Report

Workshop on Development of a National Strategy on Integrated Flood Management for Lao PDR

Vangvieng, Lao PDR

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Department of Meteorology and Hydrology

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REPORT
Workshop on Development of a National Strategy on Integrated Flood Management (IFM) for Lao PDR

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Abbreviations

APFM	Associated Programme on Flood Management
CECCC	Capacity Enhancement for Coping with Climate Change
DNDCC	Department of National Disaster and Climate Change, MONRE
DLM	Department of Land Management, MONRE
DMCC	Disaster Management and Climate Change, MONRE
DMH	Department of Meteorology and Hydrology, MONRE
DNRE	Provincial Department of Natural Resources and Environment
DOA	Department of Agriculture, MAF
DOC	Department of Communication, MOPW
DOE	Department of Electricity
DOEP	Department of Energy Promotion
DOG	Department of Geology
DOI	Department of Irrigation, MAF
DOPC	Department of Planning and Cooperation, MONRE
DOPI	Department of Planning and Investment, Ministry of Planning and Investment
DOR	Department of Roads, MPWT
DOST	Department of Science and Technology, MOST
DOW	Department of Waterways, MPWT
DPI / PAF	Department of Planning and Investment / Performance Assessment Framework
DRM	Disaster Risk Management
DSW	Department of Social Welfare, MLSW
DUP	Department of Urban Planning, MPWT
DWR	Department of Water Resources, MONRE
EDL	Electricite du Laos
ESIA	Environmental and Social Impact Assessment, MONRE
GoL	Government of Laos
IFM	Integrated Flood Management
IWRM	Integrated Water Resources Management
LNMC	Lao National Mekong Committee, MONRE
MAF	Ministry of Agriculture and Forestry
MOH	Ministry of Health
MONRE	Ministry of Natural Resources and Environment
MPWT	Ministry of Public Works and Transport
MRC	Mekong River Commission
MSW	Ministry of Labour and Social Welfare
NAFRI	National Agriculture and Forestry Research Institute
NDMC	National Disaster Management Committee
NDMO	National Disaster Management Office, MLSW
NEC	National Environment Committee
NERI	National Economic Research Institute, MPI
NNRBCS	Nam Ngum River Basin Committee Secretariat

NREI	National Research and Environment Institute, MONRE
NT-NKDRBCS	Nam Theun – Nam Kading River Basin Committee Secretariat, MONRE
NUOL	National University of Lao
PMH	Provincial Meteorological and Hydrological Service
PPWT	Provincial Public Works and Transport
RBC	River Basin Committee
SPDRM	Strategic Plan on Disaster Risk Management
WMO	World Meteorological Organization
WREA	Water Resource & Environment Administration
WRED	Water Resource Engineering Department, NUOL

Executive Summary

1. Introduction

In recent years, Lao PDR has made significant progress in the areas of improved severe weather and flood forecasting and in disaster risk management and presents a suitable environment to grow further Disaster Risk Management (DRM) initiatives. National institutions at various levels are making efforts to expand their roles from disaster managers to proactive disaster risk reduction planners. A Strategic Plan on Disaster Risk Management (SPDRM) was adopted in 2003. As a follow-up, a Draft National Disaster Management Plan 2012-2015 has been prepared in April 2011 as a UNDP project. There is considerable interest of donors willing to support Lao PDR in the field of DRM. By managing its disaster risks more systematically, Lao PDR also has an opportunity to preserve development gains, reduce poverty and improve the living standards of rural farmers, and ultimately graduate out of its status as a Least Developed Country.

The past experiences of floods, such as the serious flooding in 2008 and the typhoon Ketsana floods in late 2009, as well as the Nok-Ten and Haima floods in September 2011 have provided valuable lessons learnt, and have highlighted both the negative and positive effects of floods for society and environment.

2. Integrated Flood Management in Lao PDR

The Integrated Flood Management (IFM) approach is relatively new to Lao PDR and the Department of Meteorology and Hydrology provided the platform for this workshop to strengthen national capacity to implement this concept. The DMH also believes that it is strategic to involve all relevant stakeholders in this workshop so as to ensure nationwide support for the implementation of the concept of Integrated Flood Management within existing policies and Plans, such as the National Water Policy and the National Disaster Management Strategy. The expected outcome of this workshop had been to help government officials and stakeholders to understand the IFM concept and jointly develop flood management programs in line with this concept. The major approach has been a participatory approach along the lines of mandates and responsibilities of many of the major actors and institutions in flood management in Lao PDR.

The central theme of the workshop has been the concept and applications of Integrated Flood Management:

"Integrated Flood Management (IFM) is a process promoting an integrated – rather than fragmented – approach to flood management. It integrates land and water resources development in a river basin, within the context of IWRM, and aims at maximizing the net benefits from the use of floodplains and minimizing loss of life from flooding".

3. Objectives of the Workshop

- To introduce Integrated Flood Management (IFM) concepts and approaches in the framework of Integrated Water Resources Management (IWRM);
- To analyze the current flood management situation in Lao PDR (institutions involved, existing management plans, stakeholders, lessons learned from previous flood disasters;
- To develop an IFM concept in support of existing strategies and plans with a view for early implementation at all levels.

Based on presentations from institutions, WMO, and as a result of group sessions and plenary discussions, the following recommendations and action plan has been prepared.

4. RECOMMENDATIONS AND ACTION PLAN

1) Integration of the concept of Integrated Flood Management (IFM) into the National Water Policy developed by Department of Water Resources,
2) Simplify command and reporting structures between government agencies and the public during floods, especially during emergency situations; Clearly identify communication channels (Who informs whom, when, on what occasion) in a formalized manner following a communications protocol,
3) Define clear mandates, roles and responsibilities (including operational responsibilities) for operational activities to be undertaken
    - Before
    - During
    - After Floods
4) Enhanced awareness building and capacity building for communities in flood management issues especially with regard to flood preparedness.
5) Development and implementation of an integrated management plan for existing and planned dams and reservoirs, in order to become an important component of the flood management strategy of Lao PDR, including sharing of critical data and information.
6) Enhanced cooperation at all levels with well established private sector organization, NGOs and institutes of higher learning.
7) Development of Action Plans to support existing Strategies
8) Establishment of Early Warning System and Flood Forecasting Center -to be established at DMH
9) Improvement and extension of the Hydro-meteorological Observation Network
10) Enhancement of Capacity building for Technical staff working in the flood management from central level to local level
11) Identification of Flood prone areas and flood risk mapping.
12) Preparation of flood Preparedness Plan including the allocation of funds for the sectors concerned.
13) Allocation of adequate budget to support flood management activities

5. PROPOSED IMMEDIATE FOLLOW UP OF THE WORKSHOP

Department of Meteorology and Hydrology (DMH) will submit the final report to the Minister of MONRE with the expectation that MONRE will take further action; DMH may suggest further actions in the covering letter to the report, including the consideration of the outcomes of the workshop both in NEC and NDMC.

DMH will send the report with a covering letter for information to all line Ministries concerned as well as to all River Basin Committees.

Representatives from institutions during the workshop will promote the results of the workshop to their respective institutions with the aim to get full institutional involvement in flood management plans and activities.

