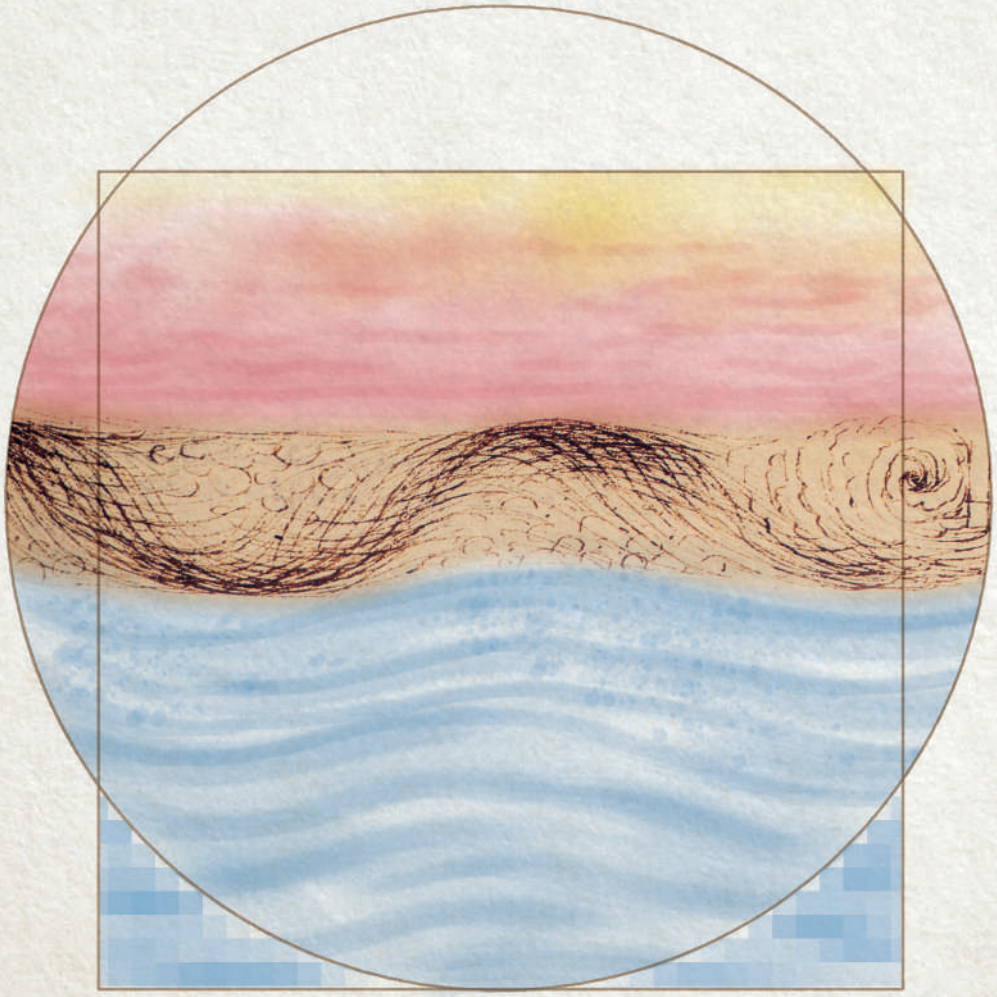
WORLD WATER COUNCIL

WORLD WATER FORUM 2024

ITALY: FIRENZE & ASSISI and ROMA



FACING A GLOBAL CHANGE:
IN THE MAKING OF THE WATER "RINASCIMENTO"

COMUNE DI FIRENZE

United Nations Educational, Scientific and Cultural Organization

Historic Centre of Florence inscribed on the World Heritage List in 1

CUSTODIA GENERALE
SACRO CONVENTO DI SAN FRANCESCO IN ASSISI
FRATI MINORI CONVENTUALI

ALTA SCUOLA

CITTÀ DI ASSISI
SERAPHICA CIVITAS

Organizzazione delle Nazioni Unite per l'Educazione, la Scienza e la Cultura

Assisi, Basilica di San Francesco e altri luoghi francescani iscritti nella Lista del patrimonio mondiale nel 2000

Cover image:

The universal image of the proportions described by Leonardo is the Vitruvian man. The image can be synthesized by the sole geometric elements that identify it: a square and a circle.

In this graphic concept, the study of the human figure is ideally replaced by a new protagonist: ***water.***

The choice of the two colours also has a precise meaning: blue like water and light pink like the ***gender transformative process that will take place at the World Water Forum 2024.***

Starting from one of Leonardo's many studies on hydraulics, as drawn on paper in one of his incredible sketches, the fluid that dispenses life on earth comes to life and calls contemporary women and men to look towards a new rise: ***the Water Rinascimento.***

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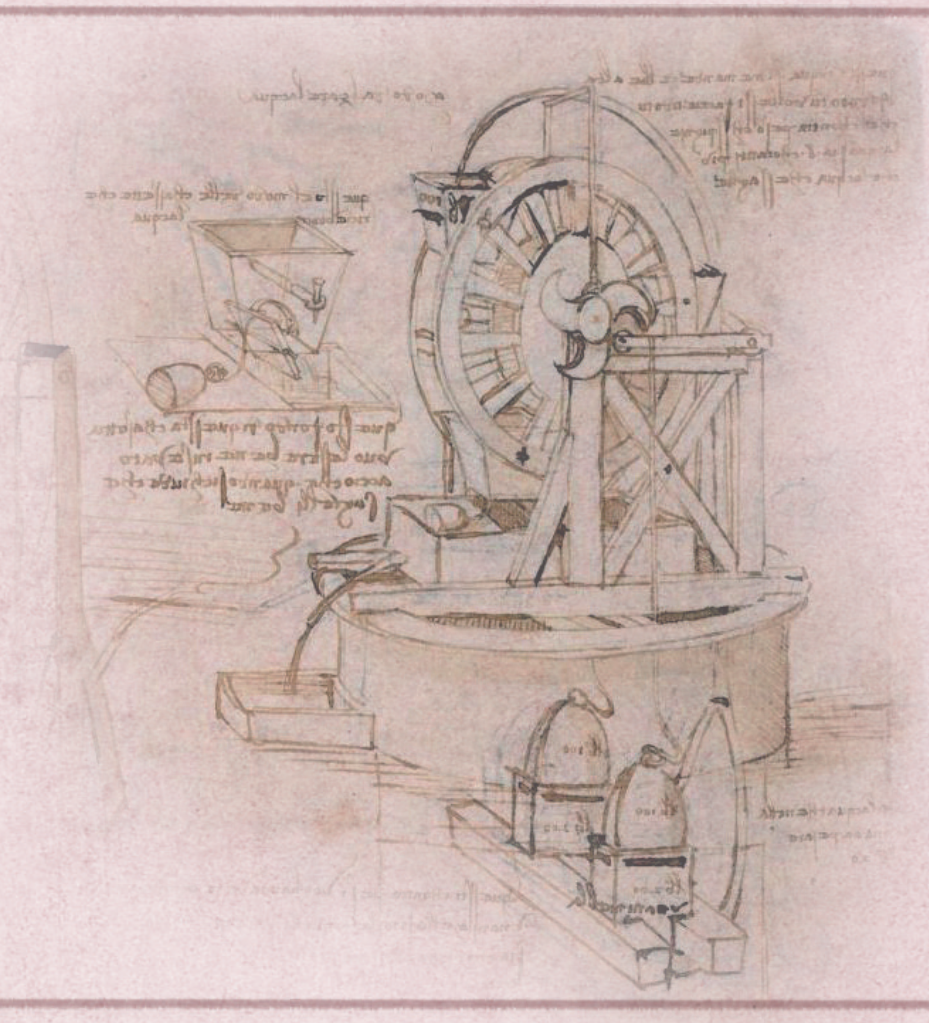


SIGNED

COMUNE DI FIRENZE

Dario Nardella *Major of Firenze*

CITTÀ DI ASSISI
SERAPHICA CIVITAS

Stefania Proietti *Major of Assisi*

CUSTODIA GENERALE
SACRO CONVENTO DI SAN FRANCESCO IN ASSISI
FRATI MINORI CONVENTUALI

Frate Antonello Fanelli
Delegato per Ecumenismo Dialogo
Integrità del Creato

COMITATO ITALIA FIRENZE-ASSISI 2024

Filippo M. Soccodato
FirenzeAssisi2024 Promoting Committe
Chair of Advisory Board

