

# **Report on Prioritization of Microwatersheds in 4E2D, 4E2E and 4E6I Sub-Catchment of Godavari Basin, Adilabad & Karimnagar Districts of Andhra Pradesh and Chandrapur, Gadchiroli & Nanded Districts of Maharashtra State using RS and GIS Technique.**

## **ABSTRACT**

- 1. Survey Area** : 4E2D, 4E2E and 4E6I Sub-Catchment of Godavari Basin, Adilabad & Karimnagar Districts of Andhra Pradesh and Chandrapur, Gadchiroli & Nanded Districts of Maharashtra State.
- 2. Total Area** : **16,21,581 ha**
- 3. Geographical Location** : 18° 25' - 19° 23' N Latitude  
78° 14' - 80° 50' E Longitude
- 4. Kind of Survey** : Rapid Reconnaissance Survey for Priority Fixation of Micro watersheds
- 5. Base Material** : Satellite Imagery of IRS-1D and Survey of India Topographical Maps on 1: 50,000 Scale
- 6. Period of Survey** : May, 2008 to March, 2010
- 7. Agro climatic Region** : Southern Plateau & hill regions (Zone no. X)

## 8. Extent of area (ha) under different Runoff Potential mapping Units

| SL No | RPMU | RP Value | Total Area | % Area | SL No | RPMU         | RP Value | Total Area     | % Area        |
|-------|------|----------|------------|--------|-------|--------------|----------|----------------|---------------|
| 1     | AL01 | 56       | 45750      | 2.82   | 28    | LS04         | 63       | 8999           | 0.55          |
| 2     | AL02 | 60       | 44212      | 2.73   | 29    | LS05         | 65       | 11277          | 0.70          |
| 3     | AL03 | 64       | 23856      | 1.47   | 30    | LS06         | 64       | 33870          | 2.09          |
| 4     | BA01 | 65       | 48569      | 3.00   | 31    | LS07         | 59       | 25286          | 1.56          |
| 5     | BA02 | 65       | 75468      | 4.65   | 32    | LS08         | 70       | 22259          | 1.37          |
| 6     | BA03 | 73       | 35176      | 2.17   | 33    | SD01         | 66       | 36958          | 2.28          |
| 7     | BA04 | 59       | 59847      | 3.69   | 34    | SD02         | 74       | 33248          | 2.05          |
| 8     | BA05 | 75       | 77516      | 4.78   | 35    | SD03         | 69       | 35969          | 2.22          |
| 9     | BA06 | 70       | 20237      | 1.25   | 36    | SD04         | 73       | 34258          | 2.11          |
| 10    | BA07 | 71       | 23834      | 1.47   | 37    | SD05         | 63       | 27759          | 1.71          |
| 11    | BA08 | 69       | 18296      | 1.13   | 38    | SD06         | 58       | 36224          | 2.23          |
| 12    | GR01 | 77       | 54562      | 3.36   | 39    | SD07         | 58       | 21190          | 1.31          |
| 13    | GR02 | 76       | 60331      | 3.72   | 40    | SD08         | 59       | 127882         | 7.89          |
| 14    | GR03 | 68       | 10708      | 0.66   | 41    | SD09         | 61       | 10785          | 0.67          |
| 15    | GR04 | 67       | 23213      | 1.43   | 42    | SD10         | 60       | 6379           | 0.39          |
| 16    | GR05 | 62       | 136843     | 8.43   | 43    | SD11         | 66       | 23843          | 1.47          |
| 17    | GR06 | 72       | 12209      | 0.75   | 44    | SH01         | 73       | 5939           | 0.37          |
| 18    | GR07 | 60       | 151495     | 9.34   | 45    | SH02         | 71       | 4150           | 0.26          |
| 19    | GR08 | 68       | 54100      | 3.34   | 46    | SH03         | 66       | 5608           | 0.35          |
| 20    | GR09 | 62       | 31943      | 1.97   | 47    | SH04         | 60       | 8553           | 0.53          |
| 21    | GR10 | 60       | 1077       | 0.07   | 48    | H            |          | 11815          | 0.73          |
| 22    | LA01 | 75       | 413        | 0.03   | 49    | MINE         |          | 815            | 0.05          |
| 23    | LA02 | 65       | 1470       | 0.09   | 50    | RI           |          | 42328          | 2.61          |
| 24    | LA03 | 57       | 8686       | 0.54   | 51    | SUBM         |          | 1972           | 0.12          |
| 25    | LS01 | 64       | 3426       | 0.21   | 52    | T            |          | 8980           | 0.55          |
| 26    | LS02 | 76       | 8674       | 0.53   |       | <b>Total</b> |          | <b>1621581</b> | <b>100.00</b> |
| 27    | LS03 | 68       | 3324       | 0.20   |       |              |          |                |               |

