INITIATIVES POUR L'AVENIR
DES GRANDS FLEUVES
INITIATIVES FOR THE FUTURE
OF GREAT RIVERS

Report

The place and role of the river in energy transition and in the response to climate change

1st session

13-15 October 2015 – Lyon

DAY 1 - 13 OCTOBER

1- Opening – Changing our approach to rivers

The official opening of the session gave Erik Orsenna, the President of "Initiatives for the Future of Great Rivers" the opportunity to present the approach in a few words. The Musée des Confluences, which hosted the three day session, symbolised the objective underpinning these "Initiatives": more than an observatory, it is an arena of exchange and proposals for concrete action on rivers, at the confluence of different analyses.

After an initial round table discussion, Elisabeth Ayrault, Chairwoman and CEO of CNR, stated the reasons for founding this international observatory. The specific characteristics of CNR – an integrated vision of the river, anchored in three missions for the community; an international engineering company; a producer of renewable energies in synergy – are the sources of this will to share and exchange.

"The idea was to set in motion collaboration and cross disciplinary approaches to envisage the river differently, and ensure that rivers can speak with each other".
Elisabeth Ayrault

Each of the members was then invited to share their expectations of the IAGF. Several paths were identified:

- ⇨ Encourage cities and their inhabitants to renew their links with their rivers ; "take the river out of its enclosures"
- ⇨ Promote the river as a vector of peace, a space of solidarity and exchanges.
- ⇨ Develop communication around rivers, especially in the direction of the young.
- ⇨ Improve knowledge and incite ourselves "not to believe in what we know".
- ⇨ Implement this knowledge through applied research, notably through demonstrators.
- ⇨ Make the international community aware of the resources available for designing sustainable models.
- ⇨ Enlighten decision-makers, notably politicians, by operating in "concentric circles".

To contribute to these objectives, Erik Orsenna offered to use his pen in the service of rivers, a proposal that was greeted with enthusiasm.

"Rivers are the grammar of life: they are the links, just as grammar links words."
Erik Orsenna

This initial morning highlighted key points that were to be dealt with in detail during the workshops:

- Refusal to rest idle, by adopting a practical rather than an ideological stance. For some countries, particularly in Africa, development is not a choice but an obligation. They invited the members to take into account the social cost if no development takes place.

"Doing nothing in our territories amounts to depriving their populations and agriculture of water".
Papa Abdoulaye Seck

- The river as a "major input" to the creation of a new civilisation.
- The importance of exchanging good practices, notably from developed countries to developing countries. Given the challenges facing the latter, the rich countries must take on their responsibility and make possible access to development with the most innovative technologies and developments. It was recalled that whereas an inhabitant of the United States has available an average of 5,000 m^3 of water stored in dams, the inhabitants of African countries have only 3 m^3 of water per individual.
- The city as driver: urbanisation leads to building closer to river banks and to the occupation of arable land.
- The link between progress and the memory of the river; the memory of the river and its past uses, also of its risks, which cannot be dissociated from the movement of water.
- The importance of breaking the deadlock confining the river to a single use, sometimes poorly viewed, to develop multiple uses.
- The inclusion of the stakeholders in river management, including those who and which are not on the river, and the need to restore conditions for dialogue.

For Julien Clément, the work between the stakeholders consists in *"finding points of disjunction, disagreement, and, as in judo, use them to overcome barriers."*

- The concept of "urban exodus" which entails attracting urban populations to take up farming by making it a tempting life choice.
- The redistribution of the wealth generated by hydroelectricity production, a growing requirement.
- Climate change considered as a weapon, a challenge for building intelligently, by combining technological responses and a change of paradigm (decentralised energies, flexible structures, diversification of river use).

The issues debated confirmed the pertinence of bringing together complementary analyses and regions from all over the world. They share two characteristics:

- The actors are faced with the same questions, from Bangladesh to Canada.
- They above all need to seek optimal and sustainable management for river resources that integrates all the different uses.