Francesca Greco
Political Concept
International Water Policy Expert

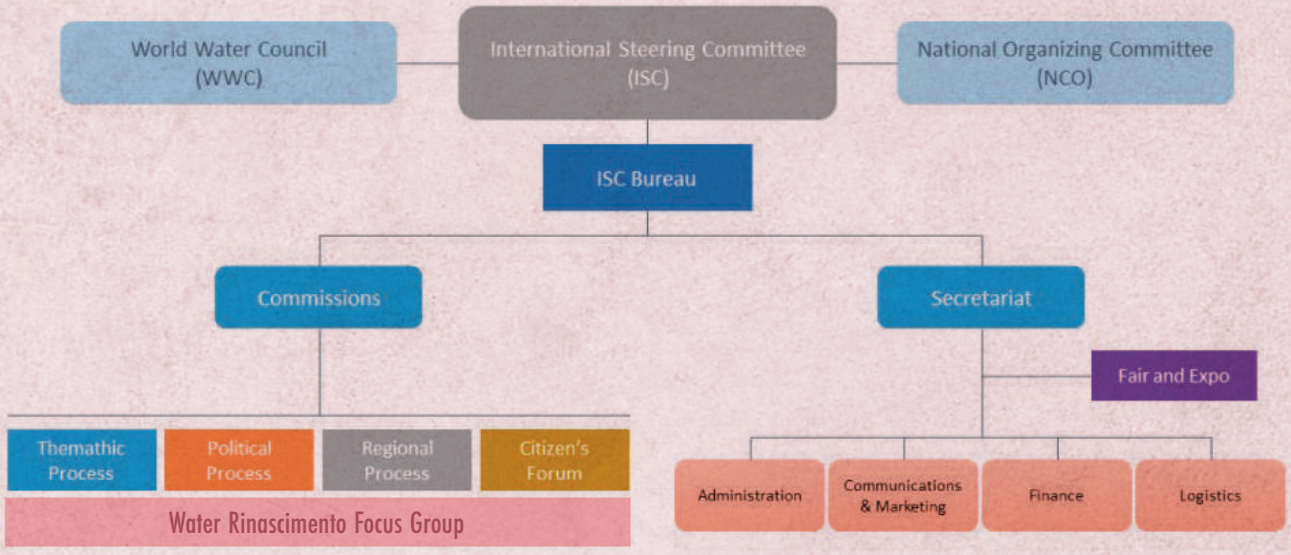
ALTA SCUOLA

Endro Martini
Head Promoting Committe
Alta Scuola President

Organisation & Support

ORGANISATIONAL MODEL / MANAGEMENT STRUCTURE

The organizational construction of the Forum comprises different fields of analysis and decision making. It intends to assure institutional balance and transparency; moreover, it strives for reaching an efficient and genuine participation of the citizens, official delegates, participants and administrative realities of the Forum. A rough idea can be provided by the following diagram. The final shape of the organisational structure will be agreed upon the winning of the present BID.



NATIONAL COMMITTEE

The Committee that promotes and supports the candidacy of Florence and Assisi with Rome is made up of a partnership of public bodies, private entities, sponsors and donors as follows:

Public Bodies, Private entities, Sponsors and Donors

Alta Scuola head promoter commetee	Orvieto Todi	http://www.altascuola.org/
Presidency of the Council of Ministers - Civil Protection Department	Roma	http://www.protezionecivile.gov.it/
Municipality of Firenze	Firenze	https://www.comune.fi.it/
Municipality of Assisi	Assisi	http://www.comune.assisi.pg.it/
Foreign Affairs and International Cooperation Ministry	Roma	https://www.esteri.it/mae/en/
Custodia Generale del Sacro Convento di San Francesco di Assisi	Assisi	https://www.sanfrancescoassisi.org/
Italian Government - Public Works and Communications Committe of the Senate of the Republic	Roma	http://www.senato.it/
ISPRA Italian Institute for Environmental Protection and Research	Roma	https://www.isprambiente.gov.it/it
Po River District Authority	Parma	https://adbpo.gov.it/
Northern Appennines District Authority	Firenze	http://www.appenninosettentrionale.it/
Central Appennines District Authority	Roma	http://www.autoritadistrettoac.it/
Southern Appennines District Authority	Caserta	https://www. distrettoappenninomeridionale.it/
National Association of Drainage and Irrigation Consortia	Roma	https://www.anbi.it/
Municipality of Livorno	Livorno	http://www.comune.livorno.it/

UNESCO IHP Intergovernmental Hydrological Programme, Italian Chapter	Roma	https://en.unesco.org/themes/water-security/hydrology
WARREDOC	Perugia	http://warredoc.unistrapg.it/
European Federation of Geologists	Bruxelles	https://eurogeologists.eu/
Italian National Council of Geologists	Roma	https://www.cngeologi.it/
INU Italian National Institute of Urban Planning	Roma	https://www.inu.it/
ITCOLD Italian Chapter of The International Commission on Large Dams	Roma	https://www.itcold.it/
Agronomist World Academy Foundation	Perugia	https://www.awaf.foundation
EIP Water Action Group	Bruxelles	https://www.eip-water.eu/get-involved/action-groups
National Table of River Contracts	Roma	https://www.eip-water.eu/get-involved/action-groups
Italian Hydrological Society	Roma	http://www.sii-ihs.it/
Italian Geotechnical Society	Roma	http://www.associazionegeotecnica.it/
Italian Society of Environmental Geology	Roma	https://www.sigeaweb.it/
UNESCO Chair on the Prevention and Sustainable Management of Geo-Hydrological Hazards, University of Florence, Italy	Firenze	https://www.unesco-geohazards.unifi.it/
University of Chieti – Pescara	Chieti Pescara	https://www.unich.it/
Skopìa Srl - SpinOff of UNESCO Chair in Anticipatory Systems of Trento University	Trento	https://www.skopia-anticipation.it/
IAT Ingegneria per l'Ambiente ed il Territorio Srl	Roma	http://www.iating.it/
ERG SpA	Roma	https://www.erg.eu/
Enermove Srl	Pisa	http://www.enermove.com/
InfoDesign Lab	Oslo	www.infodesignlab.com
Vetrya SpA	Roma	https://www.vetrya.com/
CAE SpA	Bologna	https://www.cae.it/
MeteoGiuliacci Srl	Milano	https://www.meteogiuliacci.it/
VatiVision	Roma	https://www.vativision.com/
Bologna Fiere SpA - Accadueo H2O	Bologna	http://www.accadueo.com/
Ferrara Fiere SpA - RemTech Expo	Ferrara	www.remtechexpodigitaledition.it
Firenze Fiera SpA	Firenze	http://www.firenzefiera.it/
Firenze Convention Bureau	Firenze	https://www.conventionbureau.it/
Graphisphaera di C. Goretti	Acquapendente	http://www.graphisphaera.it/

"DIALOGUES ON WATER" BETWEEN SCIENCE - INNOVATION - POLITICS - EDUCATION

The Promoting Committee has selected some proposals received from donors and sponsors in which to develop specific themes.
Special in-depth and full immersion focuses will be created on these issues.

Dialogues sur l'eau - Dialogos sobre a água - Dialoghi sull'acqua

Rio Negro and Rio Solimoes: Amazon River

WARREDOC

Università per Stranieri di Perugia

Autorità di Bacino Distrettuale dell'Appennino Meridionale

Tavolo Nazionale dei Contratti di Fiume

EIP Water
Boosting opportunities – Innovating water

EIP Water smart river network

SKOPIA
ANTICIPATION SERVICES®

CAE
innovation for a safer world.

ITCOLD
COMITATO NAZIONALE ITALIANO PER LE GRANDI DIGHE

ASSOCIAZIONE NAZIONALE CONSORZI GESTIONE E TUTELA DEL TERRITORIO E ACQUE IRRIGUE

Società Idrologica Italiana
Italian Hydrological Society

enermove
SOLUTIONS with INNOVATION

METEO GIULIACCI

INU
Istituto Nazionale
di Urbanistica

Ud'A
Università degli Studi "G. d'Annunzio"

World Association of Agronomists

AWAF

INGEGNERIA AMBIENTE E TERRITORIO

UNESCO
United Nations
Educational, Scientific and
Cultural Organization

uniTwin

UNIVERSITÀ DEGLI STUDI FIRENZE

UNESCO Chair on the Prevention and
Sustainable Management of Geo-Hydrological Hazards,
University of Florence, Italy

SIGEA

CONSIGLIO NAZIONALE
DEI GEOLOGI

WARREDOC

Università per Stranieri di Perugia

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http://www.geosmartcampus.it/it/warredoc/

Who we are and what we do

WARREDOC is the Water Resources Research and Documentation Center established at the Università per Stranieri di Perugia (UNISTRAPG) since 1985 for developing research, advanced training and scientific communication in the field of water, environment and disaster risk management. WARREDOC is innovation, applied research and communication for technology transfer and sustainable development in the field of water. The Mission of the WARREDOC – strictly integrated into the UNISTRAPG's strategy – is to promote scientific and cultural advancement in the field of water by means of multidisciplinary and multicultural international academic programs, scientific exchange and dissemination supporting cultural diversity, gender equality and providing scientific and financial support for developed and development countries.