ສັງລວມ

1. ບົດນຳ

ຕະລອດໄລຍະຫລາຍປີຜ່ານມາ ສ ປ ປ ລາວ ໄດ້ເຮັດສ້າງຄວາມກ້າວ ໜ້າໃນຂົງເຂດວຽກງານທາງດ້ານການພະຍາກອນ ອາກາດ ແລະ ນ້ຳຖ້ວມລວມທັງການຄຸ້ມຄອງຄວາມສ່ຽງຕໍ່ພັຍພິບັດ ແລະຍັງໄດ້ສະແດງໃຫ້ເຫັນເຖິງ ການເຕີບໂຕທາງດ້ານ ການປົກປັກຮັກສາສິ່ງແວດລ້ອມ ແລະການລິ່ເລີ້ມການຄຸ້ມຄອງຄວາມສ່ຽງຕໍ່ພັຍພິບັດອີກດ້ວຍ. ອົງການຈັດຕັ້ງຕ່າງໆໃນລະດັບ ຊາດໄດ້ພະຍາຍາມເສີມຂະຫຍາຍພາລະບົດບາດຂອງຕົນຈາກບັນດາຜູ້ບໍລິຫານໂຄງ ການເພື່ອໃຫ້ກາຍເປັນນັກວາງແຜນທາງ ດ້ານການຫລຸດຜ່ອນຄວາມສ່ຽງໃນຕໍ່ໜ້າ.ດັ່ງທີ່ແຜນຍຸດທະສາດໃນການຄຸ້ມຄອງຄວາມສ່ຽງຕໍ່ພັຍພິບັດ (SPDRM) ທີ່ໄດ້ຖືກ ຮັບຮອງເອົາໃນປີ 2003 ແລະ ແຜນພັດທະນາໃນການຄຸ້ມຄອງພັຍພິບັດແຫ່ງຊາດ 2012-2015 ທີ່ໄດ້ຮ່າງຂຶ້ນໃນເດືອນເມສາ 2011 ໂດຍການຊ່ວຍເຫລືອຂອງແຜນງານ ສປຊ UNDP ໃນລາວ. ໃນນີ້ໄດ້ ສ້າງຄວາມສົນໃຈໃຫ້ແກ່ບັນດາຜູ້ໃຫ້ທຶນໃນ ການຢາກໃຫ້ການຊ່ວຍເຫລືອ ສ ປ ປ ລາວ ໃນຂະແໜງການ ຄຸ້ມຄອງຄວາມສ່ຽງຕໍ່ພັຍພິບັດນີ້. ໄປຄຽງຄູ່ກັບການບໍລິຫານ ຈັດການໃນຂະແໜງການຄຸ້ມຄອງຄວາມສ່ຽງຕໍ່ພັຍພິບັດຢ່າງເປັນລະບົບ, ສ ປ ປ ລາວ ຍັງໄດ້ສ້າງໂອກາດປົກປັກຮັກສາໜ້າທ ີ່ ຜືນຂອງການພັດທະນາຫລຸດຜ່ອນຄວາມທຸກຈົນແລະປັບປຸງຊີວິດການເປັນເປັນຢູ່ຂອງຊາວໄຮ່ນາໃນເຂດຊົນນະບົດໃຫ້ນັບມື້ນັບ ດີຂຶ້ນ ເພື່ອໃຫ້ ສາມາດ ຫລຸດພົ້ນ ຈາກການເປັນປະເທດດ້ອຍພັດທະນາ.

ຈາກປະສົບປະການພັຍນ້ຳຖ້ວມທີ່ຜ່ານມາ, ເຊັ່ນ ໄພນ້ຳຖ້ວມໃນປີ 2008 ແລະ ໄພພິບັດຈາກພະຍຸເກດສະໜາ ໃນ ປີ 2009, ພະຍຸນົກເຕັນ ແລະ ໄຮໝາ ໃນປີ 2011 ໄດ້ສ້າງບົດຮຽນອັນມີຄຸນຄ່າທັ້ງຍັງໄດ້ຊີ້ບອກໃຫ້ເຫັນເຖິງຜົນກະທົບໃນທາງບວກ ແລະ ລົບຕໍ່ສັງຄົມແລະສະພາບແວດລ້ອມອີກດ້ວຍ.

2. ການຄຸ້ມຄອງພັຍພິບັດ ແບບປະສົມປະສານ ໃນ ສ ປ ປ ລາວ

ການຄຸ້ມຄອງພັຍພິບັດ ແບບປະສົມປະສານ (IFM) ເປັນວຽກທີ່ໃໝ່ ຕໍ່ ສ ປ ປ ລາວ ແລະ ໃນນີ້ທາງ ກົມອຸຕຸນິຍົມ ແລະ ອຸທົກກະສາດ DMH ໂດຍການໃຫ້ການຊ່ວຍເຫລືອຈາກອົງການອຸຕຸນິຍົມໂລກໄດ້ຈັດ ການສ□າມະນາໃນຫົວຂໍ້ “ການ ພັດທະນາ ແຜນຍຸດທະສາດແຫ່ງຊາດກ່ຽວກັບການຄຸ້ມຄອງນ້ຳຖ້ວມແບບປະສົມປະສານໃນ ສ ປ ປ ລາວ” ໂດຍຫວັງທີ່ຈະ ສ້າງຄວາມເຂັ້ມແຂງໃນການຈັດຕັ້ງປະຕິບັດແຜນຍຸດທະສາດ ແລະ ນະໂຍບາຍດັ່ງກ່າວ. ກົມອຸຕຸນິຍົມ ແລະ ອຸທົກກະສາດຍັງ ເຊື່ອວ່າການສຳມະນາຄັ້ງນີ້ຈະເປັນ ແນວທາງທີ່ສາມາດດຶງດູດໃຫ້ຫລາຍພາກສ່ວນມາມີສ່ວນຮ່ວມເພື່ອໃຫ້ຮັບປະກັນໃນການຊູກ ດັນເຮັດໃຫ້ໃນແນວຄິດການຄຸ້ມຄອງນ້ຳຖ້ວມແບບປະ ສົມປະສານນີ້ໄດ້ຖືກຈັດຕັ້ງປະຕິບັດຕາມແນວທາງນະໂຍບາຍແລະແຜນ ພັດທະນາຕ່າງໆ ເຊັ່ນ ແຜນນະໂຍບາຍຊັບພະຍາກອນນ້ຳ ແລະ ແຜນຍຸດທະສາດແຫ່ງຊາດກ່ຽວກັບການຄຸ້ມຄອງໄພພິບັດ.

ຜົນຄາດຫວັງຈາກການສຳມະນາໃນຄັ້ງນີ້ຈະສາມາດຊ່ວຍນັກວິຊາການໃນຂະແໜງການທີ່ກ່ຽວຂ້ອງແລະຜູ້ມີສ່ວນຮ່ວມອື່ນໆ ເຂົ້າໃຈໃນແນວຄິດກ່ຽວກັບການຄຸ້ມຄອງນ້ຳຖ້ວມແບບປະສົມປະສານ IFM ແລະ ເຂົ້າຮ່ວມໃນການພັດທະນາແຜນງານການ ຄຸ້ມຄອງນ້ຳຖ້ວມແບບປະສົມປະສານ. ສິ່ງສຳຄັນທີ່ໄດ້ສະເໜີຢູ່ໃນການສຳມະນາຄັ້ງນີ້ແມ່ນໄດ້ລົງເລິກເຖິງພາລະບົດບາດ ແລະ ໜ້າທີ່ຮັບຜິດຊອບຂອງກົມກອງແລະພາກສ່ວນຫລັກ ທີ່ເຮັດວຽກສະພາະໃນຂະແໜງການ ການຄຸ້ມຄອງນ້ຳຖ້ວມ ໃນ ສ ປ ປ ລາວ ດັ່ງທີ່ວ່າ” ການຄຸ້ມຄອງນ້ຳຖ້ວມ ແບບປະສົມປະສານ **(IFM)** ແມ່ນຂະບວນການສົ່ງເສີມໃນຮູບການແບປະສົມປະສານ ບໍ່ແມ່ນການເຮັດແບບພໍໃຜພໍລາວ. ມັນແມ່ນການປະສົມປະສານໃນການພັດທະນາທີ່ດິນແຫລ່ງນ້ຳໃນອ່າງໂຕ່ງໃດນຶ່ງຂອງແມ່ນ້ຳ , ໂດຍພາຍໃຕ້ແນວຄິດການຄຸ້ມຄອງຊັບພະຍາກອນແຫລ່ງນ້ຳແບບປະສົມປະສານ IWRM, ແລະ ເລັ່ງໃສ່ໃນການເສີມສ້າງ

ຜົນປະໂຫຍດກຳໄລຢ່າງສູງສຸດຈາກການນຳໃຊ້ທີ່ດິນທີ່ຖືກນ້ຳຖ້ວມ ແລະ ໃຫ້ຫລຸດຜ່ອນເທົ່າທີ່ຈະໜ້ອຍໄດ້ຈາກການສູນເສັຍ ຊີວິດແລະຊັບສິນອັນເນື່ອງມາຈາກນ້ຳຖ້ວມ".

