



**Georgia's Experience on Adopting Green, Sustainable and
Socially Inclusive Transport Infrastructure**

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Islamabad and virtual event, 6 December, 2022

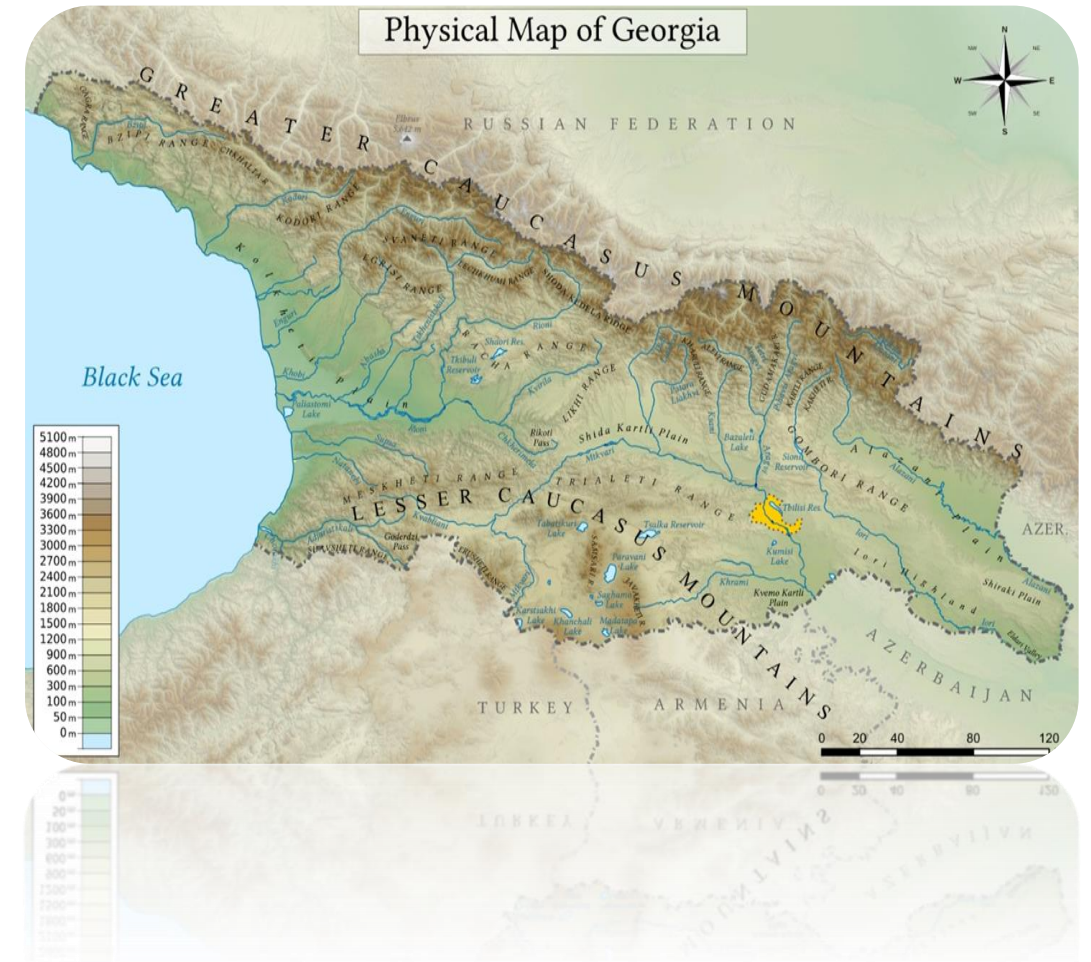
Country Overview

- ❑ Georgia is a transcontinental country at the intersection of Eastern Europe and Western Asia;
- ❑ Part of the Caucasus Region;
- ❑ Country covers an area of 69,700 square kilometers;
- ❑ Population - 3.7 million.



Country Overview

- ❑ The Greater Caucasus Mountain range forms the northern border of Georgia;
- ❑ The southern portion of the country is bounded by the Lesser Caucasus Mountains;
- ❑ The Greater Caucasus Mountain Range is much higher in elevation than the Lesser Caucasus Mountains;
- ❑ Highest peaks rising more than 5,000 meters above sea levels.



