EU4Environment in Eastern Partner Countries:
Water Resources and Environmental Data (ENI/2021/425-550)

REGIONAL REPORT ON OUTPUT 2.1

WATER ACCOUNTS

PUBLIC REPORT

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EU4Environment
Water and Data in Eastern Partner Countries

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Water Resources and Environmental Data (ENI/2021/425-550)

ABOUT THIS REPORT

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ABOUT EU4ENVIRONMENT – WATER RESOURCES AND ENVIRONMENTAL DATA

This Programme aims at improving people's wellbeing in EU's Eastern Partner Countries and enabling their green transformation in line with the European Green Deal and the Sustainable Development Goals (SDGs). The programme's activities are clustered around two specific objectives: 1) support a more sustainable use of water resources and 2) improve the use of sound environmental data and their availability for policy-makers and citizens. It ensures continuity of the Shared Environmental Information System Phase II and the EU Water Initiative Plus for Eastern Partnership programmes.

The Programme is implemented by five Partner organisations: Environment Agency Austria (UBA), Austrian Development Agency (ADA), International Office for Water (OiEau) (France), Organisation for Economic Co-operation and Development (OECD), United Nations Economic Commission for Europe (UNECE). The action is co-funded by the European Union, the Austrian Development Cooperation and the French Artois-Picardie Water Agency based on a budget of EUR 12,75 million (EUR 12 million EU contribution). The implementation period is 2021-2024.

https://eu4waterdata.eu

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List of abbreviations

DG NEAR ..... Directorate-General for Neighbourhood and Enlargement Negotiations of the European Commission

DoA ..... Description of Action

EaP ..... Eastern Partners

EC ..... European Commission

EECCA ..... Eastern Europe, the Caucasus and Central Asia

EU ..... European Union

EUWI+ ..... European Union Water Initiative Plus

GEF ..... Global Environmental Fund

ICPDR ..... International Commission for the Protection of the Danube River

INBO ..... International Network of Basin Organisations

IOW/OIEau ..... International Office for Water, France

IWRM ..... Integrated Water Resources Management

NESB ..... National Executive Steering Board

NFP ..... National Focal Point

NGOs ..... Non-Governmental Organisations

NPD ..... National Policy Dialogue

OECD ..... Organisation for Economic Cooperation and Development

PSUT ..... Physical Supply and Use Tables

RBD ..... River Basin District

RBMP ..... River Basin Management Plan

Reps ..... Representatives (the local project staff in each country)

SEEA ..... System of Environmental-Economic Accounting - Central Framework

SEEA-Water ..... System of Environmental-Economic Accounting for Water

SEIS ..... Shared Environmental Information System

SDG ..... Sustainable Development Goals

ToR ..... Terms of References

UBA ..... Umweltbundesamt GmbH, Environment Agency Austria

UNSD ..... United Nations Statistics Division

UNECE ..... United Nations Economic Commission for Europe

WA ..... Water Accounts

WFD ..... Water Framework Directive

Country Specific Abbreviations Armenia

ARMSTA ..... Statistical Committee of the Republic of Armenia
EMIC ..... Environmental Monitoring and Information Centre (until January 2020)
HMC ..... Hydrogeological Monitoring Centre (since February 2020)
MNP ..... Ministry of Nature Protection
SCWS ..... State Committee on Water Systems
SWCIS ..... State Water Cadastre Information System of Armenia
WRMA ..... Water Resources Management Agency

Country Specific Abbreviations Azerbaijan

Azersu JSC ..... JSC Water Supply and Sanitation of Azerbaijan
MENR ..... Ministry of Ecology and Natural Resources
SSC ..... The State Statistical Committee of the Republic of Azerbaijan
WRSA ..... Water Resources State Agency of Ministry of Emergency Situations

Country Specific Abbreviations Georgia

GEOSTAT ..... National Statistics Office of Georgia
MENRP ..... Ministry of Environment and Natural Resources Protection
NEA ..... National Environment Agency
NWP ..... National Water Partnership