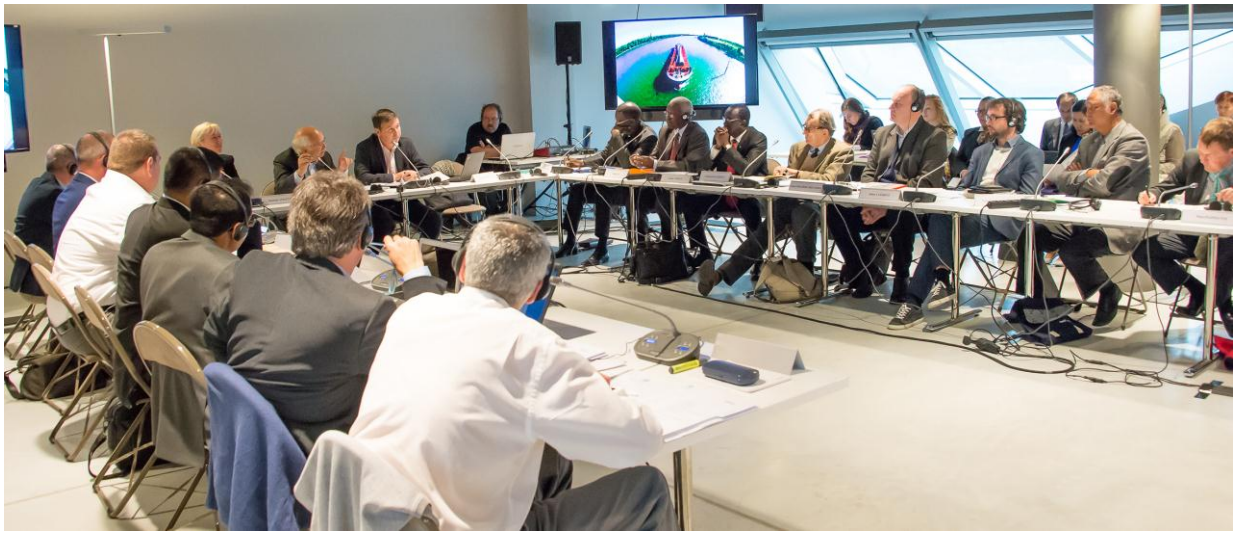
Introducing the challenges of the Climate Conference scheduled for December, Erik Orsenna expressed his concerns: despite the general awareness among public actors, private companies and citizens of the need to act, rivers remain absent from the discussions. Four themes, reflecting the stakes of energy transition and climate

change for river resources, were chosen for this initial meeting: floods / pollution / urban development, hydroelectricity production, navigation, irrigation and agriculture.

2- Workshop 1: floods/ pollution / urban development

The members were invited to first reflect on different subjects: How can floods be prevented? Can building on floodable zones be prevented? How can urban development be controlled in hazardous regions?

Four participants presented their vision to kick-off the discussion: Mohammad Mozammel Haque, President of the Bangladesh Inland Water Transport Authority, Tamsir Ndiaye, Director of the Diama Dam Management and Operation Company; Philippe Magherini, Director of Legal Affairs of CNR, Bernd Gundermann, architect and urban planner responsible for renovating the port area of Hamburg city centre, Hafencity. Common themes were identified:



THEME 1: alert methodology

The presentation of the floods affecting Bangladesh, where they are part of the daily life of the population directly subjected to the impacts of climate change (the rise in the sea level is estimated at 1 metre, equivalent to a loss of 25% of the country's land in 2100), demonstrated the need to develop forecasting and alert procedures in parallel.
A path for action could be duplicated within a "Flood WHO", with prevention systems (sensors, modes of transmission) that exist in other fields such as volcanology or earthquakes.

"Urban and economic development is one of the main factors of vulnerability of populations living in floodable areas (…); populations are endangered in particular when the periods between the alert and the event are either inexistent or too short for evacuation to take place".
Philippe Magherini

THEME 2: urban and social resilience

Since the problem of floods is above all one of land use, the panellists acknowledged the urgency of improving urban planning tools to adapt to a constantly changing environment. This requires adopting a systemic approach to floods that encompasses two aspects:

- Adopting the term "social resilience" permits taking into account all the dynamics at work in the capacity of a community to re-establish itself following a disaster.
- Work is necessary to strengthen compliance with urban planning regulations while taking into account all the factors involved in nonconformity with the law: the localisation of employment areas, for example, continues to attract populations, often the most vulnerable, to hazardous zones.

Paths of action:

- More dynamic planning, integrating the practices and lifestyles of the populations concerned, with the creation of buffer zones between cities and rivers, by using more resilient means (creation of places conducive to fauna and flora development, more accessible river banks for the populations etc.)
- The exploration of evolutions towards the smart city, via services made possible by new information and communication technologies (information on road safety, the latest flood reports, etc.).

"We are able to transform climate change into an opportunity to start a new phase in the urban fabric, which will consist in adapting the city to our new lifestyles".
Bernd Gundermann

THEME 3: memory

The same observation can be made in Paris, along the Rhone, in Rosario (Argentina) or in Dakar: there is no such thing as a genuine risk culture. The problem of floods requires rooting in collective memories the disastrous effects of previous floods, in order to fight against a kind of Alzheimer's disease relating to property development.

Paths of action: conserving traces (signalling, etc.) rather than models.

THEME 4: governance and responsibility

The exposé of the case of CNR, whose role regarding flooding relies on the principle of flood "non-aggravation", raised the issue of responsibility for these questions. Several panellists (Tamsir Ndiaye from Senegal, Viraphonh Viravong from Laos) signalled the perverse effects of management segmented according to uses on the capacity to efficiently combat floods.
Before even dealing with the issue of floods, it is first important to ask how to manage river resources optimally and take agriculture into account, for example, to relieve congestion in cities.
It also entails working on solidarity up and downstream: in the case of Bangladesh, this will require a regional approach that integrates controlling the waters of the Ganges upstream.

