

**SOME ASPECTS OF WATER RESOURCES PROTECTION IN GEORGIA
IN THE CONTEXT OF SUSTAINABLE DEVELOPMENT****Ana MGHEBRISHVILI***Ivane Javakhishvili Tbilisi State University, Georgia
anamgebri@yahoo.com***Abstract**

The article provides consideration of the legal framework for protection of the unique resource – water in Georgia, as well as the public awareness in this area. Author of the article positively evaluates the fact that Georgia, on its way of independence, has adopted the Law on Water much earlier than Association Agreement was made. Currently the new law is under development that, supposedly, will duly consider the requirements of Association Agreement. The author gives negative evaluation to the fact that quite significant part of the respondents does not properly know water legislation and expresses opinion about necessity of activation of the state authorities' work.

Keywords: *Sustainable development, environment protection, water resources protection, law*

JEL Classification: *Q01, Q56, O44*

I. INTRODUCTION

For ages people believed and many of them believe even now that they can make use of all living beings and all resources for their benefit. Events of the last centuries proved that such approach to the natural environment was wrong. Climate on the Earth has changed, air and water are severely polluted, soil is eroded, the danger of exhaust of natural resources is apparent, various infections spread etc. These events made the society of whole world to think and seek the ways to deal with the global problems. Thus, the society came to the sustainable development goals (New Global Agenda for Sustainable Future, 2015), and work for achievement of these goals is implemented in Georgia as well.

Georgia has the environment protection obligation according to EU Association Agreement (Association Agreement, 2014, Part 6, Chapter 3). Though, the country on its way to independence has commenced work in this area much earlier. Georgia has adopted the laws on protection of soil (Law of Georgia on Protection of Soil, 1994), environment protection (Law of Georgia on Environment Protection, 1996), water (Law of Georgia on Water Protection 1997) etc. The programs of environment protection were developed. Currently the work is ongoing on the Third National Environment Protection Program (Third National Program on Environment Protection, 2018).

Water is one of the most important elements of the environment. 70% of the Earth is covered with water. That's why Earth is known as blue planet. Water ensures existence and vital action of almost all forms of life. It participates in creation of the conditions necessary for life on the earth (Free Lessons, p. 39). No sphere of economy can work without water. Water is the necessary element of everyday life of humans. Its consumption takes place in both, visible and invisible ways. Any product, before its entry into the consumption sphere, is associated with the water. It is created with immediate participation of water. Water participates in creation of the means with the assistance of which it comes to the consumers.

Great significance of water has conditioned focusing on necessity of its sustainable management and inclusion into the sustainable development goals (New Global Agenda for Sustainable Future, 2015, goal 6). And at this stage we have chosen water and situation with respect of its protection in Georgia, as the subject of our research.

II. RESEARCH METHODOLOGY

Theoretical-methodological basis of this article is provided by the published works (Todua N., 2012; Silagadze A, Zubiashvili T., 2015; Silagadze A., Zubiashvili T., Atenelishvili T., 2016; Jachi Ch., Jangulashvili T., 2018; Mghebrishvili B., 2019; Mghebrishvili B., Mghebrishvili A., Atoshvili T., 2020; Mghebrishvili B., 2020) dealing with the sustainable development and environment protection and materials describing practical situation. Interpretation of the results of analysis of information collected by getting familiarization with the scientific works provided the views that have facilitated for us, assessment of the situation in the country with respect of water resources protection.

In the process of work on this article the marketing researches have taken significant place. The research was

conducted based on specially developed questionnaire, online. To study the research results, we have applied both, general and statistical methods, in particular, analysis, synthesis, grouping and comparison.

III. GENERAL ANALYSIS

Legislative protection of water in Georgia is mostly provided on the basis of the Constitution, international agreements and conventions, Law on Environment Protection and Law on Water. Issues associated with water protection are detailed in the Law on Water that was subject to numerous changes from the date of its adoption to present. Work has particularly activated since 2014. Georgian government, according to the obligations under Association Agreement has commencement improvement of the legislation about management of water resources in Georgia.