3. ຈຸດປະສົງ ຂອງການສຳມະນາ

- ເພື່ອແນະນຳແນວຄິດການຄຸ້ມຄອງນ້ຳຖ້ວມແບບປະສົມປະສານແລະການເຂົ້າເຖິງການຄຸ້ມຄອງຊັບພະຍາກອນແຫລ່ງນ້ຳ ແບບປະສົມປະສານ;
- ເພື່ອວິໄຈຫາສະພາບໃນການຄຸ້ມຄອງນ້ຳຖ້ວມໃນ ສ ປ ປ ລາວ ຊຶ່ງລວມທັງພາກອົງການຈັດຕັ້ງລັດທີ່ມີສ່ວນຮັບຜິດຊອບ ໃນການຄ້ມຄອງແຜນງານຕ່າງໆ, ບົດຮຽນທີ່ຖອດຖອນໄດ້ຈາກພັຍນ້ຳຖ້ວມໄພພິບັດທີ່ຜ່ານມາ.
- ເພື່ອພັດທະນາແນວຄວາມຄິດ IFM ໃນການຊຸກດັນແຜນຍຸດທະສາດ ແລະ ແຜນນະໂຍບາຍຕ່າງໆທີ່ມີແລ້ວ ໃຫ້ ມີການ ເລັ່ງລັດໃນການຈັດຕັ້ງປະຕິບັດອັນຮີບດ່ວນໃນທຸກລະດັບ.

ໂດຍອີງໃສ່ການສະເໜີບົດຈາກພາກສ່ວນຕ່າງໆໃນທີ່ປະຊຸມແລະການປຶກສາຫາລືກັນໃນກຸ່ມ ແລະ ທີມງານຈາກ, WMO, ຂໍ້ສະເ ໜີ ແລະ ແຜນດຳເນີນການດັ່ງຕໍ່ໄປນີ້ໄດ້ຖືກຮ່າງຂຶ້ນ

4. ຂໍ້ສະເໜີ ແລະ ແຜນດຳເນີນການ

1) ເຊື່ອມຕໍ່ແຜນການຄຸ້ມຄອງນ້ຳຖ້ວມແບບປະສົມປະສານເຂົ້າກັບແຜນການຄຸ້ມຄອງຊັບພະຍາກອນແຫລ່ງນ້ຳແບບ ປະສົມປະສານ ທີ່ໄດ້ຮ່າງຂຶ້ນແລ້ວໂດຍກົມຊັບພະຍາກອນນ້ຳ,
2) ສ້າງລະບົບການສັ່ງການແລະລາຍງານ ລະຫວ່າງ ພາກລັດ ແລະ ອົງກອນທີ່ກ່ຽວຂ້ອງໃນເວລາເກີດໄພນ້ຳຖ້ວມ,
3) ກຳນົດພາລະບົດບາດໃຫ້ຈະແຈ້ງໃນໜ້າທີ່ຄວາມຮັບຜິດຊອບລວມທັງຄວາມຮັບຜິດຊອບໃນການປະຕິບັດງານເວລາ ເກີດນ້ຳຖ້ວມ
    - ກ່ອນ
    - ໃນຂະນະທີ່ເກີດ
    - ຫລັງ
4) ໃຫ້ມີກຳນົດການສື່ສານ ສັ່ງການໃຫ້ຈະແຈ້ງໂດຍທີ (ໃຜແຈ້ງເຕືອນຜູ້ໃດ ແລະ ໃນໂອກາດເວລາໃດ) ໂດຍໃຫ້ມີຮູບ ແບບຄັກແນ່ໂດຍຍຶດຖືຂໍ້ບັງຄັບໃນການສັ່ງການ)
5) ສ້າງປຸກຈິດສຳນຶກ ແລະ ຍົກລະດັບຄວາມສາມາດໃຫ້ແກ່ທ້ອງຖິ່ນໃນການຄຸ້ມຄອງນ້ຳຖ້ວມໂດຍສະເພາະ ການຟ້າວ ລະວັງພັຍນ້ຳຖ້ວມ.
6) ໃຫ້ເອົາໃຈໃສ່ສ້າງ ແລະ ດຳເນີນການຈັດຕັ້ງປະຕິບັດແຜນການຄຸ້ມຄອງນ້ຳຖ້ວມ ແບບປະສົມປະສານໃນປັນດາ ເຂື່ອນໄຟຟ້າ ແລະ ອ່າງເກັບນ້ຳຕ່າງໆທີ່ມີແລ້ວໃຫ້ເປັນເໝືອນອົງປະກອບນຶ່ງໃນການຈັດຕັ້ງປະຕິບັດແຜນຍຸດທະ ສາດການຄຸ້ມຄອງນ້ຳຖ້ວມ ໃນ ສ ປ ປ ລາວ.
7) ໃຫ້ເອົາໃຈໃສ່ໃນຍົກສູງການຮ່ວມມືໃນທຸກລະດັບ ລວມທັງກັບພາກຜູ້ລົງທຶນເອກກະຊົນ ອົງກອນຈັດຕັ້ງສາກົນ ແລະ ສະຖາບັນການສຶກສາຕ່າງໆ.
8) ໃຫ້ສ້າງແຜນປະຕິບັດງານໃນການຊຸກດັນແຜນຍຸດທະສາດທີ່ມີແລ້ວ
9) ສ້າງຕັ້ງລະບົບເຕືອນໄພ ແລະ ສູນພະຍາກອນນ້ຳຖ້ວມແລະອາກາດໂດຍສະເໜີໃຫ້ຕັ້ງຢູ່ທີ່ກົມອຸຕຸນິຍົມ ແລະ ອຸທົກກະສາດ
10) ປັບປຸງເຄື່ອຂ່າຍຕາໜ່າງອຸຕຸນິຍົມ ແລະອຸທົກກະສາດ

11) ຍົກລະດັບຄວາມສາມາດໃຫ້ແກ່ພະນັກງານວິຊາການທີ່ເຮັດວຽກທ້ອງຖິ່ນກ່ຽວກັບການຄຸ້ມຄອງ ນ□ຳຖ້ວມ ໂດຍ ສະເພາະ.

12) ກຳນົດເນື້ອທີ່ນ້ຳຖ້ວມ ແລະ ສ້າງແຜນທີ່ສ່ຽງພັຍເຂດນ້ຳຖ້ວມ.

13) ສ້າງແຜນຟ້າວລະວັງລວມທັງການກະຈາຍງົບປະມານໃຫ້ແກ່ຂະແໜງການທີ່ກ່ຽວຂ້ອງ.

