

*August 2010*



# **Mekong River Commission**

**REPORT**

**FIFTEENTH DIALOGUE MEETING**

**27 August 2010**

**Phnom Penh, Cambodia**

*Meeting the Needs, Keeping the Balance*

**REPORT  
of  
THE FIFTEENTH DIALOGUE MEETING**

**between**

**the Mekong River Commission  
and  
the People's Republic of China  
and  
the Union of Myanmar**

**27 August 2010, Phnom Penh, Cambodia**

**GENERAL**

1. The MRC and its Dialogue Partners, the People's Republic of China and the Union of Myanmar held the Fifteenth Dialogue Meeting (hereinafter referred to as "The Meeting"), on 27 August 2010, Phnom Penh, Cambodia.

2. Distinguished participants at the Meeting included Delegates from the People's Republic of China (China), the Union of Myanmar (Myanmar), Members of the MRC Joint Committee and the MRC Delegations. Professional and support staff from the MRC Secretariat also attended the Meeting. (Attachment No. 1: List of Participants)

3. The Meeting was chaired by H.E. Mr. Pich Dun, Secretary-General of Cambodia National Mekong Committee, Acting Member of the MRC Joint Committee for the Cambodia and Chairman of the MRC Joint Committee for 2010/2011.

**A. OPENING ADDRESS BY THE CHAIRMAN OF THE MRC JOINT COMMITTEE FOR 2010/2011**

4. The Chairman opened the Meeting by welcoming the distinguished Members of the Joint Committee, Heads and Members of Delegations from the People's Republic of China and the Union of Myanmar, and other participants including MRC Secretariat staff. (Attachment No. 2: Opening Statement). The Chairperson also provided the Meeting with an update of MRC's work over the past year.

**B. STATEMENT BY THE HEAD OF DELEGATION OF THE PEOPLE'S REPUBLIC OF CHINA**

5. The Head of the Delegation of the People's Republic of China, Mr. Diao Mingsheng, Permanent Representative of China to UNESCAP, thanked the MRC Secretariat for organising the Meeting and the Government of Cambodia for the generous hospitality accorded to the Delegation. China expressed great appreciation to the MRC for its constant pursuit of strengthening cooperation between countries in the upper and lower Mekong riparian countries. (Attachment No. 3)

6. China is pleased that the Dialogue Meetings have played an important and positive role in promoting mutual understanding and trust between China and the Lower Mekong Countries. China noted that regional cooperation is an important trend in the world and that we have seen continued regional cooperation and economic integration in Asia, which is one of the most economically dynamic areas in the world. However, all countries in the region face the important test of developing their national economies and improving the people's livelihoods. Over the years, MRC countries have made great achievement in poverty elimination, social and economic development, and environment protection.

7. China has always been an ardent and pragmatic participant of the Lancang-Mekong cooperation and is both a beneficiary and contributor to it. China stated that it will always be a trustworthy and reliable partner in this region and commits itself to the policy of developing relations with neighbours based on the principles of harmony, security and prosperity.

8. China will continue to pursue and deepen its cooperation with Mekong countries to promote progress and development in the region.

#### **C. STATEMENT BY THE HEAD OF DELEGATION OF THE UNION OF MYANMAR**

9. The Head of the Delegation of the Union of Myanmar, H.E. U Nyunt Hlaing Ambassador Extraordinary and Plenipotentiary to Lao PDR, expressed his great pleasure to participate in this Fifteenth Dialogue Meeting organised by the Mekong River Commission and thanked the Cambodian Government for the excellent arrangements made for the Meeting (Attachment No. 4).

10. Myanmar noted that it participates as also an observer to the MRC's Joint Committee Meetings, Council Meetings and Donor Consultative Meetings. Not only is Myanmar learning about activities, progress and achievement of the MRC but at the same time seeking means and ways to further cooperate with the MRC. Myanmar stated that it is committed to enhance cooperation and contact with the MRC and China particularly in the areas of human resources development, technical cooperation, information sharing and active participation in workshops, seminars and training conducted by MRC and other international and regional organizations.

11. Myanmar is willing to extend further cooperation in the areas of mutual interests such as drought management, navigation and impacts of climate change through well-established mechanisms.

#### **D. ADOPTION OF THE AGENDA**

12. The Meeting noted there were no comments on the agenda and it was adopted as proposed. (Attachment No. 5: Agenda)

#### **E. REPORT ON THE HYDROLOGICAL CONDITIONS IN THE LOWER MEKONG BASIN INCLUDING REPORT ON 2010 DRY SEASON**

13. The Chief Executive Officer (CEO) of the Secretariat invited Dr. Khem Sothea, Operational Hydrologist, to brief the Meeting on the Hydrological Conditions in the Lower Mekong Basin from January to July 2010, (Attachment No.6). The rainfall for the period in the Lower Mekong Basin (LMB) from January to July 2010 was significantly below its long-term average (1966-2009). The ground-based rainfall map shows cumulative rainfall from March to April 2010 was quite low over the entire LMB (0-50 mm). The rainfall from January to July showed, in general, less than the average for most of the LMB.

14. The outflow of Tonle Sap lake was lower than its long term average between January –March 2010, but it fluctuated around average condition from March – May 2010. The reverse flow of the lake started late in middle of June and the flow was lower than the long term average.

15. Hydrological conditions along the Mekong mainstream during the first half of 2010 were generally below the range that might be defined as a drought condition. Between Chiang Saen and Kratie, the dry season as defined here began earlier than usual with the transition from the flood season occurring during the middle of November 2009.

16. Discharges and water levels were significantly below average in the upper reach of the Basin at the Northern Lao PDR at Chiang Saen, Luang Prabang, and Vientiane from the end of January to April 2010. Water levels slightly increased in the middle and lower reaches of the LMB, after sporadic rain mostly fell in the upper reach of the Mekong from May to July 2010, with significant rises experienced in late July. The analysis of flows and water levels in the mainstream showed that this year the hydrological conditions in the reporting period in the mainstream were generally marginally below average for the reach from Chiang Sean to Kratie, but about average in the downstream delta areas.

17. Thailand expressed appreciation for the report on hydrological condition and thanked China for sharing information during the last extreme dry season. In addition, to help MRC better manage water resources downstream and to avoid future public criticism, Thailand requested China to share hydrological information in the dry season on a regular basis. Thailand also observed that the 2010 Dry Season Report based on a study conducted by the Secretariat stated that the recent drought condition this year was from natural causes but at the same time, mentioned that the river flow is also affected by the operation of dams upstream and requested further information from the Secretariat.

18. The CEO clarified that information received from China on the sideline of the First MRC Summit in April 2010 including reservoir in- and out-flow monthly data during the concerned dry season period when there was more outflow than inflow from the dams from which can be interpreted that the dams upstream were not the cause of the drought situation downstream. The analysis in the report on hydrological conditions is consistent with information from China. The flow in January was higher than natural conditions due to releases from Chinese dams which helped ease the dry season downstream in January but this situation could not be sustained due to low reservoir levels.

19. Viet Nam expressed appreciation of China's commitment to sharing data in extreme cases and hope this will continue for years to come and called for further cooperation from China to share information in the dry season regularly as well. Apart from the natural causes, Viet Nam would appreciate more information to determine whether there were any infrastructure-related reasons for the change in flows in the dry season.

20. Cambodia shared the same view with Thailand and Viet Nam regarding request for further sharing of information and wished to see further development in this regard. Lao PDR expressed appreciation to Dialogue Partners for their sharing of information.

21. Thailand appreciated information provided and hoped to see increased cooperation between China and Myanmar and MRC. For Thailand, all types of information is useful whether it had negative or positive impacts in the Mekong, especially for communities in the northernmost area of Thailand. Thailand was concerned of the restriction of some data to only the Secretariat and that hydrological data should be provided in a timely manner to be used to warn communities of coming flood and drought conditions.

