Criticality and vulnerability assessment of the multimodal transport network of Bangladesh

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Objectives

- **Understanding the criticality of the transport network** ranking each transport network segment based on its relative importance for the functioning of the system
- **Evaluating the vulnerability of the transport network** how is system functioning affected when multiple links in the network are simultaneously disrupted
- **Exploring the impacts of different investment options under deep uncertainty** how is system functioning changed due to interventions

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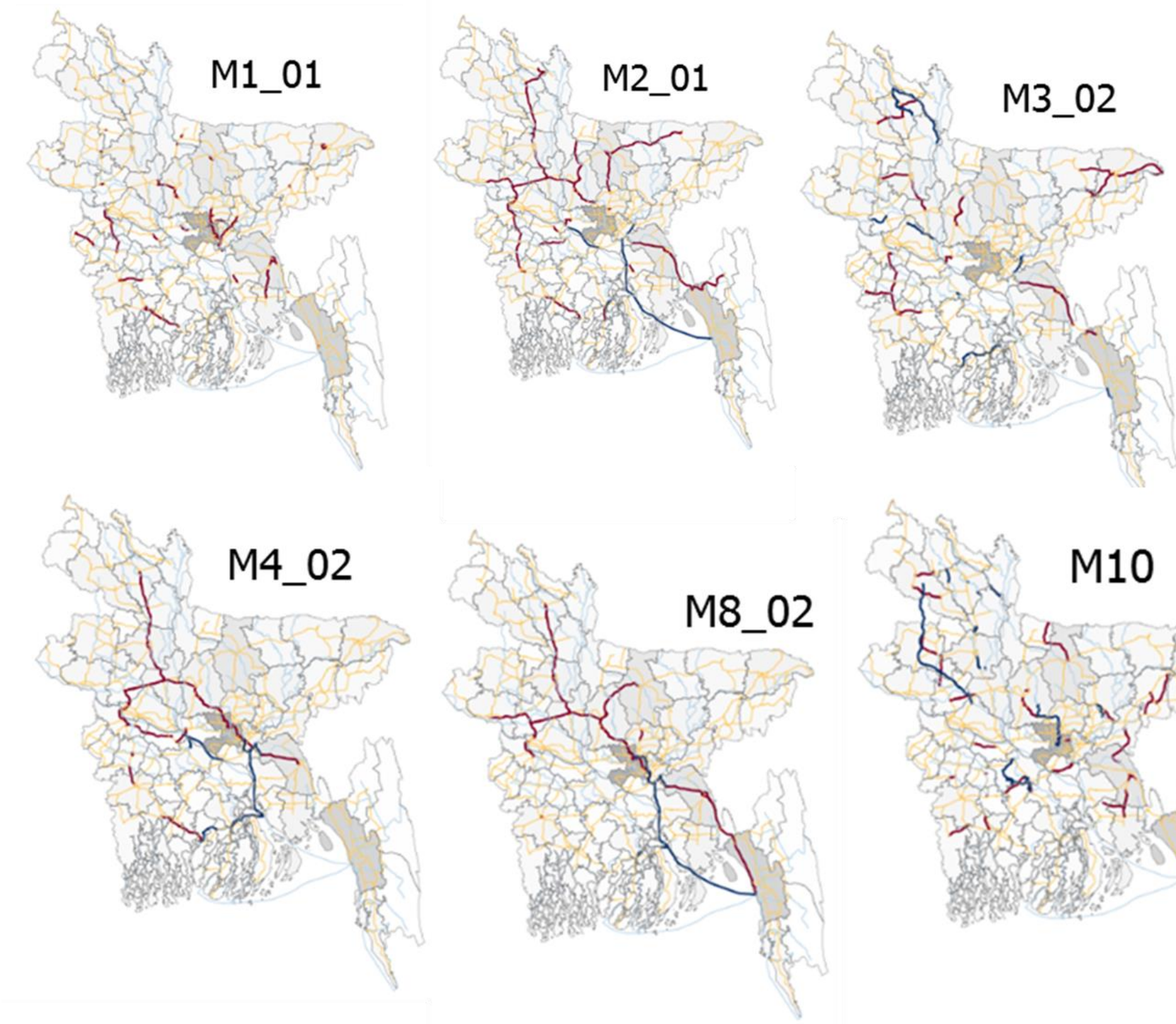
