**Table 2:** AHP method, pairwise comparison matrix and normalized principal eigenvector for eco-environmental risk assessment criteria's, and for the classes within each criterion

| Assessed criteria's and their sub-criteria | Pairwise comparison matrix | | | | | | | | | | | Normalized principal Eigen-vectors |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | [1] | [2] | [3] | [4] | [5] | [6] | [7] | [8] | [9] | [10] | [11] | |
| Criteria | | | | | | | | | | | | |
| [1]Elevation | 1 | | | | | | | | | | | 0.031 |
| [2]Slope | 3 | 1 | | | | | | | | | | 0.144 |
| [3]Aspect | 1/3 | ½ | 1 | | | | | | | | | 0.028 |
| [4]Geology | 2 | 1/3 | 2 | 1 | | | | | | | | 0.035 |
| [5]Soil | 3 | 1/3 | 3 | 3 | 1 | | | | | | | 0.137 |
| [6]Land use | 7 | 5 | 5 | 5 | 5 | 1 | | | | | | 0.271 |
| [7]NDVI | 2 | 1/3 | 2 | 2 | 2 | 1/5 | 1 | | | | | 0.061 |
| [8]Annual rainfall | 2 | ½ | 3 | 3 | 2 | ¼ | 2 | 1 | | | | 0.045 |
| [9]Distance from settlement | 3 | 1/5 | 3 | 3 | 4 | 1/5 | 5 | 3 | 1 | | | 0.103 |
| [10]Distance from river/stream | 5 | 1/3 | 3 | 3 | 5 | 1/3 | 5 | 4 | 3 | 1 | | 0.091 |
| [11]Distance from road | 5 | 1/3 | 3 | 3 | 3 | 1/5 | 3 | 3 | 3 | 1/2 | 1 | 0.049 |
| | λmax = 13.001 | | | | CI = 0.152 | | | CR = 0.10 | | | | |
| Classes in each criteria | | | | | | | | | | | | |
| Elevation | | | | | | | | | | | | |
| [1]<1000 | 1 | | | | | | | | | | | 0.061 |
| [2]1000-1500 | 3 | 1 | | | | | | | | | | 0.222 |
| [3]1500-2000 | 3 | 1 | 1 | | | | | | | | | 0.222 |
| [4]2000-2500 | 5 | 1 | 1 | 1 | | | | | | | | 0.246 |
| [5]>2500 | 5 | 1 | 1 | 1 | 1 | | | | | | | 0.246 |
| | λmax = 5.042 | | | | CI = 0.010 | | | CR = 0.0094 | | | | |
| Slope | | | | | | | | | | | | |
| [1]Flat to gentle slope (< 15) | 1 | | | | | | | | | | | 0.047 |
| [2]Moderate slope (15-25) | 3 | 1 | | | | | | | | | | 0.093 |
| [3]Fairly moderate slope (25-35) | 3 | 1 | 1 | | | | | | | | | 0.088 |
| [4]Steep Slope (35-45) | 5 | 5 | 5 | 1 | | | | | | | | 0.360 |
| [5]very steep slope (>45) | 7 | 5 | 7 | 1 | 1 | | | | | | | 0.409 |
| | λmax = 5.807 | | | | CI = 0.201 | | | CR = 0.18 | | | | |
| Aspect | | | | | | | | | | | | |
| [1]North | 1 | | | | | | | | | | | 0.043 |
| [2]North-east | 1 | 1 | | | | | | | | | | 0.056 |
| [3]East | 5 | 3 | 1 | | | | | | | | | 0.223 |
| [4]South-east | 7 | 5 | 3 | 1 | | | | | | | | 0.327 |
| [5]South | 5 | 3 | 5 | 1/3 | 1 | | | | | | | 0.162 |
| [6]South-west | 3 | 3 | 1/5 | 1/3 | 3 | 1 | | | | | | 0.190 |
| [7]West | 3 | 1 | 1/5 | 1/3 | 1 | 1 | 1 | | | | | 0.094 |
| [8]North-west | 1 | 1 | 1/5 | 1/3 | 1 | 1/3 | 1 | 1 | | | | 0.078 |
| [9]Flat | 1 | 1 | 1/3 | 1/5 | 1 | 1/5 | 1 | 1 | 1 | | | 0.070 |
| | λmax = 10.633 | | | | CI = 0.204 | | | CR = 0.182 | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Geology | | | | | | | | | |
| [1]Ranimatta formation | 1 | | | | | | | | 0.639 |
| [2]Ghanapokhara formation | 1/5 | 1 | | | | | | | 0.256 |