Thematic

Digital Mapping and citizen science for UN SDGs: citizen engagement to monitor the water cycle and foster sustainable human behavior

The world is experiencing a surge of water-related crises at an unprecedented scale. Unsustainable anthropogenic practices and climate change pressures are further exacerbating water, food, and energy demands putting at risk natural and vital resources worldwide. Water resources are at the heart of the 2030 UN Agenda of Sustainable Development and interconnected in all Sustainable Development Goals (SDGs), setting the path for effective resource management and adaptation strategies to address human and environmental challenges over specific time horizons. These guidelines are designed to prompt change and call for action to meet the population's water-food-energy security by increasing their availability and supply through sustainable practices to tackle physical, social, and economic risks and vulnerability. Data analytics are critical to gain an understanding of historical records, current conditions, and future projections to support data-driven decisions across a variety of resource and risk scenarios, including population trends, agricultural land and crop production, deforestation, water distribution, climate patterns, and extreme weather events. The big data revolution results from continuous breakthroughs in technology and science to collect quantitative and qualitative data of Earth's and human's processes through remote sensing, smartphones, web-cams, and sensors. Furthermore, the rise of citizen science and crowdsourcing efforts contribute to data collection and monitoring processes, producing infinite amounts of information at local and large scales that have been useful in different research fields, including conservation, water resource management, and disaster risk reduction. The ability to interpret and leverage vast amounts of data strongly depends on the geospatial context and visualization. Although databases are considered of excellent value for statistical purposes, the ultimate goal is to transform data into knowledge. Global water intelligence can only be achieved when geospatial statistical data is fully integrated with comprehensive sociodemographic and extensive spatial data to develop case studies. Digital mapping serves this purpose as intelligent thematic maps display GIS analytics, infographics, statistics, and multimedia content in innovative, user-friendly formats to facilitate public engagement and cooperation between scientists, citizens, and decision-makers.

This session seeks to discuss the role of scientific and professional communities, international and national organizations involved in the fields of water, agriculture and food production, energy, forestry, ecology, hydrology, diplomacy, disaster risk, and related sectors in relation to the production and use of Open Data, Big Data and Citizen Science for addressing global water challenges. Participants and attendees will visualize examples involving varying degrees of complexity on how to best integrate data and citizen science into powerful dynamic maps and storytelling products for existing and next-generation academic and professional training, capacity development, advocacy and outreach, risk awareness, and scientific communication, technology and knowledge transfer activities.

Public and Private Authorities/Bodies to be involved worldwide

Academics | Researchers | Professionals | Decision Makers | Leaders

Who we are and what we do

With Legislative Decree 152/2006 and subsequent amendments the Basin Authoriyies referred to in former Law 183/89 were abolished and the District Basin Authorities were established in each hydrographic district. The Southern Apennine District includes the Liri-Garigliano and Volturno national water catchment areas, the inter-regional Sele, Sinni and Nocew, Bradano, Saccione, Dortore and Biferno, Ofanto, Lao, Trigno and the regional basins of Campania, Puglia of Basilicata, Calabria, Molise.
The Southern Apennine District Basin Authority, based on current regulations, has adopted the planning and programming activities at the BAsin and Hydrographic District scale relating to the defense, protection, use and sustainable management of soil and water resources, the safeguarding of the environmental aspects carried out by the former National, Regional, Interregional Basin Authorities on the basis if the provision of the former law 183/89 and therefore contributes to the defense, protection and remediation of hydrogelogical risk, the fight against desertification, the protection of the coastal strip and the rahabilitation of the coast.
District planning constitutes a reference for the planning of shared and partecipatory actions in the context of territorial governance at the basin and hydrographic district scale.

Thematic

The district basin authorities provide:
a) to draw up the District BAsin Plain and related extracts, including the River Basin Management Plan, envisaged by Article 13 of Directive 2000/60 / EC, and the Flood Risk Management Plan, envisage by Article 7 of Directive 2007/60 /EC, as well as the intervention programs;
b) to express an option on thge consistency with yhe objectives of the Basin Plain of the European Union, national, regional and local plans and program relating to soil protection, the fight against desertification, water protection and water resources management.
All the act of direction, coordination and planning are adopted in the permanent institutional conference, convened, on the proposal of the participating administrations, by Minister of the Environment, by the Secretary General.
This conference is attended by the President of the Regions beloging to the hydrographic district or the Councilor of the sane delegates, as well as the Minister of Environment and the Protection of the Territory and the Sera and the Minister of Infrastructure and Transport, or the Undersecretaries of State by yhe same delegates, the Head of the Civil Protection Departement of the Presidency of the Council of Ministers and, in cases where their respective areas of competence are involved, the Minister of Agricoltural, Food and Forestry Policieas and the Minister of Cultural Heritage and Activities and Tourism, or the Undersecretaries of State by the delegates themselves.

Public and Private Authorities/Bodies to be involved worldwide

Institutional Bodies: Permanent Institutional Conference | Secretary General | Operational conference | Technical Operational Secretariat | Board of Auditors

Tavolo Nazionale dei Contratti di Fiume

EIP Water smart river network

Italian National Board of River Contracts (Tavolo Nazionale dei Contratti di Fiume - TNCdF) and Smart Rivers network (EIP Water Action Group)

Who we are and what we do

The Italian National Board of River Contracts (Tavolo Nazionale dei Contratti di Fiume - TNCdF) together to the Smart Rivers network (EIP Water Action Group), promote a bottom up innovative approach to enhance the participatory governance in the river basin. The river contract is an example of how to contribute to ensuring the improvement of water quality, protection against flood risks, as well as the implementation of the WFD and FD through the voluntary development of programmes and action plans that can be applied in an effective manner to the water management. In Italy river contracts diffusion started (as a button up initiative) with the creation of a National Table of River Contracts (Tavolo Nazionale dei Contratti di Fiume - TNCdF) in 2007, that provided crucial support for the development of river contracts, as it became possible to coordinate efforts and compare experiences to build a culture of a participatory collective governance. In Italy, National Table of River Contracts, respond to the need for introducing new forms of governance as well as forms of voluntary cooperation that are requested by EU directives and guidelines in order to implement an integrated management of water, land and landscape in a shared and subsidiary manner. Amongst the factors that might have contributed to an improvement in the public participation processes in Italy there are the " National Table of River Contracts ", that is a bottom up movement to experiment and promote river contract as a voluntary instrument (soft law) negotiated between institutions and the general public. They have contributed in Italy to the realization of (and to enhancement of) the objectives of the provisions on public participation contained in the WFD and implemented by the Italian Code on the Environment. At international level National Board, led from 2015 the EIP Water Action Group (AG) "Smart Rivers Network", with specific goal to transform river basins in more Smart Rivers contexts. The AG intends to contribute to the diffusion of participative governance in the management of European hydrologic basins, through the activation of a cooperative network. The Italian approach in 2016 has been applied in Moldova by the SMARIGO project supported by the EU Commission CEI Programme. In 2015 the experience of the river contract promoted by TNCdF, it is included in the WWAP UNESCO – World Water Report as European best practices.

Thematic

Dialog on Water Democracy, Public Participation and Water Governance, toward an innovative and more sustainable management of the river and lake basins. In line with the initiatives taken so far and taking into account the concerns and expectations of the communities of the international river and lake basins, we propose the daily meeting - Dialog on Water Democracy, Public Participation and Water Governance, toward an innovative and more sustainable management of the river and lake basins - between the heads of river and lake basin organizations and associations, including transboundary
basins, for a constructive dialogue, to promote the exchange of experiences, information and know-how on sustainable management and the implementation of joint actions and projects, better supported financially, to improve the anticipation of future scenarios and to prevent the potential conflicts between the different users of the resource.

The effective participation of civil society and stakeholders in decision-making and management processes is to be ensured, including local people, especially women and youth, and it is advisable to join the forces of all stakeholders, including the private sector, to build resilient communities and establish shared strategies. Access to information, training and environmental education needs to be improved around the world, especially for the most underprivileged or marginalized populations. In particular, it is necessary to use dialogue frameworks, such as river contracts for this purpose. The role of TNCdF and in general of the River Contracts and public participation is key. If the perception of the general public can be changed from 'What River?' to 'My River'" ownership and responsibility for improving rivers begins to change. River Contracts provide the framework to enable this discussion and have the advantage of bringing together professionals, market actors, politicians and inhabitants.

