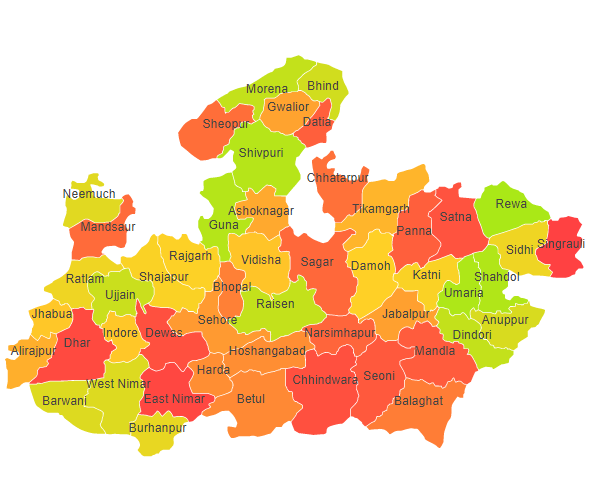
**Madhya Pradesh**

****

Madhya Pradesh comprises of three Agro Ecological Regions (AER) 4, 5 & 10.

**Agro-Eco Region 4:** AER 4 in Madhya Pradesh comprises of Bhind, Datia, Gwalior, Morena, Sheopur and Shivpri districts of Northern Plain and Central Highlands including Aravallis under Agro Ecological Sub Regions (AESR) 4.3 & 4.4.

**Agro-Eco Region 5:** AER 5 in Madhya Pradesh comprises of Alirajpur, Barwani, Burhanpur, Dewas, Dhar, East Nimar, Indore, Jhabua, Mandsaur, Nimach, Ratlam, Shajapur, Ujjan and West Nirman districts of Central (Malwa) Highlands under Agro Ecological Sub Region (AESR) 5.2.

**Agro-Eco Region 10:** AER 10 in Madhya Pradesh comprises of districts Anuppur, Ashoknagar, Balaghat, Betul, Bhopal, Chhatarpur, Chhindwara, Damoh, Dewas, Dindori, Guna, Harda, Hoshangabad, Jabalpur, Katni, Mandla, Narshimapura, Panna, Raisen, Rajgarh, Rewa, Sagar, Satna, Sehore, Seoni, Shajapur, Shahdol, Sidhi, Singrauli, Tikamgarh, Umaria and Videsha of Central Highlands under Agro Ecological Sub Regions (AESR) 10.1, 10.2 ,10.3& 10.4.

**Major NRM issues :**

**AESR 4.3:** The region is hot moist semi-arid ESR with deep, loamy alluvium-derived soils (sodic phase inclusion), medium to high AWC and LGP 120-150 day in a year.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Districts** | ***Land degradation*** | ***Soil health & fertility*** | ***Water related constraints*** | ***Environmental constraints*** |
| Bhind | Exclusively water erosion & Ravine | Low in OC, Soil deficient in Zn, N & P | GW Saline, Contaminated with F, NO3 & Fe | **-** |

**AESR 4.4 :** The region is hot moist semi-arid ESR with Deep loamy and clayey mixed Red and Black soils, medium to high AWC and LGP 90-120 days in a year.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Districts** | ***Land degradation*** | ***Soil health & fertility*** | ***Water related constraints*** | ***Environmental constraints*** |
| Datia | Exclusively water erosion | Soil deficient in N | GW Contaminated with F, NO3, Fe & heavy metals | **-** |
| Gwalior | Exclusively water erosion & Ravine | Soil deficient in Zn & N | GW Saline, Contaminated with F, NO3, Fe & heavy metals | **-** |
| Morena | Exclusively water erosion & Ravine | Low in OC, Soil deficient in N & S | GW Saline, Contaminated with F & NO3 | **-** |
| Sheopur | Exclusively water erosion | Soil deficient in N, P & S | GW Saline, Contaminated with F & NO3 | Highly prone to Flood, Drought & Cyclone |
| Shivpuri | Exclusively water erosion , Water erosion under open forest & Ravine | Soil deficient in N | GW Saline, Contaminated with F, NO3, Fe & heavy metals | Moderately prone to drought |

