

TALANOA-WATER project
Kick-off meeting
Thursday, April 24th, 2021
online

AGENDA:

- Welcome address from USAL and PRIMA
- The TALANOA-WATER Project: objectives and pillars
- Pillar 1, part A: Actionable socio-hydrology science – multi-model ensemble
- Pillar 1, part B: Actionable socio-hydrology science – water accounting
- Pillar 2: The TALANOA-WATER Dialogue
- Pillar 3: Water labs
- Feedback from PRIMA
- Initiating the project management bodies, HLEAB & SP (roundtable)
- Planning the next 12 months: deliverables and milestones (roundtable)
- Wrap-up of kick-off meeting: passing the torch and next General Assembly

START MEETING: 09.30

ATTENDEES (in no particular order)

Marco Orlando (PRIMA), Hadi Jaafar (AUB), Elisa Calliari (CMCC), Nina Graveline (INRAE), Abdrabbo Shehata (GPAI), Féthi Ben Hammouda (INAT), Jaroslav Mysiak (CMCC), Francesco Sapino (USAL), Héctor González (USAL), Laura Gil (USAL), Arthur Essenfelder (CMCC), Esther García (USAL), Francesco Bosello (CMCC), Jaroslav Mysiak (CMCC), Jeremy Pal (CMCC), Marc Moraine (INRAE), María José Gil Ingelmo (USAL), Marie-Lise BRUNET (INRAE), Marta Debolini (INRAE), Monica Eberle (CMCC), Paolo Mazzoli (GECOSistema), Ramiro Parrado (CMCC), Stefano Bagli (GECOSistema), Yamna Erraach (INAT), Abdrabbo Shehata (GPAI), Jamel Ben Nasr (INAT), Rim Hazimeh (AUB), Roya Mourad (AUB), Gabriele Standardi (CMCC), Silvia Torresan (CMCC), Samir Sahal (INAT), C.Dionisio Pérez-Blanco (USAL), José Miguel Mateos Roco (USAL),

EXCUSED ABSENCES: Issam Nouiri (INAT)

Welcome addresses

C. Dionisio Pérez-Blanco (USAL) introduces the Vice Chancellor of University of Salamanca, José Miguel Mateos Roco, who gives the initial welcoming address from USAL, greeting and thanking all institutions and researchers in the TALANOA project.

Next Marco Orlando (PRIMA) takes the floor and welcomes all participants on behalf of PRIMA Foundation. Marco Orlando (PRIMA) highlights the relevance of the TALANOA project in the context of water management in the Mediterranean and the good impression that the proposal made on him and the evaluators. He highlights the need

for an effective organization among the different water labs to achieve all objectives, particularly under the current mobility constraints.

Finishes at 10.00

The TALANOA-WATER Project: objectives and pillars

C. Dionisio Pérez-Blanco (USAL)

Starts at 10.00

C. Dionisio Pérez-Blanco (USAL) delivers the first scientific presentation. After a brief introductions on how to manage zoom and a brief overview of the agenda, he presents the TALANOA-WATER project, its objective (to inform and catalyze the adoption of robust transformational adaptation strategies to water scarcity under climate change that meet the IWRM objectives of social equity, economic efficiency, and environmental sustainability) and its pillars and the functions and skills of each research group within the project.

TALANOA-WATER builds upon 3: i) Socio-hydrology science integrating a system of systems including hydrological, agronomic, climate and socio-economic modelling; ii) Water labs; and iii) TALANOA WATER Dialogue, which aims to build a constructive dialogue among stakeholders (including institutional stakeholders) to share stories, build empathy and trust, and make wise decisions for the collective good. These three pillars should be developed simultaneously.

Finishes at 10.09

Comments:

- No questions and comments

Pillar 1, part A: Actionable socio-hydrology science – multi-model ensemble

C. Dionisio Pérez-Blanco (USAL)

Starts at 10.10

The objective of this first pillar is to produce a range of plausible futures using multiple scenarios, systems and models within each system, which will be used to sample uncertainty in human-water systems, and to inform robust decision making by stakeholders and policymakers. The three main sources of uncertainty that will be thoroughly sampled include scenario uncertainty, parameter and structural uncertainties and the two-way feedback connections between systems.

