



Convention on the Protection and Use of
Transboundary Watercourses and International Lakes

Working Group on Monitoring and Assessment
Eleventh meeting, 6-7 July 2010
Agenda items 7 (d) and (e) and 10

Working Group on Integrated Water Resources Management
Fifth meeting, 7-9 July 2010
Agenda item 10
Status and finalization of the second assessment of
transboundary rivers, lakes and groundwaters in the UNECE region

**FINAL LAYOUT AND CONTENT OF THE SECOND ASSESSMENT, INCLUDING MAPS
AND GRAPHICS**

Prepared by the secretariat

The present document is meant to inform the Working Group on Monitoring and Assessment about the proposed final layout and content of the second Assessment of Transboundary Rivers, Lakes and Groundwaters under the UNECE Water Convention, as well as about the plans for the development of maps and graphics to be included.

The general outline of the whole assessment and the assessments of individual transboundary basins largely follow the draft outline that was presented to the Working Group at its 10th meeting on 10-11 June 2009 in Bratislava (see document ECE/MP.WAT/WG.2/2009/3). The suggestions made in the present document by the secretariat are based on i) the comments made by the Working Group members during and as follow up to the 10th meeting of the Working Group ; and ii) exchanges with partners that have agreed to prepare the necessary basin and groundwater maps: IFAF institute (Institut F.-A. Forel) of the University of Geneva in cooperation with UNEP/GRID Europe and the International Groundwater Resources Assessment Centre (IGRAC) under the auspices of UNESCO and WMO, hosted by Deltares, both with substantial co-financing.

The Working Group is invited to:

- (a) Discuss and agree on the final layout and content of the second Assessment, the presentation of the information and on the next steps for its finalization;
- (b) Discuss and decide on how to further develop maps and graphics, in particular the sources of data to be used and how to verify and endorse the maps and graphics content;
- (c) Review and, if appropriate, comment on the prototype basin map and the accompanying graphs in Annexes 2 and 3, and endorse the basin map to serve as model;

(d) Review and, if needed, provide the secretariat with corrections to the preliminary inventory and draft maps of delineations of transboundary aquifers in South-Eastern Europe and the Caucasus prepared by IGRAC (presented in Annexes 4 (a draft list in Annex 5) and 6); and

(e) Make suggestions for graphics to be included to illustrate the findings of the assessment in specific basins/aquifers.¹

I. INTRODUCTION — THE ASSESSMENT PROCESS

1. The second Assessment is being prepared by sub-regions. The fifth session of the Meeting of the Parties to the Water Convention endorsed the first sub-regional assessment, South-Eastern Europe, which serves as a model for the other sub-regions. The draft assessment of the Caucasus – both regional summary and assessment by basins – is presented for review by the Working Group (see documents ECE/MP.WAT/2010/WG.1/3 – ECE/MP.WAT/2010/WG.2/4, ECE/MP.WAT/WG.2/2010/5 and ECE/MP.WAT/WG.2/2010/6). Work on Eastern and Northern Europe, focusing on water bodies shared by EU and non-EU countries, is on-going and is to be completed in September 2010. The assessment of transboundary waters in Central Asia will start during summer and is to be completed by the early 2011. A crucial step in the preparation will be the sub-regional workshop on the management of transboundary waters in Central Asia which will be hosted by Kazakhstan in the week 11-15 of October 2010. Western and Central Europe will be assessed late 2010/ early 2011. Hungary has expressed interest and is looking into the possibility of hosting the sub-regional workshop for Western Europe in Budapest in late January-beginning of February 2011.

The preparatory schedule of the second Assessment is very tight and therefore the countries are invited to provide the required inputs in a timely manner. Delays in the submission of information from the countries in the subregions assessed so far have created difficulties for ensuring adequate preparation of the assessment as well as desirable quality of the product.

2. Information is collected from all UNECE countries using datasheets pre-filled by the secretariat of the Water Convention with the assistance of the International Water Assessment Centre for each transboundary basin and aquifer, on the basis of available official information, in particular the first Assessment, UNECE Environmental Performance Reviews and official information that countries make available for this purpose. Material that the secretariat has been asking to be made available includes relevant project documentation, especially in case such material is focused on transboundary rivers, lakes or groundwaters. Studies on the impact of climate variability and change on water resources at the national or basin level, e.g. for United Nations Framework Convention on Climate Change, would also be of interest. The pre-filled datasheets are reviewed and completed by the nominated national experts, and based on these the secretariat prepares draft assessments for the countries' review. In the case of some basins, an active river basin commission was requested to prepare a draft assessment. The sub-regional workshops not only provide an opportunity for the countries to develop jointly an accurate picture of all transboundary waters, but serve forming an overview of the situation in each subregion for preparing a summary.

¹ For the sub-regions yet to be assessed, the proposals can be made when the completed datasheets are submitted.

To date the provision of background material has been limited. In particular, more information would be needed on climate change. Also information on transboundary groundwaters as well as on the management response in general has mostly been very limited.

