



M-POWER
Mekong Program on Water
Environment and Resilience



The Asia Foundation



MEKONG-GANGA DIALOGUE 2014

Towards Sustainable Development

Mekong-Ganga Dialogue (MGD) is an international cooperation forum for enhancing understanding between Mekong and Ganga countries about water, food and energy challenges. MGD organized its first official opening conference in New Delhi, India on 7th – 9th May, 2012 through the collaborative efforts of a Delhi based think-tank, Observer Research Foundation (ORF) and the Mekong Program on Water, Environment and Resilience (M-POWER), a knowledge and governance network from the Mekong Region in East Asia.

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Introduction



Most impetus in Asia for economic and environmental sustainability is in the Mekong and Ganga regions. The cultural linkages between the two civilizations, dating back thousands of years, have supported the bilateral relationships in the region despite many ideological and political differences. The seemingly convergent economic interests have broadened the scope of cooperation, but Mekong and Ganga countries have much to gain from cooperation beyond this sector. While attention is often on security concerns, there is also a congregation with respect to non-traditional security challenges, particularly climate change, shared river management and environmental protection.

Problems of water, energy and food facing these two vibrant regions are “wicked problems” where defining ‘what is the problem?’ is itself problematic – Dipak Gyawali, Former Water Minister of Nepal

Mekong-Ganga regions

- Large rural population dependent on agriculture
 - Mekong region : 70%
 - Ganga region : More than 60%
- High population density
 - Mekong region: 88 inhabitants/km²
 - Ganga region :200 inhabitants/km²
- Culture of Mekong region is a blend of Indo-Chinese traditions and religions.

Source: Aquastat, FAO 2013

In 2000, the formal Mekong-Ganga Cooperation (MGC) composed of six countries: India, Thailand, Myanmar, Cambodia, Laos and Vietnam, was established in Vientiane. The MGC was purportedly established to foster cooperation in tourism, education and culture between the Mekong countries and India and to build an expansive basis for future collaboration between the two regions. The formulation of the MGC undergirds a larger paradigm shift in India’s foreign policy, particularly with the initiation of the then-Prime Minister’s Look-East policy in 1991. The Look-East policy was spurred by India’s impulse towards an economic resurgence on the world stage and a strategic engagement with countries of South East Asia. This period was characterised by multiple multilateral, bilateral and regional initiatives that were aimed at furthering India’s collaborative efforts with South-East Asia such as the Association of South East Asian Nations (ASEAN) and the BIMSTEC (Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation), which was launched in 1997.

Therefore, in keeping with this backdrop, the Mekong-Ganga Cooperation was established as a way of cementing the civilisational, historical and socio-economic linkages between the Mekong and Ganga regions (India). Informed by this approach, the Observer Research Foundation, New Delhi and the Mekong Program on Water Environment and Resilience (M-Power) took the formal dialogue a step forward and launched the first Mekong Ganga dialogue in 2012 as a Track II dialogue that could combine synergies from both regions on water management, environmental conservation and the food-water-energy nexus. 2014 witnessed the third Mekong Ganga dialogue that was able to widen the scope of collaboration and make the dialogue more representative of South Asia as a whole with Nepal, Bangladesh, Bhutan on board as part of the Ganga countries.

The Mekong and Ganga regions

The Ganga region, home to almost half a billion people, has the most populous river basin in the world and possibilities for regional cooperation in watershed management abound in the region. The rising number of regional initiatives, particularly between India, Nepal and Bangladesh, in areas such as flood management, hydroelectricity, ecological flows and water sharing reflect the growing macro-developmental linkages between the three riparian countries.

However, in the absence of mechanisms for joint regional governance of the Ganga, its benefits have not been fully leveraged. Additionally, innovative methods and knowledge systems are needed in order to better manage the Ganga, sustain its ecosystem, capture the potential benefits and mitigate its mounting costs.

A useful way of achieving this would be through new forms of international cooperation with other regions that face similar problems and have experimented with different approaches. The Mekong basin, shared by Cambodia, China, Laos, Myanmar, Thailand and Vietnam is part of the wider Mekong region. The region has a plethora of collaboration systems in place including the Mekong River Commission which is striving to inform and cooperatively manage water resources development and related transboundary issues. The Mekong region also has other cooperations, such as the ADB-facilitated Greater Mekong Sub-region economic cooperation, plus transboundary networks of researchers and civil society organisations.

While the Mekong provides valuable lessons for trans-boundary cooperation to South Asia, both regions possess strengths and lacunae and cultural and geographical convergences that are useful to better understand in a shared forum.

Physical characteristics

To understand the similarities and differences between Mekong and Ganga countries, a comparison of the physical characteristics of the two regions and developmental indicators is essential. Table 1 lists down general population and poverty related statistics and Table 2 gives a comparative account of environmental and resource features of the regions.

Burgeoning population and urban growth are widely-regarded as threats causing environmental degradation and a strain on finite resources. Mekong and Ganga countries are experiencing similar trends of urbanization with an annual growth rates in the order of 2.5-4.5% annually (Table 1). A declining growth rate for their rural population is a clear indication of urbanization and out-migration in both the regions. Unless a clear strategy for urban development is laid, these regions might face acute shortage of water, energy and other resources.