Finishes at 10.28

Comments:

- Nina Graveline (INRAE) comments referring to the concept of robustness and uncertainty and its difficulty for introducing them to stakeholders in some case

studies in France, because it may lead to conflicting interpretations among the stakeholders involved. Also there is a question on the adequacy of modular v integrated modeling.

- C. Dionisio Pérez-Blanco (USAL) replies saying that the utility of modular approaches is that it is convenient to make partners collaborate across disciplines within a limited timeframe, and ensure all can contribute to the different case studies according to their needs.

Referring to the first question, C. Dionisio Pérez-Blanco (USAL) agrees that conveying results from ensemble experiments to stakeholders and informing robust decision making is challenging, perhaps the greatest challenge of the project. We will need to learn how to address this major challenge.

Pillar 1, part B: Actionable socio-hydrology science – water accounting

Hadi Jaafar (AUB)

Starts at 10.37

In this presentation Hadi Jaafar (AUB) presents the role of Water Accounting in water resources management. Water Accounting can improve the current information on per capita water availabilities and water footprints, obtain information about the different uses of water and its availability, identify safe caps of water withdrawal, identify and improve the benefits of crop water consumption and water productivity, and inform evidence-based decision making and building agreement among the stakeholders. This tool is a useful one to set Basin Determined Contributions, as intended by TALANOA-WATER.

Finishes at 10.50

Comments:

- Francesco Bosello (CMCC) asks whether it is possible to produce water accounting data using inputs from future climate change simulations and scenarios. Hadi Jaafar replies it is possible to use projections of precipitation and evapotranspiration in the Water Accounting tool. The model used with Water Accounting works with recorded datasets but is able to work also with projected datasets like RCP 4.5 for example, using these projected datasets as inputs in the Water Accounting models.
- Nina Graveline (INRAE) asks whether Water Accounting modeling can be used to simulate the impacts of Climate Changes on some parameters. Hadi Jaafar (AUB) replies that Water Accounting as it is programmed nowadays is not able to model Climate Change impacts directly (on temperatures for example), but for example it is possible to introduce the forecast temperature in the model and then the modeling outputs will be based on that forecast.
- Jaroslav Mysiak (CMCC) asks about the possibility to model land use changes and their impacts on water demands from different sectors. Hadi Jaafar (AUB) replies that since it is possible to introduce land use in the Water Accounting model, if there is a forecasted land use coverage, then it is possible to introduce it

in the Water Accounting model and forecast future water use scenarios. C. Dionisio Perez-Blanco (USAL) suggests that the use of microeconomic modeling may be useful to generate future land use scenarios.

Pillar 2: The Talanoa Water Dialogue

Elisa Calliari (CMCC)

Starts at 10.59

Elisa Calliari (CMCC) presents the Talanoa Dialogue basics, and how it has underpinned interactions between stakeholders in the context of climate change negotiations. Elisa Calliari highlights the main features of the Talanoa Dialogue, which are those of an inclusive, participatory, and transparent dialogue among stakeholders guided by objective information on the current situation and an agreed vision of the future to be achieved. Elisa Calliari (CMCC) reflects on the steps to reach the necessary consensus to determine what future we should aim for, and actively pursue it, such as addressing legal, policy and fiscal barriers, the technological developments necessary or determining what level of investment would have to be made.

In the context of the TALANOIA-WATER project, the Talanoa Water Dialogue will inform and be informed by our modeling framework and simulations through co-generation.

Finishes at 11.10

Comments:

- Francesco Bosello (CMCC) asks about the bidirectional feedback between stakeholders (public, private) and science, and how this project could strengthen this relationship and feedback for the design of adaptation strategies. Elisa Calliari (CMCC) replies saying that the stakeholders play a very important role on the society and our contribution as scientists is to provide some evidence to inform their decisions, but that is not the end of it and it's important that bidirectional feedbacks are established.
- Jaroslav Mysiak (CMCC) highlights the importance of agreeing on a future vision, and on how to improve water management towards this end, while being aware of (but not overemphasizing) the risks.