Country Specific Abbreviations Moldova

AAM ..... Agency “Apele Moldovei”
AGMR ..... Agency for Geology and Mineral Resources
AMAC ..... Association of Apacanals
ANRE ..... National Agency for Economic Regulation of the Energy Sector (also regulates WSS)
EAM ..... Environment Agency Moldova
MoAgri ..... Ministry of Agriculture (of the Republic of Moldova)
MoENV ..... Ministry of Environment (of the Republic of Moldova)
Moldova ..... Republic of Moldova
NBS ..... National Bureau of Statistics of the Republic of Moldova
NSDI ..... National Spatial Data Infrastructure
SHS ..... State Hydrometeorological Service

Country Specific Abbreviations Ukraine

MENR..... Ministry of Ecology and Natural Resources

NAAU ..... National Accreditation Agency of Ukraine

SAWR ..... State Agency of Water Resources

SEMS..... State Environment Monitoring System

SSS ..... State Statistics Service of Ukraine

UkrHMC ..... Ukrainian Hydrometeorological Center

1. Objective

The (physical) water accounts provide information on the extraction of water from the environment, the use of water in economic sectors and private households and the release of water into the environment as well as on the stock of water. The methodological basis for this is the System of Environmental-Economic Accounting - Central Framework (SEEA-CF), System of Environmental-Economic Accounting for Water (SEEA-Water) (both United Nations Statistical Division) and the Eurostat manual Physical Water Flow Accounts.

During the implementation of SEIS II East project in 2016-2020 by the EEA, the UN System of Environmental Economic Accounting was used as a framework for integrated information to support evidence-based policymaking with specific support provided for water accounts. This resulted in the draft of physical water accounts in three countries (Armenia, Azerbaijan, Belarus).

The EU4Environment in Eastern Partner Countries, Water Resources and Environmental Data programme built on the results of the SEIS II East project and aimed to expand the water accounts in the partner countries (Armenia, Aszerbaijan) where it has already been introduced and to develop them in the other countries (Georgia, Moldova, Ukraine).

The focus of the work was on the Physical Supply and Use Tables (PSUT), the improvement of the required data in terms of scope and quality as well as the communication of the results to decision-makers, water administrators and the public.

2. Approach of Implementation

The procedure for implementing the activities was divided into several steps, in which the very different stages of development of the Water Accounts (WA) in the countries were taken into account.

At the beginning, the status of the WA in the countries was analysed. Building on this, a tailor-made support programme was drawn up for the countries and implemented with the national key institutions. In parallel to the activities at country level, regional exchange was promoted.

The stocktaking surveyed the responsibilities of the authorities, availability of resources for the topic, knowledge in the institutions and among experts, data availability (temporal and spatial), agreements between national authorities on data exchange, data validation mechanisms, provision of results to decision-makers, science, administration and the public, cooperation with neighbouring countries and Eurostat, and ultimately the status of the filling of national PSUTs.

In general, the statistical offices are responsible for WA, but they do not have the data and expertise to complete the PSUT. The statistical offices therefore depend heavily and directly on individual water authorities such as hydro-meteorology, water rights registers and water resource management authorities. Usually, the level of knowledge about WA in these authorities is very limited. This was also the case in the countries that have already produced PSUTs.

In order to establish a basis for the activities of Output 2.1, two national online workshops were held in each country at the beginning, which were aimed at the aforementioned authorities and conveyed the methodological principles and requirements of the WA and identified the key authorities and their experts. Missions were then organised to the countries, in which the planned activities and aimed results were discussed and agreed with the key experts. This approach worked well in those countries where WA and the methodology of environmental accounting were already known (Azerbaijan, Armenia, Georgia). In countries that were not yet familiar with environmental accounting, the online process took longer (more than 12 months) to complete because it was challenging to reach the knowledge in the counties what is needed, identify the responsible authorities and their experts (Moldova, Ukraine).