Population density, on the other hand, is varying across Mekong and Ganga countries. Bangladesh has the highest population density with 1203 people living (on average) in every square kilometer of land area, followed by India (almost 400 people/sq km). Nepal, China and Thailand have comparable population density of 193.9, 144.6 and 131.2 people/sq km respectively. Myanmar, Lao and Bhutan have the lowest population density.

Poverty ratio (calculated based on the national poverty lines) is the highest in Bangladesh and lowest in China (2.5%). Lao and India record

almost same percentage of impoverished people (27.5-27.6%). Cambodia and Nepal are also at par with each other with almost 30% of the total population under poverty. The similarity in poverty ratio might not yield a substantial analysis or point of convergence, but it does provide an insight into comparable developmental needs, aspirations, and pressure points for each country to act in the manner they do with respect to the use and exploitation of the 'global common and shared' resources.

It is evident from Table 2 that agriculture dominates freshwater withdrawals across both regions. While the industrial freshwater withdrawals are highest in China, Nepal hardly extracts any water for industrial use. With growing demand for industrialization and urbanization, this trend will change and require appropriate strategies to meet sectoral water demands and challenges associated with it.

Thailand has the highest agricultural productivity, followed by China and India. This refers to the ratio of agricultural outputs to the inputs. Nepal, on the other hand, has the lowest agricultural productivity ratio. This crude index may not necessarily be the perfect indicator of agricultural development in the countries, but it does highlight the voids in the current practices – mechanization, availability of fertilizers, irrigation, market access etc.

Productivity of water calculated in terms of GDP per cubic meter of total freshwater withdrawal shows a surprisingly huge divergence among countries of Mekong and Ganga. Vietnam, Nepal, Bangladesh, India and Laos have low water productivity ranging from 1.1 to 2.7. On the other hand, Cambodia, Bhutan and Thailand fall under the range of 4.0-4.9. China, however, marks the maximum water productivity at 8.8, unlike any other country in the region. Lack of adequate technological resources, market access, pricing of water and unsustainable

practices are said to affect water productivity in the region.

Huge variance lies in terms of availability of renewable internal freshwater resources per capita in these countries. Bangladesh has the lowest with 670.5 cubic meters per capita, followed by India and China whereas Bhutan has the highest at 103455.5, followed by Laos and Myanmar. As per the International standards, if the availability of water is below 1700 cum per capita, the countries will experience periodic or regular water stress. Need to provide safe and clean drinking water to the burgeoning population will be a daunting task for the water stressed countries in the two regions.

Natural resources rent contribute majorly to the GDP of Laos, Bhutan and Vietnam in order of 19.6%, 16.9 and 11.8% respectively.

Additional vulnerability of these countries to environmental degradation and climate change is apparent.

Areas of convergence

Culture and traditions

Rivers have constituted defining features of cultures, religions, ways of life and economies in both Mekong and Ganga regions. Given the fact that the Indo-Chinese culture largely influences Southeast Asia, it won't be surprising to find similar values, beliefs and behaviours towards rivers.

Water infrastructures (hydropower)

Fascination with large scale water infrastructures, centralized decision-making process and reductionist perspectives underline the hydropower development in both Mekong and Ganga regions. Large dam projects are seen as a precursor for economic development, often associated with 'national pride'; means for flood control; irrigation and electricity

generation. For instance, large portion of the national revenue is generated from dam projects in Laos, Nepal and Bhutan by selling electricity to their energy-deficient riparian nations like Thailand and India respectively. Although hydropower generation is considered 'green and clean' form of energy, there are definite negative impacts that ascend from the construction of reservoir and alteration of natural water flow. The social context of hydropower projects is marked deeply by issues of resource ownership, entitlement, culture and traditions around rivers. Challenges such as inadequate rehabilitation and resettlement policies and threat to riverine ecosystem plague both the regions. More importantly, competition between fisheries, irrigation, electricity and environment has intensified with urbanization and industrialization.

Irrigation

Ganga and Mekong countries are heavily dependent on agriculture and depend on monsoon or river water for irrigation. Mekong and Ganga provide perennial source of irrigation to approximately 4.3 million ha and 23.1 million ha respectively. Large, medium and small irrigation canals have allowed farmers to grow crops twice a year and allowed countries to improve their food production. However, low irrigation efficiency, under-planned diversions and land degradation are forcing the planners of both the regions to review the old policies of irrigation expansion and encourage multi-purpose dam/diversion projects and programmes. Decisions regarding construction of storage dams, canals and projects can no longer be taken in silos and need greater participation and integration from other disciplines and sectors of water use.

Subsistence Livelihoods

Besides agriculture, the main subsistence livelihood associated with riverine communities is fisheries. In the Mekong, fisheries sector contributes majorly to the economy and is the main source of proteins to millions of people in the region. Contribution of fisheries sector in GDP is almost 12% in Cambodia and 7% in Laos. Ganga countries, on the other hand, except Bangladesh, have not yet realized the full potential of fisheries yet. It is estimated that only 15.2% of the fisheries potential in Ganga is exploited so far¹. However, in both Mekong and Ganga, competition from sectors such as industries, domestic water supply and electricity are posing a threat to the sector and livelihoods of millions of people dependent on it.

