affected by spreading desert conditions.
- Desert soils suffer maximum erosion by wind. The sand carried by wind is deposited on the adjoining fertile lands whose fertility dwindles, and slowly the fertile land starts merging with the advancing desert.

- It has been estimated that the Thar Desert is advancing at an alarming rate of about 0.5 km per year.
- The process of desertification is attributed to uncontrolled grazing, reckless felling of trees and growing population. Climate change has also contributed to the spread of deserts.

Waterlogging

- The flat surfaces and depressions result in waterlogging.
- Waterlogged soils are soaked with water accumulated during the rainy season or due to leakage from various water sources.
- The extent of waterlogged soils is about 12 million hectares in India – half of which lies along the coast and the other half in the inland area.
- Waterlogging is believed to be one of the chief causes of salinity.
- Proper layout of drainage schemes is the only way to overcome the menace of waterlogging.
- The basic methods of removing excess water from waterlogged soils are (a) surface drainage and (b) vertical drainage.
 1. Surface Drainage. Surface drainage involves the disposal of excess water over ground surface through an open drainage system with an adequate outlet.
 2. Vertical Drainage. Any bore or well from which the underlying water is extracted is defined as vertical drainage. It works well in Indo-Gangetic plain where the pumped water is used for irrigating the neighbouring regions.

5. Natural Vegetation- Types and Distribution of Forests, Major Forest Produce.

• Major Crops, Irrigation and Irrigation Projects

Forests play a major role in environment protection. They also maintain ecological stability and biological diversity. Madhya Pradesh is endowed with rich and diverse forest resources. They are important for the physical and economic health of state and nation too.

There are 11 national parks and 30 wildlife sanctuaries spread over an area of 10,862 km² constituting 11.40% of the total forest area and 3.52% of the geographical area of the state for the conservation of wildlife.

Vegetation of Madhya Pradesh:-

Vegetation of Madhya Pradesh is an important arena of its natural wealth. The dense forests stretching over one-third of the state is the producer of India's best teak wood. Madhya Pradesh has a distinctly diverse topography and hence a wide range of variation in the soil and vegetation.

The state takes care of the trade of nationalised forest produce viz., Tendu Leaf, Sal Seed and Kullu Gum. In addition, a number of forest produce like Aonla, Harra, Lac, Achar, Mahua etc. are also being collected & traded through a network of Cooperative Societies. Aonla, Gum, Tendu Leaf, Sal seed, Harra and various medicinal plants of Madhya Pradesh are in great demand in national and international markets. Tendu leaf collection activities alone account for an income of about Rs. 145 crore every year to the forest dwellers.

Teak and Sal forests are the pride of the state. The Forest Department and the Forest Development Corporation have done extensive teak plantations during the last few decades. The dense forests of teak lie in Jabalpur, Seoni, Balaghat, Panna, Sehore, Dewas, Hoshangabad, Harda, Betul, Sagar, Chhindwara and Mandla districts. Similarly, the Sal forests are mainly located in Mandla, Dindori, Balaghat, Sidhi, Umaria, Anuppur and Shahdol districts.

MP and forest report 2019

Madhya Pradesh has the largest forest cover in the country that also showed a marginal 0.03% increase in forests compared to the previous year. The latest biennial -India State of Forest Report 2019 (ISFR) released by the Union minister of environment, forest and climate change showed that forest cover of the state increased by 68.49 sq km as compared to the previous assessment reported in 2017.

Published by the Forest Survey of India (FSI), the report said that the forest cover in Madhya Pradesh increased to 77,482.49 sq km which is 25.14% of the state's geographical area. In 2017 ISFR, the total forest cover of MP was 77,414 sq km, which was 25.11% of the total land area. In fact, the top three states showing increase in forest cover are Karnataka (1,025 sq. km) followed by Andhra Pradesh (990 sq km) and Kerala (823 sq km), the minister said releasing the report.

In terms of forest canopy density classes, MP has 6,676.02 sq km under very dense forest (2.17 % of the geographical area), 34,341.40 sq km under moderately dense forest (11.14% of geographical area) and 36,465.07 sq km (11.83% of geographical area of the state) under open forest, the report said.

Forest Produce

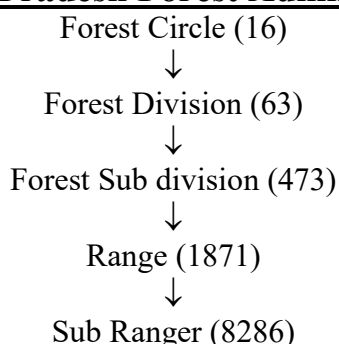
- **Bamboo:** Bamboo of *Dendrocalamus* species are found in Madhya Pradesh. These are tropical deciduous forests which grow in the areas having rainfall 75cm. Bamboo is used in production of paper, and in manufacturing of baskets and roofs. Madhya Pradesh stands second (1.3 Hectare) after Arunachal Pradesh in Bamboos production. **Balaghat is the largest producer of bamboo in Madhya Pradesh.** Besides Balaghat, it is also found in Betul, Jabalpur, Seoni, Mandla, Sagar, and Bhopal.
- **Tendu Leaf (Diospyros Malenoxylan):**
It is main minor forest produce of Madhya Pradesh which is used in Bidi making. In the state nearly 260 bidi industries have been set up. Though a big area under the tendu forest separated away to Chattisgarh, yet it is abundantly found in the Northern-Central-East districts of Madhya Pradesh which includes Sagar (highest), Tikamgarh, Chattarpur, Bhopal, Jabalpur, Rewa, Sidhi, Shahdol. In Madhya Pradesh, tendu leaves are collected on cooperative basis in the state since 1989. Ten lakh tribal workers are employed in tendu leaves collection business. Around 60% of tendu leaves of India are produced in Madhya Pradesh itself.
- **Khair (Senegalia Catechu):** It is an important forest produce which is used in making of Kattha and Paints, Tanning of Leather and as a medicine (for digestion) It is abundantly found in state particularly in Shivpuri, Rewa and Banmore (Morena) and each has one Kathha Manufacturing unit.
- **Harra Tree (Terminalia chebula)** There are multiple industries for extraction of Harra in Madhya Pradesh. It is particularly used for tanning of leather. Harra fruit contain 35-40% leather tanning material. It is also used in ink, paint, medicine (Ayurvedic) and food items. It is abundantly found in Chhindwada, Jabalpur, Sheopur, Balaghat, Shehdol, Betul, Panna, Seoni, Mandla, Satna, Hoshangabad etc.
- **Laakh (Sealing Wax):** In Madhya Pradesh Laakh is extracted from the trees of palash, ghont, kusum, berry and plant of arhar. Around 4000 tonnes laakh is produced from Madhya Pradesh. It is mainly found in Jabalpur, Seoni, Shahdol, Hoshangabad, Bhopal, Indore, Mandla etc. It is used in making bangles, Medicine, toys, Chemicals and cosmetics making. **Laakh Manufacturing Government Industry is situated in Umaria.**
- **Gum:** It is extracted from trees of babool, kullu and salai etc. There are three types of gums-arobic Gum (From babool tree), Kullu gum (From kullu tree), and Salai gum (From salai tree). It is abundantly found in Jhabua, Dhar, Khandwa, Khargone, Gwalior, Shivpuri, Morena, Betul and Ratlam. It is used in Food items (Babool gum), coffee and pastry production (kullu gum), fragrance, paints and varnish production (Salai gum).
- **Bhilala:** Bhilawa fruit extracted from Bhilala tree have multiple uses like in ink, paint, and medicine. It is mainly found in eastern districts of Madhya Pradesh Its one of the industry is situated in **Chhindwara.**

Forest Circle

There are total 16 forest circles in Madhya Pradesh namely- Indore, Jabalpur, Ujjain, Khandawa, Gwalior, Chattarpur, Chhindwada, Balaghat, Betul, Bhopal, Rewa, Shahdol, Shivpuri, Sagar, Seoni and Hoshangabad.

Dimensions	Maximum Area Covered by Forest Circle	Minimum Area Covered by Forest Circle
Total forest area	Khandwa	Hoshangawad
Reserved forest area	Khandwa	Chhattarpur
Protected forest area	Chhattarpur	Khandwa
Unclassified forest area	Jabalpur	Hoshangabad

Madhya Pradesh Forest Administration



Forest Belts in Madhya Pradesh

Madhya Bharat Belt	The Vindhaya Forest Belt	Satpura-Maikal Belt
The belt of highland of Shivpuri which is spread from Morena to Shivpuri	This belt covers the Kaimur ranges which is distributed from the North of Damoh upto the highlands of Sagar	The widest belt of forest spreading from the east to west of the state on the southern side of Narmada river. This belt includes the Satpura-Maikal ranges, hilly areas of highlands of Baghelkhand.

Forest Institutions in Madhya Pradesh

- **Madhya Pradesh State Forest Development Corporation** established on **July 24, 1975** for the improvement of Madhya Pradesh forests and their protection. It is headquartered at **Bhopal**.
Following are the **functions and objectives** of this corporation-
 1. Plantation of useful forest produces such as teak bamboo and saal and increases their current productivity.
 2. To arrange resources for Pulp-Paper related industries and planting appropriate forest for such industries.
 3. To produce teak, bamboo and other essential raw materials for wood based industries.
- One of the four regional offices of **Indian Forest Research Institute Dehradun** is at **Jabalpur**.
- **Indian Institute of Forest Management** was established in **Bhopal** in 1982 with the help of Swedish International Development. Here, modern forest technical training is given to Indian forest officers.
- In 1979, **Forest Management Education Centre** (State Forest College) was established in **Balaghat** and in 1980, the second State forest college was established in **Betul**.
- Tropical forest Institute is in Jabalpur.
- Forest research and Human Resource Development Institute (central government) is in Chhindawara.
- **Forest guard training centres** are at Panchmarhi (Hoshangabad), Tala (Umaria), Shivpuri, Govindgad (Rewa), Amarkantak (Anuppur), Betul, Jhabua and Lakhnadoun (Seoni).
- **Sanjivani Sansthan** (forest medicine plantation) - **Bhopal**.
- **Madhya Pradesh Eco-Tourism Development Corporation** is in **Bhopal** which was founded in 2005.

State Forestry Research Institute (SFRI)

- Mr. J.M. Best was appointed as the first Silviculturist of Central Province and Berar State in 1922.
- This is assumed to be the beginning of forest research in the state.
- It was set up on 27th June, 1963 in Jabalpur, State Forestry Research Institute is assumed to be the first class level institute of India in Forest research.
- It was granted autonomy by State Govt. in 1994.
- **Mission:** The institute's mission is to highlight the adaptive and applied research programmes for the conservation and development of forest sector in Madhya Pradesh.
- **Goals:-**
 - (i) Conservation of forests and forest resources – soil, water, floral and faunal biodiversity.
 - (ii) Enhancement of productivity of natural forests and plantations.
 - (iii) Expansion of tree cover.
 - (iv) Efficient and sustainable utilization of forest resources and forest products – timber and NTFPs (Non timber forest product)
 - (v) Sustainable management of forests involving people's participation for income and employment generation for forest – dependent communities.

National Parks of Madhya Pradesh at a Glance

Name of National Park	Area	Location	Established	Fauna
Kanha National Park	940 km ²	Mandla	1955	Tiger, panther, gaur, chital, sambar, nilgai, chinkara, barking deer, swamp deer, (barasingha), wild boar and a variety of upland birds.
Bandhavgarh National Park	437 km ²	Umaria	1968	Tiger, panther, gaur, chital, sambar, nilgai, chinkara, barking deer, wild boar and a variety of upland birds.
Madhav	354	Shivpuri	1959	Panther, chital, sambar, nilgai, chinkara, blackbuck, cha

National Park	km ²			usingha, wild boar, crocodiles in lake, and a variety of upland birds.
Sanjay National Park	467 k m ²	Sidhi	1981	Tiger, panther, sambar, chital, gaur, etc.
Van Vihar National Park	4.45 k m ²	Bhopal	1983	Tiger, panther, lion, bear, hyena, etc.
Panna National Park	543 k m ²	Panna, Chhatar pur	1981	Tiger, chital, chinkara, sambar and sloth bear.
Satpura National Park	524 k m ²	Pachmarhi (Hoshangabad)	1981	Tiger, leopard, sambar, chital, bherki, nilgai, four-horned antelope, chinkara, bison (gour), wild boar, wild dog, bear, blackbuck, fox, porcupine, flying squirrel, mouse deer, Indian giant squirrel, etc.
Pench National Park	293 k m ²	Seoni, Chhind wara	1983	Tiger, panther, bison, chital, sambhar, nilgai, chinkara, barking deer, chowsingha, wild boar and a variety of upland birds.
Fossils National Park	0.27 k m ²	Dindori	1968	Plant fossils (Also known as Ghughua Fossil Park)
Omkareshwar	293.56	Khandwa	2004	All the animals found in Madhya Pradesh
Dinosaur Fossils Park	0.897	Dhar	2010	Dinosaur's fossils.
KunoPalpur	746	Sheopur	2018	Tiger

Wildlife Sanctuary of Madhya Pradesh at a glance

Name	Established Year	Area	Place	Fauna	Flora
Bori Wildlife Sanctuary	1975	646 Sq.Km.	Hoshangabad	Tiger, Panther, Sambar, Chital, Barking deer, Four-horned antelope, Bear Chinkara, Bison, Wildbore, Wild Dog, Hyena, Wolf, Crocodile etc.	Sal, Bija, Teak, Tendu, Bamboo etc.
Bagdara Sanctuary	1978	478 Sq.Km.	Sidhi	Tiger, Panther, Chinkara, Cheetal, Sambhar, Wild Boar, Black Buck etc.	Tendu, Dhawda, Khjair, Lendia, Palash etc.
Phen Sanctuary	1983	111 Sq. Km.	Mandla	Tiger, Leopard, Wildboar, Cheetal, Sambhar etc.	Sal, Teak, Saja, Aonla, Tendu, Jamun, Bel, Bamboo etc.
Ghatigaon Sanctuary	1981	511 Sq.Km.	Gwalior	The Great Indian Bustard, Black buck, Chital, Monkey, Wolf, Blue bull, Wild boar, Fox, Hyena etc.	Khair, Murjan, Palash, Seja, Dhawada, Dhaman, Salai, Heans, Katli

					etc.
Gandhi Sagar Sanctuary	1974	369 Sq.Km.	Mandsaur	Leopard , Bear, Blue Ball, Chinkara ,Wild Boar, Wild dog, Fox,Wild Cat, Jackal etc.	Salai, Dhawada, Khair, Moyan, Palas, Tendu, Saja, Ber, Mahua, Khardhai etc.
Karera Sanctuary	1981	202. Sq. Km.	Shivpuri	The Great Indian Bustard, Padki, Baya, Tithari, Titar, Chital, Black Buck etc.	
Ken Ghariyal Sanctuary	1981	45 Sq.Km.	Chhatarpur, Panna	Alligator, Chinkara, Chital, Wild boar Blue bull, Peacock, Monkey etc.	Teak, Khair, Dhawda, Seja, Jamun (Syzizium), Pakar etc.
Kheoni Sanctuary	1955	123 Sq.Km.	Dewas, Sehore	Cheetal, Sambhar, Blue bull, Four horned antelope, Wild Boar, Barking Deer, wolf etc	
Narsingharh Sanctuary	1974	57. Sq. Km.	Rajgarh	Chital, Sambhar, BlueBull, Leopard,Wild Boar, Bhedki, Crocodile etc.	Teak, Saja, Dhawda, Khair, Bhaeda, Karonda, Karghai, Lendia, Arjun,Chandan etc.
National Chambal Sanctuary	1978	435 Sq.Km.	Morena	Alligator, Crocodile, Otter, Tortoise, Gigantic dolphin, Blue bull, Rabbit, Wild boar etc.	Babool, Khair, Khus, Moonj, Bamboo etc.
Nauradehi Wildlife Sanctuary	1975	1197 Sq.Km	Sagar	Tiger, Leopard, Wolf, Wild dog, Fox, Blue bull, Crocodile, Sambhar, Chital, Chinkara, Bear etc.	Teak, Saja, Dhawda, Bhirra etc.
Pachmarhi Sanctuary	1977	417. Sq. Km.	Hoshangabad		Saja, Bija, Tinsa, Dhaora, Sal, Haldu, Palash, Kasai, Bel, Bamboo etc.
Panpatha Sanctuary	1983	249. Sq. Km.	Shahdol	Tiger, Panthers, Jackal, Wild dog, Chital, Sambhar, Blue bull, Porcupine, Chausingha, Bear etc.	Sal, saja, Bija, Dhawda, Khair, Tendu, Bel, Acacia, Mahua, Bamboo etc.
Kuno Wildlife Sanctuary	1981	345 Sq.Km.	Morena	Tiger, Leopard, Blue bull, Chital, Sambhar, Chinkara, Bear etc.	Kardhai., Gurjan, Ber, Ghot, Roja, Palash, Khair ,Salai, Dhawada, Tendu , Mahua, Kasai etc.
Pench Sanctuary	1983	757.85 Sq.Km.	Seoni	Tiger , Panther, Wilddog, Cheetal, Sambhar, Chausingha, Bison, Wildboar, Langur and many other species of mammals and reptiles besides around 200 sps. of birds.	Teak, Saja, Bija, Jamun, Dhaora, Mahua, Semal, Lendia, Aonla, Tendu, Dhaman, Palas, Kusum, Arjun, Baheda, and Bamboo, apart from numerous Sps. of grasses and

					herbaceous flora.
Ratapani Sanctuary	1976	435 Sq.Km.	Raisen	Tiger, Leopard, Cheetal, Sambhar, Wild Boar, Bear, Blue Bull, Wild Dog etc.	Teak, Sheesham, Bija, Saja, Tendu, Khair, etc.
Sanjay-Dubri Wildlife Sanctuary	1975	365. Sq. Km.	Sidhi	Tiger, Panther, Sambhar, Cheetal, BlueBull, Barking Deer, Chinkara, Wild Dog, Bear, Wolf, Jackal, Wild Boar etc.	Sal, Dhawda, Tendu, Harra, Bija, Sedha, Baheda, Saja, Salai, Mahua, Semal, Shishum, Aonla etc.
Singhori Sanctuary	1976	288 Sq.Km.	Raisen	-	-
Son Ghariyal Sanctuary	1981	209 Sq.Km.	Sidhi	Alligators, Crocodiles, Tortoises etc.	-
Sardarpur Sanctuary	1983	348 Sq.Km.	Dhar	Kharmour and other birds.	Teak, Palash, Khjda, Gunra di and Grasses etc.
Sailana Sanctuary	1983	13 Sq.Km.	Ratlam	The bird 'Kharmour' is the principal species of the Sanctuary, besides birds of the other species may also be seen here.	Grass is found mainly in the area.
Ralamandal Sanctuary	1989	5 Sq.Km.	Indore		Teak, Saja, Chandan, Eucalyptus, Babul Bamboo etc.
Orchha Sanctuary	1994	46 Sq.Km.	Tikamgarh	Spotted deer, Blue bull, Peacock, Wild pig, Monkey, Jackal etc. Besides these, birds of many species may also be seen here.	Teak, Palash, Khair and other species.
Veerangna Durgawati Sanctuary	1997	24 Sq.Km.	Damoh	Tiger, Panther, Spotted deer, Sambhar, Four horned antelope (Chousingha), Wild boar, Blue bull etc.	Dhawda, Tinsa, Tendu, Saja, Bija Baheda, Teak, Palas, Aonla, Jamun etc.

MAJOR CROPS OF MADHYA PRADESH

Wheat

- Wheat is the major food crop of the state. It ranks first in cereals and second in all crops in terms of sown area. Wheat is a crop of the temperate zone.
- In Madhya Pradesh wheat is a crop of the rabi season.
- Wheat was sown on 9829 thousand hectares of land in Madhya Pradesh in the year 2020-21.
- Madhya Pradesh produced 35669 thousand metric tons of wheat in the year 2020-21, which is 4.11% less than the previous year's production.
- Wheat is mainly cultivated on the alluvial and black soil of Chambal and Narmada valley and Eastern Malwa region.
- Hoshangabad district stands at the top in terms of wheat sown area and production of wheat.
- Major Wheat producing districts are- Districts of Malwa region (Indore, Dewas, Ratlam, Ujjain, Vidisha, Shajapur, Khargone), Central Narmada Valley (Hoshangabad, Harda, Narsinghpur, Jabalpur), Katni, Rewa, etc.
- The major wheat varieties are Sharbati, Lokvan, Narmadachar, Sujata 320, Raj 77, etc.

Rice

- Rice is a part of the staple diet of the population in Madhya Pradesh. It is a crop of the tropical region.
- In Madhya Pradesh rice is a crop of the Kharif season.
- In terms of area sown and production, Rice stands in second place among all cereals.
- Rice was sown on 3441 thousand hectares of land in Madhya Pradesh in the year 2020-21.
- Madhya Pradesh produced 12502 thousand metric tons of rice in the year 2020-21, which is 13.04% more than the previous year's production
- Highest Rice producing districts are- Balaghat, Katni, Seoni
- Major Rice producing regions are- Wainganga Basin, and Maikal Plateau, Baghelkhand Plateau, Katni-Jabalpur Region, Rewa Plateau region

Maize

- Maize is both food and fodder crop is grown in semi-arid climatic conditions and over inferior soils. Maize is known as the "Queen of Grains".

- In Madhya Pradesh rice is a crop of the Kharif season.
- In terms of area sown and production, Maize stands in third place among all cereals.
- Maize was sown on 1456 thousand hectares of land in Madhya Pradesh in the year 2020-21.
- Madhya Pradesh produced 4430 thousand metric tons of Maize in the year 2020-21, which is 1.31% less than the previous year's production
- Highest maize-producing districts are- Dhar, Chhindwara, Barwani
- Major maize-producing regions are- the western part and south-central region of the state.

Jowar

- It is the food crop in semi-arid areas of central and southern India. Maharashtra stood first in the production of Jowar.
- It is a Kharif crop in northern India and Madhya Pradesh where it is mostly grown as a fodder crop.
- In terms of area sown and production, Jowar stands in fourth place among all grains.
- Jowar was sown on 4000 thousand hectares of land in Madhya Pradesh.
- Madhya Pradesh produced 6000 thousand metric tons of Jowar and stands second in the country.
- The highest Jowar-producing districts are- Khargone, Barwani, and Chhindwara,
- Major Rice producing regions are- Nimar and the middle Satpura regions.

Gram

- Gram is cultivated in subtropical areas.
- It is a rainfed crop cultivated in the rabi season in central, western, and northwestern parts of the country.
- In terms of area, gram secured the third rank in the state after Soybean and Wheat.
- Gram was sown on 2160 thousand hectares of land in Madhya Pradesh, which is 12.35% more than last year.
- Madhya Pradesh produced 3590 thousand metric tons of Gram, which is 17.24% more than the previous year.
- Highest Gram-producing districts are- Chhindwara, Rajgarh, and Ujjain
- Major Gram-producing regions are- the central region of the state such as the Eastern malwa

Plateau, Bundelkhand Plateau, and upper-central Narmada valley.

Arhar/Tur

- Tur comes second most important pulse crop in the country.
- In Madhya Pradesh, Arhar is a crop of the Kharif season.
- Arhar was sown on 219 thousand hectares of land in Madhya Pradesh, which is 12.05% less than last year.
- Madhya Pradesh produced 286 thousand metric tons of Grams, which is 4.38% more than the previous year.
- Highest Arhar-producing districts are- Chhindwara, Narsinghpur, and Singhraul
- Major Arhar-producing regions are- the Narmada Basin, Satpura, and Vindhyanal regions of Madhya Pradesh.

Urad

- The net sown area is 1314 thousand hectares
- The total production is 448 thousand metric tons of urad.

Moong

- The net sown area is 902 thousand hectares
- The total production is 1181 thousand metric tons of moong.

Masoor

- The net sown area is 542 thousand hectares
- The total production is 615 thousand metric tons of masoor.

Pea

- The net sown area is 86 thousand hectares.
- The total production is 90 thousand metric tons of masoor.

Soybean

- Soybean is largely a rainfed Kharif crop of drylands. But in southern India, it is cultivated during the rabi season as well.
- Soybean in Madhya Pradesh is the most prominent crop. Madhya Pradesh is the leading producer of Soyabean in the country which is 51% of total soybean production, hence it is also known as The Soya State or the "Soya Capital of India".
- Soybean was sown on 6674 thousand hectares of land in Madhya Pradesh, which is 7.75% less than last year.
- Madhya Pradesh produced 3370 thousand metric tons of soybeans, which is 12.60% less than the previous year.
- The highest Soyabean-producing districts are- Dhar, Ujjain, and Mandsaur

- Major Soyabean-producing regions are- Malwa Plateau, Narmada Valley, and Betul-Chhindwara Plateau.

Mustard

- Mustard is a subtropical crop cultivated during the rabi season in the northwestern and central parts of India.
- These are frost-sensitive crops and require loamy soil.
- Madhya Pradesh stands third following Rajasthan and Haryana in terms of production in the country.
- Mustard was sown on 749 thousand hectares of land in Madhya Pradesh, which is 10.96% less than last year.
- Madhya Pradesh produced 1307 thousand metric tons of mustard, which is 25% more than the previous year.
- Highest Mustard producing districts are- Bhind, Morena, Mandsaur, Sheopur, and Gwalior
- The major mustard-producing region are- Chambal Valley region.

Groundnut

- Groundnut is largely a rainfed Kharif crop of drylands. But in southern India, it is cultivated during the rabi season as well.
- Groundnut is the third important oilseed crop of Madhya Pradesh.
- The total crop area of Groundnut is 224 thousand hectares of land in Madhya Pradesh,
- Madhya Pradesh produced 357 thousand metric tons of groundnut,
- The highest groundnut-producing districts are- Shivpuri, Chhindwara, Barwani
- Major Groundnut producing regions are- Nimar plains, Satpura areas, Bundelkhand regions

Sesame

- Sesame is both rabi and Kharif crops in Madhya Pradesh.
- Sesame requires a temperature range of 20-25 degrees Celcius, rainfall of 50-100 centimeters, and light loam soil.
- The total crop area of Sesame is 289 thousand hectares of land in Madhya Pradesh,
- Madhya Pradesh produced 145 thousand metric tons of Sesame,
- Highest Sesame producing districts are- Sidhi, Chhatarpur, Tikamgarh, Shahdol, and Panna
- Major Sesame producing regions are- Bundelkhand regions and Baghelkhand Regions.

Linseed

- Linseed is the crop of rabi season.

- The total crop area of linseed is 109 thousand hectares of land in Madhya Pradesh,
- Madhya Pradesh produced 57.04 thousand metric tons of Linseed,
- Highest Linseed producing districts are- Rewa, Sagar, Damoh, and Tikamgarh
- Major Linseed producing regions are- Rewa-Panna Plateau and Southeastern Madhya Pradesh.

Cotton

- Cotton is a tropical crop grown in the Kharif season in semi-arid areas of the country.
- India ranks second in the world in the production of cotton after China and accounts for about 23.7 % of the production of cotton in the world.
- Leading producers of this crop are Gujarat, Maharashtra, and Telangana.
- Cotton required a Temperature range of 20-35 degree celsius, 200 days of clear sky, and a frost and hail-free period, and black soil are most suitable for it.
- The total crop area of Cotton is 588 thousand hectares of land in Madhya Pradesh, which is 10% less than the previous year.
- Madhya Pradesh produced 877 thousand metric tons of Cotton, which is 4.53% more than the previous year.
- Highest Cotton producing districts are- Khargone, Barwani, Dhar, Khandwa, and Burhanpur,
- Major Cotton producing regions are- Nimar plains, and Malwa Plateau.

Sugarcane

- Sugarcane is a crop in tropical areas. It takes a year to prepare the crop.

- The total crop area of Sugarcane is 95 thousand hectares of land in Madhya Pradesh, which is 24% less than the previous year.
- Madhya Pradesh produced 544 thousand metric tons of sugarcane, which is 26.59% less than the previous year.
- Highest Sugarcane producing districts are- Narsinghpur, Chhindwara, Burhanpur, Betul, and Datija

Mesta

- Mesta is a fibrous crop.
- In Madhya Pradesh, it is seen as an alternative to the Jute crop.
- It is produced in the districts of Guna, Bhind, Ashoknagar, Rewa, and Shivpuri.

Sanai

- Sanai is also a fibrous crop that has white and shiny fiber.
- It does not require fertile land.
- Major Sanai-producing districts include Chhindwara, Seoni, Mandala, Khandwa, Burhanpur, Khargone, etc

Opium

- Madhya Pradesh is the largest producer of opium in India.
- Opium-producing districts in Madhya Pradesh are Mandsaur and Neemuch.

Hemp (Ganja)

- The cultivation of hemp is performed under the supervision of the government in the Khandwa district of Madhya Pradesh.

Spices

- Major crops included are Dry pepper, Ginger, Garlic, and Corriander.
- The total area of cultivation is 823919 hectares.
- The total production of spices is 46.75 lakh metric tons.

INSTITUTIONS AND RESEARCH CENTERS ASSOCIATED WITH MP AGRICULTURE

Institute/ Center	Location
National Soybean Research Centre	Indore
Paddy (Rice) Research Centre	Badwani
Cotton Research Centre	Khargone
National Grapes Research Centre	Ratlam
International Maize and Wheat Research Centre	Kamariya, Jabalpur
Asia's largest Soybean Processing Plant	Ujjain
Agricultural Engineering College	Jabalpur
Horticulture College	Mandsaur
First Cell Rich Bio-Fertilizer Plant	Bhopal
CattleFeed Production Plant	Dhar
India's First Bio-Pharming Unit	Indore

Jawaharlal Nehru Agriculture College	Jabalpur (1964)
Rajmata Vijayaraje Scindia Agriculture University	Gwalior (2008)
Dairy State Centre	Jabalpur
Agriculture Engineering Research Centre	Bhopal
Nowgaon Fisheries Training Institute	Chhatarpur
Mahashir Fishery Conservation	Bhopal
Atal Bihari Vajpayee National Cooperative Development and Research Centre	Indore

MAJOR CORPORATION OF MADHYA PRADESH AGRICULTURE

Corporations	Established Year
MP seeds and farm Development Corporation Bhopal	1980
MP Agri Industries Development Corporation	1969- 70
MP State Warehousing Corporation	1958
Small Farmers Development Agency	1971
Land Development Corporation	1977-78
State Animal and Poultry Development Corporation	1982
Cooperative Dairy Development Program	1975
MP State Agency for Seed Certification	1980
MP State Agriculture Marketing Federation	1972
MP State Cooperative Dairy Federation Limited	1980

AGRICULTURE WELFARE SCHEMES OF MADHYA PRADESH

Madhya Pradesh is an agrarian economy with more than 70% population dependent on agriculture and allied sector. Major schemes to boost the agricultural sector in M.P. are given below,

Welfare Schemes of Madhya Pradesh	Information
Mukhya Mantri Kisan Kalyan Yojna	<ul style="list-style-type: none"> o It is also known as the Mukhya Mantri Kisan Samman Nidhi scheme in M.P. o It is a state-level scheme that provides income support to farmers of M.P. o Amount- Rs. 4,000 per farmer per year, in two equal installments o Limitation- up to a maximum of 5 acres of land per farmer. o Goal- to help farmers with their agricultural expenses and other inputs.
MP Kisan Mobile App	<ul style="list-style-type: none"> o The M.P. Kisan APP is an integrated mobile platform o It is made to provide agriculture-related information and services to farmers.
Certified seeds Distribution	Goal- to provide high-quality, disease-free seeds that meet specific quality standards.
Beejgram Yojana	<ul style="list-style-type: none"> o Under the certified seed scheme o Goal- to increase the seed replacement rate.
Unique Farmer ID (UFID)	<ul style="list-style-type: none"> o An integrated farmer database has been created by combining various digital databases related to farmers. o This aids in localized data-driven planning and accurate estimation of crop area and production. In the event of natural disasters, this integration will speed up claim settlement, o Reduce duplication and delay, and help increase farmers' income by ensuring easy access to relevant information.
Major Central sponsored	o Pradhan Mantri Fasal Bima Yojana

Schemes Functioning in M.P.

- Paramparagat Krishi Vikas Yojana (PKVY)
- National Agriculture Development Plan
- National Mission on Agriculture Extension
- National Food Security Mission
- Soil Health Card Scheme
- Agricultural mechanization
- Pradhan Mantri Krishi Sinchai Yojana

HORTICULTURE WELFARE SCHEMES OF MADHYA PRADESH

Welfare Schemes of Madhya Pradesh	Information
Fruit Plantation Scheme	<ul style="list-style-type: none"> ○ A financial grant of 40% for 3 years at the rate of 60:20:20 is given to the farmers ○ The government plans to provide a Minimum Support Price for 12 vegetables. ○ Goal- to induce crop diversification and high-density plantation.
E-Anugya (e-permit) System	<ul style="list-style-type: none"> ○ It is introduced in Agricultural Produce Market Committees (APMC). ○ Goal- to simplify the trading of agricultural commodities. ○ Traders can generate no objection certificates for moving grains purchased out of the mandi. ○ E-permit issuance is automated, and traders can use them online. ○ Barcodes and Q.R. codes are used for verification. ○ It has brought transparency and ease to APMC mandi trading, ○ It eliminates the misuse of licenses and accelerates agricultural marketing.
‘Souda Patrak’	<ul style="list-style-type: none"> ○ Launched- April 2021, ○ Launched by M.P. Agricultural Marketing Board. ○ It allows registered mandi traders to purchase farm produce from farmers’ doorsteps at MSP. ○ Traders have to pay a 1.7 percent mandi tax. ○ The “Souda Patrak App” was launched in June 2021 to reduce paperwork.
Central Sponsored Schemes Functioning in M.P.	<ul style="list-style-type: none"> ○ Spices Area Expansion Scheme ○ National Horticulture Mission- Incentive Scheme for Protected Cultivation of Commercial Horticulture Crops ○ Integrated Horticulture Development Mission ○ Prime Minister Agricultural Irrigation Scheme ○ PM Micro Food Upgradation Scheme (MEME)

Sources of Irrigation in Madhya Pradesh

There are following type of irrigation souces present in the state - (i) Well (ii) Canals
(iii) Ponds (iv) Other sources.

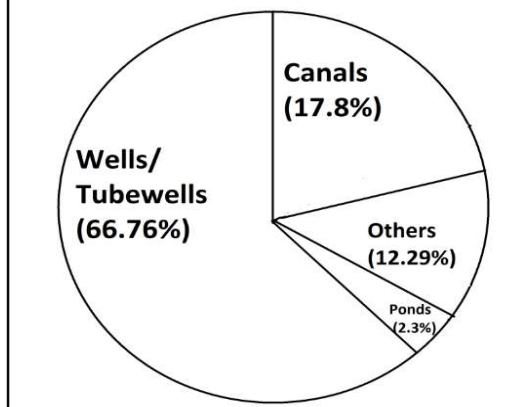
(i) Wells and Tubewells :

- Wells are the main source of irrigation in the state, which is used to irrigate **66.48%** of the agricultural area.
- Wells are used for irrigation mainly in Malwa Plateau and northern districts of the state.
- Irrigation through wells has increased by 47% in the state under the **Million Wells scheme**.

(ii). Canals :

- Canals are also the major source of irrigation in the state.
- **17.8%** of the irrigation is done with the help of the canals in Madhya Pradesh.

- Canals are used for irrigation in Morena, Gwalior, Bhind, and Sheopur (Chambal Basin) , Tikamgarh, Chhatarpur (Bundelkhand) and Hoshangabad, Vidisha, Raisen (Narmada Basin).

Net Irrigated Area by Different sources in M.P**(iii) Ponds:**

- Ponds are third important source of irrigation in Madhya Pradesh.
- Construction of canals becomes difficult because of the terrain is not levelled. Therefore rivers and rivulets are bounded to create ponds.
- Ponds contribute **2.3%** to the total irrigation of the state.
- Ponds are used for irrigation mainly in Balaghat and Seoni district.

(iv) Other Sources:

Bore wells – In almost every district of the state, bore wells are used for irrigation. In Bhind, Morena, Datia, Chhatarpur, Tikamgarh, Jabalpur, Vidisha, Indore borewell are widely used.

Important Irrigation Projects of Madhya Pradesh**Chambal Valley Project**

- This project is located on Chambal River, which is a tributary of the Yamuna River.
- This is the **second largest river basin project of country**.
- This is a joint project of Madhya Pradesh and Rajasthan.
- Construction work of this project commenced in the year 1953-1954 and concluded in 1960.
- This project was completed in three phases. It includes following three reservoirs : -

A. Gandhi Sagar Reservoir (Mandsaur)

- In the first phase, Gandhi Sagar Reservoir has been constructed in **Bhanupura tehsil of Mandsaur district** of Madhya Pradesh.
- Its height is 64 meters and length is 514 meters.
- Its irrigation Capacity is **11.00 lakh acres**.
- In 1960, Gandhi Sagar Hydro Power Station was installed in it. It produces **115 MW** power.

B. Rana Pratap Sagar Reservoir (Chittor)

- This reservoir has been constructed on Chambal River in **Chittorgarh district of Rajasthan**.
- This reservoir is built 56 kms downstream from Gandhi Sagar reservoir.
- Its height is 54 meters and length is 1,143 meters.
- Its water storage capacity is **1,567 million cubic meters**.
- Besides irrigation, this project is utilized for production of 172 MW powers which is shared by Madhya Pradesh and Rajasthan in 50:50 ratios.
- This is a joint project of Madhya Pradesh and Rajasthan.

C. Jawahar Sagar or Kota Barrage (Kota)

- This reservoir was built on Chambal River in the last phase of Chambal basin project.
- It is located in **Kota district** of Rajasthan, 23 kms downstream from Rana Pratap Sagar reservoir.
- Its water storage capacity is 1,944 million cubic meters and it produces **99 MW** power.
- The left bank canals of this project irrigate Rajasthan while the right bank canals irrigate Madhya Pradesh.

- Ambah, Morena and Mhow Canals of Madhya Pradesh were constructed in the last phase. They irrigate 3.50 lakh Acre land.

Narmada Valley Project

- This multi-purpose project is being constructed on Narmada River, the '**Lifeline of Madhya Pradesh**'.
- There are 30 major dams, 135 medium dams and around 3000 dam projects are proposed along with long canals on the Narmada basin by Narmada Valley Development Authority.
- This multi-purpose river basin project would help irrigate **27.55 lakh hectares land** and generate **3,000 MW power**.

A. Indira Sagar Reservoir

- Late Mrs. Indira Gandhi laid foundation stone of Indira Sagar Project on October 23, 1984.
- This is the **highest dam of Madhya Pradesh**.
- The main reservoir under this project has been constructed at Punasa in **Khandwa district**.
- Eight turbines of 125 MW Capacity have been installed on the reservoir to generate **1,000 MW power**.
- Since, Harsud town of Khandwa district got submerged in the project. People of this district were rehabilitated at new town named Chanera. A total of 249 villages were affected due to this project.

B. Omkareshwar Reservoir

- This reservoir has been constructed at the pilgrim centre of Omkareshwar in **Khandwa district** of Madhya Pradesh.
- This project would irrigate 1.47 lakh hectare areas.
- Generation of 520 MW power has started.
- Spread over 94 sq. km., this reservoir would attract 5 lakh tourists per year.

