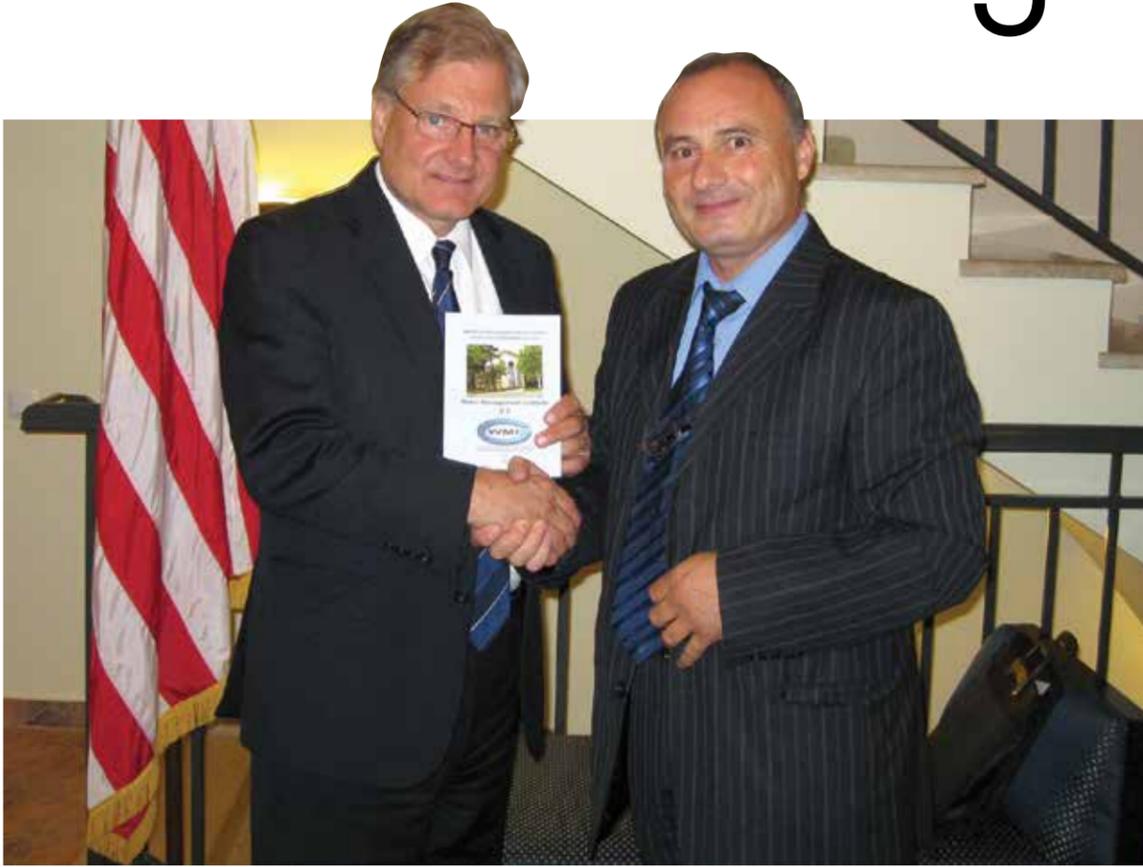


New Manual for Melioration to Boost Agricultural Education & Agri-Business



Prof. Givi Gavardashvili (right) at a reception in the residence of the previous US Ambassador, Richard B. Norland, under the aegis of the Cochran Program, 2014.



Prof. Givi Gavardashvili with Lev Kuchevsky, Senior Program Manager of the Cochran Fellowship Program

Under the aegis of the Cochran Fellowship Program at the Water Management Institute, Program Coordinator at the US Embassy to Georgia, Demna Dzirivadze, organized a number of scientific workshops while Prof. Givi Gavardashvili and scientists and specialists of the Institute, with the aim of professional development, traveled to California and North Carolina, USA, and there gathered information regarding melioration, rational use of water resources, as well as protection against soil erosion. At the US universities and Water Management Associations the Georgian delegation became familiar with the achievements of agricultural melioration both in terms

of scientific and practical approach.

The main objective of the Cochran Fellowship Program is to develop farm management and promote the raising of the agricultural education level of young specialists that in turn will result in agri-business development.

As a result of participation in the Cochran Fellowship Program, as well as based on the scientific and practical experience gained, the manual for agricultural melioration – “Irrigation, Drainage, Erosion,” authored by Prof. Gavardashvili, was published. Georgia has not seen such a publication in the past 50 years.

The new manual “Irrigation, Drainage, Erosion” was compiled according to the currently operating accredited program Agricultural Melioration and is intended

for agro-engineering Bachelors of the faculties of Hydro-Engineering and Agricultural Sciences and Bio-System Engineering of the Engineering Faculty of the Georgian Technical University, as well as Masters, Ph.D candidates and young research scientists working in the fields of agro-ecology, engineering ecology and hydro-melioration. The manual can also be used by the faculties of Agriculture and Natural Sciences, including specialists of Environment Protection as well as other interested engineer-specialists.