¹Sinha, M. 1999. Vision of inland fisheries of India of twenty first century. In, S.H. Abidi, N.K. Thakur, R.S. Birader and L. Shenoy. (eds.) Vision on Indian Fisheries of 21st Century. Central Institute of Fisheries Education, Bombay. pp. 154-168.

Table 1: General developmental indicators of Mekong and Ganga countries

Population & Poverty Estimates	Population density (people per sq. km of land area)	Rural population (% of total population)	Urban population (% of total)	Urban population growth (annual %)	Rural population growth (annual %)	National Poverty (% of the Total Population)
Year*	2013	2013	2013	2013	2013	2005-08
Bangladesh	1203.0	67.2	32.8	3.6	0.1	40
Bhutan	19.8	62.9	37.1	3.7	0.4	--
Cambodia	85.7	79.7	20.3	2.7	1.6	30.1
China	144.6	46.8	53.2	2.9	-2.2	2.5
India	421.1	68.0	32.0	2.4	0.7	27.5
Lao PDR	29.3	63.5	36.5	4.9	0.1	27.6
Myanmar	81.5	67.0	33.0	2.5	0.1	--
Nepal	193.9	82.1	17.9	3.2	0.7	30.9
Thailand	131.2	52.1	47.9	3.0	-2.1	8.1
Vietnam	289.3	67.7	32.3	3.1	0.1	14.5

Note: *The data above has been extracted from the World Development Indicators Report 2014.

Table2: Environment and Resource characteristics of Mekong and Ganga regions

ENVIRONMENT AND RESOURCES	Year*	Bangladesh	Bhutan	Cambodia	China	India	Lao PDR	Myanmar	Nepal	Thailand	Vietnam
Annual freshwater withdrawals, total (% of internal resources)	2013	34.2	0.4	1.8	19.7	52.6	1.8	3.3	4.8	25.5	22.8
Annual freshwater withdrawals, agriculture (% of total freshwater withdrawal)	2013	87.8	94.1	94	64.6	90.4	91.4	89	98.1	90.4	94.8
Annual freshwater withdrawals, domestic (% of total freshwater withdrawal)	2013	10	5	4.5	12.2	7.4	3.7	10	1.6	4.8	1.5
Annual freshwater withdrawals, industry (% of total freshwater withdrawal)	2013	2.1	0.9	1.5	23.2	2.2	4.9	1	0.3	4.8	3.7
Renewable internal freshwater resources per capita (cubic meters)	2013	670.5	103455.5	7968.2	2072.4	1154.8	28125.2	18832.5	7130.1	3350.2	4006.3
Water productivity, total (constant 2005 US\$ GDP per cubic meter of total freshwater withdrawal)	2013	2.7	4.4	4.9	8.8	1.9	1.5	..	1.2	4	1.1
Droughts, floods, extreme temperatures (% of population, average 1990-2009)	2009	4.6	0	6.6	8	4.4	2.7	0.1	0.7	3.8	1.6
Arable land (hectares per person)	2012	0	0.1	0.3	0.1	0.1	0.2	0.2	0.1	0.2	0.1
Total natural resources rents (% of GDP)	2012	4.2	16.9	4.6	5.8	5.6	19.6	..	4.9	4.3	11.8
Agricultural productivity	2009	435	-	411	525	468		-	238	708	356

Note: *The data above has been extracted from the World Development Indicators Report 2014.

Deliberations at the Mekong-Ganga Dialogue 2014

Challenges in the Mekong and the Ganga regions are comparably characterized by intense population density, high levels of pollution, sinking groundwater levels and socio-ecological vulnerabilities such as gender inequity and degrading biodiversity. However, due to huge contrasts within and between the countries in these regions, these challenges cannot be perceived without specificity, location and context. Therefore the need of the hour is to evolve best practices, informed by the similarities as well as divergences in the water milieus of the Mekong and Ganga regions. Lessons of trans-boundary and regional cooperation, experiences of water resource management practices and the exploration of mutually beneficial policy research collaboration in the areas of water, food and energy are key. Therefore with a focus on three themes: water supply, sanitation and hygiene, regional water systems and energy governance along with climate change adaptation, the third Mekong Ganga roundtable held in New Delhi and Kolkata from 16th-18th December 2014 touched upon the causal relationship between socio-ecological aspects, political dynamics and economic asymmetries.

The Mekong-Ganga Dialogue 2014, a joint initiative by the Observer Research Foundation, M-POWER aimed at exploring critical issues among the riparian nations of the Ganga and Mekong region. This project had the following main components: (a) Gather a team of thematic experts from multi-disciplinary background for knowledge sharing among 9 countries belonging to 2 different regions facing similar challenges (b) Establishment of a strong

practical knowledge base through interaction with the grassroots. (c) Formulate a road map with concrete recommendations for future joint action plans for sustainable development.