Criticality analysis



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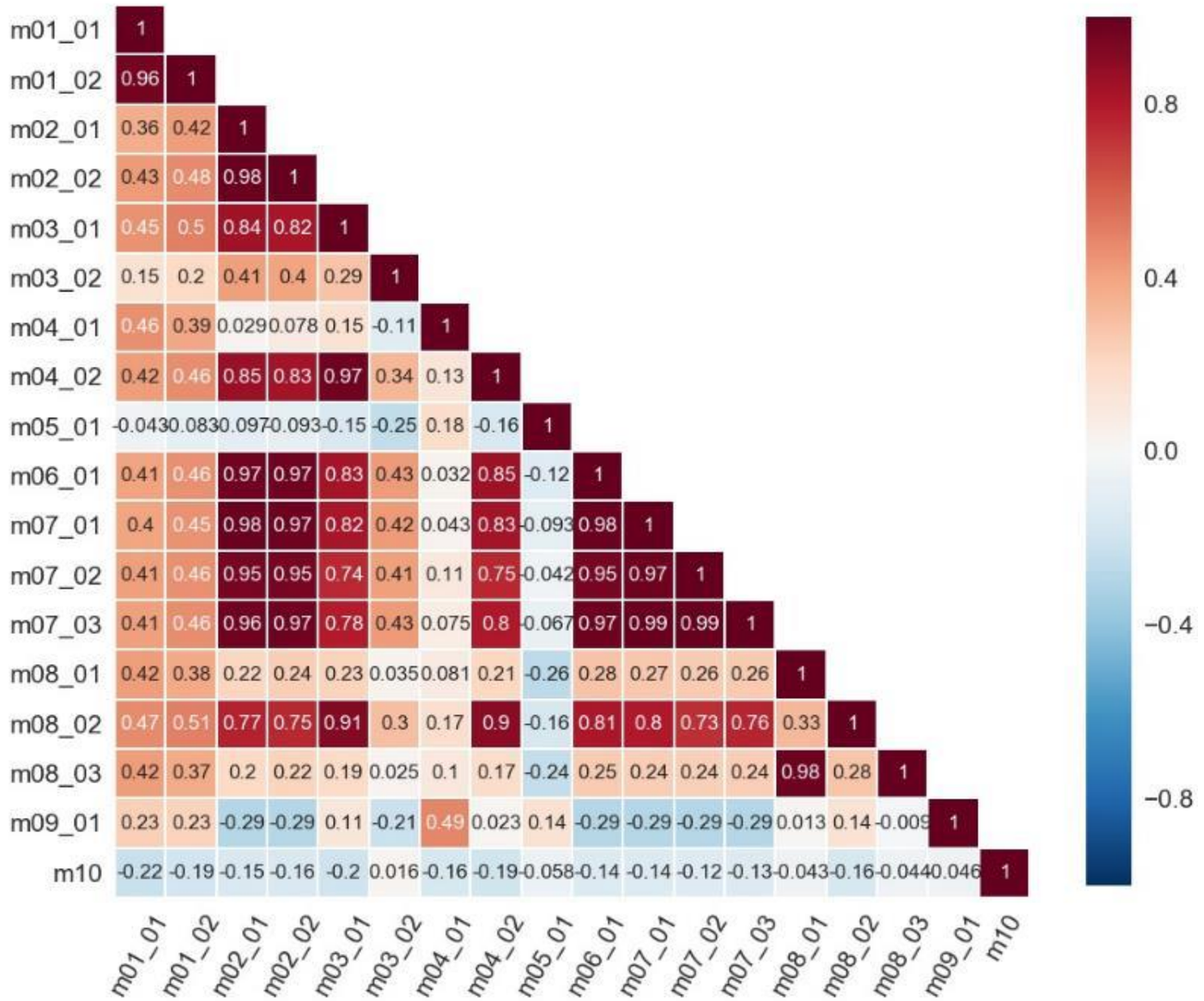
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m03_01 0.45 0.5 0.84 0.82 1
m03_02 0.15 0.2 0.41 0.4 0.29 1
m04_01 0.46 0.39 0.029 0.078 0.15 -0.11 1
m04_02 0.42 0.46 0.85 0.83 0.97 0.34 0.13 1
m05_01 -0.043 0.083 0.097 -0.093 -0.15 -0.25 0.18 -0.16 1