**9. District wise distribution of area (ha.) under different Runoff potential Mapping units**

| SI No | RPMU | Area under districts |            |            |            |        | Total Area | % Area |
|-------|------|----------------------|------------|------------|------------|--------|------------|--------|
|       |      | Adilabad             | Karimnagar | Chandrapur | Gadchiroli | Nanded |            |        |
| 1     | AL01 | 34803                | 3684       | 0          | 7263       | 0      | 45750      | 2.82   |
| 2     | AL02 | 30527                | 1836       | 0          | 11849      | 0      | 44212      | 2.73   |
| 3     | AL03 | 20634                | 818        | 0          | 2404       | 0      | 23856      | 1.47   |
| 4     | BA01 | 42025                | 0          | 4327       | 0          | 2217   | 48569      | 3      |
| 5     | BA02 | 71750                | 0          | 1946       | 0          | 1772   | 75468      | 4.65   |
| 6     | BA03 | 28803                | 0          | 2620       | 0          | 3753   | 35176      | 2.17   |
| 7     | BA04 | 52066                | 0          | 6150       | 0          | 1631   | 59847      | 3.69   |
| 8     | BA05 | 67332                | 0          | 5308       | 0          | 4876   | 77516      | 4.78   |
| 9     | BA06 | 13560                | 0          | 6653       | 0          | 24     | 20237      | 1.25   |
| 10    | BA07 | 16160                | 0          | 3111       | 0          | 4563   | 23834      | 1.47   |
| 11    | BA08 | 17867                | 0          | 60         | 0          | 369    | 18296      | 1.13   |
| 12    | GR01 | 33122                | 1          | 145        | 21294      | 0      | 54562      | 3.36   |
| 13    | GR02 | 23806                | 0          | 103        | 35677      | 745    | 60331      | 3.72   |
| 14    | GR03 | 9368                 | 0          | 0          | 1154       | 186    | 10708      | 0.66   |
| 15    | GR04 | 17966                | 0          | 0          | 5247       | 0      | 23213      | 1.43   |
| 16    | GR05 | 88012                | 37         | 0          | 47891      | 903    | 136843     | 8.43   |
| 17    | GR06 | 11561                | 0          | 0          | 575        | 73     | 12209      | 0.75   |
| 18    | GR07 | 85984                | 195        | 0          | 65213      | 103    | 151495     | 9.34   |
| 19    | GR08 | 47296                | 237        | 0          | 6567       | 0      | 54100      | 3.34   |
| 20    | GR09 | 30306                | 161        | 0          | 0          | 1476   | 31943      | 1.97   |
| 21    | GR10 | 1077                 | 0          | 0          | 0          | 0      | 1077       | 0.07   |
| 22    | LA01 | 0                    | 0          | 413        | 0          | 0      | 413        | 0.03   |
| 23    | LA02 | 0                    | 0          | 959        | 511        | 0      | 1470       | 0.09   |
| 24    | LA03 | 0                    | 0          | 0          | 8686       | 0      | 8686       | 0.54   |
| 25    | LS01 | 3426                 | 0          | 0          | 0          | 0      | 3426       | 0.21   |
| 26    | LS02 | 7963                 | 0          | 711        | 0          | 0      | 8674       | 0.53   |
| 27    | LS03 | 2883                 | 0          | 441        | 0          | 0      | 3324       | 0.2    |
| 28    | LS04 | 8999                 | 0          | 0          | 0          | 0      | 8999       | 0.55   |
| 29    | LS05 | 11085                | 0          | 192        | 0          | 0      | 11277      | 0.7    |
| 30    | LS06 | 33870                | 0          | 0          | 0          | 0      | 33870      | 2.09   |

