

GTU Water Management Institute of the name of Tsothe Mirtskhulava
Total quantitative indicators according to the research institutions

5. Scientific-research and practical work.

- Ph.D degree 6
- Degree of candidate of sciences 13
- Doctor's academic degree 7

5.1. Results of scientific-research and practical activities (Grant, project, contract and other, including personal initiative, list the last four years)

- Grants of Georgia - 13
- Georgian Technical University Grants - 3
- International Grants - 8
- Projects - 32
- Translation activities - 5

6. Other activities of the competitor, achievements, qualifications, experience and merit

6.1. Publications*:

Name	Quantity		
	Including 2012 Year	2013-2017 Years	
Monographs	118	17	
Scientific articles	4910	281	
Manuals, supporting textbooks, other educational and methodology measures and literature	135	14	
Participation in conferences (congresses, symposiums)	346	145	
Management of Master Degree (Qualification) Papers, Consultancy:			
• PH. D. of Sciences	47	-	
• Candidate of Technical Sciences	41	-	
• Doctor's academic degree	-	9	
• Master degree	12	2	
Leadership of Winners / Presented Student Report on Conferences	18	3	
Inventions (copyright certificates or patents)	Total number	211	5
	Including sold one (introduced)	22	3

6.2. Other activities*

- Member of the Georgian National Academy of Sciences / Member Correspondent - 1
- Membership of other field academies -16
- Membership of foreign academies - 1

- **Experience in editorial collegium** -26
- **Membership of the Conference Organizing Committee** - 23
- **Improvement of qualifications (trainings, workshops and other)** - 41
- **Awards (National / State / Field Award, Order, Medal, etc.)** - 17
- **Comercialización of scientific and research activities** - 6
- **Creative competitions, including international** - 3
- **Other activities, achievement, qualification, experience and merit** - 22

There were three international symposiums organized under the auspices of the United Nations:

- “Flood Prevention Arrangements” – 1969.
- “A Human and a Sea” – 1995
- „Floods and the Modern Methods of Fighting with them“ – 2009.

On May 30th of 2008 The commission of education and sciences of the United Nations (UNESCO) arranged the contract (#4500046308) between institute and UNESCO taking in account the experience of institute and an international authority and from 23rd to 28th of September 2009 the international symposium “Floods and the Modern Methods of Fighting with them“ took place at the institute and it was dedicated to the 80th anniversary of the institute foundation. 21 countries from the world participated in this international event.

In mutual collaboration with Azerbaijan and Armenia state universities the annual international conference “Main Problems of Water Management, Environment Protection, Construction and Architecture” was organized by the institute in 2011. The scientists of 8-10 countries participate in this conference and share their experiences and implement novelties.

➤ **Education Activities**

- From 2011, after reorganization with the Georgian Technical University, the institute arranged professional education program “Meliorator” (agro melioration, hydro melioration) and on its base, from 2012 the institute along with research activities also works in educational direction too. There are three established programs on all three educational directions: Bachelor Degree (for the students of agro engineering profession the laboratory, studying and practical works are considered in the following subjects: hydraulics, hydro-technical constructions, pumps and pump stations); Master Degree (profession – agricultural hydro melioration) and Ph Degree (profession – Engineering Melioration – execution of relevant scientific-experimental works).
- The institute is actively involved in GTU studying process. 10 professors provide lectures on agriculture sciences and bio-system engineering and construction faculties. Also, from 2015 professional-practical works are executed by 4 professors accredited in professional studies with students in GTU Didi Jikhaishi Agro-engineering and Food Technologies Professional College Program – Agricultural Melioration (agro-melioration, hydro-melioration). It should also be noted that the qualified professional of the institute was sent to The Central China Normal University for providing lectures in 23-30th of May, 2014 and for this the university academic council the professor was granted by the honorary professor’s status of the Central China Normal University for the contribution in Chinese and Georgian sciences development in 2007-2014. On 19-25th of December, 2016 the professor was sent to Belorussia, to the Brest State University and to the

Technical University to provide the course of lectures “Environmental Protection and the problems of Engineering Ecology” for the students of II-III-IV-V grades on the faculties of Geology, Geography and Tourism. The lectures about « Modern Problems of Environment Protection Based on Climate Channging » was also introduced.

