Part I – Project Output Assessment

1) Background / Introduction

The Mekong Giant Catfish (*Pangasianodon gigas*) is listed as Critically Endangered on the IUCN Red List. Endemic to the Mekong Basin the Mekong Giant Catfish (MGC) is an exceptional example of the unique biodiversity of the Mekong River. Growing up to three meters in length and over 300 kg in weight this largely herbivorous giant has a historical range that includes the Mekong River delta in Vietnam all the way upstream to Yunnan province of China. Due to excessive fishing pressure in recent decades the distribution of the MGC has been reduced and many of the historical fishing areas are no longer utilized by fishers in search of this mythological creature. Little is known about the ecology and migration behaviour of the MGC, but it is understood that the long-distance migrations of the species are due to the life cycle requirements to find suitable breeding, nursing and feeding habitats. The actual spawning sites have yet to be discovered but many biologists and fishers believe the section of Mekong River between Chiang Rai (Thailand) and Bokeo (Lao PDR) Provinces is a critical area for spawning and annual migration of the MGC. This stretch of the Mekong River also supports a range of other critical riverine habitats that are beneficial to other unique and economically important fish species of the Mekong, such as the Mekong Stingray (*Dasyatis laoensis*) and the Giant Pangasius (*Pangasius sanitwongsei*), a smaller cousin of the MGC. Local fishers are dependant upon these aquatic resources for food security and household economy. The wild population of MGC and hundreds of other important fish and aquatic animals are threatened due to a number of factors such as increasing fishing pressure, destructive fishing gear such as bombs and electricity, loss of critical habitats from sand and gravel extraction, and hydropower dams planned for the Mekong mainstream.

Considering the importance of the Mekong Giant Catfish as an indicator of the rich biodiversity and the richness of the Mekong River, the Aage V. Jensen Charity Foundation has provided financial support to WWF to implement a project to conserve this species. The project came to an end in February 2011. This report captures the final outcomes of the project over the entire project period. In this report: MGC=Mekong Giant Catfish; DOF=Thailand Department of Fisheries; DLF=Lao PDR Department of Livestock and Fisheries; MRC=Mekong River Commission.

2) Overall Assessment of project

Project goal: to conserve the wild populations and breeding habitats for the MGC and other large migrating fish species in at least two key provinces in Thailand and Lao PDR.
As it is clearly stated in the project goal, this project is all about conserving the MGC by addressing the threats to the species. As such, the project is a success and has achieved the set goal, considering the fact that only 3 mekong giant catfish were caught between 2008 and 2011 (two were caught in 2008, one in 2009 and zero in 2010). This is the most tangible conservation result of a series of actions that were implemented, and a number of outcomes at both the policy and the field levels:

Policy level:
The project has worked to increase collaboration between relevant agencies in Thailand and Lao PDR to harmonize the approaches and policy for management and conservation of the Mekong giant catfish to respond to the threats of (i) increasing fishing pressure, (ii) unsustainable fishing gear, (iii) loss of critical habitats from sand and gravel extraction, and (iv) planned hydropower dam on the mainstream, particularly Xayaburi dam.

With regards to the first two threats, thanks to the support from the project, the MGC has a high profile both in Bokeo and in Chiang Rai, and further in Laos and Thailand, as well demonstrated by a number of rules and legislation that have been issued concerning this species. This is also a strong demonstration of the raised awareness by the government officials at various levels.

