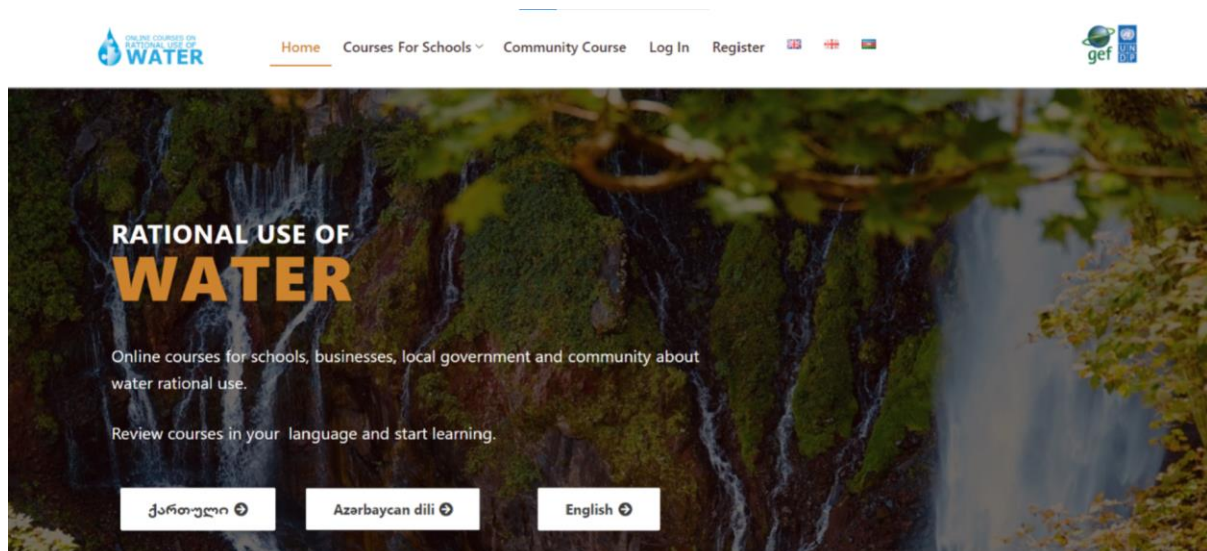


INTERNATIONAL WATERS EXPERIENCE NOTES

Online Learning Platform for Schools on Water Resources Sustainable Management



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Abstract: There are a number of underlying issues regarding water resources in Caucasus region which include natural circumstances (geography, climate change, etc.) as well as water usage behavior in local communities. The project goal was to address the water resources sustainable management problems in the city of Gori, Georgia, which had one of the highest water consumption rates per capita in the country. The project started with preparing a package of awareness materials on various water management issues and conducting series of trainings for school teachers and students in Gori.

Later on, due to an outbreak of pandemic in 2020, the scope of the project was extended to transform the developed awareness materials into online courses, design teacher instructions and build an e-learning platform to enable wider and sustainable dissemination of knowledge and values related to rational water use. Four online courses for teachers and students were created in three languages (Georgian, Azerbaijani and English). Link the platform: <https://water.envdevelopment.org/>

Online Learning Platform for Schools on Water Resources Sustainable Management

Experience of the GEF - sponsored

UNDP GEF/IW: Kura II: Advancing IWRM across the Kura river basin through implementation of the transboundary agreed actions and national plans
GEF- ID: 5325

PROJECT DESCRIPTION

UNDP-GEF Kura II Project was developed to address the priority needs in the ministerially endorsed Strategic Action Plan (SAP) through implementation of the SAP and national Integrated Water Resources Management (IWRM) Plans to strengthen and harmonize coordinated conjunctive transboundary ground and surface water management. It comprised five components: Support for institutional governance protocols; professional development and capacity building for water managers across sectors; stress reduction measures in critical areas; stakeholder education and empowerment; and, enhanced science for governance.

Rational Water Use in the Municipal Sector in Gori City Municipality was a project under Kura II. It was implemented by the Environment and Development NGO (ED). The goal of the project was to ensure knowledge development and behavior change in sustainable water resources management in Gori city (Georgia) in collaboration with local schools, population, governmental institutions and businesses.