14) ແບ່ງປັນງົບປະມານໃຫ້ພຽງພໍໃນການຊຸກຍູ້ກິດຈະກຳການຄຸ້ມຄອງນ້ຳຖ້ວມ

5. ສະເໜີແນວທາງອັນຮີບດ່ວນໃນການຕິດຕາມຜົນຂອງການສຳມະນາ

ກົມອຸຕຸນິຍົມແລະອຸທົກກະສາດຈະສົ່ງບົດລາຍງານຜົນກອງປະຊຸມສະບັບສົມບູນໃຫ້ແກ່ກະຊວງຊັບພະຍາກອນທຳມະຊາດແລະ ສິ່ງແວດລ້ອມ MONRE ໂດຍທີ່ຄາດຫວັງວ່າ MONRE ຈະສືບຕໍ່ໃຫ້ທິດຊີ້ນຳໃນການດຳເນີນການຕໍ່ໄປ. ໃນນີ້ຍັງສະເໜີໃຫ້ກົມອຸຕຸນິຍົມແລະອຸທົກກະສາດສົ່ງບົດລາຍງານສະບັບນີ້ໂດຍມີໜັງສືປົກໜ້າໄປຍັງຄະນະກຳ ມະການຄຸ້ມຄອງ ໄພພິບັດແຫ່ງຊາດແລະຄະນະກຳມະການສິ່ງແວດລ້ອມແຫ່ງເພື່ອຮັບຊາບແລະພິຈາລະນາໃນຂັ້ນຕໍ່ໄປ. ພ້ອມດຽວກັນນີ້ ກົມອຸຕຸນິຍົມແລະອຸທົກກະສາດ DMH ຍັງຈະສົ່ງບົດລາຍງານສະບັບນີ້ໂດຍມີໜັງສືປົກໜ້າໄປຍັງກົມກອງ, ກະຊວງທີ່ກ່ຽວຂ້ອງ ແລະ ຄະນະກຳມະການອ່າງໂຕ່ງ.

ບັນດາຜູ້ແທນຈາກພາກສ່ວນຕ່າງໆທີ່ເຂົ້າຮ່ວມການສຳມະນາໃນຄັ້ງນີ້ຈະນຳເອົາເນື້ອໃນຜົນຂອງການປະຊຸມລາຍງານໃຫ້ແກ່ ໜ່ວຍງານທີ່ຕົນສັງກັດຢູ່ເພື່ອໃຫ້ມີສ່ວນຮ່ວມໃນວຽກແຜນການຄຸ້ມຄອງນ້ຳຖ້ວມ ແບບປະສົມປະສານ.

1 Introduction

Flooding is regarded as a major cause for socio-economic losses in Lao PDR and may occasionally be a cause of transboundary issues. In the last 35 years Lao PDR has been frequently faced with natural disasters, and on average, every 1.4 years an exceptional flood is experienced.

In recent years, Lao PDR has made significant progress in the areas of improved severe weather and flood forecasting and in disaster risk management and presents a suitable environment to grow further Disaster Risk Management (DRM) initiatives. National institutions at various levels are making efforts to expand their roles from disaster managers to proactive disaster risk reduction planners. A Strategic Plan on Disaster Risk Management (SPDRM) was adopted in 2003 and there is considerable presence of donors willing to support Lao PDR in the field of DRM. By managing its disaster risks more systematically, Lao PDR also has an opportunity to preserve development gains, reduce poverty and improve the living standards of rural farmers, and ultimately graduate out of its status as a Least Developed Country.

The past experiences of floods, such as the serious flooding in 2008 and the typhoon Ketsana in late 2009, as well as the floods in September 2011 have provided valuable lessons learnt, and have highlighted both the negative and positive effects of floods for society and environment. The Government of Laos (GoL) is keen to move forward for implementing in the field the strategy on disaster management developed in 2003, in order to increase preparedness and resilience. The GoL plans to strengthen the National Disaster Management Committee (NDMC), which is an inter-ministerial committee responsible for policy formulation and disaster management, and the National Disaster Management Office (NDMO), which is a secretariat to the NDMC.

In order to manage water resources and the environment, the recent adoption of the GoL is a Decree on River Basin Committees, which includes the concept of IWRM, encouraging participation of all stakeholders for planning and benefits sharing. Currently, IWRM-oriented pilot projects are being implemented in Nam Ngum and Nam Theun-Kading river basins, and others are planned to be implemented in at least three more basins by 2015.

The Integrated Flood Management (IFM) approach is relatively new to Lao PDR and the DMH provides the platform for stakeholder consultations and to strengthen national capacity to implement this concept. The DMH also believes that it is strategic to involve different stakeholders in this IFM capacity building program so as to ensure nationwide support for IFM. The outcome of the proposed workshop on National Strategy Development for Integrated Flood Management has been to assist government officials and stakeholders to understand the IFM concept and develop flood management programs in line with this concept. Moreover, the workshop results support the government authorities of Lao PDR in considering and issuing the policies on flood prevention, mitigation and management. The outcomes are also supportive of the 1995 Mekong Agreement on the Cooperation for Sustainable Development in the Mekong River Basin.

The central theme of the workshop is the concept of Integrated Flood Management:

"Integrated Flood Management (IFM) is a process promoting an integrated – rather than fragmented – approach to flood management. It integrates land and water resources development in a river basin, within the context of IWRM, and aims at maximizing the net benefits from the use of floodplains and minimizing loss of life from flooding". (APFM Concept Paper, p. 14)

1.1 Objectives

- To introduce Integrated Flood Management (IFM) concepts and approaches in the framework of Integrated Water Resources Management (IWRM)
- To analyze the current flood management situation in Lao PDR (institutions involved, decision-makers, existing management plans, stakeholders, lessons learned from previous flood disasters), and develop consensus on the strategic framework to implement IFM
- To develop an IFM concept in support of existing strategies and plans with a view for early implementation at all levels.

1.2 Expected results

- Understanding of IFM and elements of an IFM strategy
- Mapping of present and desired roles and responsibilities of institutions in flood management
- Key action areas
- Support for the government of Lao in improving its flood management capabilities

1.3 Approach

The workshop for DMH officials and further stakeholders is scheduled for five days. The workshop agenda in detail is attached in the annex I.

Day 1	Presentations by experts on the present picture of flood management in Lao PDR, and by WMO on the concepts of IFM
Day 2	Open discussion on IFM, Assessment of roles and responsibilities in Thailand's flood management
Days 3-4	Development of key elements of a flood management strategy, implementation issues and definition of a practical implementation approach, based on ongoing programmes and existing plans/ activities in Lao PDR
Day 5	Agreement on summary report and recommendations, major components on IFM as well as stakeholder's responsibilities

1.4 Date and Venue

At the request of the Laotian Department of Meteorology and Hydrology (DMH), the workshop on the "Development of a National Strategy for Integrated Flood Management (IFM) for Lao PDR" was co-organized by World Meteorological Organization (WMO) through Associated Programme on Flood Management (APFM), from 23 to 27 April 2012 in Vangvieng, Lao PDR. The five-day workshop was targeted to policy makers, top- and mid-level managers and professionals in water resources management, disaster management, and land use management of Lao PDR. The outcomes of the workshop will be presented and actions proposed to the Prime Minister of Lao PDR.

1.5 Participants

There were 28 participants representing 19 different government organizations, involved in flood management in Lao PDR. The list of the participants is presented in Annex II.

2 Workshop Proceedings

2.1 Day 1 23rd April 2012 Opening Session

Acting Director General from the Department of Meteorology and Hydrology of Lao People's Democratic Republic (DMH) and chairman of the workshop Mr. Sithanh Southichack warmly welcomed the participants of this jointly organized workshop and expressed his appreciation for WMO support and all Lao institutions' participation. He emphasized the purpose of the workshop to share ideas and experience on the development of strategies on Integrated Flood Management.

Chief of Hydrological Forecasting in Water Resources Division, WMO, Dr. Wolfgang Grabs welcomed all participants and expressed his pleasure to have many institutions represented. He gave an introduction on the necessity and key elements of integrated flood management. With regard to population growth, the increase of cultivated land and the need to adapt to climate change, observation and knowledge of information and data, such as meteorological and hydrological data, is a backbone of decision making processes. A great amount of cooperation has already been made in the past, e.g. Mekong-HYCOS project; Mr Grabs expressed his appreciation for mutual activities in the future. He expressed the need to encourage close partnerships between governmental partners and the private operators in the definition of work programs related to flood management in an overall development strategy of Lao PDR.