m06_01 0.41 0.46 0.97 0.97 0.83 0.43 0.032 0.85 -0.12 1
m07_01 0.4 0.45 0.98 0.97 0.82 0.42 0.043 0.83 -0.093 0.98 1
m07_02 0.41 0.46 0.95 0.95 0.74 0.41 0.11 0.75 -0.042 0.95 0.97 1
m07_03 0.41 0.46 0.96 0.97 0.78 0.43 0.075 0.8 -0.067 0.97 0.99 0.99 1
m08_01 0.42 0.38 0.22 0.24 0.23 0.035 0.081 0.21 -0.26 0.28 0.27 0.26 0.26 1
m08_02 0.47 0.51 0.77 0.75 0.91 0.3 0.17 0.9 -0.16 0.81 0.8 0.73 0.76 0.33 1
m08_03 0.42 0.37 0.2 0.22 0.19 0.025 0.1 0.17 -0.24 0.25 0.24 0.24 0.24 0.98 0.28 1
m09_01 0.23 0.23 -0.29 -0.29 0.11 -0.21 0.49 0.023 0.14 -0.29 -0.29 -0.29 -0.29 0.013 0.14 -0.009 1
m10 -0.22 -0.19 -0.15 -0.16 -0.2 0.016 -0.16 -0.19 -0.058 -0.14 -0.14 -0.12 -0.13 -0.043 -0.16 -0.044 0.046 1