Main goal of the Law on Water is to ensure: implementation of common state policies in the sphere of water protection and use; primarily, meet population's demand for fresh water; sustainability and use of the aquatic fauna; production of the water marketable goods in full compliance with international principles and norms.

Law on Water also regulates the issues of property rights on water. According to Section 1, Article 6 of the Law: "Waters within the territory of Georgia are state property and shall be allotted for use only. Any action directly or indirectly violating the state property right to water shall be prohibited." (Law of Georgia on Water, 1997).

Law on Water is particularly focused on the issues of water protection. According to the Law, water protection measures shall be planned with due regard of the sustainable development principles.

In accordance with the Law, in planning and implementing water protection measures the following is required:

- ✓ Protection of the water bodies from pollution, contamination, exhausting and from such actions that can harm human health, reduce the fish reserves, worsen water supply conditions etc.;
- ✓ Ensuring proper supply of potable water to the population to meet their demand;
- ✓ Maintenance of aquatic fauna diversity;
- ✓ Prevention of harmful impact of water and effective liquidation of the results etc.

The Law also regulates the issues related to economic regulation of water protection and use, supervision and control by the state.

Law on Water basically regulates the issues of surface waters and actually leaves the ground waters and coastal waters without regulation. To achieve full compliance with the Association Agreement, currently draft law is developed (Assessment of the Impact of Draft Law on Water Resources Management, 2017) to replace the Law on Water adopted in 90s.

In addition to the above Law, there is whole number of ordinances, directives, international agreements with different countries contributing greatly to sustainable use of water resources.

Georgia is a country, rich with water resources. In Georgia there are 26060 rivers in total, 66.4% of them are short, no longer than 25 km. Water resources are distributed over the country unevenly, mostly in Western Georgia. All rivers in Eastern Georgia join Kura River that, finally, flow into Caspian Sea. Rivers of Western Georgia independently flow into Black Sea. Total discharge of Western Georgian rivers is 49.8 km³ and that of Eastern Georgian rivers is 16.5 km³ (Trapaizze V., 2012).

In Georgia there are about 860 lakes with total area of 170 sq. km. Most rivers are small and cover about 0.24% of the country's territory (Davituliani Ts., 2016).

Water in the lakes of Georgia is mostly fresh. Marshes in Georgia occupy particularly large area on Kolkheti Lowland (225 thousand ha). On the west of the country there is Black Sea with 315 km long coastal line (Water Resources of Georgia, 2012).

43 water reservoirs serve hydropower stations and irrigation systems, 35 of them are located in Eastern Georgia. Currently over 75% of power is generated by the hydropower stations. In the eastern, dryer part of the country irrigation is of critical significance for agriculture. As for the fresh subsurface water reserves, these comprise about 10 000 million m³.

Theoretically, water resources are inexhaustible as in the event of their reasonable use, they are restored in the process of natural circulation but water consumption grows at such a pace that the mankind now faces a new problem – how to ensure meeting of future demand. To achieve this goal, water resources need protection and care. In addition, rapidly increasing pollution in the rivers, lakes and sea water, resulting from contaminated waste waters inflow endangers.

To ensure reasonable use of water resources the following is required: implementation of uniform state policies of water resources regulation; registration of water resources and pollution control; regulation of use of the

resources – issuance of permits and licenses; issuance of permits for construction of hydraulic works and irrigation systems, artificial water reservoirs etc.

Country's uniform policies of water resources protection shall serve to achievement of such main goal as improvement of improvement of water quality in the rivers through contamination control; ensuring effective protection of the population and their property at a time of floods and mudflows; care about the fish species in the rivers and ponds and their reproduction; welfare of the surface water bodies and adjacent land and recreation potential development etc.

As mentioned above, water is one of the most valuable natural resources on the Earth. Irrespective of clear understanding of this fact, people still contaminate the rivers, lakes, seas and oceans. Hence, harm is caused to the Earth so that the danger of elimination of not only humans but other living beings increases dramatically. Similar to the other countries in the world, Georgia is not protected from misuse of water resources.

