

**Testimony of Dekila Chungyalpa  
Director, Greater Mekong Program, World Wildlife Fund  
on Challenges to Water and Security in Southeast Asia  
for the Senate Committee on Foreign Relations  
Subcommittee on East Asia and Pacific**

**September 23, 2010**

## **Introduction**

Chairman Webb, Ranking Member Inhofe and members of the Subcommittee, thank you for having me testify today on the challenges to water resources and security in Southeast Asia. My name is Dekila Chungyalpa, and I am Director of the Greater Mekong Program of the World Wildlife Fund.

For nearly 50 years, WWF has been protecting the future of nature. Today we are the largest international conservation organization in the world. Our unique way of working combines a global reach with a foundation in science, involves action at every level from local to global, and ensures the delivery of innovative solutions that meet the needs of both people and nature. We currently sponsor conservation programs in more than 100 countries, thanks to the support of 1.2 million members in the United States and more than 5 million members worldwide.

Using the best available scientific knowledge and advancing that knowledge where we can, WWF works to preserve the diversity and abundance of life on Earth and the health of ecological systems. We do this by protecting natural areas and wild populations of plants and animals, promoting sustainable approaches to the use of renewable natural resources, and promoting more efficient use of resources and energy while maximizing the reduction of pollution. WWF is committed to reversing the degradation of our planet's natural environment and to building a future in which human needs are met in harmony with nature.

The six countries flanking the Mekong River are often grouped together and are collectively known as the Greater Mekong Subregion<sup>1</sup> (GMS). WWF has been present in the GMS countries (with the exception of Myanmar) for 30 years, working closely with all levels of government, as well as communities, development agencies and the private sector. This work has included not only traditional conservation issues, but has broadened the organization's scope of work to include sustainable development. Given the significance of hydropower development to the region's ecosystems and natural resources, WWF is also an active member of the International Hydropower Association and the Hydropower Sustainability Assessment Forum. The Forum is developing a Sustainability Assessment Protocol, a tool to measure and guide performance in the hydropower sector. Its membership includes, among others, bilateral and multilateral development agencies and the Equator Principles<sup>2</sup> Financial Institutions Group.

## **The Mekong and Its Resources**

WWF-US has identified the Greater Mekong Subregion as one of 19 global priority places where we have chosen to focus our conservation efforts. This vast region contains irreplaceable treasures ranging from communities with rich cultural heritages to unique wildlife in spectacular

---

<sup>1</sup> The GMS comprises Cambodia, Laos, Myanmar, Thailand, Vietnam and Yunnan Province in China

<sup>2</sup> The Equator Principles refer to a financial industry benchmark for determining, assessing and managing social & environmental risk in project financing.

natural landscapes. The region is home to almost 100 distinct ethnic groups that are heavily dependent on the river and its natural resources for protein as well as livelihoods. It is also habitat to extraordinary biodiversity, including large mammals such as the Indochinese tiger, the Asian elephant and the last remaining populations of the Irrawaddy dolphin.

The region is defined by the Mekong River – the longest river in Southeast Asia. It unites 320 million people as it flows over 4,000 kilometres starting in the Tibetan-Qinghai plateau, through China, Myanmar, Thailand, Laos, Cambodia and Vietnam into the South China Sea. It also nurtures and sustains an extraordinary level of freshwater biodiversity and endemism. The Mekong River basin provides habitat for at least 1300 species of fish, including four of the top ten giant freshwater species of the world: Mekong giant catfish (*Pangasianodon gigas*), giant pangasius (dog-eating catfish) (*Pangasius sanitwongsei*), giant barb (*Catlocarpio siamensis*), and the giant freshwater stingray (*Himantura chaophraya*). By length, the Mekong is the world's richest waterway for freshwater biodiversity, fostering far more species per unit area than even the Amazon.

The geomorphology of the Mekong is varied; from reservoirs of frozen water in its source area, to low depths and stretches marked with rocks and boulders, to enormous rapids and deep pools towards the end. At least 170 deep-water pools can be found in Cambodia and Laos alone, with the deepest measuring 80m in depth. In the dry season, when the Mekong often recedes and fish habitats on the floodplain disappear, deep pools play a crucial role, providing refuges for many of the Greater Mekong's fish species to feed and grow in. Moreover, the river's annual floods and flow patterns carry much needed sediments to sustain the agricultural productivity downstream.