Morning Break (11.18 – 11.39)

Pillar 3: Water labs

French water lab. Nina Graveline (INRAE)

Starts at 11.41

INRAE is investigating the increasing trend of the demand for water in agriculture in the south-east of France (Mediterranean coast). Due to climate change, vineyards are expanding their demand to negate yield losses/increase yield, but overall the wine-

growing areas are decreasing (30% in the last 10 years). Adaptation measures are already in place such as pecuniary compensations, water reuse, optimization of water application. Incremental and transformative adaptations in water resources management and agriculture are presented, such as increasing supply through public works, small reservoirs, use of agroecology for enriching soils, etc. Nina Graveline (INRAE) presents the evaluation of 3 alternative options for adaptation to water stress: diversification of crop varieties, increasing organic matter with compost and green cover management.

Finishes at 11.57

Comments:

- C. Dionisio Perez-Blanco (USAL) asks about the existence of agricultural insurance in irrigated agriculture. Nina Graveline (INRAE) replies that it does not exist thus far, only for rainfed production (subsidized).

Egyptian water lab. Abdrabbo Shehata (GPAI)

Starts at 12.02

Finishes at 12.07 due to connection problems

Tunisian water lab. Féthi Ben Hammouda and Jamel Ben Nasr (INAT)

Starts at 12.08

Mohamed Féthi (INAT) presents his group and research topics, which focus on the piezometric monitoring of the Djeffara aquifer, the most important aquifer in Southeast Tunisia, which is overexploited due to agricultural and touristic water use. The lab faces challenges like overexploitation of the groundwater source, which leads to water pollution as well; Climate Change impacts and aggravated water shortages; and vulnerability to saline water and seawater intrusion, favored by overallocation and aggravated by climate Change. The group studies these phenomena using hydrological models like SWAT, WEAP and MODFLOW to simulate surface and groundwater flows and their management. This methodology allows the assessment of the adaptation strategies of drinking water and irrigation to water scarcity and drought.

Jamel Ben Nasr (INAT) continues the presentation and explains the barriers to deploy adaptation strategies to water scarcity under climate change.

Finishes at 12.26

Comments:

- No comments and questions

Italian water lab. Jaroslav Mysiak (CMCC)

Starts at 12.27

Jaroslav Mysiak (CMCC) presents the water lab in the Po River Basin; the most economically relevant basin in Italy, including also in the agricultural sector. Agriculture in the Po River Basin accounts for more than half of the land use in the basin. Accordingly, agriculture has the highest water demand of any sector in the basin. CMCC wants to improve the governance of water resources, including reallocation of water rights and better monitoring of existing permits; to improve economic efficiency through economic incentives and insurance policies; build resilience to climate related extremes, through nature-based solutions; and help to prepare the regions across the basin to develop transformational climate adaptation pathways, in line with the EU Mission on Climate Adaptation.

Jaroslav Mysiak (CMCC) underlines that ecosystem services have an economic value even if no price actually is paid for their provision and/or maintenance. The failure to account for their true social value leads to market distortions and, ultimately, insufficient level of protection. Risk-based actuarial pricing can provide incentives for investments in loss reduction through insurance policy provision. Other instruments that will be explored include catastrophe bonds and resilient impact bonds. Catastrophe bonds are fully collateralized instruments that pay off on the occurrence of a defined catastrophic event. Resilient impact bonds remunerate investors based on how well resilient measures are implemented, according to pre-defined performance indices.

Finishes at 12.41

Comments:

- No comments and questions

Lebanese water lab. Rim Hazimeh (UAB) and Roya Mourad (AUB)

Starts at 12.43

Rim Hazimeh (UAB) presents the how water accounting through remote sensing has been used in the Lebanese lab to assess different problems and challenges such as overexploited aquifers, water pollution, conflicts among users (Hydropower, Industrial, Inter-Basin Transfer, etc), Climate Change and the increased demand in the basin due to the Syrian Refugee Crisis. As an adaptation strategy to solve the decreasing groundwater and storage levels and water pollution, the reuse of water is considered. Also, the improvement of intelligent technologies and techniques such as monitoring of withdrawals and smart irrigation applications (e.g., AgSAT) are considered.

Roya Mourad (UAB) shows outputs from applications of the Water Accounting tool across the Litani River Basin such as land use maps where it is shown the protected, utilized or modified land uses, Evapotranspiration maps where it is possible to get data on beneficial and non-beneficial water use, and supply maps where it is possible to identify the location of the supply sources.