Road Network



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❖ Roads Department manages:

❑ International Roads - 1593.4 Km

☐ Intrastate Roads - 5 485.8 Km

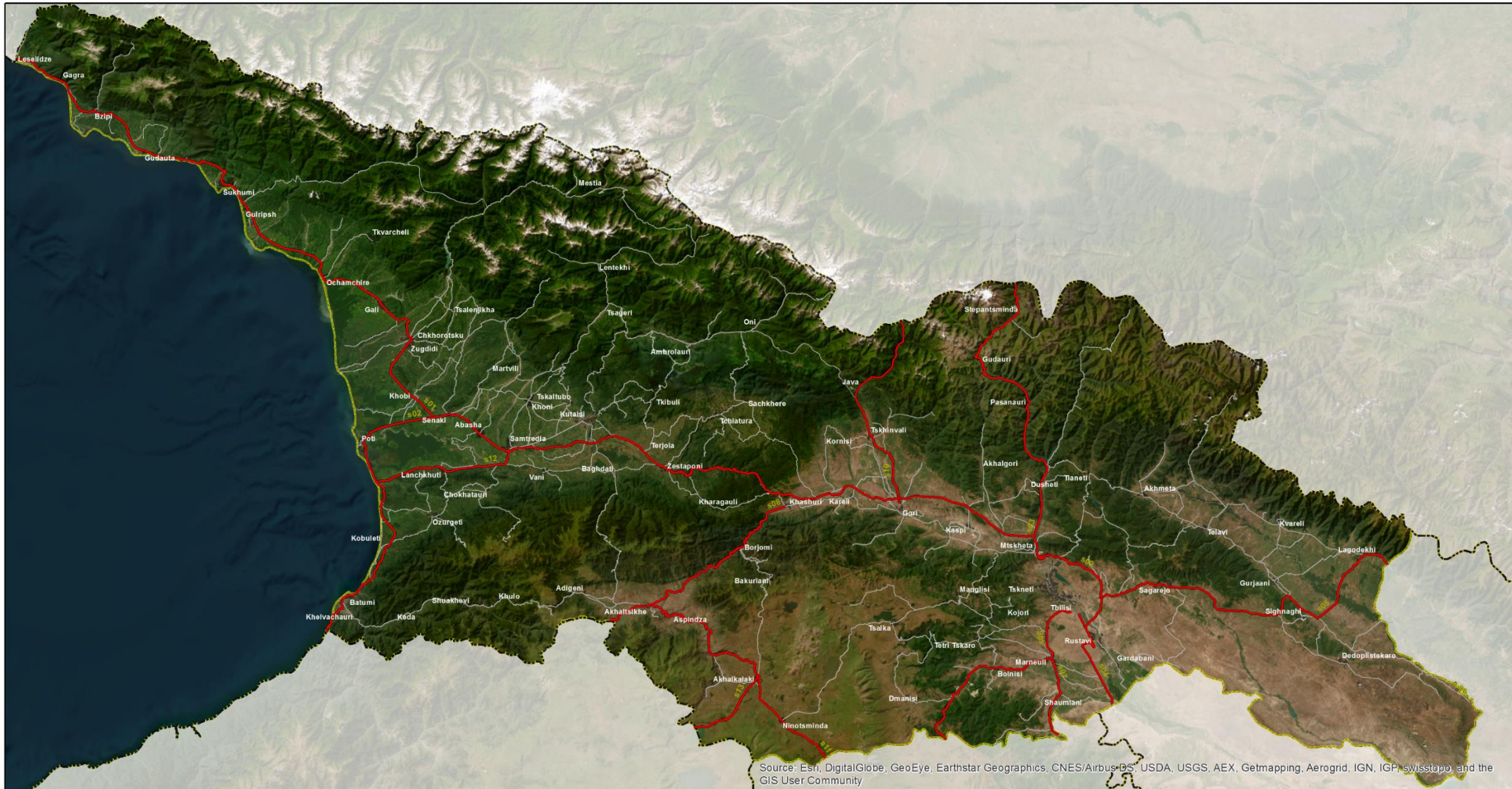
❖ E-60 – E-70 Highway - 430 Km



Road Network - International Roads

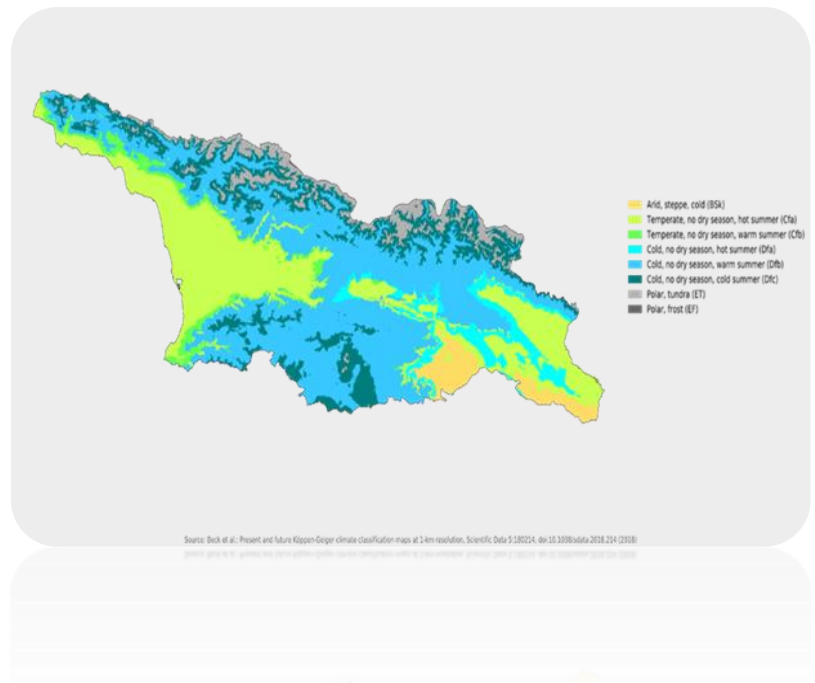


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- ❑ Increasing of temperature during the last 50 years;
- ❑ “Greenhouse Effect” increases;
- ❑ Georgia - poly-climatic country due to its specific and complex physical-geographic conditions;
- ❑ Effect of climate change is higher than in mono-climatic countries
- ❑ Natural disasters - floods, avalanches, landslides
- ❑ Human economic activity - food production, energy development, transportation network layout, construction