C. Maheshwar Reservoir

- This reservoir is located 40km. downstream of Omkareshwar Project over Narmada in **Khargone district**.
- Initially the target was to generate 320 MW power from this reservoir. Now it has increased to 450 MW.

D. Sardar Sarovar Project

- Sardar Sarovar project is constructed on Narmada River near Navagam in **Bharuch district of Gujarat**. Its height is 163m.
- Its foundation stone was laid out by **Pandit Jawaharlal Nehru on 5th April 1961**.
- It is a joint project of Madhya Pradesh, Rajasthan, Gujarat and Maharashtra state.
- Under this project, a 1,210 meter long and 138 meter tall reservoir is constructed on Narmada River.
- The power station is being constructed at the site would generate 1,462 MW power.
- On 17th September, 2017 this dam was inaugurated by Prime minister.

Rani Awantibai Sagar Project

- This is also called Bargi Reservoir project.
- This project is located on Bargi River (tributary of the Narmada River) near Bijaura village in **Jabalpur district**.
- This project was completed in 1980 and the benefited area includes Jabalpur, Narsinghpur, Mandla, Seoni districts.
- This project would irrigate 2.42 lakh hectare lands.

Tawa River Project

- This project is located on Tawa River near Ranipur village in **Itarsi tehsil of Hoshangabad district** of Madhya Pradesh.
- Its irrigation capacity is 3.33 lakh hectares but at present, this project irrigates 2.47 lakh hectares of land.
- **Longest dam of Madhya Pradesh** has been built on Tawa River in Hoshangabad district.

Halali (Samrat Ashok Sagar) Project

- This Project is on Halali River in **Vidisha and Raisen districts**.
- A 945 meter long and 29.57 meter tall reservoir has been constructed under this project.

- Its irrigation capacity is 37,000 hectares.

Mann Project

- This project has been completed across the river Man (tributary of the Narmada River) at Jirbad village near **Dhar district**. This project aims at irrigating 15000 hectares of tribal villages.

Bansagar Project

- This reservoir is a multi purpose project near Deolond village in **Shahdol district**.
- It is a joint project of Madhya Pradesh, Uttar Pradesh and Bihar. It would generate 405 MW powers, of which Madhya Pradesh would get 50% while Uttar Pradesh and Bihar would get 25% each.
- A 120 meter long and 63 meter tall reservoir is being constructed on Son River under this project.

Urmil Project

- It is a joint project of Madhya Pradesh and Uttar Pradesh which is located on Urmil River at Bhirota village in **Chhattarpur**.
- Water of this project is distributed between Madhya Pradesh and Uttar Pradesh in 60:40 ratios.
- 137 km long canal has been built under this project.

Ken-Betwa Project

- It is a joint project of Madhya Pradesh and Uttar Pradesh.
- It is first project under the River Linking Project.
- Completion of the scheme would extend irrigation infrastructure in interiors of Bundelkhand and it would also tackle drinking water shortage.
- A reservoir will be built at Daudhan in **Chhattarpur** district under this project.
- Three power generations stations of 20 MW Capacity each and five power generation stations of 6 MW Capacity will be installed under this project.

Matatila Project

- This is a joint project of Madhya Pradesh and Uttar Pradesh on Betwa River at **lalitpur Uttar Pradesh in 1958**.
- This project would irrigate 1.16 lakh hectare land in six districts of Madhya Pradesh and 1.09 lakh hectare land in four districts of Uttar Pradesh.

Rajghat Reservoir (Rani Laxmibai Project)

- This is a joint project of Madhya Pradesh and Uttar Pradesh on Betwa River at the boundary of **Lalitpur (Jhansi) and Ashoknagar**.
- This project provides for irrigation of 34,000 hectare land in Madhya Pradesh and Uttar Pradesh.

Barna Project

- This project is located at Bari Village in **Raisen district**.
- This project would irrigate 48,805 hectare land in Raisen district and 11,695 hectares land in Sehore district.

Mahi Project

- Mahi project has been constructed on Mahi river. Under this project, a reservoir has been constructed near Labria village in **Dhar district** and its secondary reservoir is being constructed near Kali Karai reservoir (Jhabua).
- This project would irrigate 12,770 hectare land.

Thanwar Project

- This project is situated at Julpur village of Nainpur Tehsil (**Mandla District**) on the Thanwar River.
- A 900 meter long reservoir being constructed under the project would irrigate 18,212 hectare land.

Sanjay Sarovar (Upper Wainganga) Project

- Under this project, Bheemgarh Dam or Sanjay Sarovar Dam is built across the Wainganga River in **Chhapra tehsil of Seoni district**.
- This project would irrigate 1,03,722 hectare land in Balaghat and Seoni districts.

Pench Project

- This is a joint project of Madhya Pradesh and Maharashtra.
- A reservoir on Pench River has been constructed at Manchgora village in **Chhindwara** district under this project.

- This project would irrigate 63,338 hectare land in Balaghat and Chhindwara districts of Madhya Pradesh.

Bawanthari Project (Rajiv Sagar)

- This is a joint project of Madhya Pradesh and Maharashtra.
- This project is under construction at Kudwa village in Katangi tehsil of **Balaghat** district on Bawanthari River.
- This project would irrigate 18,615 hectare land in Madhya Pradesh and 17,537 hectare land in Maharashtra.

Bagh Project

- This is a joint project on Bandh River at Sirpur village on Madhya Pradesh and Maharashtra border.
- It would irrigate **Barwani** District of Madhya Pradesh.

Sukta Project

- This project is constructed on Sukta River in **Khandwa** district.
- This project would irrigate 18,538 hectare land in Khandwa district.

Kolar Project

- This project proposes a reservoir on a tributary of Narmada River, Kolar River, near Lalakheri village in **Sehore** district.
- It would irrigate 60,087 hector area of Sehore district besides providing 0.15 million cubic feet water to Bhopal.

Sindh Project

- This project is located at Mohni village in **Shivpuri** district on Sindh River.
- It is irrigating 35,200 hector areas in Shivpuri and Gwalior district.

Nargawa Project

- This is the joint project of Madhya Pradesh and Uttar Pradesh is on Nargawa river, a tributary of Ken River, in **Chhattarpur**.
- It would irrigate 16,190 hectare land in Chhattarpur district.

Choral River Project

- This project is proposed on Choral river (Indore). It would irrigate 5,000 hectare land in Mhow tehsil of Indore.

Major Canals of Madhya Pradesh

- **Halali Canal**– This canal irrigates 73.5 thousand of land in Vidisha and Raisen districts. This is a major canal of **Vidisha** district.
- **Barna Canal**– This is a major canal of **Raisen** district. It irrigates 66,400 hectare land in Raisen and Sehore districts.
- **Tawa Canal**– This is a major canal of **Hoshangabad** district. It originates from Wainganga River and irrigates around 3 lakh hectare of land.
- **Waingana Canal**– This is a major canal of Balaghat district. It originates from Wainganga River and irrigates 4,000 hectare land of **Balaghat** districts.
- **Chambal Canal** – This is a major canal of Shivpuri, Morena and Bhind districts. It originates from Chambal River. Chambal Canal irrigates 2.50 lakh hectare of land of 13,000 villages.
- **Morena Canal and Ambah Canal** – It originates from Chambal canal.

6. Major Minerals and Energy Resources, Non-Conventional Sources of Energy.

Minerals in Madhya Pradesh

Minerals in Madhya Pradesh occur in abundance in its several districts. In terms of the mineral production the state ranks third next only to Jharkhand and Chhatisgarh. The state of Madhya is said to have a favourable geotectonic setting that accommodates every episode of mineralisation the earth has experienced. It includes the occurrences of almost all varieties of minerals required as industrial input in the growing economy. The oldest group of rocks comprising of Archaeans and Proterozoic formation constitute nearly 45% area of the State. The next younger formation of Carboniferous to lower Cretaceous comprising Gondwana Super Group covers 10% area while the formation of Cretaceous to Paleocene comprising mostly of Deccan Trap basalt constitutes 38% area of the State. 16 major minerals are considered of specific importance as they contribute significantly in development of economy of the state. These include the Limestone, Bauxite, Coal, Manganese ore, Diamond, Base metals, Dolomite, Rock Phosphate and Granite. Others include Marble, Flagstone, Slate, Calcite, Quartz and Silica sand, Molybdenum and Fire clay.

SALIENT FEATURES OF MINERAL WEALTH IN MP:-

- The only working mines of diamond in India are in Panna district of Madhya Pradesh.
- Thickest coal seam of Asia lies in the Singrouli Coal Field, dist. Sidhi and other coal blocks near Chhindwara of the state.
- Country's largest Open Cast Copper Mine is at Malajkhand in Balaghat district of the state.
- Occurrences of Paradiso granite is in a large tract of M.P.
- Highest cement producing state in India with 8 major and 3 mini cement plants, producing 15 percent cement of the country.
- Largest producer of copper, limestone, slate, diaspore and pyrophyllite.
- Leading producer of manganese, dolomite, rock phosphate and fire clay.

IMPORTANT MINERAL RESOURCES OF MADHYA PRADESH

Iron Ore

- The two major types of ore found in our country are **haematite and magnetite**. It has huge demand in the international market due to its superior quality.
- The iron ore mines occur close to the coal fields in the northeastern plateau region of the country which adds to their advantage.
- **Mandala, Balaghat, Jhabua, Gwalior, Jabalpur, Vidisha, Ujjain Shajapur, and Dhar** districts of Madhya Pradesh have iron ore reserves.
- Madhya Pradesh has good quality iron ore which contains 67% of iron.
- **Hematite ore is found in Jabalpur.**

Coal

- Coal is one of the important minerals mostly used as fuel in the generation of thermal power and the smelting of iron ore.
- Coal occurs in rocks of two geological ages, namely Gondwana and tertiary deposits.
- Madhya Pradesh is situated on Gondwana land have rich reserves from the coal deposit.
- According to the Indian Bureau of Mines. Madhya Pradesh has 27673 million tons of coal reserves, which amounts to 7.71% of the total coal reserve of the country.
- The coal deposit area in Madhya Pradesh is Sidhi, Shahdol, Umariya, Betul, Chhindwara, and Narsinghpur districts.
- Madhya Pradesh stands in 3rd place in terms of the production of coal in the country, (according to the Economic Survey of Madhya Pradesh 2021-22).
- Majorly Bituminous type of coal is found in Madhya Pradesh.

- India's Thickest coal layer is found in Singrauli (135 meters).
- Coal Bed Methane extraction took place in Sohagpur Mines in Umariya. This extraction is performed by Reliance Industries.

The total coal reserve in Madhya Pradesh can be divided into two categories based on the location of coal mines.

- **Satpura-Coal Belt**- This belt covers the Southern districts of Hoshangabad, Betul, and Chhindwara. The major area of production is Kanha Valley, Mohpani, Shahpura, Tawa, and Pench Valley region.
- **Madhya Bharat Belt**(Central-India Belt) covers the Singrauli, Shahdol, Umariya, and Sidhi districts. The major coal-producing areas are Singrauli and Sohagpur regions.

Manganese

- Manganese is an important raw material used in the smelting of iron ore and manufacturing ferroalloys.
- Manganese deposits are found in almost all geological formations, however, it is mainly associated with old metamorphic rocks of the Dharwar system.
- Major Manganese-producing states are Odisha, Madhya Pradesh, Karnataka, Maharashtra, Telangana, Goa, and Jharkhand.
- The manganese belt of Madhya Pradesh extends in a belt in Balaghat, Chhindwara, Nimar, Mandla, and Jhabua districts.
- Madhya Pradesh has a total of 57.71 million tons of manganese reserve, which amounts to 12% of India's total reserve (according to the Economic Survey of Madhya Pradesh 2021-22).
- In terms of Production, Madhya Pradesh contributes 40% of the total production of manganese in the country which makes it the biggest producer of manganese in India.
- The Bharveli mines in Balaghat are the largest manganese mine in Asia.

Bauxite

- India is poor in terms of non-ferrous metallic minerals except bauxite.
- Bauxite is the ore, which is used in the manufacturing of aluminum.
- Bauxite is found mostly in tertiary deposits. Bauxite is associated with laterite rocks occurring extensively either on the plateau or hill ranges of peninsular India and also in the coastal tracts of the country.
- Major Bauxite producing states are Odisha, Jharkhand, Gujrat, Chhattisgarh, Madhya Pradesh (5th Position), and Maharashtra.
- Within Madhya Pradesh, Bauxite is found in Jabalpur, Katni, Mandala, Satna, Shahdol, Dhar, Khargone, Indore, and Rewa districts.
- The total reserve of Bauxite in Madhya Pradesh is 17.46 Million Tons (according to the Economic Survey of Madhya Pradesh 2021-22).
- Renukoot plant of Mirzapur Uttar Pradesh received Bauxite from the Amarkantak mines.

Copper

- Copper is an irreplaceable metal in the electrical industry for making wires, electric motors, transformers, and generators.
- It is alloyable, malleable, and ductile. It is mixed with gold to add strength to jewelry.
- The Copper deposits chiefly occur in Singhbhum district in Jharkhand, Balaghat district in Madhya Pradesh, and Jhunjhunu and Alwar districts in Rajasthan.
- Copper is found in igneous and metamorphic rocks.
- Within Madhya Pradesh, the main Reserves of copper are in Malajkhand (Balaghat), along with Jabalpur, Sagar, Hoshangabad, Narsinghpur, Dewas, Gwalior, Shahdol, Shivpuri, Sidhi, and Chhatarpur also has some copper Reserves
- **Malajkhand mines** in Balaghat are the largest open mines of copper in Madhya Pradesh. Hindustan Copper Limited operates these mines.
- Madhya Pradesh stands at the first position in the production of copper. It produces 22% of the nation's total copper produced.
- Total Copper reserves in Madhya Pradesh stand at 283 million tons which is 41% of India's reserve.

Limestone

- Madhya Pradesh is one of the major limestone-producing states of the country. Madhya Pradesh stands in the second position in limestone production after Andhra Pradesh.
- Limestone in the state is found in Gwalior, Narsinghpur, Sidhi, Satna, Rewa, Damoh, Katni, Sagar, Panna, Morena, and Neemuch districts.
- Apart from Gondwana Rock regions, limestone is also found in all types of sedimentary rocks.
- The chemical formula of limestone is calcium carbonate (CaCO_3).
- Limestone is majorly employed in the Cement industry, Metal industry, and construction.
- Katni (Sleemabad) is famous as the “City of Limestones”.
- The total limestone reserve in Madhya Pradesh is 9424 million tons.

Dolomite

- When the Proportion of Magnesium Carbonate (MgCO_3) in Limestone is more than 45%, then it is called Dolomite.
- Dolomite is majorly found in the Balaghat, Narsinghpur, Chhatarpur, Sagar, Mandala, Katni, Singrauli, Dewas, Jhabua, and Seoni districts.
- Dolomite is used in the iron and steel industries, refractory industries, ornamental stones, etc
- The total reserves of Dolomites in Madhya Pradesh are 2311 million tons.

Diamond

- Madhya Pradesh has the unique distinction of being the only diamond-producing state in the Country.
- The kimberlite pipe of the diamond is spread from Majhgawan (Panna) to Satna.
- The total diamond reserve in the state stands at 28.70 Million carats (according to the Economic Survey of Madhya Pradesh 2021-22).
- The main diamond-producing regions are Panna, Satna, and Jabalpur.
- National Mineral Development Corporation Limited is operating a diamond mine in Majhgawan, Panna.
- Andhra Pradesh has the highest reserve of diamonds in India, whereas Madhya Pradesh stands first and enjoys a monopoly over diamond production in India.

Mica

- Mica is mainly used in the electrical and electronic industries, medicine, telephone, cars, and chimneys due to its high melting point.
- Mica can be divided into very thin sheets which are tough and flexible.
- Mica in India is produced in Jharkhand, Andhra Pradesh, Telangana, and Rajasthan followed by Tamil Nadu, West Bengal, and Madhya Pradesh.
- In Madhya Pradesh, it is found the Balaghat, Gwalior, Chhindwara, Hoshangabad, Jhabua, Mandsaur, Narsinghpur, Shahdol, Sidhi, and Tikamgarh.
- It is majorly found in igneous, metamorphic, and sedimentary rocks.
- India is the biggest producer of Mica in the world, and Andhra Pradesh is the largest producer of Mica in India.

Tungsten

- The source ore of tungsten is Wolfram.
- Wolfram is found in Agar-gaon of Hoshangabad in Madhya Pradesh
- Tungsten is used in the production of the filament of electric bulbs due to its high melting point.
- Tungsten is a very hard metal and it is used for steel cutting.

Graphite

- Graphite is an allotrope of carbon.
- Graphite is found in metamorphic and igneous rocks.
- In Madhya Pradesh, Graphite is found in the Betul district.
- Graphite is mainly used in manufacturing Pencils, paint, and Batteries.

Lead

- Galena is the main ore of lead.
- It is soft and malleable and has a high melting point.
- In Madhya Pradesh galena ore is found in Jhabua, Jabalpur, Shivpuri, and Datia
- Lead is chiefly used in Airplanes, bullets, guns, cars, batteries, etc

Marble

- Marble in Madhya Pradesh is mainly found in the Archean rocks which are stretching from Chhindwara to Jabalpur.
- White marble is found in Jabalpur.
- Colorful marbles are found in Chhindwara, Betul, and Seoni districts.
- Red and green color marbles are found in the Gwalior district.

Asbestos

- Asbestos is a fibrous material
- It is found in the Jabua district of Madhya Pradesh.
- Asbestos is used in manufacturing train bogies and sheets of ships.

Uranium

- It is a nuclear material
- Uranium reserves are located in Shahdol district and Ghoda Dongri village of Betul District.

Rock Phosphate

- It is found in the Jabua district of Madhya Pradesh.
- It is sent to the National Fertilizer Limited, Vijaypur (Guna) for processing.

Fire clay

- Fire clay is used in refractory and ceramic industries.
- It is found in the Jabalpur, Katni, Sidhi, Shahdol, and Gwalior districts.

Kaoline (China Clay)

- China clay is chiefly used in the Ceramic, paper, rubber, textile, and utensil industries.
- China clay deposits are found in Rewa, Gwalior, Betul, Chhatrapur, Chhindwara, Jabalpur, Satna, Shahdol, and Sidhi districts.

Talk (Soapstone or Steatite)

- Soapstone is the softest mineral in nature.
- It is used in talcum powder and the cosmetics industry.
- Talk stone is found in Balaghat, Jabalpur, and Narmada Valley.

Slate

- Madhya Pradesh enjoys a monopoly over slate manufacturing in the country.
- White and red colored slate are manufactured in the Mandsaur district.

Diaspore (Pyrophyllite)

- A rich deposit of Diaspore (Pyrophyllite) is found in Madhya Pradesh, which amounts to 81.66% of the country's reserve.
- Its reserves are found in the Chhatrapur, Tikamgarh, and Shivpuri districts.

Feldspar

- It is extracted from the Jabalpur, Chhindwara, and Shahdol districts of Madhya Pradesh.

Calcite

- It is found in the Jabua and Khargone districts of Madhya Pradesh.

Surma

- Used in the cosmetic industry.
- It is majorly found in Jabalpur.

Corundum

- It is extracted from the Panna and Singhrauli districts of Madhya Pradesh.

Geological Location of Minerals in Madhya Pradesh

Geological Structure	Minerals
Sausar Sakoli Range Vindhyan	Manganese
Vindhyan-Cuddapah	Diamond
Vindhyan-Bijawar Range	Limestone, Dolomite
Gondwana Kalp	Coal, Sandstone
Chilpi Range(Vindhya Deccan trap)	Bauxite

Minerals and their Important Mines

Minerals	Mines	Districts
Manganese	Bharveli	Balaghat
Copper	Malajkhand	Balaghat
Coal	Sohagpur	Shahdol
Limestone	Mundwara	Katni
Diamond	Majhgawan	Panna
Bauxite	Amarkantak	Anuppur
Graphite	Betul	Betul
Corundum	Pipra-Parkota	Singhrauli
Feldspar	Lamheta Valley	Jabalpur
Soapstone	Bhedaghat	Jabalpur
Marble	Bhedaghat	Jabalpur

Mineral Policy of Madhya Pradesh

To promote and encourage the development of the mineral industry and attract investment in the mining sector, the Madhya Pradesh government announced its Mineral Policy.

First Mineral Policy

- The First Mineral policy of Madhya Pradesh was declared in 1995.
- The Minor Mineral Act 1996 was passed by the state government to govern the minor mineral mines of the state.

Second Mineral Policy

The Current Mineral Policy state was declared in 2010.

- Its major objectives are to use technologies, promote research, maintain development funds and stop illegal mining activities, and make transparency in the permit system.

Madhya Pradesh Sand Mining Policy -2017

The policy was launched by the state government with the following objectives,

- To make sand minerals available for all people at affordable rates
- Ensure the role of local bodies in sand mining
- Conservation of the ecosystem of rivers

Power resources in Madhya Pradesh**Conventional energy resources**

Energy resources in Madhya Pradesh have two major types, first conventional resources and second non-conventional resources. Conventional energy resources in Madhya Pradesh include Indian coal, petroleum, natural gas, atomic mineral, and hydropower. Except hydropower, all the other conventional resources are non-renewable. In Madhya Pradesh, coal is one of the main sources of energy. Non-conventional sources of energy include solar energy, wind energy, biogas, biomass energy, tidal energy, geo-thermal energy, etc. All these are renewable energy resources. Energy production in Madhya Pradesh has started from the year 1905. The main energy sources in the state are thermal power, hydropower, wind and solar energy.

Thermal Power Project

S.N.	Name of the Plant	Year	Capacity (in Mega watts)	Location	About
1	Chandni Thermal Power Plant	1953	17MW Now-177M W	Nepanagar, Burhanpur	<ul style="list-style-type: none">○ Coal supply comes from Tawa Coal Fields○ Electricity is provided to Nepanagar Paper mill.
2	Amarkantak	1977	450	Anuppur	<ul style="list-style-type: none">○ The plant is operated by MPPGCL.

	Thermal Power Plant		MW		<ul style="list-style-type: none"> o Coal from Sohagpur Coal field o Water from Son River
3	Satpura Thermal Power Plant	1967	1330 MW	Sarni Village, Betul	<ul style="list-style-type: none"> o It is operated by MPPGCL. o It is a joint initiative of MP and Rajasthan. o USA helped Financially with this plant. o Coal supplied from Pathar Kheda Coal Fields of Betul. o Water supplied from the Tawa river.
4	Vindhyanchal Thermal Power Plant	1987	4760	Bedhan, Singhrauli	<ul style="list-style-type: none"> o It is operated by NTPC. o It is established with the help of the USSR. o Coal supplied from Nigahi mines of Singhrauli. o Water comes from the Rihand river. o It supplies power to 5 states and Daman & Diu.
5	Jabalpur Thermal Power Plant	1960	15MW	Jabalpur	<ul style="list-style-type: none"> o It was established by the MP electricity board. o Coal comes from the Jabalpur field. o Water is supplied from the Narmada River.
6	Sanjay Gandhi Thermal Power Plant	1993	1340 MW	Birsinghpur, Umariya	<ul style="list-style-type: none"> o Coal is supplied from the Johila Coal field o Water is supplied from Johila River.
7	Sant Singaji Thermal Power Plant	2014	1200 MW	Dongaliya, Khandwa	<ul style="list-style-type: none"> o Coal acquired from South-eastern coalfield limited. o Water supplied from the Indira Sagar reservoir on river Narmada.
8	Pench Thermal Power Plant	2012	1320 MW	Chhindwara	<ul style="list-style-type: none"> o Coal is provided from the Pench valley coalfield. o Water supplied from the Pench River.
9	Sasan Ultra Mega Power Project	2015	4000 MW	Singhrauli	<ul style="list-style-type: none"> o It is established by Reliance groups. o It is the fourth largest power plant in India.

Hydro Power Project in Madhya Pradesh

Project	Location	Capacity	About
Gandhi Sagar Hydro Power Project	Bhanpura, Mandsaur	115 MW	<ul style="list-style-type: none"> o It is located on river Chambal o Joint venture by MP and Rajasthan. o Equal Power shared among states. o It is part of the Chambal River valley project started during the II five year plan.
Rana Pratap Sagar Hydro Power Project	Rawatbhata, Chittorgarh	172MW	<ul style="list-style-type: none"> o It is situated on the Chambal river. o MP and Rajasthan Shares power in the ratio of 50:50 o It is part of the Chambal River valley project.
Jawahar Sagar Hydro Power Project	Kota	99MW	<ul style="list-style-type: none"> o Three units have been placed for power production. o It is also on the river Chambal. o It is part of the Chambal River valley project o Power is shared equally among the MP and Rajasthan.
Avanti Sagar Project,	Jabalpur	90 MW	<ul style="list-style-type: none"> o This project is constructed on the River Narmada.

Bargi			<ul style="list-style-type: none"> ○ Construction took place from 1975-1988. ○ It is operated by MPPGCL.
Rihand Project	Sonbhadra, UP	300 MW	<ul style="list-style-type: none"> ○ It is a joint project of UP and MP. ○ Its construction begins in 1953. ○ The reservoir constructed is called Govind Ballabh Pant Sagar and is India's largest artificial lake.
Pench Hydro Power Project	Nagpur, Maharashtra	160MW	<ul style="list-style-type: none"> ○ It is a joint project of MP and Maharashtra. ○ 107 MW goes to MP and the rest goes to Maharashtra.
Tons Hydropower Project	Rewa	315 MW	<ul style="list-style-type: none"> ○ The Project got commissioned in 1991
Maheshwar Power Project	Khargone	400 MW	<ul style="list-style-type: none"> ○ It is constructed on river Narmada. ○ The Project started in 1994. ○ It is in news due to a dispute with the state government and NCLT declares Maheshwar Hydel Power Corporation Bankrupt.
Omkareshwar Power Project	Khandwa	520 MW	<ul style="list-style-type: none"> ○ It is situated on the Narmada River. ○ The project was started in 2007.
Indira Sagar	Punasa, Khandwa	1000 MW	<ul style="list-style-type: none"> ○ It is also on river Narmada. ○ The project started production in 2007. ○ A gravity dam is constructed.
Baan Sagar Project	Shahdol	425 MW	<ul style="list-style-type: none"> ○ Baan Sagar run of river dam is constructed on the Son river. ○ The Project begin in 1994-95. ○ Power generation started in 2008. ○ MP, UP, and Bihar come together to accomplish the project.

Gas-Based Power Plant in Madhya Pradesh

- In 1992, the gas-based power plant was built in the **Bhander (Datiya)** 1992. It was operated by the Essar Company in 1994. The total energy-producing capacity of the plant is 342 MW. The gas is the plant acquired by the Hazira-Vijaypur-Jagdishpur gas pipeline.
- Reliance Industries built a gas-based plant in the **Shahdol** district.
- GAIL India is constructing a 380 MW gas-based power plant in **Vijapur in the Guna** district.

Non-Conventional Energy Resources

It includes solar energy, wind energy, biomass energy, and Nuclear energy.

Solar Energy

- Sun rays are tapped into photovoltaic cells which can be converted into energy, known as solar energy.
- The two major processes considered to tap solar energy are photovoltaics and solar thermal technology.
- Solar thermal technology has some relative advantages over all other non-renewable energy sources such as It being cost-competitive, environment-friendly, and easy to construct.
- Solar energy is 7% more effective than coal or oil-based plants and 10% more effective than nuclear plants.
- Solar power is generally used in appliances like heaters, crop dryers, cookers, etc.
- The western part of India has good potential for developing solar energy, especially in Gujarat and Rajasthan.

Solar Power in Madhya Pradesh

- Madhya Pradesh is located in the tropical region. The tropic of Cancer passes from the middle of the state. Due to its location, Madhya Pradesh receives more than 5.5 kilowatts per square meter per day for more than 300 days of clear sun.
- To encourage Solar production in the state, Madhya Pradesh came out with the Solar Promotion policy in 2012 to avail the open access facility for selling power to third-party consumers.
- Madhya Pradesh stands at seventh rank in total installed capacity in the country.
- The state's total solar energy capacity is 1526 MW.

Initiatives started by Madhya Pradesh Government

- Madhya Pradesh announced the Solar Power Promotion Policy in 2012.
- Solar power park development policy is launched to establish large-capacity solar power plants with an integrated approach. Under this almost 11 solar parks have been set up in Jhabua, Betul, Hoshangabad, Rewa, Neemuch, etc.
- Solar Photovoltaic Program by the Energy development corporation of Madhya Pradesh to develop off-grid stand-alone solar photovoltaic power system in Madhya Pradesh.
- Roof-top Solar power- Madhya Pradesh has a total rooftop solar power capacity of 30 Megawatts.
- **Rewa Ultra Mega Solar Plant- Madhya Pradesh's biggest solar power park** of 750 Megawatts is to be set up in Gurh, Rewa. It would use 1590 acres of land. The energy produced will be used by Madhya Pradesh and Delhi Metro. The world bank funded the project.
- **Omkareshwar Floating Solar power Plant- the world's biggest floating solar power plant** of 600 MW is constructed in the Khandwa district.
- **Sanchi** of Vidisha district is planned to develop as the First **Solar city** of Madhya Pradesh.

Wind Energy

- Wind energy is a pollution-free and inexhaustible source of energy.
- The mechanism of energy conversion from blowing wind is simple. The kinetic energy of wind is converted into electrical energy through turbines.
- Permanent wind systems such as the trade winds, westerlies, and seasonal winds like monsoons have been used as sources of energy. Along with that, the local winds, land, and sea breezes can also be employed to produce electricity
- The government is developing wind energy in India to lessen the burden of oil import bills.
- The country's potential for wind power generation exceeds 50,000 megawatts, of which one-fourth can be easily harnessed.
- In Rajasthan, Gujarat, Maharashtra, and Karnataka, favorable conditions for wind energy exist

Wind Energy in Madhya Pradesh

Wind energy generation in Madhya Pradesh started in the year 1995 from the Jamgodrani hills of Dewas

State's Geographical Condition suits the Wind Energy Generation, such as

- Madhya Pradesh has an average wind speed of 10 meters per second (minimum speed required is 8 meters per second)
- The areas of high velocity lie at high and plateau parts. MP has Malwa and Nimar regions for that.
- Madhya Pradesh also has large tracks of unusable land to establish windmills.

Growth of the Wind Energy Sector in Madhya Pradesh

- Madhya Pradesh's largest wind energy project is developed at Matakhedra in Ratlam district.
- The total installed wind energy capacity stood at 2520 MW.
- Windmills have been set up in Indore, Ratlam, Dewas, Mandsaur, Rajgarh, and Agar-Malwa districts.
- Wind Power Project Policy is announced by the state in 2011 to encourage wind energy production in Madhya Pradesh.

Bio-Mass Energy

- Bio-Mass energy refers to energy derived from biological products which include agricultural residues, Municipal, industrial, and other wastes.
- Bioenergy is a potential source of energy conversion. Biomass or waste can be converted into electrical energy, heat energy, or gas for cooking.
- It will also process the waste and garbage and produce energy.

- This will not only improve the economic life of rural areas in developing countries but also helps in reducing environmental pollution, enhancing self-reliance, and reducing pressure on fuel wood.

Bio-Mass energy in Madhya Pradesh

- The State government has announced the Bio-Mass Power Promotion Policy in 2016 to encourage the production of energy from Biomass.
- In Madhya Pradesh at present, projects with a total of 45.336 MW energy production capacity are functional.

Initiatives by State Government to Boost Biomass Energy Production

- The first biomass energy generation project was set up in Sarni followed by Vidisha, and Mundwara (Katni).
- **Rice husk-based gasification plant** is set up at Jadukheda in **Dhar** of capacity 0.59MW.
- Indore and Balaghat districts also have a rice husk-based Biomass plant.
- **Naphtha-based** gas power plant is in operation in **Gwalior**, which is set up with the help of the private sector.
- At Katwa in **Khargone**, a power generation plant is set up which operates from the waste material of the city.
- Approximately 21.80 thousand new domestic biogas projects have been set up in Madhya Pradesh.
- **Gau Samvardhan Scheme** was launched for producing biogas to be used as cooking fuel and bio-fertilizer production.

Nuclear Energy

- The energy released during a nuclear fission or fusion process is called Nuclear energy.
- Nuclear energy has emerged as a viable alternative source of energy in recent times.
- Uranium and Thorium are the important minerals used for the generation of nuclear energy.
- Uranium deposits occur in the Dharwar rocks and Thorium is mainly obtained from monazite and ilmenite in the beach sands along the coast of Kerala, Tamil Nadu.
- Atomic Energy Commission was established in 1948.
- The important nuclear power projects are Tarapur in Maharashtra, Rawatbhata near Kota in Rajasthan, Kalpakkam in Tamil Nadu, Narora in Uttar Pradesh, Kaiga in Karnataka, and Kakrapara in Gujarat.

Nuclear Energy in Madhya Pradesh

Currently, there is no functional nuclear power plant in Madhya Pradesh. However, there are two nuclear plants are proposed in the state.

Chutka Nuclear Power Plant

- It is located in Mandala District.
- It is situated close to Kanha National Park.
- The project will have an installed capacity of 1400 megawatts.

Bhimpur Nuclear Power Plant

- It is set up in the Shivpuri district of Madhya Pradesh.
- The expected installed capacity of the plant is 2800 Megawatts.

Energy Distribution and Regulation in Madhya Pradesh**Madhya Pradesh State Electricity Board**

- Madhya Pradesh Electricity board was constituted on December 1, 1950, and started functioning in 1952.
- The headquarters of the Board is in Jabalpur.
- After the bifurcation of Madhya Pradesh, for efficient management of electricity the State Electricity Board was reorganized in 2002.
- For the production, transmission, and distribution of electricity in the State three Electricity companies were established under the Companies Act 1956 in July 2002.
- All Electricity companies in Madhya Pradesh becomes autonomous on June 1, 2005.

Madhya Pradesh State Electricity Regulatory Commission

For protecting the rights of consumers, deciding and regulating the electricity rates the commission was established in 1998.

Madhya Pradesh Energy Development Corporation

- The Corporation was established in 1982.
- The headquarter of the corporation is in Bhopal.

SCHEMES RELATED TO ENERGY

- **Deen Dayal Upadhyay Gram Jyoti Yojana (DDUGJY):** Launched in 2015, this scheme tackles rural electrification. It aims to strengthen the power infrastructure in rural areas, ensuring reliable and quality electricity supply to villages across the country.
- **Integrated Power Development Scheme (IPDS):** Introduced in December 2014, this scheme focuses on improving urban electricity infrastructure. It targets scheduled urban areas with populations exceeding 5,000 people. By upgrading sub-transmission and distribution networks, IPDS aims to minimize power losses and enhance the overall efficiency of urban power delivery.
- **UDAY (Ujjwal Discom Assurance Yojana):** Announced in 2015, UDAY aims for the financial revival of power distribution companies (DISCOMs). These companies play a crucial role in distributing electricity to consumers. UDAY seeks to improve their operational efficiency, reduce their debt burden, and ultimately ensure a more sustainable power distribution system.
- **Atal Grah Jyoti Yojna (AGJY):** Launched in August 2019, AGJY provides subsidized electricity to economically disadvantaged households identified under the Saubhagya Yojana (earlier known as Sambal Yojana). These beneficiaries pay only Rs. 100 for consuming up to 100 units of electricity, making it more affordable for low-income families to access electricity.
- **Atal Kisan Jyoti Yojna (AKJY):** Introduced in 2019, AKJY offers financial relief to farmers by providing them with a fixed annual charge for using irrigation pumps of specific horsepower. This scheme aims to reduce the financial burden on farmers associated with electricity consumption for irrigation purposes.
- **Samadhan Yojana:** Launched in response to the economic challenges posed by the COVID-19 pandemic, this scheme addresses the issue of unpaid electricity bills for low-income households. It provides a framework for resolving these outstanding bills and ensuring continued access to electricity for vulnerable communities.
- **PM-KUSUM (Mukhya Mantri Solar Pump Yojana):** This initiative incentivizes farmers to adopt solar-powered irrigation pumps. By providing subsidies for installation, PM-KUSUM aims to promote clean energy and reduce dependence on traditional grid-based electricity for irrigation.
- **Energy Literacy Mission:** Launched in November 2021, this campaign focuses on spreading awareness about climate change and global warming. By educating the public about these critical issues, the mission aims to foster a culture of energy conservation and responsible energy consumption in India.

7. Major Industries, Small and Cottage Industries.

Industrial Development of Madhya Pradesh

Madhya Pradesh, the second largest Indian state, is endowed with rich natural resources, salubrious climate and fertile agro-climatic conditions. In the recent years, Indian economy has changed substantially. Market forces have begun to dictate investment flows across the industrial sectors. Accelerating investments in industrial development for economic growth is one of the major focus areas for Madhya Pradesh.

Salient Highlights of Industrial Development of Madhya Pradesh:-

- Today, Madhya Pradesh is one of the fastest growing states in India, backed by an impressive annual growth rate of 11.98% during 2011-12. The state has recorded an impressive growth in GSDP averaging over 9% during the last decade of stable governance, supplemented by creation of a robust support infrastructure in terms of roads, water supply, irrigation capacity and a year round 24×7 power supply.
- Between 2004-05 and 2015-16, Gross State Domestic Product (GSDP) expanded at a Compound Annual Growth Rate (CAGR) of 11.84 per cent to US\$ 86.32 billion whereas the Net State Domestic Product (NSDP) expanded at a CAGR of 12.0 per cent to US\$ 77.55 billion.
- In Madhya Pradesh, investors have better options in terms of project location, infrastructure, incentives and other facilities. At present the state has prospective investment proposals of more than US\$ 104 billion under various stages of consideration..
- Having established a strong pedestal for rapid economic development, the people centric transparent policies and hassle-free investment procedures in the state are gradually making Madhya Pradesh a Global Investment Hub. Already, domestic and global multinational firms including TEVA, TCS, Infosys, John Deere, Bridgestone, Reliance, Cummins, Volvo, Novartis, P&G, AkzoNobel, and Essar have made investment in the state.
- The abundant manpower of the state has been developed into a skilled technical workforce, with the presence of world class institutes like IIM, IIT, AIIMS, Engineering colleges and several ITIs.
- The state is leading in textile manufacturing, automobiles, food processing, soya processing, engineering and agriculture equipment manufacturing.
- The state is rich in natural resources, fuels, minerals, agriculture and biodiversity. It is aggressively emerging as a solar power hub, and is targeting generation of 2,650 MW of solar power by 2017. Upcoming theme based SEZs near Jabalpur, industry parks in Indore and food parks at multiple locations aim to promote sectoral growth.
- Industry in Madhya Pradesh is largely natural resources driven. It has abundant natural wealth in the form of limestone, coal, oilseeds, pulses, bauxite, iron ore, diamond, copper ore, manganese ore, rock sulphate, silica, soya, cotton and so on. The state has a strong industrial base in sectors like Textile, cement, steel, food processing, automobile and auto components, pharma and optical fibre. Madhya Pradesh is rich in resources to attract investment in the state
- The state has excellent infrastructure, with 19 industrial development parks, 129 industrial areas, six food parks, eight integrated development centres, three dry parks, one stone park, one IT park, one SEZ and an apparel park at Indore. A gems and jewellery park is being developed in Indore to promote the diamond industry in the state.
- Madhya Pradesh State Industrial Development Corporation Limited (MPSIDC) is the nodal agency for industrial growth in the state. It is the central point to coordinate, activate and ensure implementation of mega infrastructure projects. MPSIDC has identified 19 industrial growth centres to attract medium and large industries and non-resident Indians (NRIs) to the state, and provide various facilities and concessions to them.