Picture 1: Workshop and training on Water Accounts data provider and methodology in Georgia,

Following the assessment, activities were implemented in the form of online meetings and training sessions, face-to-face meetings and workshops, field-visits and backstopping from EU4WD expert to national key experts by email.

The regional activities (online and face-to-face) focussed on sharing lessons learnt and exploring possible collaborations in the creation of PSUT.

3. Results

In all countries, water statistics questionnaire from UNSD is regularly compiled by statistical authorities and is available. Cooperation between statistical and water authorities is set up for water statistics in all countries.

Their representatives of statistical authorities regularly take part in UNECE SEEA events in Geneva. This indicates, that a basic knowledge on environmental accounts is available and that the term Water Accounts is known in all countries. On the other hand, the water authorities, which are largely required to provide data for WA, were not familiar with the methods of environment accounts or water accounts. The term water accounts is used in the countries as a synonym for water balance, which led to misunderstandings that could be clarified during training provided in Output 2.1 activities.

Furthermore, there was also the task in Output 2.1 of harmonising terms from the WA with those from the water management and translating them into the national language. Examples of this are water use and water consumption. This time-consuming step is very important for a consistent data exchange between the water authorities and the statistics. Otherwise, as has been shown, there is a great risk that data records will be incorrectly transferred to the PSUT, which, in the absence of validation, will lead to false conclusions regarding water resources.

The planned activities of Output 2.1 were largely carried out as planned. The experts in all partner countries showed a high level of commitment and interest in the cooperation. The indicators defined for Output 2.1 were achieved for all five countries. The indicators were as follows:

I. No. of country-specific progress reviews concerning water accounting use
II. No. of additional countries with improved water accounting

Notes to Country-specific progress reviews concerning water accounting use

The review of water accounting use was completed for all countries and comprised the points stated in chapter 2. The review was shared and discussed with the experts from the key authorities involved in WA. This helped to identify and largely eliminate ambiguities in responsibilities.

Notes to Additional countries with improved water accounting

The level of water accounts could be improved in all countries.

All partner countries have long-term experiences in the preparation of water statistics which are in the responsibility of national statistical authorities.

What all countries have in common, regardless of their starting level, is that the topic of definitions (what to report), methods of data validation and preparation of results for non-experts has been addressed and has increased the level of knowledge in the statistical and water management authorities significantly.

The activities in Output 2.1 strengthened the cooperation between the statistical authority (in charge for preparing PSUT) and the data providing water authorities .Experts from the various authorities were mobilised for the workshops, in which the national data sets were jointly validated and a common understanding of the data situation, data quality and discrepancies could be reached. This result is

particularly valuable, as such an exchange rarely takes place in day-to-day work, but is essential for practical work in water resource management.

Additionally, there has been a improvement in the technical competencies related to data validation and gap filling. These advancements have led to more robust and reliable datasets, which are essential for effective water management and policy development.

As regards Output 2.1 products, draft PSUT have been prepared for Georgia, Moldova and Ukraine on national level, a validated PSUT for Azerbaijan and one draft PSUT on sub-basin level for Armenia.

For Armenia, an infographic was prepared using the PSUT data and published. The infographic presented to relevant authorities and decision makers in Armenia and also to the other Partner Countries (which might use it as a template and fill it with their own national data)

4. Country summaries

The following chapters describe the country-specific circumstances, activities, results and proposals for further steps related to Outputs 2.1.

4.1. Armenia

An EU Twinning in the past set the ground for the preparation of PSUT (without soil water). In the year 2024, the Statistical Committee (ARMSTAT) published the 7th PSUT on national and annual scale PSUT as well as indicators such as water use efficiency. This is possible because ARMSTAT has a high level of expertise and dedicates sufficient resources in the field of water accounts methodology to do so. Data collection for water accounts is well set up. Required data come from ARMSTAT data collection as well as from water authorities.

