

Report on Detailed Soil Survey and Land Use of 2B1C7s3, s4, s5, s6, u1, u2, u3, u4, u5, u6, w4, w5, w6 Microwatersheds of Lower Rapti Subcatchment of Ghaghra Catchment, Block Rudhauri, Ramnagar, District Basti and Block Domariyaganj, Khesrha, Mithwal District Siddharthnagar, Uttar Pradesh.

ABSTRACT

1. Surveyed Area : Microwatersheds 2B1C7s3, s4, s5, s6, u1, u2, u3, u4, u5, u6, w4, w5, w6 Microwatersheds of Lower Rapti Subcatchment of Ghaghra Catchment, Block Rudhauri, Ramnagar, District Basti and Block Domariyaganj, Khesrha, Mithwal District Siddharthnagar, Uttar Pradesh
2. Total Area Mapped and Reported : 15310 ha
3. Type of Survey : Detailed Soil Survey
4. Geographical location : a) Latitude 27° 01' 59" to 27° 09' 09" N.
b) Longitude 82° 43' 43" to 82° 55' 47" E
5. Base map used : Cadastral Map on 1:4,000 scale
6. Topomaps used : SOI Toposheets on 1:50,000 scale
63 I/12 and 63 I/16
7. Agroclimatic Region : IV Middle Gangetic Plain region
8. Period of Survey : January 2011 to April 2013

9. Soil Series Mapped and Area Covered under each Series and Different Microwatersheds

| S. No. | Series Name | No. of Mapping Units | Microwatersheds of 2B1C7 watershed | | | | | | | | | | | | | Grand Total |
|--------|--------------|----------------------|------------------------------------|--------------------------|---------------------------|---------------------------|--------------------------|--------------------------|--------------------------|----------------------------|----------------------------|----------------------------|---------------------------|---------------------------|---------------------------|------------------------------|
| | | | s3 | s4 | s5 | s6 | u1 | u2 | u3 | u4 | u5 | u6 | w4 | w5 | w6 | |
| 1 | Ardama | 3 | 48 0.3 | 15 0.1 | 16 0.1 | 26 0.2 | 47 0.3 | 16 0.1 | 20 0.1 | 61 0.4 | 46 0.3 | 39 0.3 | 40 0.3 | 16 0.1 | 8 0.1 | 398 2.6 |
| 2 | Chaisar | 3 | 220 1.4 | 49 0.3 | 33 0.2 | 77 0.5 | 60 0.4 | 208 1.4 | 27 0.2 | 229 1.5 | 427 2.8 | 265 1.7 | 116 0.8 | 70 0.5 | | 1781 11.6 |
| 3 | Didai | 2 | | | | | 24 0.2 | 13 0.1 | | | | | | 42 0.3 | 177 1.2 | 256 1.7 |
| 4 | Dhubra | 4 | 7 0.0 | 7 0.0 | 1 0.0 | 10 0.1 | 59 0.4 | 52 0.3 | 16 0.1 | 6 0.0 | 31 0.2 | 1 0.0 | 7 0.0 | 58 0.4 | 11 0.1 | 266 1.7 |
| 5 | Jogia Buzurg | 4 | | | | | | | | 126 0.8 | 9 0.1 | | | | | 135 0.9 |
| 6 | Kheiretia | 3 | 184 1.2 | 159 1.0 | 208 1.4 | 217 1.4 | 0.0 | 3 0.0 | 0.0 | 274 1.8 | 283 1.8 | 232 1.5 | 0.0 | 17 0.1 | 0.0 | 1577 10.3 |
| 7 | Masina Khas | 7 | 159 1.0 | 182 1.2 | 74 0.5 | 53 0.3 | | | | | | | | | | 468 3.1 |
| 8 | Masjidia | 4 | 629 4.1 | 383 2.5 | 518 3.4 | 461 3.0 | 603 3.9 | 577 3.8 | 429 2.8 | 639 4.2 | 698 4.6 | 790 5.2 | 1012 6.6 | 673 4.4 | 705 4.6 | 8117 53.0 |
| 9 | Potwaria | 6 | 49 0.3 | | 26 0.2 | 12 0.1 | | | | | | | | | | 87 0.6 |
| 10 | Tursia | 8 | 84 0.5 | 44 0.3 | 29 0.2 | 105 0.7 | 40 0.3 | 11 0.1 | 19 0.1 | 96 0.6 | 131 0.9 | 177 1.2 | 162 1.1 | 114 0.7 | 24 0.2 | 1036 6.8 |
| | Subtotal | 44 | 1380 9.0 | 839 5.5 | 905 5.9 | 961 6.3 | 833 5.4 | 880 5.7 | 511 3.3 | 1431 9.3 | 1625 10.6 | 1504 9.8 | 1337 8.7 | 990 6.5 | 925 6.0 | 14121 92.2 |
| | Misc. | | 195 1.3 | 51 0.3 | 99 0.6 | 74 0.5 | 70 0.5 | 58 0.4 | 54 0.4 | 98 0.6 | 115 0.8 | 99 0.6 | 106 0.7 | 87 0.6 | 83 0.5 | 1189 7.8 |
| | Grand Total | | 1575 10.3 | 890 5.8 | 1004 6.6 | 1035 6.8 | 903 5.9 | 938 6.1 | 565 3.7 | 1529 10.0 | 1740 11.4 | 1603 10.5 | 1443 9.4 | 1077 7.0 | 1008 6.6 | 15310 100.0 |

