Independent Expert Review of the Myitsone Dam EIA

Disclaimer

The purpose for soliciting expert opinions on the “Environmental Impact Report of Hydropower Development in the Upper Reaches of the Ayeyawady River” was to provide a better understanding of quality of the report prepared by the dam developer, China Power Investment.

The comments provided by the experts can only be considered their personal opinion.Their opinions should not be interpreted as a reflection of the official position of their institutions. The expert opinions are based on the initial reading of relevant sections of the EIA Report to their area of expertise and are limited that that scope.We encourage reviewers to contact the relevant experts for additional information or clarification of their comments.

International Rivers protects rivers and defends the rights of communities that depend on them.With offices in four continents, International Rivers works to stop destructive dams, improve decision-making processes in the water and energy solutions for a just and sustainable world.

ALARM, formally known as ECODEV is a non-governmental social and entrepreneur organization and founded by Myanmar development professionals, intellectuals and social entrepreneurs since the 1990s.All over Myanmar, ALARM is actively involved in rural development affairs, environmental conservation, advocacy initiatives, and decentralization process.and combating poverty actions together with the support from many partners organizations including local and international organizations as well as some government agencies. ALARM is operating 5 branch offices in different parts of Myanmar and appointed 50 staff covering different races and beliefs.

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1 Overall Examination of the Environmental Impact Assessment Report

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I would like to make some comments on the "EIA Report of hydro-power development in the Upper Reaches of the Ayeyarwady River" from the view-points of my specialized fields of research interest such as geography, fluvial geomorphology and environmental science.

It is widely known that there are **two** Environmental Impact Assessment (EIA) reports on Hydro-power Development in the Upper Reaches of the Ayeyarwady River.However, nobody knows what and how the *China Power Investment Corporation* (CPI) has stated in their EIA report.The other one was jointly prepared by Myanmar and Chinese experts, and it is known as BANCA Report. (BANCA stands for *Biodiversity And Nature Conservation Association).*

A 945-page preliminary biological assessment of seven planned dams on the Ayeyarwady (formerly known as Irrawaddy), N'Mai and Mali rivers in Kachin State, Myanmar collected baseline information on the biodiversity of flora and fauna in the catchment area of the dams over a period of five months from *January to May 2009.*

All expenses of the study were funded by China Power Investment Corporation (CPI). A team of 80 scientists from Myanmar from BANCA and others from the *Changjiang Institute of Surveying, Planning, Design, and Research* (CISPDR) of China conducted the study.

For BANCA Report, the experts involved did not have enough time for the detailed field survey and collection of empirical data due to many such holidays as Kachin's Manaw Festival and Chinese New Year Festival.Therefore, total number of days spent for the field survey was less than a week, and accordingly **one cannot expect too much reliability and validity of data and information from this kind of report.**

The EIA Report cannot be regarded as a perfect observation document. Although the survey period needed to take at least about seven months normally, the experts had to conclude the report within five months due to the demands of Chinese experts tocooperate with Myanmar counterparts.**The Myanmar researchers could not have opportunity to read the MoU between the two governments before starting the observation works. As there was no Myanmar Environment Law by then for reference in the country, the facts in EIA Report were compiled from available sources.**

The process of environmental impact assessment cannot be completed within one time. Both direct and indirect impacts have to be observed before and after the project continuously. Based on the observations, the experts will also need to assess and examine whether the ways of lessening impacts are effective or otherwise.

EIA is a process that should be publicized transparently. Only then there will be no doubt about the project. There will be both advantages and disadvantages whenever development projects are implemented.Serious disadvantages must be reduced with high degree of lessening plans.Such lessening plans are sometime of great value, while small impacts can be solved easily.Therefore, the responsible persons are suggested to support EIA process from beginning to end.

The Report has placed much emphasis on the negative impacts of damming river on the ecosystem, flora & fauna, biodiversity, natural habitats and environmental conservation of the study area. Prior to the implementation of a gigantic developmental project in a large drainage or river basin, **many more detailed research projects need to be carried out** by experts, scientists, specialists and professionals from various disciplines taking a sufficient amount of time.

The EIA report should be based on the guidelines and standards of World Bank and the like.

As underlying geology (lithology and structure) plays a very important role in the construction of a dam, a reliable geological map is needed for depicting different types of rock layers and geological structure in details at the dam site, especially in the potential flooded area after the completion of a reservoir.

As this Ayeyarwady Myitsone area has been weak in security for many years, **not many detailed geological surveys have been done so far, and consequently no detailed geological maps and/or data are available.** Based on the existing geological maps published before and after the independence of Myanmar, the geological conditions of the Myitsone area and its environs are actually not suitable for the construction of large dams and dam- cascade.The area in question is largely composed of **serpentinite,** one of the ultramafic igneous rock types, which is durable and resistance to considerable extent.However, when encountered with the water in a reservoir, the serpentinite can cause a great danger to the dam.