Public and Private Authorities/Bodies to be involved worldwide

The dialog has to involve different countries and experiences, in particular where there are meaningful initiatives in progress. River contracts and other participatory approaches are adopted with success in: Italy, France, Spain, Belgium, Burkina Faso, Quebec, Moldova, Alpine Convention countries, ecc.

SKOPIA Srl
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www.skopia-anticipation.it

Who we are and what we do

-skopìa Anticipation Services® S.r.l. (www.skopia-anticipation.it) is a startup company founded at the Department of Sociology and Social Research of the University of Trento, Italy. The founding members are professors, researchers, trainers and consultants with heterogeneous backgrounds (philosophy of science, mathematics, environmental sciences, sociology, insurance), with common interests in application and developments in **Futures Studies** and Anticipation.

Our first mission is to develop and spread **futures literacy**, based on the theory of Anticipation, by developing **"futures exercises"** with public or private organizations and providing training in activities. Our further mission in **training** and **consultancy** is to help organizations to **understand medium- and long-term changes** and to **implement transformations from the present.**

In brief, we work with futures, by helping individuals and organizations to see the multiple and possible futures, the associated risks and opportunities, and to prepare the most promising conditions for the desirable scenarios.

Thematic

Our recent projects had a focus on sustainability and resilience of mountain communities, "cultural resilience" and adaptive capacity to climate change, communication, and anticipation of flood risks for and by local communities, local development against depopulation in remote areas and anticipatory risk management (ARM). All these topics are related to a variety of water issues and all are dependent on the local impacts of megatrends.

Megatrends are trends, patterns of change in a defined variable, with great inertia, that promise to continue in the coming decades, or even for generations. As megatrends emerge as a global process, impacts at the local level can differ and cause negative self-reinforcing processes (e.g. drought> water withdrawal> water scarcity> drought). Recognizing megatrends, assessing or imagining their local impacts, is relevant to anticipate upcoming problems and not be caught unprepared. Being prepared for water changes is not just for experts but for all citizens, economic actors and public administrators.

We propose a "futures exercise" in the form of a 1-day workshop concerning the impacts and the challenges emerging from megatrends, structured in multiple-round discussion in which participants can develop an anticipatory attitude in order to build a sustainable and resilient society. A possible title is "Megatrends around the waters: get ready for and prepare possible futures".

The structure of the workshop will be inspired to the World Cafè and Open Space Technology methods, with a range of possible participants from 20 to 200 or more and be based on the EU Policy Lab - Megatrend Hub. Other specific approaches and methodologies could be applied according to the evolution and state of the art of Future Studies, especially in relation to the possibility of implementing digital technologies to involve a larger audience even remotely.

Depending on the type of participants, the guided discussion can be declined at different levels of complexity and focused on different sectors (e.g. public sector, private sector, tourism, agriculture), interesting a variety of stakeholders as well as young people.

The results will be presented in a "gallery of ideas and proposals" where the authors can present them as in a poster session with subsequent dissemination worldwide of the contents.

The intention is to enhance the bottom-up approach and the commitment of the Anticipation to transform the acquisitions of the future exercises into decisions and actions in the present, i.e. after having seen what could happen.

Public and Private Authorities/Bodies to be involved worldwide

Prof. Roberto Poli, President of -skopìa Anticipation Services® S.r.l. and UNESCO Chair in Anticipatory Systems at the University of Trento, Italy will activate the whole system of the Futures Literacy Department by UNESCO - Social and Human Sciences Sector - Paris, France (https://en.unesco.org/themes/futures-literacy) with special reference to the project Imaging Africa's Futures (https://en.unesco.org/imagine-africa-futures).

-skopìa Anticipation Services® S.r.l. has been collaborating for years with the Foundation Edmund Mach, Trento - Italy on projects using Future Studies to promote the Anticipatory Governance in establishing and maintaining in the future attractiveness, as well as enhance the resilience of local communities, among local actors within Alpine regions and to foster the awareness of entrepreneurial and social actors on the importance of involving young people and building strategies for local development, looking at the medium-long term and the related uncertainties.

The Edmund Mach Foundation (https://www.fmach.it/eng/CRI) promotes and carries out research, scientific experiments, education and training activities whit the aim to promote cultural and socio-economic growth in the agricultural sector and at developing the forestry and agro-alimentary systems, with particular regard for the environment and the safeguard of the territory. Through the involvement of the Edmund Mach Foundation the worldwide network of institutions with similar aims will be activated with specific reference to water issues.

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Who we are and what we do

CAE supplies state-of-art systems dedicated to multi-hazard monitoring in real time and early warning. We develop the most innovative solutions to support decision makers during extreme weather related events: floods, flash-floods, landslides, hot-waves, storms, wildfires, water pollution, etc.
Funded in 1977, in 2020 the Company employs over 105 people. CAE is the largest Italian player in its industry, market leader within its home country and a major player in several other countries around the world. Up to date, most relevant international projects have been deployed in Vietnam, Serbia, Kyrgyzstan, Maldives.
Each system consists of sensors, monitoring stations to measure natural phenomena, related transmission network and central units, where users can monitor, store and process data to better support any decision making process. The unique approach consists of providing turn-key solutions and extend the guarantee, usually offered on products, to the overall effectiveness of the information system: post-sales maintenance, including the usage of remote advanced tools and the training of local staff, is integrant part of the Company value proposal.

Thematic

Climate change, anthropic pressure and speeding urbanization are quickly increasing the impact of natural hazards, especially those induced by extreme meteorological events, on worldwide communities.
We usually refer to water as the key element for life. On the other hand, being water the key element of precipitations, rivers, torrents, lakes and reservoirs, it is also the main triggering element for most of these hazards. Beside the hydraulic works which help to manage waters, Multi-Hazard Early Warning Systems (MHEWS) are key tools to mitigate the risks related to natural hazards such as river floods, local flash-floods, urban inundations, landslides and droughts.
Studying phenomena, monitoring its evolution, alerting authorities and population, and eventually starting the implementation of the emergency actions are the key duties of an effective Early Warning System. In most of the Countries in the world, National Meteorological and/or Hydrological Services (NMS, NHMS) are in charge for studying, monitoring and modelling the phenomena, while the preparation and eventual implementation of emergency plans are implicitly or explicitly under the control of Civil Defense Authorities at national or local level.
Inundations caused by large cross boarder rivers and flood urban underpasses are both caused by precipitations and, therefore, water. However, these scenarios are different in size, timing, number and type of institutions involved.
Regardless of the technology, the speed of the event or the size of the targeted area, there are some key factors to make the Early Warning System (EWS) work effectively and eventually mitigate the risk:

a. Clear institutional setting: risk mitigation must be the result of a coordinated action between several institutions. A key issue is the definition of the responsibilities over the operation of the EWS.

b. Good knowledge of the phenomenon: historical data and information are crucial to assess the situation, elaborate scenarios and evaluate potential risks.

c. Reliable real time technology: accurate design, first class materials and components, constant maintenance. Real Time Monitoring and Early Warning Systems must work always, especially during extreme events, when other technologies usually stop.

d. Prepared community: a well disseminated emergency plan and easy to understand timely alerts make the difference between chaos and preparedness.

If only one of these factors is weak, then most likely the EWS will fail and the risk will not be effectively mitigated. The discussion will therefore aim at sharing best practices, experiences and insights between institutions, organizations, professionals, academicians and private companies with special regard to the above mentioned key success factors.

Public and Private Authorities/Bodies to be involved worldwide

National Meteorological Services | National Hydro-Meteorological Services |Civil Defense Authorities, Office for Flood Management | Majors or other key persons of Local Governments |Copernicus Emergency Management Service | United Nations Development Program |The World Bank and other IFIs

ITCOLD
COMITATO NAZIONALE ITALIANO PER LE GRANDI DIGHE

Italian Committee on Large Dams

Who we are and what we do

ITCOLD is a technical non-governmental association which provides a forum for the exchange of knowledge and experience in dam engineering. It leads the profession in ensuring that dams are built safely, efficiently, economically, and without detrimental effects on the environment.
The debated topics include planning, design, construction, operation, and maintenance of large dams and their associated civil works, dam safety, reanalysis of older dams, effects of ageing, environmental impact, public involvement and awareness.
ITCOLD fulfills these aims by collecting and disseminating relevant information and by studying related technical questions.
ITCOLD members are essentially practicing engineers, geologists and scientists form governmental or private organizations, consulting firms, universities, laboratories, construction companies, etc.. Working Groups, Conferences, Symposia and Workshops, interaction with Universities and Authorities are the main tools used by ITCOLD to fulfill its aims.