Sustainable Development Pathways for the Mekong-Ganga region

The year 2015 will witness the adoption of a successor framework to the Millennium Development Goals (MDG). Water is a key factor for the success of the global process towards achieving sustainable development pathways. As stated in the outcome document of the Rio 20+ Conference: "Water is at the core of sustainable development." This is particularly relevant for countries of Asia as the global water cycle undergoes a change and issues of income poverty, growing population, food insecurity, and energy poverty in the region become increasingly tied to the sustainable use of water. Integrating the understanding of water as a key pillar for achieving human well-being, and providing bases for diverse productive uses within water management for the Mekong Ganga region becomes critical. The core principles of the Rio 20+ and the United Nations Sustainable Development Agenda, namely, ensuring equity, building capacity, promoting good governance, establishing robust accountability, transparency and collective decision-making are intrinsic and fundamental to developing regional collaboration around rivers. Succeeding the successful collaborations established under the two Mekong Ganga Dialogues held in 2012 and 2013 respectively, the third Mekong Ganga Dialogue took this understanding a step forward and enabled the Mekong and Ganga to

formulate concrete pathways within the larger context of sustainable development.

I. Water Sanitation and Hygiene (WASH)

Universal access to safe water, sanitation and hygiene (WASH) is a crucial issue in the developing world, and not independent from other social, economic and political issues in the Ganga and the Mekong region.

A sociological issue

The science and the sociology of rivers need to inform approaches that analyze the water access and sanitation problem. The urgent need for more toilets was brought up as the obvious solution to the problem of poor sanitation practices. However, it was acknowledged that even at places where toilets exist, there's an acute lack of water to clean and maintain them. It was discussed why the previous government initiatives to curb river-pollution in India, have been largely unsuccessful. The misuse of funds and the narrow, short-sighted approach to the problem were cited as reasons for the failure in achieving long-term results. The Mekong representatives concurred that the funding needs to come from within the region as opposed to coming from outside, for higher accountability, responsibility and involvement and yet the consensus was that most WASH related solutions focus excessively on the scientific aspect of rivers. The sociological aspect, it was agreed, needed to be taken into consideration, along with integration of local customs and traditions into future solutions.

WASH and Gender

A gendered perspective in the discourse around water & sustainable behaviours, addressing the need to run water conservation and water sanitation training for the men and women living by the Ganga was put forth. That would not only help tackling health and social issues, but it will also preserve the ecosystem of the

river. It was established that including 'gender concerns' in water and sanitation targets needs to go beyond the narrow definition of addressing only women. It is essential to include women in the process of 'engendering water'. With regards to engendering the river, it was acknowledged that most rural women still rely on river water for daily chores. Women are solely responsible for bringing water to the household and managing it (cooking, cleaning, washing, and bathing). However, an important point which was raised was that any successful long term solution requires the involvement of men because in most parts of the region, it is the men who decide what water to access, how much to walk in order to access it, how much water to take, etc.

River-rights

A fine balance between rights of the people and rights of the river were thought to be central. The concept of 'river rights' was discussed – the idea that the approach to rivers has also been human-centric and perhaps the approach to trans-boundary river agreements should be river-centric. Nature does not acknowledge national boundaries, hence when it comes to the maintenance of the river's ecosystem, the mounting costs should be shared across boundaries.

WASH and cultural norms

It was discussed that Hygiene habits were not inculcated overnight, but over generations. Public defecation and inadequate access to toilets is still a huge issue in most parts of the Ganga region. The problem cuts across the urban-rural boundary. However, rural areas are still heavily dependent on river water for daily activities like cooking, cleaning and washing of clothes – which leads to further pollution of already unsafe water. In both regions, rivers are integral to cultural customs and traditions. Solutions that embrace and build on the cultural aspect may be more long-lasting. At the

same time, there's a need to actively modify customs and solutions that are detrimental in the longer run.

WASH and the role of civil society

In the Mekong region, most of the work is done by the civil society as there is relatively enough funding. In the Ganga region, most of the river-conservation work and initiatives on water supply and sanitation is done by the central government. Classic case of depending/expecting too much from the government in this regard. Civil society can reach the grassroots. Women, if trained, can prove to be a key asset in river water management, rain water harvesting and in maintaining the hygiene of the family. Politicians, policy makers, essentially pander to public demand. If men and women at the grassroots are equipped with the tools and knowledge, they will ensure that action is taken in their area. The men and women at the grassroots influence the leaders of their area who in turn influence national policy-making. This should be supplemented by governmental actions such as incentivising the preservation of rain water, cleaning of rivers and educating people about the long-term harms of a laissez faire approach to climate change, within the mainstream education curriculum. There's a need therefore for work at the grassroot level in both regions to bring long-lasting behavioural changes which contribute to protect the eco system, with support from governments.

II. Regional water and energy governance

The interdependence of water and energy resources has increasingly gained precedence as a development challenge requiring international focus. This urgency is amplified due to the massive projected increase in the global demand for energy and water in the next thirty years and the multidimensional benefits

yielded by water in achieving inclusive growth, providing livelihoods and achieving food security.

The food-water-energy nexus

The crucial function of the food-water-energy nexus in achieving sustainable development in the Mekong and Ganga regions needs to be emphasized within the broader ambit of water governance and management since pollution abatement and rejuvenation of the rivers is also a vital focus area in the governance of both regions. Effective policies and management practices are required for not just cleaning of rivers and increasing agricultural productivity but also to increase water use efficiency in the energy sector and reduce energy intensities in water sectors.

