**Uttar Pradesh**

Uttar Pradesh comprises of four Agro Ecological Regions (AER) 4,9,11 & 13.

**Agro-Eco Region 4:** AER 4 in Uttar Pradesh comprises of Agra, Aligarh, Allahabad, Amethi, Auraiya, Baghpat, Banda, Badaun, Bulandsahar, Chitrakoot, Etah, Etawah, Fatehpur, Farrukhabad, Firozabad, Gautambudhnagar, Ghaziabad, Jyotibaphule Nagar, Mahamayanagar, Mainpuri, Mathura, Meerut, Muzafarnagar, Kanshiramnagar, Moradabad, Hardoi, Jalaun, Jaunpur, Kannauj, Kanpur, Kanpur Dehat, Kaushambi, Pratapgarh, Santravidasnagar, Shahjahanpur, Unnao, Varanasi, Raibeareli, Lucknow, Mahoba , Hamirpur, Jhansi and Lalitpur districts of Eastern Ghats under Agro Ecological Sub Regions (AESR) 4.1, 4.3 & 4.4.

**Agro-Eco Region 9:** AER 9 in Uttar Pradesh comprises of Amethi, Ambedkarnagar, Azamgarh, Ballia, Barabanki, Bareilly, Bijnor, Chandauli, Faizabad, Gazipur, Hardoi , Jyotibaphule Nagar, Jaunpur, Kheri, Lucknow, Mau, Muzafarnagar, Moradabad, Pilhibhit, Rampur, Sharanpur, Shahjahanpur, Sitapur, Sultanpur and Varanasi districts of Northern Plain under Agro Ecological Sub Regions (AESR) 9.1 & 9.2.

**Agro-Eco Region 11:** AER 11 in Uttar Pradesh comprises of Mirzapur, Sonbhadra and Varanasi districts of Eastern Plateau (Chhattisgarh) under Agro Ecological Sub Regions (AESR) 11.

**Agro-Eco Region 13:** AER 13 in Uttar Pradesh comprises of Ambedkar nagar, Bahraich, Balrampur, Basti, Deoria, Gonda, Gorakhpur, Kheri, Kushinagar, Maharajganj, Santkabirnagar, Shrawasti and Siddharthnagar districts of Eastern Plateau (Chhattisgarh) under Agro Ecological Sub Regions (AESR) 13.1 & 13.2.

**Major NRM issues :**

**AESR 4.1:** The region is hot semi-arid ESR with deep loamy alluvium-derived soils (occasional saline and sodic phases), medium AWC and LGP 90-120 days in a year.

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| **Districts** | ***Land degradation*** | ***Soil health & fertility*** | ***Water related constraints*** | ***Environmental constraints*** |
| Agra | Exclusively water erosion | Low in OC, Soil deficient in N & P | Saline GW Contaminated with F & NO3 |  |
| Aligarh | Exclusively water erosion & Waterlogged | Low in OC, Soil deficient in N & P | Saline GW Contaminated with F & NO3 |  |
| Baghpat | **-** | Low in OC, Soil deficient in N & P | GW Contaminated with NO3 |  |
| Bulandsahar | **-** | Low in OC, Soil deficient in N & P | GW Contaminated with F & NO3 |  |
| Etah | Exclusively water erosion | Low in OC, Soil deficient in N & P | GW Contaminated with F & NO3 |  |
| Firozabad | Exclusively water erosion | Low in OC, Soil deficient in N & P | Saline GW Contaminated with F & NO3 |  |
| Gautambudhnagar | **-** | Low in OC, Soil deficient in N & P | - |  |
| Ghaziabad | **-** | Low in OC, Soil deficient in N & P | GW Contaminated with F, NO3 & heavy metals |  |
| Jyotibaphule Nagar | **-** | **-** | GW Contaminated with NO3 |  |
| Kanshiramnagar | **-** | **-** | Saline GW Contaminated with F & NO3 |  |
| Mahamayanagar | Exclusively water erosion | Low in OC, Soil deficient in N & P | - |  |
| Mainpuri | Exclusively water erosion | Low in OC, Soil deficient in N & P | GW Contaminated with F |  |
| Mathura | Exclusively water erosion & Waterlogged | Low in OC, Soil deficient in N & P | Saline GW Contaminated with F, NO3 & heavy metals |  |
| Meerut | **-** | Low in OC, Soil deficient in N & P | GW Contaminated with NO3 & As |  |
| Moradabad | **-** | Low in OC, Soil deficient in N & P | GW Contaminated with NO3, As & heavy metals |  |
| Muzafarnagar | Exclusively water erosion | Low in OC, Soil deficient in N & P | GW Contaminated with NO3 & heavy metals |  |