The dam site lies in the Seismic Zone 4 (i.e. Severe Zone). In other words, this area can experience the earthquakes with the maximum intensity of **Mercalli Scale 8 to 9.** The **active Sagaing Fault is approximately 15 miles away to the west of Myitsone Area.** The engineering structure must be quite resistant to severe earthquakes and ruptures. Those research works and findings of Myanmar geologists should be taken into consideration by the Chinese counterparts, and they in turn should disclose their findings to Myanmar geo-scientists.

The construction of dams on the Ayeyarwady River should be avoided due to the changes in downstream hydrology which may affect navigation, riverine ecosystem and deltaic ecosystem, and will lead to negative impacts on the economy.

The Ayeyarwady dams will threaten biodiversity. Eco-regions which are nationally important, regionally significant and globally outstanding will be directly affected by clearing and logging of the inundation areas and construction activities for a series of dams in Kachin State.Of particular concern are the loss and fragmentation of key ecosystems and the loss of key, endemic and endangered species of both flora and fauna. Definitely there will be negative impacts on potential of availability of traditional medicinal plants.There will be severe negative impacts on regionally significant and globally outstanding three eco-regions, one center of world plant diversity, and severe impacts on key biodiversity areas and conservation corridors of Myanmar.

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Downstream impacts to the whole Ayeyarwady Drainage Basin need to be examined as the river is vital to the country. The Ayeyarwady River is the most important lifeblood river in Myanmar.Millions of people are depending on this mighty river for their livelihoods.It also acts as a conduit of communication to over sixty million of people.The fragmentation of the Ayeyarwady River by a series of dams will have very serious social and environmental problems not only at upstream of dams but also to very far downstream to the coastal delta.A longer and more comprehensive EIA investigation is strongly recommended in such a big and sensitive hydropower development which may give rise to very significant adverse impacts.

The Ayeyarwady dams will have severe negative impacts on livelihoods, public health and safety. On account of construction of a cascade of dams in Kachin State there will be severe negative impacts on livelihoods and habitations of grassroots people of the region, disappearance of some wild rice varieties and their ancestors, disappearance and forever loss of the cultural heartland of Kachin people.

A Social Impact Assessment (SIA) must be conducted and decision makers should balance positive and negative aspects. Proper SIA must be done before construction of each dam to know real impacts on livelihoods.**The main drawback of this EIA Report is the lack of SIA at all. Therefore, systematic SIA must be carried out by competent social scientists.** Before approving the construction, the decision-makers are strongly urged to fairly balance between the negative and positive aspects of dams.

Affected people should be consulted for their consent, and local people are currently against the projects. The public should be disclosed about the hydropower dams and resettlement programs by having public meetings. The majority people of local ethnic groups oppose construction of the Ayeyarwady dams especially Myitsone hydropower project.They consider the Ayeyarwady confluence as the cultural heartland of the Kachins.For the longevity of dams to be constructed in Kachin State, the opinion of grassroots people should be brought into due consideration.

The benefits of the project need to be shared equitably. There must be a fair and equitable sharing of benefits coming out from this hydropower development among the stakeholders concerned, including the people of Myanmar in general and Kachin people in particular.**The EIA should be publicly released.** The main audience for this document is the people of Myanmar.

Major salient weaknesses discovered in the EIA Report of Hydro-power Development in the Upper Reaches of the Ayeyarwady River can be summarized as follows:

1. Downstream impacts, including assessments of river flows, sediment discharge, water levels, flooding patterns, salt water intrusion into the Ayeyarwady Deltaic Region, fish habitats, and riverbank erosion have not been studied yet.

2. Baseline data on the Ayeyarwady River Basin as a whole has also not been collected. [Actually, a drainage basin or river basin should be considered as a fundamental geomorphic unit which needs to be thoroughly studied applying the holistic approach and general systems theory.]

3. Social, health and economic impacts of the proposed dams have not been addressed yet.

4. Consultation with affected peoples has not been conducted yet.

5. Strong conclusions and recommendations that can ensure the concerns raised in the Report are not fully addressed and included.

In conclusion, water resource management must be based on principles of ecological sustainability and social justice.Affected communities - upstream & downstream - must be protected.To ensure this as well as transparency and accountability, national reconciliation and genuine democratization is desperately needed in Myanmar.All stakeholders should be urged, if possible, to immediately stop these harmful dam projects in the Ayeyarwady Drainage Basin, and to preserve the river for future

generations.And, more importantly the economic, social, health, security and environmental impacts of dams throughout Myanmar must be publicly disclosed from now onward.