**AESR 5.2:** The region is hot moist semi-arid ESR with medium and deep, clayey Black soils (shallow black soils as inclusions), medium to high AWC and LGP 120-150 days in a year.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Districts** | ***Land degradation*** | ***Soil health & fertility*** | ***Water related constraints*** | ***Environmental constraints*** |
| Alirajpur | Exclusively water erosion | Soil deficient in N, P, Mn & Fe | GW Saline, Contaminated with F & NO3 | **-** |
| Barwani | Exclusively water erosion | Soil deficient in N, P & Fe | GW Contaminated with F, NO3, Fe & heavy metals | **-** |
| Burhanpur | Exclusively water erosion | Soil deficient in N , P, Zn, Fe & S | GW Contaminated with NO3 & As | **-** |
| Dewas | Exclusively water erosion & Water erosion under open forest | Soil deficient in N, P, C | GW Contaminated with F, NO3, Fe & heavy metals | Moderately prone to drought |
| Dhar | Exclusively water erosion & Water erosion under open forest | Soil deficient in N, P, Zn & Fe | GW Contaminated with F, NO3, As, Fe & heavy metals | **-** |
| East Nimar | Exclusively water erosion | Soil deficient in N & P | - | **-** |
| Indore | Exclusively water erosion | Low in OC, Soil deficient in N, P & S | Saline GW Contaminated with F, NO3 & Fe | **-** |
| Jhabua | Exclusively water erosion | Soil deficient in N & P | Saline GW Contaminated with F, NO3 & Fe | **-** |
| Mandsaur | Exclusively water erosion & Water erosion under open forest | Soil deficient in N, P, Fe & Mn | GW Contaminated with F, NO3,As & Fe | **-** |
| Nimach | Exclusively water erosion | Soil deficient in N, P, Mn, B & S | Saline GW Contaminated with F, NO3, As& Fe | **-** |
| Ratlam | Exclusively water erosion | Low in OC, Soil deficient in N & P | Saline GW Contaminated with F, NO3 & Fe | Moderately prone to drought |
| Shajapur | Exclusively water erosion | Soil deficient in N, Zn & B | GW Contaminated with F, NO3, Fe & heavy metals | **-** |
| Ujjan | Exclusively water erosion | Soil deficient in N, Zn, Fe & S | Saline GW Contaminated with NO3 & Fe | **-** |
| West Nimar | Exclusively water erosion | Soil deficient in N & P | - | **-** |

**AESR 10.1:** The region hot dry subhumid ESR with medium and deep clayey Black soils (shallow loamy Black soils as inclusion), high AWC and LGP 150-180 days in a year.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Districts** | ***Land degradation*** | ***Soil health & fertility*** | ***Water related constraints*** | ***Environmental constraints*** |
| Ashok nagar | Exclusively water erosion | Soil deficient in N, P, Zn, B & S | GW Contaminated with NO3 | **-** |
| Bhopal | Exclusively water erosion | Soil deficient in N, P & Fe | GW Contaminated with F, NO3 & Fe | Highly prone to flood |
| Damoh | Exclusively water erosion & Water erosion under open forest | Soil deficient in P, | GW Contaminated with NO3 , Fe & heavy metals | - |
| Dewas | Exclusively water erosion & Water erosion under open forest | Soil deficient in N, P, Zn & B | GW Contaminated with F, NO3 , Fe & heavy metals | Moderately prone to drought |
| Guna | Exclusively water erosion & Water erosion under open forest | Soil deficient in N, P, Zn & B | GW Contaminated with F, NO3 , Fe & heavy metals | - |
| Harda | Exclusively water erosion | Soil deficient in N | GW Contaminated with F & NO3 | - |
| Hoshangabad | Exclusively water erosion | Low in OC & Soil deficient in N, Zn, B & S | GW Contaminated with F & NO3 | **-** |
| Jabalpur | Exclusively water erosion | Soil deficient in N & P | GW Contaminated with F, NO3 & Fe | **-** |
| Katni | Exclusively water erosion | Soil deficient in N& Zn | GW Contaminated with F & NO3 | **-** |
| Narshimapura | Exclusively water erosion | Soil deficient in N, P, Zn & Fe | GW Contaminated with F | **-** |
| Raisen | Exclusively water erosion | Soil deficient in N, P & Zn | GW Contaminated with F, NO3 , Fe & heavy metals | **-** |
| Rajgarh | Exclusively water erosion | Low in OC, Soil deficient in N, P, Zn & B | GW Contaminated with F, NO3 , Fe & heavy metals | **-** |
| Sagar | Exclusively water erosion | Soil deficient in P, Zn & S | GW Contaminated with F, NO3 & Fe | **-** |
| Sehore | Exclusively water erosion | Soil deficient in N, S & P | Saline GW Contaminated with F, NO3 , Fe & heavy metals | **-** |
| Shajapur | Exclusively water erosion | Soil deficient in N, Zn & B | GW Contaminated with F, NO3 , Fe & heavy metals | **-** |
| Vidisha | Exclusively water erosion | Soil deficient in N & P | GW Contaminated with F, NO3 , Fe & heavy metals | **-** |