- In 2009 the governor of Bokeo issued a letter to ban all targeted catch of the Mekong Giant Catfish in Bokeo until further notice.
- In 2009 a letter from the governor of Bokeo was sent to the governor of Chiang Rai to request the same ban.
- A letter from the governor of Chiang Rai was issued later in 2009 to ban all target catch of the MGC in Chiang Rai in fishing season of 2009.
- Therefore only one MGC was caught in Chiang Rai in 2009 (before the ban was issued).
- In 2010 the Governor of Chiang Rai issued another letter to ban all catch in Chiang Rai in the fishing season of 2010.
- Since then, the project team in Thailand has continued advocating for the ban of all catch of the MGC in Chiang Mai. 4 meetings have been held in March and April 2011 with (i) Chiang Khong District Fisheries Officer, (ii) Chiang Khong District MGC working group, (iii) Chiang Rai Provincial Governor and Chiang Rai Provincial Fisheries Officer, and (iv) Chiang Rai Provincial MGC committee. The results from all these meetings were very positive and it is expected that the Governor of Chiang Rai will once more issue the letter to ban all the catch this year. While the official letter is yet to be issued, an approach is being taken to advocate for a 3-year ban to allow for the population of the MGC to recover.
- The Lao Fishery Law was approved by the Lao Parliament in July 2010 which makes all target catch of the MGC illegal in Laos (the MGC is protected by the law). This Fisheries Law was drafted based on WWF’s community fisheries experience and as a result of strong advocacy and detailed technical assistance from the ComFish team in Laos, together with the IUCN and the Mekong River Commission. This is a very significant long-term policy result. The law provides three levels of protection to fish and other aquatic animals. Article 10 states that certain species have the highest level of protection. Such species are to be conserved, protected and developed, and permission to use them in any way is forbidden. The Appendix to the Law lists the nine species in this category and Pangasianodon gigas is one of the nine. Thus the Mekong Giant Catfish is specifically named in the category with the highest protection, meaning that it is forbidden to catch the species.
- The Lao’s first Fishery Law also includes specific recommendations as to how fishery communities and government agencies should cooperate in setting up fishery management committees so as to achieve effective co-management. Furthermore, the law describes the a list of rights and responsibilities for such committees, including: (i) Develop fisheries management and development plans for its water resource areas including area demarcation, conservation areas, conservation deep pools, spawning areas, fish reproduction and release and so on; (ii) Submit the fishery management and development plans and regulations including fishing gears, fishing methodology, seasons and prohibited aquatic resources to the district authorities for review, approval and launching; (iii) Protect rights and interest of fishermen including conflict resolution in its water resource area; and (iv) Guide, monitor and supervise the implementation of the regulations in its respective area of water resource. As such, the law also
specifies the ban of the use of destructive gear such as bombs and electricity under the fisheries management and development plans and regulations.

On the sand and gravel extraction threat, a field survey was conducted to assess the sand and gravel extraction activity in Don Hao Island, Paoy Village in Bokeo in May 2009. This extraction activity is conducted at the end of the dry season and the beginning of the rainy season, between March and May with potential impact on the habitat of the Mekong Giant Catfish. As a result of the survey, recommendation was made to the Bokeo provincial government to limit this activity. Agreement was made by the Department of Energy and Mines and Department of Environment that gravel extraction will be stopped, and sand extraction will be controlled. Monitoring activities of sand extraction will be strengthened. It is a fact that sand mining from Don Hao island generates important income to the province in the form of tax and more advocacy activities will be needed to reduce the amount of sand extracted especially in this area.

The Mekong Giant Catfish Project has played an important role of informing the discussion about hydropower development on the lower mainstream of the Mekong River, even more so since the Xayaburi dam was notified by the Lao Government to the Mekong River Commission in September 2010. The Mekong Giant Catfish is a flagship species of the Mekong River, and therefore has been put forward in many discussions with stakeholders including the Mekong River Commission, the National Mekong Committees, the financial institutions supporting Xayaburi project, the developer of the Xayaburi project, consultants to the Xayaburi project, other government agencies in the lower Mekong countries, and certainly the communities. It is interesting to note that after the launch of the River of Giants report (see more detail in the Communications section below), some of the other organizations started to quote this report from WWF, stressing that Xayaburi dam would drive the species to extinction. The project therefore is important in strengthening the biodiversity argument in the hydropower discussion, which is often forgotten. However, the ultimate result – whether Xayaburi will be approved – remains to be seen on the 22nd of April, 2011.

Field level:
At the field level, the most important activity is the establishment of the fish conservation zones, some of which are in the area that is believed to be the spawning ground of the MGC, and others are not directly related to the Mekong Giant Catfish habitat. This is because the project took a rather broad approach towards MGC conservation, and worked in areas with high political will and interest from both the local government and the communities, so that it can be demonstrated that conservation and improved livelihoods from sustainable management of fisheries go hand in hand and conservation can benefit both the environment and the people. This approach has proven to be successful with the adoption of the first Lao fisheries law as mentioned above, which recognises the rights and the role of the communities in managing natural resources themselves.