Impact Assessment

How do we conceptualize the nexus of food, water and energy governance? Regional power trade agreements have been considered, but their environmental impacts and externalities have largely been ignored. Some of the suggested measures were: One, the need for ex-ante Strategic Environment Assessment, rather than ex-post review was crucial. In the case of Mekong region, there is adequate acknowledgement of the overall impact, but a similar pattern needed to be developed in the Ganga region. It was pointed out of Nepal has identified 23 large projects for power export, but the downstream effects of these projects were not acknowledged at all. Two, Trans-boundary effects of hydropower projects, including costs, environmental risks and transboundary impacts need to be closely assessed. While the Lancang-Mekong River is a good example of studying and mitigation of the impact of hydropower projects, this is a trend that needs to be followed in both regions. Three, better coordination between upstream and downstream ecosystems to ensure a dialogue and transparency in the process of

hydropower generation, thereby minimising conflict, should be focused upon.

Regionalism and Institutional frameworks

It was thought that regional governance is part of the solution. It was thought that for any collaboration in and across the Mekong and Ganga regions, India and China are critical to successful arrangements and it was vital to bring those country into dialogue with their smaller neighbours. The inclusion and participation of smaller countries like Vietnam, Laos, Cambodia in the Mekong conglomeration was also vital to maintaining cooperation in the Mekong region. At the same time, the importance of institutional development and the need for decision makers to come together and engage in knowledge sharing on a regional level was key. A valuable example of this was the proposal for electricity trade that was introduced in the last SAARC summit, which could lead to strong institutional development across South Asia. And yet for institutional development at such a scale, the participation and engagement of decision-makers and governments across Bangladesh, India, Pakistan and Nepal were key.

III. Climate Change Adaptation

Given the increased change in the global water cycle and the focus upon implementing climate adaptation actions in local, national as well as transnational contexts, the approaches of the Mekong and Ganga regions to adaptation require significant attention. Both regions need to tackle issues such as increased variability, changes in temperature and precipitation levels and sea level rise. Adaptation plans in the two regions need to be aligned with water resource management and its crosscutting impact across energy, agriculture and ecosystems.

Green infrastructure versus greening infrastructure

The appropriate response in adapting to the changing variability in climate were debated and the most effective means of intervening was thought to be building and organizing natural solutions towards climate adaptation. A valuable example of green infrastructure (terminology used for easy comprehension by economists and engineers) would be Wetlands which provide natural protection from floods. Greening infrastructure, on the other hand, is to simply modify and use more organic and low carbon infrastructures and processes. For example, using bio-toilets in railways and using energy efficient systems would be categorized as greening infrastructure.

Risk assessment

The concept of 'vulnerability' to climate change was thought to be complex and multi layered and yet most assessments were critiqued for being simplistic wherein the impoverished were perceived as the most risk-prone and vulnerable. It was posited that while the poor are perceived to be lacking in agency and capability, they are adapting in effective ways through indigenous knowledges. It was considered more productive to look at the role of urban and rich households in creating high carbon growth and in such a light, reworking the categories considered most 'risk-prone'.

Climate risk as opportunity and/or danger

Risks posed by climate change are both replete with opportunities as well as danger. The dangers of climate risk were to obvious- the threat of climate uncertainty is political and exacerbated with power dynamics, wherein the powerful have access to the way solutions develop in their interest as well as the scientific uncertainty existing in the scope of the climate problem and its solutions. However the opportunities inherent in climate risk were thought to be multi-faceted. First, it was thought to be a chance to map and synthesize different knowledges in tackling climate change,

especially across different regions and make this combined knowledge accessible via a portable. This was thought to be an opportunity for ‘co-knowledge production’ for both Mekong and Ganga regions. Second, it was agreed that scientific uncertainty abounds in the Mekong and Ganga regions, specifically on the extent of the impact of climate change and on mitigation action that need to be mindful of developmental needs of both regions. This scientific uncertainty was of secondary importance, it was agreed that since science can only give limited answers, it was more productive for communities in both regions to focus on interpreting and acting on the available data and frame it within a resilient system. Lastly, climate risk also provided with it an opportunity to engage robust private investments in both regions.

***Integrated Approach to Resource Management:
Case of Mudiali Fishermen Cooperative Society,
Kolkata, India***

The expert delegation from Mekong and Ganga had the opportunity to interact with the Mudiali Fishermen’s Cooperative Society (MFCS) in Kolkata and review their sustainable resource management practices.

Located in a sewage and industrial-effluent dumping zone, the MFCS undertook a major self-help initiative to develop an efficient sewage recycling system, build a nature’s park and increase fish production for sustaining livelihoods of the poor inhabitants of the area.

Collective action by more than 100 members of the society has led to improvement in the quality of the water, increased fish production, adequate resource recovery, maintenance of healthy ecosystem integrity and rising incomes. MFSC has even won many accords including the national fisheries productivity award five times in a row demonstrating integrated approach to sustainable management of resources.

Drawing from the experience of the MFSC, it is safe to assume that inclusive participation (to imbibe sense of ownership towards the intervention), income/livelihood-centric motivations and integrated approaches are critical for sustainable resource management.