**AESR 4.3:** The region is hot semi-arid ESR with deep loamy alluvium-derived soils (occasional saline and sodic phases), medium AWC and LGP 90-120 days in a year.

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| **Districts** | ***Land degradation*** | ***Soil health & fertility*** | ***Water related constraints*** | ***Environmental constraints*** |
| Allahabad | Exclusively water erosion & Waterlogged | Low in OC, Soil deficient in N & P | GW Contaminated with F & NO3 |  |
| Amethi | **-** | Low in OC, Soil deficient in N & P | - |  |
| Auraiya | **-** | Low in OC, Soil deficient in N & P | GW Contaminated with F & NO3 |  |
| Badaun | **-** | Low in OC, Soil deficient in N & P | - |  |
| Etawah | Exclusively water erosion | Low in OC, Soil deficient in N & P | GW Contaminated with F & Fe |  |
| Farrukhabad | Exclusively water erosion | Low in OC, Soil deficient in N & P | GW Contaminated with F |  |
| Fatehpur | Exclusively water erosion | Low in OC, Soil deficient in N & P | GW Contaminated with F, NO3 & Fe |  |
| Hardoi | Waterlogged | Low in OC, Soil deficient in N & P | GW Contaminated with F, NO3 & Fe |  |
| Jalaun | **-** | Low in OC, Soil deficient in N & P | - |  |
| Jaunpur | Exclusively water erosion & Waterlogged | Low in OC, Soil deficient in N & P | GW Contaminated with F, NO3 & heavy metals |  |
| Kannauj | Exclusively water erosion | Low in OC, Soil deficient in N & P | GW Contaminated with F & NO3 |  |
| Kanpur | **-** | Low in OC, Soil deficient in N & P | Saline GW Contaminated with F, NO3, Fe & heavy metals |  |
| Kanpur Dehat | **-** | Low in OC, Soil deficient in N & P | Saline GW Contaminated with NO3 , Fe & heavy metals |  |
| Kaushambi | Exclusively water erosion | Low in OC, Soil deficient in N & P | Saline GW Contaminated with NO3 & As |  |
| Lucknow | **-** | Low in OC, Soil deficient in N & P | - |  |
| Pratapgarh | Exclusively water erosion & Waterlogged | Low in OC, Soil deficient in N & P | GW Contaminated with F |  |
| Raibeareli | Exclusively water erosion | Low in OC, Soil deficient in N & P | Saline GW Contaminated with F, NO3 & heavy metals |  |
| Santravidasnagar | Exclusively water erosion | Low in OC, Soil deficient in N & P | GW Contaminated with NO3 & As |  |
| Shahjahanpur | Exclusively water erosion & Waterlogged | Low in OC, Soil deficient in N , P & K | GW Contaminated with F, NO3 & As |  |
| Unnao | **-** | Low in OC, Soil deficient in N & P | GW Contaminated with F, NO3, As, Fe & heavy metals |  |
| Varanasi | Exclusively water erosion & Waterlogged | Low in OC, Soil deficient in N & P | GW Contaminated with F, NO3 & heavy metals |  |