Advantage Madhya Pradesh:-

The government of Madhya Pradesh recognizes the need for faster economic development in the state with a strategy for encouraging investment and achieving higher levels of economic development.

- **Strong economy** : One of the fastest growing states in India backed by an impressive CAGR of 5% during the period 2006-12
- **Robust industrial infrastructure** : 231 Notified industrial Areas, 19 growth centres, 4 notified Special Economic Zones (SEZs) and 12 product specific industrial parks to facilitate industrial investments.
- **Strategic location** : Located at the centre of India, within the close proximity of all major markets and tier-one cities across the country.
- **Stable government and peaceful work environment** : The government of Madhya Pradesh has introduced several investor-friendly policies and created single window secretariat, MPTRIFAC for smooth facilitation of investment process in the state.
- **Excellent connectivity** : A robust road network-99403 km, making it an ideal destination as centralized manufacturing and distribution hub.
- **Large land parcels for industrial use** : Over 16,000 hectares of land for industrial use at various strategic locations across the state.
- **Strong consumer base**: With population of over 70 million, the state has decadal urbanisation growth rate of 26% with bigger cities growing as high as 40%.

Rich Natural Resources:-

- Madhya Pradesh has 11 different agro-climatic zones.
- Rich mineral wealth of iron ore, diamonds, copper ore, manganese ore, bauxite, limestone, coal and marble, granite.
- 12% of India's forests are in Madhya Pradesh.
- Scarce fuel resources such as coal and coal-bed methane are available in plenty.
- 14% of India's coal reserves are in Madhya Pradesh.
- Asia's thickest coal seam is located in the district of Sidhi.
- Madhya Pradesh has operational diamond mines in India.
- 144 BCM of coal bed methane reserves have been identified.
- Prospecting for blocks available for captive mining for power, cement, iron and steel units.
- Large reserves of limestone, which is the basic construction raw material.
- Manganese and dolomite, key ingredients to iron and steel are found here.
- Exotic varieties of dimensional stones i.e., marble, granite and flagstone are available.

Agri Bounty:-

- Largest producer of oilseeds in the country at 23.92% of the total output.
- The state is in first position by producing 25% of pulses and 40% of Grams of total Production of the country.
- Commercially favoured varieties of wheat and potato grown.
- Largest producer of garlic and coriander.
- Massive wastelands and government farms measuring from 50 to 3000 acres ready to be offered for investment.
- Government of Madhya Pradesh has prepared a policy for allotment of Non Forest Waste Land for the investors.
- Contract Farming is allowed.

Rich Biodiversity:-

- 30% of state under forest cover.
- 11 of 25 Global Agro-climatic Zones in the state.
- A largely unexploited species of rare, valuable medicinal-herbal plants.

Skilled Manpower & Education Centre:-

About 90,390 technical graduates and an overall figure of 2,70,000 graduates add to the workforce each year. IIT at Gwalior and Jabalpur, National Law Institute University and National Judicial Academy, Indian Institute of Forest Management (IIFM) at Bhopal, Indian Institute of Management (IIM) and Indian Institute of Technology (IIT) at Indore and a large number of such national level and renowned state level educational centre are located in Madhya Pradesh.

Cluster based development at 6 key places:-

- Indore : Pharma, Textile, Food Processing, IT and Auto Components.

- Bhopal : Engineering, Textile, Biotech, Herbal, IT and Food Processing.
- Jabalpur : Garments, Mineral, Stone, Forest, Herbal and Food Processing.
- Gwalior : Electronics, IT, FMCG, Engineering, Stone and Food Processing.
- Rewa : Minerals, Cement, Agro and Forest Produces.
- Sagar : Mineral Processing and Stone.

Industry Facilitation:-

Madhya Pradesh is fast emerging as new destination for industries with following facilitation:-

- Creation of Industry – friendly administration and an incisive industrial promotion policy.
- The state provides a facilitative environment for the development of small, medium and cottage enterprises.
- It has Special Economic Zones.
- Ensures reliable power to the industries.
- Air connectivity with major industrial towns available.
- Special package of incentives for Mega Investment Projects, with investment above Rs. 25 Crores.
- Assistance for setting up of Industrial Parks.
- Concessions for Tourism Projects.
- Single table clearance for mega projects through project clearance Implementation Board (PCIB). Projects worth approx. Rs. 2,64,129 Crores facilitated.

Established Institutional Mechanism:-

- MPTRIFAC is the Single Window Secretariat for investment facilitation
- District Level Investment Promotion Empowered Committee- headed by District Collector
- State Level investment promotion Empowered Committee- headed by Industries Minister
- Apex Level Investment Promotion Empowered Committee- headed by Hon'ble Chief Minister.

The following are some of the major initiatives taken by the government to promote Madhya Pradesh as an investment destination:

- Under Prime Minister Graamin Sadak Yojana, during 2016-17, construction of more than 2,000 km of roads has been targeted by the state government. For the development of various roads in the state, allocation of US\$ 1.12 billion has been proposed by the state government
- Work on construction of IT parks in 4 major regions of the state, including Indore, Gwalior, Bhopal and Jabalpur, is expected to be initiated during 2016-17. Moreover, electronic manufacturing clusters are also being established in Jabalpur and Bhopal. For these new establishments, Government of Madhya Pradesh allocated an amount of US\$ 7.94 million as per the Budget 2016-17.
- For a structured growth, the government has divided the state into six clusters – Indore, Bhopal, Jabalpur, Gwalior, Rewa and Sagar.
- MPSIDC has undertaken a US\$ 13.3 million project to bring water from Narmada River to Dewas under the BOT scheme. The project would likely resolve the water problems of 460 industries and facilitate further industrialisation of the Dewas industrial belt.
- The state is developing two SEZs at Hargarh and Umariya- Dungariya. Once operational, the Hargarh SEZ will provide infrastructure support to mineral-based industries, while Umariya-Dungariya will cater to the agriculture and food processing industries.
- The state government has announced plans to upgrade existing apparel clusters at Indore and Jabalpur. The state government has established a textile park in Chhindwara.
- Indore has been identified for infrastructure development under the Textiles Centre Infrastructure Development Scheme (TCIDS). Indore is a cluster of the readymade garments industry with over 1,260 garment units.
- To attract investment into the textile sector, the government has provided an interest subsidy for five years at the rate of five per cent for textile projects and seven per cent for composite textile projects. Furthermore, the government provided 100% assistance in plant and machinery for eight years under Industrial Investment Promotion Assistance Scheme.

Micro, Small and Medium Enterprises (MSME)

- Micro, Small and Medium Enterprises (MSMEs) are known to be engines of economic growth and promote equitable development. To strengthen these, the Department of Micro, Small and Medium Enterprises (MSME) was formed on April 5, 2016. Helps MSMEs to promote socio-economic development and employment opportunities.
- By promoting rural entrepreneurship the department boosts the rural economy and thus empowers the rural people in general and rural women in particular.

- Department and 37 by DIPIP (Department of Industry Policy and Investment Promotion).
- 4 IT SEZs in Indore (one Textile Park (Apparel Park) and Gems and Jewellery Park are proposed in Indore to increase the diamond sector.
- Medical Device Park has been established in Vikram Udyogpuri area of Ujjain.
- Readymade Garment Complex approved in Indore.
- Four investment corridors in the state 1. Bhopal-Indore 2. Bhopal-Bina 3. Jabalpur-Katni-Satna-Singrauli 4. Morena-Gwalior-Shivpuri-Guna.
- Aircargo terminal started at Bhopal airport from January 2023.
- Madhya Pradesh Responsible Tourism Mission was started to make tourism more responsible and sustainable.

Micro, Small and Medium Enterprises Classification 2020	
Size of the Enterprise	Investment and Annual Turnover
Micro	<ul style="list-style-type: none"> • Investment less than Rs. 1 crore • Turnover less than Rs. 5 crore
Small	<ul style="list-style-type: none"> • Investment less than Rs. 10 crore • Turnover up to Rs. 50 crore
Medium	<ul style="list-style-type: none"> • Investment less than Rs. 20 crore • Turnover up to Rs. 100 crore

Schemes related to MSMEs –

- Chief Minister Udyam Krati Yojana (2022) – Providing loans without guarantee to educated youth.
- Chief Minister Yuva Udyami Yojana (2014) – To provide loans to all sections of the society for their own industries.
- Chief Minister Self-Employment Scheme (2014) – To provide loans to all sections of the society for their own industries.
- Chief Minister Economic Welfare Scheme (2017)- Loan of Rs 50,000 for backward class youth for their own industry
- Mukhyamantri Krishak Udyami Yojana (2018) – To provide loans to the children of farmers to set up new industries.

Madhya Pradesh's efforts related to MSME

1. Madhya Pradesh Startup Policy 2022
2. Self-reliant Madhya Pradesh Roadmap 2023
3. Madhya Pradesh Chief Minister Udyamkranti Yojana 2022
4. Renewable Energy Policy 2022
5. Ethanol and Biofuel Production Plan 2021
6. Industrial Promotion Policy 2021
7. One District One Product Scheme

Facts

- The assessment of states for the Business Reform Action Plan 2020 was released in June 2022, in which Madhya Pradesh has been classified as an achiever.
- The manufacturing sector has the highest contribution in the secondary sector in the year 2022-23 (42.69°).
- An increase of 13.27° has been observed in the number of factories in the last decade.
- There are 231 industrial areas in Madhya Pradesh which include 194 by MSME

INDUSTRIAL DEVELOPMENT IN MP

- The share of the secondary sector in the economy of Madhya Pradesh is expected to increase by 5.42% in the year 2022-23.
- Madhya Pradesh's economy is agriculture-oriented and needs industrialization to achieve higher levels of development.
- The government of M.P. launched Industry Promotion Policy 2021 to create an effective and sustaining investment climate in the state.
- State Industrial Land Bank Portal, a GIS system for displaying the availability of land and infrastructure, was developed to improve the ease of doing business.
- To ensure regional balance, Madhya Pradesh Government is developing Bhopal, Gwalior, Indore, Jabalpur and Rewa as growth centers in the state.

Sectorwise First Industries of Madhya Pradesh

Industry	Place	Year
Sugar Mill	Jaora (Ratlam)	1934
Cotton Mill	Burhanpur	1906
Cement Plant	Banmore (Morena)	1922
Paper Mill	Nepanagar (Burhanpur)	1948

- To Promote The industrial development in Madhya Pradesh, State government formulated the Industrial Promotion Policy 2004 which has been amended in 2007. To make the policy more comprehensive and

Name	Location	Established Year	Remark
Banmore Factory	Morena	1922	<ul style="list-style-type: none"> ○ It manufactured Portland Cement. ○ It was set up by Associate Cement Limited.
Kaimur Factory	Katni	1923	<ul style="list-style-type: none"> ○ It was set up by Associate Cement Limited ○ It Produces Portland, Asbestos & Cement sheets
Satna Cement Factory	Satna	1959	<ul style="list-style-type: none"> ○ It is a Portland cement manufacturing plant, ○ The plant was established by Birla Jute Manufacturing Company
Neemuch Factory	Mandsaur	1980-81	<ul style="list-style-type: none"> ○ The plant manufactures Portland cement.
Maihar Factory	Satna	1980-81	<ul style="list-style-type: none"> ○ Portland cement is manufactured

inclusive new Industrial Policy was Introduced in 2010

- The status of a Backward state in Industrial Development has improved in recent years. As per the Ease of Doing business report published by the World Bank and DIPP 2019 MP Stands in 4th Position.

Mineral Based Industries

- Madhya Pradesh is a rich state when it comes to Mineral resources in Madhya Pradesh.
- According to the economic survey of Madhya Pradesh, State has the first rank in the production of diamond and Manganese, and it ranks second in the production of limestone and rock phosphate. Madhya Pradesh is in the third position in the production of coal.
- Madhya Pradesh has adequate reserves of Coal, Gypsum, Limestone, China Clay, etc.

Cement Industry

- Major raw material for cement Industries is Limestone.
- Madhya Pradesh is one of the major limestone-producing states of the country. Madhya Pradesh stands in the second position in limestone production after Andhra Pradesh.
- Limestone in the state is found in Gwalior, Narsinghpur, Sidhi, Satna, Rewa, Damoh, Katni, Sagar, Panna, Morena, and Neemuch districts.
- Cement is majorly used in Building and Construction work.
- Important Industries of Cement are mentioned in the table below

China Clay Industry

- China clay deposits are found in Rewa, Gwalior, Betul, Chhatarpur, Chhindwara, Jabalpur, Satna, Shahdol, and Sidhi districts enable Madhya Pradesh's China Clay Industries..
- Major China clay factories are located in Gwalior, Jabalpur, and Ratlam districts of Madhya Pradesh.

Fire Clay Industry

- Fire clay is used in refractory and ceramic industries.
- It is found in the Jabalpur, Katni, Sidhi, Shahdol, and Gwalior districts.
- Important Fire clay manufacturing industries are located in Jabalpur and Katni.

Fertilizer Industry

- Rock Phosphate is found in the Jhabua district of Madhya Pradesh.
- Major Fertilizer industry in Madhya Pradesh is located in Dharampuri (Indore) and Vijaypura (Guna).

Diamond Industry

- Madhya Pradesh has the unique distinction of being the only diamond-producing state in the Country.
- National Mineral Development Corporation Limited is operating a diamond mine in Majhgawan, Panna
- Vijay Kumar International in Pitampur (Dhar) established the Diamond Cutting and polishing plant

Heavy Electric Appliances Industry

- Major Heavy electronics industries in Madhya Pradesh is,

Industry	Established Year	Location	Remarks
Heavy Electronic Appliances Industry	1956	Bhopal	It was established with the help of Britain
Bharat Heavy Electronics Limited (BHEL)	1964	Bhopal	It produces Transformers, Capacitors, Industrial motors, etc. It got Maharatna Status in 1st February 2013 .

Agro-based Industries in Madhya Pradesh

- Madhya Pradesh produces a large number of food grains and commercial crops which are dash the raw material for the agro-based industries in Madhya Pradesh.
- Agro-based industries are labor-intensive industries that provide large-scale employment.
- The state is one of the biggest producers of many horticulture crops and offers attractive opportunities for food processing industries.
- The state also offers opportunities in textile manufacturing, food processing, agriculture equipment manufacturing, etc.

Sugar Industry

- The major raw material for the Sugar industry in Madhya Pradesh is Sugarcane.
- Sugarcane is weight losing crop and thus becomes an important factor in deciding the location of the sugar industry.
- Highest Sugarcane producing districts in Madhya Pradesh are- Narsinghpur, Chhindwara, Burhanpur, Betul, and Datiya.
- As major sugarcane-producing areas lie in the western part of the state, thus the majority of sugar mills are located in western Madhya Pradesh.
- The first sugar mill in Madhya Pradesh was established at Jaora in Ratlam.
- The biggest sugar mill is located at Barlai in Sehore. Other important Sugar Mills are- Dabra sugar mill Gwalior, Jeevaaji Rao sugar Corporation Mandsaur, and Seth Govind Das sugar mill Ujjain. In Madhya Pradesh total of 27 sugar mills are functional.

Rice, Pulses, and Straw Board Mill

Industry	Locations
Rice	Bhopal, Jabalpur, Rewa
Pulses	Ujjain, Indore, Sagar,
Straw board Mills	Shajapur

Hydrogenated Oil Industry

- Edible oils are extracted from Oilseeds in Madhya Pradesh.
- Madhya Pradesh stands at the first rank in the country in the production of oilseeds. It produces approximately 27% of the total oilseed production of the country, which provides a strong base for Hydrogenated oil Industries in Madhya Pradesh.
- Major oil-producing industries are located in the regions of the Chambal Valley area, Malwa Plateau, Central Narmada Valley, and Betul-Chhindwara Plateau.
- Important oil mills of the state are in GanjBasoda (Vidisha), Morena, Gwalior, Khandwa, Indore, and Jabalpur.

Cotton Textile Industry

- Cotton is not a weight-losing crop and it is a market-oriented crop. Thus major cotton Mills are located near the urban center and Important Transport lanes
- First cotton mill in Madhya Pradesh was established in 1906 at Burhanpur.
- Madhya Pradesh ranked 3rd in the production of cotton threads, and host more than 500 big and small mills.
- The largest center of production of cotton textiles in the state is Indore. Gwalior, Ujjain, Pithampur, Bhopal, Khargone, Dhar, Burhanpur, Dewas, Khandwa, and Chhindwara are other important manufacturing centers.
- To boost the production of Textiles in the state Readymade Complex was established in Indore and Agro-textile park in the Chhindwara district.
- Further to boost the textile sector, the state government facilitates 100% FDI in textile parks.

Silk Textile or Artificial Thread Industry

- According to the Economic Survey of Madhya Pradesh, Currently 44 districts of the state are associated with Silk Production.
- Production of silk in the year 2020-21 is mentioned below

Type of silk	Production
Mulberry	3.21 lakh Kg
Tussar	52.48 lakh units

- Indore, Gwalior, Nagda (Ujjain), and Dewas are the important artificial thread cloth producing centers in Madhya Pradesh.
- Grasim mill of Nagda in Ujjain District is the biggest mill of artificial thread in the state.

Handloom Industry

- This industry produces traditional and artistic clothes and provides employment opportunities to weavers.
- Currently 13.66 thousand Weavers are employed in this sector.
- Sehore, Khargone, Neemuch, Balaghat, Sidhi, and Mandala districts are the important handloom centers of the state
- The Directorate of Handloom was established in Madhya Pradesh in 1976.
- Sant Ravidas Madhya Pradesh Hastashilp and Handloom Corporation established in 1981, plays important role in the development of Handloom industries..
- To promote the handloom sector, the State Government has announced many schemes such as 'Kabeer Bunkar Puraskar Yojana', Unified Cluster development Program, Skill and technical development Scheme, etc.

Miscellaneous Agro-based Industries

Industry	Location
Vegetable and Fruit Processing Unit	Bhopal
Bio-Fertilizer Plant	Bhopal
Granular Mixed Fertilizer Plant	Hoshangabad
Pesticides Plant	Bina

Forest-based Industries in Madhya Pradesh

- Madhya Pradesh owns the largest area under forest cover in India. Forest provides a vast variety of Major Forest Produce such as timber and Minor Forest Produce Like Beedi Leaf, Khair, Lakh, etc.
- Major industries based on forest Produce are-

Paper Industry

- Madhya Pradesh is known for the availability of a large variety of Bamboo and Eucalyptus, both are the excellent raw material for Paper Industry.
- Major paper producing industries in Madhya Pradesh are mentioned in the table below,

Name	Location	Year	Remark
National News Print & Paper Mill	Nepanagar (Burhanpur)	1948-49	<ul style="list-style-type: none"> ○ It is a PSU which started production since 1956-57. ○ Chandni Power Plant supplied electricity to Plant.
Security Paper Mill	Hoshangabad	1967-68	<ul style="list-style-type: none"> ○ It is also a PSU under the Ministry of Finance. ○ Currency papers are manufactured here
Bank Note Press	Dewas	1974	<ul style="list-style-type: none"> ○ High Denomination Currency Notes are printed here.

- Madhya Pradesh also has some privately owned Paper Industries, such as Orient Paper Mill established at Arnlai near Shahdol district. Other paper mills in states are in Anuppur, Bhopal, Ratlam, Gwalior, etc.
- Location of the Paper plant depends upon the availability of wood, Water availability, and Power supply. It is capital intensive and Market driven Industry that requires a skilled labor force.

Beedi Industry

- Madhya Pradesh is the leading state in terms of production and procurement of tendu leaves in the country. Tendu leaves are obtained from the forests as minor forest produce which is then used in the beedi industry.
- Beedi Rolling is a home-based activity in M.P.
- Jabalpur is the biggest Beedi manufacturing center, along with it Satna, Damoh, Katni, Sagar, and Chhatarpur also have Beedi Producing units.
- More than 260 units of beedi industries have been set up in Madhya Pradesh.

Timber, Khair, Lakh, Chip Board, and Matchbox Industries in Madhya Pradesh

Industry	Location	Remark
Timber	Chhindwara, Mandala Jabalpur	<ul style="list-style-type: none"> ○ Wood of Sal and Teak are the Major raw material. ○ Jabalpur is a major Timber furniture manufacturer.
Khair	Banmore (Morena), Shivpuri	It is extracted from tree wood. It is majorly produced by the Khairwar tribe.
Lakh	Umariya	It is also extracted from trees.
Chip & Particle Board	Itarsi	
Match Box	Gwalior	

Other Important Industries in Madhya Pradesh

Chemical Industry

Industry	Location	Remark
Chemicals, Pesticides	Ujjain, Pithampur, Mandideep, Raisen, Sehore, Ratlam, etc	
Fertilizer	Vijaypur (Guna) Jabalpur, Jhabua	<ul style="list-style-type: none"> ○ National Fertilizer Guna was established with the help of USA and Italy

- Since 2015, Fertilizer plants started in Jabalpur and Jhabua

Vehicle Industries

Location	Remark
Pithampur (Dhar)	Pithampur is called the Detroit of India. Large-scale manufacturing of scooters, cars, and light vehicles
Jabalpur	Military vehicle producing unit
Indore	Diesel Fuel Plant
Sehore	Diesel Locomotive plant
Bhopal	Railway Wagon Workshop

Electronics, Pharmaceutical and Petro-Chemical Plants

Industry	Location
Electronics	<ul style="list-style-type: none"> ○ Television Industry at Bhopal and Pithampur ○ Television parts manufactured in Malanpur (Bhind) ○ Photocopier Machines manufactured in Indore.
Pharmaceutical	Bhopal, Indore, Chhindwara, Dewas, Dhar, Jabalpur, etc
Petro-chemical	Bhopal, Mandala, Pithampur(Dhar), Sehore, and Jabalpur

Special Economic Zone

- SEZs are developed as foreign territories which are free from local laws and improve export trade for the Country.
- Pithampur in Dhar is the state's First Special Economic Zone.
- Madhya Pradesh has set up 10 SEZs. Important SEZs are mentioned in the table below,

SEZ	Development Agency	Location
Multi-Product SEZ	Industrial Centre Development Authority, Indore	Dhaar
Crystal IT SEZ	Industrial Centre Development Authority, Indore	Indore
Multi-Product SEZ, Gwalior	Industrial Centre Development Authority, Gwalior	Gwalior
IT/ITE SEZ	Medicaps Limited, Indore	Indore
IT SEZ	Parasnath Development Limited New Delhi	Indore
Aluminum products based SEZ	Hindalco Industries	Singrauli
Mining & Agriculture based SEZ	Madhya Pradesh Audyogik Vikas Kendra	Jabalpur

Main Industrial Complex in Madhya Pradesh

Complex	Location
Electronics Complex	Indore
Stainless steel Complex	Sagar
Leather Complex	Dewas
Readymade Complex	Indore
Textile Complex	Chhindwara
Pharma Park	Dhar (Betma)
Plastic Park	Raisen (Tamot)

Industrial centers of Madhya Pradesh approved under the scheme of Central Government

Industrial Area	Districts
Pitampur	Dhar
Puraina	Panna
Malanpur	Bhind

Meghnagar	Jhabua
Maneri	Mandala
Pilukhedi	Rajgarh

List of Industries and their Location

Industry	City
Dry battery	Bhopal
Insecticides	Bhopal
Graphite electrode	Bhopal
Glue and Gelatin	Bhopal, Jabalpur
Particles sensor board unit	Bhopal, Itarsi
Tungsten filament wire	Bhopal
Plastic	Indore
Artificial and Silk fabric	Indore
Fine Paper Industry	Indore
Drugs and Pharmaceutical	Indore, Ratlam
Mined Steel and GI wire	Indore, Ratlam
Gun Carriage factory	Jabalpur
Transmission Hover	Jabalpur
Diamond Refining Centre	Jabalpur
Vikram Firearm Factory	Jabalpur
Leather Industry	Dewas
Electrical Pump	Dewas
Mini Steel Plants	Dewas, Indore,
Textile Machinery	Gwalior
Biscuit Industry	Gwalior
Moped Unit	Gwalior
Synthetic Yarn	Nagda (Ujjain)
Optical Fibre Industry	Mandideep (Raisen)
Caustic Soda	Amlai, Neapanagar,
Umbrella Industry	Mhow
Watch Industry	Betul
Nail and Wire industry	Vidisha
Sulphuric Acid factory	Nagda, Kumhari
Powerloom Industry	Burhanpur
Fertilizer Factory	Vijaypur (Guna)
Railway Sleeper Coach	Budhni (Sehore)
Lakh Manufacturing	Umriya
Jhut mill	Rajgarh
Alkaloid factory	Neemuch
Alcohol Plant	Ratlam

8. Population Growth, Distribution and Density, Urbanisation

- The total population of Madhya Pradesh is **7,26,26,809** (Seven Crores Twenty-Six Lakhs Twenty-Six Thousand Eight Hundred Nine).
- Madhya Pradesh consists of 5.99% of the total population of the Country.
- Madhya Pradesh stood 5th in position in terms of population of states, the other four are Uttar Pradesh, Maharashtra, West Bengal, and Bihar.
- Most Populated Districts of Madhya Pradesh are

1	Indore	32,76,697
2	Jabalpur	24,63,289
3	Sagar	23,78,458
4	Bhopal	23,71,061
5	Rewa	23,65,106

- Lowest Populated Districts are-

S.N.	Districts	Population
1	Niwari	4,01,000
2	Agar Malwa	4,80,000
3	Harda	5,70,465
4	Umaria	6,44,758
5	Sheopur	6,87,861

S.N.	Districts	Population
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The Table below consists of important statistics related to the Population of Madhya Pradesh.

Parameter	Numbers
Population	7,26,26,809
Male Population	3,76,12,306, That is 51.70% of the state's population
Female Population	3,50,14,503, That is 48.30% of the state's population
Rural	5,25,57,404, That is 72.40% of the state's population
Urban	2,00,69,405, That is 27.60% of the state's population
Sex Ratio	931:1000
Population Density	236
Population Growth rate	20.3%
Schedule Castes	1,13,42,320, That is 15.60% of the state's population
Schedule Tribes	1,53,16,784, That is 21.10% of the state's population

SEX-RATIO IN MADHYA PRADESH

- Sex ratio is defined as the number of females per thousand males. According to the census-2011, the **sex ratio of Madhya Pradesh is 931**, which is lower than the Sex Ratio in India which is **943** although it has increased by 12 as compared to the last decade(919).

S.N.	Districts	Sex Ratio
1	Balaghat	1021
2	Alirajpur	1011
3	Mandala	1006
4	Dindori	1002
5	Jhabua	990

- Districts with The Lowest Sex ratio in Madhya Pradesh are mentioned in the table below

S.N.	Districts	Sex Ratio
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1	Bhind	837
2	Morena	840
3	Gwalior	864
4	Datiya	873
5	Shivpuri	877

- Madhya Pradesh ranked 20th in the country in terms of sex ratio.
- Four districts in MP with a sex ratio of more than 1000 are- Balaghat, Alirajpur, Mandla, and Dindori
- Madhya Pradesh's lowest sex ratio was observed in the census of 1991 which was 912.
- Madhya Pradesh's highest sex ratio was observed in the census of 1941 which was 964.
- Post Independence Madhya Pradesh saw improvement in the sex ratio in three

censuses which is 1981 (up by 1), 2001 (up by 7), and 2011 (up by 12)

Madhya Pradesh Population Density

- Population density is defined as the number of persons living per square kilometer area.
- The population density of Madhya Pradesh is 236, which is less than the national average of 382.
- It has increased since the last census of 2001 by 40.
- district with highest population density in Madhya Pradesh

S.N.	Districts	Density
1	Bhopal	855
2	Indore	841
3	Jabalpur	473
4	Gwalior	446
5	Morena	394

- Districts with lowest population density in Madhya Pradesh

S.N.	District	Density
1	Dindori	94
2	Sheopur	104
3	Panna	142
4	Betul/ Raisen	157
5	Umaria	158

- Bhind has the same population density as India i.e. 382

MADHYA PRADESH POPULATION GROWTH RATE

- Population growth rate of the decade of Madhya Pradesh has declined by 4% as compared to the census 2001 and stood at 20.3% in the census 2011.
- Population growth in rural areas is 12.30%.
- Population growth in urban areas is 31.80%
- Districts with the highest population growth rate, the highest population growth rate in Urban and rural areas respectively,

Districts with Highest literacy, Highest Rural, and Urban Literacy, Highest Male and Female Literacy

S.N.	Highest literate Districts	Districts with Highest Rural Literacy	Districts with Highest Urban Literacy	Districts with Highest Male Literacy	Districts with Highest Female Literacy
1	Jabalpur	Balaghat	Seoni	Indore/ Jabalpur	Bhopal
2	Indore	Bhind	Mandala/ Harda	Bhopal/ Balaghat	Jabalpur

S.N.	Districts with Highest Population growth rate	Districts with highest urban population growth rate	Districts with highest rural population growth rate
1	Indore	Raisen	Jhabua
2	Jhabua	Dhar	Singrauli
3	Bhopal	Mandala	Barwani
4	Singrauli	Indore	Burhanpur
5	Barwani	Morena	Bhopal

- Districts with lowest population growth rate, the lowest population growth rate in Urban and rural areas respectively

S.N.	District which lowest population growth rate	Districts which lowest Urban population growth rate	Districts with lowest rural population growth rate
1	Anuppur	Anuppur	Mandsaur
2	Betul	Burhanpur	Narsinghpur
3	Chhindwara	Shahdol	Jabalpur
4	Mandsaur	Chhindwara	Neemuch
5	Balaghat	Panna	Betul

Literacy Rate in Madhya Pradesh

- Any person who can understand, read, and write any language is assumed to be a literate person.
- According to the census- 2011, the rate of literacy in Madhya Pradesh is 69.30% which is less than the national average of 73%.

Parameter	Numbers
Total literate Population in MP	42.85 million
Total Literacy Rate	69.30%
Literacy Rate (Male)	78.70%
Literacy Rate (Female)	59.20%
Rural Literacy Rate	63.90%
Urban Literacy Rate	82.80%
Decadal Change In Literacy Rate	5.6%

3	Bhopal	Narsinghpur	Jabalpur	Mandsaur	Indore
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- Districts with lowest literacy, Highest Rural, and Urban Literacy, Highest Male, and Female Literacy

S.N.	Lowest Literate District	Districts with Lowest Rural Literacy	Districts with Lowest Urban Literacy	Districts with Lowest Male Literacy	Districts with Lowest Female Literacy
1	Alirajpur	Alirajpur	Sheopur	Alirajpur	Alirajpur
2	Jhabua	Jhabua	Tikamgarh	Jhabua	Jhabua
3	Barwani	Barwani	Singrauli	Barwani	Barwani

Urban-Rural Population Distribution in Madhya Pradesh

- In Madhya Pradesh, the majority of the population lives in rural areas (72.40%), which is higher than the national average of 68.80%.
- Total Urban Population of Madhya Pradesh is 27.60% of the total population.
- Districts with the Highest Urban and Rural Population Percentages respectively are mentioned below

S.N.	Districts with Highest Urban Population	Districts with Highest Rural Population
1	Bhopal	Dindori
2	Indore	Alirajpur
3	Gwalior	Sidhi
4	Jabalpur	Jhabua
5	Ujjain	Seoni

- Districts with Lowest Urban and Rural Population percentage respectively are mentioned below,

S.N.	Districts with Lowest Urban Population	Districts with Lowest Rural Population
1	Dindori	Bhopal
2	Alirajpur	Indore
3	Sidhi	Gwalior
4	Jhabua	Jabalpur
5	Seoni	Ujjain

Working Population/ Occupational Structure in Madhya Pradesh

- Working population referred to all those people involved in any economic activity such as agriculture, Trade, wages, etc.
- As per census-2011, 43.5% population of the state is considered as a working population which is more than the national average of 39.8%.
- In Madhya Pradesh, the working participation rate in rural areas is more than in Urban areas.
- Male working population rate is more than the female working population rate.
- The Maximum population is engaged in the primary sector followed by the tertiary sector and secondary sector.
- 70% of the population is engaged in agriculture and allied activities. The Maximum numbers of farmers are in Rewa district and the Minimum number of farmers is in Alirajpur district.
- Highest work Participation rate is in Dindori.
- Lowest work Participation rate is in Bhind.

Schedule Caste Population in Madhya Pradesh

- As per the census- 2011, the scheduled caste population in Madhya Pradesh is 1,13,42,320 is 15.60% of the total population of the state.
- Among all the states and union territories of the country, Madhya Pradesh is 8th in terms of scheduled caste population while

it is 17th in terms of percentage of scheduled caste.

- The literacy rate in the Scheduled caste is 66.20%
- The sex ratio in the scheduled caste is 920.
- Districts with highest scheduled caste population,

S.N.	Districts	Population
1	Indore	545239
2	Ujjain	523869
3	Sagar	501630
4	Morena	421519
5	Chhatarpur	405313

- Districts with highest scheduled caste population percentage,

S.N.	Districts	Population Percentage
1	Ujjain	26.4
2	Datiya	25.5
3	Tikamgarh	25
4	Shajapur	23.4
5	Chhatarpur	23

- Districts with the lowest scheduled caste population

S.N.	Districts	Population
1	Jhabua	17427
2	Alirajpur	26877
3	Dindori	39782
4	Chhindwara	48425
5	Umriya	58147

- Districts with lowest scheduled caste population percentage

S.N.	Districts	Percentage
1	Jhabua	1.7
2	Alirajpur	3.7
3	Mandla	4.6
4	Dindori	5.6
5	Badwani	6.3

- Districts with Highest decadal growth of scheduled caste population

S.N.	Districts	Percentage of Decade growth
1	Umaria	65.5
2	Anuppur	53.8
3	Indore	40.4
4	Bhopal	38.5
5	Shahdol	32.9

Scheduled Tribe Population in Madhya Pradesh

- As per the census- 2011, the scheduled tribe population in Madhya Pradesh is 1,53,16,784 which is 21.1% of the total population of the state.

- Madhya Pradesh has the highest tribal population and the highest number of types of tribes in the country
- Among all the tribes Bhil is the largest type in MP followed by Gond.
- Decadal population growth rate of the scheduled tribe is 25.2%.
- The literacy rate in the scheduled tribe is 50.6%, Pardhan tribe is believed to be the most literate tribe.
- Sex ratio in the scheduled tribe is 975 females per thousand males.
- Districts with the highest Scheduled tribe population

S.N.	Districts	Population
1	Dhar	1222814
2	Barwani	962145
3	Jhabua	891818
4	Chhindwara	769778
5	Betul	730169

- District with the highest scheduled caste population percentage

S.N.	Districts	Percentage
1	Alirajpur	89
2	Jhabua	67
3	Barwani	69.4
4	Dindori	64.7
5	Mandala	57.9

- District with the lowest Scheduled tribe population

S.N.	Districts	Population
1	Bhind	6131
2	Datiya	15061
3	Morena	17030
4	Mandsaur	33092
5	Shahjahanpur	37836

- Districts with the lowest scheduled tribe population percentage

S.N.	Districts	Percentage
1	Bhind	0.4
2	Morena	0.9
3	Datiya	1.9
4	Ujjain	2.5

Madhya Pradesh Child Population (0-6 Years Old)

- As compared to the last decade the child population is marginally increased by 27,181 in the current decade.

- Madhya Pradesh Child Population amounts to 15% of the total population of the State.
- Madhya Pradesh ranked 4th in child population in the country.
- Population of the male child has increased but the population of female children has declined.

Total Child Population

- Child Population distribution is mentioned in the table below

Category	Total	Rural	Urban
Children	1,08,09,395	83,25,731	24,83,664
Child (Male)	56,36,172	43,29,993	13,06,179
Child (Female)	51,73,223	39,95,738	11,77,485

- Districts with highest child population are mentioned in the table below

S.N.	Districts	Percentage
1	Jhabua	20.7
2	Alirajpur	20.3

- Districts with highest child population are mentioned in the table below

S.N.	Districts	Percentage
1	Jabalpur	12
2	Balaghat	12.5

Child Sex Ratio

- Child Sex Ratio in Madhya Pradesh is 918

- Districts with Highest Child sex Ratio are mentioned in the table below

S.N.	Districts	Sex Ratio
1	Alirajpur	971
2	Dindori	970
3	Mandala	965
4	Balaghat	961
5	Seoni	954

- Districts with lowest Child Sex Ratio are mentioned in the table below,

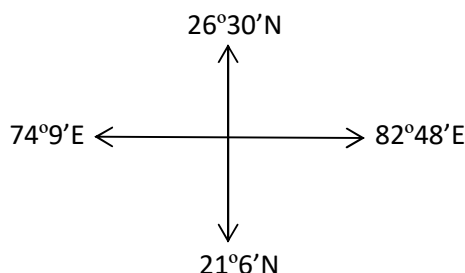
S.N.	Districts	Sex Ratio
1	Morena	825
2	Gwalior	832
3	Bhind	835
4	Datiya	852
5	Rewa	883

9.

Very Short Answers

Que. Name the states which surround the M.P. & state its longitudinal & latitudinal extend. [MPPSC 2016, 30 words]

Ans. Gujrat, Rajasthan, Uttar Pradesh, Maharashtra & Chattisgarh.



Que. What is the total area of MP and number of Districts in MP?

Ans. The Total geographical area of MP is 3,08,252 sq km divided among the 52 districts of the state.

Que. Which geographical features draw the Natural boundries of the State?

Ans. Northern boundary- Chambal river
Southern boundary – Tapi river
Eastern boundary–Hills of Kaimur & Maikal
Western boundary – Aravalis range.

Que. In terms of area what is the position of MP among all states?

Ans. Second largest state of India (9.38% area of the country) after Rajasthan.

Que. Which latitude divides the state into two equal parts?

Ans. Tropic of Cancer (23.5° N) runs parallel to the river Narmada.

Que. Sausar series

Ans.

- It is the part of Dharwar Rock system in MP
- Found in Chhindwara
- Rich in minerals.

Que. Archean Rocks in MP.

Ans.

- Oldest rock system, devoid of fossils.
- Found in Bundelkhand region.
- Gneiss, Granite, Dyke etc. found in it.

Que. Dharwar rocks in MP.

Ans.

- Metamorphic, metalliferous rock system.

- Found in southern MP & Vindhyan range.
- Chipli series (Balaghat), Sausar series (Chhindwara), Bijawar series (Panna) etc are part of this rock system in MP.

Que. Vindhyan rocks in MP.

Ans.

- Rich in deposits of sandstone & Limestone.
- Found in son valley & Chambal valley.
- Bhandar series, Kaimur series, Rewa Series etc are part of this rock system

Que. Gondwana Rock System in MP.

Ans.

- Rich deposits of coal
- Found in Satpura, Narmada valley & Baghelkhand region.
- Locally known as ‘Chaugan’ in Satpura region.

Que. Sakoli Series.

Ans.

- Located in Jabalpur.
- Rich mineral deposits of mica, schist, dolomite and marble are found.

Que. Chilpi Series.

Ans.

- Expanded in Balaghat, Jabalpur and Chhindwara.
- Mineral deposit of quartzite, Greenstone, Manganese etc found.
- Part of Dharwar rock system.