At least 150 of the river's fish species are migratory, and 50 of these are commercially important in the Mekong, particularly in the Tonle Sap, which provides up to 75% of Cambodia's inland fisheries. The Lower Mekong basin provides food security and livelihoods to over 60 million people, and fish is the main source of protein for these inhabitants, ranging from 42-51 kg per person per year<sup>3</sup>. It is estimated that approximately 2.8 million tons of fish and other aquatic animals are consumed each year, and an estimated 1.1 million tonnes of aquaculture products are exported, making the Mekong the largest inland fishery in the world. Mekong fisheries yield 3.9 million tonnes per year, accounting for 19-25% of inland catches worldwide and worth between \$3.9 billion and \$7.0 billion<sup>4</sup>. The fisheries are heavily dependent on wild capture: aquaculture accounts for only 10-12% of production and it, too, depends on wild fish for feed. Preserving natural variations in river hydrology is important for sustaining high fish diversity; natural flood pulses are often what trigger fish to migrate to spawning habitats, migrating between distant habitats.

## **A Region on the Move**

Of the six countries that comprise the GMS, three of these – China, Vietnam, and Thailand – are rapidly growing economies, while Cambodia, Laos and Myanmar lag far behind in relative economic terms. The GMS is one of the fastest growing regions in the world, and the demand for energy, particularly in China, Thailand and Vietnam is expanding. Rapid industrialization is pushing the development of hydropower in the Mekong Basin, including the proposed main-stem dams. In addition to fueling the fastest growing countries, hydropower development is seen as an avenue for poverty alleviation for Cambodia, Laos and Myanmar. The challenge

---

<sup>3</sup> Mekong River Commission. 2010 "State of the Basin Report: 2010". Mekong River Commission, Vientiane, Lao PDR.

<sup>4</sup> Mekong River Commission. 2010 "State of the Basin Report: 2010". Mekong River Commission, Vientiane, Lao PDR.

facing the GMS governments is clear: they must sustain economic growth while simultaneously ensuring that the Mekong and its ecosystems remain healthy.

The GMS initially was designed as a trade agreement facilitated by the Asian Development Bank, in order to strengthen connectivity and cross border trade, and to integrate national markets. As such, it is really a grid of transport networks, often referred to as "economic corridors".

The GMS Strategic Plan as it was originally conceived consists of 305 planned projects worth \$31 billion, broken down as follows:

- Roads and bridges \$7.6 billion
- Railways \$13.2 billion
- Ports and navigation \$2.6 billion
- Airports \$84 million
- Electricity grid \$338 million
- Gas pipelines \$1.3 billion
- Power stations \$4.8 billion
- Telecommunications \$29 million
- Tourism \$446 million
- Livelihood projects \$44 million
- Industrial estates \$1.0 billion

While not directly mentioning hydropower, GMS clearly prioritizes development of a regional electricity grid and infrastructure that will move this forward. Given that the GMS is one of the fastest growing regions in the world, there is a correlating increase in the demand for energy. This demand for energy should be met with clean energy that does not aggravate climate change nor threaten the unique ecosystems and livelihoods of the GMS. Potential alternatives to mainstream dams should be explored, including carefully considered tributary dams, or other forms of renewable energy such as wind power or solar power.

Currently, in the Upper Mekong, China has just completed building the Xiawan dam, which has a larger reservoir capacity (10 km<sup>3</sup>) ten times more than its three existing dams - Manwan, Dashwan and Jinghong, (which add up to less than 1 km<sup>3</sup>) and is in the process of building an even larger reservoir (12 km<sup>3</sup>). This gives China significant leverage over the Lower Mekong countries. For example, China will be able to increase the mean monthly flow to Laos by 20% in March, the driest month of the year. However, these reservoirs are being built to produce cheap and reliable electricity for the Chinese market, and not to help agriculture, navigation or floods in the lower Mekong.