Cause of water resources pollution can be the waste waters from the enterprises, poorly maintained sewage systems, rain waters flown from agricultural lands and settlements etc. Generally, there are distinguished point and diffuse sources of water pollution. The point sources include, for example, discharge of polluted water through the pipe from the factory while as the diffuse source can be regarded, for example, simultaneous contamination of water bodies from multiple points by the floods resulting from rain. It should be noted that in technical respect, it is much easier to eliminate the point source of contamination, compared with the diffuse pollution (Orhus Center in Georgia). Though, as observations show, in some cases, this process is not properly managed.

Most widespread pollutants of the water bodies include pesticides, fertilizers, oil products, heavy metals, wastes resulting from chemical and industrial processes, various substances resulting from household activities etc. Water pollution harms not only aquatic fauna but also humans and especially where drinking water is polluted. In addition, pollution of drinking water further aggravates the problems in the sphere of water consumption, especially in Eastern Georgia, where there is lack of fresh water, especially compared with Western Georgia. In Georgia, per capita water consumption is 2.2 m³. Possibility of natural resources consumption in Georgia is 2.5 times higher than projected demand (Risk Associated with Drinking Water, 2017). This is good but the riches given by the nature need care and protection.

Over half of Georgian population receives water from the central water supply system. The other part gets water independently, from subsurface waters, wells and springs. Of course, people are not properly secured from the impact of various harmful substances. Hence, the number of people harmed as a result of water pollution can increase. Therefore, the relevant structures of the country make efforts to protect and reasonably use water resources. According to our observations, activation of work in this area is required, especially in rural areas. As for the cities, there potable water supply is mostly provided by centralized water supply system and there are relatively less problems.

As of 2018, in Georgia 22 enterprises were engaged in water supply activities. Quantity of water supplied by them to the population is 221.9 million m³, and this is 0.7% lower than respective supply in the previous year. In the end of 2018, 2.45 million people were connected to the water supply system, 0.2% higher than in the previous year. It should be noted that in 2018, population connected to the sewage system has increased by 1.4% to achieve 1.81 million (Study of Water Supply Enterprises 2018, 2019). Significant works were performed in the sphere of water supply in 2019 as well.

In Georgia operates general state system for water protection and use for the purpose of implementation of the uniform state policies of water protection and use. According to Georgian legislation, water in the territory of Georgia is the state property and can be transferred for use only. Violation of state property rights on water is subject to punishment in accordance with Administrative Offences Code of Georgia. Article 58 of the said Code provides for various penalties for various violations. For example, contamination of the water bodies and discharge of various wastes into the water bodies is subject to penalty from GEL 200 to GEL 300. For discharge of the wastes into the sewage system, as well as for discharge of waste waters that do not comply with the requirements of technical regulations the penalty for natural persons is GEL 400 and for the legal entities – GEL 1000. In the event of repeated offence, the penalties double. The Code also sets the penalties for violation of the requirements of water protection in the protected territories and for sea contamination (Protection of Natural Resources and Environment in Georgia, 2017, 2018).

The issue of necessity of the water resources protection became particularly apparent in the conditions of fighting against corona virus pandemics. Without supplying clean water to the population fight against pandemics is impossible. People will be able to meet the key requirements for fighting with corona virus infection only if the water issues are put in order (regular supply and prevention of contamination).

Corona virus pandemics have emphasized once more the necessity of normal functioning of water supply

system and need of state control. State control in the sphere of environment protection and natural resources use is provided by the Environmental Supervision Department, sub-agency of the Ministry of Environment Protection and Agriculture.

In 2018, Environmental Supervision Department's environmental patrol and inspection revealed 7040 facts of legislation violation and this rate is much lower than in the previous years. In particular, in 2017, there were 11677 facts, in 2016 – 10211, in 2015 – 10340 and in 2014 – 9797. Of the facts identified in 2018, 4% - 259 facts in total, were associated with violation of water legislation and this, compared with the previous year, is higher in absolute numbers but lower as percentage. In 2017, 233 facts were identified, comprising 2% of total violations (Environmental Department Reports, 2017, 2018).