3. Compared to the first Assessment, the second Assessment will, as far as possible, have a further subregional focus highlighting differences between subregions.
4. The second Assessment will also be broader in ambitions and scope than the first one: it will have a more holistic approach, integrate surface and groundwaters, highlight legal, institutional and socioeconomic aspects and emphasize cross-cutting themes that are a challenge for managing transboundary waters. The second assessment will provide an up-to-date overview of the status of transboundary waters, identification of pressures and evaluation of their relative importance in the transboundary context, as well as description of the extent of transboundary cooperation (joint bodies, joint monitoring, joint planning, etc) currently in place and measures taken. Hot spots in the region as well as security implications will also be highlighted. The assessment will highlight joint priorities to the attention of decision-makers and also donors. Another new element in the second Assessment is the inclusion of a number of selected transboundary wetlands (or wetlands of transboundary importance) which are assessed together with the Ramsar Convention secretariat. An outline of the second Assessment is presented in Annex 1.

As the second Assessment is not a technical and scientific product but rather targeting decision-makers, it is important that countries in submitting their inputs stress information with a political relevance. Also when reviewing the draft assessment, countries should ensure that they highlight the messages they want to bring forward. The Working Group on Integrated Water Resources Management has an important role to play in identifying and underscoring such political messages.

5. Effective and timely preparation and finalization of the second Assessment is necessary to ensure its inclusion among the key documents of the Seventh Ministerial Environment for Europe Conference, to be held on 21–23 September 2011 in Astana, Kazakhstan. An executive summary with selected graphics and thematic maps is proposed to be prepared to enhance dissemination of the main messages. The second Assessment will have a prominent role in the Astana Ministerial Conference considering that one of the two main themes of the Conference is “Sustainable management of water and water-related ecosystems”. A draft of the executive summary will be tabled for discussion at the next meeting of the Working Group.

II. MAPS PROPOSED TO BE INCLUDED AND PARTNERS IN THEIR PRODUCTION

6. The maps and corresponding inventory of transboundary waters – both surface and groundwaters – are among the key contents of the second Assessment of Transboundary Rivers, Lakes and Groundwaters. Effective, visual presentation of information on transboundary river basins/water resources can substantially add to the impact of the messages from Assessment, increasing awareness about the status of transboundary waters in the region. In the feedback from the Working Group, the value of maps in synthesizing information was acknowledged and more maps were specifically asked for. To the degree possible, surface water and groundwater information will be presented in an

30 June 2010

integrated way. Semi-final versions of the maps will be presented for a review by the Working Group in its twelfth session (tentatively scheduled for 4-6 May 2011).

7. In the light of gaps in the data from South-Eastern Europe and the Caucasus, it has turned out necessary to use some global datasets for producing the background basin maps. For example, commonly countries either only reported on some landuse/land cover categories or there were some discrepancies, that is, the reported figures did not add up right. For the situation analysis, however, the actual figures reported by the countries are prioritized. Using such complementary information does not reduce the importance of the information provided by the countries through the questionnaire and on the contrary, underline the importance of the necessary verification of the information by the countries.

8. Maps of transboundary river basins in the UNECE region are proposed to show the following information:

- the basin boundaries
- topography
- land cover/land use distribution
- delineations of transboundary aquifers

The basin maps are proposed to be accompanied by selected graphs, namely on discharges, population and water resources availability.

9. The preparation of the above information involves i) generation and processing of the necessary data sets on transboundary river basins in Geographical Information Systems (GIS); ii) Programming required for developing the data sets as well as their visualization as maps of graphs; and iii) Map development for publication. The Institut F.-A. Forel at the University of Geneva together with UNEP/GRID Europe has agreed to take on these tasks. They had already produced two sets of maps for the First Assessment of Transboundary Rivers, Lakes and Groundwaters, and hold high-level expertise in environmental sciences, geomatics, GIS and mapping.

10. Specific considerations related to the data/visualizations of surface waters maps:

- *Basin boundaries*: These will be determined for 35 existing maps from the first Assessment and 6 new maps visualizing the limits of approximately 55 basins of transboundary rivers. Those limits will be derived from various methods such as hydrological data (HYDRO1k and HydroSHEDS), elevation data (Digital Elevation Models and shaded reliefs) and other sources.
- *Landuse/land cover*: Through projection, extraction and reclassification of the GlobCover dataset the initial 22 landuse/land cover values will be grouped into the following seven classes: water bodies, forests, cropland, grassland/shrubland, urban/industrial areas, surfaces with little or no vegetation, wetlands/peatlands. The selected regrouping is as close as possible to the landuse/land cover categories in the assessment datasheet. The GlobCover² is a 300 metre resolution global Land Cover product of the European Space Agency. Corine 2000 land use/land cover data set

² GlobCover is a product of ESA / ESA GlobCover Project, led by MEDIAS-France. The product is independently validated, derived from an automatic and regionally-tuned classification of a time series of the MERIS FR composites (remotely sensed imaging spectrometer data), which cover the period from December 2004 to June 2006. For details, please refer to the web site <http://ionia1.esrin.esa.int/index.asp>

extending over 27 countries in Europe was considered as an alternative, but was given up because the product does not cover the whole region of the assessment.

