

Name of the institute –TsotheMirtskhulava Water Management Institute of the Georgian Technical University

Projects received by the Shota Rustaveli National Science Foundation's Grant

Appendix 1

<b>№</b>	<b>Title of the Grant</b>	<b>Coordinator</b>	<b>Years of starting and ending of the project</b>	<b>Volume (amount), GEL</b>	<b>Status/completed/ on-going</b>	<b>Grant's Code</b>
1	A theoretical study of the security risks of vulnerable infrastructure in the formation of anticipated disasters	Givi Gavardashvili	2018-2022	210 000	Completed	FR-17-615
2	Debris flow regulation elastic barrage	Eduard Kukhalashvili	2019-2023	782 400	On-going	AR-18-1244
3	Evaluation of the effectiveness and reliability of the modern debris flow controlstructure on the example of the debris flow channel of the Mletishkevi River	Goga Chakhaia	2019-30.04.2023	107 100	Completed	AR-18-1491
4	Systematic analysis of engineering-ecological characteristics of mountain reservoirs	Konstantine Iordanishvili	23.03.2022 – 23.03.2024	160 000	On-going	FR-21-2942

Abstracts:

1. - **Specific result** - The national security strategy and risk management action plan has been developed in the grant project, the risks of vulnerable infrastructure have been assessed taking into account the threats caused by expected natural and anthropogenic (including terrorist acts) disasters.  
- **Recommendations** - The active cooperation of governmental and non-governmental organizations in managing and realizing risks at a modern level is presented, which will allow us to create an effective, integrated and consistent national risk management platform for the prevention and decontamination of natural and anthropogenic disasters.
2. - **Specific result** - Based on the theoretical studies carried out in previous years, large-scale laboratory hydraulic modeling of the elastic debris flow control dam and developed methodology, an innovative debris flow control structure was designed and organized in the bed of the Mleti river gorge.  
- **Recommendations** - Carried out activity discusses the calculation methodology for the design of an innovative elastic debris flow control dam and a practical example of the design, which was carried out in the bed of the Mleti river gorge.
3. - **Specific result** - The carried out activity discusses the current erosive and landslide genesis debris flow phenomena in the Mletishkevi catchment basin and their negative consequences, as well as the characteristic magnitudes of the expected debris flow in Mletishkevi and ecological threats are determined by means of the world-proven RAMMS computer program.  
- **Recommendations** - A new debris flow control structure is proposed, the debris flow control efficiency, sustainability and economic effectiveness of the structure are calculated. The carried out activities and recommendations will support engineer-ecologists and environmentalists to develop effective mechanisms for managing natural disasters.
4. - **Specific result** - Geographical-technical indicators and peculiarities of forecast calculations of hydrological-ecological characteristics of large mountain and foothill reservoirs of Georgia (Zhinvali, Sion, Khrami, Tbilisi, Shaori, Lajanuri and Tkibuli) are discussed.  
"Explanatory Dictionary of Hydroengineering Terminology" was published, which contains the main theoretical and practical issues of such special disciplines as: basics of hydraulics, hydrology, hydrotechnical structures, engineering reclamation, hydroelectric power stations, waterways and harbors, water supply networks and systems, engineering ecology and others. Nowadays, such a dictionary has no analogues and is the first technical explanatory reference of the terminology used in this field. We hope that it will help scientists, engineers and technicians, bachelors, masters and doctoral students working in the

above-mentioned fields. Therefore, it can be considered as a helpful guide. The dictionary includes up to 2100 terms and terminological expressions and basic concepts of the field.

- **Recommendations** - The issues of the need to build mountain water reservoirs, their use in public agriculture and environmental impact are analyzed. The classification of reservoirs is presented, their water quality indicators are evaluated.