According to the information from the Environmental Supervision Department, in 2018, amount of charges imposed on offenders as a result of consideration of offence cases was GEL 3.850.800. Amount of damages caused to the nature as a result of offences was GEL 10.033.170, among them GEL 5.849.812 – the criminal cases and GEL 4.183.358 for administrative offences (Environmental Department Report, 2018).

To ensure achievement of the goals and objectives in the sphere of environment (among them, water resources) protection, in addition to approaching of Georgian legislation with the international and EU legislation, improvement of public awareness in this sphere is needed. Though, before any decision is made in this respect, level of public awareness in environment protection should be identified. Therefore the questionnaire survey was conducted.

Survey was conducted online, based on the questionnaire prepared in advance. Most of the surveyed were women (85.6%). Most of the interviewed – 88.4% – were with higher education and 9.2% - students. We believe that the views of so well educated respondents are valuable and should be taken into consideration.

Survey results showed that the most of the respondents (80.5%) have negative opinion about the situation in the environmental sphere in Georgia. They are not informed that water resources are protected by the law (55.7%) and they have no information about operation of the Law on Water at all. Consequently, one could say that this is the result of lack of popularization of the legislation about water and related issues from the side of government.

24.3% of the surveyed regard that involvement of the state and NGOs in the issues of water resources protection is very low, while 30.1% regard that their involvement is low. Only 2 respondents answered that involvement of the state and NGOs in environmental issues is high.

Certainly, together with the environmental measures implemented by the state, attitude of each citizen to protection of water resources is of significance. 55.7% of the surveyed regard that people surrounding them do not take care about the water resources, while in the opinion of 27% - they do. for 17.2% of the surveyed it was hard to give answer to this question.

The fact that quite significant part of the surveyed do not respond to the facts of pollution of water resources should be assessed negatively. Only 40.2% has commented the facts where the others have contaminated the water resources. Cause of this, supposedly, is that people regard commenting of the other people's actions that do not directly affect them as intervention into their affairs. They cannot understand that this would be statesmanlike thinking, rather than intervention into the others' affairs. One could say that in the recent period the situation changes in this respect.

It is clear that there are problems in the sphere of water resources protection. It is significant that the whole society sought solutions to these problems. In relation to this the question was: "if you had the authority, what actions would you take to improve public awareness about water resources protection?" Most respondents (57.9%) answered that the relevant measures should be taken from the school age; we have to foster the idea of caring water resources in schoolchildren.

To the questions about what measures would they implement for protection of water resources, most respondents answered that the facts of water resources pollution should not be left without response according to the law. In their opinion, the public groups should be established, with the authority of applying sanctions provided for by the law, in the event of identification of the pollution facts.

IV. CONCLUSION

Consideration of the legislation dealing with water resources and results of questionnaire survey of the population about water resources protection allowed making the following conclusions:

- ✓ Water is a great riches of Georgia but use of these resources is not currently provided in proper way;
- ✓ Law on Water cannot ensure sufficient protection of water resources as it is not applicable to the ground water extensively used by the population;

- ✓ Country develops the draft law on water resources, which, supposedly, will fully consider the requirements of Association Agreement and replace currently effective law. This fact deserves positive assessment;
- ✓ No proper work is conducted in the country for popularization of water resources protection – significant part of the population does not know legislation protecting water resources at all;
- ✓ To improve water resources protection improvement of public awareness is required and attention to this issue should be paid from the school age;
- ✓ Adoption of the new law on water should be accelerated;
- ✓ More attention should be paid to revealing of the facts of water pollution and implementation of proper measures against the violators. In addition, it would be good if the new law on water charges higher penalties for water pollution.
- ✓ Strict sanctions should be imposed to ensure reasonable use of water resources and avoid indifference to their pollution against the state departments and officials bearing responsibility in this respect, according to the legislation.

