

Flash flow and flood hazards on Riv. Rioni downstream and their preventive measures

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Since last century, on our planet the global processes are activated thus significantly complicating the safe existence of the humans. The most dangerous natural hazards (out of 12) for Georgia are: flood, flash flow and mud stream, leading to huge financial losses and casualties etc.

According to Hyogo Action Plan Framework statistic data during 1980-2008 ys. Around 3000 flood caused death approximately of 200 000 persons and damage to economy at 397 bl.USD.

Flash flow/flow is usual phenomena for all rivers of Georgia. Particularly mountainous Riv. Rioni is characterised as high disaster risk having one. According the data of multiyear observations till the 1995 the flood had 5-6 years return period. Later this index has much increased. Analysis of the data shows that the frequency of simultaneous occurrence of flooding at all the rivers of Georgia is 15-20 years. Therefore, on the basis of the foregoing the likelihood of large-scale flooding in the whole territory of Georgia, including in the basin of the river Rioni is 6%, which is estimated to be 4 points and refers to a high degree of risk.

On the basis of flood took place in 1987 on Riv.Rioni downstream, scenario of territories' possible inundation caused by flood of different probability water discharge has been elaborated. The quantitative characteristics of flooded area and inundation depth have been determined. Also the possibility of city Poty inundation for case of the different probability' flood and wave surge simultaneous interaction in river mouth till the water distribution branch located at 7 km distance from shoreline.

In the case of possible development of the scenario hundreds of square km. of land will be flooded, thousands of hectares of commercial/agriculture lands will be washed down, hundreds of homes will be collapsed, dozens of bridges and hundreds of km. of capital roads and railway lines, power lines and various communication structures will be destroyed, also human death as well as house animals and livestock huge number will possible. In the result of latter number of ecological migrants in the country will be much increased, that will be a heavy burden for so meager country budget.

With the goal of flood disaster risk mitigation/reduction, we have elaborated recommendations of preventive measures, which will be corrected on the basis of further field studies and hydraulic modeling in laboratory conditions.