11. A map of the Sava River Basin as a prototype for all other basin maps to be produced for the assessment is presented in Annex 2; examples of graphs to accompany the map are presented in Annex 3.
12. In addition to a review and compilation of information on transboundary aquifers, the aquifer map preparation involves generating the aquifer delineations in GIS and checking their consistency in the light of hydrogeological information. The International Groundwater Resources Assessment Centre (IGRAC) has agreed to take the responsibility for these tasks. IGRAC has acquired valuable, highly specialized expertise in managing aquifer information as well as processing it spatially and visualizing it, and has a significant amount of data on transboundary aquifers in the UNECE region from involvement in inventories and projects.
13. The following groundwater maps are foreseen to be produced: a) an overview map of the whole region covered by the assessment showing the locations of all transboundary aquifers (to be presented as merged with the regional overview maps for surface waters); b) sub-regional maps showing the delineations of transboundary aquifers (and/or groundwater bodies); and c) selected more detailed maps at the level of a transboundary basin or a group transboundary aquifers. As “groundwater bodies” identified according to the definitions of the European Union’s Water Framework Directive (WFD) differ from aquifers, the map of transboundary groundwaters in the EU may need to be a mix of both. As there are different degrees of certainty about the delineations, this has to be reflected in the choice of symbols.
14. The draft map and the inventory of transboundary aquifers in South-Eastern Europe are presented in Annexes 4 and 5 respectively, the draft map and the inventory of transboundary aquifers in the Caucasus are presented in Annex 6. Experts are invited to check completeness and verify the correctness of the presented draft delineations. Any corrections or additions should be sent to the secretariat as soon as possible, by 31 August 2010 at latest.

III. GRAPHS PROPOSED TO BE INCLUDED

15. A number of graphs are proposed to be included, to highlight certain types of information and also allowing a way of presenting information in a space-wise more efficient way graphically. Especially presenting the spatial distribution of selected pressure factors and of water availability has been sought. The landuse/land cover and discharge graphs are proposed to accompany the basin maps to better illustrate these aspects:
 - *Landuse/land cover*: percentual shares of main land use/land cover classes (pressure indicator). The basins will be overlain with the land cover to determine, by basin, and eventually by each country’s part of the basin, percentage of each land cover class.
 - *River discharges* (quantity status information): The aim of presenting this information to allow comparison of flow volumes of rivers/tributaries to illustrate the spatial distribution of surface water resources. The discharge values will be arranged from upstream to downstream for those rivers on which there is information from several

gauging stations. The discharges of rivers/tributaries featured on each map will be grouped together, and the locations of gauging stations will be indicated on the map.

- i. *Monthly distribution of discharge*: These graphs in the form of bar charts give an idea about the distribution of water availability in time within a year based on long-term mean values.
 - ii. *Variability of discharge*: In order to show the natural variability of flow, maximum, average and minimum flows will be shown as bar charts. This information is relevant to illustrate the need for preparedness for hydrological extremes. For presentation technical reasons, logarithmic scale will be applied.
- *Population density* (pressure indicator): Indicates the pressure from human settlements on water resources. Not all the countries have reported population densities in their territory within each transboundary basin to date and the countries are invited to send the missing figures in order for the graphs to be as accurate and as up-to-date as possible. Should any gaps nevertheless remain, they are proposed to be filled by using output from the LandScan³ model.

IV. MISCELLANEOUS MAPS AND GRAPHS: SUBJECT TO INTEREST AND DATA AVAILABILITY

16. Individual graphs and maps to illustrate the situation in a specific transboundary basin or aquifer can be included if proposed by a country and these will be considered on a case-by-case basis. Some countries have already made material available. The graphs could, for example, illustrate the distribution of specific pressures within a basin or a change in water quantity or quality over time or along the course of a transboundary river. Presenting water quality determinands is of particular interest if it can be linked to developments such as aggravated impacts or effectiveness of measures taken to protect the watercourses. For data showing trends, the time period for which the information is presented is important to indicate and the recent years are given priority. Also, adding new data to continue what was presented in the first Assessment would be very welcome.

The countries are invited to submit proposals for specific graphs and/or maps to be included.

17. In addition, selected summarizing maps or graphs could be produced, if data are available and if there is interest, for example:

- Extent of international River Basin Districts and level of preparation of River Basin Management Plans jointly (in cooperation with EEA)
- Water resources per capita in transboundary basins or in each country's territory within a basin (as a series of bar charts)
- Water use by sector (to be shown separately for groundwater if possible)
- Installed hydropower capacity and reservoir volume
- Transboundary impacts in the basin and potential risks for the water resources

Some graphs could only be produced for the basins on which the data are available or for a particular sub-region.

³ LandScan model of Oak Ridge Laboratories uses spatial data and imagery analysis technologies and a multi-variable dasymetric modeling approach to disaggregate census counts. For detailed information please refer to website <http://www.ornl.gov/sci/landscan/>.

The countries are invited to advise on which thematic/summary maps should be produced and how these should be prepared.