V. REFERENCES

1. Association Agreement between Georgia on one side and EU, European Association of Atomic Energy and member states on the other side (2014), <https://matsne.gov.ge/ka/document/view/2496959>
2. Davituliani Ts. (2016) Water Resources of Georgia and their Reasonable Use. Magazine “Economic Profile”, No: 16, Kutaisi, pp. 20-26
3. Environmental Supervision Department Report 2018 <http://www.des.gov.ge/Ge/Reports>
4. Environmental Supervision Department Report 2017 <http://www.des.gov.ge/Ge/Reports>
5. Assessment of the Impact of Draft Law on Water Resources Management, final report (2017).http://eiec.gov.ge/News/Press-Releases/Water-RIA_GEO_Final-Version-Figures.aspx
6. Jachi Ch., Jangulashvili T., (2018). Environmentally Responsible Behavior and its Importance for Sustainable Tourism development.III International Scientific Conference-Challenges of Globalization in Economics and Business. Tbilisi, Georgia, pp.522-525.
7. <http://water.gov.ge/news/full/2310> Free Lessons.
<http://www.eiec.gov.ge/%E1%83%97%E1%83%94%E1%83%9B%E1%83%94%E1%83%91%E1%83%98/Water/Documents/Report/%E1%83%A1%E1%83%90%E1%83%AE%E1%83%94%E1%83%9A%E1%83%9B%E1%83%AB%E1%83%92%E1%83%95%E1%83%90%E1%83%9C%E1%83%94%E1%83%9A%E1%83%9D.aspx>
8. Law of Georgia on Water <https://matsne.gov.ge/ka/document/view/33448?publication=23>
9. Law of Georgia on Soil Protection <https://matsne.gov.ge/ka/document/view/93874?publication=7>
10. Law of Georgia on Environment Protection. <https://matsne.gov.ge/ka/document/view/33340/>
11. Mghelbrishvili B., Mghelbrishvili A., Atoshvili T. (2020). Care About Environment Protection in the Conditions of Effectiveness of Sustainable Development Conception (Example of Georgia). V International Scientific and Practical Conference - Strategic Imperatives of Modern Management. Kyiv, Ukraine, pp. 253-258
12. Mghelbrishvili B., (2020).Some Legal Aspects of Achievement of Sustainable Consumption and Production in Georgia. Business Systems Laboratory-7th International Symposium-Socio-Economic Ecosystems: Chelenges for Sustainable Development in the Digital Era. University of Alikante, Spain.
13. Mghelbrishvili B., (2019). Situation of Health and Welfare in Georgia in the Context of Sustainable Development and Sustainable Marketing. Journal Ecoforum, Volume 8, Issue 1(18).
14. Protection of natural resources and environment of Georgia 2017 (2018). National Statistics Office, statistical publication, Tbilisi https://www.geostat.ge/media/13848/Garemo_2017.pdf
15. Protection of natural resources and environment of Georgia 2018 (2019). National Statistics Office, statistical publication, Tbilisi https://www.geostat.ge/media/28027/saqartvelos_bunebrivi_resursebi_da_garemos_dacva_2018.pdf
16. Risk Associated with Drinking Water (2017) Scientific Conclusion, Opinion of scientists http://srca.gov.ge/files/%E1%83%A1%E1%83%90%E1%83%A1%E1%83%9B%E1%83%94%E1%83%9A%E1%83%98_%E1%83%AC%E1%83%A7%E1%83%90%E1%83%9A%E1%83%98.pdf
17. Silagadze A, Zubiashvili T. (2015). The Post-Soviet Economy: The Concept of Drinking Water Business Development. Refereed International Journal of Business and Management Studies (IJBMS), Volume 04, No 1, USA. pp. 299-307. <http://www.universitypublications.net/ijbms/0401/index.html> 13
18. Silagadze A., Zubiashvili T., Atenelishvili T. (2016). The Use of Drinking Water in the Conditions of Maintaining Ecological Balance. Refereed International Journal Ecoforum. Vol. 5. №1, pp. 65-69.
19. Sustainable development Goals, New Global Agenda for Sustainable Future (2015) http://www.ungeorgia.ge/geo/sustainable_development_goals#.XeJMC1xXrIV
20. Sustainable development Goals and Georgia (2017) <https://sdgsgeorgiablog.wordpress.com/page/1/>
21. Study of water supply enterprises. Tbilisi 2018 (2019). National Statistics Office of Georgia. Tbilisi <https://www.geostat.ge/media/24868/cyalmonmaragebeli-sacarmoebis-gamokvleva-2018-%28geo%29.pdf>
22. Todua N., (2012). Marketing Research of Consumer Behavior in Georgian Market (Monograph), Tbilisi, Georgia
23. Third Georgian National Action Program for Environment Protection 2017-2021 (2018)
24. Trapaidze V. (2012). Water Resources. Education Course. Tbilisi https://www.tsu.ge/data/file_db/library/trapaidze_resursebi.pdf
25. Water Resources of Georgia (2012). <http://icode.ge/2012/04/29/საქართველოს-წყლის-რესურს/>
26. Water Pollution, Causes and Outcomes. Prepared by the Project “Orhus center in Georgia” <http://www.eiec.gov.ge/თემატიკა/Water/Documents/Publication/წყლის-დაბინძურება,-გამომწვევი-მიზეზები-და-შედეგები.aspx>
27. Gvelesiani R., (2020). Formation of the Innovative Entrepreneurship Culture: Capabilities and Problems. Ecoforum Journal, Vol. 9, Issue 1.