Que. Closepet Series.

Ans.

- Series of Dharwad rock group.
- Found in Balaghat and Chhindwara.
- Mineral deposit of quartzite, copper, manganese etc.
- Malajkhand mine is its part.

Que. Bijawar Series.

Ans.

- Part of Cuddapah rock system.
- Located in Panna and Chhatarpur.
- Rich deposit of sandstone and limestone.

Que. Semri Series.

Ans.

- Part of lower Vindhyan rock system.
- Located in some river valley.

- Folds and faults are extensively found in it.
- Rich deposits of sandstone, limestone & shale.

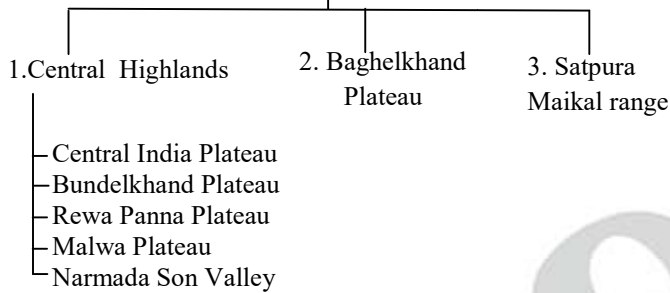
Que. What do you understand by “MP is a landlock state”?

Ans. It means that the boundary of the state neither touches any maritime border nor any international border.

Que. Physical divisions of MP

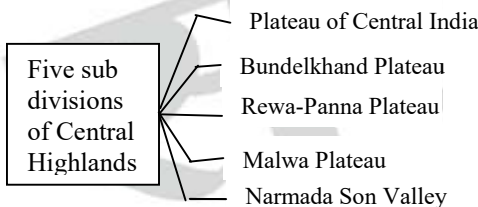
[MPPSC 2017, 300 words]

Ans. Physical division of MP



Que. What are the sub divisions of Central Highlands

Ans.



Que. Satpura Mountain Range.

Ans.

- Location- Runs parallel to the south of Narmada River.
- Divided into three parts-
 - ✓ Mahadev Hills
 - ✓ Maikal Hills
 - ✓ Rajpipla Hills
- Example of Old fold mountains.

Que. Location of Bundelkhand plateau of MP. [MPPSC 2016, 30 words]

Ans.

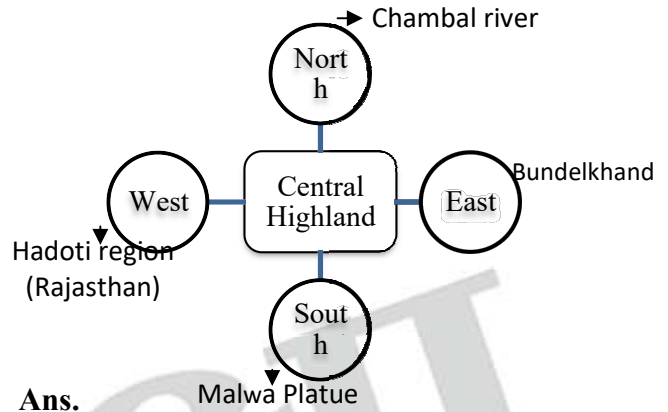
- Lies in North and North eastern part of MP.
- Situated in the north-east of Madhya Pradesh
- Mixed soil is found here.
- It is spread over 7.7 percent area of Madhya Pradesh

Que. Satpura Maikal Range

Ans.

- One of the geomorphic region, consists 11% area of the state.
- Location - South & South-eastern region
- Monsoonal climate.
- Layered black soil; dense forest etc. found here.

Que. Explain the Geographical location of the central highland.



Ans.

Que. Which organization has been formed for the development of Bundelkhand region?

Ans.

- Bundelkhand Development Authority
- Established - 2007
- To remove social and economic backwardness in the districts of Sagar, Tikamgarh, Damoh, Panna and Datia.

Que. Plateau of Central India.

Ans.

- Location - North and North western region.
- 10.7% area of the state.
- Continental type climate
- Alluvial soil, thorny forest etc. found here

Que. Rewa – Panna plateau

Ans.

- Location - North-eastern region
- 10.3% area of the state.
- Monsoonal climate.
- Mixed soil; Bhandar, kaimur hills found here

Que. Geographic characteristics of Baghelkhand plateau.

[MPPSC 2017, 100 words]

Ans.

- Location- Eastern Part of the state (covers 7% area)
- Extended in MP and Chhattisgarh
- Monsoonal type climate, Red-yellow soil.

- Rich in coal deposits. (Bedan, Singraulli)

Que. Malwa plateau

Ans.

- Largest physical division of the state (28.62% area)
- Location - Central Western region (Dhar, Indore, Jhabua, Ujjain etc.)
- Moderate Climate.
- Black soil is found here.

Que. Which are the major industrial areas of Malwa plateau?

Ans.

- Pithampur (Dhar)
- Meghnagar (Jhabua)
- Nepanagar (Burhanpur)
- Nagda (Ujjain)

Que. Narmada-Son valley

Ans.

- Second largest physical division of the state (26% area)
- Location - Stretching from east to west central part of the state.
- Monsoonal Climate.
- Deep black soil and Red soil are found here.

Que. Write the names of the major tourist spot in the Narmada-Sone valley.

Ans. Bhedaghat, Maheshwar, Omkareshwar, Bawangaja, Kapildhara and Dugdhadhara

Que. Write the names of any five peaks of Madhya Pradesh?

Ans. Dhupgarh, Siddha baba, Sigar, Janapav, and Dhajari

Que. Write the major rivers flowing in the Malwa plateau.

Ans. Chambal, Kali Sindh, Mahi, Parvati, Sonar, Barna, Kshipra, Gambhir

Que. Write the names of the major rivers flowing in the plateau of Central India.

Ans. Chambal, Sindh, Kunwari, Parvati and Kuno

Que. Write the names of the 5 hills of Bhopal?

Ans.

- Arera Hills.
- Shyamala Hills.
- Idgah Hills.
- Katara Hills.
- Neore Hills

Que. Sigar Peak

Ans.

- Highest peak of Malwa plateau

- Located in Mhow (Indore), part of Vindhyan range

- 881 meter high.

Que. Chauragarh peak

Ans.

- Second highest peak of Mahadeo Range
- 1326 m high
- Located in Pachmari (Hoshangabad).

Que. Kaimur series

Ans.

- Eastern part of Vindhyachal Hills.
- Acts as water divide between Yamuna and Son river basins.

Que. Peaks of Malwa

Ans.

- Sigar Peak- 885 m
- Janapav - 854 m
- Dhajiri – 810 m.

Que. Write the names of the major rivers flowing in the Rewa-Panna plateau.

Ans. Ken, Tons, Rugged, Dhasan, Sonar, Keoti

Que. Largest geographical division of Madhya Pradesh.

Ans. Malwa plateau (28.6% area of the state)

Que. In which districts of Madhya Pradesh has the Narmada-Sone valley expanded?

Ans. Jabalpur, Narsinghpur, Mandla, Hoshangabad, Harda, Raisen, Dewas, Khandwa, Khargone, Barwani.

Que. What is the highest peak of Satpura hill?

Ans.

- **Dhoopgarh** (1350 m.)
- Situated in Mahadeo range.
- Famous hill station Pachmarhi (Hoshangabad)

Que. Burhanpur Pass

Ans.

- Burhanpur Pass is also known as Gateway to South India.
- It is the western part of Satpura range.

Que. Vindhyan Mountain Range.

Ans.

- One of the world's oldest mountain (Residual Mountains)
- Location in M.P. - Run parallel to the north of Narmada valley.
- Made up of red sandstone and quartz.

Que. Vindhyachal mountain range comprises of which hills?

Ans.

- Vindhyanal Hills
- Kaimur Range
- Bhandar Range

Que. Badwani hills.

Ans.

- Western part of satpura range.
- Subdivision of Rajpipla hills.
- Creates border between MP & Maharashtra.

Que. Why Madhya Pradesh is said to be Home of Rivers (Nadiyon Ka Mayka)?

Ans. Because hills and plateaus of Madhya Pradesh are the source of many peninsular rivers such as Narmada, Tapi, Chambal etc. and these rivers move to other states in their mature stage.

Que. How many river basins are there in the state?

Ans. Five major basins of Madhya Pradesh:-

1. Ganga- Yamuna basin
2. Narmada basin
3. Tapi Basin
4. Godavari basin
5. Mahi basin

Que. Name the largest and smallest basin of the state.

Ans. Ganga-Yamuna Basin (largest)– 202070 km²
Mahi basin (Smallest) – 158 km²

Que. Ganga-Yamuna Drainage System

Ans.

- Largest drainage system of Madhya Pradesh,
- Mostly rivers originating from the north and north-eastern part and falls into Bay of Bengal.
- Divided into 3 sub drainage systems-
 - ✓ Yamuna sub basin
 - ✓ Tons sub basin
 - ✓ Son sub basin

Que. Narmada Drainage System.

Ans.

- It constitutes Narmada and its 41 tributaries, flowing westwards and merge into the Arabian Sea .
- It flows in three states - Madhya Pradesh, Gujarat and Maharashtra.
- Follows Dendrite pattern

Que. Tapi drainage system

Ans.

- It originates from Multai hill of Betul district.

- It constitutes Tapi and its tributaries like - Purna river, Barna river etc.
- Most of the rivers flow west and southwest and merges into Arabian sea by forming estuary.

Que. Godavari drainage system

Ans.

- It flows in two states - Madhya Pradesh and Maharashtra.
- It constitutes Godavari and its tributaries, mostly flow towards the south.
- Divided into 5 sub basins -
 - ✓ Wainganga sub basin
 - ✓ Kanhan sub basin
 - ✓ Pench sub basin
 - ✓ Bagh sub basin
 - ✓ Bhawanthadi Sub basin

Que. Mahi drainage system.

Ans.

- Smallest river system of MP.
- It constitutes Mahi and its tributaries like - Ujas river, Parnam river etc.
- Most of the rivers flow towards west and northwest.

Que. Ganga of Malwa

Ans.

- Kshipra river is called 'Ganga of Malwa'.
- One of the sacred river ; Simastha fair (every after 12 years) held on its bank.
- Origin - From Baneshwar Kund, Kakribardi hills, Mhow Indore.

Que. Betwa river

Ans.

- Origin- Kumra village, Raisen
- Merges into Yamuna river near Hamirpur (UP).
- Also known as Ganga of M.P. (in terms of pollution)

Que. Where is the origin of Son river? (2014)

Ans.

- Origin - Maikal ranges near Amarkantak of Annuppur.
- Total length-780 kms
- Merges into Ganga river near Patna (Bihar)
- Major tributaries- Rihand, Gopad, Banas etc.

Que. Kali Sindh

Ans.

- Origin- Bagali village, Dewas.
- Total length- 150 kms
- Merges into Chambal river in Rajasthan.

Que. Narmada River

Ans.

- Fifth largest river of India (1312 km.) and Largest river of MP (1077 km.)
- Origin - Amarkantak Plateau of Maikal range, Annuppur
- A west flowing river falls into Gulf of Cambay (Arabian Sea) after forming estuary.

Que. Write the ancient names of the Narmada.

Ans. Rewa, Maikalsuta, Namodas, Somodevi

Que. Write the ancient names of Son river.

Ans. Subhaghadi, Swarna Nadi

Que. Write the names of Wainganga river

Ans. Bewa, Waiya, Didi.

Que. Name the districts of MP which have highest ravine affected land.

[MPPSC 2015, 30 words]

Ans. Sheopur, Morena, Bhind (Gully erosion by Chambal)

Que. Name two rivers of Madhya Pradesh which flow through rift valley and forms estuary. [MPPSC 2015, 30 words]

Ans. Narmada river and Tapti River flows in rift valley of the Vindhya and Satpura.

Que. Name the place of origin of Tapti river. [MPPSC 2018, 30 words]

Ans.

- Origin- from Satpura range, Multai of Betul district
- Falls - Gulf of Cambay (Arabian Sea)
- Length- 724 kms ; out of which 332 km. in M.P.

Que. Give geographical description of Drainage system of Chambal River.

[MPPSC 2015, 100 words]

Ans.

- It consist of Chambal and its tributaries (Banas, Kwari, Sindh, Pahuj etc.)
- Extended in rectangular shaped area covering MP, UP and Rajasthan.
- Suffering from problem of gully erosion.

Que. Chambal river. (MPPSC2012)

Ans.

- Origin-from Indore (Janapav hill)
- Falls in Yamuna near Etawah
- Total Length - 965 kms ; out of which 320 km. in M.P.

Que. Ken river

Ans.

- Origin- Kaimur hills in Katni
- Falls in Yamuna river near Fatehpur (U.P.)
- Ancient names - Shuktimati, Dirnavati

Que. Wainganga river

Ans.

- Origin- from Praswada plateau near Mundara village, Seoni
- Falls in Godawari river
- The only south flowing river of MP.

Que. Which is the place of origin of Tons River? [MPPSC 2016, 30 words]

Ans. Tons originates from Kaimur Range at an elevation of 610m (Satna district)

Que. Tons river

Ans.

- Origin - Kaimur Hill (Satna)
- Falls in Ganga river near Sirsa (Bihar)
- Ancient name- Tamsa

Que. Kunwari river

Ans.

- Origin- Shivpuri plateau
- Merges into Sindh river near Etawah (UP)
- Length- 470 kms

Que. Kuno river

Ans.

- Origin - From Shivpuri plateau
- Merges into Chambal river.
- Flows through Kuno National park.
- Length- 180 kms

Que. Parvati river

Ans.

- Origin- Sehore district
- Merges into Chambal river
- City located on its bank - Ashta, Rajgarh

Que. Sindh River

Ans.

- Origin - from Seronj tehsil (Vidhisa).
- Joins Yamuna at Jalaun(UP)
- Tributaries- Pahuj, Kuwari, Mauar etc

Que. Kanhan River.

Ans.

- Origin- From Damua town of Chhindwara
- It joins Wainganga in Nagpur , Maharashtra
- Major tributary of Wainganga river.

Que. Pench River.

Ans.

- Origin- From Junnardeo of Chhindwara
- It divides Pench National Park in two equal parts.

- It falls into Kanhan River.

Que. Jamni River

Ans.

- Major tributary of river Betwa.
- Originates from Sagar district
- Meets Betwa River near Orchha.

Que. Name five major rivers of the country have their origin in Madhya Pradesh.

Ans.

- ✓ Narmada (Anuppur)
- ✓ Chambar (Indore)
- ✓ Tapti (Betul)
- ✓ Son (Anuppur)
- ✓ Betwa (Raisen)

Que. Mention the major waterfalls of Madhya Pradesh situated on the river Narmada.

Ans.

- Dhuandhar Waterfalls , Jabalpur
- Kapiladhara Waterfalls., Anuppur
- Sahastradhara Waterfalls, Khargone
- Silver falls, Hoshangabad
- Apsara falls, Hoshangabad

Que. Narmada river forms which waterfall near Jabalpur.[MPPSC 2015, 30 words]

Ans.

- Dhuandhar
- Nidan falls
- Ghughra falls
- Bhadbhada waterfall

Que. Dhuandhar Waterfall

Ans.

- Located in Bhedaghat, Jabalpur
- On the Narmada river
- Famous for marble stones

Que. Dughadhara Waterfall

Ans.

- Location - Amarkantak, Anuppur district,
- formed by river Narmada
- Due to its milky white appearance, called as Dughdhara.

Que. Highest waterfall of Madhya Pradesh

Ans.

- Bahuti Falls on Beehad river
- Located in Rewa district
- Height - 198 m

Que. Jhadidaha waterfall

Ans.

- Waterfall on Chambal river
- located in MHOW, Indore

- Famous Tourist Spot

Que. Name any three waterfalls on Ken River.

Ans.

- Raneh falls (Chhatarpur)
- Pandav falls(Panna)
- Gatha Falls (Panna)

Que. Name the waterfall of Chambal river.

Ans.

- Jhadidaha falls (Indore)
- Chulia falls(Kota, Rajasthan)
- Shitlamata falls (Indore)
- Patalpani falls (Indore)

Que. What do you understand by irrigation?

Ans.

- Irrigation is the process of supplying water to the land at regular intervals by means of canals and other artificial methods,
- To enhance agricultural growth and maintain the landscape during the periods of less average rainfall.

Que. What do you understand by major irrigation project?

Ans.

Ensuring irrigation facilities from canals and multipurpose projects to Culturable Command Areas of more than 10,000 hectares.

Que. What do you understand by medium irrigation project?

Ans.

Ensuring irrigation facility from small canals to Culturable Command Areas between 2000 to 10,000 hectares.

Que. What do you understand by Minor Irrigation Projects ?

Ans.

Ensuring irrigation facilities from wells, tube and ponds to Culturable Command Areas of less than 2000 hectares.

Que. Chambal Valley Project.

Ans.

- Joint project of Madhya Pradesh, Rajasthan and Uttar Pradesh.
- Second largest river basin project of India.
- Completed in three phases in 1960.

Que. Narmada Valley Project.

Ans.

- A multi-purpose river basin project.
- Four reservoirs have been constructed, under this project namely- Indira Sagar Dam, Sardar sarovar dam etc.
- By Narmada Valley Development Authority.

Que. In which areas of the state irrigation is done through wells and tube wells?

Ans. Malwa Plateau, Chambal Valley, Narmada valley and Bundelkhand region.

Que. In which areas of MP irrigation is done through canals ?

Ans. Chambal Valley and Narmada-Son Valley.

Que. In which areas of the state irrigation done through ponds ?

Ans. Balaghat, Chhindwara, Seoni, Mandla etc.

Que. Wainganga Canal

Ans.

- First canal of the state, started in 1923
- Major canal of Balaghat on river Wainganga.
- To irrigate the area of about 4000 hectares.

Que. Barna Canal

Ans. Two canals have been taken out near Palakmati Dam (Raisen) in Barna river, a tributary of Narmada.

Que. Halali Canal

Ans.

- Situated in Vidisha and Raisen districts
- Built in 1968 for irrigation purpose.
- Length 761 kms

Que. Tawa Canal

Ans.

- In Hoshangabad district
- Two canals were built from Tawa Dam which is at the confluence of the Tawa and Denwa river.

Que. Balram Taal Scheme

Ans.

- Started 2007-08
- Purpose- Conserving rainwater for irrigation by encouraging farmers to build ponds in their fields.

Que. Which is the most irrigated district by canals and pure water in Madhya Pradesh?

Ans.

- Hoshangabad by canals
- Mandla by pure water

Que. Maan Project

Ans.

- Beneficiary districts- Dhar, Jhabua
- Irrigated area - 15 thousand hectares of tribal villages.
- River- Man river, a tributary of Narmada

Que. Bhandar Canal

Ans.

- Started in the year 1953
- Starting from Matatila Dam located on the Betwa river.
- Provides irrigation to Datia, Gwalior, Bhind, Shivpuri districts.

Que. Shaheed Chandrashekhar Azad (JOBAT) Project

Ans.

- Located in Jhabua district
- On Hathini river, tributary of the Narmada.
- Beneficiary district - Dhar

Que. Ken Betwa link project.

Ans.

- It is a linking river project in Ken Betwa in the Economic Budget 2022-23.
- 1,400 crore rupees allocated for this.
- Under this project, 103 MW of hydroelectricity, 27 MW of solar water will be generated.

Que. River Linking Projects in Madhya Pradesh

Ans.

- About 16 river linking projects of peninsular rivers are proposed.
- First- Ken-Betwa River Linking Project.
- Other proposed - Parvati-Kali ; Sindh-Chambal

Que. Gandhi Sagar Dam Reservoir.

Ans.

- Built in 1960
- Power generation capacity 115 MW
- Located in Bhanpura Tehsil of Mandsaur

Que. Rana Pratap Sagar Reservoir.

Ans.

- Built in 1964
- Power generation capacity 172 MW
- Situated in Chittorgarh, Rajasthan

Que. Jawahar Sagar Reservoir.

Ans.

- Built in the year 1971
- Power generation capacity 99 MW
- Situated near Kota, Rajasthan

Que. Command Area Development Program

Ans.

- Started on 09 September 1974
- Objective- To develop maximum irrigation potential through better land, water management and irrigation projects.

Que. Kundalia Dam

Ans.

- Built on Kali Sindh River
- Border of Agar Malwa & Rajgarh
- Constructed in 2018

Que. Name the dams constructed on Chambal river.

Ans.

- Gandhi Sagar Dam -Mandsaur (MP)
- Jawahar Sagar Dam- Kota (Rajasthan)
- Rana Pratap Sagar - Chittaurgarh (Rajasthan)

Que. Give the definition of forest as per the Indian Forest Act, 1927.

Ans. An area occupied by the Government for conservation and management of biological and ecological resources is called a forest. (Acc. to Indian forest act, 1927)

Que. What is the forest cover of MP?

Ans. As per 18th Indian forest report 2021 forest cover of MP is 77,492 km² (25.14% of total geographic area).

Que. What is the are of very Dense forest, medium Dense and open forest area?

Ans. As per India forest Report 2021:-

- Very Dense Forest- 6,6664 km² (2.16% of state's area)
- Medium Dense Forest- 34,209 Km² (11.1% of state's area)
- Open Forest- 36,618 km² (11.88% of state's area)

Que. Scrub is MP

Ans. As per Indian Forest report 2021, MP has 5,456.55 km² (1.77%) area of state under scrub.

Que. In which year first and latest forest policy of MP came into existence?

Ans. First Forest Policy - 1952
Latest Forest Policy - 2005

Que. Name the top three districts having the largest forest cover Area.

Ans.

- I. Balaghat (4922.78 km²)
- II. Chindwara (4608 km²)
- III. Betul

Que. Percentage wise top 3 districts in forest cover as per Indian forest report 2021.

Ans.

- I. Balaghat (53.34%)
- II. Sheopur (52.14%)
- III. Mandla (44.43%)

Que. Name the Bottom three districts having the least forest cover area.

Ans.

- I. Ujjain (36.7 sq km.)
- II. Shajapur (61 sq km.)
- III. Ratlam (75 sq km.)

Que. Percentage wise bottom 3 districts in forest cover.

Ans. As per India forest report 2021

- I. Ujjain (0.61%)
- II. Shajapur (1%)
- III. Ratlam (1.55%)

Que. How many Forest circles and forest divisions are there in MP?

Ans. 16 forest circles and 63 Forest Divisions

Que. Name the largest and the smallest forest division of MP

Ans.

- Largest forest division - Khandwa
- Smallest division- Hoshangabad

Que. Give the basis of classification of forests in Madhya Pradesh.

Ans.

- I. Administrative Classification
- II. Based on Climate (Geographical classification)
- III. Based on the types of tree species
- IV. Based on regions (Forest belts)
- V. Classification by Forest Department

Que. Classify forests on regional basis.

Ans.

- Vindhya-Kaimur Belt
- Morena-Shivpuri plateau belt or Madhya Bharat Belt
- Satpura Maikal Belt or Southern Belt

Que. Give the geographical classification of forests in Madhya Pradesh.

Ans.

- Tropical Deciduous Forest
- Tropical semi-deciduous forest
- Tropical dry deciduous forest

Que. Classify forests according to Forest Department.

Ans.

- State Forests
- Forests under local bodies
- Private Forests

Que. Give the Administrative classification of forests in MP?

Ans.

- Reserved Forests (Strong regulations)

- Protected Forests (Strong regulations with some restrictions)
 - Unclassified Forests (No regulation)
- Que. In how many groups forest wealth has been divided in Madhya Pradesh?**
- Ans.**
- I. Major forest produce- Sal, Teak, Shisham, Haldu, Cane
 - II. Minor Forest Produce- Tendu, Mahua, Khair, Lakh, Harra
- Que. Classify forests on the types of tree species.**
- Ans.**
- I. Teak(Sagon) forests
 - II. Sal Forests
 - III. Mixed Forests
- Que. Indian Institute of Forest Management**
- Ans**
- Established in **Bhopal**(1982)
 - With the help of Swedish International Development.
 - Here, modern forest technical training is given to Indian forest officers.
- Que. Forest Management Education Centre**
- Ans.**
- In 1979, Forest Management Education Centre (State's first Forest College) was established in Balaghat
 - In 1980, State's second forest college was established in Betul.
- Que. 'State Forest Research Institute'**
- Ans.**
- Established- 1963
 - Located - Jabalpur
 - Aim - to develop and disseminate research and technology in the field of biodiversity, forest genetics, biotechnology, environmental impact etc.
- Que. Tendu leaves in M.P.**
- Ans.**
- Main minor forest produce; used in Bidi making.
 - Around 60% of the country's tendu leaves are found in Madhya Pradesh.
 - Area- Sagar(highest), Tikamgarh, chattarpur, Jabalpur, Rewa etc.
- Que. Lac in Madhya Pradesh**
- Ans.**
- Extracted from Palash, Kusum etc. ; used in making bangles, toys.

- Mainly found in the forests of Mandla, Jabalpur, Seoni, Shahdol and Hoshangabad.
 - Lac Manufacturing Government Industry is in Umaria.
- Que. Myrobalan (Harra) in Madhya Pradesh**
- Ans.**
- Botanical name: Terminalia chebula.
 - Mainly found in the forests of Chhindwara, Mandla, Balaghat, Sheopur, Shahdol.
 - Used in pharmacy - skin diseases; food items etc.
- Que. State Forest Development Agency**
- Ans.**
- Formation- On 19th April, 2010
 - Objective - To minimize the degradation of forests through joint forest management committees and promote afforestation.
- Que. Madhya Pradesh Forest Development Corporation.**
- Ans.**
- Established- On 24th July, 1975
 - Objective- To increase the production capacity of forests at a rapid pace.
- Que. State Forestry Research Institute (SFRI) of Madhya Pradesh.**
- Ans.** It was set up on 27th June 1963 at Jabalpur.
- Que. Deendayal Vananchal Yojana**
- Ans.**
- Launched - October 20, 2016
 - Objective- To reach the benefits of programs and schemes of various departments to forest dwellers of remote forest.
- Que. In which national park of Madhya Pradesh the 'Forest PLUS' program is being conducted and since when?**
- Ans.**
- In Satpura National Park since 2012
 - Joint programme of US Agency for International Development (USAID) and India's Ministry of Environment, Forest and Climate Change.
- Que. At which two places the carbon measurement centre have been installed by ISRO in Madhya Pradesh ?**
- Ans.**
- Tawadi forest division in Betul district (2012)
 - Kanha National Park in Mandla (2017)
- Que. Madhya Pradesh State Bamboo Mission**

Ans.

- Established as Society in 2013
- Skill development of bamboo growers
- Objective- To revamp bamboo products

Que. Charan Paduka Scheme

Ans.

- Started - Singrauli district
- Purpose- For all-round development of tendu leaf pluckers.
- Provided flask for cold water, footweares & saree for women and shoes for men pluckers.

Que. Social Forestry Scheme

Ans.

- Launch - 1976 (on the recommendation of National Commission for Agriculture)
- Aim - To use land surrounding urban settlements and deforested due to human activities i.e. promote plantation.

Que. Environmental Forestry Scheme

Ans.

- Started - 1983-84
- Purpose - Promote plantation in urban area

Que. Minor Forest Produce Plantation Scheme

Ans.

- Starting from 1990-91
- Under this scheme, minor forest produce and medicinal plants are planted by Madhya Pradesh State Forest Development Corporation.

Que. Write the names of awards related to forest conservation.

Ans.

- Amrita Devi Memorial Award
- Mahavraksha Purushkar
- Van Prahari Purushkar
- Indra Priyadarshini Vraksha Mitra Purushkar

Que. Define National Park

Ans.

A national park is a reserved area of land owned by the government which is protected from industrialization, human exploitation, and pollution.

Que. Define Wildlife Sanctuary

Ans.

A wildlife sanctuary is an area of nature owned by the government or a private agency for the protection of particular species of flora or fauna during a part of the year or in its entirety.

Que. Name the smallest and biggest sanctuary (on land) of Madhya Pradesh.

Ans.

- Biggest -Nauradehi Bird Sanctuary, Sagar (1194.67 sq km.)
- Smallest - Ralamandal Bird Sanctuary, Indore(2.3 sq km.)

Que. Kanha – Kisli National Park.

Ans.

- First and largest national park (940 sq km.)of the state
- Located in Mandla
- Became a national park in 1955 and included in Project Tiger in 1974
- Famous for Breadry species of Deer and Reindeer species of Blackbug

Que. Satpura National Park

Ans.

- Established in 1981.
- Located in Hoshangabad.
- Famous for birds conservation and wild animals like leopard, chital, sambar, nilgai etc. also found here.
- Included in Project Tiger in 1999-2000

Que. Pench National Park

Ans.

- Founded in 1983
- Spread over Seoni and Chhindwara
- Highest number of tigers found here.
- Renamed as Indira Pridarshni National Park.

Que. Madhav National Park

Ans.

- Second National Park of the state (1958)
- Located at Shivpuri
- George Castle Palace , Sankhya Sagar lake etc. built here.

Que. National Fossils National Park

Ans.

- Founded in 1968, Ghughua.
- Smallest national park of the state (0.270 km²).
- Situated in Dindori (Ghughua)
- Famous for the conservation of flora and fauna.

Que. Sanjay National Park

Ans.

- Spread over Sidhi and Singrauli districts of MP and some parts of Chhattisgarh.
- Declared National Park in 1981 and included in Project Tiger in 2008.
- Old name - Dubri National Park.

Que. Bandhavgarh National Park

Ans.

- Located in Umaria (1968)
- Surrounded by 32 hills and spread over 448.842 sq. Km. area.
- Highest density of tigers (8 tigers per km).
- It was included in Project Tiger in 1993.

Que. Panna National Park

Ans.

- Founded in 1981 at Panna-Chhatarpur region
- Project Tiger implemented in 1994.
- Reptile park found here.

Que. Van Vihar National Park

Ans.

- Ramsar Site
- Established - Bhopal (1979)
- Declared National Park in year 1983.
- State's only Snake park found here.
- It started the practice of adopting wildlife

Que. Dinosaur National Park

Ans.

- Dinosaur National Park came into existence on 2nd Dec 2010.
- It is situated in Dhar.
- Area - 0.897 Km.
- It is state's only and country's first dinosaur National Park.

Que. Kuno Palpur National Park

Ans.

- Founded in 1981 as sanctuary promoted to national park status in 2018.
- Located in **Sheopur** district.
- Second home for Asiatic Lions (found only in Gir National Park, Gujarat)

Que. Asiatic Lion Conservation Project

Ans.

- Initiative of the Central Government for the conservation and rehabilitation of Asiatic Lions
- Asiatic Lions are listed as 'Endangered' under the IUCN Red List
- Kuno Palpur National park, Sheopur has been selected for this.

Que. Madhya Pradesh Tiger Foundation Society

Ans.

- Established on January 15, 1997
- Non-Profit Society
- Objective- Conservation and development of wildlife habitat

Que. Madhya Pradesh State Biodiversity Board

Ans.

- Headquarter- Bhopal
- Formed under the provisions of Biodiversity Act 2002

Que. Sardarpur Wildlife Sanctuary

Ans.

- Located in Dhar district
- Famous for Kharmor bird conservation

Que. Which centers of the state come under the Indian council of Forestry Research and Education, Dehradun?

Ans.

- Tropical Forest Research Institute, Jabalpur
- Centre for Forestry Research and Human Resource- Chhindwara

Que. Nauradehi Wildlife Sanctuary

Ans.

- Largest sanctuary of Madhya Pradesh
- Situated in Sagar district
- Protected site for African Cheetah.

Que. Ralamandal Wildlife Sanctuary

Ans.

- Smallest sanctuary of Madhya Pradesh
- Located in Indore district
- Area 2.345 sq km

Que. Mention the famous sanctuaries in Madhya Pradesh for conservation of crocodiles.

Ans.

- Ken Gharial Sanctuary- Chhatarpur, Panna
- Chambal Gharial Sanctuary- Morena
- Son Gharial Sanctuary – Sidhi, Shahdol

Que. Pachmarhi Biosphere Reserve

Ans.

- State's first and country's tenth biosphere reserve.
- Founded in 1999 at Hoshangabad.
- In 2009, it included in MAB programme of UNESCO.

Que. Amarkantak Achanakmar Biosphere reserve.

Ans.

- Spread over Anuppur and Dindori district along with Chhatisgarh.
- Founded in 2005
- In 2012, it included in MAB programme of UNESCO.

Que. Panna Biosphere Reserve.

Ans.

- Spread over Panna and Chhatarpur
- Founded in 2011
- In 2021, it included in MAB programme of UNESCO.

Que. Name the biosphere reserve areas of Madhya Pradesh.

Ans.

- Pachmarhi Biosphere Reserve
- Achanakmar – Amarkantak Biosphere Reserve
- Panna Biosphere Reserve

Que. Name the sanctuaries related to the conservation of Son Chiraya in Madhya Pradesh.

Ans.

- Ghatigaon Sanctuary- Gwalior
- Karera Sanctuary- Shivpuri

Que. Ratapani Sanctuary

Ans.

- Situated in Raisen
- Protected site of lion, leopard, sambar, chital, nilgai, chinkara etc.
- Since 2013, it included in Project Tiger .

Que. Project Tiger

Ans.

- Launch - 7th April 1973, from Jim Corbett National Park, Uttarakhand.
- In Madhya Pradesh, started from Kanha kisli National Park in 1974.
- 6 National Parks and 1 Wildlife Sanctuary of the state included in it.

Que. White Tiger Safari in MP.

Ans.

- Founded at Mukundpur, Rewa in 2016
- World first's white Tiger safari
- Named after Raja Martand singh Bhaghel.

Que. What is the type of climate of the state? Why?

Ans. Tropical Monsoon type climate. Because of the proximity to Tropic of Cancer, it is Tropical and receiving maximum rainfall through South-west monsoon, it is Monsoonal.

Que. Rainfall in Madhya Pradesh

Ans.

- State receives rainfall from both the branches i.e. South-west Monsoon (Arabian sea branch) and Bay of Bengal Branch.
- Maximum rainfall between June to September

- Average rainfall - 112cm.

Que. Classification of the state on the basis of Climatic variations.

Ans.

- Northern Plateau
- Malwa Plateau
- Vindhyan Hills & Baghelkhand Plateau Region
- Narmada Valley and Satpura Maikal Region.

Que. According to Koppen's Classification, which climatic regions are found in Madhya Pradesh.

Ans. There are 3 regions as per Koppem's classification:-

- Hot-Summer Mediterranean Climate (Caa)
- Tropical Savanna Climate (Aw)
- Hot semi arid Climate (BSh)

Que. Explain the effect of Western Disturbances in Madhya Pradesh.

Ans.

- In north-western parts of the state, rainfall occurs during winter, known as 'Maawath'.
- It is beneficial for Rabi crops.

Que. What is the reason for the continental type of climate found in Madhya Pradesh?

Ans.

- A landlocked state as it has a distance from seacoast.
- Receives rainfall from both branches of monsoon.

Que. What is 'loo'?

Ans.

In the month of May, dry and hot winds (westerlies) blow in the northern parts of the state, known as 'Loo'.

Que. At which temperature isotherm divides Madhya Pradesh into two parts?

Ans.

Isotherm of 21 degree Celsius

Que. What is the average temperature of Madhya Pradesh?

Ans.

21⁰C.

Que. Highest temperature of MP recorded at which place?

Ans.

Recently in 2019 - Nowgaon, Chhatapur (49⁰ C).

Que. Lowest temperature of MP recorded at which place?

Ans.

Shivpuri.

Que. When, where and in whose name has the first state astronomical observatory of Madhya Pradesh been built?

Ans.

- Established 2013
- Location- Dongla in Ujjain
- Name- Astronomer Bhaskaracharya

Que. Which place receives maximum rainfall in Madhya Pradesh?

Ans. Pachmarhi, Hoshangabad (Approx 212 cm.)

Que. Which place receives the least rainfall in Madhya Pradesh?

Ans. Gohad, Bhind (approx 55cm)

Que. Where is the laboratory of Indian Meteorological Department located in Madhya Pradesh?

Ans. In Indore

Que. Sub-regional Meteorological center located in MP.

Ans. Bhopal. (Founded in 1976)

Que. By what name summer, rainy and winter season are locally known in Madhya Pradesh?

Ans.

- Unala - summer season
- Chowmasa - rainy season
- Siyala - winter season

Que. Monsoon burst

Ans. In the north-south-west monsoon, the rain starts suddenly with intense thunder and lightning, which is called the monsoon burst.

Que. Mention three characteristics of the climate of Madhya Pradesh.

Ans.

- Monsoonal climate
- Tropical climate
- Uneven distribution of rainfall

Que. Name the factors affecting the climate of Madhya Pradesh.

Ans.

- Presence of Himalayas in its North
- Distance from sea
- Proximity to Tropic of Cancer

Que. Variability of rainfall

Ans. The amount of rainfall above or below the average rainfall of a particular place can be called as variability of rainfall.

Que. Why Nimar region receives less rainfall?

Ans. Nimar region is rain shadow area i.e. located in the leeward side of Satpura range that's why receives less rainfall.

Que. What is meant by Soil?

[MPPSC 2017, 100 words]

Ans. Soil is the uppermost layer of the unconsolidated particles found on the earth's surface which is made of parent rocks and vegetation.

OR

It is the upper layer of earth composed of a mixture of organic remains, clay and rock materials on which plants grow.

Que. How is soil formed?

Ans. Soil is formed from the fragmented materials of parent rocks, climate, temperature, flowing water, wind etc. with long period of time.

Que. Soil is the basic resource of agriculture. Explain.

Ans. The growth of plants and crops depends upon the fertility of the soil. The value of the land is determined by its fertility or productivity.

Que. Define humus. [MPPSC 2017]

Ans.

- It is the organic matter of the soil which is formed by the decomposition of organic matter.
- Increase soil fertility.

Que. Write the factors affecting soil fertility.

Ans.

- Mineral Composition
- Soil pH
- Soil Texture
- Organic Matter

Que. What is called fertile soil?

Ans. The soil which has sufficient amount of mineral elements like phosphorus, potash, nitrogen, humus etc., is called fertile soil.

Que. What is meant by acidic soil?

Ans. The soil which has less amount of lime in it is called acidic soil.

Que. What is meant by alkaline soil?

Ans. The soil which has more amount of lime in it is called alkaline soil.

Que. What is meant by soil erosion?

Ans. Soil erosion is the natural process in which the topsoil of a field is carried away by physical sources such as wind and water.

Que. What is the soil dissection called?

Ans. Soil dissection is to reveal the conditions of the soil, its layers and their composition till the top of the base rock.

Que. Write the types of soil erosion?

Ans.

- Sheet Erosion
- Rill Erosion
- Gully Erosion
- Stream bank Erosion

Que. What is Sheet Erosion?

Ans. It is the uniform removal of soil in thin layers from the land surface caused by the wind.

Que. What is Rill Erosion?

Ans. A form of water erosion in which the erosion takes places through numerous narrow and more channels called streamlets, or head cuts, usually observe during heavy rain.

Que. What is Gully Erosion?

Ans. It occurs due to the runoff of surface water causing the removal of soil with drainage lines.

Que. What is Rain Drop or Splash Erosion?

Ans. The erosion due to the impact of falling raindrops on soil surface leading to the destruction of the crumb structure is known as the raindrop or splash erosion.

Que. What is Stream Bank Erosion?