Due to the limited expert capacities for water management issues at ARMSTAT, the data supplied by the water authorities (= administrative data) is not checked for plausibility. However, this would be necessary to prevent misinterpretation and to ensure the validity of indicators calculated from PSUT data. In Output 2.1, this situation was addressed in meetings with ARMSTA experts. Data sets and indicators were reviewed by EU4WD experts, conclusions were shared with ARMSTAT experts and suggestions for possible adjustments were made.

The PSUT and the indicators derived from them are published on the website of ARMSTAT and can be downloaded by everyone. In order to access the relevant section of the website and interpret the table, basic knowledge of water accounts is required.

In Output 2.1, an infographic was developed to disseminate knowledge about this treasure trove of data.

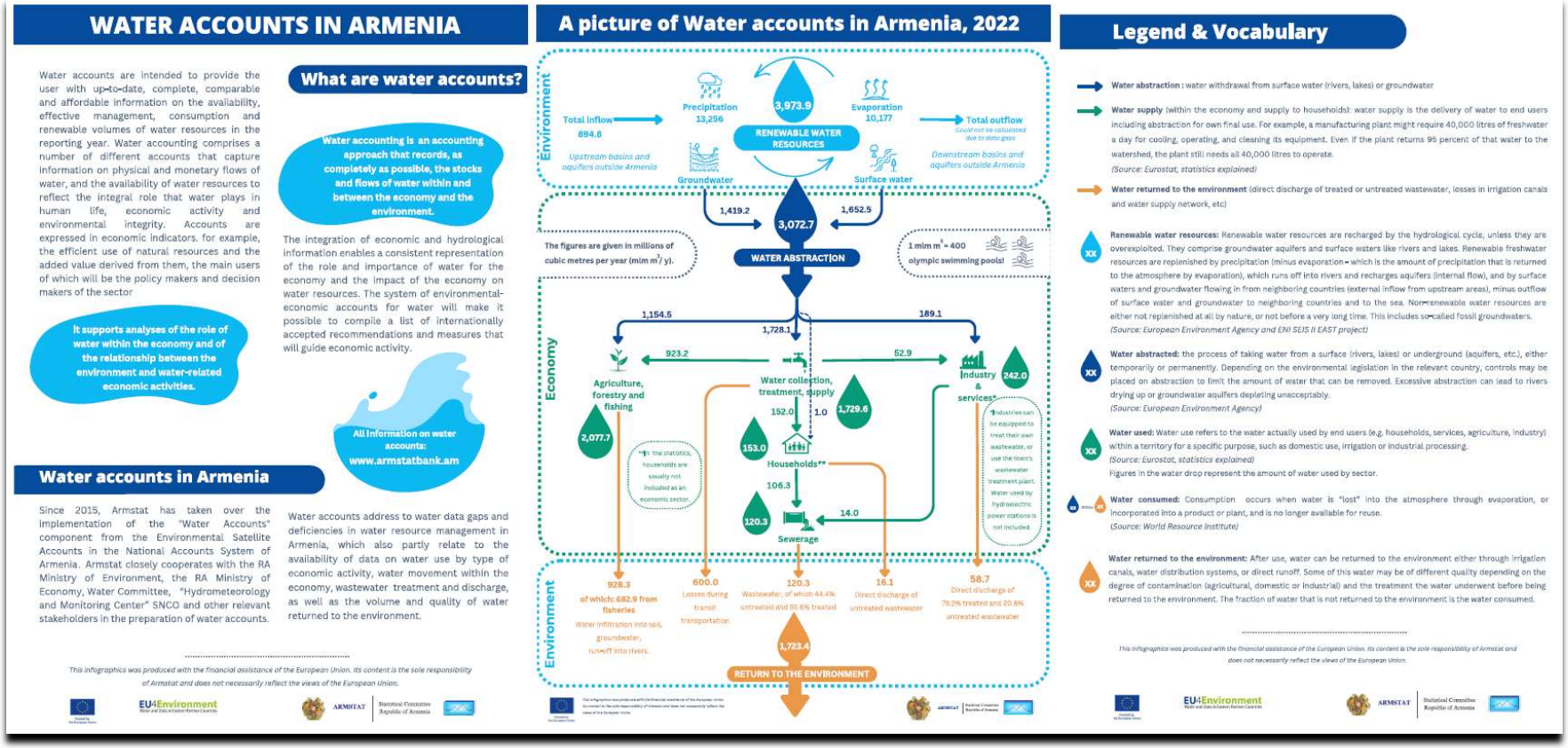

Figure 1 Infographic Water Accounts in Armenia, © EU4EnvWD

The infographic contains a simplified explanation of the WA methodology and an illustration of the water flow exchange between the environment and the economy. The infographic has been published and is used in ARMSTAT's communication with external parties.

Armenia has many years of experience in preparing PSUTs at national and annual level. This is a good setting for testing the preparation of PSUTs at sub-basin and seasonal level. The contractor for the preparation of the water balance for the Kasakh sub-basin was assigned under Output 2.1 to prepare the PSUT for the sub-basin and report on the challenges and constraints. The contractor's work has shown that the limited availability of georeferenced water abstraction and water use data and the deviation of the (statistical) administrative boundaries from the boundaries of the sub-basin limits the production of PSUTs for sub-basin. In particular, when the transfer of water from and to other sub-basins is significant and cannot be determined.

The infographic is a valuable communication tool for WA topics to disseminate PSUT results to non-experts. In the next step, the indicators published by ARMSTAT should be supplemented with explanatory notes in order to broaden understanding and avoid misinterpretation of the indicators.

The preparation of PSUTs at sub- basin level should be pursued further. When selecting the sub-basin, the boundaries should correspond well with the administrative boundaries and water transfer to other sub-basins should be a minimum. As hydropower generation and agriculture are the main users of water at national level, one of these economic sectors should be represented in the sub-basin. The testing of remote sensing tools for the generation of data on sub-basin level to improve the data situation for the agriculture is recommended. The testing of remote sensing instruments for generating data on sub- basin areas to improve the data situation in agriculture is recommended.