**V. POTENTIAL CONSTRAINTS AND PRECONDITIONS FOR SUCCESSFUL
COMPILATION OF THE NECESSARY INFORMATION**

18. Missing values reduce the value of graphical presentation. In the case of information about population, regional or global datasets are usually no match to the surveying or census-based figures reported by countries and should therefore only be used to fill in gaps. Such gaps should be minimized and therefore the countries are invited to ensure the information necessary for the graphics is filled out in the datasheets as priority.
19. Timely provision of the information underlying the graphics from the countries is necessary to allow the partners/grantees to produce the maps in time for finalizing the assessment.
20. The nominated country experts play a key role in the verification of the information.
21. The provision of spatial information in GIS format about aquifer delineations so far has been extremely limited and the countries are invited to send the as shapefiles to the secretariat to ensure the accuracy of the information.

Annex 1

PROPOSED OUTLINE OF THE SECOND ASSESSMENT

A. Outline of contents

MAPS

Surface waters and aquifers will be presented in a single map for a given subregion. The maps will show basin boundaries, topography, land cover/land use distribution and delineations of transboundary aquifers

- Overview map of main transboundary surface waters and aquifers in the UNECE region (maybe split in more than one map)
- Possible thematic maps which may partly be the same for the Executive Summary

I. OVERVIEW/SUMMARY (text similar to the one of the executive summary also published separately)

II. OBJECTIVES AND SCOPE OF THE ASSESSMENT

III. MAJOR FINDINGS OF THE ASSESSMENT

Major findings of the Assessment will be presented by subregions each having the following sub-sections

- LEGAL, POLICY AND INSTITUTIONAL FRAMEWORKS FOR TRANSBOUNDARY WATER MANAGEMENT
- MONITORING OF TRANSBOUNDARY RIVERS, LAKES AND GROUNDWATERS
- MAIN PROBLEMS, IMPACT AND STATUS
(Including specific issues such as climate change, health impacts, water-related ecosystems, as highlighted in the assessment of the different basins)
- CLIMATE CHANGE AND ITS IMPACTS ON WATER RESOURCES
- RESPONSES
- THE WAY FORWARD
Trends and recommendations

IV. ASSESSMENT TRANSBOUNDARY RIVERS, LAKES AND GROUNDWATERS

Assessment of the different river basins grouped by recipient sea as presented below.

- Chapter 1: DRAINAGE BASINS OF THE WHITE SEA, BARENTS SEA AND KARA SEA
- Chapter 2: DRAINAGE BASINS OF THE SEA OF OKHOTSK AND SEA OF JAPAN
- Chapter 3: DRAINAGE BASIN OF THE ARAL SEA AND OTHER TRANSBOUNDARY WATERS IN CENTRAL ASIA
- Chapter 4: DRAINAGE BASIN OF THE CASPIAN SEA
- Chapter 5: DRAINAGE BASIN OF THE BLACK SEA
- Chapter 6: DRAINAGE BASIN OF THE MEDITERRANEAN SEA
- Chapter 7: DRAINAGE BASINS OF THE NORTH SEA AND EASTERN ATLANTIC
- Chapter 8: DRAINAGE BASIN OF THE BALTIC SEA

Annex 1: Inventory of transboundary rivers, lakes and groundwaters
Annex 2: Brief description of the water resources management framework in the countries
Annex 3: Existing agreements related to the management of transboundary basins/water bodies
Annex 4: Status of ratification of selected international agreements relevant to transboundary water management
Annex 5: List of country codes
Annex 5: List of acronyms and units of measurement
Annex 6: Illustrations of transboundary aquifer types
Other annexes as needed

B. Draft outline of a section for a river basin/aquifer under part IV

- Each section should address in integrated way transboundary surface and ground waters.
- Assessment of groundwaters that cannot be associated to a specific river basin will be presented at the end of the relevant chapter, following the same outline.
- The assessments of the sub-basins follow the description of the main basin.
- For selected basins, there will be an assessment of a transboundary Ramsar site(s) or wetlands of transboundary importance presented in a separate box (see outline in section C below).

I. General description of the basin

Source and recipient, area of the basin within each riparian country, population and population density in the territory of each country

II. Hydrology and hydrogeology

An integrated overview on surface waters and shared aquifers in the basin.

III. Pressures

For surface and groundwaters, information on main pressure factors likely to cause a transboundary impact and a qualitative assessment of their importance on scales local vs. widespread and moderate vs. severe, when available (according to the questionnaire)

IV. Status and transboundary impacts

Water quantity and quality status, and impacts on it, including on water-related ecosystems; socio-economic impacts

V. Response measures (including implemented measures, gaps and foreseen measures)

Both structural and non-structural measures; monitoring of transboundary waters; legal and institutional developments; financing etc.

VI. Future trends

Foreseeable trends on the status, possibly including scenarios on water quality and water quantity taking into account drivers of change such as economic development, climate change, etc.

C. Outline of boxes on the assessment of transboundary wetlands with designated Ramsar sites

- I. General description of the wetland area
- II. Main wetland ecosystem services and supporting socio-economic services
- III. Biodiversity values of the wetland area
- IV. Pressure factors and transboundary impacts
- V. Transboundary wetland management

Annex 2: Prototype basin map (Sava basin as an example)

Background map: GlobCover landuse/land cover data reclassified into seven classes: water bodies, forests, cropland, grassland/shrubland, urban/industrial areas, surfaces with little or no vegetation, wetlands/peatlands

The numbers indicate locations of gauging stations from which discharge data is presented.