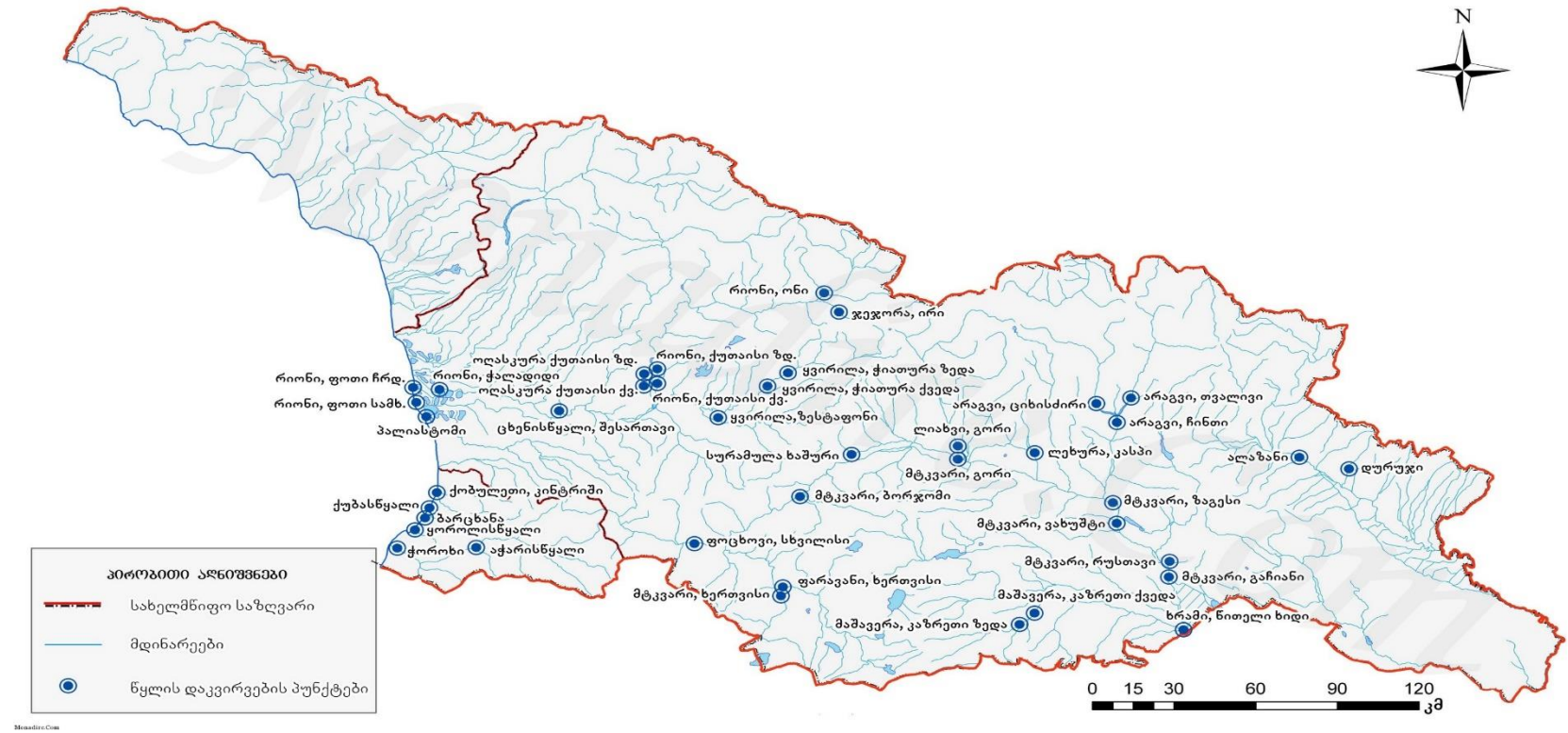
Climatic Zones of Georgia



Rivers



- ☐ 26 060 River
- ☐ 60 000 Km
- ☐ 18 109 Black Sea
- ☐ 7 951 Caspian Sea



Top Challenges:

- ☐ Landslide
- ☐ Water Erosion
- ☐ Flooding
- ☐ Avalanches



Impact on Road Infrastructure



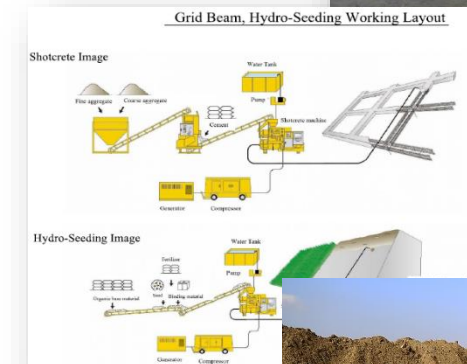
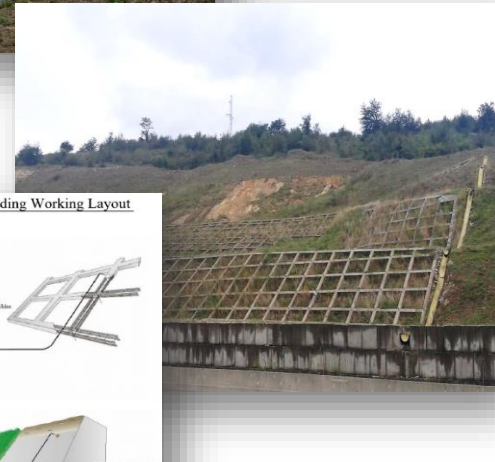
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- ❑ High temperature impact on road pavement (for example, heat-induced heaving and buckling of joints).
- ❑ Changes in precipitation and water levels will impact road foundations.
- ❑ Extreme weather events such as stronger and/or more frequent storms will affect the capacity of drainage and overflow systems to deal with stronger or faster velocity of water flows.
- ❑ Stronger or faster velocity of water flows will also impact bridge foundations.
- ❑ High levels of precipitation may threaten embankment stability.