IV. Regional cooperative frameworks

Sharing experiences and drawing lessons from the experiences is crucial in order to address the transboundary challenges of sustainability, posed in complex regions like the Ganga and the Mekong. It is vital for the riparian countries to build on their macro developmental linkages and collaborate in order to sustain the river’s ecosystem, capture its potential benefits and mitigate its mounting costs.

An Integrated Water Management System

Following concerns raised in previous dialogues, it was thought to be essential to mainstream a ‘human and environment centric’ approach to river basin management for both regions. Since multi-faceted challenges have begun to overwhelm the Ganga and Mekong region systems, the approach to such issues also has to be holistic. Development policies need to factor in questions relating to inequalities within the existing economic system. The emerging food-water-energy nexus and its implications for energy poverty and food production in both regions is one such concern, shared by both regions. Lastly, data sharing can be instrumental towards regional cooperation between riparian countries that include all stakeholders -- from technicians to academics, basin inhabitants and policymakers.

A Ganga Citizen’s Charter

Drawing on diverse Mekong experience in fostering collective action for natural resource management, the forum underlined the importance of a South Asia Citizen’s Charter as an expression of understanding between India, Nepal, Bhutan and Bangladesh in pursuit of good governance and water sustainability in the Ganga region. The charter will identify good policies and practices and common set of principles that, in the absence of a multilateral treaty, can emphasize critical issues of the

riparian countries in the region. For Mekong delegates it was a chance to explore the diversity of governance issues extant in the Ganga region along the lines of decentralization, political participation, customary institutions, livelihood opportunities and regional perspectives on a complex ecological unit like the Ganga region.

The role of Modelling

Based on a study on transboundary water governance in the Koshi basin, presented at the conference, it was suggested that modelling could play a role through improving participation, transparency and deliberation. While further research is needed to ascertain the perspectives and knowledge of local villagers, explore how modelling can achieve credibility and comprehension for policymakers, and answer the ultimate question of whether a river system can be controlled, great potential opportunities remain. This is particularly true in the context of the Koshi river, with the promise of the Koshi High Dam, with significant benefits for both sides—but these opportunities depend on bureaucratic cooperation, political stability, a willingness to engage in negotiated give-and-take, and a healthy respect for the models used by different stakeholders to view the same waters.

Benefit-Sharing

Exploring the effectiveness of benefit-sharing as a framework for regional cooperation on water was also seen as key. This implies a framework

of ‘water governance,’ combining political arenas through influencing factors such as geographic and socioeconomic context, decision-making perspectives involving supply and demand, and narratives on sustainability. A literature review of other transboundary water regions shows that win-win aspects are too rarely considered in solving transboundary water governance. Benefits to upstream and downstream communities are often overlooked in favour of national action plans that ignore transboundary issues, with larger players often dominating smaller neighbours. It was concluded that decision-making around transboundary benefits should expand to encompass a wider range of perspectives and ideas. It was suggested that countries standing down from their maximalist approach and adopting a bargaining relation in which transactions benefit both sides can improve transboundary water relations. Resolving some issues can lead to solving others as by-products; to take one high-profile and critical example, long-term flood control through reservoirs can also create agriculture and hydropower opportunities.

Specific areas of cooperation such as navigation, fisheries, water governance, livelihoods, agriculture and ecological flows were identified for the Mekong and Ganga regions. Protecting the Sunderbans, conserving fisheries and maintaining the ecological flow of Ganga, would be a starting point of regional and inter-regional collaboration between South and South-east Asia.

The Way Ahead

Broad recommendations from the three day dialogue:

Deliberation on issues of water supply, sanitation and hygiene, regional and energy governance, climate adaptation and regional cooperation revealed certain 'clusters of opinions'. These opinions or preferences in fact represented wide range of values that the different participating groups adhered to while identifying the problem and suggesting solutions. Given that the dialogue was attended by multi-disciplinary experts belonging to different institutions and locations, the discussions were enriched with multiple thoughts and ideas around challenges in the Mekong-Ganga regions. The diversity of the group and their varying preferences for resource management did not limit the scope of consensus building, in fact, created a de-polarised space wherein all the voices could be heard and attended to. Before we move to the suggestions that were agreed to for future studies and actions, we would like to highlight some of these dominant positions and recommendations made during the conference.

Reflexive and comparative

This cluster of experts and professionals believed in evaluating past and current management practices in both the regions using comparative matrixes to highlight the gaps and suggest areas of improvement for each other. For instance, recommendations were made on comparing the practices of fisheries management between India, Bangladesh and Mekong countries in order to create warning of the impact of unsustainable practices and suggest the best practices for the future.

Technological fixes and assessments

Among this group of opinions, finding technological fixes to resource management challenges were a priority. The science of habits, benefit sharing models, economic and social assessment tools and mechanisms and vulnerability mapping was considered to be of utmost importance in order to understand the problem accurately. They suggested that models of risk assessment must be explored for developing a comprehensive understanding of the extent, scope and potential of the threat that plague both the regions.

Transformative and Radical

Stressing on the inadequacy of the current institutions for dealing with new challenges such as climate change, this group called for radical changes to the social and economic structures. New economics for dealing with the impacts of climate change, mainstreaming social equity, rights, entitlements, inclusivity and de-securitization of the water and climate negotiations were some of the recommendations from these experts.