As part of the support to the implementation to the newly adopted Fishery Law in Laos, the Guidelines for Fisheries Co-management was developed by WWF and adopted by the Lao Department of Livestock and Fisheries. The guidelines set up a 7-step process to establish fishery co-management, including: (i) Consensus building; (ii) Drafting Regulations; (iii) Revision of draft regulation; (iv) Agreement on revised draft regulations by local level stakeholders; (v) District approval of aquatic resources management regulation; (vi) Public announcement of the establishment of village regulations for aquatic resources management; and (vii) Monitoring and evaluation. It is important to note that all of these steps involve many stakeholders, including the villagers and the authorities. The process starts with the first step, which includes interviews of fishermen, women and children to gather information on capture fisheries management, fishing gear, fish species, and migratory information to map out critical fisheries habitats. From steps 2 to 4, villagers meet to discuss fisheries management and to draft regulations, provide feedback and revise the regulations based on feedback. At step 5, the regulations are signed by the village authorities and presented to DAFO, which signs and endorses the regulations and presents them to the district governor to sign and issue an agreement to allow the village to implement the proposed regulations. Once the announcement is made public, usually with an opening ceremony and via local news media at step 6, more village meetings will be conducted to continue identifying problems and important
issues of village aquatic resources management plan for adaptive management. As such, the sizes and locations of the fish conservation zones depend on the villagers' identification of critical habitats and species. The regulations, which include the use of more sustainable fishing gear during certain periods of time of the year, are developed based on their will and knowledge.

It should be noted that the success in policy wouldn't have been possible without the successful work in the field, including:

- 4 fish conservation zones have been established in Chiang Rai (see map and table 1 below for details), 2 of which are believed to be a MGC spawning habitat.
- 1 fish conservation zone has been established in Bokeo (Ban Pak Ngao). 4 others are in the process of being completed (See table 2). Furthermore at the community level in Bokeo a number of villages have begun to demarcate fish sanctuaries as part of fisheries co-management plans to protect wild fish stocks.

Another field activity that is directly linked to the project goal is the research to identify the spawning habitat of the MGC. Indeed the ichthyoplanton research to determine the locations of important spawning habitat for giant catfish and other fish species has been done over 3 years (2008-2010).

The objectives of this research were;

1. To determine the location of the Mekong giant catfish spawning ground in the stretch of Mekong River in Chiang Rai province of Thailand during 8-28 May 2010.

2. To provide additional samples of Mekong Giant Catfish DNA for long-term storage and future reference by researchers from the Fish DNA Bank and Genomic Laboratory of the Inland Fisheries Resources Research and Development Institute, Department of Fisheries, Thailand.
The result of this study was that 4 genera & 10 species of the Pangasiidae family were found of which the most abundant were *Pangasius conchophilius*, 506 individuals (49.27%), *Pangasius bocourti*, 290 individuals (28.24%), and *Pangasius* sp.1 found 135 individuals (13.15%). The number found of Pangasiids in 2010 were eminently more than in 2008 and 2009.

A meeting between WWF, the researchers, the Mekong Giant Catfish working group and the Mekong River Commission is organized every year to prepare for the sampling of eggs and larvae in Bokeo and Chiang Rai. However, the research has been faced with many difficulties and uncertainties in terms of the place and time to collect the eggs and larvae. First of all, the precise location of the species spawning ground is based on local fishermen’s knowledge, and it is unknown how the eggs and larvae would be drifted by the currents. Furthermore, the right time to collect the eggs (at the right place) is crucial. The eggs of the MGC float away quite quickly so it could be possible to miss them if the sampling is done one hour too late. Although efforts have been made to collect the eggs and larvae at different locations and different times of the day, unfortunately the result is still negative.

It is worth noting though, that this year’s research shows positive test of the *Pangasius Sanitwongsei*, a smaller cousin of the MGC, known locally as the giant pangasius, or dog-eating catfish. This species is ranked the fifth largest freshwater fish in the world and is endemic to the Mekong River. Very little is known about this species and it is very seldom seen. The research is being shared with other scientists so as to confirm the result. If the research has actually found the spawning ground of the *Pangasius Sanitwongsei*, it will confirm the significance of this area, and contribute to the limited knowledge about the species.