## **Growing Threats to the Mekong**

### *Hydropower*

While hydropower development has potential economic and greenhouse gas reduction benefits, it also brings about enormous costs. Hydropower dams fundamentally alter the river ecosystem, often with negative impacts to livelihoods and biodiversity. Each subsequent hydropower dam further diminishes the river's ability to naturally adapt to ecosystem impacts. The clock is ticking; there are currently 11 dams in different planning stages of development on the Lower Mekong

main stem, with one in Sayabouly, northern Laos, on the verge of being notified to the MRC Joint Committee by the Government of Laos. Hydropower threatens to impact the Mekong and its ecosystems in three main ways:

i) Delta stability: The Vietnam portion of the Mekong delta is home to 17 million people, contributes more than 50% of Vietnam's staple food crops and is the source for 60% of fish production in Vietnam. This region provides food for 40 million people and contributes 27% of Vietnam's GDP. Given that more than 22% of Vietnam's population is located in the Mekong Delta, the spill-over effects of hydropower development will be even larger. Reduction of sediment trapped by dams would mean that the delta's nutrients are no longer being replenished, threatening the very source of the country's wealth and security. Furthermore, this would increase the vulnerability of the delta, limiting its ability to replenish itself and making it more susceptible to sea level rise and saline intrusion.

ii) Fish diversity: In September 2008, a team of fish migration experts organized by the Mekong River Commission concluded that there is no evidence that fish passage facilities currently used on dams in other large tropical rivers can cope with the massive fish migrations and high species biodiversity found in the Mekong. The technologies used on high dams in North America and Europe were developed for a very limited number of species (5 to 8). In contrast, there are 150 migrant fish species in the Mekong, and biomasses are 100 times greater.

iii) Livelihoods: There are at least 50 commercially important migratory fish species in the Mekong River, representing 70% of the total catch. Over 75% of rural households in the Lower Mekong Basin are involved in fisheries, both for their own consumption and for sale. Any impact on the ecological balance of the river also threatens the sustainability of these aquatic resources that millions of people depend on. Dams in the main stem would impede migration of fish and other aquatic animals, potentially reducing productivity of the fishery by as much as 60% and compromising the livelihoods of millions of people.

### *Climate Change*

The Intergovernmental Panel on Climate Change has identified the Mekong Delta as one of the 3 most vulnerable deltas on the planet to climate change impacts. These impacts include sea level rise, saline intrusion and more severe storms, which erode the coastline and undermine coastal ecosystems. Main-stem dams will block the sediment that builds the delta and with it the nutrients that feed the delta's immense. As sediment is trapped by dams, the reduction in the amount reaching the river mouth will decrease the capacity of the delta to replenish itself, making it even more vulnerable to sea level rise, saline intrusion and erosion. With nearly a quarter of Vietnam's population located in the Mekong Delta, the combined impacts of the proposed main-stem dams and climate change will pose significant social and economic challenges to that country in coming years.

The Mekong River is first and foremost an ecosystem. Anything done to impede its natural flow will also prevent it and the surrounding basin from adapting naturally to expected climate change impacts, including changes to average temperatures, water availability from precipitation and runoff, and sea level. Changes in temperature can affect rates of growth and reproduction for individual species and can also change species distribution and ecosystem processes such as nutrient cycling. WWF holds that climate change impacts will accelerate the extinction of some species given the high rate of endemism and habitat fragmentation found in the Mekong basin.

Changes in the seasonal flow pattern in the Mekong River basin will strongly influence future species composition and ecosystem productivity. Changes in temperature and precipitation in the basin may also affect the very nature of the region's wetlands—vital aquatic systems that are used for rice cultivation and freshwater fisheries and help to mitigate floods and erosion. Sea level rise will have significant negative impacts in the Mekong Delta region because of the delta's high population density, which is supported by productive wetlands and estuaries that are in turn maintained by naturally fluctuating water levels and input of fresh water from the river. These upstream inputs of freshwater deliver much needed nutrients and sediments, which are critical for wetland soils to accumulate and prevent plants from being inundated<sup>5</sup>. Sea level rise and saltwater intrusion threaten to upset this natural balance and undermine the Delta ecosystem.