12. Microwatershedwise Distribution of Area under various Land Capability Units (LCU)

| S. No. | Land Capability Units | Microwatershed of 2B1C7 Watershed | | | | | | | | | | | | | Grand Total | Series Name |
|--------|-----------------------|-----------------------------------|------------|------------|-------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|
| | | s3 | s4 | s5 | s6 | u1 | u2 | u3 | u4 | u5 | u6 | w4 | w5 | w6 | | |
| 1 | II-1 | 813 | 542 | 726 | 678 | 603 | 580 | 429 | 913 | 981 | 1022 | 1012 | 690 | 705 | 9694 | Masjidia |
| | | 5.3 | 3.5 | 4.7 | 4.4 | 3.9 | 3.8 | 2.8 | 6.0 | 6.4 | 6.7 | 6.6 | 4.5 | 4.6 | 63.3 | Khareita |
| 2 | II-2 | 65 | 27 | 29 | 105 | 23 | 5 | 15 | 96 | 113 | 155 | 162 | 114 | 24 | 933 | Tursia |
| | | 0.4 | 0.2 | 0.2 | 0.7 | 0.2 | 0.0 | 0.1 | 0.6 | 0.7 | 1.0 | 1.1 | 0.7 | | 6.1 | |
| 3 | IIs-1 | 67 | 32 | 16 | 26 | 64 | 22 | 24 | 61 | 64 | 61 | 40 | 16 | 8 | 501 | Ardama |
| | | | | | | 0.4 | 0.1 | | | | | | 0.1 | 0.1 | 3.3 | Tursia |
| 4 | IIs-1 | 97 | 126 | 14 | 2 | | | | | | | | | | 239 | Masina Khas |
| | | 0.6 | 0.8 | 0.1 | 0.0 | | | | | | | | | | 1.6 | |
| 5 | IIs-2 | 31 | | 1 | | 5 | | | | | | | | | 37 | Dubra |
| | | | | | | | | | | | | | | | 0.2 | Potwaria |
| 6 | IIs-1 | 6 | | 12 | 12 | 24 | 13 | | | | | | 42 | 177 | 286 | Ddia |
| | | 0.0 | | 0.1 | 0.1 | 0.2 | 0.1 | 0.0 | 0.0 | 0.0 | 0.0 | 0.0 | 0.3 | 1.2 | 1.9 | |
| 7 | IIs-2 | 7 | | 14 | 0 | | | | | | | | | | 21 | Potwaria |
| | | 0.0 | | 0.1 | 0.0 | | | | | | | | | | 0.1 | |
| 8 | IIw-1 | 220 | 49 | 33 | 77 | 60 | 208 | 27 | 229 | 427 | 265 | 116 | 70 | | 1781 | Chaisar |
| | | 1.4 | 0.3 | 0.2 | 0.5 | 0.4 | 1.4 | 0.2 | 1.5 | 2.8 | 1.7 | 0.8 | 0.5 | 0.0 | 11.6 | |
| 11 | IIsw-1 | | | | | | | | 67 | 9 | | | | | 76 | Jogia Buzurg |
| | | | | | | | | | 0.4 | 0.1 | | | | | 0.5 | |
| 9 | IIIs-1 | | 7 | | 10 | 54 | 52 | 16 | 6 | 31 | 1 | 7 | 58 | 11 | 253 | Dhubra |
| | | 0.0 | | 0.0 | 0.1 | | | | | | | | | | | 1.7 |
| 10 | IIIs-1 | 20 | 12 | 42 | 40 | | | | | | | | | | 114 | Masina Khas |
| | | 0.1 | 0.1 | 0.3 | 0.3 | | | | | | | | | | 0.7 | |
| 12 | IIIs-1 | | | | | | | | 59 | | | | | | 59 | Jogia Buzurg |
| | | | | | | | | | 0.4 | | | | | | 0.4 | |
| 13 | IVes-1 | 42 | 44 | 18 | 11 | | | | | | | | | | 115 | Masina Khas |
| | | 0.3 | 0.3 | 0.1 | 0.1 | | | | | | | | | | 0.8 | |
| | TOTAL | 1326 | 795 | 887 | 950 | 833 | 880 | 511 | 1305 | 1616 | 1504 | 1337 | 990 | 925 | 13859 | |
| | | 8.7 | 5.2 | 5.8 | 6.2 | 5.4 | 5.7 | 3.3 | 8.5 | 10.6 | 9.8 | 8.7 | 6.5 | 6.0 | 90.5 | |
| | Misc. Subtotal | 195 | 51 | 99 | 74 | 70 | 58 | 54 | 98 | 115 | 99 | 106 | 87 | 83 | 1189 | |
| | | 1.3 | 0.3 | 0.6 | 0.5 | 0.5 | 0.4 | 0.4 | 0.4 | 0.6 | 0.8 | 0.6 | 0.7 | 0.6 | 0.5 | 7.8 |
| | GRAND TOTAL | 1521 | 846 | 986 | 1024 | 903 | 938 | 565 | 1403 | 1731 | 1603 | 1443 | 1077 | 1008 | 15048 | |
| | | 9.9 | 5.5 | 6.4 | 6.7 | 5.9 | 6.1 | 3.7 | 9.2 | 11.3 | 10.5 | 9.4 | 7.0 | 6.6 | 98.3 | |