Recognising the difficulties related to the *ichthyoplanton* research, another approach was taken to provide better insights into the spawning ground of the MGC. A geomorphological field survey was conducted in December 2010 to understand what makes this area different from others. Some hypotheses include:

- Higher Oxygen content created by rapid
• The area has well-sorted gravel/pebble bottom (juxtaposition of different bottom textures may be the result of specific morphology of the site. The upstream area is wider and with less slope so finer sediment may be covering the gravel while it is narrower downstream and therefore the bed load is more heterogeneous.)
• There may be fine sediment cum nutrient from numerous left bank tributaries coming to this part of the mainstream.

An aquatic habitat classification exercise, using a different approach, also confirmed that this stretch of the Mekong river represents a different type of habitat. Taking the precautionary approach, it is expected that efforts will continue to be made to protect this part of the Mekong River in order to conserve the MGC.

Efforts have been made to establish transboundary conservation areas over three years. Villagers have had several meetings to decide on the villages to establish the co-management regulations, and the demarcation of the zones. Most recently, on 29 October 2010 it was agreed in a meeting participated by decision makers or representatives of WREA, MOFA, MAF, MRC, LNMC, Provincial administrative and district offices, PAFO, DAFO, Police, PLWU that the Lao side will establish MGC conservation zones in single river side first then share the village regulations across administrative boundary with Thailand. This meeting also reopened the dialogue and set up the goal and direction of MGC co-conservation implementation and the transboundary collaboration process. Agreements from the meeting included the expansion of MGC conservation establishment in the Mekong mainstream target villages, the establishment of a transboundary committee between Lao and Thai, and support and strengthening of patrolling activities in the Mekong.

Figure 2: Map of fish conservation zones
<table>
<thead>
<tr>
<th>Actual date</th>
<th>Village</th>
<th>Status</th>
<th>Size (m)</th>
<th>Depth (m)</th>
<th>MGC related (Yes or No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lao PDR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15/2/2011</td>
<td>Done</td>
<td>Second round community consultation agreed to establish MGC conservation zone and drafted village fisheries conservation regulation, Fisheries baseline data collection, dept measured and GPC recorded</td>
<td>88,141 m²</td>
<td>6.6</td>
<td>Y</td>
</tr>
<tr>
<td>16/2/2011</td>
<td>Tinthat</td>
<td></td>
<td>11,219 m²</td>
<td>2.9</td>
<td>Y</td>
</tr>
<tr>
<td>17/2/2011</td>
<td>Pa-oy</td>
<td></td>
<td>97,444 m²</td>
<td>6.7</td>
<td>Y</td>
</tr>
<tr>
<td>18/2/2011</td>
<td>Huayxaytai</td>
<td>First round community consultation agreed to establish conservation zone</td>
<td>nd</td>
<td></td>
<td>Y</td>
</tr>
<tr>
<td>21/2/2011</td>
<td>Namkeung</td>
<td>First round community consultation agreed to establish conservation zone</td>
<td>nd</td>
<td></td>
<td>N</td>
</tr>
<tr>
<td>Dec 2009</td>
<td>Paknjao</td>
<td>MGC conservation zone established</td>
<td>92,900 m²</td>
<td>3.5</td>
<td>Y</td>
</tr>
<tr>
<td>Thailand</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 / 11/2009</td>
<td>Pak-Ing Bon</td>
<td>Fish conservation zone and fisheries conservation regulation established.</td>
<td>300 meters along the Mekong</td>
<td>8</td>
<td>N</td>
</tr>
<tr>
<td>18/4/2010</td>
<td>Had Khai</td>
<td>MGC conservation zone and fisheries conservation regulation established.</td>
<td>300 meters along the Mekong</td>
<td>12</td>
<td>Y</td>
</tr>
<tr>
<td>25/8/2010</td>
<td>Don Tee</td>
<td>MGC conservation zone and fisheries conservation regulation established.</td>
<td>300 meters along the Mekong</td>
<td>11</td>
<td>Y</td>
</tr>
<tr>
<td>21/10/2010</td>
<td>Pak-Ing Tai</td>
<td>Fish conservation zone and fisheries conservation regulation established.</td>
<td>200 meters long</td>
<td>5</td>
<td>N</td>
</tr>
</tbody>
</table>
3) Major challenges and solutions developed
Towards half way of the project, the most important challenge was the difference in policy related to giant catfish conservation in the two countries. The authorities in Bokeo province were quite clear they did not wish to have anyone catch giant catfish due to the conservation status of the species, although at the national level the policy was less clear. The national policy in Thailand had not been so clear either: Fishing for giant catfish is often justified under the description of "population research" or "cultural fishing". This resulted in pressure from certain authorities to continue fishing for giant catfish. This has affected how certain agencies are interpreting the results and recommendations of project workshops.