The anticipated human consequences of unmitigated climate change on the Mekong are hard to imagine. Projections across the Mekong basin show an array of climate change effects, including a potential sea level rise of a meter by the end of the century. If unaddressed, a 1 meter rise in sea level could submerge more than a third of the Mekong delta, home for 17 million people and source of nearly half of Viet Nam's rice.<sup>6</sup> Already, we are witnessing erratic changes in flood patterns in the Mekong delta. Combined with sea level rise, we can anticipate further breakdowns of roads and other infrastructure, leading to the increasing likelihood of economic and social instability. Even the more modest predictions of how the region and its communities, ecosystems and economies may be altered suggest that, without significant steps to reverse course, the humanitarian impacts of accelerating climate change in the Mekong are likely to present new security challenges for both GMS countries and the international community in the 21<sup>st</sup> century.

## **Geopolitics in the GMS**

The Mekong countries are often seen as a cohesive bloc, largely due to the Greater Mekong Subregion (GMS). In realpolitik terms however, the GMS consists of nations that are very diverse culturally and that navigate strong bilateral tensions, as in the case of Thailand and Cambodia. The droughts experienced in 2010, and the subsequent assertions by Thailand that these may have been caused by dams on the Upper Mekong, have made it clear that lower Mekong countries are waking up to the decisions made by their Chinese neighbours to the north and are increasingly willing to take them to task. At the same time, Thailand and Vietnam have not acknowledged their own power development plans, which substantially rely on centralized hydropower development. In the context of this kind of political gridlock, it is not surprising that while the GMS has a designated Working Group on the Environment, it has so far not been successful in mainstreaming regional-level environmental planning and design into GMS's core business of economic growth and trade.

Other regional forums exist, such as the Mekong River Commission, but it is handicapped by the fact that despite being an intergovernmental body created to promote sustainable management of the Mekong River, it is effectively limited to decisions made by the four lower Mekong governments through the Joint Committee and Council. China is so far only a dialogue partner and Myanmar is not included, thus leaving no constructive platform for dialogue on region-wide water use and management issues.

---

<sup>5</sup> Mekong River Commission. 2010 "State of the Basin Report: 2010". Mekong River Commission, Vientiane, Lao PDR.