Thematic

The themes and topics developed by ITCOLD are those of current main interest in the field of dams and associated hydraulic structures. Currently, in Italy, these topics include the following:

- Safety of existing dams, considering that the Italian dams (more than 500) are rather old, the mean age being more than 60 years. Ageing effects, obsolete dam types, not updated design criteria, hydraulic and seismic vulnerability are therefore very recurring items.
- Surveillance, monitoring and assessment of dam performance (applied methods, tools and practices, visual inspections, instrumental networks, monitoring systems, processing and interpretation of gathered data and information, etc.)
- Dam maintenance. This large theme includes several important topics such as the following: maintenance activities, repair and rehabilitation works (ITCOLD dedicates seminar and technical visits, to disseminate the information about these works).
- Dam operation and management: this theme include many different topics, such as: sedimentation of reservoirs (estimates, monitoring, actions to prevent or mitigate related problems), management of large floods and outlets reliability, compatibility of the dam operation with environmental constraints and other associated uses.
- Information to a large public, to contribute to a correct public awareness (the "Dams and Territory" Workshops are an example of this effort)
- Safe operation of ancillary structures (channels, penstocks, tunnels, levees, etc.)
- Problems related to the small dams
- Involvement of Universities and young professionals (the "ITCOLD YEF- Young Engineers Forum" in an example of the efforts devoted to this aim)

If only one of these factors is weak, then most likely the EWS will fail and the risk will not be effectively mitigated. The discussion will therefore aim at sharing best practices, experiences and insights between institutions, organizations, professionals, academicians and private companies with special regard to the above mentioned key success factors.

Public and Private Authorities/Bodies to be involved worldwide

All the main Italian private and public companies, bodies and institutions are ITCOLD's members and participate to the ITCOLD activities.
ITCOLD membership include some very important multinational utilities (such as ENEL) and design and construction companies (such as IMPREGILO), active at worldwide level.
ITCOLD is the Italian National Committee of ICOLD, the worldwide international organization dedicated to the dams, founded in 1928 and composed of National Committees from more than 100 countries, with approximately 10 000 individual members. ICOLD is assisting nations to prepare to meet the challenges of the 21st century in the development and management of the world's water and hydropower resources.
ITCOLD actively participates to the worldwide activities promoted by ICOLD.
ICOLD is linked to many worldwide organizations, such as: International Commission on Irrigation and Drainage, World Energy Council, FAO, UNESCO WWAP, United Nations Environment Program, International Association of Hydraulic Engineering and Research, etc.

Who we are and what we do

ANBI is a national association, with private legal personality, which represents and protects the interests of 143 consortia of land reclamation, irrigation and land improvement operating in our country, public economic self-government bodies, strong expression of subsidiarity, which guarantee the hydrogeological, environmental and food safety of the territory through the construction, operation and maintenance of hydraulic defense and regulation works.

Thematic

The Land Reclamation and Irrigation Consortia cover more than 50% of the land area of the country for a total of almost 17 million hectares.
The Consortiums carry out and provide for the maintenance and operation of an immense patrimony of plants, canals and other infrastructures for soil protection (about 200 thousand kilometers of drainage and irrigation canals, about 800 water systems, 22 thousand bridleways, etc.) and irrigation, increasing the value of land, the competitiveness of production, the income of agricultural enterprises and, last but not least, employment.
The Association then, articulated on the territory through ANBI Regionali, carries out actions of representation of the interests of the reclamation and the Consortia in the different sectors of their institutional and operative activity, assuring the necessary assistance in the technical, economic and juridical sectors, defining the operative guidelines and the objectives to pursue, providing for the examination and study of the legislative measures concerning the reclamation and irrigation activities and those of the Consortia; organizing researches and studies on the most important and topical issues for the reclamation and irrigation sector; organizing conferences, meetings and debates among the associates for the deepening of the general problems of interest to the Consortia and the reclamation and irrigation activities; promoting and facilitating the training of the Consortia officials; providing information and advice to the associates on the general and special problems of reclamation, irrigation and the Consortia.

Public and Private Authorities/Bodies to be involved worldwide

The Association is a member of the European Union of Water Management Associations (EUWMA - https://www.euwma.org/) and a founding member of Irrigants d'Europe (https://irrigantsdeurope.eu/), which brings together the irrigation associations of Italy, Spain, Portugal and France, all committed to finding shared solutions to address European policies on irrigated agriculture (water, energy, food) in favour of those countries bordering the Mediterranean that could not do agriculture without water.

Società Idrologica Italiana
Italian Hydrological Society

Bologna, Porta di Piazza San Donato, 1,
Department of Earth Sciences
and Environmental Geology of the
University of Bologna.
e-mail info@sii-ihs.it - http://www.sii-ihs.it/

Who we are and what we do

The Società Idrologica Italiana (SII), the Italian Hydrological Society, was formed in September 2009, to promote the advancement, valorization and dissemination of Hydrological Sciences with the main objective of bringing together three important actors in the hydrological arena: the Academy (University, National Research Council,. .), Institutional Authorities (Territorial Public Bodies, District Authority, Civil Protection, ...) and private operators (Engineering Companies, Practitioners, ...). SII with its over 250 individual and institutional members from academia and government agencies is a founding member of the Network of National Hydrological Associations (NHAs) of the International Association of Hydrological Sciences (IAHS). An elected Committee identifies technical priorities and stimulates further development of scientific principles and their application to the interface between science and practice. SII organizes the 3-days annual meeting "Giornate dell'Idrologia", for all the members and Institutional Authorities and Private Operators that is the key point to get together, share new ideas and opportunity for interaction, conversations and collaborations.

Thematic

Themes and topics of interest
The Società Idrologica Italiana (SII) is aimed to all scientists and practitioners operating in the inter-disciplinary subject of hydrology, in order to promote interests in the scientific and applied aspects of hydrology and to foster the involvement of its members in national and international activities. Specifically, SII aims to favor the progress, enhancement and dissemination of Hydrological Sciences and to stimulate coordination and interdisciplinary collaboration in cognitive and applicative activities aimed at the development of research addressed to the qualitative and quantitative description of all the components of the hydrological cycle, forecast and mitigation of the effects of extreme hydro-meteorological events and sustainable planning and management of water resources in a context of Global Changes. Therefore, SII operates in the fields of basic and applied research, education and dissemination, professional training and other sectors related to the Hydrological Science's topics. SII pursues these aims through all the initiatives that allow:

- the dissemination of Hydrological Sciences in schools, universities, the technical and professional world and in the various segments of public opinion interested in the problem;
- public discussions through all appropriate forms (exhibitions, debates, etc.);
- the action of raising awareness and stimulating towards professional registers and private and public bodies; in particular with regard to the latter, for the formulation of suitable regulations and technical directives;
- the organization of training and updating courses;
- research, promotion and dissemination of studies and research on Hydrological Sciences, also through conferences, congresses and excursions, in which scientific and technical problems are presented, examined and discussed;
- the collection, coordination, comparison, publication of information, news and studies concerning the Hydrological Sciences;
- links with other national and international associations and institutions, with common and / or complementary objectives.

Under this umbrella SII stimulates the creation of a forum for all scholars in the domain of the Hydrological Sciences and those who deal with it in institutions and professionally, allowing for a debate on innovative issues of common interest. Likewise, SII fosters the internationalization of Italian hydrological research by promoting its diffusion abroad, collaborating with international associations in which the hydrological debate is active (IAHS, IAHR, EGU, AGU, UNESCO), advertising the international initiatives underway in Italy and favoring the connection of young researchers and doctoral students with the most advanced international research centers. SII also includes young researchers from academia as well as professionals working in the public and private sector, interested in hydrology, through the Italian branch of the Young Hydrologic Society (YHS-IT) aiming to represent the connection between the early career hydrologists working in Italy and the international association YHS.

Public and Private Authorities/Bodies to be involved worldwide

Public and private organizations and individual consultants who have opted to join the SII as Institutional Members in Hydrology are listed hereafter to provide a service to SII members and to others looking for hydrological advice and assistance:

- Ente Acque Umbre Toscane (EAUT) is a public economic body and performs the main functions to design and execution of water accumulation, adduction and distribution works for mainly irrigation purposes
- Consorzio di Bonifica Val di Chiana e di Paglia is a public economic body carrying out activities of public importance aimed at guaranteeing the hydraulic safety and maintenance of the territory, protection of water resources for mainly irrigation use, soil conservation and defense.
- CETEMPS Center of Excellence University of L'Aquila promotes and coordinates research activities in the areas of short and long-term weather forecasting, hydrological forecasting, remote sensing from the ground and from aerial and satellite platforms and in the field of observation and forecasting of the chemical composition of the atmosphere

Enermove S.r.l.
Via Giuseppe Cei Sud, 199 - 56021 – Cascina (Pi) Italy
www.enermove.com

Who we are and what we do

Enermove S.r.l. is an Italian company with its headquarter in Tuscany, close to city of Pisa. Enermove is active in Italy and abroad with several installations to which it provides assistance and maintenance.
Enermove is a system integrator and solution provider of Water and Waste Water Treatment plants across several industries.
Enermove tailormade solutions include engineering services, skid mounted units, automation and control system as well as a wide range of on- site services such as plant commissioning and start-up, training and maintenance.
Ion Exchange, CEDI, Ultrafiltration, Reverse Osmosis along with a wide range of chemical injections package are the technologies commonly used by Enermove in the treatment of primary, process and waste waters.
Preventive and remote maintenance based on IA and AR technologies are the Enermove challenges in the era of digital transformation of water treatment plants.