"Bangladesh cannot act without regional and international cooperation."
Mohammad Mozammel Haque

Actions launched by the IFGR:

- ⇨ Gathering examples of alert methodologies by compiling an inventory of everything done in this area.
- ⇨ Alert governments on the need to stop the urbanisation of floodable zones, on the basis of five international examples. This common approach will rely on technological components, zoning, etc.
- ⇨ Working on the question of segmenting responsibilities: what are its effects on optimal flood management?

3- Visit to the CACOH

The panellists were then invited to visit the CACOH, CNR's Hydraulic Structure Behaviour Analysis Centre, where they were welcomed by five speakers : Laurence Duchesne, Pierre Roumieu, Céline Khantache, Nathalie Jacquemond, Sébastien Roux, Magali Decachard. First, they explained the daily activities of this analysis centre in which 45 people work, mostly hydroelectricity experts and engineers, and its aim: to position CNR as a major actor in energy transition and take up the challenge of achieving industrial excellence. This ambition was illustrated through an explanation of the works performed in the framework of building a third set of locks on the Panama Canal. Lastly, the speakers described the laboratory's performance in the field of hydrography through the use of an open-ended tool: the Fréderic Mistral, CNR's hydrographic survey vessel. The studies and innovations carried out with these instruments attracted great interest from the participants and confirmed the importance of deepening knowledge and experiments in the field of hydraulics, especially given the context of climate change.

DAY 2 - 14 OCTOBER

1- Workshop 2: hydroelectricity production

The panellists were invited to reflect on technical, environmental and social issues, as well as energy models, via questions of acceptability (what is a "good" dam?), the synergy between hydroelectricity and the other sources of renewable energy (such as can hydroelectricity production act as a lever for energy transition?), the redistribution of income generated from hydroelectricity (can a regional indemnity be envisaged?) and its perspectives (is hydroelectricity an energy of the past or the future?).

Four participants presented their vision to kick-off the discussion: James Spalding Hellmers, Paraguayan General Manager of Itaipu Binacional; Viraphonh Viravong, Vice-Minister of Energy of the Lao People's Democratic Republic; Sergio Makrakis, environmentalist; Fréderic Storck, Energy Manager of CNR.

THEME 1: the synergy between renewable energies

The examples dealt with lead to thinking that hydroelectricity can, to a certain extent, act as a lever in energy transition. Indeed, it presents several advantages:

- energy that is 100% renewable and which emits no greenhouse gases;
- maturity that permits exploring innovative technologies at the core of tomorrow's energies (energy storage: power to gas, hydrogen, synergy with other renewable energies);
- a financial resource that can be redistributed throughout the territory. CNR and Itaipu Binacional finance many projects and work in close cooperation with universities.

"The main challenge for the future is to remain focused on weather related renewables, which now compose our DNA", Fréderic Storck

THEME 2: Models of the past, models of the future

The presentations of the models of Itaipu (Brazil/Paraguay) and Xayaburi (Laos) raised a question: shouldn't we stop continuing with large centralised dams and rather seek decentralised production, at the local or even the individual scale? Two rationales were set out:

- Sergio Makrakis' presentation showed that dams, especially the largest of them, significantly modify the hydrological continuity of a river, interrupt the normal transit of sediments and inhibit the natural evolution of living organisms.

"Universities should be involved more than they are. Much information is already available to improve projects and reduce their environmental impacts".
Sergio Makrakis

- Faced with this observation, the multiplication of possible energy sources, their miniaturisation and digitisation, tend to change the paradigm.

The observation is shared: it must be possible to place hydroelectricity in the service of tomorrow's economy rather than productivist growth that has come under severe criticism.

"A model leading to increased energy consumption will inevitably be rejected"
Marc Papinutti

It is apparent that this issue is raised in different terms in developing countries like Laos, for which large dams benefit unprecedented growth and development. In reality, the diversity of needs requires intensifying the quest for synergies more than opposing one new technology against another and against older models.

"We need technological assistance to design systems capable of integrating the innovations of the future",
Viraphonh Viravong

Paths of action:

- Develop R&D to design decentralised models, to be combined with existing ones.
- Design flexible structures capable of integrating innovative technologies and thus solve the problems they cause to fauna and flora.

THEME 3: social responsibility

Stirred on the subject by the presentation of the case of Itaipu, where the redistribution of income generated by the activity of the dam can amount to as much as 80% of municipal budgets, the panellists concurred on the need to increase both the effects and the transparency of redistributing the profits generated from hydroelectricity.

"Itaipu's transfer of funds to Government benefits the communities in our areas of influence and in Paraguay, our social responsibility is for the entire country"
James Spalding Hellmers

The responsibility of the operators, producers, and managers of waterways, is transformed by new demands made by regional authorities and other rivers users. The need of the land bordering rivers is growing, and is expressed in aspirations other than economic and for which river managers must be prepared.

