**Area Weighted Analysis of DGSLR** parameter

Since each sub-watershed contains many sub-categories, Area Weighted analysis is calculated for each parameter. Area Weighted average (AWA) example equation is as follows for drainage density.

(A1 \**Wi* + A2\* Wi + A3\* Wi + A4\* Wi + A5\*Wi)

AWA (Dd) = ------------------------------------------------------------------ ........... (Eq. 7)

(A1 + A2 + A3 + A4 + A5)

**DGSLR Index**

For deriving the DGSLR Index (**D**rainage density, **G**eology, % **S**lope, **L**andform classification, **L**and use / **L**and cover, **R**ainfall and **R**unoff) Area weighted average for each thematic layer was calculated. The sum of AWA for each theme, gives

............... (Eq. 7)

Dd is drainage density; G is geology; S is slope percent; L is landform classification, landuse and R is Rainfall, runoff.

The area weighted average of each sub-watershed using each DGSLR parameter is calculated is as follows

(81.05 \* 3.0 + 11.17 \* 2.40 + 6.33 \* 1.80 + 1.44 \* 1.20)

AWADd = ------------------------------------------------------------------------ = 2.83

100

Table 6: Prioritization and final ranking of sub-watersheds

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **DGSLR parameter** | Sub- watershed | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Drainage density | **2.83** | 2.74 | 2.80 | 2.73 | 2.75 | 2.61 | 2.80 | 2.74 |
| Geology | 5.98 | 6.22 | 5.96 | 6.25 | 6.38 | 6.59 | 6.34 | 6.53 |
| Slope | 3.46 | 3.45 | 3.44 | 3.02 | 3.29 | 2.75 | 3.25 | 2.53 |
| Landform classification | 3.22 | 2.90 | 3.15 | 2.79 | 2.99 | 2.19 | 3.34 | 2.55 |
| Landuse / landcover | 3.97 | 4.00 | 3.79 | 3.85 | 3.76 | 3.44 | 3.85 | 3.78 |
| Rainfall | 4.78 | 4.59 | 5.14 | 5.15 | 4.73 | 5.17 | 5.83 | 6.76 |
| Runoff | 4.89 | 5.16 | 5.36 | 5.25 | 4.57 | 4.58 | 4.56 | 5.23 |
| **DGSLR index value** | 29.13 | 29.06 | 29.64 | 29.04 | 28.47 | 27.32 | 29.97 | 30.12 |
| Priority rankings | Fourth | Fifth | Third | Sixth | Seven | Eight | Second | first |