The explanatory notes for indicators and selection of a further sub-basin for PSUT are examples where cooperation and data exchange between statistics and the water authority is required. Other topics could include the joint validation of the data used for PSUTs. Formalising this exchange by involving these topics in a national working group on water quantity issues promises a more efficient and coherent data set than ad hoc calls and meetings.

4.2. Azerbaijan

As part of the SEIS II East Programme, Azerbaijan was supported in preparing a draft PSUT at national and annual level. The data was provided by the national water authority. The draft was prepared in consultation with the statistical and water authorities, but has not yet been published.

In Output 2.1, the drafts of the PSUT and their data bases were validated in a number of face-to-face national workshops and with enthusiastic participation of experts from statistical and water authorities. The national workshops where combined with trainings for a large group of water experts to extend the knowledge in the authorities and make experts aware about the purpose and objective of WA.

However, at the end of Output 2.1, despite the available data set, the institutional capacities of the countries were insufficient to enable the publication of the PSUT and the creation of an infographic yet.

It is recommended that the Azerbaijani authorities implement these two tasks in order to make use of the draft PSUTs already achieved.

4.3. Georgia

In Georgia, the statistics authority has many years of experience with water statistics, but has not carried out any activities in connection with WA. Experts from statistics indicated a high interest in the topic of WA and to develop the PSUT for Georgia. The water administration, which started with water use data collection (water use register) at the beginning of the Output 2.1 activities was actively participating in

national and regional trainings on WA. Unfortunately, capacity of the water administration was not sufficient to utilize the water use data collection for the preparation of PSUT.

From the national training sessions with participants from experts from various actors in the water sector, it can be deduced that there is great interest in WA and the preparation of PSUTs in Georgia, but that the limited national capacities are the limiting factor for further developing the topic of WA.

It can be expected that the availability of data on water abstraction will improve when the water register is fully operational and that essential data will therefore be available for the PSUT.