Later the scope of the project was extended as it was decided to transform existing offline materials into online courses to reach wider audiences.

Educational consulting company Mindworks was invited for course instructional design, online multimedia content creation with video animations and teacher guidelines, and e-learning platform development.

THE EXPERIENCE

Issue

Georgia is rich in water resources. However, water resources are unequally distributed, and are mainly accumulated in the western part of the country. Equal distribution of the water resources and supplying eastern region with water remain one of the main tasks of water management in the country.

Gori is a city in eastern Georgia (Shida Kartli region), which is one of most demanding settlements by water consumption per capita in the country (~800 liters per day per person). Population of the Gori city and surrounding villages are actively involved in agriculture requiring large amounts of water for irrigation purposes. Main part of the water supply system in the city is still managed without use of a water metering approach leading to use of drinking water in irrigation. Outdated water supply infrastructure and limited knowledge of rational water resources management practices is another problem for the city demanding urgent actions from local government and society.

To respond to local development problems related to water resources management the UNDP-GEF Kura II project in the second part of 2019 initiated a local campaign in cooperation with NGO Environment and Development “Rational Water Use in the Municipal Sector in Gori City Municipality, Georgia”. The campaign was based on face-to-face interaction with local groups targeting awareness raising and capacity building on rational use of water.

Outbreak of the pandemic in spring 2020 prevented the possibility to hold face-to-face meetings with and deliver training to the school teachers and students. The preliminary work, as well as, preparation of learning resources in the form of brochures was already completed. However, its printing and dissemination was no longer possible. These circumstances made the project team to think about alternative ways and find the best solution for widely spread knowledge.

This is when it was decided to invite Mindworks, an educational consulting company providing e-learning services, including content development, instructional design and online learning platform implementation, and transform existing brochures into educational video animations, develop methodological guidelines for teachers, develop self-paced online courses for teachers and students, and set-up dedicated online learning platform.

Addressing the issue

Due to COVID-19 pandemic restrictions from March 2020 the project team has revised project implementation strategy and approached UNDP Kura II project management team to change the scope and focus on distance learning approach responding, on one hand, to existing restriction and, on the other hand, to involvement of wider audience in the campaign and ensuring its sustainability.

As a solution addressing the problem emerged due to pandemic, an e-learning platform has been developed to enable wider and sustainable dissemination of knowledge and values related to rational water use.

The e-learning solution implied to:

1. Cover five main topics: Geography of River Basin, Climate Change and Water, Rational Water Use, Life in Water and Water in Ecology, Protection of Water Quality
2. Design the online courses for school pupils of three age groups: III-V grades, VI-VIII grades, IX-XI grades (5 courses for each age group)
3. Design an online course for facilitators: teachers, parents or school eco-club leaders
4. Create all the courses in three languages: Azerbaijani, Georgian and English
5. Provide free access for the wider public, that is, any interested person can take any course.

The school students can follow self-paced online courses independently or by help of a facilitator.

The online courses for school students include:

1. Animated videos, to ensure higher engagement of the students
2. Quizzes, to check knowledge students acquire during a course
3. Brochures (downloadable)
4. Ideas for learning projects

The time needed for completion is not defined, it depends on the pace of a course participant and may vary. The certificate is automatically generated upon the successful completion of the course.

The online course for teachers is also self-paced, implying that course participants follow it at their own pace. The course is structured in five modules/cycles, completion of which implies that teachers go through theoretical topics and accomplish at least one practical learning activity in their classes. The certificate is automatically generated upon the successful completion of the course.

The online course for school teachers include::

1. Methodological video guidelines - a summary of 21st century skills and project-based learning;
2. Video lectures and relevant scripts of the topic summaries;
3. Student learning resources in form of animated videos and brochures;
4. Ideas for classroom activities that can be adjusted according to the specific learning objectives;
5. Self-reflection questionnaires.

Each module/cycle is valuable in itself and is an independent unit. So a teacher can, for example, go through the third cycle first, because at the given moment it's what she needs, and then the second cycle. In total, the time that is needed to cover the entire course might be different, depending on what the teacher needs.; it can take a month or a whole semester.