| [3]Naudanda formation | 1/5 | 1/3 | 1 | | | | | | 0.180 |
| [4]Himal group | 1/5 | 1/3 | 1/3 | 1 | | | | | 0.086 |
| [5]Ulleri formation | 1/5 | 1/3 | 1/3 | 1 | 1 | | | | 0.086 |
| | λmax = 5.35 | | | | CI = 0.089 | | CR = 0.079 | | |
| Soil | | | | | | | | | |
| [1]Chromic cambisols | 1 | | | | | | | | 0.223 |
| [2]Eutric cambisols | 1 | 1 | | | | | | | 0.223 |
| [3]Eutric regosols | 1 | 1 | 1 | | | | | | 0.198 |
| [4]Gelic Laptosols | 1 | 1 | 1/3 | 1 | | | | | 0.136 |
| [5]Gleyic cambisols | 1/3 | 1/3 | 1 | 1 | 1 | | | | 0.109 |
| [6]Humic Cambisols | 1/3 | 1/3 | 1 | 1 | 1 | 1 | | | 0.109 |
| | λmax = 6.416 | | | | CI = 0.104 | | CR = 0.08 | | |
| Land use | | | | | | | | | |
| [1]Agriculture | 1 | | | | | | | | 0.075 |
| [2]Forest | 1/5 | 1 | | | | | | | 0.043 |
| [3]Grassland | 3 | 3 | 1 | | | | | | 0.146 |
| [4]Bare land | 3 | 3 | 1 | 1 | | | | | 0.160 |
| [5]Shrub land | 3 | 3 | 1 | ½ | 1 | | | | 0.129 |
| [6]Water body | 2 | 2 | ½ | ½ | ½ | 1 | | | 0.116 |
| [7]Snow/glacier | 5 | 5 | 3 | 3 | 5 | 1 | 1 | | 0.327 |
| | λmax =7.73 | | | | CI =0.12 | | CR =0.09 | | |
| Normalized Difference Vegetation Index (NDVI) | | | | | | | | | |
| [1](- 0.17) – (0.02) | 1 | | | | | | | | 0.052 |
| [2](0.02) – (0. 10) | 1 | 1 | | | | | | | 0.104 |
| [3] (0.10 – 0.20) | 7 | 7 | 1 | | | | | | 0.511 |
| [4](0.20 – 0.29) | 5 | 5 | 1/7 | 1 | | | | | 0.225 |
| [5](0.29 – 0.50) | 3 | 1/3 | 1/3 | 1/3 | 1 | | | | 0.104 |
| | λmax = 5.40 | | | | CI =0.10 | | CR =0.08 | | |
| Annual rainfall | | | | | | | | | |
| [1]<2613 | 1 | | | | | | | | 0.053 |
| [2]2613-2614 | 3 | 1 | | | | | | | 0.094 |
| [3] 2614-2615 | 3 | 1 | 1 | | | | | | 0.108 |
| [4] 2615-2616 | 5 | 5 | 3 | 1 | | | | | 0.338 |
| [5]> 2616 | 5 | 7 | 5 | 1 | 1 | | | | 0.405 |
| | λmax = 5.23 | | | | CI = 0.058 | | CR = 0.052 | | |
| Distance from settlement | | | | | | | | | |
| [1]Close ( <1000 m) | 1 | | | | | | | | 0.086 |
| [2]Nearby (1000 - 2000 m) | 3 | 1 | | | | | | | 0.290 |
| [3]Nearby distant (2000 - 3000 m) | 3 | 1 | 1 | | | | | | 0.290 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| [4]Far (> 3000) | 5 | 1 | 1 | 1 | | | 0.332 |
| | | λmax = 4.032 | | | CI =0.010 | CR = 0.012 | |
| Distance from river/stream | | | | | | | |
| [1]Close (< 50m) | 1 | | | | | | 0.526 |
| [2]Nearby (50 -100m) | 1/5 | 1 | | | | | 0.214 |
| [3]Distant (100 - 200 m) | 1/5 | 1/3 | 1 | | | | 0.086 |
| [4]Little distance (200 - 500m) | 1/5 | 1/3 | 1 | 1 | | | 0.086 |
| [5]Far distance (>500 m) | 1/5 | 1/3 | 1 | 1 | 1 | | 0.086 |
| | | λmax = 5.150 | | | CI =0.037 | CR = 0.033 | |
| Distance from road | | | | | | | |
| [1]Close (< 50 m) | 1 | | | | | | 0.474 |
| [2]Nearby (50 - 100 m) | 1/3 | 1 | | | | | 0.227 |
| [3]Nearby distant (100 - 200 m) | 1/5 | 1/3 | 1 | | | | 0.099 |
| [4]Far (200 - 500) | 1/5 | 1/3 | 1 | 1 | | | 0.099 |
| [5]More far (> 500 m) | 1/5 | 1/3 | 1 | 1 | 1 | | 0.099 |
| | | λmax = 5.074 | | | CI = 0.018 | CR = 0.016 | |