**AESR 4.4:** 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 days in a year.

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| **Districts** | ***Land degradation*** | ***Soil health & fertility*** | ***Water related constraints*** | ***Environmental constraints*** |
| Banda | Exclusively water erosion & Waterlogged | Low in OC, Soil deficient in N & P | GW Contaminated with F & NO3 |  |
| Chitrakoot | Exclusively water erosion | Low in OC, Soil deficient in N & P | GW Contaminated with NO3 |  |
| Hamirpur | **-** | Low in OC, Soil deficient in N & P | Saline GW Contaminated with F & NO3 |  |
| Jhansi | Exclusively water erosion | Low in OC, Soil deficient in N & P | Saline GW Contaminated with NO3 & As |  |
| Lalitpur | Exclusively water erosion | Low in OC, Soil deficient in N & P | GW Contaminated with F,NO3 & Fe |  |
| Mahoba | Exclusively water erosion | Low in OC, Soil deficient in N & P | GW Contaminated with F & NO3 |  |

**AESR 9.1:** The region is hot dry/moist subhumid transitional ESR with deep, loamy to clayey alluvium-derived (inclusion of saline and sodic phases) soils, medium AWC and LGP 120-150 days in a year.

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| **Districts** | ***Land degradation*** | ***Soil health & fertility*** | ***Water related constraints*** | ***Environmental constraints*** |
| Bijnor | Exclusively water erosion | Low in OC, Soil deficient in N & P | GW Contaminated with NO3 & As |  |
| Jyotibaphule Nagar | **-** |  | GW Contaminated with NO3 & As |  |
| Moradabad | **-** | Low in OC, Soil deficient in N & P | GW Contaminated with NO3, As & heavy metals |  |
| Muzafarnagar | Exclusively water erosion | Low in OC, Soil deficient in N, P & K | GW Contaminated with NO3 & heavy metals |  |
| Sharanpur | Exclusively water erosion | Low in OC, Soil deficient in N, P & K | GW Contaminated with NO3 |  |

**AESR 9.2:** The region is hot dry subhumid ESR with deep loamy alluvium-derived soils, medium to high AWC and LGP 150-180 days in a year.

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| **Districts** | ***Land degradation*** | ***Soil health & fertility*** | ***Water related constraints*** | ***Environmental constraints*** |
| Ambedkar nagar | Exclusively water erosion & Waterlogged | Low in OC, Soil deficient in N & P | GW Contaminated with NO3 |  |
| Amethi | **-** | Low in OC, Soil deficient in N & P | - |  |
| Azamgarh | Exclusively water erosion & Waterlogged | Low in OC, Soil deficient in N & P | GW Contaminated with NO3, As & Fe |  |
| Ballia | Exclusively water erosion & Waterlogged | Low in OC, Soil deficient in N & P | GW Contaminated with NO3, As & Fe |  |
| Barabanki | Waterlogged | Low in OC, Soil deficient in N , P & K | GW Contaminated with NO3 |  |
| Bareilly | **-** | Low in OC, Soil deficient in N & P | GW Contaminated with F, NO3  & As |  |
| Chandauli | Exclusively water erosion | Low in OC, Soil deficient in N & P | GW Contaminated with F & As |  |
| Faizabad | Exclusively water erosion | Low in OC, Soil deficient in N & P | GW Contaminated with F, NO3 & Fe |  |
| Gazipur | Exclusively water erosion & Waterlogged | Low in OC, Soil deficient in N & P | GW Contaminated with F, NO3 & heavy metals |  |
| Hardoi | Waterlogged | Low in OC, Soil deficient in N & P | - |  |
| Jaunpur | Exclusively water erosion & Waterlogged | Low in OC, Soil deficient in N & P | GW Contaminated with NO3 |  |
| Kheri | Exclusively water erosion | Low in OC, Soil deficient in N & P | GW Contaminated with NO3 & Fe |  |
| Lucknow | **-** | Low in OC, Soil deficient in N & P | GW Contaminated with As |  |
| Mau | Exclusively water erosion & Waterlogged | Low in OC, Soil deficient in N & P | - |  |
| Pilhibhit | Exclusively water erosion | Low in OC, Soil deficient in N , P & K | GW Contaminated with F, NO3 & As |  |
| Rampur | **-** | Low in OC, Soil deficient in N & P | GW Contaminated with F & NO3 |  |
| Shahjahanpur | Exclusively water erosion & Waterlogged | Low in OC, Soil deficient in N & P | GW Contaminated with F & NO3 |  |
| Sitapur | Waterlogged | Low in OC, Soil deficient in N & P | GW Contaminated with F, NO3 & heavy metals |  |
| Sultanpur | Exclusively water erosion & Waterlogged | Low in OC, Soil deficient in N & P | GW Contaminated with F, NO3 & Fe |  |
| Varanasi | Exclusively water erosion & Waterlogged | Low in OC, Soil deficient in N & P | GW Contaminated with F, NO3 & heavy metals |  |