However, with the adoption of the first Lao fisheries law that outlaws the target catch of the MGC, and the strong advocacy from Chiang Khong District, Chiang Rai province, the commitment has become stronger towards the end of the project. The letters to ban all catch the last 2 years is an evidence of this. This is the result of very strong engagement from WWF at various levels. In Laos, it is the co-management of fisheries that was promoted and implemented in 7 provinces in Laos with strong support from the government. The Lao fisheries law was drafted based on WWF's and IUCN's fisheries co-management experience. In Thailand, it is the high profile of the MGC issue that has been raised by WWF. The Chiang Rai Province Mekong Giant Catfish committee and Chiang Khong district Mekong Giant Catfish working group were established. WWF Thailand Project Manager is the assistant to the secretaries of both of these groups.

When the project was designed, hydropower dams were identified as one of the largest threats to the MGC because this is a critically endangered and migratory species, with a single spawning area upstream. However, no specific strategies were built in the project because of the much larger scope that the project would have had to take - hydropower is a very controversial issue in the Mekong region. However, towards the end of the project, the intention to build Xayaburi dam was notified to the Mekong River Commission by the Lao Government. This is the first of the 11 proposed dams that is being considered to be constructed on the mainstream of the lower Mekong River. The spawning area is upstream from the proposed Xayaburi dam location, which would divide the wild population of the MGC into two, as well as disrupt its life cycle and likely to cause extinction to this species. Due to this serious and somewhat clearer threat (we did not know earlier which dam would be notified first), an adaptive management approach was taken by linking the Mekong Giant Catfish with any discussion about Xayaburi dam. This has been picked up very strongly by the media, partners, and other organisations, as well as discussion with government officials. The MGC project therefore became much more integrated in a larger strategy concerning hydropower, and provides the biodiversity argument for a call of a 10-year delay of any dam development on the mainstream of the lower Mekong River.

The decision on the proposed Xayaburi dam will be made on the 22nd of April, 2011. At the time this report is written, final decision on the dam remains to be seen.

4) Unexpected outcome
The policy support for extension of fisheries co-management in Bokeo provides the project a sound platform for collaboration on demarcating freshwater protected areas in the province. This contributes towards the overall project objectives, and is an activity that WWF Lao is continuing beyond the lifetime of this project in Bokeo.
The Lao Fisheries Law was not planned as an objective of this project. Beyond the conservation of the MGC, this is a major success that has very significant implications in the way fisheries, and potentially natural resources will be managed in Laos. The challenge remains however on how to enforce the law effectively.

5) Methodology: Involvement of stakeholders
Applying the fisheries co-management process relies upon the understanding, support and participation of communities. Fisheries co-management is a collaborative management approach that establishes power-sharing arrangements between communities and government authorities. The project applies the Fisheries Co-management Guidelines developed by the WWF Lao ComFish project over a period of five years. These guidelines are a useful technical resource in extension of co-management arrangements to support project objectives. The steps outlined in the guidelines emphasise the importance of consensus building within and between communities to ensure ownership of results and sustainability beyond the lifetime of the project.