22. China stated its appreciation for the report during the dry season of 2009/2010 and was pleased to see the progress of MRC. China, especially the Ministry of Water Resources, has conducted many studies that can be shared with MRC countries. Regarding the issue of the cause of the recent extreme dry season, China felt that there is a need to respect the outcome of scientific studies. China attaches great importance to the issue and treats it with care.

23. China noted that dams on the Lancang did play a mitigating role in downstream drought in January this year. However, there was also a serious extreme drought in Yunnan and all reservoirs were dry so they could not play a more mitigating role in the drought downstream. Regarding the issue of providing information, China felt that as a Dialogue Partner, the most efficient way to deliver information to Member Countries is through the MRC. On managing water resources, the Chinese government manages water resources based on science and not emotions.

24. The CEO of MRCS clarified that there were two types of information: (1) hydrological information during the flood and dry seasons; and (2) technical data on the dam and reservoir provided to the Secretariat for modeling work. Normal hydrological information is shared openly and immediately with Member Countries. The CEO also encouraged China to routinely provide hydro-meteorological data in the dry season for MRC's use in scientific analyses and provide MRC with the ability to better prepare for. Providing more hydrological information in the dry season will also help MRC prevent adverse criticism from the public and media.

25. Thailand thanked China for its sincere explanation and requested the Secretariat to enhance information sharing with Member Countries.

## **F. ACHIEVEMENTS SINCE THE FOURTEENTH DIALOGUE MEETING**

26. The CEO informed the Meeting of the organisational changes of the MRC and programmes' achievements since the Fourteenth Dialogue Meeting in August 2009, Vientiane, Lao PDR. (Attachment No.7)

27. The CEO referred to the First MRC Summit that it gave MRC higher level among prominence Heads of Government of Member Countries, Dialogue and Development Partners. It was a key milestone for the MRC and established the Summit as a regular event for the MRC every four years. The pre-Summit International Conference involving 10 international river basins around the world provided the opportunity the MRC to exchange river basin management and development experiences with others organizations facing similar challenges.

28. The CEO reflected on the official opening ceremony of the Office of the Secretariat in Phnom Penh (OSP) which was held on 26 August 2010 with witnesses from the four Member Countries, and Dialogue Partners China and Myanmar, and diplomatic missions in Phnom Penh. The establishment of OSP is the culmination of 15 years of the MRC looking for a permanent solution to the location of its Secretariat.

29. The MRC has made good progress with regard to the Stakeholder Consultative Process especially working with Stakeholders at the programme level. The process provides diverse input into MRC's work and enrich its programmes. A draft MRC Stakeholder Policy is under consideration. A number of Stakeholder Consultations on MRC's activities was conducted such as the Strategic Environmental Assessment, the Basin Development Plan stakeholder forums and others. Regarding the MRC Work Programme, major developments include the formulation of the new phases of MRC programmes, such as Climate Change and Adaptation Initiative, Information and Knowledge Management, Basin Development Plan, Environment, Flood Management and Mitigation, and Fisheries. A number of national and regional consultations with Member Countries, key stakeholders and relevant partners are on-going between July and October 2010. Programme documents for most of these next phases have been tabled for consideration and 'in principle' approval of the Joint Committee and subject to funding pledges, will become operational in early 2011.

30. The IWRM-based Basin Development Strategy, describing how the water and related resources of the Lower Mekong Basin (LMB) could be developed sustainably and provide a planning framework, was discussed and comments were received at the recent Thirty-second Meeting of the Joint Committee.

31. Much effort has been put into strengthening partnerships between the MRC and other basin development partners. This includes an enhanced cooperation with ASEAN, GMS Secretariat and respective initiatives in the Mekong of Japan, and the United States of America. Overall, the Secretariat has substantially increased its cooperation with regional development partners. Similarly, the trend towards increasing dialogue and engagement with non-state partners such as academia, the private sector and civil society has been maintained.

32. On the Strategic Plan, the MRC's vision and mission articulated since 1999 are still relevant and has been maintained for the Strategic Plan for the next five years, 2011-2015. Specific goals and indicators will guide how the Plan would be translated into action and how to measure its results. The plan would also help drive cooperation with regional development partners. The MRC is now more focused on its core river basin management functions and is working towards the goal set by the Mekong leaders in the Hua Hin Declaration for MRC to be financially self-sustainable by 2030.

33. MRC has also played a role in bilateral relations, for instance, in the navigation agreement between Cambodia and Viet Nam.

34. Stating that details would be provided in a later session, the CEO mentioned recent high level MRC missions to China and Myanmar. The visit to Yunnan by MRC members and the Secretariat was very beneficial and the mission to Myanmar will help set the roadmap for future cooperation.

35. Thailand thanked the CEO for the presentation especially on steps in increasing cooperation with Dialogue Partners.

36. China was pleased to see significant progress since the Fourteenth Dialogue Meeting and listed several MRC meetings China has attended, including the First MRC Summit, the 3<sup>rd</sup> Regional BDP Forum, the 8<sup>th</sup> Annual Mekong Flood Forum, the Strategic Environmental Assessment workshops and meetings. China also hosted many meetings and missions attended by MRC Member Countries including a study tour of the Changjiang river, an international training on flood and disaster risk management, and a seminar on Mekong subregional sustainable forest management in June.

37. Mr. Li Ge, Director of the Department of International Cooperation, Science and Technology, Ministry of Water Resources (MWR) of China made a presentation on progress since the Fourteenth Dialogue Meeting including details of the flood risk management training, (Attachment No.8).

38. The MWR of China pays great attention to cooperation with MRC at all times. The Director General of International Cooperation, MWR held a meeting with an MRC delegation in June 2010 and the Deputy Director General of MWR also held a meeting with an MRC delegation in Hua Hin, April 2010, on the sidelines of the First MRC Summit. Since the Fourteenth Dialogue Meeting, the MWR has conducted a series of fruitful cooperation and technical exchanges with MRC and the downstream countries in relevant fields.

39. Following the Hydrological Agreement and Implementation plan renewed in 2008, MWR has continued the provision of hydrological data from two monitoring stations on the Lancang River to the MRC Secretariat in the flood season of 2009 and 2010.

40. In order to help downstream countries to counter drought caused by the extreme weather, the MWR of China has provided the hydrological data to MRC collected from two stations since 22 March 2010, namely Yunjinghong and Manan, for emergency use. MRC and the downstream countries expressed high appreciation to China's effort.

41. Ms. Shan Jie from the Secretariat of the Ecosystem Study Commission for International Rivers (ESCIR), made a presentation on the progress of cooperation between MRC and ESCIR. Since September 2009, at the invitation of the MRCS and with approval of the Ministry of Foreign Affairs of China, ESCIR began to cooperate with MRC on the Strategic Environment Assessment (SEA) of Proposed Mainstream Dams in the Lower Mekong River, (Attachment No.9).

42. During 10-11 of November 2009, the Initial Meeting of Cooperation on the SEA of Proposed Mainstream Dams in the Lower Mekong River between MRCS and ESCIR was held in Kunming, China. On 27-29 of April 2010, the Second Meeting of Cooperation on the SEA Mainstream Dams in the Lower Mekong River was held in Kunming, China. At the

meeting, the MRCS and ESCIR exchanged and shared information and data on hydrological modeling to help analyse the development scenarios of lower Mekong basin. During the 19-20 May 2010, at the invitation of the MRC, ESCIR experts attended the SEA Regional Workshop on “Impact Assessment” held in Vientiane, Lao PDR. The workshop provided a platform for the participants to communicate with each other, and deepened the ESCIR’s understanding of the SEA.