| SI No | RPMU         | Area under districts |              |              |               |              | Total Area     | % Area        |
|-------|--------------|----------------------|--------------|--------------|---------------|--------------|----------------|---------------|
|       |              | Adilabad             | Karimnagar   | Chandrapur   | Gadchiroli    | Nanded       |                |               |
| 31    | LS07         | 25245                | 0            | 41           | 0             | 0            | 25286          | 1.56          |
| 32    | LS08         | 22234                | 0            | 25           | 0             | 0            | 22259          | 1.37          |
| 33    | SD01         | 32968                | 0            | 27           | 3963          | 0            | 36958          | 2.28          |
| 34    | SD02         | 23298                | 11           | 751          | 9188          | 0            | 33248          | 2.05          |
| 35    | SD03         | 34121                | 0            | 0            | 1848          | 0            | 35969          | 2.22          |
| 36    | SD04         | 28192                | 85           | 0            | 5981          | 0            | 34258          | 2.11          |
| 37    | SD05         | 20257                | 9            | 0            | 7493          | 0            | 27759          | 1.71          |
| 38    | SD06         | 36022                | 31           | 0            | 171           | 0            | 36224          | 2.23          |
| 39    | SD07         | 17916                | 228          | 52           | 2994          | 0            | 21190          | 1.31          |
| 40    | SD08         | 77259                | 94           | 0            | 50529         | 0            | 127882         | 7.89          |
| 41    | SD09         | 10785                | 0            | 0            | 0             | 0            | 10785          | 0.67          |
| 42    | SD10         | 6379                 | 0            | 0            | 0             | 0            | 6379           | 0.39          |
| 43    | SD11         | 18777                | 103          | 0            | 4963          | 0            | 23843          | 1.47          |
| 44    | SH01         | 4731                 | 0            | 1208         | 0             | 0            | 5939           | 0.37          |
| 45    | SH02         | 4019                 | 0            | 131          | 0             | 0            | 4150           | 0.26          |
| 46    | SH03         | 5430                 | 0            | 178          | 0             | 0            | 5608           | 0.35          |
| 47    | SH04         | 8338                 | 0            | 215          | 0             | 0            | 8553           | 0.53          |
| 48    | H            | 9824                 | 14           | 0            | 1977          | 0            | 11815          | 0.73          |
| 49    | MINE         | 815                  | 0            | 0            | 0             | 0            | 815            | 0.05          |
| 50    | RI           | 23963                | 6397         | 180          | 11712         | 76           | 42328          | 2.61          |
| 51    | SUBM         | 1972                 | 0            | 0            | 0             | 0            | 1972           | 0.12          |
| 52    | T            | 8557                 | 0            | 0            | 180           | 243          | 8980           | 0.55          |
|       | <b>Total</b> | <b>1233353</b>       | <b>13941</b> | <b>35947</b> | <b>315330</b> | <b>23010</b> | <b>1621581</b> | <b>100.00</b> |

### 10. Priority categorisation

| SI No | Priority Category    | No Of WSD | Area under districts |            |            |            |        | Total Area (ha) | % Area |
|-------|----------------------|-----------|----------------------|------------|------------|------------|--------|-----------------|--------|
|       |                      |           | Adilabad             | Karimnagar | Chandrapur | Gadchiroli | Nanded |                 |        |
| 1     | Very High (above 70) | 139       | 95771                |            | 7826       | 50621      | 8823   | 163041          | 10.05  |
| 2     | High (66-70)         | 461       | 441378               | 449        | 23328      | 47968      | 12986  | 526109          | 32.45  |
| 3     | Medium (61-65)       | 655       | 578995               | 9656       | 4789       | 146148     | 1201   | 740789          | 45.68  |

|   |              |             |                |              |              |               |              |                |               |
|---|--------------|-------------|----------------|--------------|--------------|---------------|--------------|----------------|---------------|
| 4 | Low (56-60)  | 173         | 117209         | 3836         | 4            | 70593         | 0            | 191642         | 11.82         |
|   | <b>Total</b> | <b>1428</b> | <b>1233353</b> | <b>13941</b> | <b>35947</b> | <b>315330</b> | <b>23010</b> | <b>1621581</b> | <b>100.00</b> |