Deputy Head of Hydrological Division of DMH, Mr. Somphang VITHAYA recalled the major floods in 1924 and 1940 as well as the most recent flood disasters of 2008 and 2011. Furthermore, he gave an overview over the important lessons learned from these disasters and measures implemented.

As ADG Mr. Southichack opened the floor for discussion, Mr. Grabs emphasized the high potential for further development contained within the already existing monitoring infrastructure in Lao PDR, such as high level gauging stations. Strong efforts are made in the extension of raingauge networks.

The workshop was commenced by the presentation of the concept of Integrated Flood Management followed by an introduction of the departments/institutions involved in flood management in Lao PDR presenting their responsibilities and experiences.

2.2 Day 2 24th April 2012

Day 2 was divided into firstly the presentations of the institutions and stakeholders involved in flood management in Lao PDR in order to point out responsibilities and lessons learned. Taking these aspects as a basis, the second session of the day targeted on addressing what is missing in the current flood management and what are issues of priority.

2.2.1 Departmental Presentations

Each institution gave a presentation on their responsibilities and on the lessons learned from the past, in particular from the floods of Ketsana cyclone 2009 and of Haima 2011. The table below provides a summary of each participating agency and their main messages.

S. N.	Institution	Responsibilities and lessons learned
1.	Department of Meteorology and Hydrology (DMH), MONRE	- Mekong River with very long term recording gauge: 1895-present - Present structural measures along the Mekong River (Vientiane municipality): 65 flood gates and permanent dykes to protect against floods with a magnitude equal to the flood of 1966 - Non-structural measures: floodplain planning (not yet applied for Vientiane plain) and flood forecasting (used for several years) - DMH responsible for flood forecasting and warning dissemination. Prior to the rainy season of each year, DMH assigned a team responsible for real time data exchange, FF and WD - Vientiane is sufficiently protected against floods; however, forecast and protection of Luang Prabang is a remaining, important issue
2.	Department of National Disaster management and Climate Change, MONRE	- DNDCC responsible for Disaster management and activities related to climate change adaptation and mitigation, - Highest impacts due to the flood events in 2002, 2005, 2008, 2009 Ketsana Cyclone and most recently 2011 (Haima and Nok-Ten), - First National Communication (2000), - National Adaptation Programme of Action,(April 2009) - Strategy on Climate Change of Lao PDR (2010) - Second National Communication (under formulation)
3.	National Disaster Management Office, Ministry of Labour and Social Welfare	- NDMO planned to prepare a Strategic National Action Plan - Responsibility of disaster preparedness, emergency response and relief and early recovery and term reconstruction - Enhancing and strengthening medium to long-term disaster risk reduction and preparedness
4.	PMH Savanakhet	- Main cause of flooding at the junction of three tributaries flowing together - Lessons learned: regulation and responsibility of organization are not clear, coordination and communication between warning agency (PMH) and response agency (incl. receiving/ interpreting) is not sufficient, dissemination of information is not in time - Challenges: hydrological data collection, water resources analysis, land use planning, consider increasing population and environmental issues
5.	Nam Theun – Nam Kading River Basin Committee Secretariat, MONRE	- Further reservoirs for hydropower planned in downstream areas - Flood damages in Pak Kading district: 113 Mio. $ (2011) Lessons learned: - Need to improve flash flood forecast and communication network - No standard flood damage assessment methodology - Need for Master plan on flood mgmt at all administrative levels - Need for action how to manage and operate reservoir flows
6.	Department of Water Resources, MONRE	- Mandate for the management, development, conservation, rehabilitation, monitoring and settlement of water resources throughout the country - National Water Resources Policy: Coordination, optimization, sustainable development and use of water resources, environmental protection and improvement of social well being reflecting the government's direction and decision making for water resource management activities - National Water Resources Strategy and Action Plan for 2011 to 2015: Guidance of participating stakeholders in the water sector to carry out

S. N.	Institution	Responsibilities and lessons learned
		appropriate and coordinated water management activities - Action plans for 2011-2015 - Future objectives: Water and water law (2012), water quality (2012), wet land (2012), capacity building on IWRM (2011-2013)
7.	Nam Ngun River Basin Committee Secretariat	Challenges: - Development vs. sustainable use of natural resources - Balanced water uses upstream vs. downstream - Traditionally self-sufficient natural use practices vs. commercial/foreign investment - Adaptation to natural disasters - Major water resources sectors (estimated future development 2020): hydropower, irrigation, domestic water use, tourism, medium and major mining & industries - NNRB IWRM Planning Initiative, 2009: capacity development, institutional strengthening
8.	Department of Water Ways, MPWT	- Urban integrated flood management project - Measurements along Mekong river in practice, Vientiane district: multiple staged projects (starting 2009), riverside road alignments, dyke construction (Hatdokkeo, Nahai, Makhiew), drainage regulations (Makhiew), bank erosion protection (Tha Thom district, Xiengkhouang Province)
9.	National Research and Environmental Institute, MONRE	- Hydrological modeling approach using modeling systems: SWAT, IQQM, ISIS, WUP-Fin, HEC-ResSim, impact analysis tools - Development of flood maps for selected river basins: Nam Ngum, Sedone, Sekong with information on water depth, duration - Climate change scenarios for 2050 - Scenarios for climate change adaptation: meteorological conditions, land use, irrigation, dam development - Flood frequency analysis, annually - Need for clear long-term Master Plan - Need for capacity building through Lao University (NUOL)

Issues and questions raised in the discussions:

- Large number of dams and reservoirs being built in Lao PDR: This aspect completely changes the rainfall-runoff pattern; hydrological models have to be adapted. How can this be achieved?
- How can the message be brought to the local level in terms of better preparedness and early warning including warnings from dam operators?
- Capacity building is needed to develop flood maps, including flood hazard and risk maps, vulnerability maps etc.
- Certain management and action plans do already exist (e.g. disaster management). However, to which extent do these plans consider or implement flood management issues?

2.2.2 Working Group Session

The second session of day two started with an open floor discussion on the issues raised by the participants as the outcomes of working groups. The raised issues focused on the questions of a) what is currently **missing** in the planning and implementation process in flood management in Lao PDR and b) which issues need to be addressed as a **priority**.

The outcomes of the discussions were categorized into the following topics that also were the basis of working groups established during the workshop:

1. Technical Issues
2. Observation network
3. Modeling
4. Land use planning & flood mapping
5. Budget allocation
6. Operation of dams and reservoirs
7. Capacity building and awareness raising
8. Institutional issues, river basin organizations and stakeholder involvement
9. National and sectoral planning

Comments and open questions that arose during the discussion are added to each aspect. In the general discussion, the following issues were highlighted:

- Improve flood forecasting services by improving data collection and modernization of flood forecasting services, including mathematical modeling,
- Dissemination of information not widely enough and especially insufficient reach at community level,
- Low flood management capabilities and awareness for flood preparedness, coping with floods and rehabilitation at community level,
- Lack of capacity for flood mapping, no major flood mapping undertaken nationally and at district and especially community level,
- Integration of dam and reservoir management into forecasting system; this requires a whole new modeling and management approach and is a matter of priority given the speed of upcoming new dams in construction and commissioning,
- Need to review design criteria for flood protection as a result of Climate Change
- Overall insufficient capacity available in Lao for IFM. There is the need for professional and technical support
- Many plans exist but do they address flood management issues in a consistent manner? (Organizational and institutional issues)
- Do the plans match each other? (National development plan, disaster management plan, climate change adaption plan, economic development plan, etc.),
- Urgent need to harmonize “Action Plans”; at present most of these seem insufficiently related to each other,
- Integrated Flood Management: Should it be embedded and implemented with the National Water Resources Policy of DWR? – Flood management is not only on disasters!
- How can Integrated Flood Management be included in Flood Management Master Plans?
- Is there anything like a high-level coordination committee to plan, initiate and monitor flood activities that are undertaken by a number of institutions?
- Ongoing institutional re-arrangements: How will flood management fit into the changing institutional landscape?
- Risk assessment and management: who is responsible? Is it reflected in national plans including action plans?