43. On 7-10 June 2010, at the invitation of the ESCIR, a MRC delegation completed a Technical Visit of Xiaowan and Jinghong Dams on the mainstream of Lancang River. During the visit, Chinese experts gave a brief introduction on the engineering characteristics and operating rules of the two dams. This was followed on 28-29 June 2010, by ESCIR attendance at the SEA Regional Workshop on “Avoidance, Mitigation and Enhancement” held in Ho Chi Minh City, Viet Nam.

44. The meeting took note with appreciation of the presentations from China on progress since the Fourteenth Dialogue Meeting.

## **G. AREAS OF COOPERATION BETWEEN DIALOGUE PARTNERS AND THE MEKONG RIVER COMMISSION**

### **G.1 INFORMATION SHARING**

#### **G.1.1 PROGRESS REPORT ON SHARING OF HYDRO-METEOROLOGICAL INFORMATION AND FUTURE AREAS OF COOPERATION**

45. The CEO, assisted by the Senior Hydrologist of Technical Support Division, informed the Meeting on the background information of the agenda item, (Attachment No. 10).

46. China provided data on the daily flow and water level including rainfall from 15 March to 31 May to MRC for low flow analysis for the exceptional low flows experienced during the dry season of 2010. The MRC and its Member Countries highly appreciated valuable cooperation and assistance from the Ministry of Water Resources of the People’s Republic of China and the Bureau of Hydrology and Water Resources of Yunnan Province for all the data additionally provided during dry season of 2010.

47. In 2010, under the Cooperation Agreement, the MRC continues to provide supplementary funds to cover parts of the communication and operation expenses for this system. Twenty-four hourly water level and twelve hourly rainfall data is sent daily from China to the MRCS for flood forecasting via a telemetry system from 15 June to 15 October each year. The automatic equipment at Jinghong and Man’An stations malfunctioned in 2010, but after upgrading the two stations, they are now functional since early August 2010 although some future technical issues need to be restored at the Kunming data terminal before automatic transfer of data can be resumed. In the meantime manual methods are being used.

48. The Meeting acknowledged the great value of data exchanged by China to MRC countries and concerned public. The MRC is of the view that there is a great potential for technical collaboration in other areas, such as year-round data provision as well as exchange of staff and expertise. Future cooperation will focus on capacity consolidation of the concerned technical staff and on equipment maintenance to ensure the long term sustainability of the system installed at stations and data terminals.

#### **G.1.2 DISCUSSION**

49. Thailand requested more information on how the dry season data received from China was used and its benefits. The Secretariat clarified that the information was used for the analysis of the low flows conditions and for modelling simulations. The CEO noted that having real time data during the dry season would help with providing warning to downstream areas of rapid water level changes.

50. Cambodia took note with appreciation of the progress report on the sharing of hydrological information and proposed holding an annual meeting to review progress on implementation between the MRC and Dialogue Partners which could include visits to hydrological stations along the river.

51. China stated that, as an upstream country, China is mindful of its responsibility of providing information in emergency situations and has spent resources including human and financial resources to do so. China has also provided outflow and inflow information from its reservoirs during the last dry season.

52. Myanmar shared information on water levels in May 2010 at the Wang Pao Port station and has upgraded the recording equipment with automatic recorders. Some information has already been shared with the MRCS.

## **G.2 HYDROPOWER AND WATER RESOURCES DEVELOPMENT**

### **G.2.1 LANCANG RIVER HYDROPOWER AND WATER RESOURCES DEVELOPMENT AND ENVIRONMENTAL MANAGEMENT PLAN**

53. The Myanmar Department of Hydroelectric Power is responsible for the management and development of water resources as the primary user of water for power production, and it also collects and disseminates hydrological data. In early 2010 the Department conducted a feasibility study on hydropower development on the Na Kha and Nam Lue tributary rivers.

54. The Irrigation Department is also undertaking the multipurpose water resources projects including various scales of hydropower generation.

55. Ms. Shan Jie from the Secretariat of the Ecosystem Study Commission for International Rivers (ESCIR), made a presentation on Hydropower Development and Environmental Management of middle-lower Lancang River, (Attachment No. 11). The hydropower development planning for the middle- lower Lancang River passed the national examination in 1987. Eight cascades hydropower stations were planned, including core reservoirs as Xiaowan and Nuozhadu. Characteristics of 8 hydropower stations were also presented as well as the Environmental Assessment and Protection Procedures for Hydropower Development in China. The procedures such as Soil and Water conservation, Terrestrial wildlife conservation, Aquatic wildlife conservation, Water environmental protection, and Environmental monitoring have been strictly applied for hydropower development in the middle-lower Lancang River. A new research on further optimization of regulation rules for Jinghong Hydropower Station will be started to further improve the navigation conditions of downstream. A deepen cooperation between the MRC and ESCIR is also envisaged in the future to exchange experiences and advanced technology in sustainable hydropower development, joint research on the environment protection etc.

### **G.2.2 PROGRESS ON STRATEGIC ENVIRONMENTAL ASSESSMENT AND STUDY VISITS**

56. The CEO, assisted by the Project Manager of Initiative on Sustainable Hydropower, informed the Meeting on the background information of the agenda item, (Attachment No. 12).

57. With regard to progress in the assessment phase of the SEA, the analysis was started in late February 2010. This systematically considered the cross-sector development risks and opportunities of developments on the mainstream with reference to the baseline projections of key themes. Scenarios “with and without” various groupings of mainstream developments have been assessed against a projection of the baseline trends. The mitigation avoidance and enhancement phase started after the impact assessment workshop and culminated with a workshop held in Ho Chi Minh City on 28-29 June 2010. It offered the opportunities to a wide range of stakeholders to address how key uncertainties are dealt with and whether it is possible for the countries of the basin to minimize or offset

the potential loss of fisheries and other livelihoods while recognizing the significant financial and other benefits of hydropower generation.

58. A visit to Jinghong and Xiaowan dams during the period from 7-10 June 2010 was highly appreciated. Each Member Country sent three senior representatives to join this mission hosted jointly by ESCIR and the Hydro Lancang Company. The participants have seen and learnt the Chinese experience in trying not only to optimize their overall development performance but also their aim to advance sustainable forms of hydropower through mitigation measures gradually incorporated into the operation of their dams, including several measures aimed to reduce any negative impacts to the lower part of the Mekong Basin.

59. The SEA has completed its planned 4 phases and a Final Report, summarizing the findings of the SEA studies with the rationale and needs of this SEA, is now under preparation. The report will provide a robust foundation to understand the full scale of issues, opportunities and risks related to proposed mainstream dams. A series of recommendations, providing initiatives on how to improve regional policies and procedures including the PNPCA process, will also be provided.

60. It was also interesting to see the general acceptance of the SEA approach by all stakeholders, appreciation of the SEA work to date and the openness of MRCS for allowing independent inputs and comments. The SEA has taken a full basin wide perspective, with a wide range of participants including China representatives, all of whom have been actively involved in the identification of the impacts of proposed mainstream developments, their assessment and identification of feasible options or alternatives.

### **G.2.3 DISCUSSION**

61. Viet Nam expressed appreciation of China's involvement in the SEA process and stated that greater cooperation is expected. Cambodia thanked China for the excellent arrangements for the June 2010 MRC visit to Yunnan and propose to further enhance cooperation especially if possible the consideration of a visit at Joint Committee and Council levels.

62. China values its experience and participation in MRC meetings and workshops but Chinese experts sometimes find it difficult to participate due to language barriers and encouraged the Secretariat to put more effort on facilitating China's participation in this regard.