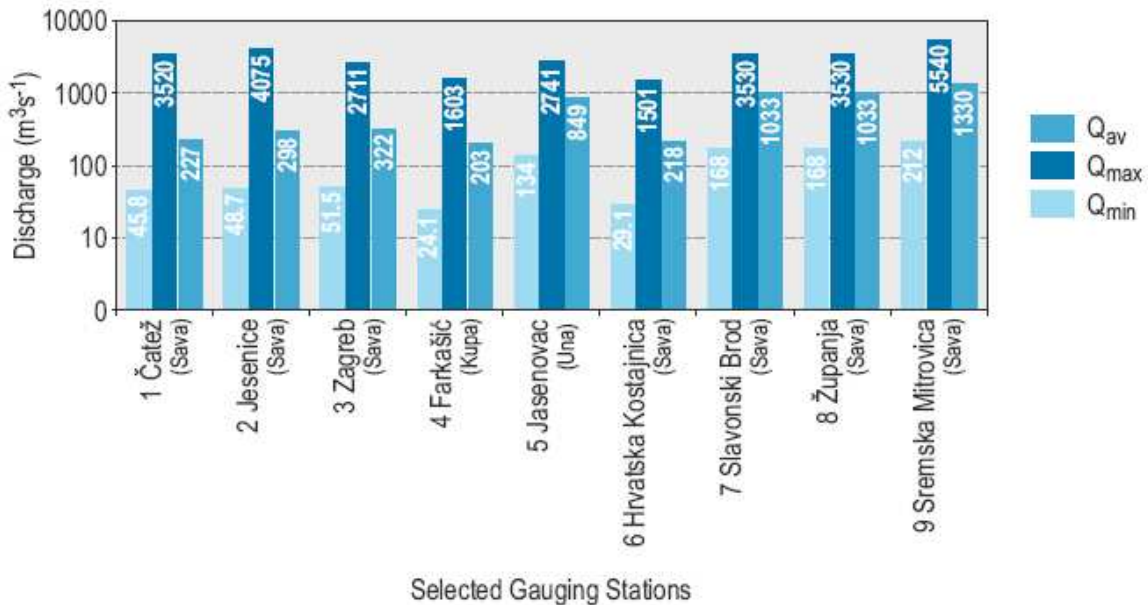
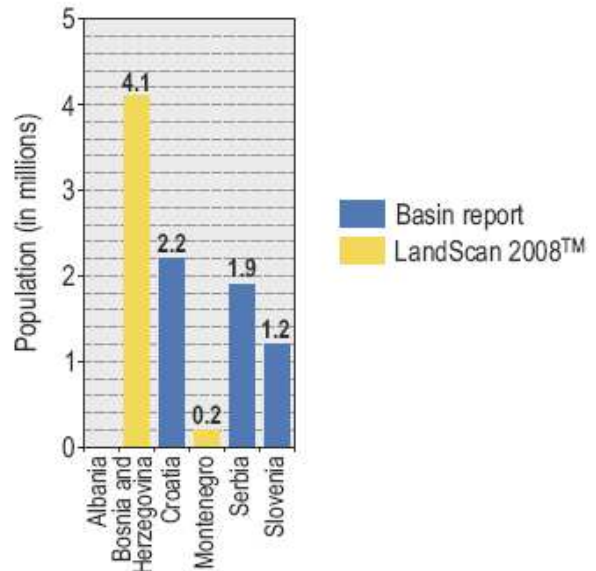
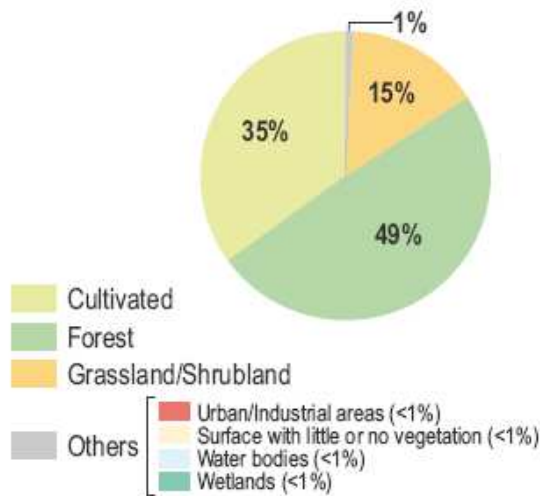
Annex 3: graphs to accompany the basin map (Sava basin as example)

Percentage distribution of land use/land cover

Population in the territory of each riparian country within the basin

Average, minimum and maximum discharges at different gauging stations (locations shown by the corresponding numbers in Annex 2)