Ans. Bank erosion is nothing but washing up away from banks of a stream or a river. It is different from the erosion of the bed of a watercourse that is referred to as scouring.

Que. What are the main causes of soil erosion?

Ans.

- Due to Soil Texture (loose)
- Slope (steeper or plane)
- Intensity or Amount of Rainfall
- Deforestation
- Human Activities (Overgrazing, Urbanization, Global Warming, Jhum Agriculture etc.)

Que. Mention the ill effects of soil erosion in Madhya Pradesh.

Ans.

- Outbreak of flash floods.
- Destruction of fertile cultivable land.
- Change of course of water due to accumulation of sand in rivers.

Que. Write any two ways to reduce soil erosion. [MPPSC 2019, 100 words]

Ans.

- Floods should be controlled by building dams.
- Tree plantation should be done on a large scale and forests should be protected

Que. Which type of soil erosion takes place in the state and which river is responsible for this?

Ans. Gully erosion due to Chambal river and its tributaries.

Que. What is meant by soil conservation?

Ans. Prevention of soil erosion or depletion, is called soil conservation.

Que. Methods of soil conservation.

Ans.

- Mulching
- Contour barriers
- Terrace farming
- Shelter belts formation.

Que. How many types of soil found in Madhya Pradesh? Give name and area.

Ans.

- Black soil - Malwa and Nimar area
- Laterite soil - Seoni, Rewa, Panna, Satna
- Red-Yellow - South-east MP, Balaghat, Sehdol, Mandla etc.
- Alluvial - Chambal and Gwalior region
- Mixed soil - Bundelkhand area

Que. Describe the main characteristics of soils of Madhya Pradesh.

[MPPSC 2018, 100 words]

Ans.

- Deficiency of Humus, Phosphorous, Nitrogen.
- Good water retention capacity eg. Black soil and Red-Yellow soil.
- Good fertility for coarse cereals but other crops also can be grown through irrigation like wheat, soyabean.

Que. Write the names of districts affected by soil erosion in Madhya Pradesh.

Ans. Bhind, Morena, Sheopur and Gwalior

Que. Write the names of soils found in Madhya Pradesh.

Ans.

- Black soil,
- Red-yellow soil
- Alluvial soil
- Mixed soil

Que. In which districts of Madhya Pradesh is the spread of mixed sandy soil?

Ans.

- Mandla, Dindori, Balaghat
- Rewa, Satna, Panna
- Chhatarpur, Tikamgarh, Guna

Que. Black soil is found on what percentage of Madhya Pradesh?

Ans. 43.44 percent (Deep black, plain black and shallow black soil)

Que. Hariyali Project

Ans.

- Started by the Central Government in 2003
- Purpose - Implementation of water harvesting plans
- To curb drinking water problems

Que. Who is called a ravine?

Ans. There is excessive erosion in river valleys and on hill slopes, due to which erosion of land occurs.

Que. What is soil conservation?

Ans. It is the process by which the fertility of the soil is maintained. Its erosion and decay are prevented and soil conditions are improved.

Que. What is meant by leaching?

Ans. The movement of substances from the upper level of the soil to the bottom after dissolving in water is called leaching.

Que. Regur soil

Ans. The black soil formed by the erosion of basalt rocks of the Deccan Trap is called regur soil.

Que. Desert Development Program

Ans. The Desert Development Program was started in 1977-78 with the objective of increasing the productivity of land and water resources in the desert areas.

Que. What is soil degradation?

Ans. Soil degradation is the reduction in the quality of soil by physical, chemical and biological activities of the soil.

Que. Wasteland

Ans. The top layer of soil gets washed away as a result of natural or human faulty actions, the gravelly layer remains, it is called barren land or waste land.

Que. Rain water harvesting.

Ans. Rainwater harvesting is a great way to improve ground water level, reduce soil

erosion, increase drinking water facilities, etc.

Que. How was black soil formed and where are these soils found in M.P.?

Ans. Black soils have been derived from the weathered lava flows found in the Deccan Trap region. These soils mainly occur in Maharashtra, Western Madhya Pradesh and Gujarat.

Que. What is the state of Mineral production of Madhya Pradesh?

Ans. Madhya Pradesh ranks fourth in production and third in deposit of minerals. More than 30 types of mineral found here.

Que. What is the position of mineral production of Madhya Pradesh?

Ans.

- State fourth place (in terms of total production)
- And holds third place after Jharkhand and Chhattishgarh (in terms of mineral reserves)

Que. Write about diamond producing area of MP. [MPPSC 2018, 30 words]

Ans. MP ranks 1st in diamond production.

Famous mines of MP are-

- Majhgawa (Satna)
- Hinauta (Panna)
- Angaur (Chhatarpur)

Que. Pipri Parkota (Singrauli) is famous for which mineral?

Ans. Corundum mineral, a oxide of aluminum.

Que. In which year was the National Mineral Development Corporation established and where is its headquarter located?

Ans.

- Established -15 November 1958
- Headquarter - Hyderabad

Que. Dolomite

Ans.

- When 40-45 percent of magnesium carbonate present in limestone, called dolomite.
- Area- Balaghat, Chhindwara, Chattarpur etc.
- Uses- For steel making and cement industry

Que. Describe the dolomite mining areas of MP. [MPPSC 2018, 100 words]

Ans.

- Sidhi, Singhrauli, Satna, Jhabua, Betul etc.
- Maximum production at Jabalpur.

Que. Ramkheria mine

Ans.

- Famous for diamond production
- Situated on the banks of river Kilkil in Panna
- Exploration - By National Mineral Development Corporation

Que. Chief Minister Permanent Agriculture Pump Connection Scheme

Ans.

- Started in September 2016.
- Main target to provide 5 lakh permanent pump connections.
- 40 percent assistance by the government

Que. Where has the first factory to make gas (biomethanisation) from urban waste been established in Madhya Pradesh?

Ans. In Bhopal's Bitan Bazar.

Que. Non-coking Coal

Ans.

- It has low carbon content and high ash percentage.
- Use in non-metallurgical industries.

Que. Sambal Yojana

Ans.

- Started on July 3, 2018
- Electricity will be provided to the families living below poverty line at a cost of Rs.200 per month.

Que. Describe the manganese producing areas of Madhya Pradesh and also state its uses. [MPPSC 2015, 300 words] [MPPSC 2019, 100 words]

Ans.

- Madhya Pradesh is the leading state in the production of manganese
- Obtained from Balaghat, Chhindwara, Jhabua, Khargone district
- Use - In making steel, aircraft, train coaches

Que. Madhya Pradesh is famous for which most precious mineral?

(MPPSC 2015, 30 words)

Ans. For Diamond (100% Production in M.P.), Copper (40% of India)

Que. Copper in MP

Ans.

- Madhya Pradesh is the leading state in terms of storage and production.

- Area- Balaghat (Malajkhand) and Chhindwara

- Uses - In making electric wire

Que. Describe the Copper producing areas of MP. [MPPSC 2015, 100 words]

Ans. Malajkhand open pit Copper mine (Balaghat), Jabalpur, Hoshangabad, Chhindwara etc are copper producing areas of MP.

Que. Malajkhand Mine.

Ans.

- Largest Copper mine of India
- Located in Baihar Tehsil, Balaghat district (MP)
- Hindustan Copper limited excavate here.

Que. Ceramic in MP

Ans.

- Obtained from Jabalpur, Gwalior, Rewa, Chhindwara, Rajgarh districts.
- Use- In making utensils
- Other name- kaolin clay

Que. Bharveli Mine

Ans.

- Largest Manganese mine of Madhya Pradesh.
- Located in Balaghat of MP.

Que. Bauxite in MP

Ans.

- It is an aluminum ore
- Area- Anuppur, Mandla, Dindori, Balaghat, Katni
- Madhya Pradesh stands sixth position, in terms of storage and production.

Que. Limestone in MP.

Ans.

- Madhya Pradesh stands second position, in terms of production.
- Area- Satna, Rewa, Damoh, Katni, Morena
- Use- In Cement Industry

Que. Iron Ore production in MP.

Ans.

- Madhya Pradesh stands fifth position, in terms of production.
- Area- Jabalpur(max.), Gwalior, Khandwa
- Exported to Japan and Germany

Que. Give a brief account of coal reserves of MP. [MPPSC 2014, 100 words]

Ans.

- Central India Coalfield - Sohagpur (Shahdol), Baidhan (Singrauli), Korar (Umaria) etc.
- Satpura Coalfield - Kanha valley (Seoni), Pench valley, Mohpani etc.

Que. Central India Coalfield

Ans.

- Also known as Vindhya Pradesh coalfield
- It is at first position, in terms of coal stocks.
- It includes - Baidhan (Singrauli), Sohagpur (Shahdol), Johila valley etc.

Que. Coal bed methane

Ans.

- It is a natural gas
- Found in coalfields with coal.
- Region- Eastern Sohagpur, Western Satpura

Que. Northern Coal Fields Limited

Ans.

- Headquarter - In Singrauli
- Mines of Singrauli, Sidhi etc. included

Que. Write the main provisions of the State Mineral Policy 2010.

Ans.

- Provision of e-permit for mineral transportation
- Emphasis on private sector participation
- Formation of Mineral Development Fund

Que. Madhya Pradesh Sand Mining Policy [MPPSC 2017, 100 words]

Ans.

- First Sand Mining Policy of the state - 2015
- To curb illegal sand mining.
- Operation of mines by local body.

Que. Where Tungsten found in Madhya Pradesh?

Ans.

- Found only in Agariya, Hoshangabad district in the state.
- Ores - Wolframite and Scheelite.
- Uses - Electric bulbs, x-ray tubes, radar, television sets, radio etc.

Que. Where the Corundum found in Madhya Pradesh?

Ans.

- In M.P. - Panna, Singrauli and Sidhi districts.
- Second hardest metal after diamond.

Que. Where the Mica found in Madhya Pradesh?

Ans.

- Area - Balaghat (max.), Gwalior, Chhindwara, Hoshangabad, Jhabua, Mandsaur, Sidhi, and Singrauli.
- Used as insulator.

Que. Where the Soapstone (Talc) found in Madhya Pradesh?

Ans.

Found at Bhedaghat in Jabalpur, Narsinghpur, Alirajpur and Jhabua.

Que. Where the Graphite found in Madhya Pradesh?

Ans.

- In Madhya Pradesh, Betul is the largest graphite producer district.
- Uses - Making paints, batteries and pencil etc.

Que. When did first and recent Mineral policy of the state came into existence?

Ans.

- First Mineral Policy in year 1995
- Latest Mineral Policy in year 2010.

Que. Madhya Pradesh State Mineral Corporation

Ans.

- Established on January 19, 1962
- Headquarter - Bhopal
- For extraction, research and marketing of minerals.

Que. Vindhya Thermal Power Plant

Ans.

- Largest Thermal Power Plant of MP
- 3760 MW power generation capacity
- Situated at Singrauli district

Que. Chandani Thermal Power Plant

Ans.

- Oldest Thermal Power Plant
- Established – 1953; 13MW power capacity
- Situated at Neenanagar, Burhanpur.

Que. Satpura Thermal Power Plant

Ans.

- Located - Patharkheda, Betul (Tawa river)
- Joint venture of Madhya Pradesh and Rajasthan
- Power generation capacity 1437 MW

Que. Sanjay Thermal Power Plant

Ans.

- Located - Birsinghpur, Umaria
- Power generation capacity 1340 MW
- Coal obtained from Johila field

Que. Pench Thermal Power Plant

Ans.

- Situated at Chhindwara district
- 420 MW power generation capacity
- Joint venture of Madhya Pradesh and Maharashtra.

Que. Bargi Hydroelectric Plant

Ans.

- Located in Jabalpur district
- Also known as Rani Avanti Bai Project.
- 90 MW power generation capacity

Que. Indira Sagar Hydroelectric Plant

Ans.

- Located on river Narmada at Punasa, Khandwa
- 1000 MW Power Generation Capacity

Que. Tons Hydroelectric Plant

Ans.

- Located in Rewa district
- Established in 1990
- Power generation capacity 315 MW

Que. Omkareshwar Hydroelectric Plant

Ans.

- Constructed under Narmada valley project.
- Located - Omkareshwar, Khandwa (Narmada river).
- Power generation 520 MW

Que. Bansagar Hydroelectric Plant

Ans.

- Situated on Son river
- In Shahdol district
- Joint project of Madhya Pradesh, Uttar Pradesh and Bihar

Que. Rajghat Hydroelectric Plant

Ans.

- Situated on Betwa river in Lalitpur
- Joint Project of Madhya Pradesh and Uttar Pradesh.

Que. Nuclear Power Plant in MP

Ans.

- Chutka Nuclear Power Plant - Mandla
- Bheempur Nuclear Power Plant - Shivpuri

Que. Which is the first solar village of MP?

Ans. Kasturba village of Indore (fully based on solar energy).

Que. Which is the first village in country totally depend upon solar energy for cooking?

Ans. Bancha village in Betul district in Madhya Pradesh

Que. Gas based Thermal Power Plant in MP

Ans.

- Bhandar (Datia) is the first gas based power station of the state (300 MW)
- Others - Shahdol, Guna and Gwalior.

Que. Biomass based energy Plant in MP

Ans. Kasai village of Betul is India's first village which is fully based on biomass.

Que. Bran/Husk Based Plant in MP

Ans. Situated in Jadukheda, Dhar. (0.95 MW)

Que. Rewa Ultra Mega Solar Park

Ans.

- State's largest solar power project.
- Inaugurated by PM Modi on 10 July 2020.
- Total power generation capacity 750 MW.
- Situated in Gud Tehsil of Rewa District.

Que. Mention the major industrial complexes of Madhya Pradesh.

Ans.

- Electronic Complex - Indore
- Stainless Steel Complex - Sagar
- Leather Complex - Dewas

Que. Mention the six industrial development centers of Madhya Pradesh recognized by the Government of India.

Ans.

- Pithampur - Dhar,
- Meghnagar - Jhabua
- Peelukhedi - Rajgarh,
- Purina - Panna
- Maneri - Mandla,
- Malanpur - Bhind

Que. Describe in detail the industrial zones and their major industries.

[MPPSC 2016, 300 words]

Ans.

- Indore-Dhar zone – Automobile, IT, Pharmaceuticals etc.
- Balaghat – Chhindwara – Mining, energy etc.
- Gwalior zone – Biscuit, Matchstick, textile etc.

Que. When was the NFL fertilizer factory established?

Ans.

- Established in the year 1984
- Situated at Vijaypur in Guna district
- With the collaboration of America and Italy

Que. Where the first export promotion park of Madhya Pradesh has been established?

Ans. In Pithampur, Dhar district.

Que. Which is called the Detroit of India?

Ans.

- Pithampur, Dhar
- It is famous for the automobile industry.
- It is the first dry port of MP.
- Companies like - Larson and Turbo, Kinetic Honda, Eicher and Bajaj.

Que. Where is the first Special Economic Zone (SEZ) of Madhya Pradesh located?

Ans. Indore (to promote industrial activities in the region)

Que. When was the Madhya Pradesh Industrial Development Corporation established?

Ans.

- Established - 1965 (Bhopal)
- Objective - To develop, promote and encourage industries.

Que. Where is the headquarters of Madhya Pradesh Finance Corporation located?

Ans.

- Established in the year 1955
- Located in Indore
- Purpose- To provide finance for implementing various welfare schemes of the state.

Que. Where is the optical fiber factory established in Madhya Pradesh?

Ans.

- In Mandideep (Raisen) district
- With the collaboration of Japan

Que. Railway Coach Factory.

Ans.

- It is located in Bhopal
- Established in 1975-76
- Rail coaches are being manufacture.

Que. When and where was the Government Ordinance Factory established?

Ans.

- Established in 1943-44
- Located in Jabalpur
- The equipments of war are being manufacture.

Que. When and where was the Gun Carriage Factory established?

Ans.

- Established in 1943-44
- Located in Khamaria, Jabalpur

- Defence Equipments are being manufacture here.

Que. When and where was the Heavy Vehicle Factory established?

Ans.

- Founded in 1955 (Jabalpur)
- Installed by ministry of Defence.
- Manufactures heavy vehicles for defence and commercial purpose.

Que. Currency Printing Press, Dewas

Ans.

- Founded in 1975-76.
- Installed by Central ministry of Finance.
- One of the country's four currency printing presses
- Paper currency notes printing factory.

Que. Alkalide Factory

Ans.

- Founded in 1975-76 (Neemuch)
- Installed by Central ministry of Finance.
- Refining of Morphine, Codeine and Narcotics is done here.

Que. When and where was the Government Post and Telegraph Workshop established?

Ans.

- Established in 1943-44
- Location - Jabalpur
- Manufacturing of telephone and telegraphic equipment

Que. When and where was Bharat Heavy Electrical Limited established?

Ans.

- Established- 1961-62 (association with Britain).
- Location - Piplani (Bhopal)
- Electrical appliances are being manufactured here like- turbines, transformers.

Que. Mention three major public sector industries of the state government.

Ans.

- Leather Factory - Gwalior
- Timber Treatment Plant - Indore
- Umbrella Industry - Mhow

Que. Mrignayani Emporium establishments.

Ans.

Madhya Pradesh Industries Corporation operates it at Bhopal, Indore, Gwalior, Jabalpur, Raipur, Bhilai, Rewa, Ujjain, New Delhi and Kolkata.

Que. Where is the Madhya Pradesh Ratna (Gems) Refinement Center located?

Ans.

- Establishment- In Jabalpur.
- Purpose- To enhance the value of gems or ornaments by refining them.

Que. When was the Madhya Pradesh Handloom Development Corporation established?

Ans.

- Established in the year 1976
- With the aim of protecting, promoting and encouraging the handloom industry.

Que. Mention the reasons for the slow development in Madhya Pradesh.

Ans.

- Infrastructural bottlenecks.
- Inefficient implementation of industrial policies.
- Lack of credit facility, skilled manpower etc.

Que. Name any three schemes related to industries in Madhya Pradesh.

Ans.

- Deendayal Employment Scheme
- Chief Minister Yuva Udyami Yojana
- Information Technology Scheme

Que. Udyog Mitra Scheme

Ans.

- Launched in 2004
- Objective- To improve industrial progress belong to the closed industries
- Concessions will be given in transfer.

Que. Madhya Pradesh Industry Promotion Policy 2014

Ans.

- Approved on September 30, 2017
- Mega ITI establishment
- Promoting the establishment of industrial parks

Que. On the basis of raw material, industries of Madhya Pradesh have been divided into how many categories?

Ans. Three categories-

- Mineral based industries
- Agro based industries
- Forest based industries

Que. Give names of important centers of paper industry of Madhya Pradesh.

[MPPSC 2018, 30 words]

Ans.

- National News Print and Paper Mill - Nepanagar
- Orient Paper Mill - Amlai
- Security Paper Mill - Hoshangabad
- Bank Note Press - Dewas

Que. Discuss the industrial development in MP with special reference to Agro based industries. [MPPSC 2014, 100 words]

Ans.

- Sugar Industry – Jawra, Sehore, Dabra etc.
- Cotton textile industry – Burhanpur, Indore, Chanderi etc.
- Vegetable oil – Ganj Basoda (Vidisha), Jabalpur, Satna etc.

Que. Name any three mineral based industries.

Ans.

- Cement Industry – Katni, Satna, Rewa etc.
- Ceramic Industry – Gwalior, Jabalpur etc.
- Diamond cutting Industry – Panna, Satna etc.

Que. Name any three forest based industries.

Ans.

- Paper Industry – Neapanagar, Dewas etc.
- Bidi Industry – Jabalpur, Gwalior etc.
- Saw mills – Mandla, Balaghat etc.

Que. Name any three agro based industries run by Agro Industries Development Corporation.

Ans.

- Bacterial Fertilizer Plant- Bhopal
- Granular Compound Manure Plant - Hoshangabad
- Pesticide Plant-Bina (Sagar)

Que. Security Paper Mills, Hoshangabad

Ans.

- Founded in 1967-68
- Installed by Central ministry of Finance.
- Bank note printing paper, stamp papers
- Other government documents are printed here.

Que. National Newsprint and Paper Mill

Ans.

- Located in Neapanagar, Burhanpur
- Foundation – 1948.
- Country's first newsprint factory.

Que. Centers of Catechu industry in Madhya Pradesh.

Ans.

- Established in Shivpuri and Banmour
- The work of making katha is done by the Khairwar tribe.

Que. Centers of matchbox industry in Madhya Pradesh

Ans.

- Gwalior
- Hoshangabad
- Jabalpur

Que. Lac industries in Madhya Pradesh

Ans.

- Government factory to make lac in Umaria
- Production of lac is done on a large scale in the eastern part.
- Bangles, toys are produced by this.

Que. In which district the paint making factory is located?

Ans. Situated in Chhindwara district

Que. In which city of Madhya Pradesh oil refinery is being set up with the help of Oman?

Ans. In Agasod, Bina (Sagar)

Que. Vegetable oil factory in Madhya Pradesh

Ans.

- Jabalpur, Khandwa
- Gwalior, Indore
- Ganjbasoda (Vidisha), Morena

Que. Artificial fiber textile industry in Madhya Pradesh

Ans.

Major Center- Nagda (Ujjain)
Other Centers- Indore, Gwalior, Ujjain

Que. Rice mills in Madhya Pradesh

Ans. Jabalpur, Rewa, Chhindwara, Indore, Bhopal, Dabra

Que. Pulse mills in Madhya Pradesh

Ans.

- Indore, Ujjain

- Sagar, Gwalior
- Raisen, Hoshangabad

Que. Oil mill in Madhya Pradesh

Ans.

- Morena is the largest center of Madhya Pradesh
- Other Center- Gwalior, Bhind, Datia, Shivpuri

Que. Center of wood chipping industry in Madhya Pradesh

Ans.

Main Center – Jabalpur

Other centers- Mandla, Chhindwara, Betul

Que. Discuss cement Industry of MP.

[MPPSC 2015, 30 words]

Ans.

- Birla Cement Factory – Satna
- Kaimur Factory – Katni
- Mehar Factory – Satna
- Banmore Cement Plant – Morena

Que. Name any three sugar mills of Madhya Pradesh.

Ans.

- Javra Sugar Mill-Ratlam
- Bhopal Sugar Mill-Sehore
- Jivajirao Sugar Mill- Mandsaur

10.**Short Answers**

Que Comment on Dharwar System in Madhya Pradesh.

Ans Rocks **belonging** to the Dharwar times are majorly the **metamorphic rocks** formed out by the erosion of Archean rocks. Due to their metamorphism under very high temperature and pressure, even rocks of these times are also devoid of any fossils. In Madhya Pradesh, these rocks are mainly found in **Jabalpur, Balaghat** and **Chhindwara**. Dharwar rocks are highly metalliferous, they are rich in iron ore, manganese, lead, zinc, gold, silver, tungsten, nickel etc.

Que Comment on Cuddapah System in Madhya Pradesh

Ans The Cuddapah system derives its name from the Cuddapah district of Andhra Pradesh; these rocks occur around in **Chhota Nagpur, south Singhbhum** districts of **Bihar** and **Jharkhand**, in **Gwalior, Panna**, Jabalpur and Rewa tracts of Madhya Pradesh. It is an older system of rocks. These regions are rich in **limestone, sandstone, and asbestos**.

Que Comment on Vindhyan System in Madhya Pradesh

Ans A rock system of thickness of about 4200m is found in Vindhyan system of rocks. In Madhya Pradesh, this rock system is extended from Rewa in north-west of Sone river till Rajasthan in the west of Chambal river.

In Madhya Pradesh, this system of rocks is divided into these two categories-

(a) Lower Vindhyan System

Lower Vindhyan group of rocks is extended in north of Narmada from east to west. They could also be found in the valleys of Bheema and Sone. In the Valley of Sone, they could be seen in the form of limestone, shale and sandstone.

(b) Upper Vindhyan System

This group of rocks is extended in the north of Narmada in the form of Kaimur, Rewa and Bhandar series. A small amount of fossils is also found in this system of rocks. The **building material and stones** used in the historical buildings and monuments of Northern - India are found here in abundance.

Que Comment on Aryan System in Madhya Pradesh

Ans Aryan era which comprises the rock system from Upper Carboniferous till the most recent rock systems could be covered. During the Upper Carboniferous period, the Deccan Plateau was affected by several endogenetic forces. But due to the excessive stress, the rocks got fragile and the long and narrow plains got submerged between them. In these small areas, the freshwater lakes formed and in due course of time from the sediments of these banks, the Gondwana rocks got formed. In Madhya Pradesh, we could not find rock of this system.

Que Write a short note on Cretaceous Rocks System in Madhya Pradesh.

Ans In Madhya Pradesh, the proof of cretaceous rocks is found in the Narmada valley. In Narmada valley, there are groups of rocks formed by the sediments of the rivers and estuaries, which are also called as Bagh beds, whereas in other regions of Madhya Pradesh, the rocks formed through comparatively newer sediments, are known as **Lameta beds**. In such rocks, the mixed limestone rocks, sandstone, grit and clay stones are majorly found along with some fossils.

Que Write a short note on Deccan Trap in Madhya Pradesh.

Ans In the end of cretaceous, lava covered the north-western part of Deccan plateau. These deposits of thick basalt are termed as Deccan trap and they nearly covered an area about 5,17,800 sq km. This structure is made up of **Basalt and polorise** rocks, these rocks are very hard & their weathering has resulted in formation of Black soil. The rocks of Indore, Bhopal and western Jabalpur divisions are of such origin. The middle trap is found in Malwa and Madhya Bharat area while in Narmada valley lower traps are found.

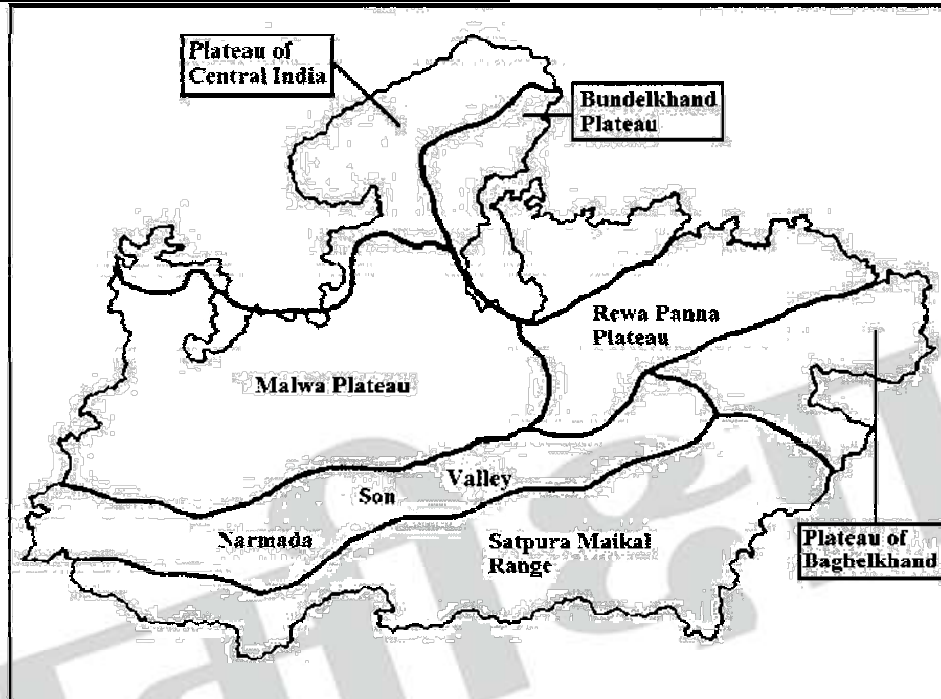
Que Write a short note on Tertiary system in Madhya Pradesh.

Ans In the tertiary rock system, the Gondwana landmass got fragmented in small parts and thus submerged under the sea. During this time, only the Deccan Plateau evolved in the present form and the Great Himalayas also evolved from the sediments of Tethys Sea through folding in the form of young fold mountains.

All these endogenetic forces had an effect over the other parts of the India too and in the South and South-East of Madhya Pradesh, the Narmada and – Sone Valley emerged due to the degrading of the landmass. Also, whole of the Northern plateau got raised and gave rise to the slopes and falls on the Northern boundaries of the state. These high falls and low lying slopes resulted in the erosion through rivers which also lead to the formation of river valleys in the plateau region of the state.

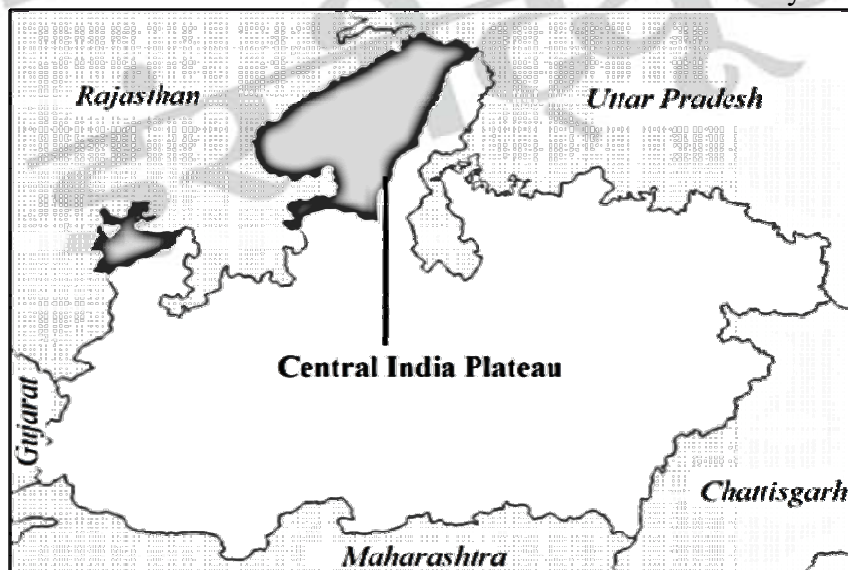
Que Draw a map of Physiological division of Madhya Pradesh

Ans Map of Physiological division of Madhya Pradesh



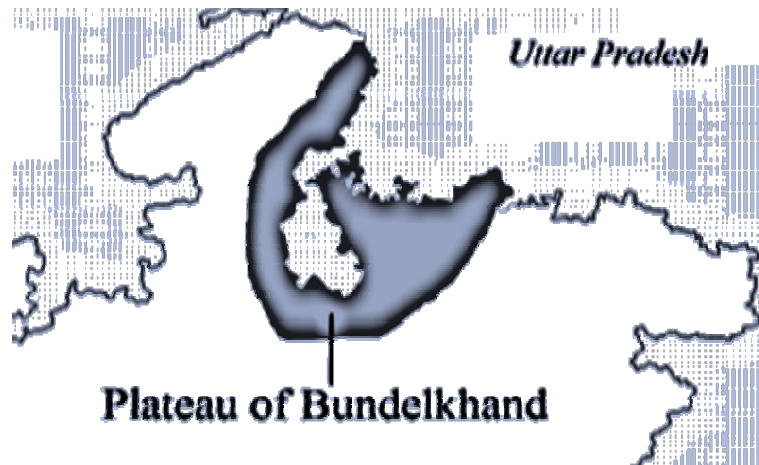
Que Write a short note on Plateau of Central India

Ans Spread as 'Crown of Madhya Pradesh' and touching the border of Rajasthan and Uttar Pradesh, the Plateau of Central India is located at a height of about 300 meters above sea level on the northwestern border of the state. It is situated in north and north-west of Madhya Pradesh.



Que Write a short note on Plateau of Bundelkhand.

Ans **Situation** – 24°6' to 26°30' North latitude and 77°51' to 80°20' East Longitude. The total area of this region is 23733 sq. km. or 7.71% of the total area of state.



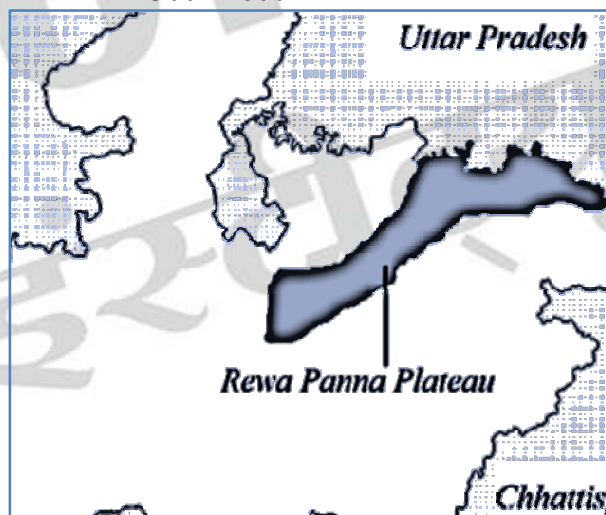
Average elevation from sea level is 150 to 450 meters. **Siddha Baba** is the highest peak of this plateau (1172 meter). This region includes **Niwari, Tikamgarh, Chhattarpur, Panna, Datia, Pichore and Karera** tehsil of Shivpuri, **Dabra and Bhandar** tehsil of Gwalior district and Lahar tehsil of Bhind district.

Its climate is of continental type. The maximum temperature of this region is 40° to 41°C while minimum temperature is 9° to 12°C , and average rainfall is 73-103 cm.

Soil of this plateau is red, black and loamy in which crops like wheat, mustard, sesame seeds and barley is grown. Main rivers are **Betwa, Ken, Dhasan** and **Sindh**. Diamond mines are there in Chhattarpur and Panna. **Pratappur** (Tikamgarh) is an industrial development centre. **Sonagiri** and **Pitambarapeeth** of Datia, UNESCO World Heritage site **Khajuraho** of Chhattarpur are some of the famous tourist spots of this plateau.

Que Write a short note on Plateau of Rewa-Panna

Ans Plateau of Rewa-Panna region is also known as **VindhyanKagari** region. This Kagari region of Vindhya is located in the South East of Bundelkhand plateau and North-East of Malwa plateau. Its average elevation from sea level is 300 to 600 meters.

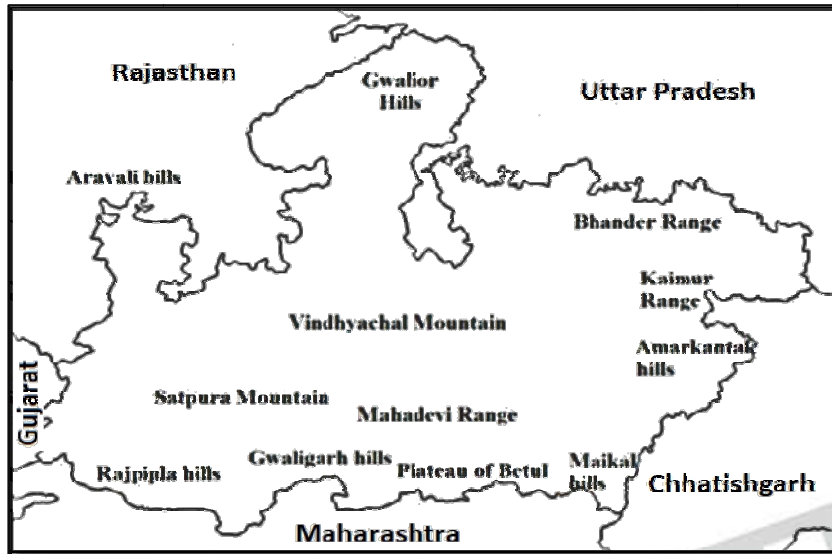


- Its geographical extension is $23^{\circ}6'$ to $25^{\circ}12'$ Northern latitude and $78^{\circ}4'$ to $82^{\circ}18'$ Eastern longitude. The total area of this plateau is 31954.8 sq. km which is 16.36% of the total area of Madhya Pradesh.
- This region includes Rewa, Satna, Panna, Damoh and Banda and Rehli tehsil of Sagar district. The maximum temperature of this region is 42°C and minimum temperature is 8°C and average rainfall is 125 cm.
- Main Rivers of this plateau are Tons, Sons, Beehad, Dhasan, Ken, Sonar, Bichchia and Mahana.
- This plateau is covered with mixed soil in which crops like wheat, paddy, til are grown.
- Minerals like limestone, gypsum, diamond, corundum are found in this plateau.
- Main industries are cement industry (Satna) and diamond cutting industry (Panna).

- Sharda Temple and AllauddinPeeth of Maihar, Jugal Kishor temple and Pran Nath Temple of Panna Chacchai and Kewati waterfall of Rewa are main tourist places of this region.

Que Point out the location of all important hills and ranges of MP on Map.

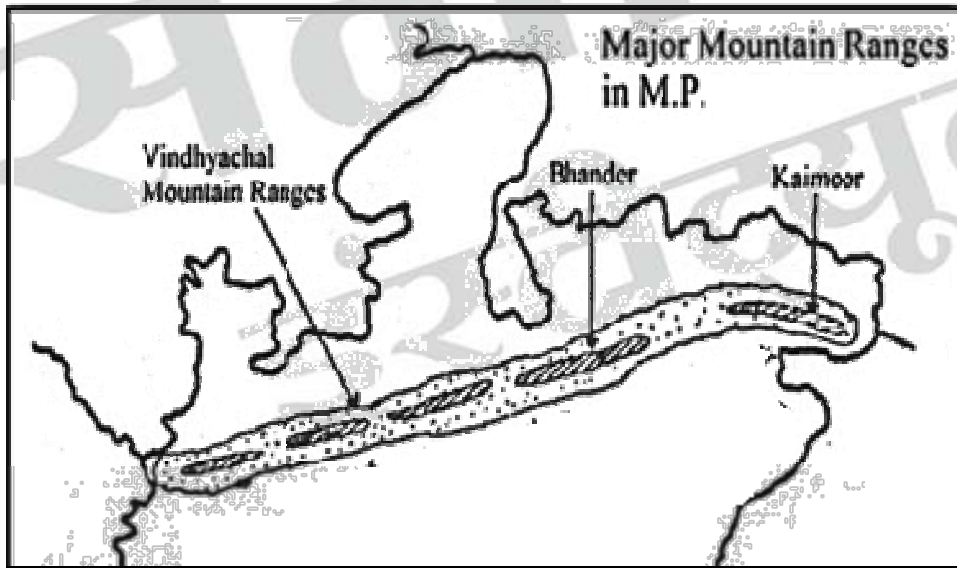
Ans



Que Write a short note on Vindhya range

Ans Vindhya hills are from west to east direction in the north of Narmada. Its inclination is towards north. Vindhya hills are consist of red sandy stone and quartz. Vindhya hills are one of the world's oldest mountain ranges. It is also called **residual mountains**. Average height of Vindhya hills is 457 to 610 meters. In the east of Vindhya hills, there are **Kaimoor** and **Bhandar mountain ranges**.