Thematic

One of the challenges that awaits the coming years in relation to the great issue of water demand and water scarcity will be the adaptability of solutions currently used for large scale plants to smaller size installations. The reuse of water both in the industrial and domestic fields remains a central issue that over time will involve individuals, researches, manufacturing companies, institutions and trade associations. However, while scientific and industrial research has focused in recent years and will continue to focus on the search for new technologies and new materials that can guarantee better output values and a general efficiency of consumption and energy in large plants, little attention has been paid so far towards solutions that allow to apply such new research even on a small scale, serving smaller utilities such as those of small domestic or medium-sized installation. On the basis of this assumption, research will have to be directed, in addition to new treatment technologies and new materials, to integrated systems that see new applications of existing technologies and materials whose use will have to be scaled on small systems. Flexibility, modularity, remote control, adaptability to limited spaces are the areas in which we will have to compete in the future to make these technologies usable by the widest possible audience of end users. This challenge will require a set of competences that will move from vertical experience on individual technology to an horizontal range of competences.
In parallel, the application of compact treatment systems will necessarily also have to be extended to the needs of large areas of the planet where the availability of treated water remains limited by the lack of energy sources that can power treatment systems. With this in mind, the compact treatment units should be combined within a single compact system capable of providing a closed cycle of drinking water and electricity. Wind turbines, photovoltaic panels are examples of technologies that should be combined with treatment units by providing scalable solutions to be applied in the flexible manner depending on the environment.
Delegates and participants will be able to see examples and simulations of how research in the field of systemized solution can combine the various "pieces" of the system and produce the most suitable solution based on both the required treatment/ application and the type of output it intends to obtain (quality of water produced, volume, energy).

Public and Private Authorities/Bodies to be involved worldwide

Academics | Researchers | Manufacturing Companies | Technology leaders | Decision makers

METEO GIULIACCI

https://www.meteogiuliacci.it/

Who we are and what we do

MeteoGiuliacci srl is a start up company operating in weather and climate service sector. MeteoGiuliacci develops and uses mathematical models of the atmosphere.
Meteogiuliacci was born from the experience of col. Mario Giuliacci, a nice and well-known meteorologist and climatologist who for years described the weather forecasts to millions of Italians through the Mediaset television channels and the weather column of Corriere della Sera. Through a new portal, col. Mario Giuliacci has chosen to continue to inform Italians by providing them with a serious but also beautiful, innovative and easy to use forecasting service.

Thematic

Opportunity for discussion, with other weather centers of Mediterranean area, on issues concerning weather forecasting tecniques and severe weather-climatic phenomena. Promote the creation/implementation of international meteorological observation networks, especially in the Mediterranean region. Provision of weather forecast for all World Water Forum related events in the territories of Florence and Assisi

Public and Private Authorities/Bodies to be involved worldwide

University of Milan | European Weather Center of Bologna | Weather Centers of the Mediterranean Countries

INU
Istituto Nazionale
di Urbanistica

Who we are and what we do

INU, Istituto Nazionale di Urbanistica, in English National Institute of Urbanism (NIU) was founded in 1930 to enhance urban studies and to spread planning principles. Its statute, approved with a Republic Presidential Decree in November 21° of 1949, n. 1114, describe NIU a "high culture and technical coordination legally recognized" institution. Since 1997 Ministry of Environment recognize NIU as environmental protection association (Ministerial Decree July 3°, 1997, n. 162).
NIU information action come through its journal, mainly the leading and international Urbanistica, six-monthly and Urbanistica Informazioni, bimonthly and the already international Planum online.
The publishing house INU Edizioni issues, among other series, Accademia and Parole Chiave (Keywords). Urb.it, born in 2000, study and research city and territory to promote legislation, planning documents, solutions of environment, building and territory problems.
Yearly two main conferences are organized: a) Urbanpromo, articulated in Urbanpromo – Country project, Urbanpromo – Social housing and Urbanpromo – green; b) NIU Study Day.
Other events are
Metro city Festival and Public Space Biennial
NIU is associated to the European Council of Town Planners.
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Metro city Festival and Public Space Biennial
NIU is associated to the European Council of Town Planners.

Thematic

Water and Planning: hydrographic planning and management for sustainable cities.
Water was always a magnet for city location and development, much contributing to urban life and prosperity. Employed by citizens for many functions from transportation to sewage, appear to be idiosyncratic with modern urbanism and ruled to discharge any kind or trash. So, water degradation and pollution may be an epitome of unsustainable city and is, in the last time, raised to the top planner concern that are committed to reverse that trend a progressively restore urban metabolism.
Green infrastructure, sustainable urban drainage, are tool deserved, as others to restore rivers, creeks, ponds changed, in the intersection with anthropized land in artificial artifacts losing their natural functions, clean the water, reconstruct natural ecosystem, enhance ecosystems services.
Greening cities, thanks to water right management and planning, increase urban resilience, reduce heat islands, improve air quality, all factors with a high impact over human health making stronger the resistance to virus outbreaks.
Given all these benefits, incorporate water in urban space properly, is a main task of planning exercises. This means a better awareness of planning culture; more research over foresaid technologies and their implementation in urban settings; civic, cultural, economic associations involvement in planning process; administrative procedures, open to multiagent decision making; favorable legislation and administrative behavior innovation.

University of Chieti – Pescara
https://www.unich.it/

Who we are and what we do

D'Annunzio University is a public research university located in Chieti and Pescara, neighbouring cities in the region of Abruzzo, Italy. Established in 1960 as a higher education institute and named after writer and poet Gabriele D'Annunzio.The university is formed from a variety of institutions which include thirteen academic departments organised into two schools. It provides undergraduate, graduate and post-graduate education, in addition to a range of international programs in multiple fields of study. Research is a component of each academic division, receiving funds for its scientific investigation from national and international institutions. In particular, in the Engineering and Geology department, in-depth studies have been carried out for some time on climate change and on the mitigation and adaptation processes necessary to reduce the associated risk.. D'Annunzio University was ranked as the 25th best national university in Italy by SCImago Institutions Rankings, and was included in the 2018 U.S. News & World Report of the world's best universities.

Thematic

The evolution of winter tourism in the Italian mountains in relation to climate change
Global climate change, particularly evident on the mountain ranges of the Alps and the Apennines, is evident in all its severity in the tourism sector: milder and less snowy winters, at least at medium-low altitudes, a significant decrease in the persistence of snow at soil even at medium altitudes and above all a greater temporal irregularity of snowfalls are the most critical points in planning activities related to the presence of snow in the most populated mountainous areas of the globe.
More specifically, it is precisely the point linked to the change in the snow regime that creates enormous difficulties in planning such activities; given that in recent years, the abundant snowfalls climatically ascertained in the late autumn months, tend to delay, often appearing at the turn of the Christmas holidays while the spring season would seem to be affected by increasingly abundant snow phenomena but have no influence on the winter socio-economic development. Alpine municipalities and large companies that group ski lift owners are urgently confronted with the challenge of finding sustainable and long-term solutions for winter tourism - and this taking into account changing conditions.

Public and Private Authorities/Bodies to be involved worldwide

Academics | Researchers | Professionals | Decision Makers | Leaders

Who we are and what we do

The Foundation is not for profit, it will not be able to distribute profits and will have as its exclusive purpose the pursuit of purposes of general interest and public utility in all countries and in particular the dissemination of the culture of agronomic and forestry sustainability as a factor of human growth, civil and democratic.
The Foundation will have the purpose of promoting scientific-technological research in the agronomic, forestry, territorial, rural, environmental, landscape and more generally sustainable development sectors as well as the dissemination of the related results, in order to make them available to professionals and world operators. . The Foundation also has as its purpose the promotion of cultural initiatives in the education sector, which respond to the need to increase scientific knowledge, managerial preparation, entrepreneurial action, cultural development in agronomic, agri-food, environmental sciences, landscape and more generally sustainable development at both national and international level.
To this end, the Foundation sets as its particular objective the cultural training of agronomists, research and professional innovation in sustainable development
It promotes, organizes (or allows its organization at the University) internships, workshops, masters, seminars, workshops, training courses, updating, specialization and specialization in the science of sustainable agronomic and forest development and in the culture of sustainable agronomic and forest development , also for the qualification and dissemination of culture on agro-food production and education for sustainability, for the construction of training courses of excellence, aimed at translating cultural development into qualified operational skills and for the dissemination of a culture of sustainability at all levels. The Foundation works in concert with the World Association of Agronomists (also World Association of Agronomist / Association Mondiale des Ingénieurs Agronomes / Associacion Mundial des Ingenieros Agrònomos-AMIA) and will support its activity where possible.