Land Cover, Population and Water Discharge for the Sava River Basin



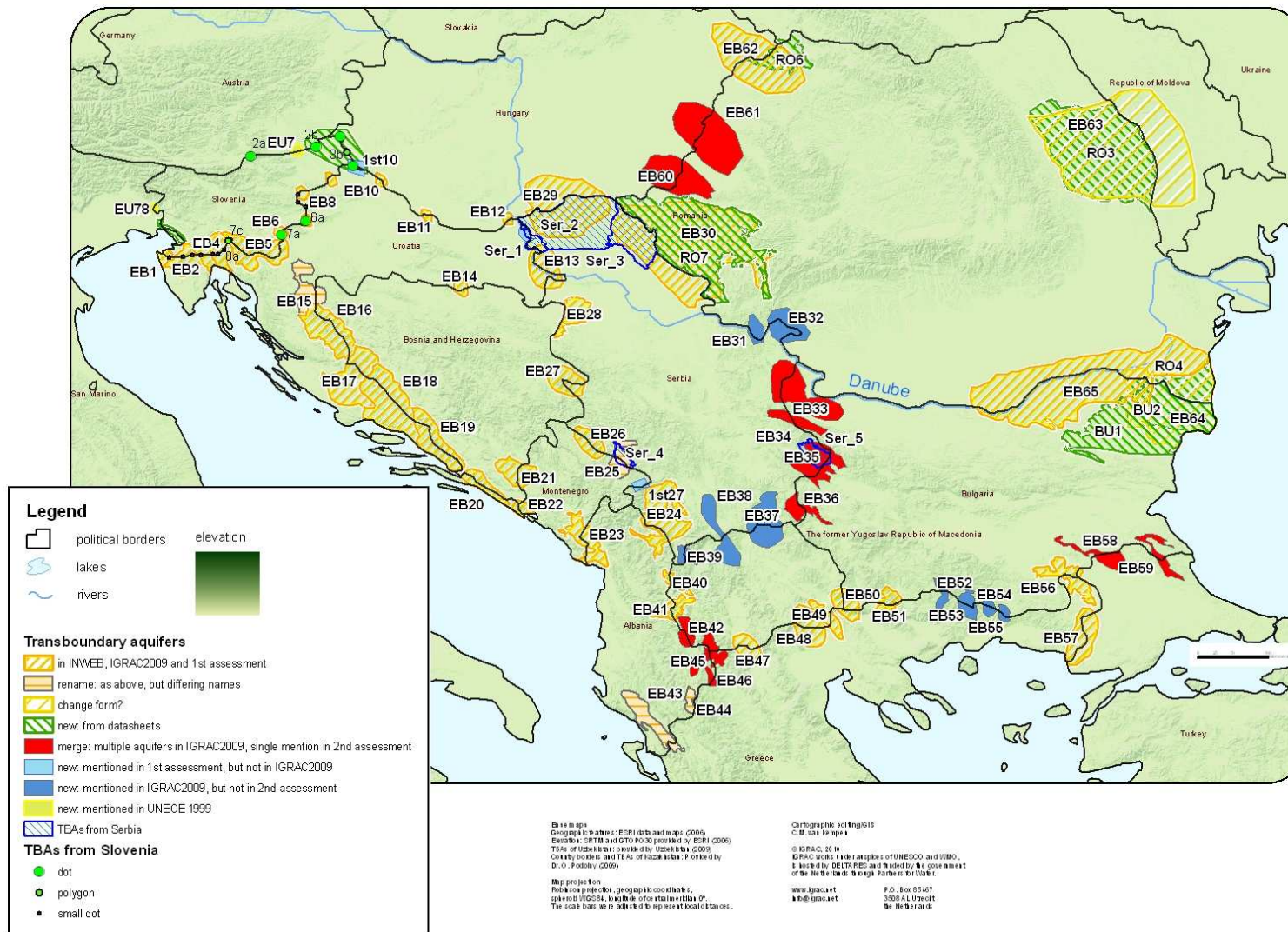
Annex 4: draft map of transboundary aquifers in South-Eastern Europe

Transboundary Aquifers of South East Europe

- Update 2010 - DRAFT



30°E



Annex 5: Draft list of transboundary aquifers in South-Eastern Europe

The numbers and names in the two left-hand columns refer to the transboundary aquifer included in the draft assessments of transboundary waters presented in documents. The two columns on the right are given for reference only: The EB numbers should be used for locating the aquifers in the map in Annex 4 and for verifying the correctness of the delineations.

UNECE 2010, second Assessment		Previous inventories: IGRAC 2009/ INWEB 2008	
Number	Name	Code (on the map)	Name
1	Secovlje-Dragonja/Istra	EB1	Dragonja
2	Mirna/Istra	EB2	Mirna-istra
2.1	Mirna/Istra		
2.2	Območje izvira Rižana		
3	Opatija/Istra	EB3	Opatija
4	Rijeka/Istra	EB4	Rijeka
4.1	Riječina - Zvir		
4.2	Notranjska Reka in Bistrica-Snežnik		
4.3	Novokračine		
5	Cerknica/Kupa	EB5	Kupa
5.1	Kocevje Goteniska gora		
6	Radovic-Metlika/Zumberak	EB6	Zumberak
7	Bregana-Obrezje/Sava-Samobor	EB7	Sava
7.1	Bregana		
8	Bizeljsko/Sutla	EB8	Sutla
8.1	Boč		
8.2	Rogaška		
8.3	Atomske toplice		
8.4	Bohor (Lesično-Podsreda)		
8.5	Orlica (Kunšperk - Cesarska gora)		
9	Ormoz-Sredisce ob Drava/ Drava- Varazdin	EB9	Dolinsko-Ravensko/Mura
10	Dolinsko-Ravensko/Mura		
11	Mura	EB10	Mura
12	Drava/Drava West	EB11	Drava
13	Baranja/Drava East	EB12	Baranja
14	SW Backa/Dunav		
15	Srem -West Srem/Sava	EB13	West Serbia
16	Posavina I/Sava	EB14	Sava
17	Kupa	EB15	Kupa
18	Pleševica/Una	EB16	Una
19	Krka	EB17	Krka
20	Cetina	EB18	Cetina
21	Neretva Right coast	EB19	Neretwa
22	Trebnjica/Neretva Left coast	EB20	Dubrovnik
23	Bilecko lake	EB21	Karst-Montenegro