Sub division of Vindhya ranges-



- **Bhandar Range:** Vindhya begins from Bhandar series in the east.
- **Kaimoor Range:** This is the north part of Bhandar. River Rihand originates from Kaimoor, mainly flowing through Korea district in Chhatisgarh

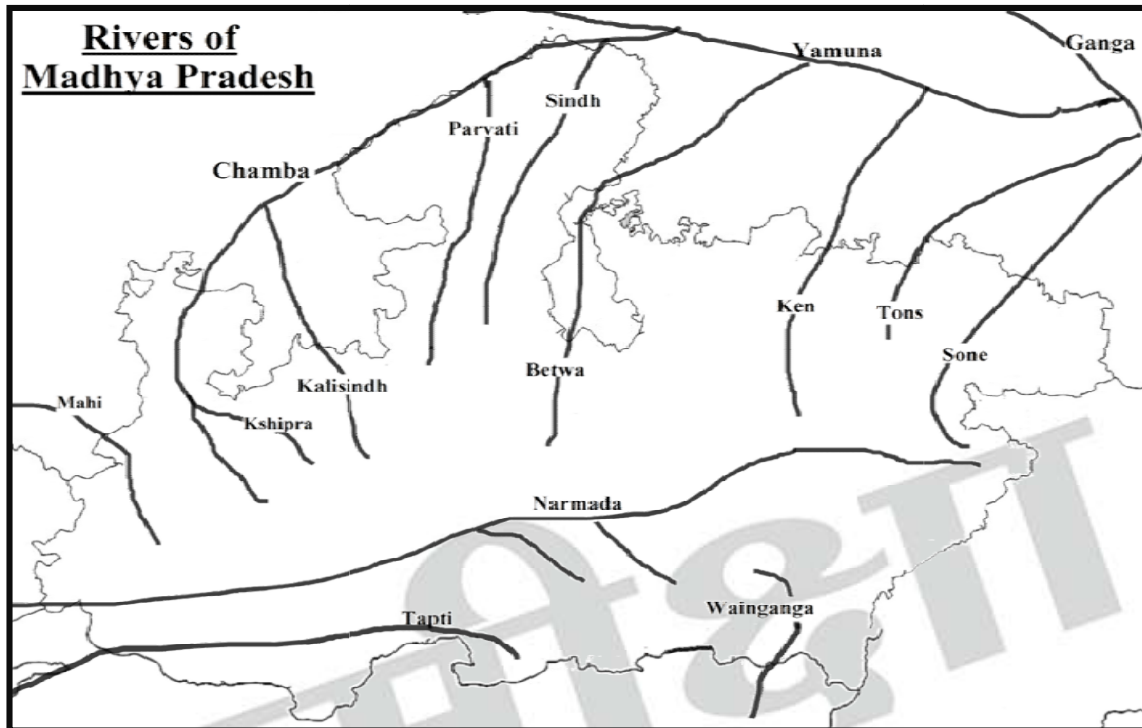
Que Write a short note on Satpura range

Ans

- Satpura range is a series of seven mountains ('Sat' = seven and 'pura' = mountains)
- It runs in an east-west direction south of the Vindhyas and in between the Narmada and the Tapi, roughly parallel to these rivers.
- It stretches for a distance of about 900 km.

- Parts of the Satpuras have been folded and upheaved. They are regarded as structural uplift or 'horst'.
- **Dhupgarh (1,350 m)** near **Pachmarhi on Mahadev Hills** is the highest peak.
- **Amarkantak (1,127 m)** is another important peak.

Que Point out the important rivers of MP on map.



Que Write a short note on the Chambal River.

Ans The **965 km.** long Chambal is the most important river of western Madhya Pradesh. This river was referred to as **Charmavati** in ancient Hindu Texts. River Chambal is the largest tributary of Yamuna river rises from the **Janapav Mountain in the Vindhya Range, (Mhow, Indore)** and flows north through Ujjain, Ratlam and Mandasaur, before entering Rajasthan. It re-enters Madhya Pradesh after meandering through parts of Rajasthan and touches Morena and Bhind, then Chambal River meets Yamuna River near **Itawa Uttar Pradesh**. It also forms the ravines in Morena and Bhind by forming deep pits in alluvial rocks through gully erosion. Its major tributaries are Banas, Parvati, Kali, Shipra and Sindh. Three major dams have been constructed on this river –

- ✓ Gandhi Sagar Dam - Mandasaur
- ✓ Jawahar Sagar Dam - Kota
- ✓ Rana Pratap Sagar - Chittaurgarh

Que Write a short note on the Kshipra River.

- Kshipra River is one of the sacred rivers of India. Holy city **Ujjain** is situated on the bank of this river.
- The Shipra starts its journey from **Kakri Bardi hill near Indore** and meets Chambal River at Madhya Pradesh-Rajasthan boundary in **Mandasaur district**.
- This river is **195 km.** long.
- It is also known as **Ganga of Malwa**. After every 12 year the Simhastha Kumbh Fair takes place on the bank of Kshipra River in Ujjain.
- Its major tributaries are **Khan and Gambhir**.

Que Write a short note on the Betwa River.

- Its ancient name was **Vetrawati**. River Betwa originates from **Kumra village of Raisen district** and meets Yamuna at Hamirpur in Uttar Pradesh.
- Its total length is **590 km** in which 239 km is in Madhya Pradesh. Its major tributaries are Halali, Beena, Dhasan, Ken and Sindh.
- Betwa River is also known as **Ganga of Madhya Pradesh** (in terms of pollution).

Que Write a short note on the Dhasan River.

- The river has been mentioned as **Dashama** in ancient texts.
- River Dhasan originates from **Begumgunj Tehsil of Raisen** district of Madhya Pradesh and flow south to North till it joins Betwa near Hamirpur of Uttar Pradesh.
- Total length of the river is **365 km**, out of which 240 km. lies in Madhya Pradesh.
- **Lehchura Dam** is built on this river near Harpalpur of Chhatarpur district.

Que Write a short note on the Ken River.

- Ken River originates near the village of **Ahircawan** on the North West slopes of Bhandar range in Katni district and meets Yamuna River near Chillah of Fatehpur district of Uttar Pradesh Its total length is **472 km**. out of which 292 km. lies in Madhya Pradesh.
- Ken River forms 150-180 m. deep gorge by cutting Bijawar - Panna hills.
- Ranoh fall is located on Ken River near Chhatarpur district. Its major tributaries are Sonar, Bewa, Katni, Urmi, Patan, Kopra etc.

Que Write a short note on the Tons River

Ans Ancient name of Tons river was Tamsa. Tons river rises in a tank at Tamakund in Kaimur range in Satna district. The river meets Ganga in Sirsa after flowing 264 km. Belan, Mahan, Behad, Sellar are its major tributaries.

Que Write a short note on the Sone River

Ans Ancient name of Son river was Swarna nadi. River Son originates from Maikal ranges near Amarkantak of Anuppur District and meets Ganga River near Patna after flowing 784 km. Its major tributaries are Gopad, Banas, Rihand, Johila etc.

Que Write a short note on the Tapti

- River Tapti originates from **Multai hill of Betul district** and falls into **Gulf of Cambay in Arabian Sea**. Total length of the river is **724 km** out of which 332 km. lies in Madhya Pradesh.
- It also flows in Gujarat and Maharashtra. Purna and Barna are its major tributaries.
- It is also a west flowing river along with Narmada and forms estuary instead of Delta, same as Narmada

Que Write a short note on the Wainganga

Ans Wainganga originates from **Mundara village of Seoni district** situated on Paraswada plateau. After flowing in Madhya Pradesh it takes Wardha River in Maharashtra. Its total length is 570 km. The confluence of Wainganga and Wardha River is known as **Pranhita**. Kanhanriver is its major tributary.

Que List out the waterfalls located on river Narmada.

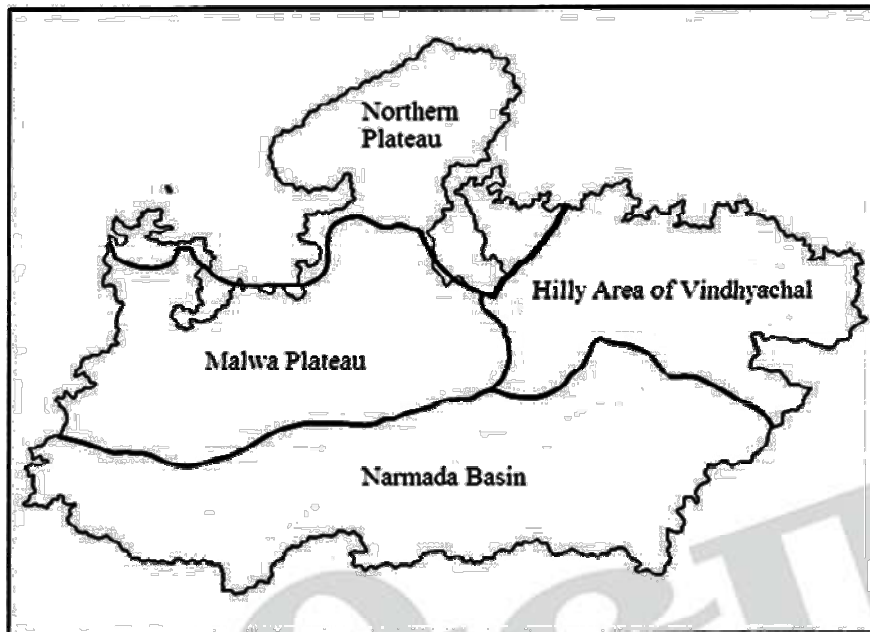
Ans

Waterfall	City
Dhuandhar	Jabalpur
Dugdh Dhara	Anuppur
Mandahar	Khandwa
Kapildhara	Amarkantak
Sahastradhara	Maheshwar
Dardi	Khandwa
Dutches	Pachmarhi

Apsara Vihar	Pachmarhi
Rajat Pratap	Pachmarhi

Que Draw the map of Climatic region of Madhya Pradesh.

Ans



Que Write a short note on climate of Malwa Plateau Region

Ans Climate of Malwa Plateau zone of Madhya Pradesh is slightly dry continental as compared to tropical monsoon of the state which is common and normal. Therefore, this zone remains slightly hot and moderately cold in summers and winters respectively.

The daily average temperature here during summer is 40°C to 42.5°C and in winters, it is 10°C to 12.5°C . The hottest month of the year is May. Major rains take place due to the South-Eastern to North-Eastern parts of the zone.

Que Write a short note on climate of Northern Plateau.

Ans Northern Plateau zone has a continental climate. Again being a region very far from sea, the summers are too hot and winters are too cold. The average temperature for summers is 40°C to 45°C and for winters it is 15°C to 18°C . Average rainfall for this zone is even lesser than 75 cm because of which this zone lies in sub-tropical humid climatic zone.

Que Write a short note on climate of Vindhyan Hills

Ans In Vindhyan Hills region, a moderate climate is there. Being the hilly region, it is not too hot during summers and even the winters are moderate. Famous hill station like Amarkantak is in this climatic zone.

Que Write a short note on climate of Baghelkhand Plateau Region

Ans Baghelkhand region has a monsoon climate because the Tropic of Cancer passes almost from the middle of the region. Here the summers are hot and humid whereas the winters are moderate and dry. The average temperature of summers is 35.5°C whereas in winters, it is 12.5°C . Average rainfall in the region is 125 cm.

Que Write a short note on climate of Narmada Valley Region

Ans Narmada valley is situated very close to the Tropic of Cancer. Because of this, the summers are extremely hot and the winters are moderately cold. The average maximum temperature in this zone is in the month of May and the minimum is in December. The average rainfall varies from 142.5 cm in the East to 57.5 cm in the West.

Que Write a short note on climate Satpura Maikal Region

Ans Satpura Maikal Region lies south of Narmada valley have an average height of only 300m though it contains the highest point in the state, the peak of Dhoopgarh. The Satpura slope is sharp on the

South face and gentle on the North. The region is drained by Tawa, Johila, Denwa, Wainganga and Vardhan rivers. Pachmarhi in this region gets the highest rainfall, 180cm to 200cm.

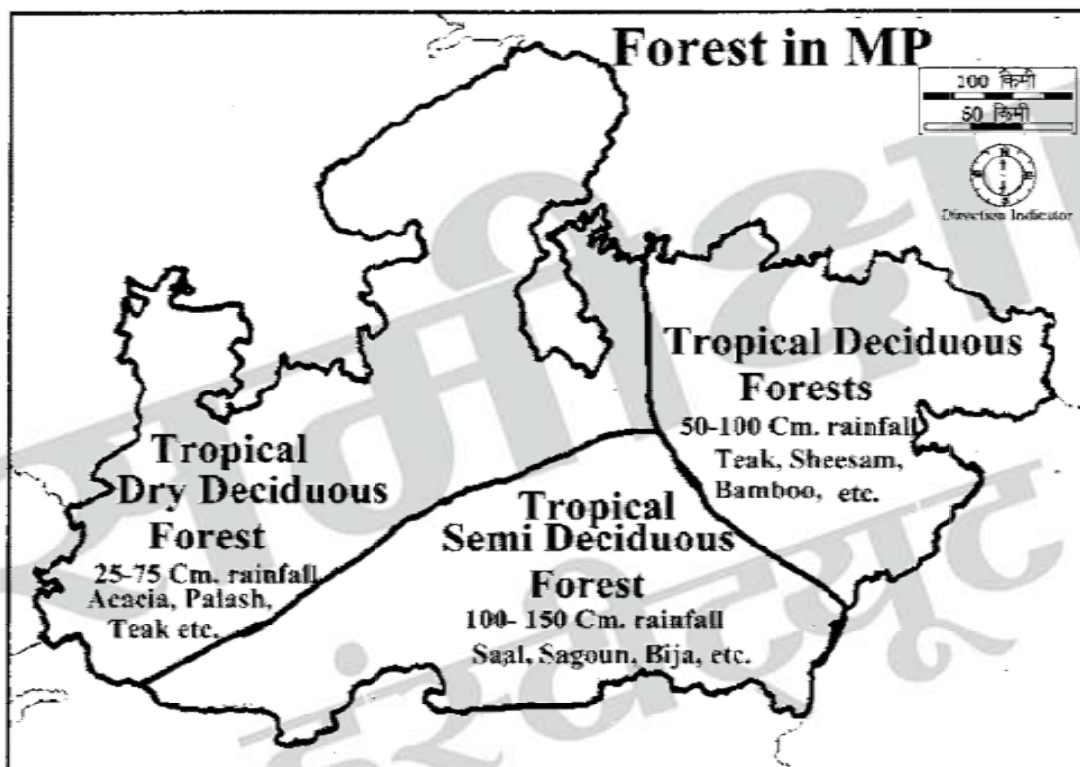
Que Write a short note on Condition of forest in Madhya Pradesh.

Ans According to state forest report 2017, the forest cover in the state is 77,414 sq km. This is 25.11% of the state's geographical area. In terms of forest canopy density classes, the state has 6,563 sq km area under very dense forest, 34,571 sq km area under moderately dense forest and 36,280 sq km area under open forest.

Que Write a short note on Bamboo in Madhya Pradesh.

Ans Bamboo of *Dendrocalamus* species are found in Madhya Pradesh. These are tropical deciduous forests which grow in the areas having rainfall 75cm. Bamboo is used in production of paper, and in manufacturing of baskets and roofs. Madhya Pradesh stands second (1.3 Hectare) after Arunachal Pradesh in Bamboos production. **Balaghat is the largest producer of bamboo in Madhya Pradesh.** Besides Balaghat, it is also found in Betul, Jabalpur, Seoni, Mandla, Sagar, and Bhopal.

Que- Draw the map of Forest in Madhya Pradesh



Que Write a short note on Tendu Leaf (Diospyros Malenoxylan) in Madhya Pradesh.

Ans Tendu Leaf is a main minor forest produce of Madhya Pradesh which is used in Bidi making. In the state nearly 260 bidi industries have been set up. Though a big area under the tendu forest separated away to Chattisgarh, yet it is abundantly found in the Northern-Central-East districts of Madhya Pradesh which includes Sagar (highest), Tikamgarh, Chattarpur, Bhopal, Jabalpur, Rewa, Sidhi, Shahdol. In Madhya Pradesh, tendu leaves are collected on cooperative basis in the state since 1989. Ten lakh tribal workers are employed in tendu leaves collection business. Around 60% of tendu leaves of India are produced in Madhya Pradesh itself.

Que Write a short note on Khair (Senegalia Catechu) in Madhya Pradesh.

Ans **Khair (Senegalia Catechu)** is an important forest produce which is used in making of Kathha and Paints, Tanning of Leather and as a medicine (for digestion) It is abundantly found in state particularly in Shivpuri, Rewa and Banmore (Morena) and each has one Kathha Manufacturing unit.

Que Write a short note on Harra Tree (Terminalia chebula) in Madhya Pradesh.

Ans There are multiple industries for extraction of Harra in Madhya Pradesh. It is particularly used for tanning of leather. Harra fruit contain 35-40% leather tanning material. It is also used in ink, paint, medicine (Ayurvedic) and food items. It is abundantly found in Chhindwada, Jabalpur, Sheopur, Balaghat, Shehdol, Betul, Panna, Seoni, Mandla, Satna, Hoshangabad etc.

Que Write a short note on Laakh (Sealing Wax) in Madhya Pradesh.

Ans In Madhya Pradesh Laakh is extracted from the trees of palash, ghont, kusum, berry and plant of arhar. Around 4000 tonnes laakh is produced from Madhya Pradesh. It is mainly found in Jabalpur, Seoni, Shahdol, Hoshangabad, Bhopal, Indore, Mandla etc. It is used in making bangles, Medicine, toys, Chemicals and cosmetics making. **Laakh Manufacturing Government Industry is situated in Umaria.**

Que Write a short note on Gum and Bhilala in Madhya Pradesh.

Ans Gum is extracted from trees of babool, kullu and salai etc. There are three types of gums-arobic Gum (From babool tree), Kullu gum (From kullu tree), and Salai gum (From salai tree). It is abundantly found in **Jhabua, Dhar, Khandwa, Khargone, Gwalior, Shivpuri, Morena, Betul and Ratlam.** It is used in Food items (Babool gum), coffee and pastry production (kullu gum), fragrance, paints and varnish production (Salai gum).

Bhilawa fruit extracted from Bhilala tree have multiple uses like in ink, paint, and medicine. It is mainly found in eastern districts of Madhya Pradesh Its one of the industry is situated in **Chhindwara.**

Que Write a short note on Madhya Pradesh State Forest Development Corporation

Ans **Madhya Pradesh State Forest Development Corporation** established on **July 24, 1975** for the improvement of Madhya Pradesh forests and their protection. It is headquartered at **Bhopal.** Following are the **functions and objectives** of this corporation-

4. Plantation of useful forest produces such as teak bamboo and saal and increases their current productivity.
5. To arrange resources for Pulp-Paper related industries and planting appropriate forest for such industries.
6. To produce teak, bamboo and other essential raw materials for wood based industries.

Que Write a short note on Madhya Pradesh State Forestry Research Institute (SFRI).

Ans **Madhya Pradesh State Forestry Research Institute (SFRI)** was set up on 27th June, 1963 in Jabalpur, State Forestry Research Institute is assumed to be the first class level institute of India in Forest research. It was granted autonomy by State Govt. in 1994.

- **Mission:** The institute's mission is to highlight the adaptive and applied research programmes for the conservation and development of forest sector in Madhya Pradesh.
- **Goals:-**
 - (vi) Conservation of forests and forest resources – soil, water, floral and faunal biodiversity.
 - (vii) Enhancement of productivity of natural forests and plantations.
 - (viii) Expansion of tree cover.
 - (ix) Efficient and sustainable utilization of forest resources and forest products – timber and NTFPs (Non timber forest product)

Que Write a short note on Madhya Pradesh Lok Vaniki Kisan Sangh

Ans Realisation of the fact that the private owners of the forests/tree clad areas is organized so as to reap full potential of this resource. Kisansangh were constituted by the farmers in Sidhi, Damoh, Hoshangabad and Dewas.

The objectives of the Kisan Sanghs are;

- (i) To bring all small farmers together to organize for collective action in the field of private forestry and provide forward and backward linkages to its members.

- (ii) To generate funds to make available the advance technology to the farmers.
- (iii) To facilitate proper marking of timber and non-wood forest produce.

Que Write a short note on Madhya Pradesh Forest Policy - 2005

Ans The first forest policy for Madhya Pradesh was constituted in 1952, but due to changing challenges and situations, the government amended the older one and declared new forest policy on 4th April, 2005. The main goal of forest policy 2005 is to use the environment, financial, social and technological resources of state for conservation of forests, development and preservation for better management of forest.

➤Objectives of the policy:-

- To expand forest recovered area i.e to make it 1/3rd of geographical area.
- To support and develop the plantation with the help of social programmes.
- To develop forest based industry.
- To recognize forest villages as revenue villages.

Que Write a short note on Project Tiger in MP

Ans Project Tiger was launched by Government of India with the support of International Wildlife fund in 1973. Initially it was launched in nine protected areas across India selected under the scheme Kanha Kisli Natiaonl Park was one of them.

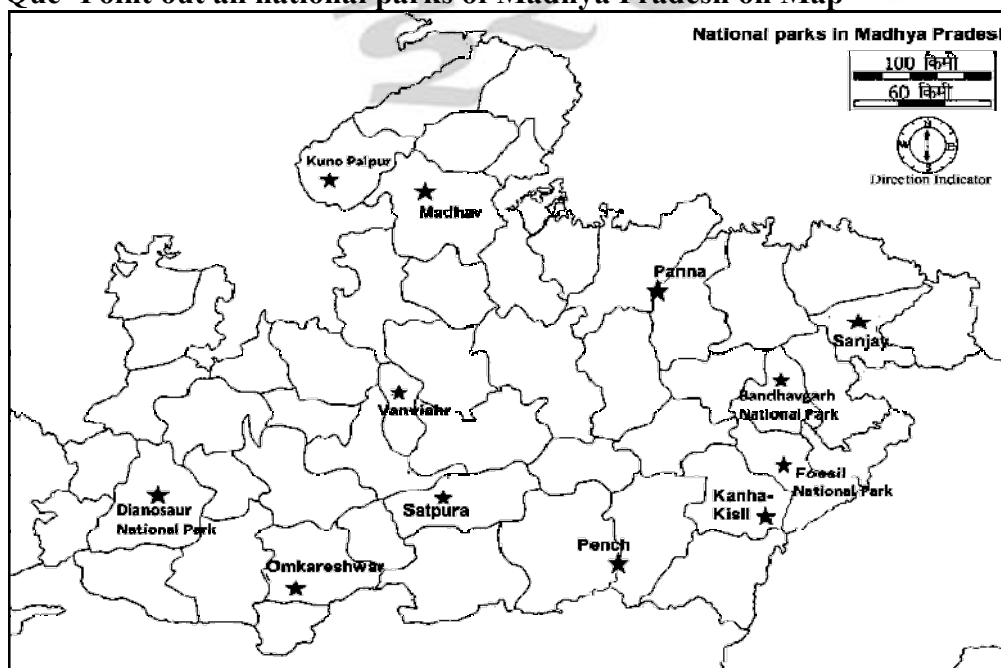
At present, Six National Park i.e., KanhaKisli, Pench, Bandhavgarh, Satpura, Sanjay-Dubri and Panna & One Wildlife Sanctuary Ratapani is included in project Tiger.

Que List out the Biosphere resever of Madhya Pradesh along with its key fauna.

Name	Region	Key Fauna
Pachmari Biosphere Reserve	Hoshangabad	Giant Squirrel, Flying Squirrel etc
Achanakmar Biosphere Reserve	Amarkantak Anuppur district of Madhya Pradesh & rest in Chhatisgarh	Tiger, Panther, Sambar, Monkey, Wild boar etc.
Panna Biosphere Reserve	Panna	Tiger, Chital , Chinkara, Sambar and Sloth beer

Out of these three, Pachmari and Achanakmarg-Amarkantak are included in Man and Biosphere programme (MAB) list of UNESCO

Que- Point out all national parks of Madhya Pradesh on Map



Que Write a Short note on Kanha-Kisli National Park

Ans Kanha-Kisli National Park is spread over **Mandla** and **Balaghat District**. It was made safari in **1933**, sanctuary in **1952** and national park on **June 1st, 1955**. This is Madhya Pradesh's first and the biggest national park which was included in **Project Tiger Scheme in 1974**

- Barasingha of bredary species is conserved here.
- The area of Kanha-Kisli national park is **940sq. km.**
- Total area covered under KanhaKisli is 1949 km. in which core zone includes 940 km. & buffer zone includes 1009 km.
- 'Halovalley' and 'Banjarvalley' are situated in Kanha-Kisli National Park.
- It is the only and first national park in India which has an official mascot with the name "**Bhoorasingh the Barasingha**".

Que Write a Short note on IndiraGandhi Priyadarshni NationalPark (Pench)

- Pench National Park is a beautiful place, located in the Seoni and Chhindwara districts of the state of Madhya Pradesh. • It was established in 1981. It was affirmed a wildlife sanctuary in **1983**. It was included in Project Tiger in **1992**.
- **Mogliland** has been established here to promote tourism.
- Pench national park has a count of 8 Tigers & 7 Panthers.
- This natioan park is enriched with Cheetal i-e excess or more commonly spotted Deer.
- It is spread in 293 square kilometer.

Que Write a Short note on Madhav National Park

- **Madhav National Park** was established in **Shivpuri** in 1958.
- It is spread over 375.230 Sq. Km. areas.
- Animals like here are-Leopard, Sambhar, Cheetal etc. are mainly found here.
- NH-3 Agra-Mumbai Highway Passes through this national park.
- There is a huge building named 'George Castle', over the hills of national parks.

Que Write a short note onDiamond in MP.

Ans Madhya Pradesh is the **largest diamond producer state of India**. Underground diamond reserves are at Panna, Chhattarpur, Satna in Madhya Pradesh. The main diamond production centres are at Mazgawa in Satna district, **Panna and Hinauta** in Panna district and Angaur in Chhattarpur district. Major types of diamond such as Kohinoor, Great Mughal, Pit, Orlock etc. have been found in this area. The Igneous plate of Kimberlite rocks spread from Panna district to Satna is the major area of diamonds. National Mineral Development Corporation does excavation of diamonds in the state. Diamonds are found from deposits of Bhogan River at Ramkheria in Panna. The storage of 1,15,000 caret has been found at Ramkheria in Panna district. Country's first **diamond museum** is going to be establishing in Khajuraho of Chhattarpur

Que Write a short note on Coal Bed Methane (CBM) production in MP

Ans Coal Bed Methane is found at Sohagpur (Shahdol). CBM is natural gas stored or absorbed in coal seams. India, with the world's fourth largest proven coal reserves, holds significant potential for CBM exploration and production. CBM gas is similar to natural gas, containing 90-95% methane.

Reliance Gas Pipeline Ltd (RGPL) is commercially producing CBM since 2017 at east and west Sohagpur. Reliance Gas Pipeline Ltd (RGPL) has laid around 312 km of pipeline to carry natural gas from Shahdol in Madhya Pradesh close to its CBM blocks to Phulpur in Uttar Pradesh.

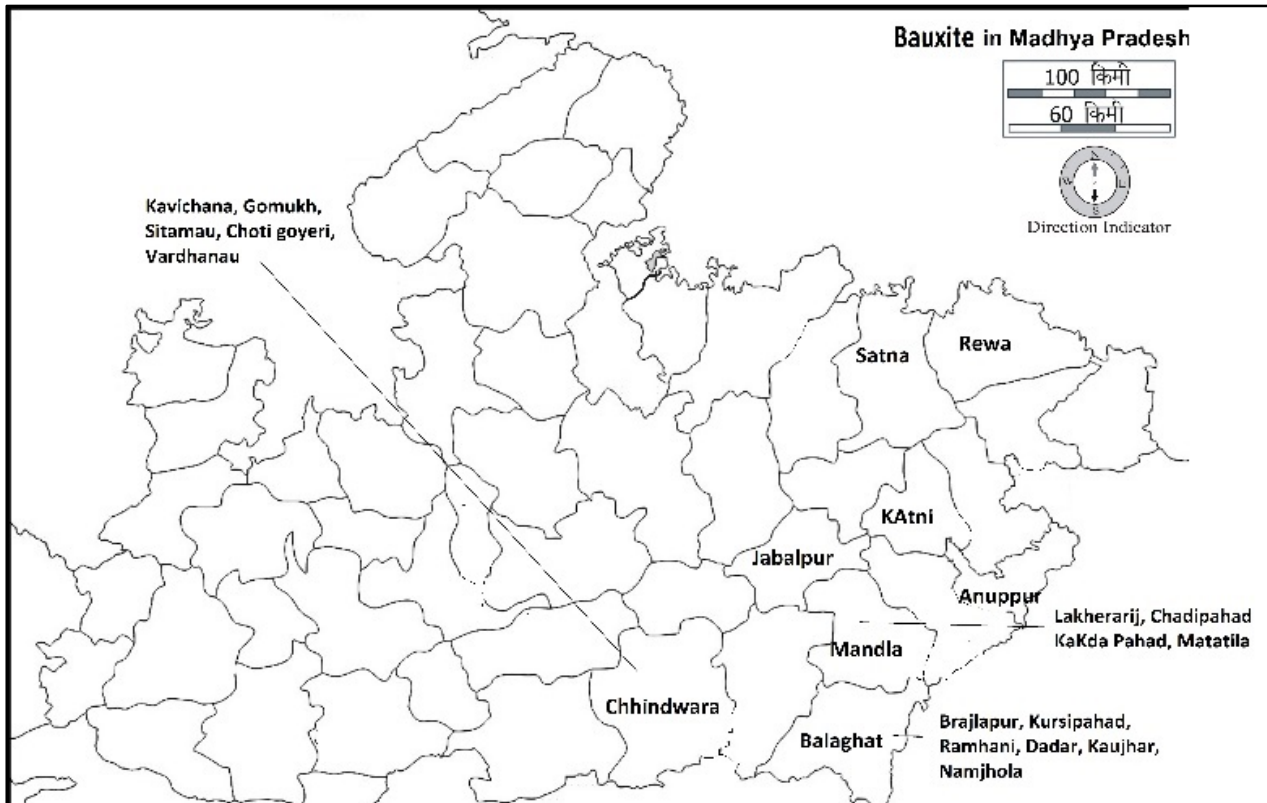
Que Write a short note on Iron Ores production in MP

Ans In Madhya Pradesh, Iron ore are found in the Dharwar rocks. Madhya Pradesh **ranks 6th** in the production of iron ore in India. Mainly magnetite and haematite Iron ores are found in Madhya Pradesh. Iron ores are found in Jabalpur, Mandla, Balaghat, Gwalior, Khandwa, Khargone and Sidhi in Madhya Pradesh. **Maximum iron ores are found in Jabalpur district**. The Iron ore of Madhya Pradesh is being exported to Germany and Japan.

Que Write a short note onBauxiteproduction in MP

Ans **Bauxite** is an ore of aluminium. When the content of aluminium is more than 40% in an ore then it is called bauxite. Madhya Pradesh stands **seventh** among all the states in production of bauxite. **The highest production of Bauxite in Madhya Pradesh is done in Balaghat**. Bauxite is being excavated at Jabalpur, Mandla, Katni, Shahdol, Anuppur, Satna, and Rewa in Madhya

Pradesh. Excavation for Bauxite started for the first time in the state at Katni in the year 1908. Bauxite is sent from Amarkantak (Anuppur) to Renukot Aluminium Plant in Uttar Pradesh. Before the separation of Chhattisgarh country's 44% of bauxite was produced by Madhya Pradesh.



Que Write a short note on Copper production in MP

Ans Copper is found in igneous and metamorphic rocks. Madhya Pradesh ranks **first in the country** in copper production. Madhya Pradesh accounts for 41% of reserves of country. 69% of country's copper is produced in Madhya Pradesh. 95% to 97% copper is produced at Malajkhand in Baihar tehsil of Balaghat district of Madhya Pradesh. **Malajkhand** mine is 170 meter long and 20 meter wide. Excavation of copper from the Malajkhand (Balaghat) copper mine is being done by Hindustan Copper limited. Some amount of copper is found in Sagar, Jabalpur, Hoshangabad, Narsinghpur, Shahdol, and Umaria too. The copper ore is a 170 meter long and 20 meter wide belt. Copper is used for making electronic equipments, wires and in mixing with other metals in various chemical processes to form alloys.

Que Write a short note on Rock Phosphate production in MP.

Ans Madhya Pradesh produces 7.11% of country's total rock phosphate and stands second in terms of production. High quality rock phosphate has been found in Khargone district. Maximum rock phosphate is produced in Jhabua and Alirajpur districts of Madhya Pradesh. Besides rock phosphate is produced in Chhattarpur, Sagar too.

Que Write a short note fire clay production in MP.

Ans Madhya Pradesh is at Fifth rank in production of fire clay and produces 10% of country. Maximum production of fire clay is made in Jabalpur. Besides, fire clay is found in Narsinghpur, Shahdol, Panna, Katni and Chhindwara districts that led to establishment of number of refractory and some ceramic industries in the state.

Que Write a short note production of Limestone in MP.

Ans With 13.43% of the country's total limestone production, Madhya Pradesh is at third place as limestone producer state. In Madhya Pradesh, maximum limestone production is done in Murwara,

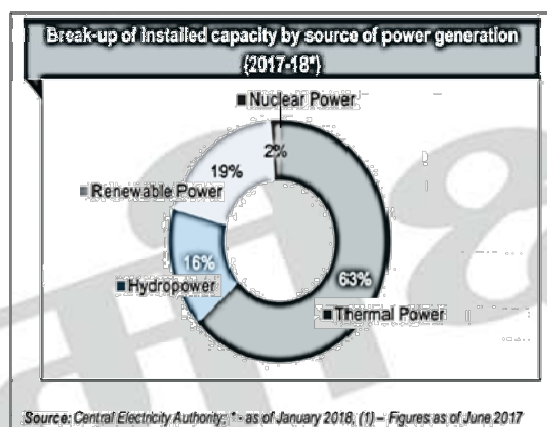
Jhukehi, Tikuria in Katni district. Limestone is produced in Jabalpur, Satna, Damoh, Chhindwara, Dhar, Jhabua, Gwalior, Morena, Sagar, Panna etc. districts too.

Que Write a short note production of Marble in MP.

Ans White marble is found in Jabalpur district of Madhya Pradesh. Coloured marble is found in Betul, Seoni, Chhindwara, Narsinghpur districts. Red and Green marble are found at Bagh near Gwalior and Chhindwada. Used in architectural designs for floors and walls. Articles like fountains, statues, animal figures, plates, home decoratives, Kitchen counter tops etc. can also be made by marble.

Que What is the Status of Energy in Madhya Pradesh

Ans In January 2018, Madhya Pradesh had total installed power generation Capacity of 20,119.32 MW, comprising 5,867.62 MW under state utilities, 5,070.70 MW under central utilities & 9,181 MW under the private sector. Out of the total installed power generation Capacity, 12,731.70 MW was contributed by thermal power, 3,223.66 MW was contributed by hydropower, 273.00 MW was contributed by nuclear power & renewable power contributed 3,890.96 MW. Madhya Pradesh is on its way to become a solar power hub, with 114 projects currently. As on November 2017, Madhya Pradesh has 11 Small Hydro Power Projects with the Capacity of 86.16 MW.



Que What is the state of Wind energy in Madhya Pradesh?

Ans Among the renewable sources of energy wind energy contributed the highest in present scenario. It is the direct effect of wind energy policy released in 2012. State government has the target of installed wind Capacity of at least 6200 megawatt by 2022. Maximum number of wind mill is in **Indore**. Wind energy based state's plant is **Jamgodrani** of Dewas which is biggest station of Madhya Pradesh Its production Capacity in 20 MW.

Que What is the state of Solar energy in Madhya Pradesh?

Ans Madhya Pradesh receives a high solar radiation of more than 5.5 Kilowatt per hour per square meter per day, with around 300 day of clean Sun because of tropic of cancer. Therefore Madhya Pradesh has a great scope for harnessing solar energy. Madhya Pradesh has come down with solar policy in 2012 with a view to trap the solar energy.

In July 2020, the Asia's largest ultra mega solar power plant at Rewa in Madhya Pradesh for an investment of Rs 4,500 crore (US\$ 695.09 million), which will spread across 1,600 hectares of land and generate 750 MW of electricity has been inaugurated by PM Narendra Modi.

Ques. Sardar Sarovar Dam

Ans

- Founder in 1961; inaugurated in 2017
- Located at Bharuch district, Gujrat
- 1450 MW energy (57% to MP)
- Second largest Gravity dam of world
- 138.68 meter height it
- Joint project of MP, city, Rajshtan & Maharashtra

Ques. Indira Sagar project

Ans

- founded by Indira Gandhi in 1984
- Punasa, Khandwa
- 100 MW
- Largest dam of MP
- Narmada Bachao andolan is associated with it

Ques. Chandni Thermal Power Plant

- Oldest thermal power plant
- located in Burhanpur (Supplies electricity to Neenagar paper mil)
- 17 mw capacity

Ques. BHEL, Bhopal

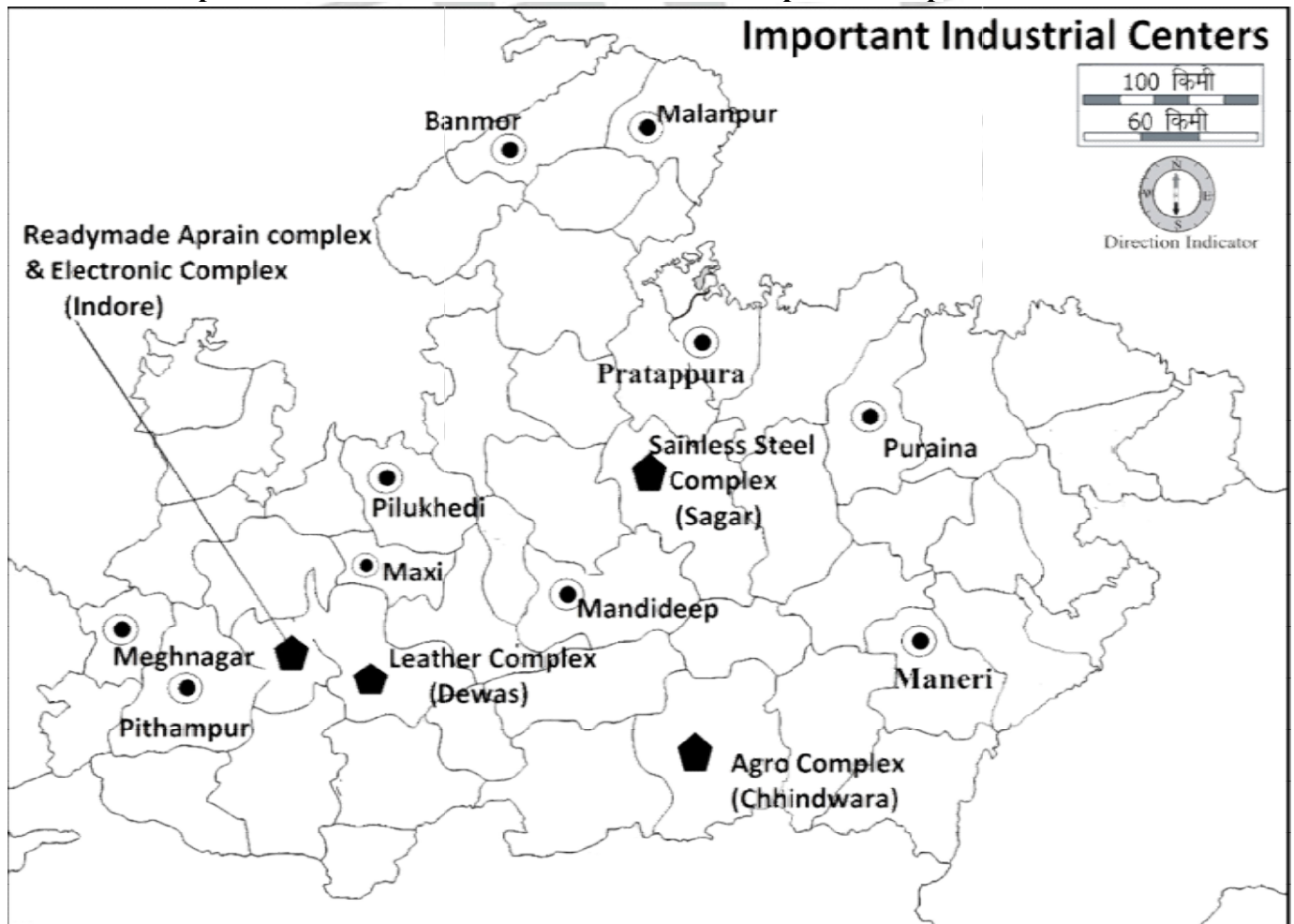
→ BHEL Stands for Bhopal heavy electronics limited, located at Bhopal in (1961) with the help of UK United kingdom.