Thematic

On a world scale, the application of water in agriculture and the controlled consumption of water resources are essential factors for increasing agricultural productivity and for ensuring production results.
Water is an essential resource to express the yield potential of the soil and to allow varieties of plants and animals to also benefit from other factors that increase agricultural productivity. By increasing productivity, sustainable water management (especially when combined with careful soil management) helps to ensure superior agricultural production, while also generating economic surpluses that are necessary to revive rural economies.
Since the 1960s, global food production has at least managed to keep pace with world population growth, providing greater quantities of food per capita at generally lower and lower prices, but at an excessive cost to water resources. of the planet.
Agriculture absorbs most of the water resources. It is estimated that around 70% of the water withdrawn from rivers, lakes and underground aquifers worldwide is destined for irrigation. Irrigated agriculture had its maximum development in the last century, when this technique was applied in the countries of the South of the world, mainly China, India, Pakistan.
Currently 30-40% of the availability of agricultural products worldwide derives from irrigated land which represents 16% of the total surface; it is also estimated that over the next 30 years, 80% of additional food supplies will come from irrigated agriculture.
Irrigation is practiced in different ways according to geographic areas and climatic zones, with varying degrees of sophistication and technology. It serves to stabilize the productivity of crops per hectare and in tropical countries to guarantee more productions in the same year as well as higher yields.
Irrigation is also important in arid or semi-arid areas, which would otherwise be unsuitable to support some crops. This system allows you to make the most of the productivity of the land, adding everything that nature cannot provide according to its cycles. ie pesticides and chemical fertilizers. On the one hand, therefore, irrigation becomes an increasingly important tool for the purposes of food availability; on the other hand it constitutes the main form of consumption of water resources on a planetary level. Just think that the amount of water that is normally enough to irrigate one hectare of rice fields is the same as that which serves the needs of 100 nomads with 450 head of cattle in three years, or 100 urban families over two years. Furthermore, in the countries of the South of the world the water used for irrigation accounts for 91% of water consumption

(compared to 39% in high-income countries), and sometimes what remains is heavily polluted; this explains why these countries often find themselves facing serious situations of water deficit for food and health use. In addition, developing countries, while using about double the water per hectare compared to industrialized countries, have an agricultural production equal to one third, since half of the water destined for irrigation evaporates during the storage or derivation due to high temperatures, or is lost due to old or damaged supply networks. To solve the waste problem it would be sufficient to introduce more modern technologies such as drip irrigation and renew the networks, but often the financial burdens are not affordable.

Another aspect of water use related to productivity is that of water overfishing.

It is now evident that in many areas the withdrawals for irrigation exceed the capacity of water courses, rains and the reconstitution of natural reserves; therefore every time the rains are slow in coming, compared to natural cycles, huge famines break out. It is estimated that in 35 years the underground water reserves in Jordan will be completely exhausted and, to reconstitute them, it will take thousands of years. In the United States, the Colorado River no longer reaches the sea except in years of exceptional rainfall since 1960. In the African region of the Sahel, both due to a prolonged drought and the diminished flow of rivers, whose waters have been diverted for irrigation purposes, Lake Chad has shrunk by ¾ over the past 30 years. But the most exemplary story is the death of the Aral Sea (which was the 4th largest lake in the world), in the heart of the deserts of Central Asia. Some Asian republics of the former Soviet Union have diverted the flow of the two rivers that supplied the lake to cultivate extremely watery crops such as rice and cotton in very arid soils.

Thus, the surface of the Aral Sea has decreased by 2/3; this has caused a further salinization of the waters, aggravated by the presence of pollutants and pesticides which, for years conveyed by rivers or drained from cotton fields, are today concentrated at maximum levels. Pollution is generating very serious health problems: anemia, infant mortality, rheumatoid arthritis, allergic reactions, far above the norm.

Through the illustrations of the speakers' experiences, we want to present the best strategies for a rational use of water in agricultural production processes.

INGEGNERIA AMBIENTE E TERRITORIO
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www.iating.it

Who we are and what we do

I.A.T. Ingegneria per l'Ambiente ed il Territorio is a company operating in the field of planning, development and control of the territory and the environment, highly specialised in engineering solutions and services for design, planning, monitoring and applied research. The company promotes interdisciplinary research and is particularly interested in the development of new technical-scientific methodologies for engineering applications. This interdisciplinary study, together with the technical and computer skills acquired, allows the Company to provide consultancy and engineering services with a high innovative content, according to the highest quality standards.IAT develops on its own or in collaboration with University Institutes and other research and development companies, analysis methodologies, numerical simulation models and management and control information systems, with reference to the territory or to relevant structures. Core business of the Company is environmental-structural-geotechnical monitoring and surveying engineering serivces , designing and coordinating the use of solutions, often innovative, derived from the field of international research and developing new applications even in geographical information system and Machine Learning logic also for predictive maintenance purposes.

Thematic

Around the world, there is much discussion in the water community about digitalization, big data, machine learning and artificial intelligence (AI).
Artificial intelligence is making its mark on the water industry. It is powering intelligent operations using machine learning to optimize resource use and operational budgets for organizations, as well as delivering truly intelligent built water systems and improving resilience and preparedness against natural disaster events.
AI will drive a decade of technology investment in water and wastewater operations, this investment is a part of a growing trend for the water industry to "go digital" with smart infrastructure solutions.
AI will deliver significant OPEX (operational expenditures) savings in water and wastewater operations, by reducing energy costs, optimizing chemical use for treatment, and enabling proactive asset maintenance. AI will predict emergency events and learn from them at an accelerated rate and will provide sophisticated decisioning intelligence to support operators. Operators no longer need to analyze complex variables for important decision-making by themselves. Whether it's turning pumps on or off, determining chemical dosages, or deciding when to maintain assets, AI enables the Operator 2.0 – empowered by intelligent recommendations driven by machine learning.
Natural disasters are on the rise due to climate change. Artificial Intelligence can improve disaster response, from reducing the time to assess damage to monitoring social media to more quickly and effectively deliver aid. More than 160 million people a year are threatened by floods, hurricanes, fires and other natural disasters. And the situation will likely get worse. Already, natural disasters occur four times as often as they did in 1970. According to estimates, such events could grow in frequency and ferocity with the effects of climate change. Artificial Intelligence has potential to alleviate the damage by marshalling relief resources more efficiently and effectively. It can accelerate the delivery of aid and sharpen the decisions of relief workers on the front lines. The opportunity for AI to help in the disaster resilience arena is vast – guiding relief efforts, ensuring better evacuations, distributing aid that could help tens if not hundreds of millions of people per year. While there are challenges to overcome, with the right level of coordination and partnership, this brighter future could be a bit more within reach.

Public and Private Authorities/Bodies to be involved worldwide

Academics | Researchers | Manufacturing Companies | Technology leaders | Decision makers

UNESCO Chair on "Prevention and Sustainable Management of Geo-Hydrological Hazards"

Contribution for the X World Water Forum 2024, Florence-Assisi Candidacy

THE MISSION OF THE CHAIR IS TO PROMOTE RESEARCH AND DEVELOPMENT (R&D) FOR THE PREVENTION AND MANAGEMENT OF GEO-HYDROLOGICAL HAZARDS, IN ORDER TO SUPPORT POLICIES AND ACTIONS OF RISK REDUCTION

Who we are and what we do

The UNESCO Chair on "Prevention and Sustainable Management of Geo-Hydrological Hazards" of the University of Florence represents the first UNESCO Chair in Italy dedicated to applied research in the field of geo-hydrological hazards threatening human life, property, cultural heritage, natural and built environments. Two different departments of the University of Florence are involved in the Chair's activities: the Department of Earth Sciences (DST-UNIFI) and the Department of Civil and Environmental Engineering (DICEA). The Chair has one of the largest scientific research groups on geo-hydrological risk in the world, formed by hydraulic engineers, engineering geologists and geo-hydrologist with proven international experience.
The mission of the Chair is to promote research and development for the prevention and management of geo-hydrological hazards to support policies and action of risk reduction (see front page), with special emphasis to floods, landslides and subsidence (Fig. 1).