"A State can no longer simply implement its own decisions, it must also dialogue with civil society, in order to reach consensus",
Tamsir Ndiaye

Actions launched by the IFGR:

- ⇨ Explore the combination between renewable energies and miniaturisation linked to the decentralisation and diversification of sources.
- ⇨ Collaboration focused on the problem of invasive plants on dams.
- ⇨ Develop experiments using tools made available to CNR and the members of the IAGF.

2- Workshop 3: river transport

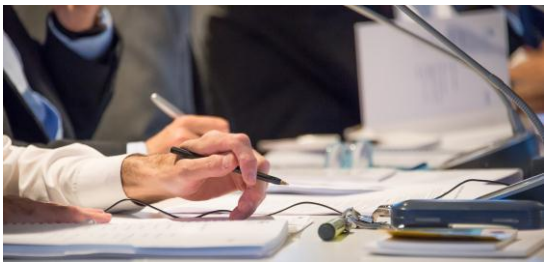
The panellists were invited to examine the role of river transport in climate change with respect to several challenges: is river transport capable of decongesting roads? Can it benefit the populations surrounding rivers? Six participants presented their vision to kick-off the discussion:
Alfredo Sese, Technical Secretary of Transportation and Infrastructure at the Bolsa de Comercio de Rosario, Ricardo Javier Álvarez, legal coordinator of the Hidrovias of South America, Daniel Dagenais, Vice-President of Operations at the Montreal Port Authority, Marc Papinutti, Managing Director of Voies Navigables de France, Madine Ba, General Secretary of the Organisation for Developing and Operating the River Senegal (OMVS), Michel Cote, Director of Economic and Port Development of CNR.

Two challenges were shared in the panel:

- The disengagement of governments, which is increasing due to the decrease in public receipts, leaves the door open to the private sector – the examples of the Port of Montreal and the Rosario Board of Trade were emblematic in this respect – and require understanding the forces that now structure the territories.
- A new mode of dialogue must be found, since the economic and ecological benefits of river transport, acknowledged unanimously as the exposés continued, are exploited by rationales that sometimes run counter to the claims made by a section of civil society.

THEME 1: the environmental efficiency of river transport

Although river transport is one of the least pollutant forms of transport, the actors present around the table were aware that it remained a major contributor to greenhouse gas emissions and water pollution. Thus Ricardo Alvarez emphasised that "70% of the contamination polluting oceans came from fuels discharged by rivers".



For Daniel Dagenais, government disengagement is in fact a driving force:
It encourages private actors to *"make commitments in keeping with their capacity to combat greenhouse gas emissions".*

Among other solutions, this approach must be technological: hybrid fleets, less energy greedy technologies for lighting, heating and air conditioning.

Paths of action:

- stimulate river transport, especially for short distances
- maximise its energy efficiency by formulating an energy performance indicator in the same way as for buildings.

THEME 2: governance

The discussion permitted highlighting examples of multilateral partnerships with the OMVS, and cases in which they are destined to continue, as in South America. It turned out that geographic and functional segmentations do not lead to the emergence of a common vision, nor do they favour the proper management of navigation.

The OMVS, which groups four States (Senegal, Mauritania, Guinea and Mali) has designed an ambitious integrated multimodal transport system to a great extent based on navigation, and has set up a company dedicated to implementing the navigation programme.

Regarding the port of Rosario, which represents an original example of private management, the main challenge is to set up an international governance system for the Parana.

According to Ricardo Alvarez, *"the completion of a network of navigation corridors linking the whole of South America above all requires the constitution of a legal framework."*

Paradoxically, in the current situation the private sector appears to ensure long term stability compared to the public authorities unable to cope with the reduction of their financial resources and the curtailing of their actions by electoral timetables.

"We must *imagine common modes of management that combine private and public structures,"*
Alfredo Sese

Path of action: perform a comparative analysis of cross border governance frameworks applied to river transport.

THEME 3: The link between the city and the river

Given the current trend of increasing competition between regions regarding economic development, it is necessary to find a new synergy between port activities, expanding cities and their inhabitants. Consequently, Erik Orsenna underlined that "*city mayors have more influence, they embody a project and tell a story".*

For Marc Papinutti, the river now has the capacity to serve cities, provided that navigation is no longer treated as an isolated sector. In order for a river to become a structural corridor, the members recommend that it should be integrated in a project for the territory assimilated by its citizens.

This also requires reflection on the economic dynamism of the city. Thus for Michel Cote, *"all navigable waterways are structural elements provided that economic activities are located by the riverside".*

Paths of action:

- Reinvent logistics to adapt it to the changes affecting societies, especially the circular economy.
- Emphasise the need to win back river banks and develop tourism, a vein of wealth still underestimated.
- Change discourses: economic and productivist messages, contested by some, cannot alone convince people of the advantages of river transport. It is here that the anthropological approach becomes particularly interesting, since river navigation has a structuring effect on the history of societies that can be exploited beneficially.