## **G.3 NAVIGATION**

### **G.3.1 COOPERATION ON THE LANCANG/MEKONG RIVER**

63. H.E. U Nyunt Hlaing, Ambassador of Myanmar to Lao PDR, gave a brief presentation on Myanmar's activities on navigation on the Lancang-Mekong. Myanmar is party to the Joint Committee on Coordination for Commercial Navigation (JCCCN). Myanmar attended the MRC's Eighth Navigation Advisory Body (NAB) as an observer

64. Mr. Ai Jianwei, Deputy Chief, Xishuangbanna Bureau of Marine Affairs, Yunnan, made a presentation on progress since the last Dialogue Meeting which included the participation of China in a seminar on inland navigation in Ho Chi Minh City on September 9-11 2009. MRC invited Chinese experts to join in the relevant work concerning the standardization of cross-river facilities on the Mekong River, (Attachment No.13).

65. Chinese delegation also attended the 8th MRC Navigation Advisory Body (NAB) Meeting on 9 August 2010 in Bangkok, Thailand, as an observer. China's interest in the NAB is to participate in the preparation of the guidelines on planning, design, construction and operation of ship locks for achieving the consistency of standardization of navigation channel on the Lancang-Mekong River and ensuring smooth and safe navigation.

66. China hopes for further cooperation and more exchanges on navigation technology with a view to promoting and expediting regional cooperation in developing navigation. Based on the 9<sup>th</sup> Meeting of the Joint Committee on Coordination of Commercial Navigation on the Lancang-Mekong River (JCCCN) between China, Lao PDR, Myanmar and Thailand, which was held on August 10-11, 2010, in Pattaya, Thailand, China wishes to participate in MRC's preparation of setting the standards for river-crossing facilities and MRC's projects related to navigation development; and further cooperation and more exchanges on navigation technology with a view to promoting and expediting regional cooperation in developing navigation.

67. The Meeting took note with appreciation of the information provided in the presentations.

### **G.3.2 ENHANCED COOPERATION ON NAVIGATION**

68. The CEO, assisted by the Programme Coordinator of Navigation Programme, informed the Meeting on the background information of the agenda item, (Attachment No.14).

69. A Regional Seminar on Inland Waterways Transport was successfully organised on 10-11 September 2009 in which navigation specialists from China and Myanmar also attended. Prior to the seminar, a separate meeting was held between the NAP team and representatives of China to define the cooperation activities for Lancang-Mekong navigation development. NAP planned to carry out a second phase study to formulate a Guideline on Planning, Design, Construction and Operation of Navigation Ship Locks in relation to development of the proposed hydropower projects on the Lower Mekong mainstream.

70. The NAP proposed to jointly conduct the above mentioned Study (Phase 2). It was proposed that cooperation can be done either by (i) Chinese experts participating in the study team or (ii) MRCS study team could consult and seek input from Chinese experts. MRC Secretariat is looking forward to the confirmation from China on this. The cooperation between the MRC and JCCCN has recently increased. JCCCN representatives of China and Myanmar attended the 8th Navigation Advisory Body Meeting on 9 August 2010.

71. Regarding the planned activities, the MRC NAP will continue to follow up on the proposed cooperation outlined above. Subject to the approval by the Navigation Advisory Body, a regional workshop on the development of a professional short course training syllabus for the Inland Waterway Transport College of the Member Countries will be organised in October/November 2010.

### **G.3.3 DISCUSSION**

72. Thailand looks forward to the negotiation on the Mekong Legal Framework on Navigation between Lao PDR and Thailand with assistance from the Secretariat.

73. The Meeting note of and look forward to future cooperation for mutual benefit for the people living along the Mekong.

## **G.4 FLOOD MANAGEMENT**

### **G.4.1 PROGRESS ON JOINT TRAINING ACTIVITIES**

74. H.E. U Nyunt Hlaing, Ambassador of Myanmar to Lao PDR, gave a brief presentation on Myanmar's involvement in joint training with MRC countries on flood management in China and found the training very useful.

75. Ms. Yan Huang, Bureau of Hydrology, Changjiang Water Resources Commission, presented information on an upcoming training course in 2011. China has to deal with flooding of the Changjiang River each year in which has some similarities to the Mekong, (Attachment No.15).

76. The training courses China is offering are on technical aspects of a framework of decision support system for flood management, including data acquisition, information management, and flood forecasting. The Secretariat expressed appreciation of MRC for these initiatives taken by China and proposed the relevant focal points from china and MRC discussed the proposed programme to build on existing MRC capacity building activities.

#### **G.4.2 UPDATE ON FLOOD FORECASTING ACTIVITIES**

77. The CEO with the assistance of Programme Coordinator of Flood Management and Mitigation Programme informed the Meeting on the background information of the agenda item, (Attachment No.16).

78. The development of a new Mekong River Flood Forecasting System (FFS) was completed prior to the 2009 flood season. The new Mekong FFS consists of different models: Unified River Basin Simulation (URBS), ISIS, and Regression, and all are linked to a forecasting platform called Flood Early Warning System (FEWS).

79. The implementation of website improvement has been on-going. Given the Member Countries, public and especially media attention on low flow conditions the RFMMC had daily updated the river monitoring webpage during weekdays in the last dry season. Regarding the capacity building plan for line agencies, the plans were developed and then implemented in June and July 2010.

80. With regard to the Asia Flood Network Program (AFN) for the Lower Mekong River Basin, the core activity is to apply the Regional Flash-Flood Guidance System (RFFGS) in the MRC Member Countries. The MRCFFG System was established in October 2009 which allowed line agencies to get access to the FFG products for training as well as for practicing.

81. The Meeting recognised that the cooperation between MRCS and China has far reaching benefits in terms of regional cooperation and a growing understanding of the importance of engagement between all riparian countries. The International Training Program on Management of Flood Control and Disaster Mitigation, attended by 16 participants, on 18-30 June 2010, sponsored by Ministry of Water Resources of China and MRC. The training provided a deepened understanding of flood and drought hazards, and useful knowledge on flood control and disaster relief.

#### **G.4.3 DISCUSSION**

82. China expressed its intention to invite MRC countries to participate in the Wuhan training scheduled to take place possibly in the year of 2011. The Chair welcomed the invitation and MRCS CEO suggested that prior to the training there be a preliminary discussion on programme content.

#### **H. OTHER AREAS OF POTENTIAL COOPERATION**

83. MRC is pleased to hear that China is considering seconding staff to the MRCS. The MRC Integrated Capacity Building Programme (ICBP) through the Junior Riparian Professional Project is seeking to build up a regional network of Water Resources Training Institutes. In 2011, ICBP also plans to have a Junior Riparian Professional from both China and Myanmar, (Attachment No.17).

84. MRC's Watershed Management project plans to organize an international conference on "Integrated Watershed Management for better National and Transboundary River Basin Management: Lessons learned and Challenges for the Mekong Basin". A more detailed concept, programme and sessions will be further developed together by a Conference Committee and with co-convenors. MRC will be pleased if China and Myanmar could join the conference. A new future area of cooperation is the Fisheries Programme.

## **I. DISCUSSION ON STRENGTHENING COOPERATION AS A FOLLOW UP TO THE FIRST MRC SUMMIT AND THE MRC HUA HIN DECLARATION**

85. MRCS CEO presented to the Meeting MRC's follow up to the First MRC Summit on further cooperation with MRC's Dialogue Partners, (Attachment No.18).

86. On China, the Secretariat prepared a Discussion Paper on Strengthening Cooperation with China which was approved by the Joint Committee and submitted to China.