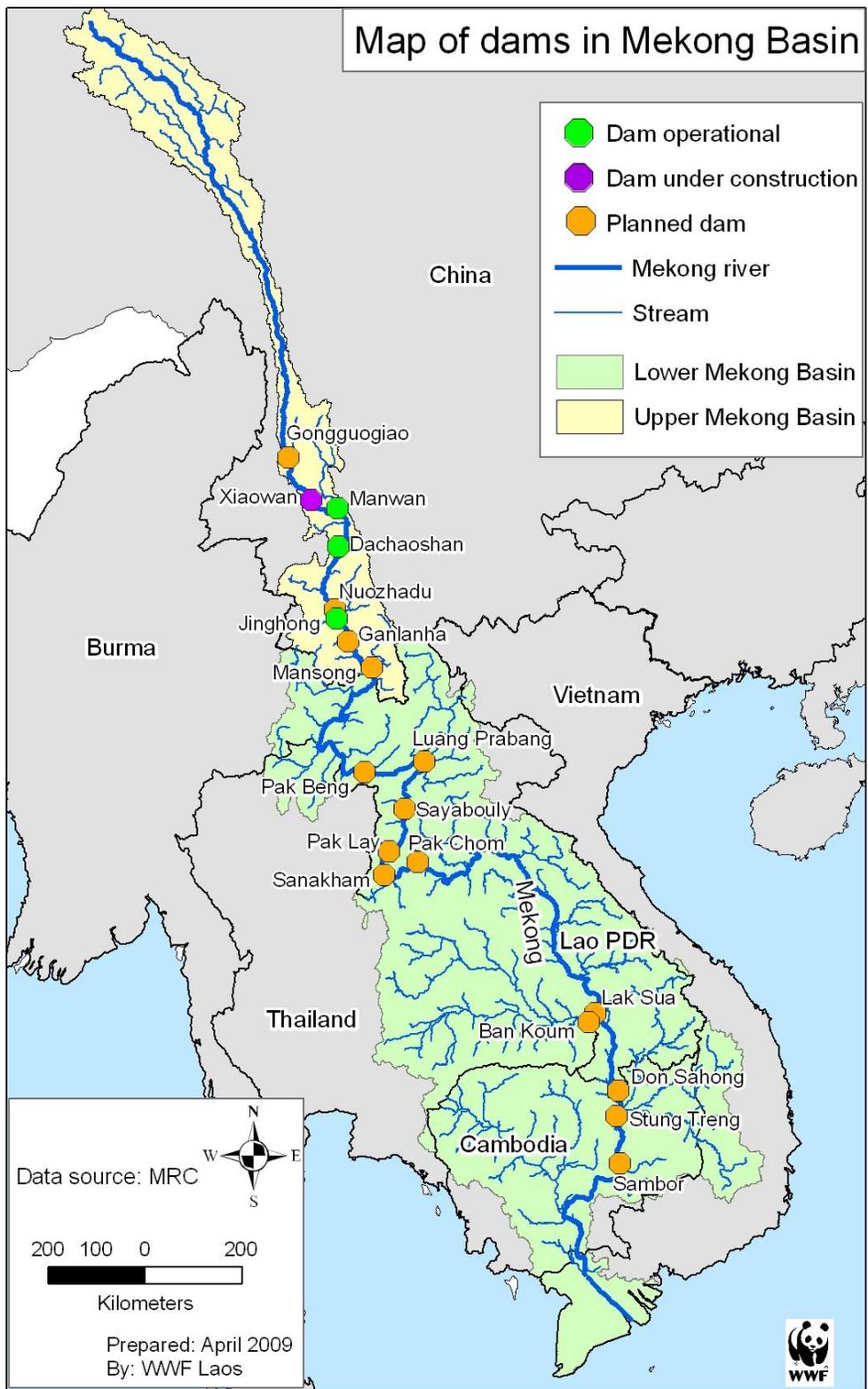
<sup>6</sup> Institute of Strategy and Policy on Natural Resources and Environment (Viet Nam) 2009 "Vietnam Assessment Report on Climate Change (VARCC)"

In the past year, Vietnam and Cambodia have grown increasingly aware of the disproportionate burden that they will face as downstream nations if any of the Lower Mekong dams go forward. Not coincidentally, both countries share a history marked with famine, mass migration, and food insecurity. Add in the potential for political conflicts due to climate change impact scenarios in the regions, and it becomes clear why lower military departments from the lower Mekong governments have been known to attend WWF meetings and consult with us on water resource management and climate change.

## **Recommendations: A Sustainable Course for the Mekong Basin**

The decision to construct a dam on the main stem of the Mekong River will have permanent consequences and should be very carefully considered. In 1995, the four Lower Mekong countries signed an agreement that committed them to the sustainable development of the Mekong River. The proposed mainstream dams challenge this commitment. Prior to hydropower development, a comprehensive assessment of the full economic, social and environmental costs and benefits in the Mekong Basin should be conducted. Approval of any of the main stem dams should be delayed until completion of this study. In addition, WWF offers the following specific recommendations for a way forward:

- 1) A 10-year delay in the approval of the mainstream dams would allow for a comprehensive cost-benefit analysis of their construction and operation.
- 2) The 1995 agreement of the Mekong River Commission should be fully recognized and endorsed, in particular the procedures for notification, prior consultation and agreement.
- 3) In collaboration with the Asian Development Bank (ADB) and the Mekong River Commission (MRC), WWF is testing Environmental Considerations for Sustainable Hydropower Development (ECSHD) in Sesan, Sekong, and Srepok tributary rivers in Cambodia. The project objective is to build a set of interventions into existing planning processes that will help move the Mekong countries towards adopting an agreed framework for sustainable hydropower development. The most recent advancement includes a River Basin wide sustainability tool (R-SAT) developed in collaboration between ADB, MRC, WWF and support from USAID via Eco-Asia. Merely developing the tool however does not mean it will be implemented. Therefore, promoting and financing similar approaches and the application of such tools is crucial.
- 4) One alternative to mainstream dams is tributary dams. These need to be considered as more feasible alternatives based on careful selection criteria and methodology. To ensure the overall ecological integrity of the Mekong Basin, some tributaries will need to remain free flowing to preserve the values of connectivity of the river from headwaters to the sea and to allow for migrant fish to continue to breed and support the livelihoods of local communities. WWF's Greater Mekong Program is using GIS-based tools to select free-flowing tributary candidates, and we promote the concept of free-flowing rivers to decision makers in these specific sub-basins.