- According to Michel Cote, it is necessary to focus on trust, a variable that explains the underdevelopment of river transport on the Rhone better than congestion.

The paths to be taken for the IAGF

- Technical collaboration on improving navigability on rivers.
- Exchange on good practices relating to models for financing infrastructures. The investment cannot be financed by freight alone. The example of VNF drew the attention of Mozammel Haque and James Spalding Hellmers, who are both confronted by problems of navigability and uncertainty regarding returns on investment. VNF obtains its finance from taxes levied on heavy trucks, property tax, and subsidies (government, EU).

3- Workshop 4: agriculture / irrigation

THEME 1: the link between water management and land management

An agricultural policy must be based on three pillars: control over water, good soil management and access to energy. The example of Senegal shows that provided ownership of land can be conserved, the rural exodus can be reversed to become an urban exodus (Papa Adboulaye Seck).
Optimal management of the river's resources, integrating agriculture, produces benefits by increasing food security and better control over growing urbanisation. The Minister of Agriculture of Senegal took the example of Dakar, which represents 0.4% of the country's global surface area, but accommodates more than a third of the population.

Path of action: Aware *that developing agriculture permits populations to settle and prevents desperate attempts to seek a possible greener valley",* Madine Ba appealed for a greater number of local experiments by making water and land available.

The paths identified for the IFGR :

- Include on the agenda of an upcoming session the issue of deltas, weakened by globalisation, rising sea levels and the increasing number of dams built upstream.
- Draw inspiration from experiments like those supported by CNR in Drôme[1].

By taking these approaches, *"the challenge consists in thinking about the way we can avoid being victims of climate change and use it as an opportunity for evolving according to a rationale of efficiency"*, according to Karen Guémain.

4- Transversal visions

- **Hydrology and climatology**

[1] CNR is a partner of the « Plate-forme TAB », a platform for regional experimentation dedicated to organic farming and alternative techniques

The message conveyed by the scientific studies presented by Ghislain de Marsily was clear: if we want to face the future problems of hydric stress, we must constitute stocks to ensure that there is enough water for irrigation.

- In France, the quantity of water stored in dams is equivalent to 3% of the annual flow rate of rivers, which is insufficient when compared to the rates of Spain (50%), Morocco (200% of annual rainfall) and the United States (400%, on the Colorado river).
- However, to date, *"no other alternative to dams has been developed for storing this water."*

The hydrologist continued by saying that, independently of climate change, the climate is characterised by considerable natural variability for which we must be prepared. This uncertainty, combined with unpredictable extreme events (El Nino) and climatic warming, are threats to agriculture, in a situation where world food stocks, have fallen from ten months twenty years ago to only two months today.
Ghislain de Marsily concluded with a study of climate estimations for the coming decades, by inviting her listeners to beware of *"poor models"*, and accept to "*live with the general indications on climate change."*

➢ Anthropology

For Julien Clément, anthropology can make a threefold contribution to the IAGF's works.
Firstly, asking how rivers got their names permits understanding part of the legends and myths associated with them. He said that history is forged in direct relation with rivers, evidently apparent when speaking of "Mesopotamia", the cradle of civilisation and whose name means "between the rivers".
Secondly, the anthropologist stated that differentiation is essential: it appears impossible to unify conclusions given the diversity of historic eras and states of society. This converges with the phenomenon of "glocalisation" observed by all the current anthropological studies: the same rationale requires different local approaches for implantation.
Lastly, to meet the challenge of negotiation between the stakeholders, Julien Clément presented two levels of analysis:

- Question the notion of progress, which raises a fundamental problem in that it implies a linear approach to time and is relatively impermeable to alternatives. However, for the anthropologist, questioning the future means accepting competition over the definition of futures. One must be aware that the representation and legitimacy of the State – first and foremost– are now disputed. It is a complex issue since reciprocal: each party questions the other.
- Learn how to free one's own thoughts to allow them to transform through contact with different parties. This approach ("of not believing what one knows") appears to be the primary condition for dialogue.

DAY 3: 15 OCTOBER

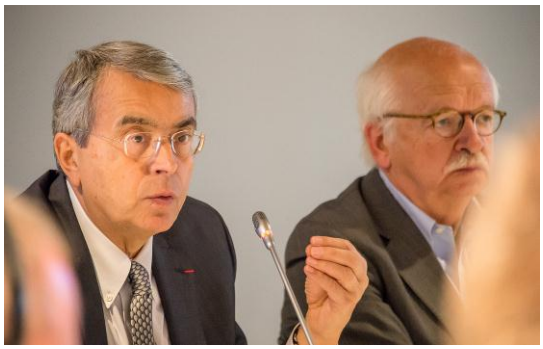
1- Synthesis by Erik Orsenna

At the end of the thematic workshops, Erik Orsenna proposed a synthesis in 12 steps:

1. The history of river geography is long, and it began well before us and will continue afterwards. The name of a river is the first element of its history.
2. Every river has its history. The Nile does not resemble the Rhone. The singular is not pertinent: one should not say the river but rivers, agricultures, progresses, etc.
3. Everyone has their river. This idea can be illustrated by a fable called: *The otter, the fish, the promoter and the farmer.* By definition, a river is like a parliament of stakeholders that all express themselves in one way or another. What is the Republic of this democracy? What form does this "living together from, in and on water" take?
4. "A fault, common sense, or necessity". For some a dam is an attack against life, for others it is a question of common sense, while yet others see it as a necessity.
5. Rehabilitating the soil using water. Provided ownership of land is conserved, it is possible to reverse the rural exodus and, in the words of Papa Abdoulaye Seck, turn it into an urban exodus, a phenomenon in progress in Senegal.
6. Two paths can be considered regarding the rivers. The first is that of wisdom, the second that of being on the receiving end of a balance of power. Water permits communication even during difficult times, such as wars, especially if the conditions of exchange up and downstream are right.
7. Childhood, with the utility of technical and institutional models.
8. The relationship between time and money. The context everywhere is characterised by fewer public funds, a lower horizon for government ambitions and the transfer of several tasks to the private sector, as in Argentina (which has 16 private ports), according to a specific logic. The tables have turned in some way, and the private sector can sometimes guarantee the long term while the public sector "repairs leaks" as best it can.
9. The relationship between the unacceptable and the non-accepted. The human tragedies caused by floods are especially unacceptable since they are often caused by the non-accepted: we refuse risk and building in floodable areas.
10. "The danger of salt where waters merge". The Saint Lawrence is an example of a meeting between a river and the sea that occurs without snags, and there are new ambitions for dredging. Other meetings between salt and freshwater occur far less easily: all the deltas of Southeast Asia are threatened by rise of the salt water of the sea, which is increasingly invading rice paddies.
11. The three spheres: economic, ecological, social (including cultural). Social and cultural demands are henceforth key elements, as shown by the desire to make river banks accessible to populations.
12. The emergence of a new world. Do large dams belong to the old world?

2- Exchanges with Jean-Jack Queyranne

Using the example of the Rhone, one of the elements composing the Rhone Alps Region, the President of the Rhone Alps Region declared that the river is an interface between economic, cultural and ecological rationales and that, as a tool for economic development, it must now be understood in its role as a vector of civilisation. For Jean-Jack Queyranne, it is necessary to "reconcile industrial and ecological requirements" and acknowledge that "the time has come for populations to recover possession of their rivers".



"Rivers are not sufficiently present in the COP 21. Climatic warming is a threat for rivers, perceived as vectors of civilisation and as vectors for economic development".

Jean-Jack Queyranne

3- Action plan

The discussion following the speech by Jean-Jack Queyranne highlighted different paths of collective action identified by the panellists. Erik Orsenna summarised them into five categories:

1- Links between the unacceptable and the non-accepted. The human tragedies caused by floods are especially unacceptable since they are often caused by the non-accepted: we refuse risk and building in floodable areas.
2- Knowledge. Research must be sustained. A culture of rivers must be disseminated in schools (primary and high schools), to inculcate the desire to live together around water.
3- Advocacy built around basic principles: shared management, solidarity between upstream and downstream, the importance of deltas, and the integration of all the stakeholders.
4- The possibilities. Use models to visualise what can be done at both technical and institutional levels. Technical solutions and river management authorities exist that can serve as models and be duplicated.
5- Dialogue with NGOs. The day of exchanges on 15 October proved the pertinence of associating all the actors. (A river is like a parliament of stakeholders: what is the Republic of this democracy?)

The members expressed different additional recommendations on the subjects to be dealt with and the methods via which the IFGR could deploy its actions:

- Initiate reflection on the creation of a single window, a common authority that groups the different technical questions relating to rivers.
- Participate in the transformations of river transport to make it more sustainable / prepare for the new demands of cities regarding this subject.
- Involve universities more.
- Work on the daily management of sediments and flushing.
- Launch a MOOC (Massive Open Online Courses) dedicated to river management or study the links between the existing ones

- Study the link between the city and the river from the environmental, urban, economic, political, poetic and administrative standpoints, by entering into contact with the academic world, in particular by studying the existing literature and by creating a relationship focused on the present and the future.
- Carry out work on decision-making, by making use of procedures existing in other fields for managing decision-making when the stakeholders come from very different backgrounds – and adapt them to water management.
- In addition to the institutions where decisions are taken, monitor the small decisions taken by organisations on a daily basis.