87. In early June, by invitation from China, representatives of MRC member countries and a number of Secretariat staff were the first foreign visitors to the Xiaowan Dam. The delegation also visited Jinhong dam. Participants on that trip felt that it provided useful information and understanding of the two hydropower's operations. In relation to further cooperation the CEO reiterated the importance of sharing of data in the dry season as previously discussed: information of operation of upstream dams to provide in early warning of fluctuating water level to downstream communities; further information on water quality and sediment management. In this regard, the Secretariat has undertaken a preliminary analysis of expected water level changes in 2010-2011 dry season as a result of full operation of Xiaowan dam and will share this with ESCIR of China for their review. Similarly he emphasized the importance of staff exchange programme and cooperation in thematic areas such as climate change and the involvement of DP in the Mekong Panel on Climate Change.

88. Following the Summit, the Secretariat prepared a discussion paper on that possibility accession of Myanmar to MRC. This was discussed during the visit to Myanmar last week which was the first official MRC visit. An official letter will be sent from the Chair of the MRC Council to the Myanmar as a follow up. And the CEO looks forward to more detailed discussions between Myanmar and the MRC on the subject.

89. Further thematic areas of discussion including sharing of hydrological data, navigation, drought management, climate change and capacity building.

## **DISCUSSION**

90. Myanmar stated that it will continue to enhance cooperation with MRC as a Dialogue Partner and expressed appreciation for MRC's invitation to Myanmar to become a member of the MRC. Myanmar believes that the visit last week was an important step to future cooperation and understands it has been a MRC long term goal for Myanmar to become a member.

91. Myanmar needs to consider the invitation and steps to take in more detailed discussions on its side.

92. China stated that for the first time at the MRC's First Summit China sent a high level delegation lead by H.E. Vice Minister Song Tao who had very successful discussions with MRC Member Countries and as well as the MRCS CEO. As a follow up to the Summit China sees a very bright future of cooperation with the MRC and we need to make a common effort to do so. China sees MRC as a very important mechanism of regional cooperation and is the most important river basin organization in the region.

93. China places much importance in its relation with the MRC. The MRC plays a significant role not just for Member Countries but also an important forum for Dialogue Partners and Development Partners. It is not only a member country organization.

94. Dialogue Partnership is quite effective in exchanging ideas. China has very close relations with MRC Member Countries and will continue to have this important relationship with MRC and its members.

#### **J. DATE AND VENUE OF THE SIXTEENTH DIALOGUE MEETING**

95. The Joint Committee Chair proposed to the Meeting that the next Dialogue Meeting be held back to back with the Thirty-fourth Joint Committee meeting during 25-29 July 2011, in Vientiane, Lao PDR, (Attachment No.19).

#### **CLOSING STATEMENT BY THE CHAIRMAN OF THE MRC JOINT COMMITTEE FOR 2010/2011**

96. H.E. Mr. Pich Dun, Chairman of the MRC Joint Committee for 2010/2011, delivered his closing statement and thanked all delegates for their constructive engagement during the meeting, (Attachment No. 20).

## **LIST OF ATTACHMENTS**

ATTACHMENT NO. 1	LIST OF PARTICIPANTS
ATTACHMENT NO. 2	OPENING ADDRESS BY THE CHAIRPERSON OF THE MRC JOINT COMMITTEE FOR 2010/2011
ATTACHMENT NO. 3	STATEMENT BY THE HEAD OF DELEGATION OF THE PEOPLE'S REPUBLIC OF CHINA
ATTACHMENT NO. 4	STATEMENT BY THE HEAD OF DELEGATION OF THE UNION OF MYANMAR
ATTACHMENT NO. 5	AGENDA
ATTACHMENT NO. 6	REPORT ON THE HYDROLOGICAL CONDITIONS IN THE LOWER MEKONG BASIN INCLUDING REPORT ON 2010 DRY SEASON
ATTACHMENT NO. 7	ACHIEVEMENTS SINCE THE FOURTEENTH DIALOGUE MEETING
ATTACHMENT NO. 8	PRESENTATION BY CHINA ON PROGRESS SINCE THE FOURTEEN - THE DIALOGUE
ATTACHMENT NO. 9.	PRESENTATION BY CHINA ON PROGRESS OF COOPERATION STRATEGIC ENVIRONMENT ASSESSMENT
ATTACHMENT NO 10.	PROGRESS REPORT ON SHARES OF HYDRO-METROLOGICAL INFORMATION AND FUTURE AREAS OF COOPERRATION
ATTACHMENT NO 11.	PRESENTATION BY CHINA ON HYDROPOWER DEVELOPMENT AND ENVIRONMENTAL MANAGEMENT
ATTACHMENT NO 12.	PROGRESS ON STRATEGIC ENVIRONMENTAL ASSESSMENT AND STUDY VISITS
ATTACHMENT NO 13.	PRESENTATION BY CHINA ON COOPERATION ON NAVIGATION
ATTACHMENT NO 14.	ENHANCED COOPERATION ON NAVIGATION
ATTACHMENT NO 15.	PROGRESS ON JOINT TRAINING ACTIVITIES
ATTACHMENT NO 16.	UPDATE ON FLOOD FORECASTING ACTIVITIES
ATTACHMENT NO 17.	OTHER AREAS OF POTENTIAL COOPERATION

- ATTACHMENT NO 18. DISCUSSION ON STRENGTHENING COOPERATION AS A FOLLOW UP TO THE FIRST MRC SUMMIT AND THE MRC HUA HIN DECLARATION
- ATTACHMENT NO 19. DATE AND VENUE OF THE SIXTEENTH DIALOGUE MEETING
- ATTACHMENT NO 20. CLOSING STATEMENT BY THE CHAIRMAN OF THE MRC JOINT COMMITTEE FOR 2010/2011

## **LIST OF PARTICIPANTS**

### **A. MRC MEMBER DELEGATIONS**

#### **CAMBODIA**

1. H.E. Mr. Pich Dun  
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Chairman of the MRC Joint Committee for 2010/2011
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12. Mr. Ros Sophornna  
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13. Ms. Soth Sithon  
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14. Mr. Sam Nuov  
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44. Mr. Sein Tun  
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### **C. MRC SECRETARIAT**

45. Mr. Jeremy Bird  
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47. Mr. Sourasay Phoumavong  
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48. Mr. Tran Duc Cuong  
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52. Ms. Klomjit Chandrapanya  
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54. Dr. Lum Hung Son  
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70. Mr. Chheang Hong  
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79. Mr. Souphanh Thongouane  
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**OPENING REMARKS**

By

**H.E. Mr. Pich Dun**

Secretary General of Cambodian National Mekong Committee  
Acting Member of the MRC Joint Committee for Cambodia  
Chairman of the MRC Joint Committee for 2010/2011

***Excellencies,  
Distinguished Delegates,  
Ladies and Gentlemen,***

It is my pleasure today to welcome you to Phnom Penh and the Fifteenth Dialogue Meeting. Since we met last year there have been significant developments on a range of water resource issues in the region.

In the last year, interest in hydropower development has grown significantly with the MRC undertaking the Strategic Environmental Assessment of the dams proposed for the mainstream Mekong. Specific partnerships were established between the MRC and China for this major undertaking and the SEA final report, which will be released in September, reflects these close ties.

In addition, representatives from the MRC and Member Countries made a landmark visit to some of the upstream dam projects on the Lancang River and the delegation that went on to Beijing discussed increased cooperation which will be the subject of our interactions here today.

Similarly, the scope of cooperation with Myanmar has continued to grow at a technical level with new initiatives for sharing hydro-meteorological data and exchange of experiences in flood management. Just last week, an MRC mission visited Myanmar to follow up on various aspects of the MRC Hua Hin Declaration including possible accession to MRC at some time in the future.