Georgia consists of a dry and a humid part of the country. The validation of the data used for the water statistics revealed that the most important water users are hydropower generation and agriculture. Further work in the field of WA should take this geographical division and the economic priorities into account.

4.4. Moldova

In Moldova, the statistics authority has many years of experience with water statistics, but has not carried out any activities in connection with WA.

In Output 2.1, the PSUT was developed on the basis of the water statistics data and a local consultant was contracted to draw up a description of the national authorities and institutions which provide data. Agriculture has been identified as the main water user. However, the reported water consumption figures appear to be significantly high, which may indicate over-reporting or incomplete data. Further validation is therefore required.

The draft PSUT and results of the national consultant's work were presented and discussed with experts from statistical and water authorities in face-to-face-workshops.

From the workshops, which also included training elements on each occasion, it can be deduced that there is still a need for the authorities to clarify internal issues and require further external support to complete the PSUT.

To secure and build on the knowledge developed so far, continued collaboration with local experts is planned. This cooperation will be crucial for the further development and refinement of the PSUT

4.5. Ukraine

Ukrainian statistics authority has many years of experience with water statistics, but due to limited capacity has not carried out any activities in connection with WA.

A major challenge in implementing water accounting in Ukraine arises from the vast size of the country and the high number of institutions involved in water management. Coordination across these entities proves complex and time-consuming.

In Output 2.1 online trainings, a large number of participants from different national authorities participated. This engagement has served as an important first step in introducing water accounting concepts to a broad range of water experts in the country and laying the groundwork for more coordinated efforts in the future.

PSUT was drafted on the basis of the water statistics data and a local consultant was contracted to draw up a description of the national authorities and institutions which provide data.

Both were presented to and discussed with key experts from statistical in face-to-face-workshops. The response was good, indicated a high commitment by the national expert to continue with the WA, fill the gaps in the PSUT and improve the data validity.

The recommendation for further activities to select one part of the country (sub-basin?) and draft of the PSUT in order to reduce the complexity of the task