Potential future research topics (policy, academic and action research)

Drawing from the dominant positions and recommendations given by different clusters of opinions, certain concrete policy, academic and action research topics/questions were selected for future action.

Regional cooperation and geopolitics

- What are the different models of cooperation under systems of competition for natural resource use?
- What are the driving factors and mechanisms of cooperation in Mekong and Ganga regions (requirements, current status, improvement etc.)?
- What is the key learning from the Mekong 1995 Agreement that can be applied to the Ganga basin?
- What are the deliberate positions regarding the UN Water Courses Convention for regional cooperation between states sharing river basins?

Water-food-energy nexus

- How can the critical issues of governance between Mekong and Ganga be compared and analysed?
- How can the focus on livelihood improvement and women empowerment be mainstreamed?
- What kind of an analytical framework should be used to integrate water-energy-food governance?
- How can regional flood forecasting, fisheries and inland navigation be popularised and focussed upon more seriously in the South Asia cooperative arrangements?

Climate change

- What kind of frameworks of risk assessment for climate change can be adopted in Mekong and Ganga regions?
- How can co-production of knowledge on climate change responses be operationalised in the Ganga region?
- What is the process by which technological decisions can be taken with minimum risk in the face of an uncertain climate science?
- Comparative study on livelihoods and lifestyles conforming to high carbon and low carbon pathways respectively.
- What is the difference between green infrastructure and greening of infrastructure and how they can be employed in building resilience against the changing climate?

Strategies of communication

Failure of adequate and effective communication regarding common threat, crisis, opinions, values and perceptions can create an inadvertent conflict situation. Therefore, the experts suggested focusing on different communication strategies in order to disseminate information, knowledges (traditional and scientific), and to maintain a sense of connectivity and solidarity among the Mekong and Ganga regions. Some of the concrete future actions are as follows:

- Create Joint media reports from Mekong and Ganga regions expanding from on-going work in the regions by Inter-news Earth Journalism Networks and thethirdpole.net and chinadialogue.net.
- Publish a Mekong-Ganga bi-annual newsletter with op-ed/policy papers/monographs from the experts in the Mekong and Ganga regions.
- Bring out a Joint publication (book) – “Mekong-Ganga: Past, Present and Future” with papers authored by men and women, historians, engineers, social scientists, lawyers and journalists.
- Create mini and small clips and documentaries on the Mekong-Ganga culture, values and challenges.
- Make a facebook, instagram and twitter link/page for greater visibility and informal interactions among the participants.
- For wider reach and effective influence on policy decisions:
 - Use the convening power to have non-state actors visit and challenge various Mekong corporations and vice-versa
 - Include more state actors - politicians, bureaucrats and relevant government bodies to commit to the dialogue and establish linkage with the Track I.
 - Include wider global audiences: UNHABITAT, UNICEF, Gender and Water Alliance etc.

Towards institutionalisation of the Dialogue

Finally, ORF and M-POWER is jointly committed to entrench this inter-regional knowledge platform, the Mekong-Ganga Dialogue, into a formal process of interaction and joint regional actions. Therefore, the Mekong Ganga Working Group (MGWG), led by ORF and M-POWER, will prepare a list of ‘institutionalisation’ options during 2015 that might involve:

Synergising with Track 1 processes between Mekong and Ganga regions

In order to deliver tangible benefits to both the regions, MGWG will try to establish closer links with Track 1 processes such as the formal Mekong-Ganga Cooperation between India and South-east Asia, and SAARC, ASEAN etc.

Disseminating lessons learnt from past

MGWG will also seek to disseminate lessons learnt from past experiences of Track II dialogues and other regional initiatives such as the South Asia Consortium for Interdisciplinary Water

Resources Studies (SaciWATeRs), Lower Mekong Initiative (LMI), and other scientific and academic collaborations existing in both the regions.

Consultation with Research Institutes

Through consultations, deeper engagements and conversations, MGWG will start creating links with newly formed cooperation and research institutes working on Himalayan ecosystems, marine biodiversity and wetlands. For instance, MGWG will approach ICOMOD-based Himalayan University Consortium, South Asia Co-operative Environment Programme, International Water Management Institute and IUCN.

Promoting inter-generational equity and opportunities

MGWG will collate and publicise information on scholarship programmes and research opportunities for young and mid-level professionals to build capacity and provide experience on multi-disciplinary policy research. Information on Fulbright NEXUS programme, Water Futures in South Asia Programme (IUCN), and Ohgaki Scholarship (Asian Young Professional Programme) etc. will be promoted.

Building Cooperative Knowledge Architecture of South Asia

To discover and promote best practices around the major basins of the world to improve the governance and management of water resources in the Ganga region, MGWG will attempt to establish a ‘cooperative knowledge architecture’, inviting membership from academicians, practitioners, lawyers, bureaucrats, and civil societies of India, Nepal and Bangladesh. MGWG will draw experiences from different research and policy networks such as the Mekong Program on Water, Environment and Resilience (M-POWER) and Sustainable Mekong Research Network (SUMERNET).

Conduct Joint basin management projects

MGWG will organise, encourage and support joint action projects on basin governance in Mekong and Ganga regions such as the pilot project conducted between Mekong and South Asian governance practitioners in Koshi basin – dealing with water-energy nexus. These practical case studies and action projects will in turn inform discussions on policy prescriptions.