Finishes at 12.58

Comments:

- C. Dionisio Pérez-Blanco (USAL) asks about the possibility to model biomass production, and evapotranspiration as well. Hadi Jaafar (UAB) replies that, as a part of the evapotranspiration function, the biomass is altered by climate stress, so it is possible to model it with Climate models, and then use this info in the water accounting tool.

Egyptian water lab. Abdrabbo Shehata (GPAI)

Starts at 13.02

Abdrabbo Shehata (GPAI) presents the case study of the Nile Delta, which comprises 63% of the cultivated lands of the country, 12,54% of the whole fishery production of the country, and it is home to over 50% of the population of Egypt (110 million). The most important challenges that are being faced by this lab include saline intrusion, with 0.9 million ha being affected; groundwater overexploitation, which also triggers salinity problems in the Nile Delta; the lack of agreement with Ethiopia regarding the management of the GERD (Grand Ethiopian Renaissance Dam), which will lead to supply reductions during the filling years. To solve these problems, some adaptation strategies will be explored such as adoption of salt tolerant crops, use of new technologies for the remote control of irrigation systems; International operation agreement between Ethiopia, Sudan and Egypt for GERD; improved crop water productivity using Hybrid Irrigation; and long-term water resources planning using Water Accounting method.

Finish at 13.16

Comments:

- No comments and questions

Feedback from PRIMA (anticipated)

Marco Orlando (Project Officer, PRIMA)

Starts at 13.17

Marco Orlando (PRIMA) thanks to all participants of the whole group and assistants to the meeting. It reiterates the need for a sound collaboration across water labs, thanks all participants, and underlines the high expectations PRIMA has placed on this project.

Finishes at 13.20

Returning to the Lab presentations

Spanish water lab. Francesco Sapino (USAL)

Starts at 13.21

Francesco Sapino (USAL) presents the USAL water lab in the Cega river basin. The Cega river basin is located in the south of the Duero basin, the largest basin in the Iberian peninsula. In contrast with the cereal-oriented Douro River Basin, the Cega river basin has a large area of horticultural crops with high added value. It is one of the few unregulated basins in Spain (no reservoir is built, which results in a free-flowing river),

which suffers frequent episodes of floods and droughts. Agricultural expansion has caused the aquifer to be overexploited and polluted by arsenic and nitrate. Despite the water retention areas to recharge the aquifer already in place, demand exceeds supply. The basin authority and the USAL research group are evaluating both environmentally and economically the construction of a dam in the northern part of the basin, which would nonetheless reduce the environmental benefits from free-flowing rivers. USAL will explore adaptation strategies such as the expansion of nature-based water retention areas, effective cost recovery, and the use of formal mutual funds (a type of insurance mechanism) that complement the informal insurance services provided by aquifers; as well as the use of water markets to limit indemnities.

Finishes at 13.32

Comments:

- No comments and questions
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Lunch break (13.36 – 14.45)

Initiating the project management bodies, HLEAB & SP (roundtable)

Start at 14.45

C. Dionisio Pérez-Blanco (USAL) explains that it is required as per the DoW to consolidate the organizational structure before the 2nd month of the project (July). This includes the conformation of the PSC, the HLEAB and the stakeholder platform. The PSC is the central decision-making body of the TALANOIA WATER project. It is a collegial body, composed of one representative from each project partner (the 7 PIs): C. Dionisio Pérez-Blanco (USAL), Stefano Bagli (GECOSistemasrl), Jaroslav Mysiak (CMCC), Nina Graveline (INRAE), Issam Nouiri (INAT), Hadi Jaafar (AUB), and Omar Khalid (to be replaced by Abdrabbo Shehata, GPAI).

C. Dionisio Pérez-Blanco shows a list of candidates for the HLEAB that have been proposed by members of the PSC over the past weeks, which includes Carlos Mario Gómez Gómez, Manuel Pulido Velázquez, Pasquale Steduto, Chris Perry, and Giuliano di Baldassarre. He asks the others if there are any more candidates. Nina Graveline (INRAE) answered by offering three colleagues from France, among which she selected one (Yban Caballero – BRGM). She also highlights the need to keep geographical and gender balance.

There will be four General Assemblies and two International Workshop meetings over the duration of the project, and there is agreement in inviting the HLEAB members to at least 2 general assemblies and 2 international workshops. The General Assembly will be one day while International Workshops will be two days of duration. The available budget, assuming there will be four members of the HLEAB in each meeting, is 700€ per participant.