- The institute is actively involved in Euro Union Educational Program « ERASMUS + » - student and professors scholarship program.

➤ **Institute participation in the state strategy importance projects (2012 – 2016)**

- On 28th of February 2013, in the Georgian National Academy of Sciences there was executed natural catastrophe scientific investigating commission meeting at the same academy and it was dedicated to the issues of prediction of the Hudon Dam upper canal pound hiding.
- On 16th of may 2013, the institute introduced the proposal about the safety events of the destroying actions caused by the ranging mountain torrents formed at the reinforcement-concrete bridge built in river-bed of the river Tetri Aragvi in the Mletiskhevi Village on the Mleta Village section of the Military Highway of Georgia at the State Department of Roads of Regional Development and Infrastructure Ministry of Georgia.
- On 28th of February 2014, the working group departed to Tianeti with regard to building the Holy Trinity Cathedral in Tianeti – the Eparchy of Pshav-Khevsureti area. Topographic planning and ground engineering-geological investigation using the special mining prospecting shafts planning was executed by professionals.
- On 17th of May 2014, aiding the prevention measures against ranging mountain torrents, the evaluation of risk factors and prediction after the processes provoked by the ranging mountain torrent in the Devdokari glacier river-bed, in the catchment basin of the river Kabakhi (the left tributary of the Tergi river) and for scientific researches there were the Moscow representatives of ranging mountain torrent association, the Moscow Lomonosov State University professors and doctors and GTU Tsotne Mirxulava’s Water Management Institute representatives.
- In 2008, only Water Management Institute introduced to the government the ecology and economical damage caused by fires during the war activities and they also provided the first range prevention event project against erosion caused by the fire in Gori, Tsaghveri and Ateni valleys.
- In 22nd of April 2010, the Government of Georgia based on the recommendation of the Water Management Institute announced the national emergency for the citizens living in Velistsikhe and Mukuzani villages, because of emergency situation caused on the Cheremi water reservoir situated on the river Vete. 1500 inhabitants were evacuated because of feasible flood.
- Tskaltubo Cave is a special place for tourism development in the country. However, as observers have shown, intense rains result in a part of the cave often flooding with water and preventing flood prevention measures. The Institute has been actively cooperating with the "Cartu" Group since 2005.
- The transportation of cargoes in the country is one of the priority parameters to fill the budget. From this point of view, one of the strategic objectives is considered to be the watershed knot of Poti built on river Rioni. The institution for more than 50 years has been conducting observations on this structure, which has strategic importance for the country. First one Poti watershed currently does not belong to any organization's balance, but as for the building itself, it is in a state of emergency and in case of flooding on river Rioni it is not possible to flood the city of Poti as well as paralyzing the main road (TRASECA), which will not only cause damage to the country but it will also have a place for human victims.
- • According to the letter # 3/29 of the Administration of the President of Georgia of November 20, 2008,

