



UNESCO/IHA Project (2008-2011) GHG Status of Freshwater Reservoirs



Climate change has become one of the most important subjects for strategic sustainable development. There is a clear and pressing need to quantify the greenhouse-gas (GHG) footprint of all human activities. The issue of the GHG status of freshwater reservoirs plays an important role in these discussions; however, there is currently a significant problem because there is **no scientific consensus on how to measure the GHG status of freshwater reservoirs**. This is causing difficulties from global to local action. For example, the IPCC is waiting on further scientific progress for guidance on **national GHG inventories**, and the UNFCCC is looking for methodologies (measurement and predictive modelling) to quantify carbon offset for **emission trading**. More generally, policy making on energy, water and climate action is compromised by the current lack of understanding. This has a global impact, and especially on developing countries.

The **GHG Status of Freshwater Reservoirs Research Project**, hosted by the **International Hydro-power Association (IHA)**, in collaboration with the **International Hydrological Programme (IHP) of UNESCO**, aims to improve understanding on the impact of reservoirs on natural GHG emissions, obtaining a better comprehension on the processes involved and helping to overcome knowledge gaps.

The overall goals of the Project are the evaluation of changes in GHG emissions due to the construction of a freshwater reservoir in a river basin, as well as potential mitigation measures which may reduce the GHG footprint at vulnerable sites. In this way, the four main objectives of the Project are to: develop, through a consensus-based, scientific approach, detailed **measurement guidance**; promote scientifically rigorous **field measurement campaigns**, evaluating net emissions from a representative set of freshwater reservoirs; **develop predictive modelling** tools to assess the GHG status of unmonitored reservoirs and potential

new reservoir sites; develop guidance and assessment **tools for GHG mitigation** when necessary. The scope of the Project would include data from a representative set of reservoirs throughout the world, particularly covering the tropical climates, where the natural carbon cycle is most active.

The deliverables from the Project would include: a **standardized, credible set of data from representative reservoirs throughout the world** (particularly covering the tropical climates, where the natural carbon cycle is most active); a **methodology and set of tools for predicting reservoir-induced emissions**; and, guidance on **mitigation options for vulnerable sites**.

The Project is divided into two steps:

Step one, to be developed on a two/three-year period, encompasses the development of a measurement specification to be applied on a set of reservoirs in order to build a database of representative results, with emphasis on filling knowledge gaps and leading to the development of an **empirical predictive model** and to the definition of the main concepts for a process-based model.

In **step two**, the activities include the development of a **process-based predictive model**, proposal of **mitigation measures** for vulnerable sites and the **validation** of the models and mitigation measures.

The scope of the Project includes data and methodologies to be applied to a representative set of reservoirs throughout the world. Special interest is given to the tropical climates, where the natural carbon cycle is most active. This includes field measurements in several countries, including, but not limited to, sites in Africa, Asia and Latin America.



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WORK SCHEDULE (step one)

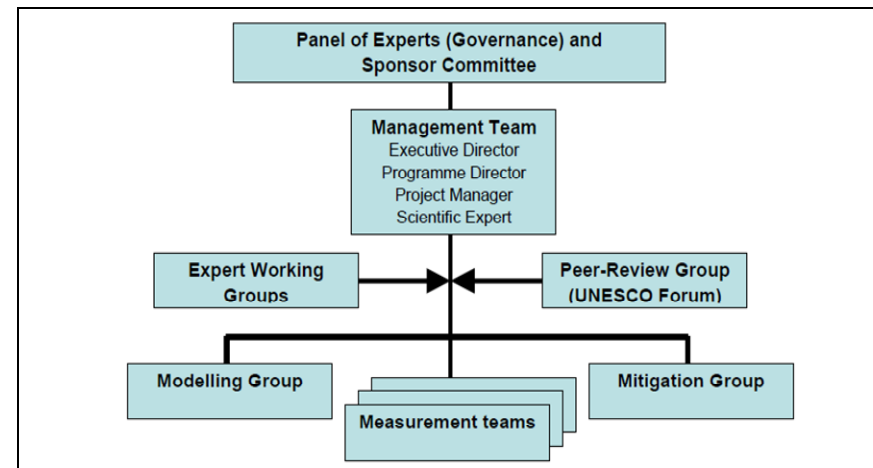
Work schedule (quarters of each fiscal year to 31 March)	Year to 31.03.2009				Year to 31.03.2010				Year to 31.03.2011			
	APR/08 JUN/08	JUL/08 SEP/08	OCT/08 DEC/08	JAN/09 MAR/09	APR/09 JUN/09	JUL/09 SEP/09	OCT/09 DEC/09	JAN/10 MAR/10	APR/10 JUN/10	JUL/10 SEP/10	OCT/10 DEC/10	JAN/11 MAR/11
Project management	X	X	X	X	X	X	X	X	X	X	X	X
Assessment methodology	X	X	X	X	X	X	X	X	X	X		
Measurement specification		X	X	X	X	X	X	X	X	X	X	X
Site selection & supervision		X	X	X	X	X	X	X	X	X	X	X
Model development							X	X	X	X	X	X
Model assessment								X	X	X	X	X
Mitigation guidance									X	X	X	X
Reporting and Publications	X	X	X	X	X	X	X	X	X	X	X	X
Governance	X	X	X	X	X	X	X	X	X	X	X	X

PRODUCTS (step one)

Work schedule (quarters of each fiscal year to 31 March)	Year to 31.03.2009				Year to 31.03.2010				Year to 31.03.2011			
	APR/08 JUN/08	JUL/08 SEP/08	OCT/08 DEC/08	JAN/09 MAR/09	APR/09 JUN/09	JUL/09 SEP/09	OCT/09 DEC/09	JAN/10 MAR/10	APR/10 JUN/10	JUL/10 SEP/10	OCT/10 DEC/10	JAN/11 MAR/11
Assessment methodology	SP V1					SP V2				SP V3		
Measurement specification			MSD1 MSD2	MSV1		MSD3	MSV2		MSV3			MSV4
Site selection & supervision				SSG1		SSG2						
Data Base				DBV1 DBV2								
Empirical Model							EMV1		EMV2			EMV3
Process Based Model												PBV1
Mitigation guidance												MGV1

PRODUCTS:
 MSDx: Measurement Specification Draft Version x
 MSVx: Measurement Specification Version x
 SPVx: Scoping Paper Version x
 SSGx: Site Selection Group x
 DBVx: Data Basis Version x
 EMVx: Empirical Model Version x
 PBVx: Process-Based Model Version x
 MGVx: Mitigation Guidance Version x

STRUCTURE



Any further information, please contact:

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