10. Microwatershedwise Distribution of Area under Varous Depth Classes:

| S. No. | Series Name | Microwatersheds of 2B1C7 watershed | | | | | | | | | | | | | Grand Total | Series Associated |
|-------------|-------------|------------------------------------|-------------|-------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|-------------------------------------------------------------------------------------------------|
| | | s3 | s4 | s5 | s6 | u1 | u2 | u3 | u4 | u5 | u6 | w4 | w5 | w6 | | |
| 1 | Very deep | 1380 | 839 | 905 | 961 | 833 | 880 | 511 | 1431 | 1625 | 1504 | 1337 | 990 | 925 | 14121 | Ardama, Chaisar, Didai, Dhubra, Jogia Buzurg, Khareita, Masina Khas, Masjidia, Potwaria, Tursia |
| | | 9.0 | 5.5 | 5.9 | 6.3 | 5.4 | 5.7 | 3.3 | 9.3 | 10.6 | 9.8 | 8.7 | 6.5 | 6.0 | | |
| Total | 1380 | 839 | 905 | 961 | 833 | 880 | 511 | 1431 | 1625 | 1504 | 1337 | 990 | 925 | 14121 | | |
| | | 9.0 | 5.5 | 5.9 | 6.3 | 5.4 | 5.7 | 3.3 | 9.3 | 10.6 | 9.8 | 8.7 | 6.5 | 6.0 | 92.2 | |
| Misc. | 195 | 51 | 99 | 74 | 70 | 58 | 54 | 98 | 115 | 99 | 106 | 87 | 83 | 1189 | | |
| | | 1.3 | 0.3 | 0.6 | 0.5 | 0.5 | 0.4 | 0.4 | 0.6 | 0.8 | 0.6 | 0.7 | 0.6 | 0.5 | 7.8 | |
| Grand Total | 1575 | 890 | 1004 | 1035 | 903 | 938 | 565 | 1529 | 1740 | 1603 | 1443 | 1077 | 1008 | 15310 | | |
| | | 10.3 | 5.8 | 6.6 | 6.8 | 5.9 | 6.1 | 3.7 | 10.0 | 11.4 | 10.5 | 9.4 | 7.0 | 6.6 | 100.0 | |