m01_01 m01_02 m02_01 m02_02 m03_01 m03_02 m04_01 m04_02 m05_01 m06_01 m07_01 m07_02 m07_03 m08_01 m08_02 m08_03 m09_01 m10
0.8
0.4
0.0
−0.4
−0.8

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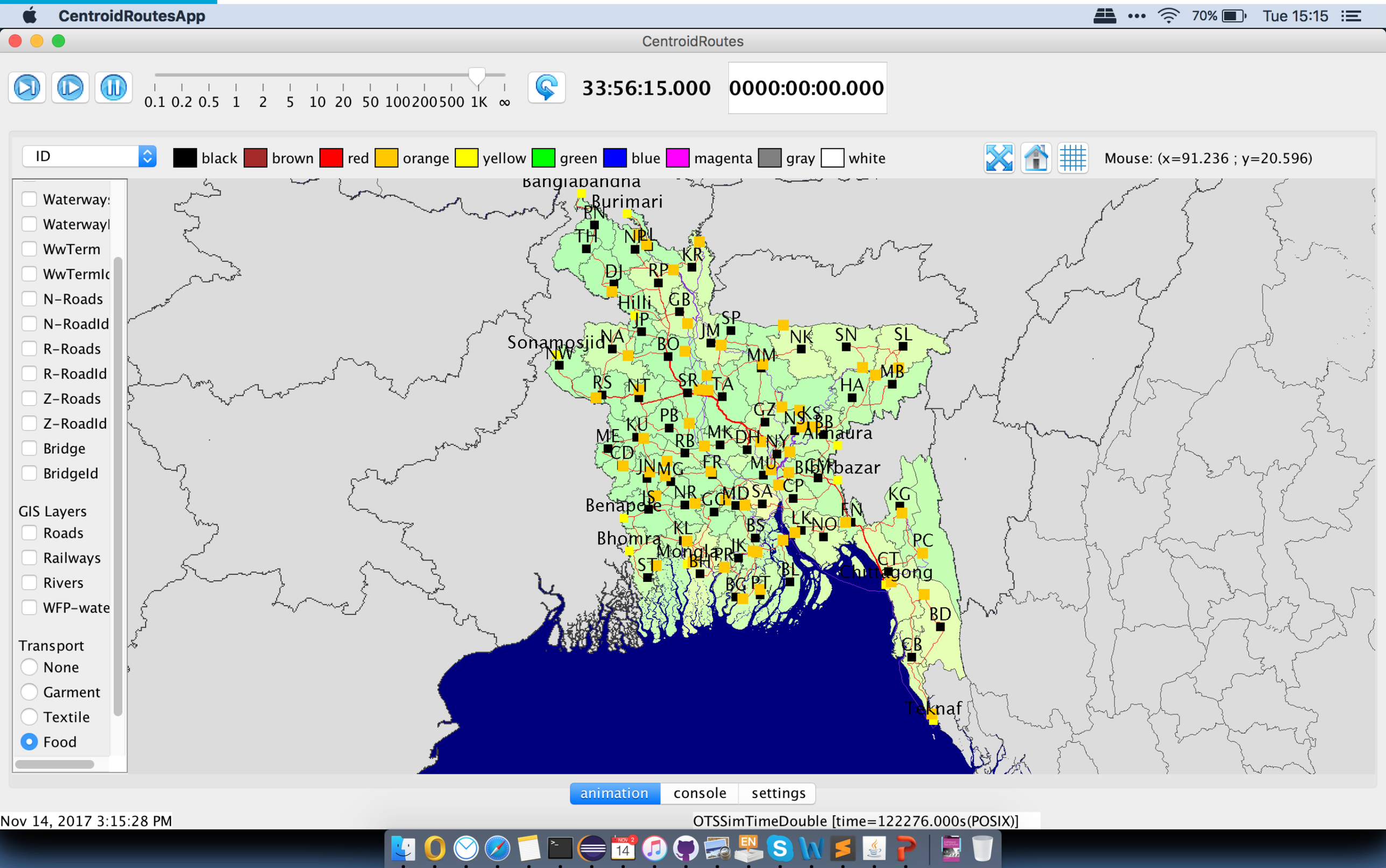
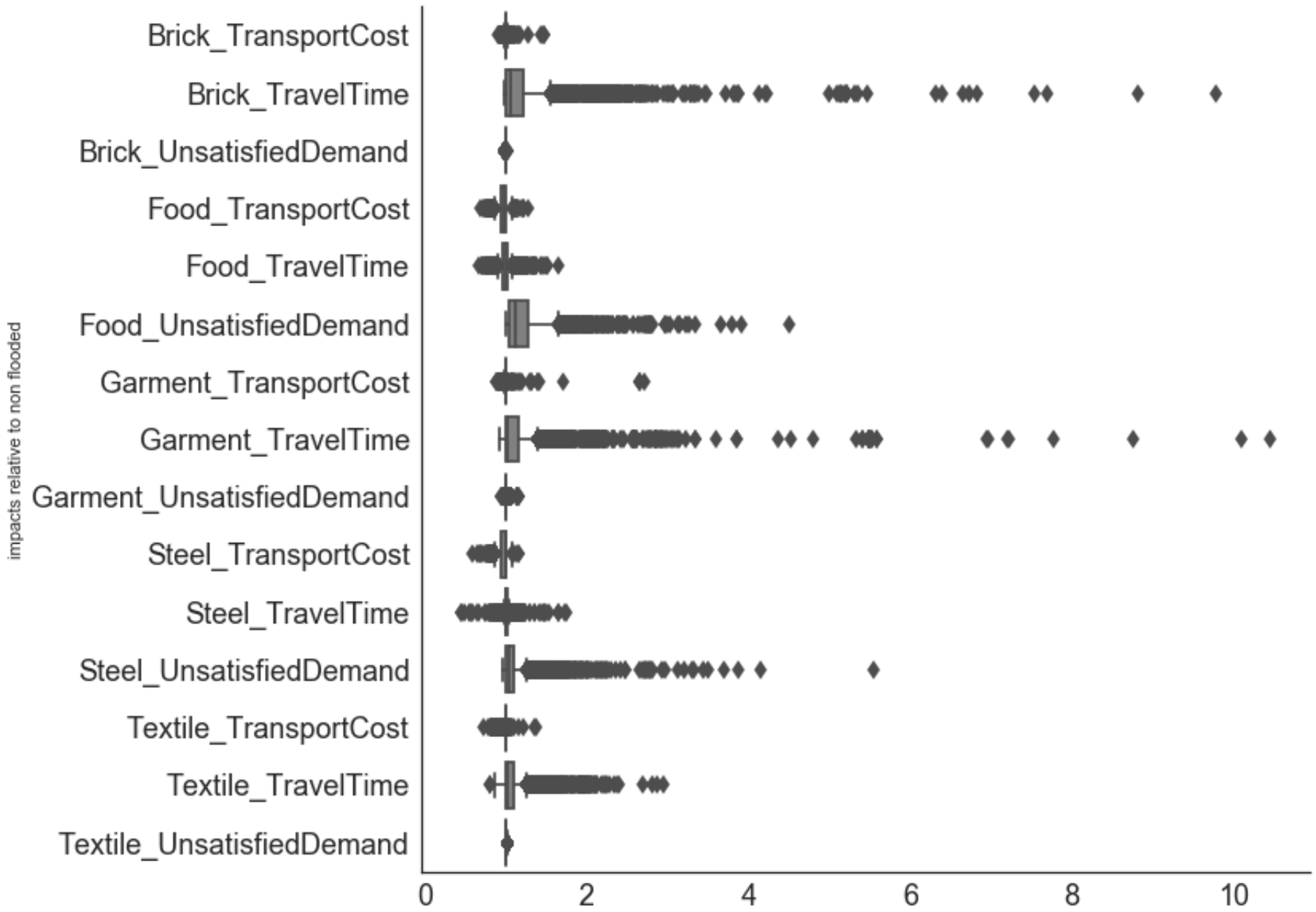
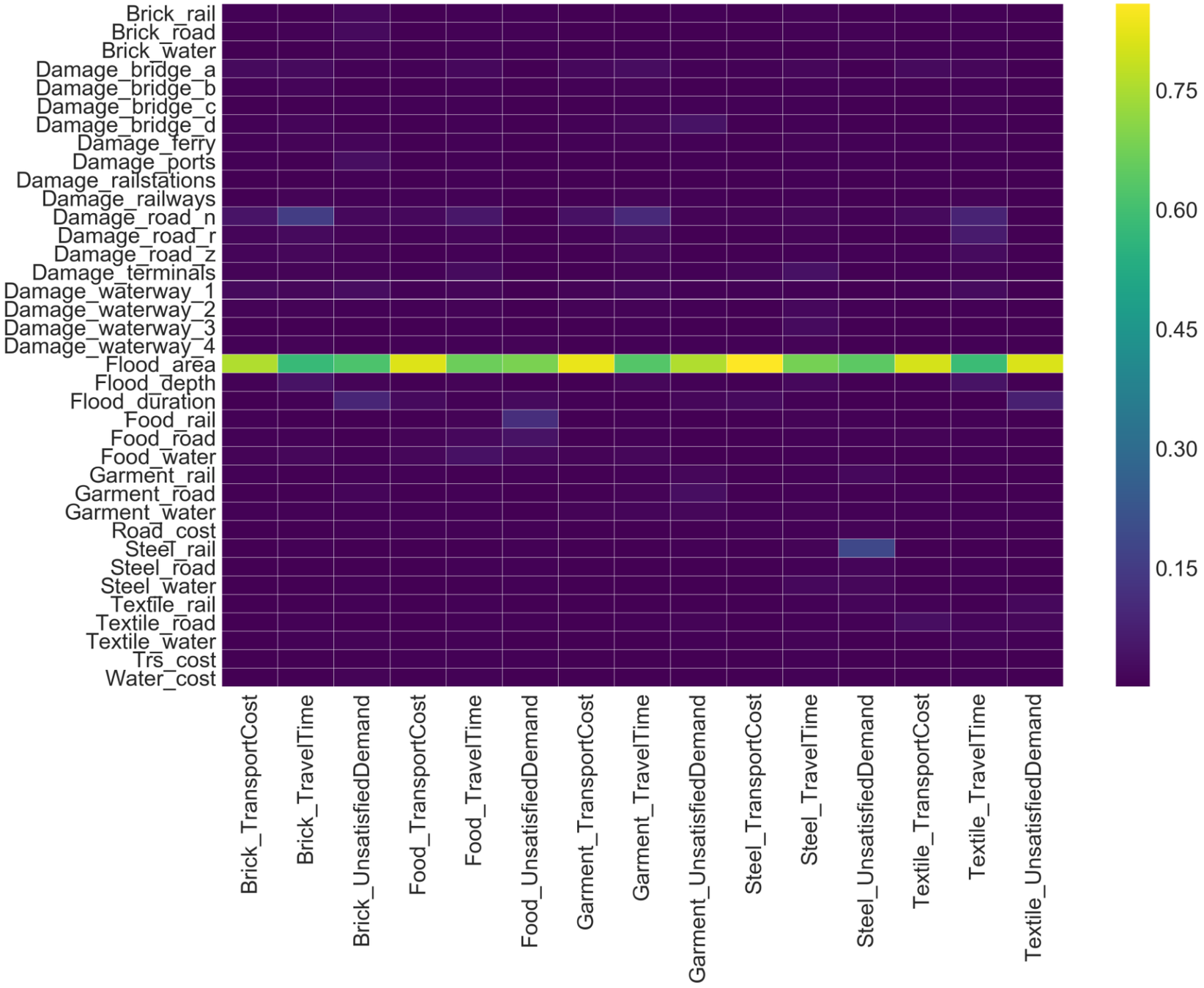