The effect of climate change in the basin has increased in prominence – especially in light of extreme events such as cyclone Nargis, typhoon Ketsana and the Mekong flood of 2008 that make the commencement of MRC's Climate Change and Adaptation Initiative in 2009 highly relevant. Climate change is an issue that will impact on all countries in the region in coming years – in both the upper and lower basins, so increased cooperation makes a great deal of sense and I am pleased to hear that options for a basin-wide partnership in climate change are being explored within the CCAI.

Last year's rainy season ended early and the dry season was more intense than usual – resulting in drought in southern China, Myanmar and the north of Lao PDR and Thailand. Drought is still being felt in parts of Cambodia and Viet Nam – and this has resulted in water levels on the mainstream and tributaries that are much lower than normal.

The Chinese government responded to this issue earlier this year by sharing hydro-meteorological data during the drought period, providing information from the two monitoring stations on the Lancang. We are keen to see this level of cooperation between the MRC and China expand in the future and progress on the sharing of Hydro-meteorological information and future is something that will be discussed today.

Low water levels in the river had a significant impact on navigation and river based trade, with the China - Thai routes bearing much of the brunt of the drought. Today, we will discuss ways to enhance cooperation in this important area. River-based trade will continue

to gain in importance as concerns about road based greenhouse gas emissions make it an ever more attractive option for exporters.

The Flood Management and Mitigation Programme also continued to play an important role throughout the year, developing and strengthening new capacities for flood management and protection systems. This area of water resources management is emerging as key for strengthened cooperation with a number of exchanges, study visits and training activities involving MRC and China. Today we will explore options for further staff exchanges – as well as the possibility of cooperation on, among other things, watershed management between the upper and lower basins.

MRC has taken steps towards strengthening the process of encouraging stakeholder dialogue and involvement in the planning of development issues, with successful consultations in the last 12 months on the Basin Development Plan as well as Sustainable Hydropower. I am pleased to say that both of our Dialogue Partners have taken a keen interest in this process and participated actively at these stakeholder meetings.

Representatives from China and Myanmar have attended all major MRC regional meetings and participated in discussions on topics as diverse as flood management, hydropower development, navigation and regional planning.

In April this year, the fifteenth anniversary of the Mekong River Commission was celebrated in Hua Hin, Thailand, giving us an opportunity to both reflect on our many achievements and to consider the many new challenges facing the organisation. On this occasion, we organized the First MRC Summit which reaffirmed the commitment to the mission of the MRC by the Heads of Government of Member Countries, MRC Dialogue Partners and MRC Development Partners.

Representatives of both China and Myanmar made statements expressing their commitment to significantly strengthen the level of joint activities and cooperation with the MRC and I am looking forward to following up on this today when we revisit the Hua Hin Declaration.

I would like to thank you all for participating in this Fifteenth Dialogue Meeting. With your continuing support and the spirit of cooperation, the MRC is constantly evolving into a more effective River Basin Organisation. Without such commitment, the MRC could not fulfil its mandate effectively and in the best interests of its stakeholders.

The next few years will be critically important for the MRC. As an organization we will need to prepare for and respond to a number of emerging challenges facing the Mekong River Basin. These are challenges that are not limited to the lower basin, but will impact on all people across the region. So I look forward to hearing today how we can work to better understand and address these issues.

I declare the Meeting open.

*-ends-*

**STATEMENT**

By

**Mr. Diao Mingsheng**

Head of Delegation of the People's Republic of China  
At the 15<sup>th</sup> China–MRC dialogue meeting

**Mr. Chairman, (H.E. Mr. Pich Dun)**

**Mr. Jeremy Bird**

**CEO of MRC Secretariat**

**Distinguished colleagues**

The Chinese delegation is pleased to be invited to participate in the 15<sup>th</sup> dialogue meeting between China–MRC. First of all; on behalf of the Chinese government, please allow me to express our great appreciation to MRC for its constant pursuit of strengthening cooperation between countries in the upper and lower Mekong River. I would also like to thank the Government of Cambodia, for their warm hospitality to our delegation.

**Mr. Chairman**

Regional cooperation is an important trend in today's world. Since these years, we have seen the continued development of regional cooperation and economic integration in Asia, the economically most dynamic continent in the world. All the countries in the region are facing with the important path of developing their national economies and improving their people's livelihood. Over the years, MRC has made great achievement in poverty elimination, social and economic development, and environment protection in Mekong River Basin, with its involvement in subregional cooperation and capacity building programmes. We are happy to see the successful 14 dialogue meetings of the past years played an important and positive role in promoting mutual understanding and trust between China and MRC countries. Our ongoing cooperation has brought substantial benefits to all the people in the riparian countries, and the Chinese government always attaches much importance to the dialogues meeting with MRC and will continuously offer our strong support to contribute to the sustainable development of the Lancang-Mekong subregion.

**Mr. Chairman**

As we can see, China has always been an ardent and pragmatic participant of the Lancang-Mekong subregional cooperation, and is both a beneficiary of and contributor to it. China will always be a trust-worthy and reliable partner in this region and commit itself to the policy of developing relations with neighbors based on harmony, security and prosperity. I can say here, my government is ready to continue to expand and deepen its cooperation with the neighbors in the Mekong subregion to promote common progress and development in this region. I'm confident that a prosperous Mekong region is not far away, given our joint efforts. And I hope this dialogue meeting will benefit all of us to exchange the important information and the development plans and ideas for the better future of this region.

Thanks;

**STATEMENT**

By

**His Excellency U Nyunt Hlaing**

Ambassador Extraordinary and Plenipotentiary  
Embassy of the Union of Myanmar, Vientiane, Lao PDR  
Leader of Myanmar Delegation  
to the Fifteenth Dialogue Meeting,  
Phnom Penh, Cambodia on 27 August 2010

**Mr. Chairman  
Distinguished Delegates  
Ladies and Gentlemen**

On behalf of the Myanmar delegation, may I first of all express our deep appreciation to you, Mr. Chairman, for your warm welcoming words address to us. My delegation also thanks the Mekong River Commission and the Royal Cambodian Government for the excellent arrangements made for this dialogue meeting and their generous hospitality accorded to our delegation.

**Mr. Chairman**

We also observe the Joint Committee Meeting, Council Meeting and Donor Consultative Meeting of the Mekong River Commission as Dialogue Partner. In these meetings we can learn the activities, progress and achievement of Mekong River Commission. At the same time, we can seek the means and ways to cooperate with Mekong River Commission.

**Mr. Chairman**

As Mekong River Commission's dialogue partner, we are committed to enhance cooperation and contact with the Mekong River Commission and the upper basin dialogue partner, particularly in the areas of human resource development, technical cooperation, information shearing and active participation in workshops seminars and trainings conducted by Mekong River Commission and in collaboration with other international and regional organization.

**Mr. Chairman**

On our part, Myanmar is willing to extend cooperation in the areas of mutual interests of which Drought Management Programme, Navigation Programme and initiative on Climate Change impact. We would like to reaffirm its Continues cooperation with Mekong River Commission through the well-established mechanisms.

**Mr. Chairman**

Before I conclude, I would like once again to express our great honor to the Royal Cambodian Government for hosting this meeting. I wish you all a successful and fruitful discussion.

Thank you.