- Mapping of flood management issues: which actions to undertake, who is responsible, who is supporting (part of this issue is addressed in the institutional mapping below)?
- National budget plans and projections need to reflect flood management issues also in mid- and long-term planning and financial disbursement plans for ministries and line agencies,
- National oversight and cross-coordination of donor-funded projects is necessary, as of present, it is insufficient.

Participants were strongly of the opinion that:
Follow-up to the workshop requires finding practicable solutions on all of the above cited comments and questions!

2.3 Day 3+4 25th / 26th April 2012

The main issues, identified in the working group sessions on day two, were discussed in detail. Therefore the participants were divided into three groups to determine the issue/problem, possible solutions and recommendations regarding each topic. The group discussions were carried out in three sessions, each containing three topics. Each group consisted of six to seven participants. The discussions' results are presented below:

1. Technical Issues

Issue/ Problem:

- Number of measuring stations, limited coverage: lack of data information in order to make reliable predictions and forecasts (both meteorological and hydrological). There is only one radar station (Vientiane) which is not enough to support an accurate forecasting model.
- There are no early warning systems in high-risk and remote areas.

Solutions:

- Gathering hydro-meteorological data by using state of the art technology equipment. Maintenance of equipment by staff on a regular basis; staff needs to be trained and high-qualified.
- Improvement of sharing data and information between institutions,
- Nation-wide strategic approach for establishment of early warning systems at different levels including basic systems at community levels.

Recommendations:

- Establishment of an early warning center. Strengthening early warning systems and increase accuracy of flood forecasting (not only for Mekong, but also main tributaries), from central to the local level
- Establishment of national integrated flood management (IFM) database and of a data info center (operational centers).
- Improvement of communication system and dissemination of data information to the public/ local level. This dissemination and warning needs to be on time.
- Enhancement of personal and financial support and of capacity building activities for technical staff.
- Apply risk management practices to structural/ non-structural measures. Structural measures for flood and drought management should be installed in risk areas.
- Flood forecasting at the moment related mainly to riverine forecasting (and partly to flash floods), but enough to floodplain forecasting. There is a general lack of floodplain gauges and

regular floodplain gauging together with derived warning and alert information to the population at risk.

Define needs and requirements for data and information and related forecasts and warnings for different societal sectors. For example: What are the different stakeholder's requirements for agriculture, dam industry, seasonal and long-term climate prediction?

- Early warning system is run by dam operators who should share data and warn villages and communities downstream. Currently reservoirs release water generally without warning actions which endangers the local people's livelihood living downstream (direct damages, fishing opportunities collapsing).
- Improvement of monitoring network: The Hydrological Department can support communities (support by technical advice) to maintain their own rainfall or runoff gauges, including one responsible person performing the gauge. In addition, for a community staff gauges could be established which are labeled according to emergency levels based on water level (as one early warning tool on the local level).
- It is not clear whether there exists a committee in Lao PDR that is establishing a safety standard for the construction and maintenance of dams.

2. Observation network

Problems:

- Insufficient number and spatial distribution of meteorological and hydrological observation stations. Technical conditions of most gauges are inadequate, state-of-the art technology gauges are needed; gauges need to be regularly maintained, repaired or replaced. Ownership of gauges is unclear (who is responsible for replacement in case of breakdown and vandalism?).
- Monitoring, inspection and evaluation (incl. quality management of data) of network is needed in the long term: Data is not collected in a sufficient way, contains gaps with missing data and is not transferred on time in order to provide data to the hydrological forecasting.
- Current insufficient dissemination of data: there is need for an overall database to collect and store all data measured, with the possibility to disseminate requested data to a multitude of users (ministries, universities, NGOs, etc.).

Solutions:

- Present data information practices to the public; there is need for evaluation and quality checking.
- Nation-wide database of hydro-meteorological data to be established with meta-data access.
- One observing person at each station (on the community level) that is responsible. Capacity building both for technical staff in governmental departments and station observers.
- Adequate resourcing of line departments to maintain station network in good working order.

Recommendations:

- Increased national financial investments and personal resources needed, and donors of international organizations and well as international projects to support these investments in station networks and technical as well as professional personnel.
- **Priority:** Ownership of data and sharing issues between the government and the private sector need to be clarified or established.
- Hydropower and reservoir issues: Investors of hydropower dams and operators should contribute to the establishment and operation of additional hydro-meteorological stations and to share critical data to government authorities to improve flood warning services.

- Government of Lao PDR needs to decree on the private sector to ensure that these follow up to their obligations. If hydropower belongs to the government, it can be shared. For the private sector, the obligation to share data and material as well as to make investments could be included into a contract (such as provide observation material, provide hydro-meteorological data for flood forecasting and early warning systems etc.).
- Review adequacy of hydrometeorological networks in accordance to user needs of different sectors. It is expected to obtain more stations, but only with adequate financial support. In order to ensure an early warning system, gauges also need to be installed in tributaries and remote areas.
- Establishment of a Flood Forecasting Center, involving or accompanying a plan for an early warning system.
- Finalization of a national water law (finalized by 2012): The issue of data processing and sharing (especially with regard to the private sector) needs to be integrated in the water law.
- Establishment of technical standards (rather improve and build on existing standards than to start from the very beginning).

3. Modeling

Issue/ Problem:

- Lack of software applications/ tools and model systems. Lack in quantity and quality of input data for hydrological and hydraulic modeling and flood forecasting (DEM, land use, hydro-meteorological data, etc.).
- Limited human resources with little experience.

Solutions:

- Purchase new modeling tools & software as well as high-resolution data for DEM, land use
- Training in modeling for professional and technical staff; teamwork and sharing of data and experience is needed.

Recommendations:

- More trained and experienced professional and technical staff for modeling and forecasting is needed.
- Monitoring network needs to be improved and expanded to enable reliable forecast.
- Include operational plans for capacity development into the national and institutional planning process.
- DEM and land use data (MRC), that are currently used, are not up-to-date (>10 years). Also there is the need for quick and updated satellite data.
- Experience from case studies is beneficial to select an appropriate model system (the model system should be adequate for the main rivers, the tributaries as well as the inclusion of reservoirs and dams). For any modeling approach, information/ data on the hydrological impact of reservoirs (storage volume, runoff/ outflow data) is essential. Hydraulic modeling used for the floodplains (at least 2D).
- Suggestion: Universities should provide their expertise and support to the government, e.g. in terms of capacity building, training, monitoring, mutual projects etc.

4. Land use planning and flood mapping

Issue/ Problems:

- Uncontrolled land use activities: shifting cultivation, deforestation, slash and burn, illegal logging, export of timber.
- Land conception for industry: areas used for tree plantation are expanding.

Solutions:

- Identification of flood risk areas; development of flood risk maps, inundation maps, hazard maps etc. These maps have to be included in capacity building activities and also make communities understand how to use them for planning and evacuation.
- Urban planning and land use planning (using maps as a basis).

Recommendations:

- Land use planning and management issues must be discussed and solved at the most appropriate level including at community levels.
- Consider industrial zoning in the planning process.
- Engage on nation-wide land use mapping efforts for a variety of planning and management purposes

5. Budget allocation

Issue/ Problem:

- Limited financial and human resources of national budget, limited funding.

Solutions:

- Adequate resourcing of ministries and line departments in charge of flood management
- Raising funds to recover after a flood occurred (increase governmental support).
- Senior management needs to understand about the importance of flood management and control (also the financial impact of a flood -> integrated flood management).
- Additional funds are required for prevention, infrastructure and emergency cases (before, during and after the flood). This could partly be achieved through an emergency fund.