28. Gvelesiani R., (2019). Compatibility Problem of Basic Public Values with Economic Policy Goals and Decisions for Their Implementation. *Journal Globalization & Business*.
29. Gvelesiani R., (2019). The problem of compliance of the framework conditions of the policy of economic order with the basic social values. Ivane Javakhishvili Tbilisi State University Press
30. Gvelesiani R., (2019). Conflict of economic interests-an identifying form of contradictory interrelation of the basic public values. Ivane Javakhishvili Tbilisi State University Press.
31. Gvelesiani R., (2020). Contradictions of Public Values-Origin of Conflict of Interests. *Ecoforum Journal* 9 (2)
32. Kharaiashvili, E., Erkomaishvili, G., Chavleishvili, M. (2015). Problems faced by the agricultural sector and agribusiness development strategy in Georgia. *World Academy of Science, Engineering and Technology. International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering.* 9 (11).
33. Kharaiashvili, E., Erkomaishvili, G., Chavleishvili, M. (2015). Problems faced by the agricultural sector and agribusiness development strategy in Georgia. *International Journal of Industrial and Systems Engineering* 9 (11).
34. Kharaiashvili, E. (2018). The Impact of Preferential Agro Credit on the Development of Agribusiness in Georgia. *Ecoforum Journal* 7 (1)
35. Silagadze, A. (1996). Some Aspects of the History of Economic Thought. Tbilisi. (in Georgian).
36. Silagadze, A., Atanelishvili, T. (2011). The Potential of the Agrarian Sector of Georgia–Priorities of the Sustainable Development of Agriculture. Tbilisi, TSU, 418-419.
37. Silagadze, A., Zubiashvili, T. (2016). Georgia's economy against the background of the associate agreement with the European Union. *International Journal of Business and Management Studies* 5 (2), 533-540.
38. Zubiashvili, T., Veshapidze, S. (2019). Labour Emigration and Employment in Georgia. *Humanities and Social Sciences Review* 9 (01), 127-136.
39. Zubiashvili, T., Chikviladze, M. (2020). Some Issues of Tax Income in Georgia. *Ecoforum Journal* 9 (2).
40. Veshapidze, S., Zubiashvili, T. (2020). About the Origins of Modern Geoeconomic Foundations of Georgia. *Ecoforum Journal* 9 (2).
41. Kadagishvili, L. (2020). Prospects of Cooperation between China and Georgia in Global Business Environment. *Ecoforum Journal* 9 (2).