- under the guidance of the Institute of Water Management, a task force was set up to protect the population of the strategic object, particularly Kvareli population, from mudflows formed in the river Duruji, development of complex measures for disaster management and mudflow mass development of the possibilities of utilization of the farm in accordance with the appropriate benchmarking funding that the Institute has successfully completed. This material has already been sent to the president's administration.
- • It should also be noted that the protection of water and soil from natural resources for the success of the country, including strategic importance for sustainable development of agriculture. The State Program for Protection of Soil Erosion of Georgia is prepared in cooperation with the famous scientists of the country and the water law, approved by the Parliament of Georgia, has been actively participated by the Institute's scientific experts.
 - The Institute is also actively collaborating with the Ministry of Environment and Natural Resources, mountain tourism facilities in the nature of natural disasters protection, hydropower stations, highway (highway), power transmission lines, oil and gas corridors, as well as other objects of strategic environmental impact assessment expertise The works. The ecological expertise has been implemented on the 35 major projects of the Institute of governmental organizations.
 - The projects funded by the World Bank, the Swiss Agency for Aid and Development (SDC) of the American organization "Winrock", such as: to develop complex measures to protect the population from the erosive-mudflow processes of the village of Jvarbosli (Mountain-Tusheti); Lentekhi and Tsageri municipality assistance in erosive-muddy hazardous areas; Measuring the river ecological condition for the construction of a small hydropower plant on the river Stor was financed by Sighnaghi municipality, rehabilitation of a section of the road crossing the Erekle II Street, requested by the Patriarchate and financed by the Republica Bank, "Shio Mghvime Mudges Protection Project" etc.
 - • JSC "Bagrationi -1882" - financing of business development projects - Sighnaghi Municipality, Tsnori and Sighnaghi region Vakiri village and Sagarejo region Giorgitsminda village lithological examination of the adjacent territory;
 - Development of phytomeliorative measures against erosion of mountain slopes in the corridor of TRASECA by order of the Road Department of Georgia, etc.
 - Commission of study of disaster on the River Vere on 13th of 2015, The regulation of Vere river-bed was headed by GTU Ts. Mirtskhulava Institute of Water Management.

➤ **State Standards**

The water erosion state program 2000-2005 was prepared at the institute, and before that the state standard of 80's for protection against erosion of former Soviet Union was prepared.

➤ **Internship Abroad**

The scientists of the institute systematically raise their qualifications abroad: in Ostend, using the US the "Kohrani" program of agriculture department under the auspices of the European Grant "Black Sea Scientific Network" (Belgium) Bucharest (Romania), Tel-Aviv (Israel), Trabzon (Turkey), Hessen (Germany), Wuhan (China), In Chingxi (China), Limassol (Cyprus), Delft (Netherlands), Prague (Czech Republic), Wroclaw (Poland), etc.

➤ **Awards**

- In 2005, the institute was awarded with the Swiss diplomacy "Century International Quality Era Award" due to the work of many research projects, research and one of the best hydraulic laboratories in the world.

- In 2008 and 2009, the institute was awarded with the diploma as the best scientific-research institution in the field of water management and agricultural sciences by the decision of the Academic Council of the Georgian National Academy of Sciences.
- In 2010 the institute was awarded with the Gold Medal of the USA Institute of Biography;
- In 2012-2016 two employees of the institute were awarded with the Order of Honor for contribution to the field development; 1 employee was awarded with the diploma and silver medal of Czestohowa Technological University, Poland. One of the staff members was awarded with the UNESCO World Science Day established, the National Academy of Sciences of Georgia for scientific achievements in the field of hydraulics - honorary diploma and 1 staff was awarded by the President of International Association by K. Nosov's official assignment with the Medal of International Association of Mudflows, dedicated to the 100th anniversary of Simon Fleischman, Professor of Lomonosov University, for the excellence in research of mud science and mudflows protection.

➤ **Expert Activities**

- The scientists of the institute are actively involved in the expert activities of the country's natural, ecological and social impact assessment projects. The ecological expertise on 35 important projects was implemented by the government of Georgia.
- GN ELECTRIC LLC ecological expertise of the environmental impact assessment report of 10,25 MW hydroelectric power station (Rachkha HPP);
- Kaspi municipality environmental impact assessment expert report on the project for construction of water reservoir.
- Expert conclusion of the EIA report on the project "Construction of planned reservoir for the artificial mixing of Bakuriani";
- Expert conclusion of the EIA report on the project "Construction of water reserves for Gudauri artificial compilation";
- Project "Mestia municipality" Expert conclusion of the EIA report on "Exploitation of HPP Cascade on Lakhmi river";
- The Institute's scientific worker has been appointed as chairman of the State Expert Commission of the Namakhvani HPP cascade environmental impact assessment;
- The institute's scientific worker has been appointed as an expert in erosion of Baku-Tbilisi-Ceyhan pipeline and energy-corridors of Baku-Tbilisi-Erzurum gas pipeline.