Nina Graveline (INRAE) proposes to invite people from each member country as a means to keep the geographical balance. C. Dionisio Pérez-Blanco (USAL) agrees but a deadline of one week is set to receive proposals from HLEAB members. If there are no more names suggested by then, then the members of the HLEAB will be selected from the candidates listed above and suggested previously.

C. Dionisio Pérez-Blanco (USAL) says that for the stakeholder platform it is necessary to identify rapporteurs for each lab by July, at least one per water laboratory (with two replacements in each water lab in case the leading rapporteur cannot attend the International Workshops). These people will be the ones invited to the International Workshops, so it would be preferable if they speak English, albeit this can be solved through live translation.

C. Dionisio Pérez-Blanco (USAL) shows a table with the list of Stakeholders from each lab taking part in the Stakeholder platform, and asks the rest of the TALANOA water lab's leaders to complete the table over the next two weeks. It is clarified that the list is not a closed list but is a preliminary list for the purposes of the inception report, which will be extended over the next four years.

Nina Graveline (INRAE) asks about the frequency of the meetings with the stakeholders' platform. C. Dionisio Pérez-Blanco (USAL) answers that there could be as many as needed conditional to available resources (which he says are sufficient to have several encounters), it really depends on the needs of each water laboratory. Meetings with stakeholders should take place at least once per year, during the workshops, as per the DoW.

Finishes at 15.32

Planning the next 12 months: deliverables and milestones (roundtable)

Starts at 15.32

C. Dionisio Pérez-Blanco (USAL) begins displaying the plan for the next 12 months (deliverables, milestones) and the tasks that each partner and water lab should implement. The Gantt chart is shown to view the distribution of tasks and WPs over the next year. There will be a first International Workshop on the 25th month in Egypt and another one on the 43rd month in Tunisia. The General Assemblies will be on the 12th month in Egypt, on the 24th month in Paris, on the 36th month in Tunisia, with the final General Assembly taking place on the 48 month in Lebanon.

It is clarified that all data from Hydrologic, micro-macroeconomic, climate and agronomic databases will be provided by each country/case study to Hadi Jaafar (AUB) and Nina Graveline (INRAE), who will be the coordinators in WP2 and are in charge of supervising the development of all databases. Also, it is discussed the structure and format of these databases which is recommended to be in an open access platform (e.g. open access programming software), where possible. There will be flexibility in any case, given the modular approach that means that several softwares can be used, some of which are better used with specific types of databases.

Abdrabbo Shehata (GPAI) asks about the criteria for evaluating the results on stakeholder engagement in each water lab. C. Dionisio Pérez-Blanco (USAL) replies that it is not

decided since there is a task in WP1 dedicated precisely to establish such criteria. The assessment criteria should therefore be defined by month 9-10.

C. Dionisio Pérez-Blanco (USAL) says that a logo and a project website and app must be done to communicate the progress and engage stakeholders and partners, and asks all partners if anyone is willing to be in charge of doing so, otherwise an external company will do that. USAL has requested several budgets to companies to create the Water Agora website, app, and logo. It is agreed that an external company hired by USAL will do the web, app and logo. Contents on the website and app will be coordinated by GPAI, CMCC and USAL, although all partners will have access to edit contents.

Nina Graveline (INRAE) says that a YouTube channel could be a good communication channel linked to the project website. This is indicated in the DoW. It is agreed that two-three videos on the project must be done by USAL and GPAI, Abdrabbo Shehata (GPAI) agrees that USAL should make the first one, and they will be in charge of the second and third videos.

The participants then discuss alternative ways of engaging over the next months, to make sure that the objectives of the project are met. One option is to build collaborations through students. Nina Graveline (INRAE) says that she prefers to wait one year to be sure that the student that will be in charge of is strong enough to carry out the tasks that are required in this project, and then send it somewhere to build these synergies. Nina Graveline (INRAE) also comments that it is a great opportunity to be able to make short trips (around 1 month) for knowledge exchange among partners from the different countries involved. Nina Graveline (INRAE) develops the idea of “twin water labs” for linking researchers and students from one water lab with colleagues and mentors in another water lab.

Finishes at 16.36