UNECE 2010, second Assessment		Previous inventories: IGRAC 2009/ INWEB 2008	
Number	Name	Code (on the map)	Name
24	Dinaric littoral (west coast) Skadar/Shkoder Lake, Dinaric east coast aquifer	EB22	Dinaric karst West coast
25		EB23	Dinaric karst East coast/Skadar Lake
26	Beli Drim/Drini Bardhe	EB24	Beli Drim
27	Metohija		
28	Pester	EB25	Metohija
29	Lim	EB26	Lim
30	Tara massif	EB27	Tara massif
31	Macva-Semberija	EB28	Macva-Semberija
32	NE Backa / Danube –Tisza	EB29	Backa
33	North and South Banat	EB30	Banat
		EB31	Miroc & Golubac
		EB32	Dacian basin
34	Stara Planina/Salasha Montana		
34.1	Bu: Gregovo-Novo selo lowland (?)	EB33	Timok Alluvium/Bregovo Novo
34.2	Bu: West Balkan Karst Basin (?) Bu: volcanogenic sedimentary formation (?)	EB34	Nishava & Tran Karst Zemen Fluvial and Glacial Sediments in the Opava River Catchm. Area
34.3		EB35	
34.4	Bu: Godech massif (?)	EB36	Zemen
		EB37	FYROM-SW Serbia
		EB38	FYROM-Central Serbia
		EB39	Tetovo-Gostivar
35	Korab/Bistra- Stogovo	EB40	Bistra-Stogovo
36	Jablanica/Golobordo	EB41	Jablanica
37	Mourgana Mountain/Mali Gjere	EB44	Mourgana
38	Nemechka/Vjosa-Pogoni	EB43	Vjosa / Pogoni
39	?	EB42	Ohrid Lake
39	Prespa and Ohrid Lakes	EB45	Prespes Lakes
39	?	EB46	Galicica
40	Pelagonia-Florina/Bitolsko	EB47	Pelagonija/Florina
41	Gevgelija/ Vardar -Axios	EB48	Gevgelija/Axios-Vardar
42	Dojran Lake	EB49	Dojran Lake
43	Sandansky-Petrich	EB50	Sandansky-Petrich
44	Orvilos-Agistros/Gotze Delchev	EB51	Gotze Delchew / Agistro-Orvilo
		EB52	Nastan-Trigrad
		EB53	Smolyan
		EB54	Rudozem
		EB55	Erma Reka
45	Orestiada/Svilengrad-Stambolo/Edirne	EB56	Svilegrad/Orestiada
46	Topolovgrad massif	EB58	Topolovgrad karst waterbearing massif
46		EB59	Malko Tarnovo karst waterbearing massif
47	Pleistocene Mure /Maros alluvial fan	EB60	Upper Pleistocenesomes alluvial fan
47		EB61	Lower Pleistocene Mures alluvial fan