## Alternative Solutions Promoted by WWF

WWF offers the following general recommendations for sustainable development in the GMS:

### Take an ecosystem-based approach

Confronting climate change is one of the greatest challenges of our time. How do we address such an overwhelming issue and where do we start? There has been much analysis and discussion, but few practical solutions are being proposed at the local level to help communities, the private sector, policymakers and planners to provide ecosystems the opportunity to adapt to a changing climate.

A resilient ecosystem has the ability to withstand threats and systemic shocks and can renew and restore itself even if degraded. The best example is that of mangrove forests and coastal wetlands in India, which were able to absorb the floodwaters during the 2004 Asian Tsunami. Unfortunately, restoration and preservation of coastal wetlands is one of the few established and well-known adaptation strategies. In the case of freshwater ecosystems, there is an urgent need to understand how to build both ecosystem and social resiliency and to identify adaptation strategies at a site level.

WWF is learning in our various project sites that ecosystems will not react in a gradual manner to climate change impacts but will instead react rapidly and at multiple scales. To complicate this further, the speed at which these impacts are taking place is outstripping most public sector thinking, which consists of reflexive and short-sighted reactions, such as the call for sea walls and other inappropriate structural investments that are already appearing in the Mekong delta. The challenge therefore lies in convincing existing national and regional institutions to adopt environmental and social resilience-building strategies across all economic sectors and political boundaries.

### Engage the Finance Sector

In 2009, WWF Greater Mekong Programme commissioned a report to investigate sources of funding that would allow the proposed dams to be constructed on the main stem. This study identified 12 project companies set to construct dams on the lower Mekong main stem and 70 financial institutions that invested in the different stages of the feasibility study of these projects. For practical purposes, this list of financial institutions was then narrowed down to 28 banks:

Financial institution	Country of origin	CSR policy	Equator Principles adopted	Signatory to UNEPFI and / or PRI	Specific policy on dams
Agricultural Bank of China	China	No	No	No	No
Bank of Ayudhya	Thailand	No	No	No	No
Bank of China	China	Yes	No	No	No
Bank of Communications	China	Yes	No	No	No
Barclays	United Kingdom	Yes	Yes	Yes	No
China Galaxy	China	No	No	No	No

Securities					
CIMB Bank	Malaysia	No	No	No	No
Guotai Junan Securities	China	No	No	No	No
HSBC	United Kingdom	Yes	Yes	Yes	Yes
Industrial & Commercial Bank of China	China	Yes	No	No	No
JPMorgan	United States	Yes	Yes	Yes	No
Morgan Stanley	United States	Yes	Yes*	No	No
State Street	United States	Yes	No	Yes	No
Dimensional Fund Advisors	United States	No	No	No	No
Bank of Tokyo-Mitsubishi UFJ	Japan	Yes	Yes	Yes	No
Sumitomo Mitsui Banking	Japan	Yes	Yes	Yes	No
Calyon (part of Crédit Agricole)	France	Yes	Yes	No	No
KBC Bank	Belgium	Yes	Yes	No	No
OCBC Bank	Singapore	Yes	No	No	No
UBS	Switzerland	Yes	Yes	Yes	No
Standard Chartered	United Kingdom	Yes	Yes	Yes	Yes
ANZ	Australia - New Zealand	Yes	Yes	Yes	No
ADB					
EXIM	China	Yes	No	No	No
CRBC	China	Not Known	No	No	Not Known
AmBank	Malaysia	Not Known	No	No	No
Fidelity Group	United States	Yes	No	No	No
RHB Bank	Malaysia	Not Known	No	No	No

WWF is currently hosting a Sustainable Hydropower Financing Conference, taking place on the 23rd and 24th of September, 2010 in Bangkok, in order to facilitate open discussion of sustainable investment practices on the Mekong main stem. We have 30 confirmed participants from the Banking sector involved in funding, insuring, or supporting the Mekong main stem dams, including Morgan Stanley.