Recommendations:

- Review national priorities in the budget process.
- Staff resources, investment and budget allocation should match basic requirements.
- MRC/ADCP-Conference proposed a comprehensive capacity building funding project (Source 1). WMO is working on community-based flood management (Source 2).
- Strategies with funds attached -> Proposed that strategies allocated in the national budget
- Flood strategies must have an action plan; embedded activities must be involved. The action plan must contain how much money is needed for which activity; budget needs to involve training for technical staff.
- Budget disbursement plans and adequate monitoring of requirements and expenditures are needed.
- Risk maps can provide an opportunity to estimate potential losses and damages expected and how much investment is needed to mitigate or prevent damages and losses.

6. Operation of dams and reservoirs

Issue/ Problem:

- Publicize dam and reservoir management plans local people and integrate these plans in warning and forecasting schemes.
- Strong need for guidelines/ standards on integrated operation of dams and reservoirs. It is not clear, who is enforcing the regulations and rules regarding dam operation made by the government.

Solutions:

- DMH is taking responsibility to coordinate with dam operators on the management of in- and outflow. A close cooperation about dam operation is required, both between the governmental institutions as well as together with private dam companies
- Need for more dams, more reservoirs (partly already under construction) with known management and operation plans especially during the flood season and under emerging drought conditions.
- Support of technical staff through capacity building programs.

Recommendations:

- Establishment of a national flood management committee. This national committee needs to have the general mandate to report to the provincial committees. An inspection team is required in order to monitor the dam's security issues under the government's supervision (refer to newly established Ministry of Control).
- Issues of dam and reservoir agreements and reporting will be worked out by the river basin committees. Although, river basin committees cannot provide forecasting (they should not separately form a central flood forecasting center); therefore data needs to be shared.
- "Single Command Agency" concept: In case of a flood, one agency can immediately give order to the subsequent agencies; this leading agency needs to collect all information and process it. It has to quickly report it to all levels; therefore reporting chain needs to be shortened.
- In case of the increased release of water out of the reservoir which affects people's livelihoods, dam cooperation need to provide help and reimbursements to the local people (bring into agreement with water law)
- In river basins with dams and reservoirs, land use plans need to be developed considering their impact (not just the hydrological impact).
- Installation of small-scale practices on the community level, such as check-dams in rural, mountainous areas and/or public reservoirs/ ponds in flood prone areas.

7. Capacity building and awareness raising at the community level

Problem:

- Lack of knowledge and experience on flood management and forecasting; lack of capacity and resources of professional and technical staff; few training opportunities and activities.
- Lack of bringing the message of flood management to the local level.
- Misunderstanding of flood risks and flood risk areas. Misunderstanding of flood risk management practices.
- Delay in the dissemination of information to the communities (local level)

Solutions:

- Capacity building, training courses on flood forecasting and integrated flood management for decision-making stakeholders of different administrative levels (adjusted training depending on the administrative level) and for professionals as well as technical level staff.
- Capacity building on flood management, practices and background information for the communities, integrate community-based flood management and public awareness raising.

Recommendations:

- Topics to include in the capacity building process are: dissemination of rule regulations and policy, provision of appropriate tools to apply integrated community-based management, social environment assessment
- Importance of capacity building on the local level: Local people need to participate in capacity building by getting trained and in a later stage give their knowledge to others within in their community.
- Capacity building is not only an issue of the government; there is need for support through the universities and the provinces and including NGO's.
- Development and establishment of pilot projects, case studies, guidelines/ manuals and opportunities for good practice in order to give examples how to benefit from lessons learned.
- Flood Management Center integrated into capacity building activities; this center can be integrated into existing structures.
- Financial support from government, from the central to the local level. Also, universities require more funding to provide trainings.
- MRC/ADCP-Conference proposed a comprehensive capacity building funding project (Source 1). WMO is working on community-based flood management (Source 2)

8. Institutional issues, river basin organizations and stakeholder involvement

Issue/ Problem:

- The responsibilities and mandates to/from the ministries are unclear, which may lead to an overlap of work topics and unclear communication channels including overlapping responsibilities.
- The relationship and cooperation between the government and the local level is unclear.
- Early warning system required; sharing and affiliation of data and forecasting and warning is not clear.

Solutions:

- Improvement of reporting system, inclusion of the use of databases.
- Establishment of clear responsibilities and institutional lines of command including their requirements for data and information and delivery of products (forecasts/warnings, management decisions) to decision-makers and the public

Recommendations:

- Rural flood management responsibility should be given to the provinces; this is in order to the provinces working together with the communities on the local level.
- Streamline command and reporting structure during flood needs to be clearly identified. Agencies need to know, a) what to report, b) to whom and c) at what level/stage/time of development.
- Define clear mandates, roles and responsibilities (including operational responsibilities).

- Establish single-command mechanism (within existing institutional arrangements) that directs operational activities to be undertaken (before, during, after flood event). Authorization of responsible contacts and focal points for local development.
- Establish Action Plans to support flood management strategies giving an overall directive.

9. National and sectoral planning

Issue/ Problem:

- lack of strategy of FM
- No Master or associated action plan existing; each province has its self-developed strategy so far, but there is no matching overall strategy of flood management.
- Sectors have their own plans (partly), but these do not match across sectors or on a national scale.

Solutions:

- Improvement of institutional oversight across sectors and requirements for flood integrated management, establishment of a national flood management strategy.
- Enhancement of capacity building for technical staff in order to implement flood management measures; reduce the gap of capacity building activities between provinces.

Recommendations:

- Water regulation: Preparation of a report on what has been done so far; identification of achievements and gaps.
- Make use of the experience made in 2008 in order to benefit and take action.
- Conceptual design of a Master Plan for flood management, accompanied by a cross sectoral action plan involving all administrative levels
- Establishment of a Supervising Committee (such as the “Single Command Agency” proposed in paragraph 6 above) in order to supervise, evaluate and control the master plan strategy.

2.4 Day 4 26th April 2012 (continued)

Recalling the multitude of government bodies and institutions involved in flood management from different aspects and in differing functions, a session was held with the aim to provide a comprehensive overview of these institutions and their main responsibilities and including supporting institutes, departments and agencies involved in integrated flood management in Lao PDR. This overview ("mapping exercise") was accomplished through contributions from all participants in plenary discussions and is documented in the table in item 2.4.2 below.

2.4.1 Establishment of a National Flood Management Committee

Participants agreed on the necessity to establish a National Flood Management Committee, with the recommendation to be based in DMCC under the mandate of MONRE. The National Flood Management Committee will be working in cooperation with the river basin committees, of which five will be established by 2015 (two already existing until 2012). The participants furthermore expressed the need for reforming the command and reporting structure. For operational purposes, it was recommended to delegate authority to the lowest technical level possible (level of departments) in order to accelerate communication and early warning information and resulting actions. This delegation can be achieved within the existing institutional framework. The Government of Laos is planning to have the National Water Law finalized by 2012. Under the umbrella of a broad law, by-laws covering certain topics on flood management can be adopted at a later stage. According to these by-laws, requirements need to be accurately formulated.