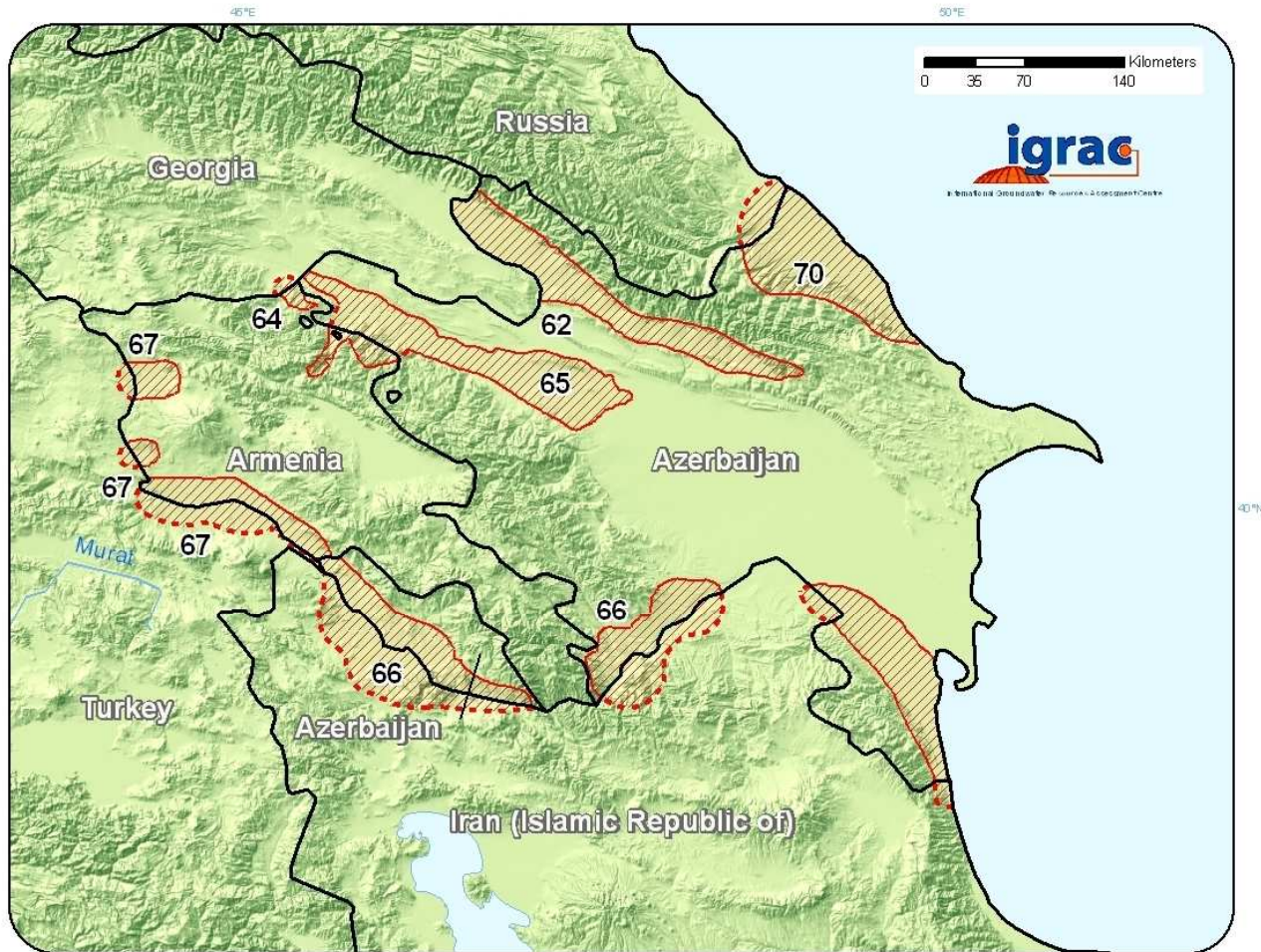
UNECE 2010, second Assessment

Previous inventories: IGRAC 2009/ INWEB 2008

Number	Name	Code (on the map)	Name
48	Samos/Somes alluvial fan	EB62	Lower Pleistocene somes alluvial fan
49	Middle Sarmatian - Pontian	EB63	Middle Sarmatian Pontian
50	Neogene-Sarmatian	EB64	Sarmatian
51	U Jurassic - L Cretaceous	EB65	Upper Jurassic-Lower Cretaceous
		EB67	Mazursko-Podlasi Region b
		EB66	Silurian-Cretaceous (4b)
52	Evros / Meriç	EB57	Evros/Meric
	Karstwasser-Vorkommen Karawanken		
53	/ Karavanke	1a (SI)	
54	Černeško-Libeliško	2a (SI)	
55	Kučnica	2b (SI)	
56	Goričko	3a (SI)	
57	Mura – Zala basin / Radgona –Vaš	3b (SI)	
58	Kot	4a (SI)	
59	Vidlic/Nisava		

Annex 6: Draft map of transboundary aquifers in the Caucasus

The unnumbered aquifer was identified as Lenkoran/Astara in the workshop on transboundary water management in the Caucasus in Tbilisi, Georgia (8-10 December 2009) but was not reported in the datasheets. Leninak-Shiraks aquifer has been described in the draft assessment in document ECE/MP.WAT/WG.2/2010/5, but its location and boundaries should be confirmed from the potential transboundary aquifers indicated with 67.



Legend Transboundary Aquifers aquifer extent confirmed boundary approximate boundary		Geographical elements political borders lakes rivers		elevation 		Basemaps Geographic features: ESRI data and maps (2006) Elevation: SRTM and GTOPO30 provided by ESRI (2006)		© IGRAC, 2010 IGRAC works under auspices of UNESCO and WMO, is hosted by DELTARES and funded by the government of the Netherlands through Partners for Water.	
				Map projection Robinson projection, geographic coordinates, spheroid WGS84, longitude of central meridian 0°.		www.igrac.net info@igrac.net		P.O. Box 85467 3508 AL Utrecht the Netherlands	
				Cartographic editing/GIS C.M. van Kempen					

Number	Aquifer name	Countries	Number	Aquifer name	Countries
60	Kura	GE-AZ	67	Leninak-Shiraks	AM-TR
61	(no name)	GE-AZ	68	Herher, Malishkin and Jermuk	AM-AZ
62	Alazan-Agrichay	GE-AZ	69	Vorotan-Akora	AM-AZ
63	Ktsia-Kharami	GE-AZ	70	Samur	AZ-RU
64	Debed	GE-AM	71	Quaternary aquifer (name?)	GE-RU
65	Agslev-Akstafa/Tavush-Tovuz	AM-AZ	72	Quaternary aquifer (name?)	GE-RU
66	Nakhichevan/Larijan and Djibrail	AZ-IR			