## **AGENDA**

### **Thursday 26 August 2010**

18:30 Welcome Dinner for the Dialogue Partners and for the Delegates of the Fifteenth Dialogue Meeting hosted by the Chairperson of the MRC Joint Committee for 2010/2011

### **Friday 27 August 2010**

8:00 – 8:30 Registration

8:30 – 8:35 A. Opening Address by the Chairperson of the MRC Joint Committee for 2010/2011

8:35 – 8:40 B. Statement by the Head of Delegation of the People’s Republic of China

8:40 – 8:45 C. Statement by the Head of Delegation of the Union of Myanmar

8:45 – 8:50 D. Adoption of the Agenda

8:50 – 9:10 E. Report on the Hydrological Conditions in the Lower Mekong Basin including Report on 2010 Dry Season

9:10 – 9:30 F. Achievements Since the Fourteenth Dialogue Meeting

9:30 G. Areas of Cooperation between Dialogue Partners and Mekong River Commission

9:30 G.1 Information Sharing

9:30 – 9:40 G.1.1 Progress Report on Sharing of Hydro-meteorological Information and future areas of cooperation (by MRC)

9:40 – 9:50 G.1.2 Discussion

9:50 G.2 Hydropower and Water Resources Development

9:50 – 10:20 G.2.1 Lancang River Hydropower and Water Resources Development and Environmental Management Plan (by Dialogue Partners)

10:20 – 10:30 G.2.2 Progress on Strategic Environmental Assessment and Study Visits (by MRC)

10:30 – 10:40 G.2.3 Discussion

10:40 – 11:00 Coffee Break

11:00	G.3	Navigation
11:00 – 11:20	G.3.1	Cooperation on the Lancang/Mekong River (by Dialogue Partners)
11:20 – 11:30	G.3.2	Enhanced Cooperation on Navigation (by MRC)
11:30 – 11:40	G.3.3	Discussion
11:40	G.4	Flood Management
11:40 – 12:00	G.4.1	Progress on Joint Training Activities (by Dialogue Partners)
12:00 – 12:15	G.4.2	Update on Flood Forecasting Activities (by MRC)
12:15 – 12:30	G.4.3	Discussion
12:30 – 14:00		Lunch hosted by the Chairperson of the MRC Joint Committee for 2010/2011
14:00 – 14:20	H.	Other Areas of Potential Cooperation <ul style="list-style-type: none"> <li>• Staff Exchange</li> <li>• Watershed Management</li> </ul>
14:20 – 14:50	I.	Discussion on Strengthening Cooperation as a follow up to the First MRC Summit and the MRC Hua Hin Declaration
14:50 – 15:00	J.	Date and Venue of the Sixteenth Dialogue Meeting
15:00 – 16:10		Coffee Break/Preparation of Report of the Meeting
16:10 – 16:50	K.	Review of the Draft Report of the Fifteenth Dialogue Meeting
16:50 – 16:55	L.	Closing Statement by the Chairperson of the MRC Joint Committee for 2010/2011
16:55 – 17:00		Group Photo
18:30		Dinner hosted by the Chairperson of the MRC Joint Committee for 2010/2011

**REPORT ON THE HYDROLOGICAL CONDITIONS  
IN THE LOWER MEKONG BASIN  
FROM JANUARY TO JULY 2010**

1. In response to the request from the MRC Joint Committee at its Twenty-second Meeting in August 2005, the MRC Secretariat continues to routinely monitor the hydrological situation in the Mekong Basin, this document was prepared as a briefing note of the current hydrological conditions in the Lower Mekong Basin (LMB) for presenting to the Fifteenth Dialogue Meeting.
2. This Hydrological Conditions Report in the Lower Mekong River Basin includes the analysis of hydro-meteorological data from January to July 2010.
3. An analysis on flow exceedance probability is attempted for implying the hydrological drought condition of 2010. The report applies a user-friendly and readable approach but still maintains a comprehensive analysis.

**Hydrological Conditions:**

4. For the LMB, the rainfall for the period from January to July 2010 is significantly below its long-term average (1966-2009), although from April to July rainfall seemed to be a little higher in the upstream areas. Deficient seasonal rainfall meant that natural catchment water storage towards the end of the flood season in terms of groundwater and soil storage was already low.
5. The ground-based rainfall map shows cumulative rainfall from March to April 2010 is quite low over the entire LMB (0-50 mm). From May to July 2010, rainfall is quite high in the southern part of the LMB which is characterized as a floodplain area and high lands with mountains. The rainfall from March to April 2010 corresponds with a NOAA based rainfall mapping which revealed the effects of a drought condition in most of the Mekong Basin. The rainfall from January to July showed, in general, less than the average for most of the LMB.
6. Starting from the end of January to April 2010, the water level of the Mekong River at Chiang Sean, Luang Prabang and Vientiane dropped rapidly below the recorded lowest level at these stations in 1993. The 2010 low flow season in the Mekong followed conditions during the flood season of 2009 which were amongst the lowest on record. The analysis is based upon the data currently available which are compared to historical hydrological and meteorological conditions. The rainfalls in 2009 and in January 2010 were less than average, which resulted in significantly less contribution to river runoff.
7. As indicated in a report prepared by MRCS in March 2010, the main cause of low water levels being experienced in the 2010 dry season in the Mekong mainstream was a combination of an early end to the 2009 wet season and low monsoon rainfall which led to regional drought conditions. The weakness of the 2009 SW Monsoon meant that flows during the flood season were well below normal, particularly in the northern parts of the Mekong basin. Not only discharges were low but the flood season ended almost two months earlier at Chiang Saen. This led to very low levels of natural catchment storage to sustain flows during the dry season. This combined with the fact that the groundwater aquifers in Northern Lao PDR are not large which led to a sustained recession of discharges to severely low levels. The MRCS report is currently being updated to include data obtained since March 2010.

8. The reduction in the Mekong mainstream water levels from late January onwards suggested that reservoir releases could no longer support earlier levels of hydropower generation and as storage levels fell to critical levels in response to the drought. Subsequent information received from China during the MRC Summit indicated that over the dry season, slightly more water was released from storage dams than was stored. The current emphasis on climate change and adaptation may provide the necessary impetus to address previous under-investment in regional, national and local capacities for drought management and mitigation and also share experiences between China and MRC.

9. Soil moisture displayed low values in the LMB beginning from January to April (0 to 10%), corresponding to significant low amounts of rainfall in LMB. But from April to July 2010, following monsoon rainfalls moisture levels across the region gradually rose to more than 20% in May and 50% in July. Some improvement is evident in late June as a result of sporadic rainfall conditions in some parts of the LMB, which increased moisture levels to above 90% within the eastern highland margins of the basin in Lao PDR and the southern part of Cambodia and the Mekong Delta.

10. The river flows for the reporting period were generally below the average flow. Probability analysis indicates that the flows from January to July 2010 in Chiang Khan are lower than 50%, resulting in serious hydrological drought conditions.

11. The outflow of the Tonle Sap was lower than the average flow between January to March, whereas from May to July 2010 the outflow of the lake showed fluctuations around its average flow. Based on the analysis of the flow regime and its relationship to water level and the flooded area of the lake, the conclusions are as follows:

- Suitable land for flood recession rice gradually increased to 7334 km<sup>2</sup> in April 2010 after peak flood recessed.
- The analysis of outflow and reverse flow is suitable for providing useful information on multi-functional roles of hydrology in floodplain areas of the Tonle Sap Lake.

### **Conclusions:**

12. Hydrological conditions along the Mekong mainstream during the first half of 2010 were generally below the range that might be defined as a drought condition.

13. Between Chiang Saen and Kratie, the dry season as defined here began earlier than usual with the transition from the flood season occurring during the middle of November 2009.

14. Discharges and water levels were significantly below average in the upper reach of the Basin at the Northern Lao PDR at Chiang Saen, Luang Prabang, and Vientiane from the end of January to April 2010. Water levels slightly increased in the middle and lower reaches of the LMB, after sporadic rain mostly fell in the upper reach of the Mekong from May to July 2010, with significant rises experienced in late July.

15. The analysis of flows and water levels in the mainstream showed that this year the hydrological conditions in the mainstream were generally marginally below average for the reach from Chiang Saen to Kratie, but about average in the downstream delta areas.