The conference has three objectives:

1. To convince banks to finance sustainable hydropower projects in the Mekong. The summit incorporates a long-term approach by providing a solution – Sustainability Assessment Protocol, and the Environmental Considerations in Sustainable Hydropower

Development – that financial institutions can use only to finance sustainable projects that are beneficial to the economy and people with minimal impacts on the environment.

2. To build partnerships with key institutions in the financing sector, an essential and integral part of any investment project. WWF offers the Summit as a solution-oriented event instead of what has usually been a charged dialogue between banks and NGOs. WWF hopes that financing institutions will continue to work with WWF in other infrastructure or investment project. There is an opportunity to create synergies between WWF and the financial institutions with respect to expertise, strength and experience with sustainable development.
3. To identify a bank to lead the charge in sustainable investing in the region. Often tokened as a “lead arranger”, such an institution could help WWF to reach its peers, and provide a good example of the benefits of sustainable investments. While some banks invited to the Summit have had long histories of commitment to environmentally responsible financing, there are others who have not traditionally stood up for these types of issues. The Summit is an opportunity to promote this practice and help those institutions interested in leading investment in sustainable hydropower development to become the champions.

### Engage the Private Sector

WWF is working across the Mekong region with key industry water users, led by the Coca Cola Company, to help develop a task force to explore water stewardship issues and the role of the private sector in wise water use, particular given the impacts of climate change in the delta where many of these industries are based. This will consist of a multi-sector network that can jointly share the latest science and information, apply appropriate adaptation strategies within their markets, and invest in sustainable resilience building for local communities, businesses and ecosystems. In addition this group will also explore innovative financial mechanisms for adaptation and water conservation to safeguard future water supply for biodiversity and livelihoods.

### Engage the Public Sector

There is an urgent need for an integrated regional approach to natural resource management at policy and operational levels. The ongoing GEF 5 reforms offer an opportunity and could provide the resources required to make this happen. The countries of the region are willing take the bold step to commit a percentage of their GEF national allocations to a regional ecosystem based adaptation approach. We hope that such a strong regional signal demonstrates the lower Mekong governments' commitment to maintain the region's resilience for the benefit of its people, economies and biodiversity. Program components would include:

- Regionally integrated spatial planning that incorporates biodiversity conservation and climate change, applied for the sustainable management of priority landscapes in the GMS
- Maintenance and restoration of critical ecosystems and the services they provide in selected test sites in priority landscapes by
- Incentives to effectively manage biodiversity and carbon values to strengthen adaptation capacity in priority landscapes developed and tested
- National and regional capacities improved for cooperation and coordination for ecosystems management and sustainable development
- A discussion at the administrative level of the lower Mekong governments on sustainable hydropower and the need for a free flowing Mekong main stem

## An Ideal Role for the US Government

The last two years have shown tremendous changes in the GMS, not least of which is a renewed will to work on a regional scale. A significant inspiration for this has been the two visits made by Secretary Clinton to the region. Furthermore, the US Administration has substantiated its long term commitment to the region's stability through The Lower Mekong Initiative; a partnership between the US State Department and the governments of Cambodia, Laos, Thailand, and Vietnam to enhance cooperation on environment, health, education and infrastructure development. In particular, two science-based approaches that are beneficial are:

- The sister river partnership between the Mekong River Commission and the Mississippi River Commission allows the sharing of expertise and best practices in areas such as climate change adaptation; flood and drought management; hydropower and impact assessment, water demand and food security; and water resource management.
- The establishment of the Delta Research and Global Observation Network (DRAGON), and a new interactive, modelling system called Forecast Mekong.