2.4.2 Responsibilities for major components of integrated flood management

Presented below, the table shows the results of the mapping of responsible institutions on different administrative levels (ministry level, department level, provincial level, and basin level) involved in flood management issues in Lao PDR. The table serves to provide an oversight of the complex governance and responsibility structure in flood management. Knowledge of this structure should be the base for institutional reform focusing on

- Streamlining key responsibilities and institutional support,
- Avoid duplication and overlap of responsibilities and actions,
- Streamline communication channels,
- Identify key agencies to take actions related to flood management, including preparedness, coping with floods and post-flood rehabilitation

Major Components in IFM	Involved Institutions	
	Responsible/ leading	**Supporting/ major involvement**
Policy Development	DWR	DOI, DOE, DOW
Protocols/ Procedures in flood management	DWR, DDCC	
Institutional coordination	NDMC, NEC	MONRE, MSW
Legal Issues	DWR	DOI, DOE, DOW

Economic Issues	NERI, DOPE	
Environmental Issues	DOEP	Cabinet MONRE, DOPC
Social Issues	ESIA	DSW
Community outreach	NDMO	DPI / PAF
Disaster prevention and management	NDMO, DDCC	DSW
Meteorological Forecasting	DMH	
Hydrological Forecasting	DMH	DWR, MRC
Flash Floods	DMH	MRC
Landslides and mudflows	DOW, DOR, DLM	
Climate change	DDCC, DMH	MOH, DOI, DOA, DOE, NAFRI
Dams and Reservoirs	DOE, EDL	DMH, DWR, RBC
Land use & Land use planning	DLM	DOE, DOA
Urban Planning	DUP	DOC
Public warnings	DMH	NDMO
Flood mapping	DOI	NREI, DOG
Engineering works/ flood protection	DOW, DOI	PWI
Transboundary rivers	LNMC, DWR, RBC	DMH
Scientific support	DOSE, DMH	NUOL, NREI
Capacity building in flood management	DMH, DWR, MSW	NUOL, NREI, RBCs

2.5 Day 5 27th April 2012

Based on presentations from representatives of Lao PDR institutions, WMO, and as a result of group sessions and plenary discussions, the following principal recommendations and proposed actions have been prepared.

2.5.1 Recommendations and Action Plan

1. Integration of the concept of IFM into the National Water Policy developed by Department of Water Resources.
2. Establishment of a National Flood Management Committee
3. Simplify command and reporting structures between government agencies and the public during floods, especially during emergency situations (by establishing a National Flood Management Committee); clearly identify communication channels (who informs whom, when, on what occasion) in a formalized manner following a communications protocol.
1) Define clear mandates, roles and responsibilities (incl. operational responsibilities) for operational activities to be undertaken
   - before,
   - during, and
   - after floods.
2) Enhances awareness building and capacity building for communities in flood management issues especially with regard to flood preparedness.
3) Development and implementation of an integrated management plan for existing and planned dams and reservoirs, in order to become an important component of the flood management strategy of Lao PDR, including sharing of critical data and information.
4) Enhanced cooperation at all levels with well established private sector organization, NGOs and institutes of higher learning.
5) Development of actions plans to support existing strategies.
6) Establishment of Early Warning System and Flood Forecasting Center – to be established at DMH
7) Improvement and extension of the hydro-meteorological observation network
8) Enhancement of capacity building for technical staff working in the flood management from central level to local level
9) Identification of Flood prone areas and flood risk mapping.
10) Preparation of flood Preparedness Plan including the allocation of funds for the sectors concerned.
11) Allocation of adequate budget to support flood management activities

2.5.2 Proposed immediate Follow-Up of the Workshop

1. Department of Meteorology and Hydrology (DMH) will submit the final report to the Minister of MONRE with the expectation that MONRE will take further action; DMH may suggest further actions in the covering letter to the report, including the consideration of the outcomes of the workshop both in NEC and NDMC.

2. DMH will send the report with a covering letter for information to all line Ministries concerned as well as to all River Basin Committees.

3. Representatives from institutions that participated in the workshop will promote the results of the workshop to their respective institutions with the aim to get full institutional involvement in flood management plans and activities.

4. On request, WMO through the APFM programme will provide further technical support within the limits of its financial and manpower resources.

2.5.3 Closure of the workshop

The Chairman closed the workshop by thanking representatives of all participating institutions, DMH and WMO for their contribution and generous support. In addition, he pointed out that the workshop resulted in a broad range of targeted recommendations for the planning and implementation of Integrated Flood Management in Lao PDR; he further expressed the expectation that represented institutions and WMO would continue to cooperate closely to develop and eventually implement the final draft strategy and Action Plan for Integrated Flood Management.

Annex I
Programme Schedule

Workshop on the "Development of a National Strategy on Integrated Flood Management (IFM) for Lao PDR"
Lao PDR, Vangvieng, Vientiane Province, 23 – 27 April 2012

<table>
<tr><th>Time</th><th>Day 1 – Monday 23 April</th><th>Day 2 – Tuesday 24 April</th><th>Day 3 – Wednesday 25 April</th><th>Day 4 – Thursday 26 April</th><th>Day 5 – Friday 27 April</th></tr>
<tr><td>8.30 – 9.30</td><td>Registration & Opening
(DMH/WMO)</td><td rowspan="2">Presentation of activities from different departments</td><td rowspan="2">Workshop on "Development of Lao PDR's IFM Strategic Framework Plan" - Part 3: Outcomes and activities – institutional elements and community involvement (All)</td><td rowspan="2">Workshop on "Development of Lao PDR's IFM Strategic Framework Plan" - Part 5: Actions to be undertaken – the Long term (action plan) (All)</td><td rowspan="2">Workshop on "Development of Lao PDR's IFM Strategic Framework Plan" - Part 8: Agreement on summary report and major conclusions (All)</td></tr>
<tr><td>9.30 – 10.00</td><td>Introduction of workshop contents, objectives, scope and purpose, structure of sessions and expected outcomes (DMH/WMO)</td></tr>
<tr><td>10.00 – 10.30</td><td colspan="5">Coffee Break</td></tr>
<tr><td rowspan="2">10.30 – 11.30</td><td rowspan="2">Challenges in Flood Management in Lao PDR and The Way Forward
Presentations on lessons learnt from the past floods: room for improvement
(DMH)</td><td>Presentation of activities from different departments</td><td rowspan="2">Workshop on "Development of Lao PDR's IFM Strategic Framework Plan" - Part 3: Outcomes and activities – Institutional elements and community involvement (continued)
(All)</td><td rowspan="2">Workshop on "Development of Lao PDR's IFM Strategic Framework Plan" - Part 6: Actions to be undertaken – the Near terrm (workplan)
(All)</td><td rowspan="2">Field Trip: Flood Management measures in selected site(s)</td></tr>
<tr><td>Open discussion: the concept of IFM
(All)
Review of past and present efforts/activities in flood management in Lao PDR
Open discussion: assessment of institutional roles & responsibilities in Lao PDR's flood management
Identification of challenges and opportunities (such as institutional cooperation, communication, knowledge gaps, forecasting, etc.)
(All)</td></tr>
<tr><td>11.30 – 12.30</td><td>Basics of Integrated Flood Management
- the concept
- the principles
- the components
(WMO)</td><td colspan="3"></td></tr>
</table>

12.30 – 13.30	**Lunch Break**				
13.30 – 14.30	Legal and Institutional Aspects of IFM Laws and Institutions for flood management: the case of Kenya, Zambia and Pakistan *(WMO)*	Workshop on "Development of Lao PDR's IFM Strategic Framework Plan" - Part 1: Key components of a Strategy *(All)*	Workshop on "Development of Lao PDR's IFM Strategic Framework Plan" - Part 4: Structural and non-structural measures (Flood Forecasting and Early Warning) *(All)*	Workshop on "Development of Lao PDR's IFM Strategic Framework Plan" - Part 7: Open discussion *(All)*	
14.30 – 15.00	Flood risk assessment/Mapping *(WMO)*				Arrival in Vientiane
15.00 – 15.30	**Coffee Break**				
15.30 – 16.30	Economics of floods and flood plain management *(WMO)* Urban Flood Management *(WMO)*	Workshop on "Development of Lao PDR's IFM Strategic Framework Plan" - Part 2: Objectives and Expected Results *(All)*	Workshop on "Development of Lao PDR's IFM Strategic Framework Plan" - Part 4: Structural and non-structural measures (Flood Forecasting and Early Warning) (continued) *(All)*	Preparation of workshop draft summary report and conclusions	

Annex II
List of Participants

Organization	Participant
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Annex III
Presentations

On request, all presentations are electronically available

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