Vulnerability analysis



Vulnerability analysis



Feature Scoring



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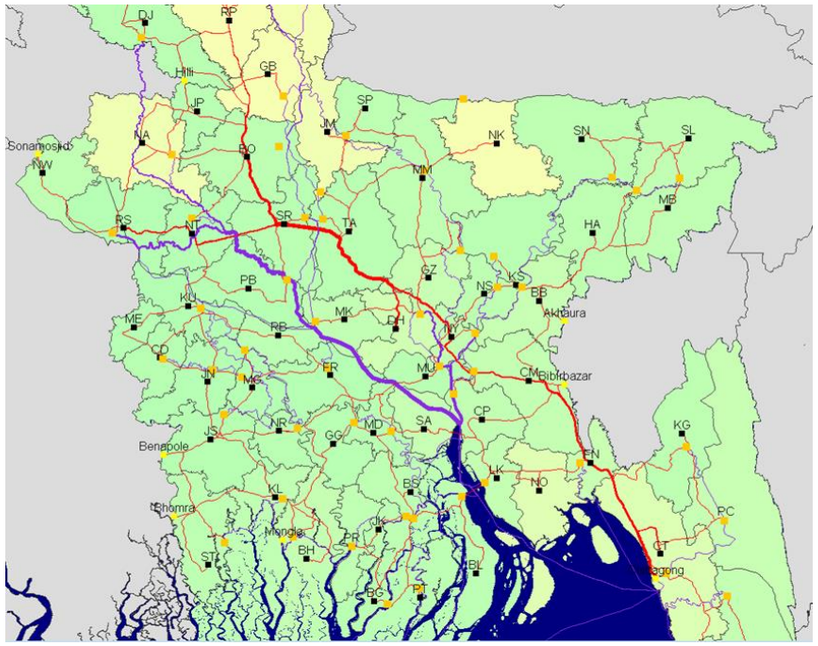
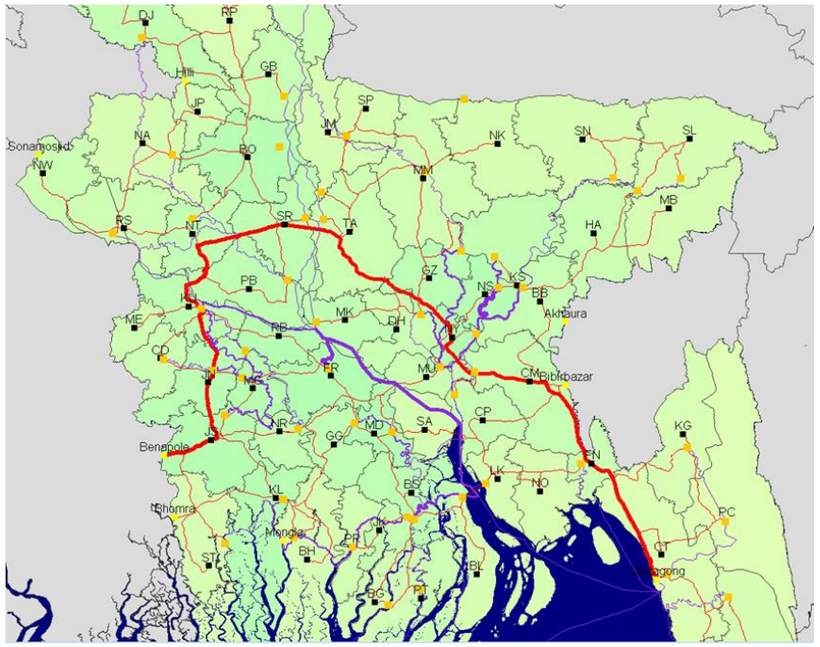
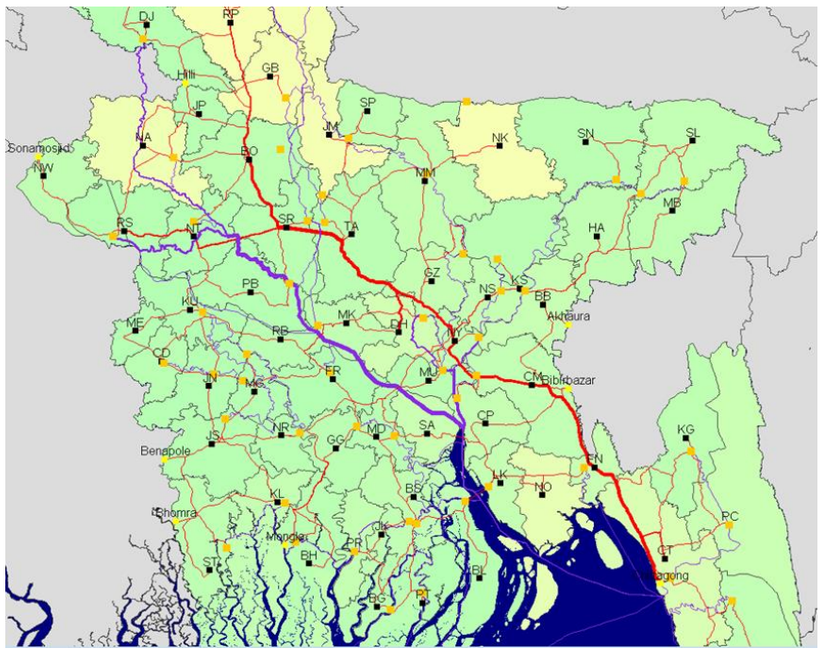
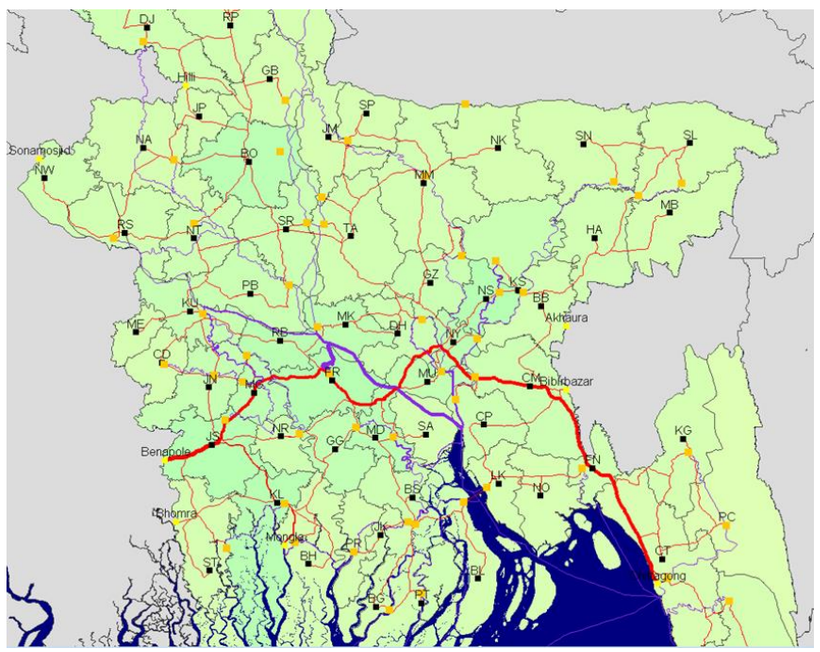
Interventions









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