The science editor of the manual was Academician Otar Natishvili, the academician-secretary of the Agricultural Science Division of the Georgian National Academy of Science and the editor is

Eduard Kukhalashvili, Doctor of Engineering Science, Professor of the Engineering Faculty of the Georgian Technical University.

Discussed in the manual, comprising 410 pages and consisting of 21 chapters, are all present-day developments compiled in the science of various world leading countries (USA, Israel, China, German, Poland, Russia, etc.) over the past 50 years that are required for professional growth in the strategic field of the country or in one of the high-priority subfields of agriculture – melioration.

The manual, as clear by its title, consists of three main parts: irrigation, drainage and erosion, where innovative approaches to all three trends of melioration, as well as its problems, are provided in detail: soil-plant-water and the ways to solve issues by use of modern methods and technologies.

The manual provides various engineering-biological innovative solutions for improvement of soil properties (modern trends of irrigation – raining down, drip irrigation, fertigation, etc.) and protection against erosion, new constructions of the combined three-floor drainage system (approved by Georgian patent) and solutions that have already been designed and put into effect by Prof. Gavardashvili.

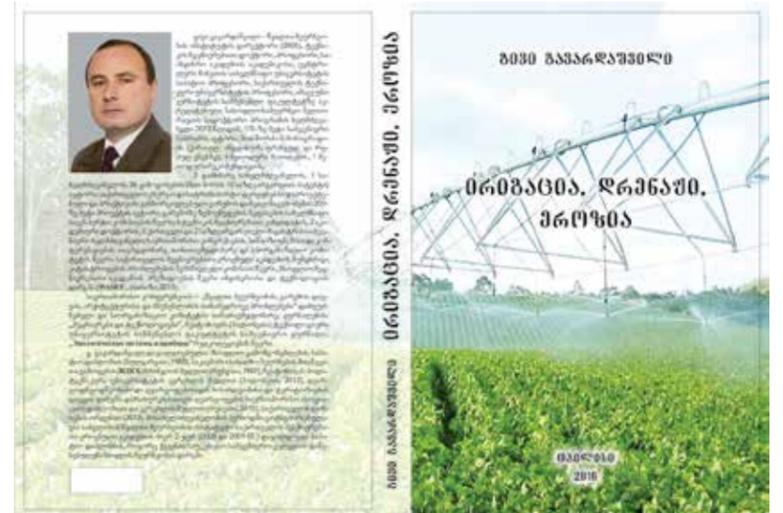
The issues discussed in chapters 20 and 21 are of particular interest – with Prof. Gavardashvili, with the financial assistance of USAID and NALAG, providing a climate outlook according to each municipality of Georgia for three different periods: 2015-2020, 2021-2050 and 2071-2100, as well as calculating melioration and forest resources risks

instructions of Academician Archil Prangishvili, Rector of the Georgian Technical University, based on recommendations on preparing a manual before expiry of the new accreditation period of the training program Agricultural Melioration held September 24-28, 2012, by the National Center of Experts for improving education level, as set out by the Ministry of Education and Science of Georgia.

In the manual the author extends his special gratitude to the rector of the Georgian Technical University. With his support, the agricultural melioration program in the directions of professional, Bachelor's, Master's and Doctoral courses was accredited at the Ministry of Education and Science and put into effect in 2012 at the Engineering Faculty of the Georgian Technical University.

From 2012 to date, the Engineering Faculty of the Georgian Technical University, in the subfield of Agricultural Melioration, and under the supervision of Prof. Gavardashvili, has seen two young Ph.D. candidates, Tamriko Supatashvili and Maka Guguchia, and Master's candidate Valerian Mchedlidze, earn successfully relevant academic degrees. This was achieved with the financial assistance of the doctoral grant program of the Shota Rustaveli National Scientific Fund, another clear illustration of the development potential of innovative projects provided in the manual “Irrigation, Drainage, Erosion.”

Givi Gavardashvili, Professor, Doctor of Technical Science, Head of the Doctoral Program in Agricultural Melioration at the Engineering Faculty of the Georgian Technical University, and



considering water demand of plants, soil and water resource conditions and climate change background. The author considers the significance of the problem at the highest scientific level for each municipality and discusses existing scientific research, climate sensitivity indicators and recommendations for reducing socio-economic risks in order to solve the problems caused by climate change. Fully represented in colored illustrations, the risks of irrigation, drainage, erosion and forest resources are calculated by the author to a high precision with research results laid down on colored maps – making the manual visually appealing to young scientists.

The manual “Irrigation, Drainage, Erosion” was prepared under the direct

Director of the Tsoetne Mirtskhulava Water Management Institute of the Georgian Technical University, has been cooperating with the program – Cochran Fellowship Program of the US Department of Agriculture – for more than 17 years, working with team leader Lev Kuchevsky, Senior Program Manager, Eastern Europe and Eurasia. Gavardashvili has merited recognition for his retraining of agricultural personnel in Georgia, enabling them to meet modern standards, and provision of relevant professional education to students, for example, by setting up an educational and scientific stand of drip irrigation at the hydro-technical laboratory, based on cooperation with the Water Management Institute.