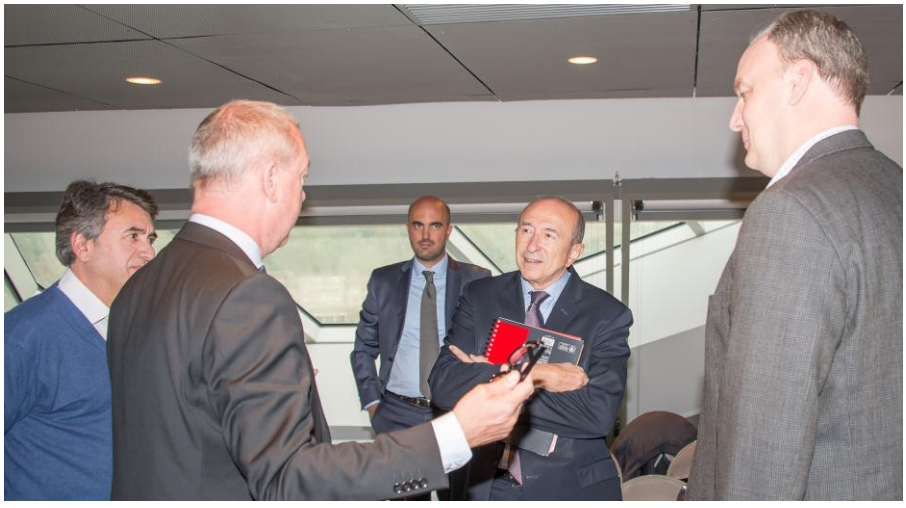
Emphasis was given for the need to take urgent action in the very short term in the framework of the COP21, by:

- Drawing up a collective forum,
- The intervention on the stand of Itaipu Binacional, within the building where the negotiations are to be held.
- The presentation of the synthesis to Laurent Fabius and Ségolène Royal.

"All of us are convinced that rivers are the major missing link of the COP 21. By developing river transport and renewable energies, by controlling floods and extreme climatic events better, and by developing new irrigation methods, rivers can contribute towards combating climate change."
Erik Orsenna

4- Exchanges with Gérard Collomb

The President of Greater Lyon first recalled the strong historic link between the population of Lyon and the Rhone. An impetuous river difficult to ford, it was a strategic military corridor under the Romans, and then a frontier between the Holy Roman Empire and the Kingdom of France (to which the Presqu'Ile belonged); however it is also and above all a trade route. The social and economic life of Lyon developed on its banks. Gérard Collomb then emphasised that after a "darker" period linked to the boom in highways, the decision was taken in 2001 to refocus the city on its rivers via several operations: the banks of the Rhone and then of the Saone, the renovation of the Confluences district, etc.



After the presentation of the conclusions of the three days, the President of Greater Lyon more specifically underlined three challenges that concern the Lyon region: the problem of floods, administrative and sectorial compartmentalisation and, lastly, the environmental efficiency of boats.

"We're acting to create a new symbiosis between the people of Lyon and their rivers."

Gérard Collomb

1- Dialogue with the stakeholders

The joint presentation of the works achieved by the panellists during the three days, alongside Elisabeth Ayrault, led to several speeches that confirmed the interest of involving the stakeholders in the IAGF's works.

- Geoffroy CAUDE felt it was important to recall that the objective of the upcoming AIPCN conference, organised in Panama in 2018, was to increase the visibility of river transport at international level.

- A representative of the Naturama association questioned the members: "During the COP21, how will you make the politicians aware that rivers must be given a new lease of life and that we must reduce the number of nuclear power plants?"

- Jean-Louis BAL, the President of the Syndicate for Renewable Energies, asserted the role played by rivers in climate change and raised a question: In the context of global warming, what is the capacity of rivers to fulfil their many roles?

  Two additional responses were formulated. For Daniel Dagenais, this issue requires daily adaptation to variations linked to climate change, before acting on the river itself. Tamsir Ndiaye completed this viewpoint by expressing the conviction that the future of the resource depends on the capacity to build new dams.