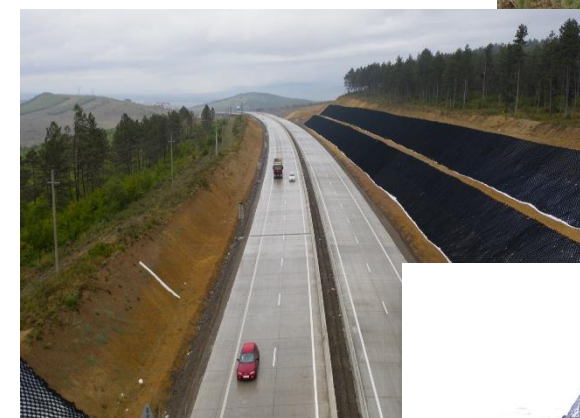


Roads Departments Actions

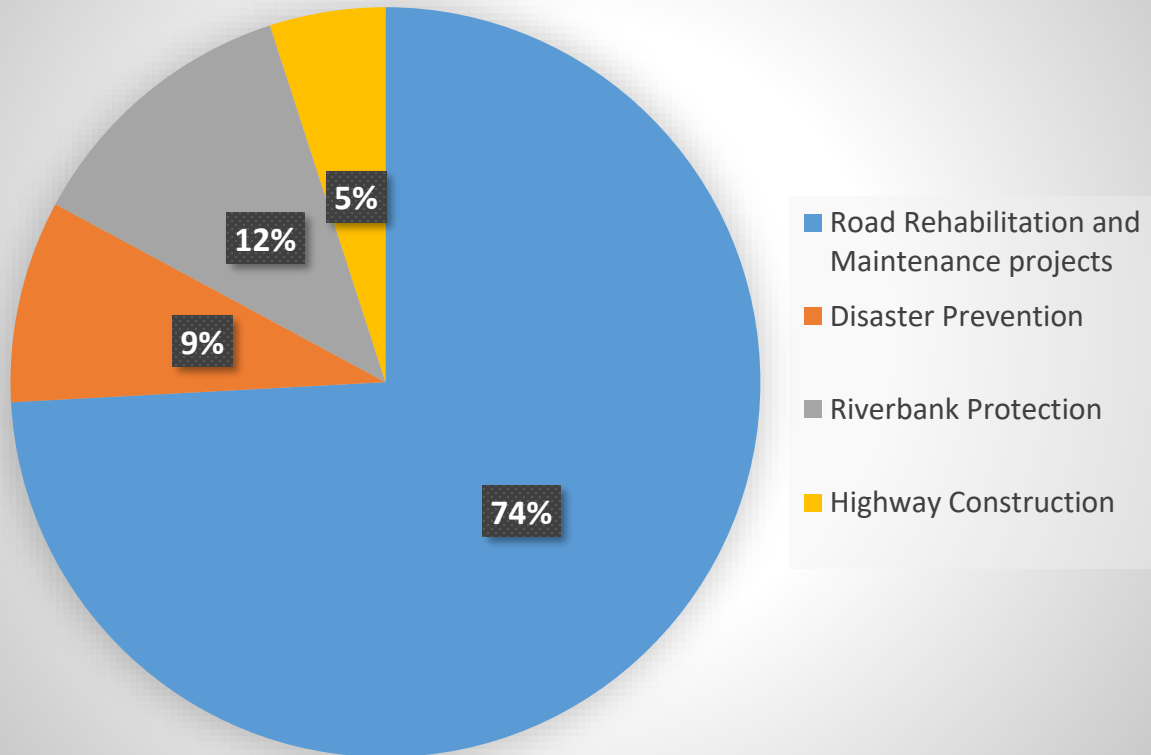
- Increase ditch and culvert capacity;
- Maintain positive cross slope to facilitate flow of water from surface;
- Increase resistance to rutting;
- Reduce splashing/spray through porous surface mixtures;
- More frequent use of elevated pavement section;
- Improve visibility and pavement marking demarcation;
- Ensure that all embankments are seeded to help increase stability;
- Geocell Slope Stabilization
- Geogrid Soil Stabilization
- Construction of avalanche protection
- Construction of riverbank protection – Gabions, Rip-Rap