The course content is prepared by the subject matter experts, instructional designers and multimedia professional. Each text, screenplay, animation has come a long way before being published, every single piece was edited and verified several times, and field experts from Georgia and Azerbaijan, including the UNDP team, were actively involved in the process.

RESULTS AND LEARNING

Summary of work and outputs

In the scope of the project educational resources for schools and technical instructions for water infrastructure specialists were developed, more than 35 teachers and 800 school kids trained in water resources conservation and sustainable management. Technical assistance in maintenance of water infrastructure was provided to more than 20 municipal institutions and 25 local businesses.

In an active partnership with the Gori office of the United Water Supply Company of Georgia (UWSCG), water leakage repair works were implemented around the city. The company lab representatives tested water quality of the water supplied to the city in selected areas with involvement of local population and school kids. Interactive communication between local business, school administrations and community was established with UWSCG leading to resolution of conflicts related to water resources management and preservation of valuable resources.

In February 2021 the e-learning platform was launched containing self-paced online courses for teachers, students and wider community.

The website is in three languages: Azerbaijani, Georgian and English. So, besides teachers and students in our countries, now the global community can benefit from the courses; we are part of one family, earth is our home and looking after water resources should be our joint effort.

The course statistics

- 4 courses for the school community: one for teachers and three for students based on the respective age groups for each language, 12 courses in total;
- 15 animated videos were created in each language, 45 videos, more than 3 hours in total, as learning resources for students.
- Teacher instructional and thematic videos, 12 in each language, 36 videos, around 2.5 hours in total. Teacher videos are accompanied
- Each course contains quizzes for each module - 45 original quiz questions for each language, 135 questions in total.

The course content and platform functionality was validated during the pilot implementation with teachers. The pilot showed that the resources can be used in multiple educational settings. Traditional, fully online or hybrid classroom scenarios can all benefit from the course materials. Beyond the classroom walls, educational eco-clubs or informal homeschooling are also a great environment for the content implementation; students can go through the courses independently or together with family members.

REPLICATION

The implemented project can be used as a successful example of the coping strategy demonstrating the ability of SMART management approach in crises like COVID-19 pandemic and transferring the challenge into an opportunity. On a basis of local level targeting campaign the project team has generated the regional and international level output creating a platform for common understanding and expanding knowledge on sustainable planning and management of water resources.

Sustainable water use and management is a global issue. Transborder and international collaboration is one of the key mechanisms for mitigating negative impact of human activities and natural processes on water. Current and future generations in different countries should have a shared understanding of the existing and potential problems to tackle them effectively.

The online courses were developed in a way that they can be implemented in any school of Georgia and Azerbaijan, as well as any English speaking country or school all over the world. The learning goals, aimed competences, content and teaching methodology are universal to modern educational environments and practices.

Covid-19 pandemic resulted in a significant shift of the learning processes at school. Though we will all be back to normal educational environments, the learning process will never be the same. Completely new experiences gained by educational institutions, teachers and students during a pandemic will allow them to enrich learning experiences, as well as increase expectations towards more blended models of education.

Our courses give opportunities to teachers and students in any school to go deeper into water sustainable management topics, explore new ideas, come up to solutions and implement them in their communities.

SIGNIFICANCE

The project is an important step for local decision makers, entrepreneurs, education specialists and the general public to learn and understand their roles in water resources management. In the scope of the project tool for regional and international cooperation was developed contributing to knowledge sharing and multi stakeholder partnership.

The e-learning platform is a sustainable solution, that provides wide access to water related knowledge and values. The content is designed for a global community and is available in Azerbaijani, Georgian and English languages. The online courses can be practically used in any learning scenario, no matter how the learning process takes place, remotely or in schools, at home or in any other way.

The platform is open to further development and more courses can be easily added in the future.

REFERENCES

Online learning platform: <https://water.envdevelopment.org/>

UNDP-GEF Kura II Project: <https://kura-river.org/>

Environment and Development (ED): <https://envdevelopment.org/>

MIndworks: <https://mindworks.ge/>

KEYWORDS

Water Resources Sustainable Management, Rational Water Use, Online Courses, E-Learning, School, Teacher, Student