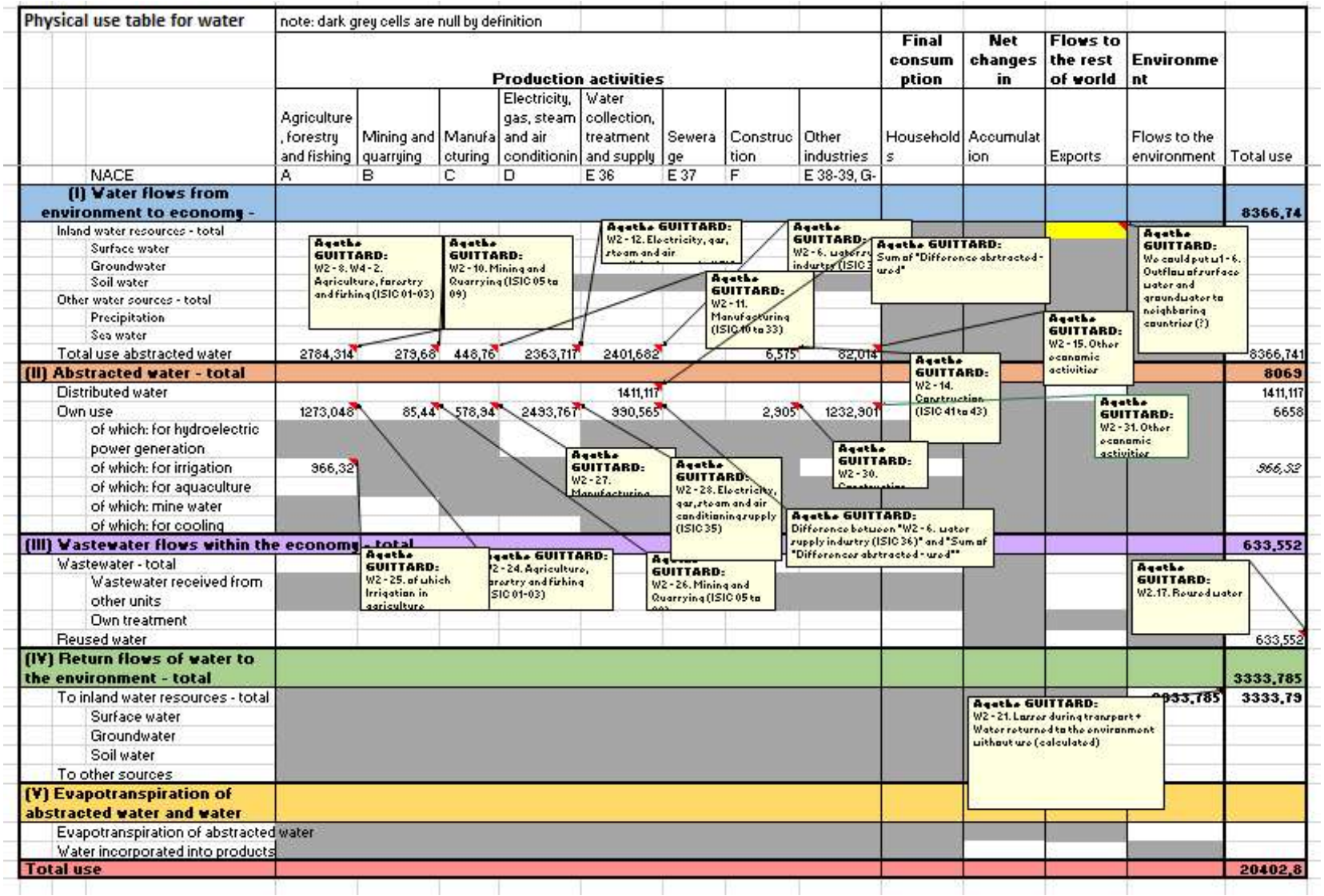

Figure 2 Example of draft and commented Physical Use Table .

5. Regional aspects

Regional workshops were held for

- Armenia and Georgia in Natakhtari, Dusheti Municipality, Georgia, 4 - 7 October 2022
- Armenia, Georgia, Moldova and Ukraine (Azerbaijan had been invited but was not able to attend) in Tbilisi, 21 - 22 May 2024, jointly with experts involved into Output 2.2 Land Use
- Moldova and Ukraine in Chisinau, 17 - 18 December 2024

Regional online-trainings were held for

- Moldova and Ukraine, 1+ 7 + 9 March 2023

All regional activities focussed on the exchange of experience in setting up and implementing WA. The scope of topics was broad. They ranged from references to authorities that can provide data, to data validation, estimation methods, approaches to close data gaps, discussing definitions and the visualisation of WA results.

The regional workshops in Georgia and the national workshop in Armenia included excursions to major water users (energy sector, agriculture, drinking water supply).

Picture 2: visit of the Zeytun-Haghtanak pumping station of Tavush WUA service in Armenia in Mai 2024

For most participants, it was the first time they were able to visit water abstraction and usage sites accompanied by professional explanations, engage in direct exchanges with the water users, and thus associate the abstract figures in the tables with personal impressions.

The regional workshop with four partner countries was organised in cooperation with Output 2.2. in order to familiarise WA experts with remote sensing tools and to introduce the respective national experts to each other. Remote sensing instruments are considered to be very suitable for determining precipitation and evaporation data, which are particularly important for determining the water flow between the environment and agriculture and can currently only be determined with great effort.

6. Annex – Final Country Products

- Training Materials on Water Accounts for all Partner Countries
- Infographic Armenia
- Documentation of PSUT preparation in sub-basin Kasakh, in Report Development of a Quantitative Water Resources Management Plan for Kasakh Sub-basin of Armenia
- Technical Report on the analysis of Water Accounts data in the Republic of Moldova
- Technical Report on the analysis of Water Accounts data in Ukraine
- Regional WS report from 21-22 May 2024 in Tbilisi

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