**AESR 11:** The region is hot moist/dry subhumid transitional ESR with deep loamy lto clayey Red and Yellow soils, medium AWC and LGP 150-180 days in a year.

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| **Districts** | ***Land degradation*** | ***Soil health & fertility*** | ***Water related constraints*** | ***Environmental constraints*** |
| Mirzapur | Exclusively water erosion | Low in OC, Soil deficient in N & P | GW Contaminated with NO3 & As |  |
| Sonbhadra | Exclusively water erosion | Low in OC, Soil deficient in N & P | GW Contaminated with F, NO3 & heavy metals |  |
| Varanasi | Exclusively water erosion & Waterlogged | Low in OC, Soil deficient in N & P | GW Contaminated with F, NO3 & heavy metals |  |

**AESR 13.1:** The region is hot moist/dry subhumid transitional ESR with deep loamy lto clayey Red and Yellow soils, medium AWC and LGP 150-180 days in a year.

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| **Districts** | ***Land degradation*** | ***Soil health & fertility*** | ***Water related constraints*** | ***Environmental constraints*** |
| Ambedkarnagar | Exclusively water erosion & Waterlogged |  | GW Contaminated with NO3 |  |
| Bahraich | Exclusively water erosion & Waterlogged | Low in OC, Soil deficient in N , P & K | GW Contaminated with As |  |
| Balrampur | Waterlogged | Low in OC, Soil deficient in N & P | GW Contaminated with NO3, As & Fe |  |
| Basti | Exclusively water erosion & Waterlogged | Low in OC, Soil deficient in N & P | GW Contaminated with NO3 &As |  |
| Deoria | Exclusively water erosion | Low in OC, Soil deficient in N & P | GW Contaminated with As |  |
| Gonda | Exclusively water erosion | Low in OC, Soil deficient in N, P & K | GW Contaminated with F, As & Fe |  |
| Gorakhpur | Exclusively water erosion | Low in OC, Soil deficient in N & P | GW Contaminated with As |  |
| Kushinagar | Exclusively water erosion | Low in OC, Soil deficient in N & P | GW Contaminated with As |  |
| Maharajganj | Exclusively water erosion | Low in OC, Soil deficient in N & P | - |  |
| Santkabirnagar | Exclusively water erosion | Low in OC & Soil deficient in N | - |  |
| Shrawasti | Exclusively water erosion | Low in OC, Soil deficient in N & P | GW Contaminated with NO3 |  |
| Siddharthnagar | Exclusively water erosion | Low in OC, Soil deficient in N & P | GW Contaminated with NO3 , As & Fe |  |

**AESR 13.2:** The region is warm to hot moist subhumid ESR with deep loamy to clayey Tarai soils, high AWC and LGP 180-210 days in a year.

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| **Districts** | ***Land degradation*** | ***Soil health & fertility*** | ***Water related constraints*** | ***Environmental constraints*** |
| Bahraich | Exclusively water erosion & Waterlogged | Low in OC, Soil deficient in N ,P & K | GW Contaminated with As |  |
| Balrampur | Waterlogged | Low in OC, Soil deficient in N & P | GW Contaminated with NO3 , As & Fe |  |
| Kheri | Exclusively water erosion | Low in OC, Soil deficient in N & P | - |  |
| Maharajganj | Exclusively water erosion | Low in OC, Soil deficient in N & P | - |  |
| Shrawasti | Exclusively water erosion | Low in OC, Soil deficient in N & P | GW Contaminated with NO3 |  |
| Siddharthnagar | Exclusively water erosion | Low in OC, Soil deficient in N & P | GW Contaminated with NO3 , As & Fe |  |