➤ **International Contracts**

In 2010-2017 were signed the memorandums of cooperation with the institute and:

1. China River Yangtze Scientific Research Institute;
2. Water Resources and Engineering Institute of the University of Kaunas named by Alexandra Skuldinski;
3. Between the Research Institute of Complex Use of Belarus Water Resources;
4. Central China Normal University;
5. Between the State University of Brest;
6. Between the State Technical University of Brest;
7. Among the scientific-technical center of Meshcher (Russia);
8. Between Moscow's Lomonosov State University;
9. Russia Ryazan P. Kostitcheva State Agrotechnological University;
10. The Armenian State Architecture and Construction State University;
11. Azerbaijan's Hydro Technique and Melioration Scientific Research Institute;

12. Riazan State University of Agricultural Technology and others.

- **The results of intellectual property of the institute**

- During the former Soviet Union, the Institute received 90 authenticated credentials and 36 patents after independence (since 1992). The institute has made 216 major implementations in its existence and participated in 21 international exhibitions.
- In recent years, the institute has been actively participating in exhibitions throughout Georgia and introduces the inventions and the patents (in recent years: patent - 5, invention - 3) achieved by scientists.

- **Institute future plans and strategies**

Nowadays the institute's activities are determined by the following sectoral activities:

- Developing calculation methods for designing natural disasters (floods, mudflows, landslides, snowballs and erosive processes) and designing anti-construction engineering structures;
- Identification of chemical and microbiological characteristics of water wells and drinking water utilized by the population by the population of 7 districts (Zugdidi, Khobi, Senaki, Abasha, Martvili, Tsalenjikha and Chkhorotsku) at Kolkheti lowland;
- Elaboration of new constructions (waveform elastic constructions) of the coastal and coastal strip of sea and water reservoirs;
- Appraisal of the sediment quota and abrasive bank deposit on the reservoir seabed and predicting the global climate change;
- Development of biodiversity bioengineering methods of slopes using local materials;
- Issue the classification of the new water concepts of water forms in the soil forms and monographs of determination methods;
- Elaborate uniform methodology for assessing the effectiveness of agricultural landfills and the effectiveness of implemented activities for their engineering-melioro passportization;
- The terminology and concepts of hydrodynamic termination and processing of publication of explanatory encyclopedic reference;
- Publication of the "Water Resources Cadastre of Georgia" monograph with the purpose of publication of the Joint Cadastre of Water Resources of Southern Caucasus Countries;
- In order to implement joint grants submitted on the basis of the signed memorandums, the Institute of Laboratory will be conducting large-scale experiments in the field of environmental protection and melioration from spring season;
- With the implementation of Erasmus + in the EU project with the Kaunas University of Applied Sciences, 2017, the workshop on environmental engineering has begun to work on "new technologies for protection of soil and water in agriculture";
- The Embassy of the Kingdom of the Netherlands in Georgia presented the Taylor-Meid Training Program on Integrated Management of Urban and Agricultural Water Resources. The project underwent primary and secondary expertise and was sent to fund the Netherlands Government (Nuffic).

International conferences, workshops and trainings organized by the research institute

(List the last four years, set the name and date of arrangement)

Number of International Conferences “Modern Problems Of Water Management, Environmental Protection, Architecture and Construction”	Date	Place (Location)
IV	27 – 30 September, 2014	Tbilisi, GEORGIA
V	16 – 19 July, 2015	Tbilisi, GEORGIA
VI	22–25 September, 2016	Tbilisi – Telavi, GEORGIA
VII	25-27 August, 2017	Tbilisi, GEORGIA