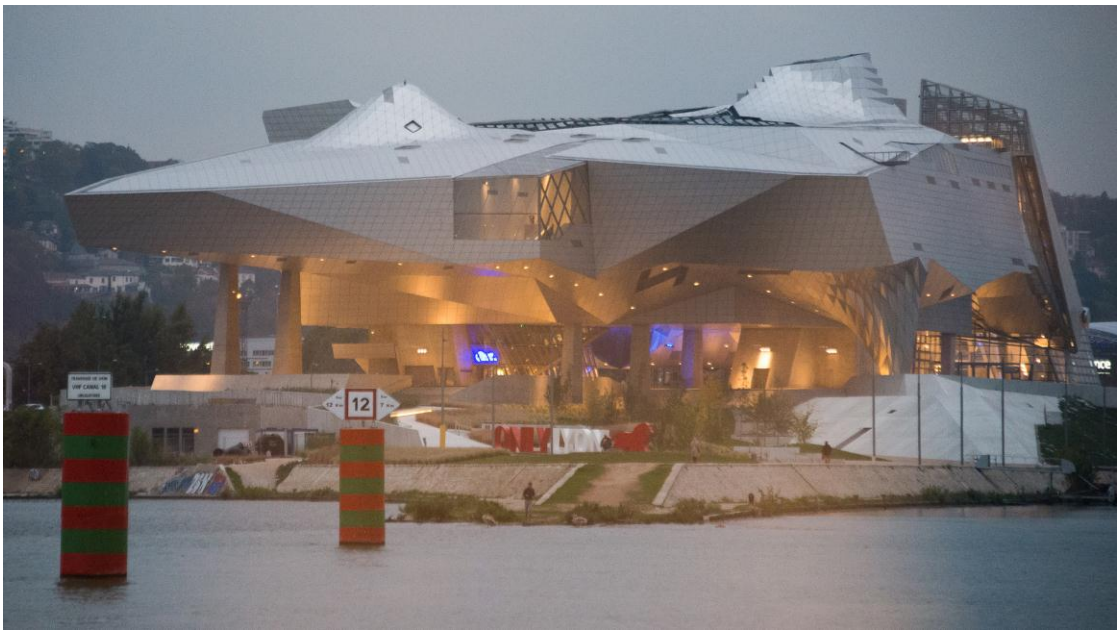
- Georges KEPENEKIAN, Deputy Mayor of Lyon and responsible for Culture, concurred with the societal, political and cultural concerns expressed by the IFGR, and said "I hope that the IFGR retains this idea that

rivers are a means of penetrating a territory as well as being a resource for irrigation, both technically and metaphorically".

- Underlining the need to continue the efforts made regarding irrigation, an increasingly poignant theme, a farmer from north Isère invited the IFGR to integrate people in the field using irrigation. In the French case, he emphasised two priorities:

- the subject must give rise to a debate in which all the stakeholders reach consensus;
- as for agriculture, certain practices can be improved still further, such as the crops to be sown, starting and stopping irrigation, and agronomy.

- Martin ARNOULD, of the WWF, stated that the NGO was not opposed to building dams or hydroelectricity production, but care must be taken not to repeat the errors of the past.



INITIATIVES POUR L'AVENIR DES GRANDS FLEUVES
INITIATIVES FOR THE FUTURE OF GREAT RIVERS

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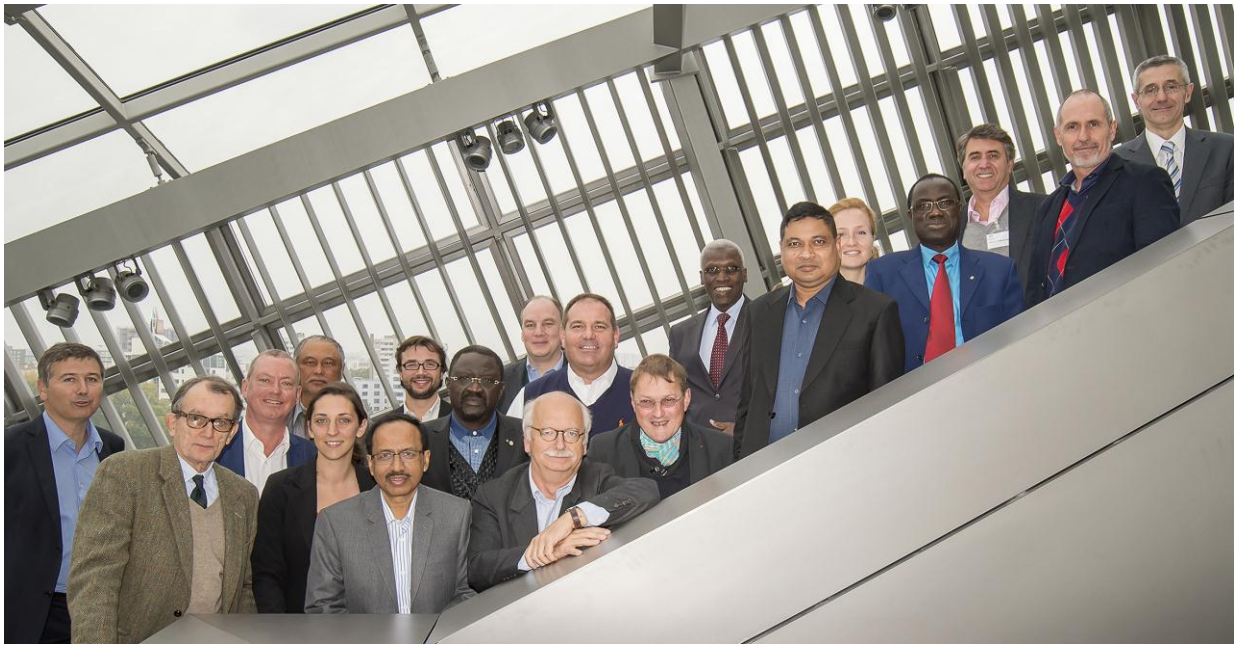

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