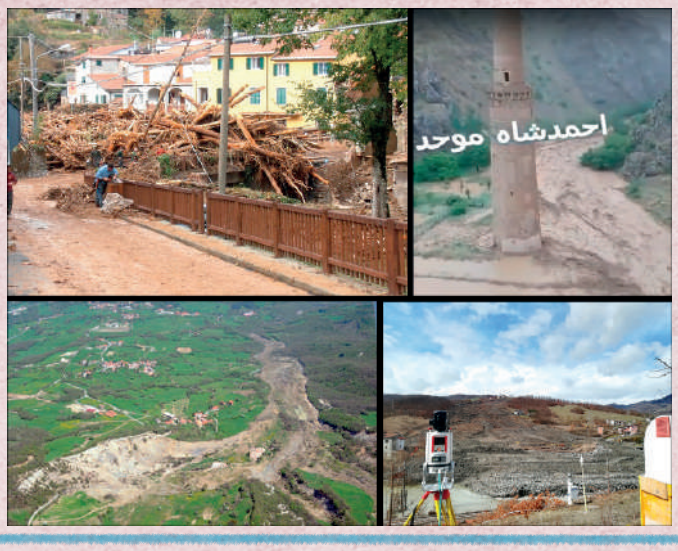

Fig 1.
Geo-hydrological hazards and technologies adopted by the Chair for risk mitigation strategies.

Thematic

The Chair participates in several international and projects, funded by the EU Community, International Consortium on Landslides (ICL), UNESCO, the Italian Ministry of Research and Education (MIUR), the National Civil Protection Department (DPC), as well as by several regional and national governments and agencies. In this framework the main lines of research of the Chair are:

a) Flood risk evaluation and mapping in a changing environment. The activity focuses on advanced risk mapping techniques at the urban microscale, including vulnerabilities for people, cultural heritage and critical infrastructures, estimation of damages, taking into account ongoing and future changes in land use and climate at river basin scale.

b) Increasing resilience through non-structural risk management. The activity focuses on improving flood-alerting systems, through the innovative use of earth-observation, watershed modeling and user experience, as a critical risk mitigating measure in urban centers prone to floods and flash floods. Joint with the urban-scale hydrologic modeling for the evaluation of flood-mitigation effectiveness of green infrastructures and urban regeneration.

c) Understanding the spatial and temporal distribution of extreme hydrological events for flood risk assessment and management, as well as water resources management. Particular attention is given to the frequency analysis and the analysis with uncertainty of hydrological extreme events.

d) Understanding climate-water-energy-food nexus. The activity supports the integration of the sole water resources analysis and planning, towards innovative instruments that systematically account for the different relationships and feedbacks among climate, water, food and energy. In this context, the water-related ecosystem services (WES) for river basin management, are also considered.

d) Interactions between fluvial morphodynamics and riparian vegetation and implementation of predictive tools for eco-hydro-morphological evolution of rivers.

e) Modelling hydro-morphodynamics of rivers in urban areas and interactions with complex structures also including large wood transport.

f) Innovative technologies for landslide monitoring and early warning. This activity focus on the application of innovative monitoring techniques in order to estimate the deformational evolution of the landslide masses and the successive operative implementation of Early Warning Systems (EWS). The activity deals with the optimization and validation of the operational protocols for technical and scientific support in areas at risk and on the definition of rapid procedures for assessing landslide risk and proper emergency management.

g) EO (Earth Observation) data and technology to detect, map, monitor and forecast ground deformations. This activity deals with the exploitation of the large data archives of EO data for geo-hazards mapping. The aim is devoted to improving the satellite surveillance system based on all the EO data (radar, multi- and hyperspectral) already available from several satellites.

h) Regional landslide forecasting models. The activity is focusing on the optimization of the regional early warning system for landslide risk by means of meteorological nowcasting and real-time forecasting of slope movements that are characterized by rapid and very fast kinematic.

i) Protection of cultural heritage sites from geo-hydrological hazards. UNESCO Chair participates in several national and international missions, in collaboration with UNESCO and official partners, to promote the protection of the World's cultural heritage threatened by geo-hydrological hazards, some of which part of the UNESCO World Heritage list, especially in developing countries.

Public and Private Authorities/Bodies to be involved worldwide

In the framework of global risk reduction policies the Chair has created a solid network involving international non-governmental organizations:

- International Consortium on Landslides (ICL)
- International Consortium on Geo-disaster Reduction (ICGdR)
- Global Alliance of Disaster Research Institutes (GADRI)

other Chairs and UNESCO networks:

- UNESCO Chair on Water Resources Management and Culture, University for Foreigners of Perugia
- UNITWIN-UNESCO/KU/ICL Landslides Risk Mitigation for Society and Environment Cooperation Programme at Kyoto University
- UNESCO FRIEND-Water initiative
- UNESCO Chair on Geoenvironmental Disaster Reduction, Shimane University
- UNESCO Chair on Sustainable Water Security, Florida International University

national-regional governmental organizations:

- The Italian Civil Protection Department (DPC)
- Superior Institute for Environmental Protection and Research (ISPRA)
- Northern Apennine District basin Authority
- Tuscany Region administration.

Società Italiana di Geologia Ambientale
Italian Society of Environmental Geology
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https://www.sigeaweb.it/

Who we are and what we do

SIGEA is a non-profit cultural association for the promotion of the role of Earth Sciences in protecting human health and safety, in safeguarding the quality of the natural and man-made environment and in the more responsible use of territory and its resources. SIGEA is recognized by the Italian Ministry of the Environment as a "national environmental protection association" pursuant to art. 13 of law 349/1986.
SIGEA is an association open not only to geologists, but to all people who have an interest in protecting the environment. SIGEA was established in May 1992 in Rome by 19 founding partners (geologists, engineers, architects, geographers), experts or connoisseurs of Environmental Geology.
The association aims to promote the progress, enhancement and dissemination of Environmental Geology and to stimulate coordination and interdisciplinary collaboration in cognitive and applicative activities aimed at environmental protection. It operates in the sectors of education and dissemination, training professional, applied research and other sectors related to the aforementioned purposes, organizing courses, conferences, study excursions, interventions on the mass media.

Thematic

In 2006 Sigea organized the first National Conference on "Ancient Hydraulics Technique" which was held in Rome in September of that year.
We wanted to highlight how hydraulics, a branch of science and technology that studies and implements systems for controlling water, making it possible to consume and use it, has always been and has always been one of the indicators of the civilization achieved by peoples.
Drainage tunnels, emissaries of lakes and dams, aqueducts, sampling and irrigation systems with reference also to works carried out 2000 or 3000 years ago were analyzed and discussed first in the 2006 event and again in the 2016 event whose acts were published in March 2017 in the journal Geologia dell 'Ambiente edited by Sigea.
The analysis of ancient hydraulics techniques is the theme that Sigea proposes around which to promote a session of dialogue and discussion concerning not only Italian and European contributions but also of the interested subjects of the various continents for a comparison on the evolutionary history of the "Culture of Water" and of the ancient hydraulic techniques at world level..

Public and Private Authorities/Bodies to be involved worldwide

Academics | Researchers | Professionals | Decision Makers | Leaders

CONSIGLIO NAZIONALE
DEI GEOLOGI

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Managing water better,
perspectives and challenges of tomorrow's environment

Over the past twenty years the global water community has promoted collective actions on specific themes to boost progress towards Sustainable Development Goals (SDGs).

The real challenge is the achievement of effective "Integrated Water Resources Management" (IWRM).

Climate change amplifies water variability and raises the risk of disasters able to determine extensive damage to natural and urbanised environments, thus underlining the priority of educating communities to be resilient.

The implementation of effective frameworks and models for IWRM involves a complex process which should focus on the physical, social, and political dynamics of water management.

The most critical aspect of this approach is related to water governance.

More effective coordination between local, regional and national authorities and even international organisations is needed to mitigate the fragmentation of responsibilities and to build water-wise policies across multiple sectors.

Water - and groundwater - policy is of critical importance to health, the environment, agriculture, energy and land planning.

Coordinated and beneficial interaction between researchers and practitioners is key to this process and is fundamental for the development and promotion of approaches and tools for land management and protection and should guide decision makers in recognising global actions on priority issues.

As regards such goals and principles, the National Council of Geologists (CNG – the official Italian Professional Register) proposes to discuss and develop the main topics for future development in IWRM modelling in a way that might be of interest to policy makers and forecasters of scientific and technological trends.

All the above involves focusing on the following key issues: knowledge sharing, overcoming data limitations, informed stakeholder involvement, social equity and uncertainty management.

Drafted by CNG Water Resources Committee

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