11. Microwatershedwise Distribution of Area under Varous Erosion Classes:

| S. No. | Series Name | Microwatersheds of 2B1C7 watershed | | | | | | | | | | | | | Grand Total | Series Associated |
|-------------|-----------------------------|------------------------------------|-------------|-------------|------------|------------|------------|-------------|-------------|-------------|-------------|-------------|-------------|--------------|--------------|----------------------------------------------------------------------------|
| | | s3 | s4 | s5 | s6 | u1 | u2 | u3 | u4 | u5 | u6 | w4 | w5 | w6 | | |
| 1 | None to slight erosion (e1) | 1111 | 625 | 814 | 882 | 764 | 858 | 487 | 1311 | 1561 | 1443 | 1297 | 974 | 917 | 13044 | Chaisar, Didia, Dhubra, Jogia Buzurg, Khareita, Masjidia, Potwaria, Tursia |
| | | 7.3 | 4.1 | 5.3 | 5.8 | 5.0 | 5.6 | 3.2 | 8.6 | 10.2 | 9.4 | 8.5 | 6.4 | 6.0 | | |
| 2 | Moderate erosion (e2) | 227 | 170 | 73 | 68 | 69 | 22 | 24 | 120 | 64 | 61 | 40 | 16 | 8 | 962 | |
| | | 1.5 | 1.1 | 0.5 | 0.4 | 0.5 | 0.1 | 0.2 | 0.8 | 0.4 | 0.4 | 0.3 | 0.1 | 0.1 | 6.3 | |
| 3 | Severe erosion (e3) | 42 | 44 | 18 | 11 | | | | | | | | | | 115 | |
| | | 0.3 | 0.3 | 0.1 | 0.1 | | | | | | | | | | 0.8 | |
| Total | 1380 | 839 | 905 | 961 | 833 | 880 | 511 | 1431 | 1625 | 1504 | 1337 | 990 | 925 | 14121 | | |
| | | 9.0 | 5.5 | 5.9 | 6.3 | 5.4 | 5.7 | 3.3 | 9.3 | 10.6 | 9.8 | 8.7 | 6.5 | 6.0 | 92.2 | |
| Misc. | 195 | 51 | 99 | 74 | 70 | 58 | 54 | 98 | 115 | 99 | 106 | 87 | 83 | 1189 | | |
| | | 1.3 | 0.3 | 0.6 | 0.5 | 0.5 | 0.4 | 0.4 | 0.6 | 0.8 | 0.6 | 0.7 | 0.6 | 0.5 | 7.8 | |
| Grand Total | 1575 | 890 | 1004 | 1035 | 903 | 938 | 565 | 1529 | 1740 | 1603 | 1443 | 1077 | 1008 | 15310 | | |
| | | 10.3 | 5.8 | 6.6 | 6.8 | 5.9 | 6.1 | 3.7 | 10.0 | 11.4 | 10.5 | 9.4 | 7.0 | 6.6 | 100.0 | |

13 Salient Features of the Area:

- Out of the total surveyed area of 15310 ha, about 14121 ha (92.2%) area is under very deep soils.
- Around 962 ha (6.3%) area suffer from moderate erosion hazard and 115 ha (0.8%) area suffer severe erosion which needs immediate integrated soil conservation measures.
- About 91.5% area is suitable for agriculture where 115 ha (0.8%) area is marginally suitable for agriculture.
- Nearly 398 ha (2.6%) area are under agro-horticulture or plantation.