In Thailand, the approach is also fully participatory. The Thai constitution supports the empowerment of the Thai people to participate in the conservation of natural resources. In a broader programmatic context, WWF Thailand has been working on community wetland management in Northeast of Thailand, resulting in the establishment of fish conservation zones and wetland management regulations. These regulations are endorsed by the provincial committee, which provides inputs to the Thai Wetlands Management Policy. This process involves stakeholders at all levels in Thailand, and the Thai wetlands management policy is a strong demonstration of how advanced Thailand is compared to other countries in the region in terms of involving stakeholders. A very similar approach was adopted in all conservation work by WWF Thailand in this MGC conservation project. The establishment and membership of the MGC Chiang Rai committee, and the MGC Chiang Khong working group that include government officials, the army, the private sector, the communities and WWF – each with their own role and contribution - is an excellent example of how decisions were made and actions were taken in a participatory way.

6) Capacity building and partnership
In Bokeo province the project works in collaboration with government staff at the provincial and district level. There has been a single WWF staff dedicated full-time to project activities. In this manner the project is developing technical capacity of all government counterparts, and ensuring that project results are integrated into government reporting for development planning. The project approach is to apply the Fisheries Co-management Guidelines and train government counterparts in this technical method for managing fisheries.

In Thailand there has been a part-time WWF staff dedicated to work on the project activities, which has meant that it has been essential to cooperate with other key stakeholders. For instance, the project collaborated with the Department of Fisheries to conduct the ichthyoplankton research to determine spawning sites of the MGC over 3 years. This approach and methodology is relatively new to the Mekong Basin and holds great potential for improving the knowledge base and management approaches for capture fisheries.

Participation and cooperation of local communities in the fisheries co-management process is considered to be the single most important factor in the success of aquatic resource management plans. Active engagement of local communities ensures these co-management
plans will continue to be implemented, monitored and enforced by the communities long after the project is completed.

Complimentary to this, the project has focused on technical capacity development of provincial line agency staff in order to raise awareness and develop skills to continue the fisheries co-management process beyond the lifetime of the project.

Collaboration with inter-governmental agencies like the MRC Fisheries Programme ensures that project outputs are carried on by other agencies. Already the project is regarded by many to be an exemplary demonstration of how transboundary approaches can be used to support good governance and aquatic resources management in the Mekong Basin.

After the completion of this project, it is planned that participation from government officers and local stakeholders will be enhanced with meetings organised by WWF, as well as capacity building for the Lao and Thai DoF. The development of a mechanism for both government officers and local fishermen to work together for long term sustainable transboundary fishery co-management and conservation in the future is also important.

7) Communication & stories

<table>
<thead>
<tr>
<th>Category</th>
<th>Date</th>
<th>Project Output</th>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Media</td>
<td>Jan-08</td>
<td>The Nation (English language) national newspaper (January 6, 2008): “Review on catfish ban”</td>
<td>Thailand</td>
</tr>
<tr>
<td>Media</td>
<td>Nov-09</td>
<td>The Nation (English language) national newspaper (November 11, 2009): “International fish bank”</td>
<td>Thailand</td>
</tr>
<tr>
<td>Poster</td>
<td>Jul-08</td>
<td>A3 poster of the above Fact Sheet, laminated, for placement in local restaurants, immigration offices along the river etc</td>
<td>Lao PDR, Thailand</td>
</tr>
<tr>
<td>Report</td>
<td>Dec-08</td>
<td>WWF Thailand (2008). First survey of spawning sites by DNA analysis of fish eggs and larvae. Thai language only</td>
<td>Chiang Rai Thailand</td>
</tr>
<tr>
<td>Video CD</td>
<td>Mar-10</td>
<td>Conservation of the Mekong giant catfish</td>
<td>Laos and Thailand</td>
</tr>
<tr>
<td>Factsheet</td>
<td>Jun-08</td>
<td>One River, One Fisheries, Two countries (Transboundary Conservation of the Critically Endangered Mekong Giant Catfish)</td>
<td>WWF network, Bokeo province, Lao PDR, Regional and international media</td>
</tr>
<tr>
<td>Provincial agreement letter Report</td>
<td>2009</td>
<td>Provincial agreement letter banning the MGC target catch</td>
<td>Lao PDR</td>
</tr>
<tr>
<td>Report launch with media coverage</td>
<td>July 10, Dec 2010</td>
<td>River of Giants: Giant Fish of the Mekong. Lao language poster with content of related fisheries co-management article of fisheries law</td>
<td>Lao PDR</td>
</tr>
<tr>
<td>Poster</td>
<td>Oct 2010</td>
<td>Lao language note book with photographs of endangered species</td>
<td>Lao PDR</td>
</tr>
</tbody>
</table>
One of the biggest communications successes of the project was definitely the launch of the River of Giants: Giant Fish of the Mekong. This report created a big hit in national local language and English media. Its comprehensive coverage in the media across the Greater Mekong served to raise the profile of biodiversity issues at an important MRC meeting held in Vientiane on the impact of dams to the Mekong River basin, and also helped promote the issues prior to a WWVF meeting with the Thai Minister of Environment and addressing a Thai parliament committee on the Xayaburi dam issue.