This initiative creates the possibility of a strengthened lower Mekong bloc that is invested in regional win-win strategies rather than short term national interests that are unsustainable in the long run. Advancing similar relationships, as the US has done with Vietnam, in the other lower Mekong countries will help make this a reality.

Other ways that the US Government could continue to strengthen these governments and to create long-term security in the Mekong region include:

- **Call for regional cooperation on data gathering, analysis, and sharing:** Hydropower is a regional issue. Regional measures must be put in place to ensure that the ecological products and services upon which the development of this region depends are not degraded or irreversibly lost, which requires a regional approach to cost benefit analyses. There are still large gaps in knowledge in the region. For example, what is the value of environmental flows and ecosystem services provided by the Mekong River in monetary terms? Encouraging this kind of data analysis and sharing among all the six countries is crucial. This would also invite a stronger influence from academic institutions and civil society on policy and decision making processes.
- **Promote green science-based solutions:** The US State Department led Lower Mekong Initiative has developed a new interactive modelling system for climate change impacts called Forecast Mekong. It will help the Vietnamese government better understand and adapt to sea level rise, emphasizing sustainable solutions rather than stop-gap measures such as building more dykes and walls. By promoting these types of science-based approaches, the US Government can further the development of green technological solutions in the Mekong region.
- **Support strengthened governance and accountability with the Mekong River Commission:** The US Government can support the full recognition and endorsement of the 1995 agreement of the Mekong River Commission; in particular the procedures for notification, prior consultation and agreement for hydropower dam development. More specifically, a moratorium on the approval of mainstream dams should be established to allow the full assessment of the risks from this development.

- **Encourage a meaningful dialogue with China:** Recently, the four Prime Ministers of the Lower Mekong countries took part in the Mekong River Commission Summit to celebrate its 15th anniversary, giving the MRC a much higher profile than in the past. China was formally asked to join the MRC by the Cambodia government. It remains to be seen if they will. However, if the freshwater biodiversity, fisheries, and future of the Mekong River are to be sustained, a whole-of-basin and even-handed approach on hydropower must be attempted.
- **Call on multilateral development banks to take a whole-of-basin approach on hydropower:**  
While the multilateral banks wield less influence than they did in the past, they are still very important to less powerful governments in the region. It behooves them to take cumulative impacts of hydropower development into consideration, particularly for the Mekong River basin, where poverty reduction strategies must begin with the wellbeing of the river. A critical place to start is with the mainstreaming of sustainable development planning in all subdivisions and in particular, the promotion of alternative green energy over that of main-stem hydropower development.

As one of the largest global donors to multilateral development banks, the US Government can call on them to mainstream what their "environmental arms" develop and recommend. Often times, conflicting mandates within different sub-divisions of the same institution are the bottlenecks to implementing innovative environmental solutions and integrating a whole-of-basin approach to development.

- **Call for a regional agreement on climate change resiliency:** Climate change will profoundly affect the Mekong River's biodiversity, water resources, and economy, all of which in turn will impact its people. National governments can only respond to climate change at a local level. Given that the impacts of climate change will be transboundary and has significant implications for security, a regionally coordinated response to climate change will be most effective. Guiding a regional climate adaptation agreement that builds resiliency for ecosystems, natural resources, biodiversity and most importantly, local communities, would bring a more peaceful and sustainable future for the Mekong region. One possible opportunity is the current Global Environment Facility (known as GEF V), which allows for a transboundary approach on protecting the Mekong region's most unique ability to provide for its people; the environmental services provided by the Mekong River and its watersheds.

## Conclusion

Chairman Webb, thank you once more for the opportunity to offer my comments on the importance of recognizing the Mekong River as one ecosystem. Taking this whole-of-basin approach emphasizes the critical need to protect the Mekong River's ecological functions, of which the free-flowing nature of its main stem is most important, for a peaceful sustainable future of the Mekong region. WWF strongly urges the US Government to continue to play an empowering role in the region and to support ecosystem based approaches for improving climate change resilience for the entire Mekong River basin.