**AESR 10.2:** The region is hot dry subhumid ESR with shallow and medium loamy to clayey Black soils (deep clayey Black soils as inclusion), medium to high AWC and LGP 150-180 days in a year.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Districts** | ***Land degradation*** | ***Soil health & fertility*** | ***Water related constraints*** | ***Environmental constraints*** |
| Betul | Exclusively water erosion | Low in OC, Soil deficient in N, P, Zn, B & S | GW Contaminated with F, NO3 , As & Fe | **-** |

**AESR 10.3:** The region is hot dry subhumid ESR with deep loamy to clayey mixed Red and Black soils, medium to high AWC and LGP 150-180 days in a year.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Districts** | ***Land degradation*** | ***Soil health & fertility*** | ***Water related constraints*** | ***Environmental constraints*** |
| Anuppur | Exclusively water erosion | Soil deficient in N , Zn & B | GW Contaminated with F & NO3 | **-** |
| Chhatarpur | Exclusively water erosion | Low in OC & Soil deficient in N, Zn, Mn, B & S | Saline GW Contaminated with F, NO3 & Fe | **-** |
| Panna | Exclusively water erosion & Water erosion under open forest | Soil deficient in N, P & Zn | GW Contaminated with F, NO3 & Fe | Moderately prone to drought |
| Rewa | Exclusively water erosion | Soil deficient in N, P, Zn & Fe | Saline GW Contaminated with NO3 & Fe | **-** |
| Satna | Exclusively water erosion & Water erosion under open forest | Soil deficient in N, Zn, B & S | Saline GW Contaminated with F, NO3 & Fe | **-** |
| Shahdol | Exclusively water erosion | Soil deficient in N & P & Zn | Saline GW Contaminated with F, Fe & heavy metals | Moderately prone to drought |
| Sidhi | Exclusively water erosion | Soil deficient in N, Zn, B & S | GW Contaminated with F, NO3 & Fe | Highly prone to drought |
| Singrauli | Exclusively water erosion | Low in OC, Soil deficient in N & Fe | GW Contaminated with F & NO3 | **-** |
| Tikamgarh | Exclusively water erosion | Soil deficient in N & P | GW Contaminated with F, NO3 & Fe | Moderately prone to flood |
| Umaria | - | Soil deficient in N,P & Zn | GW Contaminated with NO3 , As & Fe | Moderately prone to drought |

**AESR 10.4:** The region is hot moist subhumid ESR with shallow to deep loamy to clayey mixed Red and Black soils, low to medium AWC and LGP 180-210 days in a year.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Districts** | ***Land degradation*** | ***Soil health & fertility*** | ***Water related constraints*** | ***Environmental constraints*** |
| Balaghat | Exclusively water erosion & Acid soils under water erosion | Soil deficient in Zn | Saline GW Contaminated with F, NO3,  Fe & heavy metals | **-** |
| Chhindwara | Exclusively water erosion & Water erosion under open forest | Soil deficient in N & P | GW Contaminated with F, NO3,  As & Fe | **-** |
| Dindori | Exclusively water erosion | Soil deficient in P | GW Contaminated with F, NO3,  Fe & heavy metals | **-** |
| Jabalpur | Exclusively water erosion | Soil deficient in N & P | GW Contaminated with F, NO3 & Fe | **-** |
| Mandla | Exclusively water erosion & Acid soils under water erosion | Soil deficient in N, P, Zn & B | GW Contaminated with F, NO3 & Fe | **-** |
| Seoni | Exclusively water erosion & Water erosion under open forest | Soil deficient in N & P | GW Contaminated with F, NO3 & Fe | **-** |

**Organization and Establishments for Technology Backstopping**

***ICAR Research Institutes /KVKs***

|  |  |
| --- | --- |
| Indian Institute of Soil Science, Bhopal | <https://iiss.icar.gov.in/> |
| Regional Station of Indian Institute of Soil & Water, Dehradun. | <http://www.cswcrtiweb.org/index1.html?Datia/Datia_back.html> |
| KVK Portal | <https://kvk.icar.gov.in/> |

***SAUs/CAUs:***

|  |  |
| --- | --- |
| Jawaharlal Nehru Agricultural University, Jabalpur | <http://jnkvv.org/> |
| [Rajmata Vijayaraje Scindia Krishi VishwaVidyalaya, Gwalior](http://www.rvskvv.net/) | <http://www.rvskvv.net/> |

***List of KVKs:*** <https://icar.org.in/content/madhya-pradesh>

***List of Soil testing Laboratories****:* <https://farmer.gov.in/STLDetails.aspx?State=23>