Structuring engagements of MGD participants

MGWG will create opportunities and support for more structured engagements of MGD participants in other national, bilateral and regional initiatives convened by other bilateral and multilateral development agencies such as The Asia Foundation and the World Bank Group.

List of Participants

EXPERTS	DESIGNATION	ORGANISATION
A. K. Gosain	Prof. & Head	Deptt. of Civil Engineering, Indian Institute of Technology Delhi
A.K. Roy	Chairperson	Hazard Centre
Anup Mitra	Advisor - Water Resource department	Government of Assam
Anurag Danda	Head - Climate Adaptation & Sundarbans Landscape	WWF-India
Arun Kanti Biswas	Former Head and Deputy Director	National Environment Engineering Research Institute (NEERI) Kolkata Zonal Lab
Bach Tan Sinh	National Institute for Science and Technology Policy and Strategy Studies (NISTPASS),	Ministry of Science and Technology (MOST), Vietnam
Bushra Nishat	Associate Specialist	IUCN, Bangladesh
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Ravi Shanker Goel	Under Secretary – ASEAN (ML)	Ministry of External Affairs
Ravikumar L. Kshirsagar	Manager	Indian Society of Agribusiness Professionals
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Sanjay Gupta	Senior Consultant	World Bank

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Vikrom Mathur	Senior Fellow	Observer Research Foundation
William Young	Lead Water Resources Management Specialist	World Bank
Xuezhong Yu	Senior Hydro-Environmental Scientist	Ecofish Research Limited., Canada

About Observer Research Foundation

Observer Research Foundation, a New-Delhi headquartered think tank was established on 5 September 1990 with the fundamental objective to influence formulation of policies for building a strong and prosperous India in a globalised world. ORF is committed to global action. In India, ORF provides knowledge support to the government on BRICS, G20, IBSA, IORA and other multilateral and bilateral partnerships that engage the country. In addition, it works with governments, civil society, and private sector organisations from across the world to host cutting edge policy initiatives, including the Asian Forum on Global Governance, a well renowned policy school for young professional leaders from over 70 countries and the CyFY, India's largest international conference on cyber security and governance. In addition to a range of policy engagements, ORF has co-developed India's first carbon performance benchmark stock index, the S&P BSE GREENEX, a leading market based initiative to promote enterprise efficiency in Indian industry.

ORF has conducted multiple Track II dialogues in order to highlight the real issues, obstacles and opportunities for both collective action and cooperation in Indus, Ganga and Brahmaputra basin, along with embarking upon research on attitudes around water, environmental security, climate change, democratization of data access; confidence building measures through dialogues and discussions ORF research projects have resulted in immediate and tangible impact on public and strategic policies of the country.

About M-POWER

M-POWER stands for the Mekong Program on Water, Environment and Resilience. They are a network of collaborators undertaking action based research, facilitated dialogues and knowledge brokering to improve water governance in the Mekong Region in ways that support sustainable livelihoods and healthy communities and ecosystems. The acronym 'M-POWER' is a play on the word empower, which means 'to give qualities or abilities to do something.' This captures our motivation for engaging in water governance research and our intent to facilitate a culture of continuous improvement in this arena in the Mekong Region. Each element of the acronym deserves elaboration: Mekong refers to the broad region of mainland southeast Asia comprising the Mekong, Irrawaddy, Salween, Chao Phraya, Red and the smaller basins in-between; Program refers to a coherent set of action-research, dialogue facilitation and knowledge working activities that extend beyond a single project or grant; Water refers to inland water as a multi-purpose resource for livelihood activities, a threat or disaster (flood, drought, flow and sediment trapping or release), a way of making energy (hydropower), or an important medium for aquatic life; Environment refers to the living (e.g. people, fish, wildlife) and non-living (e.g. dams, irrigation infrastructure, power lines) elements of the world; and Resilience refers to the maintenance of capacities to adapt to and cope with human-induced and natural change in a social and environmental context that is dynamic, multi-scale and inter-related.

M-POWER's goal is to support sustainable livelihoods and healthier communities and ecosystems in the Mekong Region through conducting action-research, facilitating dialogues and nurturing transboundary knowledge networks that encourage diverse collaborative relationships and improve policy and practice settings.

About The Asia Foundation

The Asia Foundation is a non-profit international development organization committed to improving lives across a dynamic and developing Asia. Informed by six decades of experience and deep local expertise, our programs address critical issues affecting Asia in the 21st century—governance and law, economic development, women's empowerment, environment, and regional cooperation. In addition, our Books for Asia and professional exchange programs are among the ways we encourage Asia's continued development as a peaceful, just, and thriving region of the world.

Headquartered in San Francisco, The Asia Foundation works through a network of offices in 18 Asian countries and in Washington, DC. Working with public and private partners, the Foundation receives funding from a diverse group of bilateral and multilateral development agencies, foundations, corporations, and individuals. In 2014, we provided more than \$108 million in direct program support and distributed textbooks and other educational materials valued at over \$11 million.

Internationally recognized for our commitment to Asia's development, the Foundation brings together local individuals, communities, and governments who are shaping Asia's future.