Highlights from around the region include outstanding coverage in Cambodia with the story reported in 9 of the top 10 Khmer and English media outlets (print, TV and online). Very good coverage in Vietnam with 4 of the top 10 media agencies and over 60 other popular news sites and government websites in both English and Vietnamese running with the story. It was also covered by the Bangkok Post Thailand’s leading English language daily newspaper. There was no coverage in Laos due to government censorship of the media.

The story was also extensively covered across Europe including comprehensive coverage in Switzerland, Germany (German Print-Media: 3.275.000 Print Run) and the UK including BBC online, BBC Radio and The Daily Telegraph. In the US, it received coverage on the CNN, National Geographic, MSNBC, and Bloomberg, and was popular on the WWVF-US website with the report coming in as the 9th most popular story of the year. The YouTube video has so far had over 1000 viewings from the WWF-US and WWF-Greater Mekong postings.
Part II – Assessing the Overall Project Impact/Outcome

1. Lessons Learned

- The attempt to apply the WWF Standards in developing the project design has presented some challenges for the project team. When applying the WWF Standards there was insufficient time and capacity for the participants to complete the process in a way that would support efficient implementation of the work plan. The project design should have been more focused on fisheries management and protection of aquatic habitats, but also in the current design includes activities on river bank erosion, navigation, tourism and environmental education. All of these are important and related factors, but with a limited budget and time period to implement the work plan the results of applying the WWF Standards should have been more focused to be realistic. This has been highlighted in many of the previous technical progress reports, and remains true at the end of the project life.

- A broader approach: To maintain the sustainability of the project, the local villagers need to see benefits of conservation. Once the MGC is placed in the context of protecting fish stock and improving the way fisheries are being managed, support from both the communities and the authorities is strong.

- Media attention/Importance of flagship species: The River of Giants report received by far the most attention of any other communications products produced by the project before. This is because (i) the launch of the report was prepared very carefully by WWF network internationally, regionally and nationally; and (ii) the MGC and other giant fish of the Mekong are placed in the context of the threat from hydropower development. The power of the media and flagship species should continue to be used to deliver the message of the importance of biodiversity.

- Transboundary agreements: There is a close relationship between the villagers on the Lao and Thai sides. However, the MGC issue becomes more complicated when the provincial and the national levels are involved. The lesson learnt from this project is that facilitation for an agreement needs to happen at all levels, and while it takes more time to arrive at a regional/transboundary agreement between the two governments, action can be taken at the field level so that an informal agreement can be reached between fishermen to protect the species.

2. Sustainability

The process of setting up fishery management committees under a co-management process is specially targeted at making them sustainable. After all, the communities and the local government agencies will be there long after any project has finished.

To increase the impact of the project the work plan has emphasized the fisheries co-management process to protect key habitats as freshwater protected areas. This has resulted in broad support of fisheries co-management by communities and government agencies in Bokeo.

Participation and cooperation of local communities in the fisheries co-management process is considered to be the single most important factor in the success of aquatic resource
management plans. Active engagement of local communities ensures these co-management plans will continue to be implemented, monitored and enforced by the community long after the project is completed.