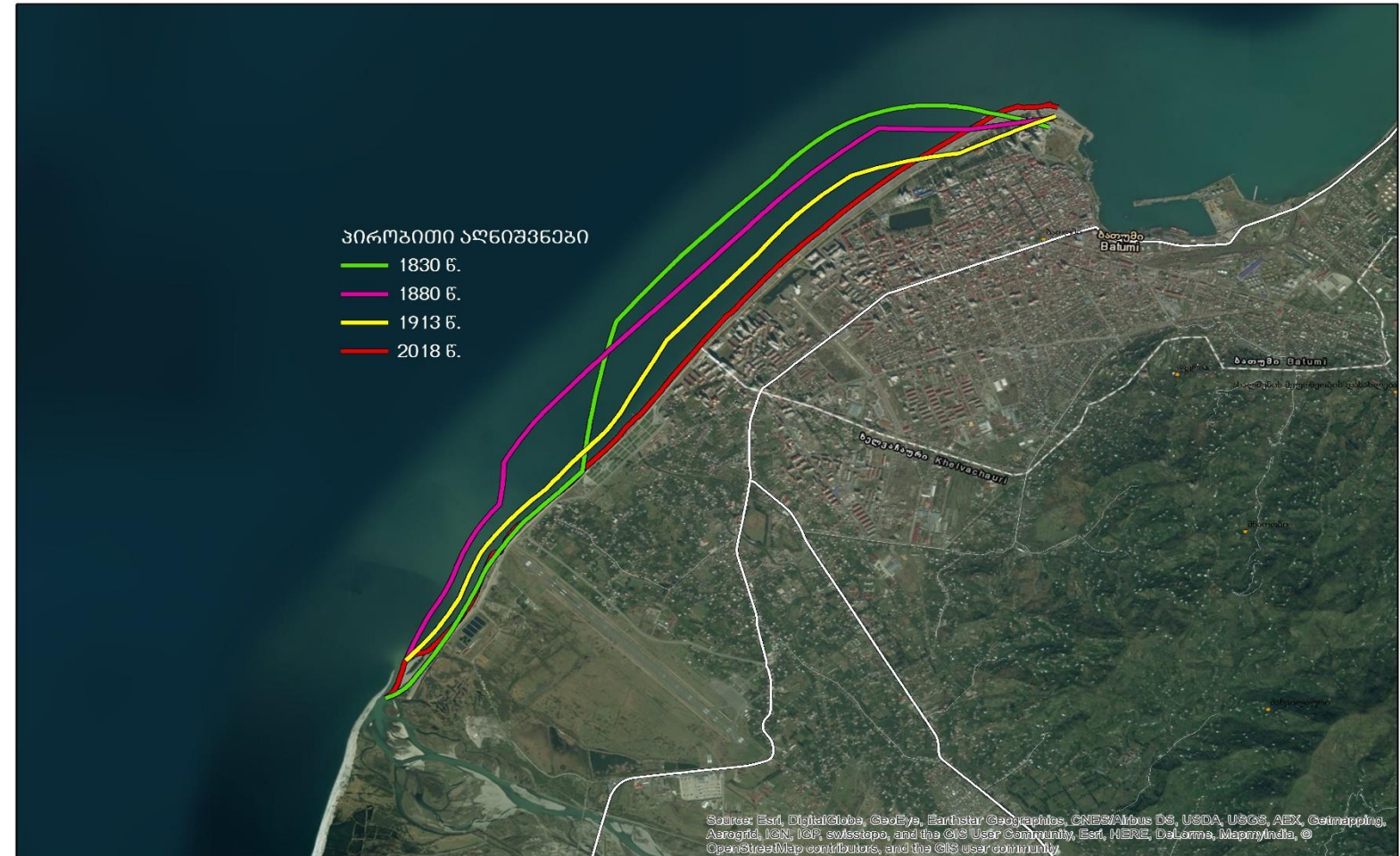
- ☐ Green Infrastructure measures in the design;
- ☐ Restoration of forests;
- ☐ Flooding prevention;
- ☐ Erosion prevention;
- ☐ Protection species, mitigation measures;
- ☐ Study migration routs of animals
- ☐ Comprehensive study of biodiversity



Projects



- ❑ Activation of abrasive processes;
- ❑ Challenges:
 - Natural process of cape formation;
 - Activation of wave mode;
 - Construction of ports and related burden;
 - Construction of dams.



- Soft Adaptation - Education.
- Example: In the framework of the Kvesheti-Kobi new road project, the event of the environmental education in school.
- The main goal: raise awareness of the population in infrastructural, environmental and climate change issues.



- EIA
- Public consultation at the regional level;
- Details regarding environmental impact and its mitigation measures;
- Close communication/cooperation with stakeholders.

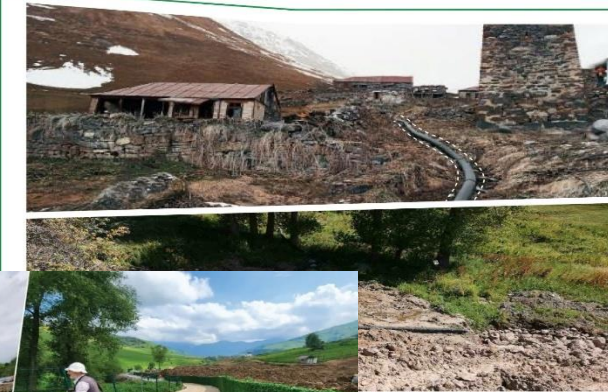


❑ Social activities under the projects:

- Arrangement of sewage systems;
- Arrangement of drinking water reservoirs;
- Medical service;
- Arrangement of stadiums;
- Rehabilitation of the cultural heritage monuments;
- Arrangement of trade spaces.



სოფელ ნაჩხაში სანაწარმო-საგარეო
სისტემის მოწოდების
საფუძვლიანი დანიშნულება



ს. ნაჩხაში მოსახლეობის
ეკონომიკური განვითარება





Thank you!