**11. Watershed wise distribution of area (ha) under different priority categories**

| <b>Sl No</b> | <b>Watersheds</b> | <b>Very High</b> | <b>High</b>   | <b>Medium</b> | <b>Low</b>    | <b>Very Low</b> | <b>Total Area</b> |
|--------------|-------------------|------------------|---------------|---------------|---------------|-----------------|-------------------|
| 1            | 4E2D1             | 1449             | 24442         | 59943         | 3490          | 0               | 89324             |
| 2            | 4E2D2             | 0                | 26718         | 40396         | 2913          | 0               | 70027             |
| 3            | 4E2D3             | 3855             | 25911         | 29186         | 2539          | 0               | 61491             |
| 4            | 4E2D4             | 8384             | 30611         | 21780         | 1333          | 0               | 62108             |
| 5            | 4E2D5             | 5281             | 30104         | 48327         | 846           | 0               | 84558             |
| 6            | 4E2D6             | 11690            | 25041         | 35861         | 0             | 0               | 72592             |
| 7            | 4E2D7             | 17118            | 20677         | 18511         | 0             | 0               | 56306             |
| 8            | 4E2D8             | 0                | 13064         | 34003         | 12775         | 0               | 59842             |
| 9            | 4E2D9             | 7322             | 31335         | 25405         | 10998         | 0               | 75060             |
| 10           | 4E2E1             | 0                | 3726          | 45820         | 21741         | 0               | 71287             |
| 11           | 4E2E2             | 907              | 10743         | 35981         | 31223         | 0               | 78854             |
| 12           | 4E2E3             | 0                | 14464         | 30561         | 13638         | 0               | 58663             |
| 13           | 4E2E4             | 756              | 41959         | 41406         | 8260          | 0               | 92381             |
| 14           | 4E2E5             | 0                | 14290         | 39719         | 2464          | 0               | 56473             |
| 15           | 4E2E6             | 10924            | 34564         | 9780          | 0             | 0               | 55268             |
| 16           | 4E2E7             | 12099            | 29380         | 7760          | 0             | 0               | 49239             |
| 17           | 4E2E8             | 32533            | 88052         | 18036         | 0             | 0               | 138621            |
| 18           | 4E2E9             | 0                | 13197         | 52622         | 9674          | 0               | 75493             |
| 19           | 4E6I1             | 15716            | 14958         | 34678         | 29136         | 0               | 94488             |
| 20           | 4E6I2             | 25136            | 12364         | 22129         | 0             | 0               | 59629             |
| 21           | 4E6I3             | 7428             | 14414         | 37556         | 9351          | 0               | 68749             |
| 22           | 4E6I4             | 2443             | 6095          | 51329         | 31261         | 0               | 91128             |
|              | <b>Total</b>      | <b>163041</b>    | <b>526109</b> | <b>740789</b> | <b>191642</b> | <b>0</b>        | <b>1621581</b>    |

## 12. Salient Features

- Out of total 1428 microwatersheds surveyed, 139 microwatersheds covering an area 163041 ha (10.05%) comes under very high priority category.
- About 461 microwatersheds with special extent of 526109 ha (32.45%) falls under high priority.
- About 108465 ha (6.69%) area suffers from severe water erosion and 338935 ha (20.90%) area from moderate to severe water erosion. Maximum area comes under Moderate erosion (46.34%).
- Land with Steep to very steep slopes occupies nearly 165326 ha (10.20%) whereas, moderately steep to steep sloping land covers about 8674 ha (0.53%) and a strong to steep slope covers about 91276 ha (5.63%). Maximum area comes under Very gentle to Gentle slope which is 835016 ha (51.49%).
- Shallow to moderately deep soils covers most of the area (39.37%) followed by deep to very deep soils (25.20%), While very deep soils cover about 13.83 % of the area.
- About 35.09% of the total area is moderately managed which is followed by poorly managed area (20.97% of the total), and poorly to moderately managed area (18.82%).