Que- List out the Industrial Complexes of Madhya Pradesh.

Ans Major Industrial Complexes of Madhya Pradesh

- i. Electronics Complex – Indore
- ii. Leather Complex – Dewas
- iii. Readymade apprain Complex – Indore
- iv. Agro Complex – Chhindwara
- v. Stainless Steel Complex – Sagar

Que- Locate Important Industrial centers and Industrial complex on Map



Que Write a short note on Audyogik Kendra Vikas Nigam.

Ans 55 districts of Madhya Pradesh are divided in five AKVN's (Audyogik Kendra Vikas Nigam). Land availability is one of the key factors for setting up of an industrial unit. In Madhya Pradesh, one can choose from 48,000 hectares (1,18,610 Acres) of Government land bank.

The state is leader in textile manufacturing, automobiles, food processing, engineering & agriculture, and equipment manufacturing. The peaceful manpower of the state is an edit advantage for industrial development.

Industrial Development clusters in Madhya Pradesh (Developed by Audogik Kendra Vikas Nigam):-

1. Indore and Ujjain Region:-Pitahmpur (Dhar), Kheda, Meghanagar, Ujjain, Dewas, Maksi, Jagga Kadhi.
2. Bhopal Region :-Mandideep, Pillukhedi/Badai and Pipariya.
3. Gwalior and Sagar Region :-Malanpur, Ghirongi, Banmore, Chainpura, Pratapura, Pureenna.
4. Jabalpur Region :-Borgan, Maneri, Lamtara, Katni.
5. Rewa Region :-Rewa, Baidhan, mahiar, Mandantala.

Que Comment on Bhopal Gas Tragedy

Ans Bhopal Gas Tragedy is the Industrial Hazard of Madhya Pradesh. On December 3, 1984, Leakage of methyl isocyanides (MIC) gas at Union Carbide Pesticide plant at Bhopal caused death of more than 2,500 people, leaving lakhs of people affected. The action taken to neutralize the gas was called 'Operation Faith'.

'Animals People', an English novel written by Indian writer Indra Singh on Bhopal Gas Tragedy has been honoured with Commonwealth Writers Award. This novel is dedicated to Sunil Kumar who was affected due to the gas tragedy

Que- Name the mineral based Industries in Madhya Pradesh

Ans Most of such industries are there in the western Madhya Pradesh. Major centers of mineral based industries are in Dhar, Dewas, Indore, Katni, Satna..

1. Cement Industry

- Banmore Cement Factory, Morena (1922) -**First cement factory.**
- Kaimur Cement Factory, Katni (1923)
- Sarla Cement, Maihar (Satna) (1980-81)
- Sarla Cement Works, Satna (1962) (Founded by Birla Group)
- J.P. Cement, Rewa
- Jamul, Chhindwara
- Cement Factory, Neemuch (1980-81)
- Cement Corporation of India, Naya Gaon (Mandsaur)
- Malanpur Cement Works, Bhind (1984)
- Jeerabad Cement Factory, Dhar (1985)

2. China Clay Industry

- China Clay factories are at Gwalior, Jabalpur, Ratlam, Katni

3. Manganese Industry

- Manganese based industries are at Balaghat and Chhindwara in Madhya Pradesh.

4. Copper Industry

- National Copper Project is at Malajkhand of Balaghat district.

6. Diamond Industry

- Diamond refining factories are at Panna, Satna, Jabalpur in Madhya Pradesh.

7. Rock Phosphate Industry

- Rock Phosphate factory is at Jhabua in Madhya Pradesh.

Que- Name the mineral Forest Based industries in Madhya Pradesh

Ans Almost 25% of geographical area of Madhya Pradesh is under Forest. Though forest preservation is preferred over the forest-based industries, still some majore industries based on the byproduct of forests are -

1. Paper Industry

- National Newsprint and Paper Mills, Neapanagar (Burhanpur)
- Orient Paper Mills, Amlai (Shahdol)
- Fine Paper Factory is at Indore.
- Paper Mills are in Bhopal, Ratlam and Gwalior.

2. Bidi Industry

- Madhya Pradesh has nearly **260** bidi factories.
- **Jabalpur** is a hub of bidi plants. Bidi factories are also at Rewa, Damoh, Sagar, Satna.

3. Catechu (kattha) Industry

- Catechu factories are at Banmore, Shivpuri, Rewa.
- It is majorly run by tribals of Khairwar tribe.

4. Saw Mills/ Saw Mill Industry

- Madhya Pradesh has nearly 113 sawing mills. They are in Jabalpur, Mandla, Balaghat, Chhindwara districts.

Que Distinguish between Alluvial soil and Black soil.

Ans .

Alluvial Soil	Black Soil
(a)These soils are formed by the deposition of rivers. (b)They are mainly found in northern plains and coastal strips. (c)These soils are loamy and permeable. (d)In the dry, hot, season they do not develop cracks.	(a)These soils have been derived from the weathered lava of the deccan trap. (b)They are mainly found in the northwestern parts of deccan plateau. (c)These soils are clayey and impermeable. (d)They develop cracks in hot regions.

Que Distinguish between Red soil and Laterite soil.

Ans .

Red Soil	Laterite Soil
(a)These soils are formed in areas of igneous and metamorphic rocks. (b)They are formed due to weathering. (c)They consist of loose gravel which is very coarse. (d)Found in parts of Madhya Pradesh , Orissa , Tamil Nadu etc.	(a)These soils are formed in areas where there is heavy rainfall. (b)They are formed due to leaching. (c)They consist of fine particles. (d)Mostly found along western Ghtas , Meghalaya etc.

Que Write a short note on Alluvial Soil, its distribution in MP and its characterstics.

Ans. Fine particles are deposited in the delta region of these rivers after flowing hundreds of kilometers in thousand years. These fine particles are known as alluvium. This soil consists of fine sand, clay and loamy particle.

This soil is found in large area of the country and is very important. It occupies 40 percent of total area of the country. This Soil is mostly found in North-Western districts of Madhya Pradesh, in the plains of Bundelkhand and Chambal region.

It is found in Morena, Bhind, Gwalior and Shivpuri districts of Madhya Pradesh, about 30 lakh Acres which is about 3% of total area of Madhya Pradesh.

Characteristics

- (1) This soil consists of fine sand, clay and loamy particles.
- (2) It is the most fertile soil.
- (3) This soil is generally deficient in nitrogen, phosphorus and humus, but rich in potash and lime.
- (4) It is easy to dig wells in it and therefore is useful for agriculture

Que Define Black Soil and also mention its Characteristics

Ans Black soil is also known as Regur or Black cotton soil. It is dark black in colour.

Characteristics-

- (1) It is made of fine grained particles
- (2) It retains moisture for a long time.
- (3) It is rich in potash, lime, magnesium, aluminium and iron.
- (4) It is generally deficient in nitrogen, phosphorus and humus.
- (5) It is suitable for cotton and cereals.

Que Define Red Soil and also mention its Characteristics

Ans Red Soil is red, brown, chocolate-yellow and black in colour. It is found from Bundelkhand region.

Characteristics-

- (1) It is red in colour because of the iron present in it. It is red, yellow or brown in colour.
- (2) It is derived by, the disintegration of crystalline and metamorphic rocks.
- (3) Its depth and fertility is not same everywhere as it is made of different types of rocks.

Que Define Laterite Soil and also mention its Characteristics

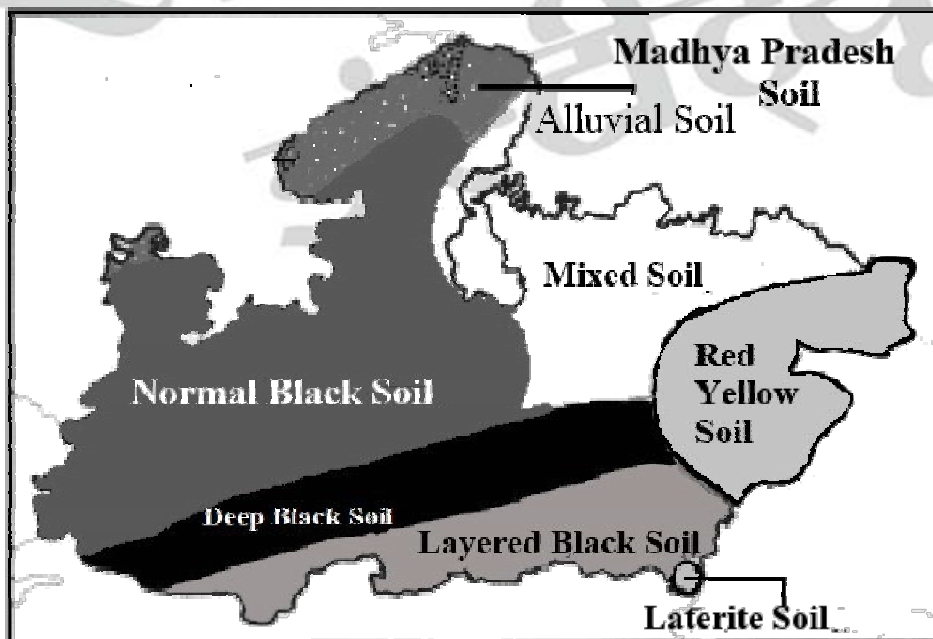
Ans Laterite soil is rich in iron and aluminium and is commonly considered to have formed in hot and wet tropical areas. Nearly all laterites are of rusty-red coloration, because of high iron oxide content. They develop by intensive and prolonged weathering of the underlying parent rock.

Characteristics-

- (1) It is formed due to disintegration of laterite rocks.
- (2) It is poor in lime, phosphorus and potash but rich in humus.
- (3) It is suitable for rice, cotton, wheat, cereals, millets, cinchona tea, coffee etc.

Que Draw the map of Distribution of Soil in Madhya Pradesh.

Ans

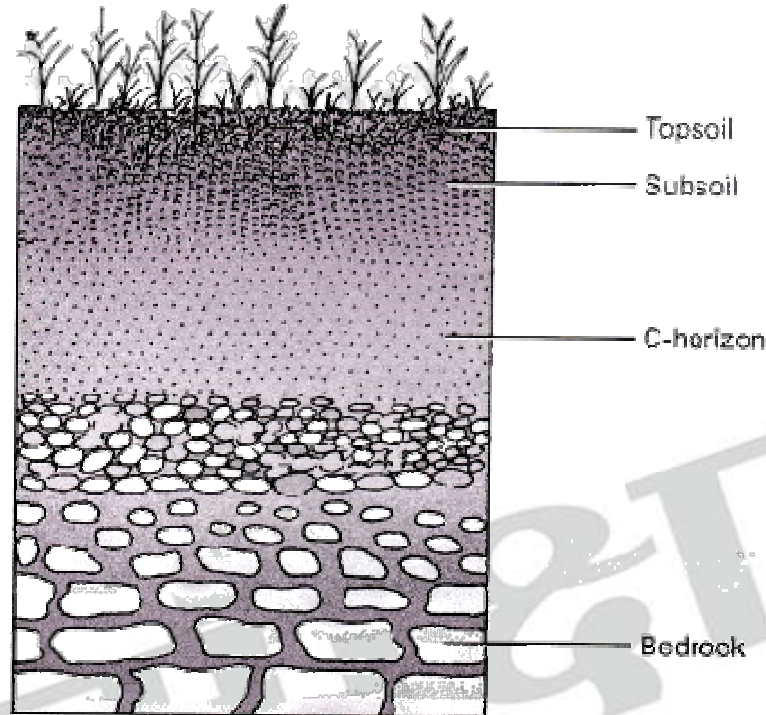


Que What is meant by soil profile ? Explain.

Ans Soil profile is the sequence, colour, texture and nature of the horizons (layers) superimposed one above the other and exposed in a pit-section dug through the soil mantle. (a) Upper most layer is Top

Soil. (b) Second layer is Sub-Soil. (c) Third layer is weathered parent rock material. (d) Fourth layer consists of parent rocks.

Top Soil of the upper most layers is the real soil. It's important characteristic is the presence of humus and organic matter. Second layer is Sub-soil which consists of rocks, sand particles and clay. Third layer consists of weathered parent rock material and the fourth layer is made of parent rocks.



Que What is the importance of soil in human life ? Explain.

Ans. Soil is very important for human life, especially for farmers. Human life depends on soil. All living organisms get their food directly or indirectly from soil. We get cotton, silk, jute and wool for making clothes from soil, either directly or indirectly, e.g. sheep eats grass and gives us wool, silk worms survive on vegetation. Our industries like animal rearing, agriculture and forest based industries all depend on soil. So soil is the basis of our life. According to Wilcox, the history of civilization is the history of the soil and the education of the individual begins from the soil.

Que Define Soil degradation

Ans Soil degradation is the decline in soil quality caused by its improper use, usually for agricultural, pastoral, industrial or urban purposes.

Soil degradation is a serious global environmental problem and may be exacerbated by climate change.

It encompasses physical (soil erosion), chemical (salinity and alkalinity, pollution) and biological deterioration (pollution and deterioration of vegetal cover).

Que Why is conservation of resources necessary? Discuss three methods of conserving soil resources.

Ans Conservation is defined as the management of resources by humans. It aims at sustainable benefit to the present generation. Conservation is a judicious (careful) and planned use of natural resources because improper and overuse can deplete them.

Methods of conserving soil resources are:-

(a) Avoid overgrazing as it destroys the vegetation cover.

- (b) Contour ploughing, that is ploughing along the slopes and not down the slopes.
- (c) Terracing: The slopes are cut to form steps. This checks the speed of the flow of water and reduces erosion.
- (d) Planting shelter belts. Shrubs and trees are planted along fields to check the force of the wind.
- (e) Avoid deforestation, i.e., reckless cutting of trees.

Que Define Soil Reclamation

Ans **Soil Reclamation** is the process of reclaiming the soil's quality like lost fertility, minerals, nutrients and moisture to make it fit for intensive use again. The reclamation of soil, its nutrients and fertility are done with an objective to increase further land use and enhance agricultural activities like cropping and irrigation.

This process in combination with Land reclamation is being employed widely for the creation of national parks and wildlife sanctuaries for enhancing wilderness and forest life by a combined process called **Pedogenesis**.

Pedogenesis, also known as **soil development, soil evolution, soil formation, and soil genesis**, is the process of soil formation as regulated by the effects of place, environment, and history.

Que What are the methods for Soil Reclamation**Ans Methods for Soil Reclamation**

Soil Reclamation is carried out for the development of layers, termed soil horizons, distinguished by differences in **color, structure, texture, and chemistry**. These features occur in patterns of soil type distribution, forming in response to differences in soil forming factors.

There are numerous **Biological, Chemical and Biogeochemical processes** are employed to execute **Soil Reclamation through Pedogenesis**. Methods used for soil reclamation depend on the quality of the soil and objective of soil reclamation. The most popular methods used for soil reclamation are:

- **Phytoremediation**
- **Bioremediation**
- **Phytoextraction/Photodegradation**
- **Electroremediation**
- **Biofiltration**
- **Surface Insulation**
- **Hydraulic method (Soil washing)**
- **Air Sparging**
- **Composting**

Que What are Badlands?

Ans Badlands are erosional landforms of highly dissected morphology that are created on soft bedrock in a variety of climate conditions.

They develop in arid to semiarid areas where the bedrock is poorly cemented and rainfall is generally heavy and intermittent.

The dry, granular surface material and light vegetation are swept from the slopes during showers, leaving the gullies bare

11 LONG QUESTIONS- ANSWERS

Que Comment on Gondwana System in Madhya Pradesh

Ans The Gondwana system derives its name from kingdoms of Gonds, the most primitive people living in Andhra Pradesh. The main areas of Gondwana rocks in the Peninsula are along the Damodar valley in Jharkhand, along the Mahanadi river valley in Chhattisgarh and Odisha, and southern part of Madhya Pradesh.

Economically, Gondwana rocks are most important in India, they are rich in deposits of **coal, gypsum, copper, dolomite, sandstones, slates** etc. This system of rocks is mainly found in Satpura and Baghelkhand Plateau region of Madhya Pradesh. Gondwana system of rocks mainly consists of layer rocks.

The Gondwana rocks of Madhya Pradesh are divided into three categories.

(a) Lower Gondwana System

This is also known as Talchir system of rocks and is mainly found in Sone-Mahanadi valley and the Satpura region. Because of an average thickness of 10-122 m, the geologists consider them to be made up of the action of ice and winds both. In the state the Mohpani and Pench valley coal areas are of the lower Gondwana period.

(b) Middle Gondwana System

In Madhya Pradesh, the middle Gondwana rock system is developed in Satpura region and in the surrounding areas like Pachhat, Pachmarhi, Denwa and Bagara. In Sone-Mahanadi area they are known as Parsora and Tiki. In the Pachmarhi region, the big layer **sandstone** is found which is **yellowish red** in appearance because of the excess of iron. Clay stone is found in Pachmarhi.

(c) Upper Gondwana System

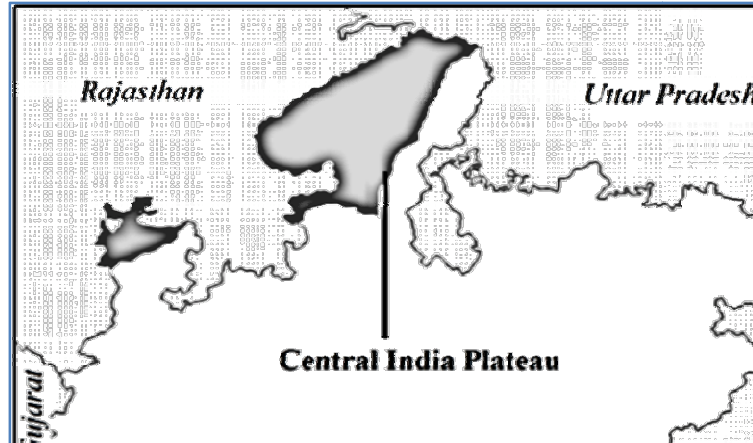
This system is found in both the regions, Satpura and Baghelkhand. Sandstone and shales are abundant in these rock systems. They differ from Gondwana deposits in having coalbeds, vegetational remains and limestone. In Satpura area they are known as **Chaugan**. They contain layers of **limestone, clay, sandstone** and **conglomerate** in abundance.

The Jabalpur series is rich in soft sandstone, white and yellow shale, coal, brown and coal beds and typical animal remains.

Que Write a descriptive note on Plateau of Central India

Ans Spread as '**Crown of Madhya Pradesh**' and touching the border of Rajasthan and Uttar Pradesh, the Plateau of Central India is located at a height of about 300 meters above sea level on the northwestern border of the state. It is situated in north and north-west of Madhya Pradesh.

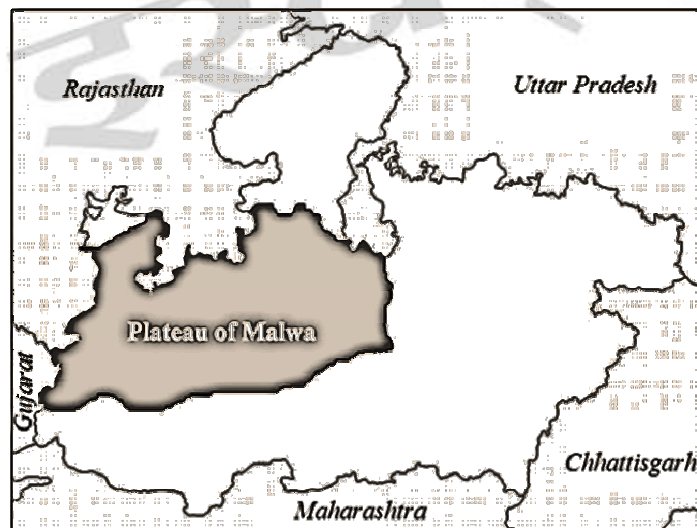
- Total area of this plateau is 32,896 Sq. Km. which is 10.7% of total area of Madhya Pradesh.
- This region includes **Mandsaur, Neemuch, Shivpuri, Sheopur, Gwalior, Guna, Morena** and **western part of Bhind**.
- Most of the part of Central India Plateau is undulant and hilly. The slope of this highland is towards south to south west and from north to north east. In these regions, rivers follow these slopes.
- According to geology, the Central highlands are made up of **Cuddappah rock group, Vindhya rock group, Deccan trap** and the new sedimentation.
- The highland has **very less forest** only 20-70% area is covered by forest. The most important forest product is the **Catechu**, furthermore fire wood and bamboo are also found.
- It has continental type of climate. The maximum temperature of this region is 40⁰ to 44⁰C and minimum temperature. is 15⁰ to 18⁰C.
- The average rainfall is less than 75 cm.
- Soil of this region is alluvial which is famous for mustard production. Wheat, Barley, Jowar, etc. are also grown here.



- Rivers of this plateau flow towards north and north east direction. Chambal, Sindh, Kunwari, Parwati, Betwa are some of the rivers of this plateau.
- This zone is mainly famous for its small industries. Rapid development of industries can be seen in this plateau. Some of the major industries are-
 - Gwalior - Biscuit Factory, ceramic tools
 - Malanpur (Bhind) - Cadbury, bulb factory
 - Banmore (Morena) - J. K. Tyre Industry
 - Kailaras (Morena) - Sugar Mill
 - Shivpuri - Catechu factory
 - Neemuch - Alkaloid factory
- The main tourist spots of this plateau are Gwalior and Shivpuri. **Madhav National Park** of Shivpuri, Chambal wild life sanctuary of Morena, Fort of Gwalior, and Samadhi of **ShankhyaRajeScindia** of Shivpuri etc.
- Brijbhasha and Bundeli are famous dialects of this region Sahariya tribe is found in this plateau.

Que Write a descriptive note on Plateau of Malwa

Ans The central western region of Madhya Pradesh is known as Malwa Plateau. Its average elevation from sea level is 300 to 600 meters. Its geographical situation is $22^{\circ}17'$ to $25^{\circ}8'$ northern latitude and $74^{\circ}-20^{\circ}$ to $79^{\circ}20'$ eastern longitude. Its area is 88,222 Sq. Km. which is 28.62% of the total area of Madhya Pradesh



- This extended part of Malwa covers 18 districts of the state. It includes **Indore, Dhar, Jhabua, Ratlam, Ujjain, Sagar, Dewas, Mandsaur, Neemuch, Agra, Malwa, Sehore, Bhopal, Sagar, Guna, Raisen, Rajgarh, Vidisha and Ashoknagar** district.

- Climate of this plateau is temperate. Chinese traveller **Fa-hien** called Malwa's climate as the world's best climate.
- Average temperature during summer season is 40°C and during winter season it is 12.5° C. Average rainfall of Malwa plateau is 75 to 125 cm.
- Major rivers of this plateau are Mahi, Shipra, Kalisindh, Parvati, Gambhir, Chambal etc.
- Due to erosion of Basalt rocks, Black soils are found in this plateau in which crops like soyabean, wheat, potato is grown.
- Highest peak of this plateau is **Sigar** (881 meter) which is situated near Mhow and the second highest peak is **Janapav** (854 m.).
- Although this plateau is devoid of minerals but this plateau is rich in industrial area. Some of the major industrial centres are –

- | | | |
|---|-----------------------|---------------------|
| 1. Pithampur – Dhar (Detroit of Madhya Pradesh) | 2. Mandideep – Raisen | |
| 3. Peelukhedi – Rajgarh | 4. Meghnagar – Jhabua | 5. Maksi – Shajapur |
| 6. Ganjwasodha, Lateri – Vidisha | 7. Agasod - Sagar | |

- Mahakaleshwar (Ujjain), Chamunda Devi temple (Dewas), Mandu (Dhar), Sanchi (Raisen), Bheembetka caves (Raisen), Udaigiri caves (Vidisha) are some of the tourist places of this plateau.
- Bhil and Gond tribal population is mainly fourished in this region.

Que Write a descriptive note on Vindhyan Range

Ans

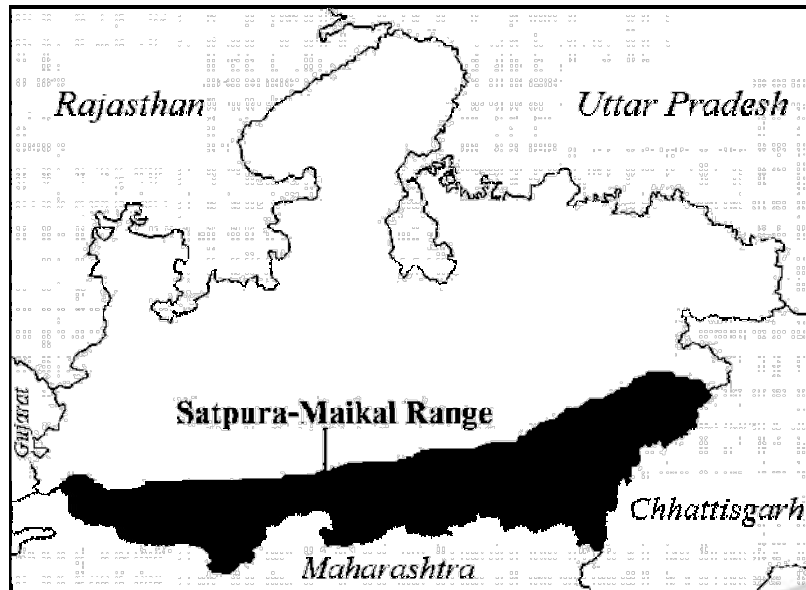
- Vindhyan Range is non-tectonic mountain, it was formed not because of plate collision but because of the downward faulting of the Narmada Rift Valley (NRV) to their south.
- The Vindhyan Range, overlooking the Narmada valley, rises as an escarpment (a long, steep slope at the edge of a plateau or separating areas of land at different heights) flanking (neighboring on one side) the northern edge of the Narmada-Son Trough (the rift through which the Narmada river flows)(trough is opposite of ridge. It is a narrow depression).
- It runs more or less parallel to the **Narmada Valley** in an east-west direction from Jobat in Gujarat to Sasaram in Bihar for a distance of over 1,200 km.
- The general elevation of the Vindhyan Range is 300 to 650 m.
- Most parts of the Vindhyan Range are composed of horizontally bedded sedimentary rocks of ancient age. {Rock System}
- The Vindhyan Range are continued eastwards as the **Bharner** and **Kaimur hills**.
- This range acts as a watershed between the Ganga system and the river systems of south India.
- The rivers **Chambal**, **Betwa** and **Ken** rise within 30 km of the Narmada.

Que Write a descriptive note on Satpura Maikal Range

Ans Satpura Maikal Range covers the area of Madhya Pradesh ranging from south west boundary of Madhya Pradesh up to the Amarkantak in the East.

- The most important and highest mountain range of the state lies between Narmada and Tapi rivers. It spread between 21⁰30' to 23⁰ northern latitude and 74⁰30' to 81⁰ eastern longitude.
- Its general elevation from sea level is from 400m to 600m.
- Its total area is 3400sq. km which is 11% of total area of Madhya Pradesh. It includes Balaghat, **Chhindwara**, **Betul**, **Hoshangabad**, **Khandwa**, **Barwani**, **Burhanpur** and **Khandwa**.
- This region can be further subdivided into three ranges-
 - a. **Rajpipla Range** – It is the western part of Satpura – Maikal range. Its expansion is from Rajpipla Range to Burhanpur Pass.
 - b. **Central Range** – It falls in the east of Rajpipla range. It includes different ranges like Gawaligada range, Mahadev range etc.

- c. **Maikal Range** – It makes the Eastern boundary of this range whose expansion is from Balaghat to Amarkantak.



- Monsoon climate is prevalent. Average temperature during summer season is 40⁰C & during winter season is 15⁰C.
- Average rainfall of this region, ranges from 125 to 150 cm, highest rainfall's area Pachmarhi lies in this region.
- Layered Black soil is found in this region.
- Crops like jowar, wheat, cotton, rice are grown.
- Narmada, Tapti, Wainganga, Wardha rivers flow in this region.
- Satpura-Maikal range is rich in minerals and following are chief minerals and their producing areas -

Manganese	– Balaghat, Chhindwara
Coal	– Patharkhera of Betul
Copper	– Malajkhand area of Balaghat
Bauxite	– Shahdol, Balaghat, Mandla
Iron	– Balaghat

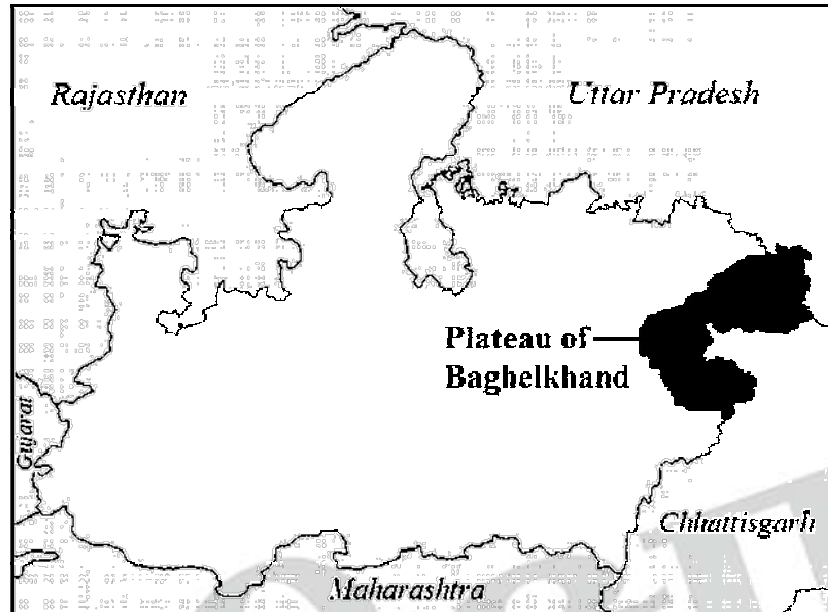
- National Newsprint and Paper Mill (Nepanagar), Mining industries (Betul and Chhindwara), Cotton Textile Industries are some of the major industries of this region.
- **Pachmarhi, Tamiya, Patalkot** (Chhindwara), **Muktagiri** (Betul), **Bawangaja** (Barwani) are some of the tourist spots.
- Gond, Baiga, Bhil, Korku, Bhariya etc. tribal population is found here.

Que Write a descriptive note on Plateau of Baghelkhand

Ans Plateau of Baghelkhan is located on the north- east portion of Madhya Pradesh. It is also known as eastern plateau. Its physical situation is 23⁰40' to 24⁰35' northern latitude and 80⁰5' to 82⁰47' eastern longitude. Total area of this region is 21577 sq.km. which is 7% of the total area of Madhya Pradesh. Highest peak of Baghelkhand Plateau is at Devgarh. It includes **Sidhi, Singrauli, Shahdol, Umaria, Anuppur, Katni, Jabalpur** and some parts of **Mandla**.

- Tropic of cancer divides this plateau in two equal parts.
- **Sone, Johila, Narmada, Banas, Rihand, Gopad** are some of the rivers flow in this plateau.
- Climate of this plateau is monsoon type. Average rainfall varies from 75 to 140 cm. Average temperature during winter season is 15⁰C & during summer season 38⁰C.

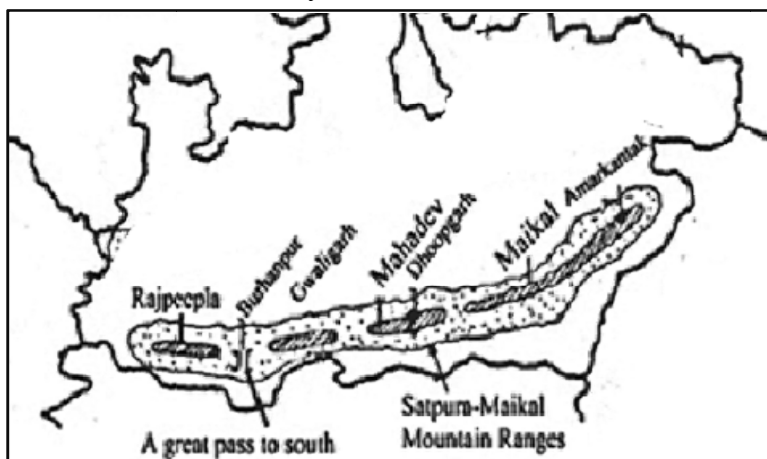
- It is composed of Gondwana rock group and therefore forms the chief sources of coal in Madhya Pradesh although Vindhyan granite rock groups are also found in this region.
- Red and Yellow soil is found in this plateau. Rice is the main crop. Other crops are are linseed (Alsi), Sorghum (Jowar), Sesame (Til).



- Sealing wax factory (Umaria), Paper Mill (Amlai) are some of the major industries of this plateau.
- Graphite, Corundum, Coal, Quartz are some of the major minerals found in this plateau.
- Coal producing district Singrauli lies in this plateau.
- This plateau leads in cement production and thermal power generation.
- Energy capital of M.P Bedhan (Singrauli) is in this plateau.
- Amarkantak, Bandhavgarh National park (Umaria), Sanjay National park (Sidhi) are some of the tourist spots of this plateau.
- **Baiga, Kol, Korba, Virharetc** tribal population found here.

Que Write a short note on Satpura hills.

Ans Satpura hills are 1,120 kilometers long. It is wide from Rajpipla hill in the west upto Maikal hills in the east. This mountain is situated west to east in the south of Narmada River. Satpura hills are made up of Granite and Basalt rocks. Average height of Satpura is 900 meter and more. Its highest peak is **Dhoopgarh** which is 1,350 meter high. It is situated in **Mahadeo range**. State's famous hill station **Pachmarhi** is located near it only.

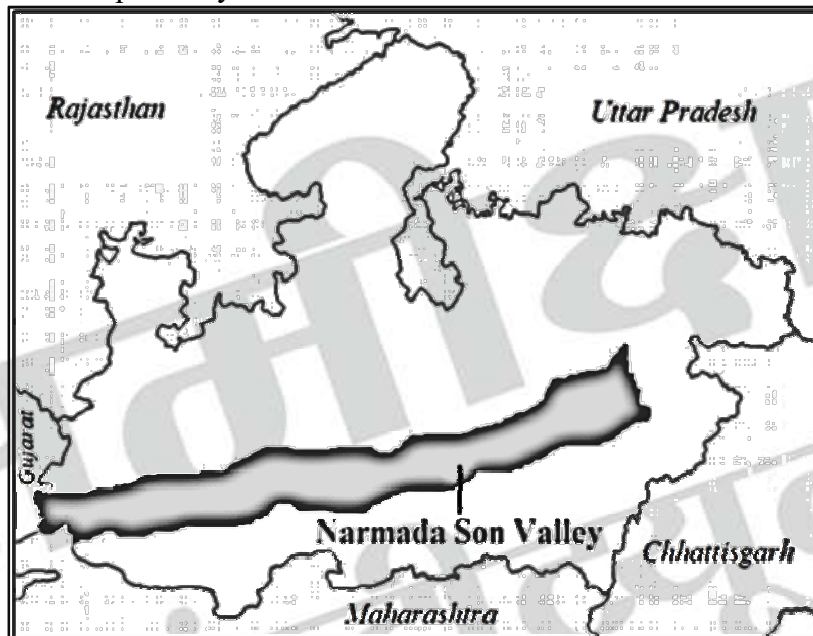


↪ Divisions of Satpura hills-

- Mahadeo series:** It is the main part of Satpura. This is the highest mountain of Satpura-Maikal series. Pachmarhi and Dhoopgarh are located in the Mahadeo series. Tawa is the main river originated from the Mahadev series.
- Maikal series (Crescent shaped mountain):** The eastern extension of Satpura is the Maikal Mountain. It is shaped like a half moon. Maikal is a volcanic plateau. Its highest peak is Amarkantak (1127 m). Rivers originated from Maikal: Narmada, Son, Johila, and Rihand.
- Rajpipla series** - It is the western extension part of Satpura. Rivers originated from Rajpipla is Tapti and its tributaries. Burhanpur pass (Gateway of South), Akharani, Barwani Bijargarh, and Asirgarh etc. are some significant feature of this series.

Que Write a descriptive note on Valley of Narmada-Son

Ans Stretching from east to west the central part of Madhya Pradesh is called the Narmada-son valley. It is the lowest part of the state, its general elevation from sea level is 300m. The valley is mostly made up of Deccan trap rock system.



- Its physical expansion is from 22°30' to 23°45' north latitude and 74° to 81°30' eastern longitude.
- The total area of this region is 86000 sq. km which is 26% of total area of Madhya Pradesh.
- It includes **Shahdol, Umaria, Anuppur, Mandla, Dindori, Jabalpur, Narsinghpur, Hoshangabad, Harda, Dewas, Barwani, Khargone, Khandwa and Alirajpur.**
- Monsoon climate is prevalent average rainfall of this region is 70 to 140 cm and the temperature of this region is maximum 40°C and minimum temperature is 10°C.
- About 25% of the valley is covered with forest and dark black soil is also found.
- Narmada, Son, Tawa, Shakkar, Dudhi, Hathni and Barna are some of the rivers flow in this region.
- This region is rich from agricultural point of view in which wheat is mainly produced. Rice, Cotton, Groundnut and Soyabean are other main crops.
- Main minerals found in this region are lime stone, sangmarmar, coal, tungsten (agargaon), antimoni etc. Cement, rubber, glass & ceramic industries are concentrated in Jabalpur.
- Maneri (Mandla) is an industrial development centre of Madhya Pradesh.
- Narmada-Sone valley's main tourist spots are **Chounsath Yogini Temple (Jabalpur), Bhedaghat (Jabalpur), Omkereshwar (Khandwa), Maheshwar (Khargone), Dhuadhaar Waterfall** and the

marble rocks of Bhedaghat at Jabalpur, **Tigamva temple** (Jabalpur), **Rupnath** (Rock edict of Ashok at Jabalpur), **Amarkantak** etc.

Que Write a short note on River Narmada.

Ans Narmada is the longest river of Madhya Pradesh and **fifthlargest river of India**. It originates from Amarkantak Plateau of Maikal range in Anuppur district. Its total length is **1312 km**. out of which **1077 km**. lies in Madhya Pradesh. Narmada river has more than 40 tributaries approx. Tawa, Shakkar, Kolar, Barna, Doodhi are some of the major tributaries. The largest tributary of Narmada is **Tawa**. After flowing in Madhya Pradesh, Maharashtra and Gujarat, it falls into **Gulf of Cambay** in Arabian Sea. It is a west flowing river which forms estuary instead of Delta. Its ancient names are Rewa, Maikalsuta, Namodos, and Somodevi in ancient times, The Narmada is also referred as the **Lifeline of Madhya Pradesh and Gujarat**.