Despite successes and achievements from the MGC, a number of challenges to the Mekong Giant Catfish remain as follows:

- A continuation of fishing in the spawning season in the Chiang Rai area. Further dialogue is required with key actors from the province of Chiang Rai to reach consensus to enforce a continuation of a complete moratorium or to define a quota system to restrict annual catch in a longer term than a yearly basis.
- Enforcement of the Lao Fishery Law. Even though the law is in place to protect the MGC, further work is needed to ensure that the law is implemented.
- Sand extraction in an area of the Upper Mekong believed to hold spawning habitat of the Mekong Giant Catfish and other fish species. As explained above, although gravel extraction has been halted, the economic benefits of sand extraction continues to motivate the mining activity to happen. Unless it can be demonstrated that the costs of this activity to the environment, including the MGC and other fish stock, are higher than the benefits, it would be difficult to ask for a complete ban of this activity.
- The need for MGC-focused conservation zones. Taking a broader approach had its benefits of the adoption of the Lao Fishery Law. It is now time to focus conservation zones to make them more relevant to the MGC.
- Bycatch of the MGC in Southern Laos and in Cambodia. While the MGC is not targeted in Southern Laos and in Cambodia, the animals are trapped in the dai and li traps in these areas. WWF does not have the resources to work in these areas at the moment.
- Understanding of the species’ migratory and other behaviours. Still little is known about this species and research is needed to have a better understanding of their habitats, conditions and behaviours.
- The proposed Xayaburi dam as explained above.

WWF has just received funding for a MGC conservation project to continue working in Bokœo and Chiang Rai provinces in Laos and Thailand until the end of 2012. The project aims to address the challenges listed above, except for the challenge of bycatch in Southern Laos and Cambodia as it is out of the geographical scope of the project, and the research on the MGC’s behaviours. Since the population is already very vulnerable, the question of bycatch and monitoring (tagging) of bycatch MGC becomes more and more important. WWF is actively seeking for funding support to work in these areas as well.

Appendices:
- Appendix 1: Photos from the project
- Appendix 2: The Study on Spawning Sites of the Mekong Giant Catfish at Chiang Rai Province, Thailand 2010 – a digest
Appendix 1: Photos from the project

Ban Don and Panging

Ban Pakngao and Meungkan

Ban Paoy, Thintad, and Hadkai

Some general overview shots from Google Earth
Area in the river between Laos and Thailand where fishermen were known to catch Mekong Giant Catfish
This river weed collection is extensive and it is dried for food, it is like the Japanese ‘nori’. Issue is that since the Mekong Giant Catfish is vegetarian, this is likely taking food away from the animal.
Appendix 2: The Study on Spawning Sites of the Mekong Giant Catfish at Chiang Rai Province, Thailand 2010 – a digest

The objectives of this research were:

1. To determine the location of the Mekong giant catfish spawning ground in the stretch of Mekong River in Chiang Rai province of Thailand during 8-28 May 2010.

2. To provide additional samples of Mekong Giant Catfish DNA for long-term storage and future reference by researchers from the Fish DNA Bank and Genomic Laboratory of the Inland Fisheries Resources Research and Development Institute, Department of Fisheries, Thailand.

Fig.1: Map showing the sample collecting stations of Mekong giant catfish’s eggs and larvae in Pak Ing village Chiang Kong district, Chiang Rai province

In this quick digest no details of the sampling or analytical methodology is presented, but they are available on request.

Results
The result of this study was that 4 genera & 10 species of the Pangasiidae family were found of which the most abundant were Pangasius conchophilus, 506 individuals (49.27%), Pangasius bocourti, 290 individuals (28.24%), and Pangasius sp.1 found 135 individuals (13.15%). The number found of Pangasiids in 2010 were eminently more than in 2008 and 2009.
Figure 2: Collecting eggs and fish larvae in Mekong river, Chiang Kong district, Chiang Rai province during 8-28 May 2010.

Conclusion

This study of the species composition used morphological characteristics to identify the fish larvae and the sampling did not found any Mekong giant catfish larvae. This result was related to sample analysis using DNA analysis which also showed that no samples collected were Mekong giant catfish's larvae. One interesting result was that 2 samples of *Pangasius sanitwongsei*, the Giant dog-eating catfish were identified in the samples; this species is another of the Mekong's giant species, and can reach 300kg and 300cm. Its biology and lifecycle is no more well understood that the Mekong Giant Catfish and it is very likely to be equally endangered. Therefore to find even a small sample of that species is a valuable result. Some recommendations have been made regarding improving the various methodologies for the 2011 survey and these are to be discussed and decided upon before that survey occurs.