Que Give a brief idea of Distribution of soils in Madhya Pradesh.

Ans Distribution of soils in Madhya Pradesh-

1. BLACK SOIL-

Black soil is composed of Basaltic rocks mainly found in the Malwa Plateau, some parts of Satpura and Narmada Valley. It is distributed in nearly 47.6% of the land of Madhya Pradesh.

On the basis of colour and its profile, Black soil can further be classified as-

- (I) **Normal Black Soil:** This soil is found in northern Malwa plateau and Nimar region.
- (II) **Layered Black Soil:** Satpura range of Madhya Pradesh is covered with layered Black soil. It is mainly found in Chhindwara, Seoni and Betul district.
- (III) **Dark Black Soil:** This soil is abundant in Narmada valley, southern malwa plateau and some part of Satpura Range.

2. RED YELLOW SOIL -

Red-Yellow soil is found in eastern Madhya Pradesh, particularly in Baghelkhand plateau. It is distributed over 119 lakh hectare area of state which is around 40% of total area of Madhya Pradesh. In the Madhya Pradesh, this soil is mainly found in Mandla, Katni, Umaria, Balaghat, Shahdol and Sidhi districts.

3. ALLUVIAL SOIL -

This Soil is mostly found in North-Western districts of Madhya Pradesh, in the plains of Bundelkhand and Chambal region. It is found in Morena, Bhind, Gwalior and Shivpuri districts of Madhya Pradesh, about 30 lakh Acres which is about 3% of total area of Madhya Pradesh.

4. LATERITE SOIL -

This type of soil is found in around 70% area of Chhindwara and Balaghat districts.

5. MIXED SOIL

In different regions of the state red, yellow and Black soils are found in mixed form. It is mainly found in Vindhya kagari region and Bundelkhand plateau.

Que Define Black Soil and also mention its distribution in Madhya Pradesh.

Ans **Black soil** is also known as **Regur (Humus)** soil. Such soil mainly consists of iron and lime rocks. The presence of Iron gives it black colour and the presence of lime increases its moisture & retention capacity therefore needs less irrigation. The quantity of calcium, magnesium, aluminium,

iron, potassium and magnesium carbonate is more in Black soil but it lacks in nitrogen, phosphorous and carbonic elements.

Black soil is composed of Basaltic rocks mainly found in the Malwa Plateau, some parts of Satpura and Narmada Valley It is distributed in nearly 47.6% of the land of Madhya Pradesh.

Cotton and soybean are most suitable crops to be grown in such soil.

On the basis of colour and its profile, Black soil can further be classified as-

- (IV) **Normal Black Soil:** The maximum part of Black soil in Madhya Pradesh fall and this category. This soil is found in northern Malwa plateau and Nimar region. It covers around 162 lakh hectare area which is 53% of total area of Madhya Pradesh.
- (V) **Layered Black Soil:** Satpura range of Madhya Pradesh is covered with layered Black soil. It is mainly found in Chhindwara, Seoni and Betul district. Its average area in Madhya Pradesh is around 23 lakh hectare which is about 7.5% of total area of Madhya Pradesh. It is preferred for the cultivation of **wheat and rice**.
- (VI) **Dark Black Soil:** This soil is abundant in Narmada valley, southern malwa plateau and some part of Satpura Range. It covers about 1.4 lakh hectare areas which is about 0.5% of total area of Madhya Pradesh. In Madhya Pradesh, this soil is highly fertile for the production of **wheat, oilseeds and jwar** crops.

Que **Throw light on Problem of Soil erosion in Madhya Pradesh.**

Ans Soil Erosion in Madhya Pradesh is a serious problem of agriculture, due to which the land is being destroyed. Due to various environmental factors & anthropogenic factors, the upper part of the soil flows and the bottom underneath appears on the surface or the finer particles of surface are dissolved and only the gravel, rocky soil is left behind. Thus, in the destroyed soil, the nutrients for vegetation or agriculture decrease and consequently fertility and production decreases

The scene is no different in Madhya Pradesh, which is facing rapid **gully soil erosion** in its northern part along the Chambal and its tributaries. This problem of soil erosion is born for many reasons in northern Madhya Pradesh -

- The climate of northern Madhya Pradesh is semi-arid so this region receives less rainfall due to which this region lacks vegetation which is essential for soil conservation as the roots of the plants and trees hold the soil.
- Another reason for vegetation extinction is the wide culture of animal husbandary followed by the people of this region.
- The nature of monsoon rain is one of the major reasons as this rain comes after dry summer season when the soil becomes drizzle and it flows very quickly with water.
- Most of the land is plateau and hilly which has a sufficient slope to increase the flow of water. Therefore, on the two sides of Chambal and its tributary a wide belt has been converted the land into high deep pits. According to statistics, 6 lakh acres of valuable agricultural land have been converted into these patholes which is a type of Gully erosion.

Que **What are Ravines? How are they formed in Chambal region?**

Ans Badland topography is a major feature of the Chambal valley is characterized by an undulating floodplain, gullies and ravines. Ravines are a type of fluvial erosional feature and are formed as a result of constant vertical erosion by streams and rivers flowing over semi-arid and arid regions.

Formation of Ravines

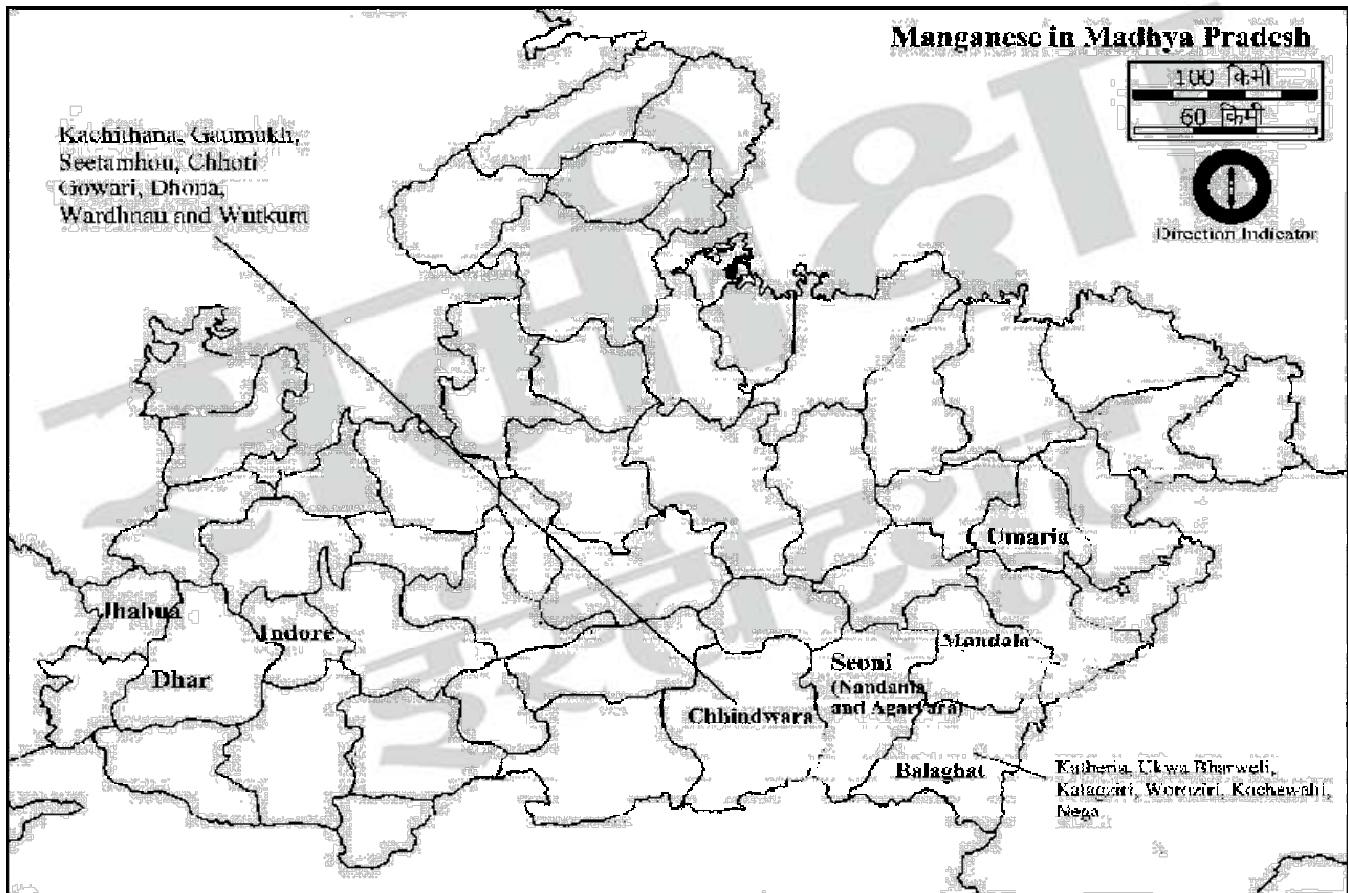
- Researchers consider the regional climate as a major factor in the formation of ravines.
- Climate indeed plays a huge role by supplying the water in the form of rain or snow as well as providing the temperature variations.

- However, the ravines of Chambal are a bit difficult to be explained solely on climatic terms.
- The region through which the Chambal River flows does not receive enough rainfall to create ravines that are 60–80 m deep.
- Researchers have attributed neotectonic activities to the Chambal ravines genesis.

It is well known that rivers are full of energy and actively erode in their initial phases and progressively become passive as they attain their base levels. But sometimes, due to tectonic movements, the base level may be lowered further thus energizing the river and reactivating the erosion. This is known as River Rejuvenation. Moreover, wind erosion has also contributed to the formation of Chambal ravines.

Que Write a short note on Manganese in MP.

Ans Madhya Pradesh is at **third place** in the country in manganese production. Madhya Pradesh produces nearly 22.82% of the country's manganese production while nearly 10.90% of the total manganese in the country is found in Madhya Pradesh. Manganese is produced in Balaghat, Chhindwara, Seoni, Mandla and Thandla in Jabua district of Madhya Pradesh.

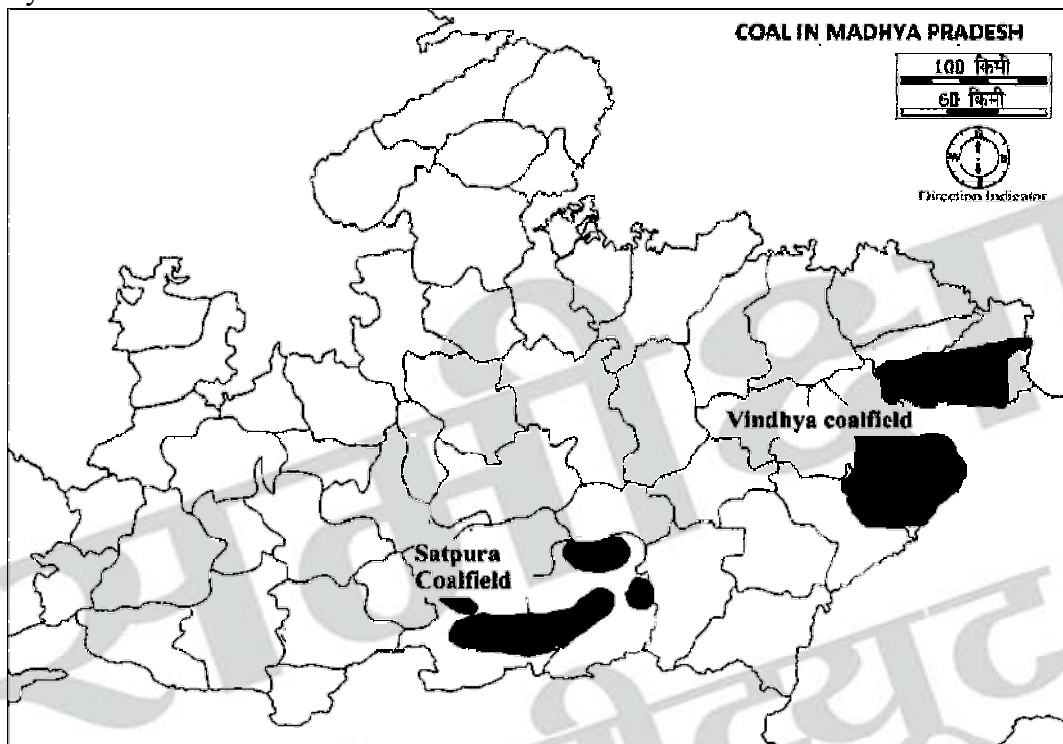


In Madhya Pradesh, **maximum manganese production is from Balaghat district** (500 lakh tonnes) and Chhindwara (180 lakh tonnes). Manganese is produced at Katheria, Ukwa, **Bharveli**, Katagziri, Woroziri, Kochewahi, Nega mines in Balaghat district. Manganese is produced at Kachithana, Gaumukh, Seetamhou, Chhoti Gowari, Dhona, Wardhnau and Wutkum mines in Chhindwara districts. Manganese is produced at Nandania and Agarwara mines in Seoni district. Manganese is used in Ferro Alloy industry. Manganese produced in Madhya Pradesh is being exported to USA, Great Britain, Germany and Russia.

Que Write a short note on Coal in MP.

Ans Coal is considered as the back bone of all industries, it is also known as '**Black gold**'. In terms of coal production, Madhya Pradesh **ranks fourth in the country**. In Madhya Pradesh, Central India coalfield and Satpura coalfield are major coal producers.

- **Central India Coalfield** – In Central India Coalfield, eastern districts of Madhya Pradesh like Umaria, Anuppur, Shahdol, and Singrauli are included. It is also called **Vindhya Pradesh coalfield**.
- Vindhya Pradesh coalfield is at first position in the state in coal stock.
- Major coal mines in Central India coalfield are Baidan (Singrauli), Sohagpur (Shahdol), Korar (Umaria) and Johila Valley.
- Sohagpur coalfield (Shahdol) is the biggest coalfield and Umaria is the smallest in Madhya Pradesh.
- In Singrauli, the coal layer is 136 meter thick which is the thickest layer of Asia and second thickest layer in the world.



❖ **Satpura coalfield-**

- Satpura coalfield, which is in Kanha and Pench Valley, includes southern districts of Betul, Hoshangabad, and Chhindwara.
- Major coal mines of Satpura coalfield includes-Shahpur (Hoshangabad), Mohpani, Dulhara (Betul), Dumua, Nimarkhera, Jamai, Parasiya (Chhindwara), Kanha valley (Seoni), Pench valley, Patharkhera (Betul) etc

Que Write a short note on Mineral Policy of Madhya Pradesh– 2010

Ans Mineral Policy for the Madhya Pradesh State 2010 was given approval at the meeting of the cabinet on September 7, 2010. The main object of this policy was to develop minerals in well planned and scientific manner keeping in mind all environmental and ecological factors. The major provisions of the policy are as follows:

1. Encouragement to the private sector for survey, assessment and prospect of new minerals deposits using the latest technology.
2. Encouragement for studies and uses, for blending of high grade with low grade mineral in a certain proportion.
3. Coordination between various departments to curb illegal mining and transportation of minerals.
4. Formation of minerals development fund.
5. Transparency in the process to grant leases of minerals.

6. Developing E-permit system for transportation of minerals.
7. Emphasis on exploration of precious metals.
8. Making existing rules more stringent, to control illegal mining and transportation of minerals.

Que What are the steps taken by government of Madhya Pradesh to improve the status of Non-Conventional Sources of energy in Madhya Pradesh?

Ans Given the climate change and the harmful effect to whole ecology and mankind, there is movement for looking for alternative and renewable source of energy which is clean and eco friendly. Therefore Madhya Pradesh also launched a drive towards the generation of electricity in the form of several policies and institutions of state government like-

- Madhya Pradesh wind power policy 2012 (amended in 2013)-3200MW
- Madhya Pradesh small hydro power policy 2011-25MW
- Madhya Pradesh Biomass power policy 2011 (amended in 2013) – 118MW
- Madhya Pradesh solar power policy 2012
- Department of New and Renewable Energy (founded in 2010)
- The Indian government has announced to contribute 175 GW renewable energy target by 2022. Under this target the state of Madhya Pradesh is supposed to have 5675 megawatt of solar, 3200 megawatt of wind, 118 megawatt of biomass and 25 megawatt of small hydro plants.

Que Give a brief note on Ultra mega power Plant of Rewa and its significance.

Ans The Prime Minister has inaugurated the 750 MW (Mega Watt) solar project set up in Rewa, Madhya Pradesh in July 2020. It is one of the Asia's largest solar power project. It comprises three solar generating units of 250 MW each located on a 500 hectare of land situated inside a solar park (total area 1500 hectare). It was developed by the Rewa Ultra Mega Solar Limited (RUMSL), a Joint Venture Company of Madhya Pradesh UrjaVikas Nigam Limited (MPUVN), and Solar Energy Corporation of India (SECI), a Central Public Sector Undertaking. Central Financial Assistance of Rs. 138 crore was provided to the RUMSL for development of the Park.

Significance:

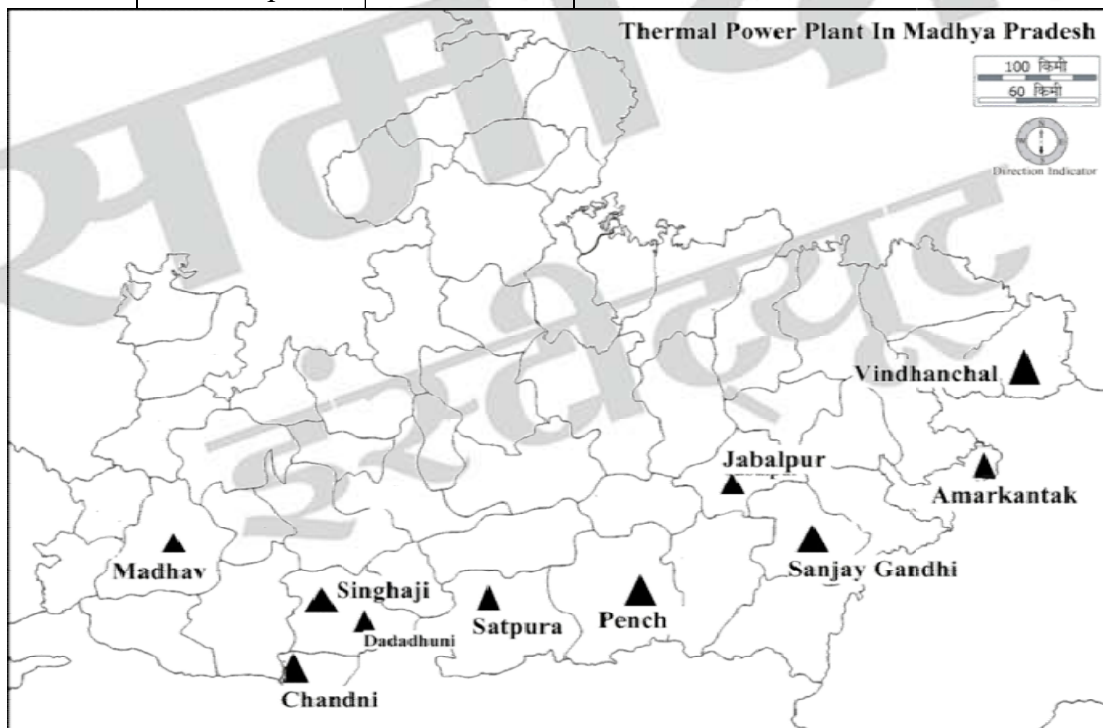
- **Grid Parity Barrier:** It is the first solar project in the country to break the grid parity barrier. Grid parity occurs when an alternative energy source can generate power at a cost of electricity that is less than or equal to the price of power from the electricity grid. Further, compared to prevailing solar project tariffs of approx. Rs. 4.50/unit in early 2017, it achieved a first year tariff of Rs. 2.97/unit with a tariff escalation of Rs. 0.05/unit over 15 years.
- **Risk Reduction:** Its payment security mechanism for reducing risks to power developers has been recommended as a model to other states by the Ministry of New and Renewable Energy.
- **Renewable Energy Project:** It is the first renewable energy project to supply an institutional customer outside the state, i.e. Delhi Metro, which will get 24% of energy from the project with the remaining 76% being supplied to the state DISCOMs of Madhya Pradesh.
 - It is also India's first solar project to get funding from Clean Technology Fund (CTF), which is available at a rate of 0.25% for a 40-year period from the World Bank.
 - The CTF promotes scaled-up financing for demonstration, deployment and transfer of low carbon technologies with a significant potential for long-term greenhouse gas emissions savings.
- **Carbon Emission Reduction:** It will help in reducing the carbon emission equivalent to 15 lakh ton of CO₂ per year.
- **Global Appreciation:** It has also received the World Bank Group President's Award for innovation and excellence and was included in the book 'A Book of Innovation: New Beginnings'.

Que- List out all the Thermal Power Plants of Madhya Pradesh.

Ans

Thermal Power Plant

Name	Location	Capacity	Important facts
Vindhyachal	Singrouli	4760 MW	It is the largest thermal power plant of Madhya Pradesh which supplies electricity to five states .
Satpura	Patharkhera, B (Betul)	1437 MW	It is a joint project of Madhya Pradesh & Rajasthan.
Sanjay Gandhi	Umaria	588 MW	It uses the coal of Johila region.
Amarkantak	Anuppur	490MW	It uses coal of Shahpur & Tawa region
Chandni	Nepanagar (Burhanpur)	17 MW	It is the oldest power plant of Madhya Pradesh. It uses the coal of Tawa region. It was established in year 1953.
Pench	Chhindwada	210 MW	
Singhaji	Khandwa	1200 MW	Started working in 2014. It was inaugurated by Prime Minister.
Dadadhuni	Khandwa	1600 MW	
Mandav	Dhar	2000 MW	Joint venture of Madhya Pradesh & Gujarat
Jabalpur	Jabalpur		



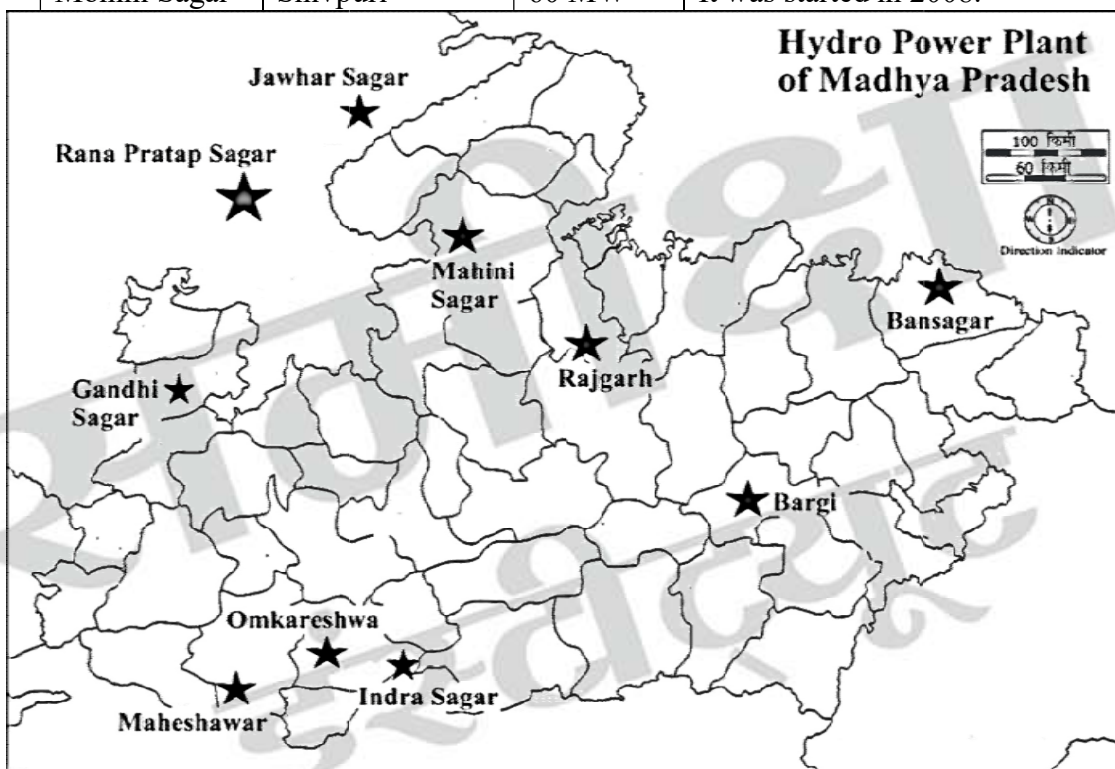
Que- List out all the Hydro Power Plants of Madhya Pradesh.

Ans

Hydro Electric Power Plants

River	Hydro Power Plant	location	Capacity	Important facts
Chambal	Gandhi Sagar	Mandsaur	115 MW	It is a joint effort of Madhya Pradesh & Rajasthan Its construction was started in year 1960.
	Rana Pratap	Chhittourgarh	172 MW	It was established in year 1967-68

	Sagar	(Rajasthan)		
	Jawahar Sagar	Kota (Rajasthan)	99 MW	This project uses the water drained by Gandhi Sagar & Rana Pratap Sagar Dam.
Bargi	Bargi (Rani Avantibai)	Jabalpur	90 MW	It has two units producing 45 MW each
Betwa	Rajghat	Lalitpur (U.P)	45 MW	It is a joint project of Madhya Pradesh & Uttar Pradesh This project was started in 1991
Son	Bansagar	Rewa Satna	405 MW	It is a joint project M.P., U.P. & Bihar. Electricity distribution is being done in 2:1:1 proportion.
Narmada	Indira Sagar	Khandwa	1000 MW	It was started from 2004.
	Omkareshwar	Khandwa	520 MW	It was started from 2007.
	Maheshwar	Khargone	450 MW	It was started in 1975.
Tons	Tons	Rewa	315 MW	It was established in 1990
Sindh	Mohini Sagar	Shivpuri	60 MW	It was started in 2008.



Que Write a descriptive note on Seasons of Madhya Pradesh

Ans- There are three seasons in Madhya Pradesh-

(i) **SUMMER SEASON**

Throughout the Indian sub-continent, the summer in general is from March to Mid-June. Similarly in Madhya Pradesh, the temperature progressively rises from March till June. Till May, the temperature crosses the mark of 30°C. During this time, the temperature in Gwalior, Morena, Datia and Southern Balaghat is around 42.5°C. In this season, the isotherm of 40°C divides the state in two equal halves. Highest temperature can be observed in Ganjbasoda of Vidhisha

The places lying to the East of this are Mandla, Shahdol, Seoni, Chhindwara and Betul and places towards the West are Dewas, Shahjapur, Indore, Dhar, Ujjain, Jhabua, Ratlam and Mandsaur. This season is normally dry with very low humidity. The sky is generally clear across the state and sometimes also fades sand blowing winds known as Loo locally.

(ii) RAINY SEASON STARTS

The onset of this season depends on the onset of South-West monsoon winds on the West coast of India. Generally, it starts from mid June. This season leads to a sudden fall in the day temperature due to the clouds, humidity and rains. Till July, the complete Eastern Madhya Pradesh comes under the impact of these monsoon winds. The hilly and plateau regions receive more rain as compared to the plains.

(iii) WINTER SEASON

In Madhya Pradesh, the winter season is from November to February. From 23rd September, as soon as the Sun starts moving towards South, the average temperature starts falling. During October, the temperature of whole Madhya Pradesh remains in between 20.9⁰C to 26.6⁰C. During this season, the sky is generally clear. Lowest temperature in Madhya Pradesh can be observed in Shivpuri district. Colder nights sometimes cause a fog and mist on high plateaus or hilly regions. **During December-January, there could be some rain because of the Western disturbances which is locally called as Maawath.** These rains sometimes lead to sudden fall in the temperature. As soon as March comes, the temperature again starts rising and in the onset of summer.

Que Write a short note on Rainfall Distribution in Madhya Pradesh.

Ans Rainfall in Madhya Pradesh occurs from both the branches of the Southwest Monsoon - the Arabian Sea Branch and the Bay of Bengal branch. Rainfalls in the south eastern part occur from the Bay of Bengal branch, while the western part receives rainfall from the Arabian Sea.

M.P receives rain from mid June to September. Average rainfall in M.P is 112 cm. **Highest rainfall is received in Pachmarhi i.e. 212.3 cm.** Whereas Gohad of Bhind district receives least rainfall i.e. 62.4cm.

❖ Areas With Excess Rainfall

The South-Eastern areas of the state receive an excess rainfall i.e. more than 150 cm. Such places in Madhya Pradesh are Pachmarhi, Mahadeo hills, Mandla, Sidhi and Balaghat. The major source of such excess rainfall is the South-Western monsoon originating from the Arabian Sea. The place receiving maximum rainfall in Madhya Pradesh is the **Pachmarhi which receives an average annual rainfall of 212.3 cm.**

❖ Areas With More Than Average Rainfall

Betul, Chhindwara, Seoni, Narsinghpur districts come under such areas. Because of being on the Eastern side of the state, these places receive more rainfall due to more humidity. The average rainfall in these areas is 125 cm to 150 cm.

❖ Areas With Average Rainfall

These areas include places with 75 to 80 cm rainfall. The North-Eastern places of the state come under this section. Central highlands, plateau of Bundelkhand, Rewa-Panna plateau are the areas which receive lesser rainfall due to lack of humidity and their physical features. Place receiving the least rainfall in the state is **Gohad in Bhind district, which receives an average rainfall of 55 cm.**

❖ Areas With Minimum Rainfall

The western areas of the state receive the minimum rainfall i.e. of 50 cm to 75 cm. The main reason behind the minimum rainfall is the absence of humidity. Till the South-Western monsoon reaches here, it either becomes void of moisture or has a very low humidity. Places comes under this zone are Neemuch, Mandsaur, Ratlam, Dhar, Jhabua etc.

Que Write a descriptive note on Classification of forests from administrative point of view

Ans Classification of forests from administrative point of view

1. **Reserved Forest -**

- The administration of these forests are carried by strong rules and regulations framed by central government.
- State Government notifies the areas of the reserved forests in its official gazette.
- It is a punishable offence to destroy these kinds of forests. Grazing of animals and wood cutting are strictly prohibited in the reserved forest.
- Their total area in Madhya Pradesh is 61888 sq km. which is 65.36% of total forest cover in Madhya Pradesh

2. **Protected Forest -**

- The administration of these forests is carried out by the central government.
- State Government notifies the areas of the protected forests in the official gazette.
- Activities such as wood cutting and grazing of animals are prohibited in these forests. But they may be allowed for people residing in forests after permission and for others after issuing license.
- Their total area in Madhya Pradesh is 31,095 sq km. which is 32.84% of total forest cover of Madhya Pradesh

3. **Unclassified Forest -**

- These are the forests which are not classified in any group.
- Animal grazing and wood cutting are allowed in these forests.
- Their total area in Madhya Pradesh is 1704 sq km. which is 1.80% of total forest cover of Madhya Pradesh

Que Give the classification of forests on the basis of climate

Ans Given the monsoonal climate, India receives rainfall from **South-west monsoon**. Madhya Pradesh, being in the centre of India receives rainfall almost from both the branches i.e Arabian Sea and Bay of Bengal branches of South-west monsoon. Because of expanse from East to West and from North to South, the precipitation levels in Madhya Pradesh are variable. Henceforth, the type of forests is also different. Madhya Pradesh has three types of forest based on climatic precipitation levels.

1. **Tropical Dry Deciduous Forests**

- These forests are also known as **thorny forests**.
- These forests grow in the areas receiving the rainfall of 25 to 75 cm and are found in Sheopur, Nimar, Ratlam, Mandsaur, Tikamgarh, Datia, Gwalior and Shivpuri districts.
- Major trees found here are Acacia, Albizzia, Anogeissus, Palash, Arabica, Teak, Hurra, Kikar etc.

2. **Tropical Deciduous Forests**

- Such forests are found in the areas receiving an annual average rainfall of 50 to 100 cm.
- These trees shed their leaves at the onset of dry season. Tropical deciduous forests are found on highest forest area of state. Such forests could be found at Chattarpur, Panna, Chhindwara, Damoh, Seoni, Sagar, Jabalpur Betul and Hoshangabad districts.
- Major trees found in these forests are Teak, Sheesham, Neem, Ficus Religiosa etc.

3. **Tropical Semi Deciduous Forests**

- These forests grow in the areas receiving rainfall of around 100 to 150 cm.
- These forests are majorly found in the area of Sidhi, Mandla, Balaghat, Shahdol etc.
- These forests do not shed all the leaves at a time. Major trees found in such forests are Acacia, Arabica, Bija, Tinsa, Sal and Bamboo etc.

Que Give the Classification of Forests on the basis of tree groups.

Ans Classification of Forests on the basis of tree groups

I. Sagon (Teak) :

- These are tropical semi deciduous forest. Its botanical name is “**Tectonagrandis**”.
- They grow in the areas having rainfall of 75 to 125 cm. and under the Black soil.
- It is found in 17.8% of total forest cover of Madhya Pradesh. Sagon forests cover the highest area in Madhya Pradesh.
- It is found in the South – Central region of state which includes - Hoshangabad (Bori valley), Jabalpur, Betul, Sagar, Jhabua, Dhar, Chindwara, and Mandla.
- It is used in the construction of building and furniture manufacturing.

II. Saal :

- These are tropical semi deciduous forests. Its botanical name is “**Shorea Robusta**”.
- They grow in the area having rainfall above 125 cm. and in the presence of yellow-red soil.
- It is found in eastern Madhya Pradesh. Saal trees forests are highest in India. It is found in 16.54% of total forest area of Madhya Pradesh. Found in Mandla, Balaghat, Sidhi, Singrauli, Umaria, Anuppur, and Shahdol districts.
- It is used in making railway sleepers (Principle industry), vehicle, building, furniture, bridge construction, poles, tent etc.

III. Mixed type forest :

- Under this category tree species like Bamboo, Harra, and Tendu leaves, Palash, Mahua, Beeja etc are found.
- Average rainfall for mixed type forests is 75 cm. These forests are found in Shivpuri, Chhindwara, Betul, Sidhi, Mandala & Jabalpur districts.

Que Write a descriptive note on Agro Based Industries in Madhya Pradesh.

Ans Madhya Pradesh is an agrarian state where 69% population is engaged in agriculture related work. Madhya Pradesh cultivates both Rabi and Kharif crops. It cultivates cash as well as zaid crops.

1. Sugar Industry-

Madhya Pradesh has following important sugar factories: -

- Jaora Sugar Mills Ltd., Jawra (Ratlam)- It was the first sugar mill of the state.
- Bhopal Sugar Mills, Sehore
- Dabra Sugar Mills Ltd., Dabra (Gwalior)
- Jivajirao Sugar Company Ltd., Dalauda, Mandsaur (Run by Madhya Pradesh State Industries Corporation Ltd.)
- Seth Govindram Sugar Mills (Ujjain).
- Sarangpur Sugar Mills, Sarangpur (Rajgarh)
- Barlai Sugar Mills, Indore (on Cooperation basis) is the largest sugar mill in Madhya Pradesh.

2. Cotton Fabric Industry

- Madhya Pradesh is at third place after Maharashtra and Gujarat in textile production.
- **First cotton mill was established in Biranpur in 1906.**
- Indore is largest cotton fabric manufacturing district in the state.
- Madhya Pradesh has 513 cotton fabric mills.
- The maximum number of mills in the state is in Indore, Gwalior and Ujjain.
- Western part of Madhya Pradesh is called ‘**Hub of Cotton Fabric**’.

3. Synthetic Fibre Cloth Manufacturing Industry

- Synthetic Fibre Mill is at Nagda (Ujjain) in Madhya Pradesh.

- Synthetic Fibre Cloth Mills are in Indore, Nagda Gwalior, Ujjain and Devas in Madhya Pradesh.

4. Vegetable Oil

- Several vegetable oil factories are at Ganj Basoda (Vidisha), Jabalpur, Satna, Khandwa, Gwalior and Indore in Madhya Pradesh.
- Maximum production of vegetable oil is done at Ganj Basoda.

5. Soyabean Oil Industry

- **Asia's largest Soybean Oil plant** is at **Ujjain**.
- Soya plants are found in Indore, Ujjain, Barwaha (Khargone).

6. Rice Mills

- Rice Mills are at Indore, Bhopal, Jabalpur, and Rewa in Madhya Pradesh.

7. Silk Industry

- Mandla district is leading district in silk production in Madhya Pradesh.
- Madhya Pradesh Government founded Silk Directorate in 1984 to promote cultivation of Mulberry.

8. Fine Flour (Maida) Mills

- Fine Flour (Maida) Mills are located in Bhopal and Indore.

Que Write a short note on Madhya Pradesh Industry Promotion Policy 2010

- Ans Madhya Pradesh government declared its amended Industrial Policy on November 1, 2010 to promote and to ensure that environment encouraging investments prevails. This policy was to be in force for a period of five years from the date of its declaration. Its main objectives were as follows:
 - To speed up industrialization and make the state lead in industry.
 - To develop grass root level infrastructure and thereby to attract investment in industry and service sectors.
 - To attain overall development of industrial infrastructure in local areas.
 - To simplify the rules and procedures further and to make state administration industry friendly.
 - To implement special schemes to aid ailing industries.
 - To reduce supervision of industries.
 - To rationalize the tax rates of state to make industry competitive.
 - To fix ratio of partnership of private sector in industrialisation efforts.
 - Encouraging Foreign Direct Investments (FDI) in the state through NRIs.
 - Formulating special policy to make agriculture more beneficial.

Que Write a short note on Madhya Pradesh Industry Promotion Policy 2014.

Ans The main vision of this policy is to achieve inclusive growth and bring economic prosperity to the people of Madhya Pradesh through sustainable industrialization, employment generation and skill set enhancement.

Key objectives are as following-

- Online Investors monitoring and facilitation system will be implemented to provide facilities at single windows in fixed deadlines. Madhya Pradesh Trade & Investment Facilitation corporation Limited will function as nodal agency for the purpose.
- Process to get help relating to VAT and Central Sales Tax has been simplified.

- In view of the delay in compliance of VAT by existing units, 75% of the capability amount will be given immediately to them on the basis of total tax paid year on year basis. The remaining 25% amount will be paid after tax assessment by Commercial Tax Department.
- Resources of Government Polytechnics and it will be used to promote skills. Mainly, it will be formed in developed industrial areas.
- Maximum limit of interest grant limit for M.S.M.E. sector will be increased from Rs 20 lakh to Rs 30 lakh.
- State level Investment Empowered Committee headed by Chief Secretary to be formed to help investment schemes.
- Maximum repayment of Rs 3 crore for large and medium industries on grass root level infrastructural development on underdeveloped lands outside industrial area.
- Non polluting small and micro industries will be excluded from obtaining no objection certificate from pollution control board.
- Present list of not capable industries will be rationalized and their number will be brought down from 52 to 19 so that more industries can get aid.
- Diesel Engine manufacturing unit is being setup in Sehore (Sherpur).
- Major industrial region of state is Malwa plateau.
- There are on an average 2.2 industries in per 1000 sq km in state.