## **NOTE FOR INFORMATION**

### **MRC ACHIEVEMENTS SINCE THE FOURTEENTH DIALOGUE MEETING**

1. Since the Fourteenth Dialogue Meeting was held on 28 July 2009 in Vientiane, Lao PDR, the MRC has reached some major milestones in its work towards sustainable development of the Lower Mekong Basin.
2. Good progress on the implementation of the Independent Organizational Review recommendations has been made. With regard to the permanent co-hosted location of the MRC Secretariat, the establishment of the Office of the Secretariat in Phnom Penh is now completed and has been fully functional since 1 July 2010. The official opening ceremony of the Office of the Secretariat in Phnom Penh is scheduled to coincide with the MRC Joint Committee and Dialogue Meetings with witnesses from the four Member Countries, the dialogue partners, Myanmar and China, and diplomatic missions in Phnom Penh.
3. The MRC has made good progress with regard to the Stakeholder Consultative Process. A draft MRC Stakeholder Policy was circulated to Member Countries for consideration. The MRC held a Stakeholder Regional Workshop on Mitigation Assessment of Proposed Hydropower Dams on the mainstream of Mekong 28-29 June 2010, in Ho Chi Minh City, Viet Nam, to obtain inputs from governments and stakeholders as well as to discuss next steps in the Strategic Environmental Assessment of proposed hydropower dams on the mainstream Mekong. A 3rd Regional Stakeholder Forum on the Mekong Basin Development Plan was successfully held on 29-30 July 2010 in Vientiane, Lao PDR, to seek critical views and inputs from stakeholders on the Planning Process of the Lower Mekong Basin led by the MRC.
4. Thanks to continuous and growing support from the Development Partners, MRC Programmes have generally achieved their expected outputs during the past year and some of these are highlighted below.
5. Regarding the MRC Work Programme, major developments include the formulation of the new phases of MRC programmes, such as Climate Change and Adaptation Initiative, Information and Knowledge Management, Basin Development Plan, Environment, Flood Management and Mitigation, and Fisheries. A number of national and regional consultations with Member Countries, key stakeholders and relevant partners are on-going between July and October 2010. Programme documents for most of these next phases have been tabled for consideration and 'in principle' approval of the Joint Committee and subject to funding pledges, will become operational in early 2010.
6. The regional consultation meeting on the Environment Programme document was held in July 2010 and the revised programme document was submitted to the Thirty-second Meeting of the MRC Joint Committee. The MRC has also developed a more expanded approach of MRC's Role in Agriculture and Agricultural Water Management, in which issues and opportunities surrounding the sector and rationale for MRC's engagement in the agriculture sector were proposed. The future direction of the Agriculture and Irrigation Programme is currently being prepared for consideration by Member Countries. More details on the main issues of programmes are also documented under agenda item E.3 of the Thirty-second Meeting of the MRC Joint Committee.
7. The 2nd MRC Regional Stakeholder Forum on the Basin Development Plan was successfully held on 15-17 October 2009 with more than 250 participants. The Forum made suggestions on how the Basin Development Plan should strive to capture those

opportunities, while at the same time, managing the risks in the achievement of the vision shared by the Mekong countries.

8. Regarding the Strategic Environmental Assessment (SEA) of proposed hydropower schemes on the mainstream Mekong, a Regional Stakeholder Workshop on Mitigation Assessment was held on 28-29 June 2010 to discuss measures and suggestions from the SEA Study on avoidance and mitigation of risks and enhancement of benefits identified in the impact assessment of the Basin Development Plan 20 year scenario on the Lower Mekong Basin with mainstream hydropower development. The Workshop also obtained inputs and views from governments and stakeholders as well as discussed next steps in the SEA of proposed hydropower dams on the mainstream Mekong.

9. The IWRM-based Basin Development Strategy is one of the most important outputs of the Basin Development Plan Programme Phase 2 (BDP2). The Strategy will describe how the water and related resources of the Lower Mekong Basin (LMB) could be developed and provide a planning framework that aims to bring basin perspectives into the national planning process. The Strategy will be finalised by refining the assessment with transboundary economic, social and environmental impacts of the defined scenarios, as well as the interim results from the ongoing SEA of the proposed mainstream dams. The first full draft of the Strategy was discussed at the 3rd Regional Stakeholder Forum on the BDP held in Vientiane on 29-30 July 2010. The Strategy is submitted to the Joint Committee at the Thirty-second Meeting for discussion and further guidance.

10. Much effort has been put into strengthening partnerships between the MRC and other basin development partners. The emerging cooperation with the World Bank under the Mekong-IWRM Project (M-IWRMP) is on track towards the successful completion of its formulation phase. The project will address IWRM challenges in the LMB through a three-tier approach, combining interlinked basin, national and cross-border initiatives in close synergy with the MRC-led basin development planning process. Cooperation with the Asian Development Bank has been strengthened in particular in the area of flood and drought management with hosting arrangements agreed at the MRC for the ADB project management team. A similar approach was followed for the ADB project in the 3S river system. This cooperation was again emphasised at the Informal Donor Meeting held on 17-18 June 2010, in Vientiane.

11. The MRC Secretariat and the ASEAN Secretariat signed an MoU on 4 April 2010 on the sidelines of the First MRC Summit to demonstrate the enhanced cooperation between the two organizations. There are true complementarities and unique synergies in this newly established partnership between the Secretariats of ASEAN and MRC. The partnership will also help build the capacity of the executing agencies of ASEAN countries to manage and mitigate flood risks, to provide better forecasts, as well as to assist the countries and their communities in mapping out resilience measures to adapt to climate change.

12. Overall, the Secretariat has substantially increased its cooperation with regional development partners since the Fourteenth Dialogue Meeting. Similarly, the trend towards increasing dialogue and engagement with Non-Governmental Organizations, the academic world and civil society has been maintained. MRC gained much exposure through such events and were able to explain and promote its role. In this respect, MRCS participated in the 8th world general assembly of the international network of basin organizations on 20-23 January 2010 in Dakar; the multi stakeholder process and water governance in Asia on 28-29 January 2010 in Singapore; the NGOs' Public Forum on Sharing the Mekong River Basin on 1 April 2010 in Thailand; the Mekong Environment and Climate Symposium on 26-27 April 2010 in Viet Nam. On the occasion of the First MRC Summit, a pre-Summit International Conference on Transboundary Water Resources Management in a Changing World was organised by MRCS on 2-3 April in Thailand and provided an opportunity to share experiences from a number of river basins around the world.

## The fifteenth Dialogue Meeting

### **Cooperation Progress since the 14<sup>th</sup> Dialogue Meeting**

27 August 2010

By Mr. Li Ge

**Director of the Department of International Cooperation,  
Science and Technology**

**Ministry of Water Resources of China**

### **The MWR of China pays high attention to cooperation with MRC at all times**



**Mr Gaobo, Director General of MWR, held a reception  
meeting with MRC delegation in June 2010.**

**The MWR of China pays high attention to cooperation with MRC at all times**



**Mr Chen Minzhong, Deputy Director General of MWR, held a meeting with MRC delegation in Hua Hin, April 2010.**

- ✦ **Since the Fourteenth Dialogue Meeting, the MWR has conducted a series of fruitful cooperation and technical exchanges with MRC and the downstream countries in appropriate fields.**

## **Main Contents**

- 📖 Implementation of providing hydrological data in flood season 2009**
- 📖 Provision of hydrological data in extremely dry season this year for emergency use**
- 📖 Participation in MRC Summit**
- 📖 Launching international training on management of flood control and disaster mitigation**
- 📖 Reception of MRC delegations**
- 📖 Participation in Regional Stakeholder Forum and Mekong Flood Forum**

### **📖 Implementation of providing hydrological data in flood season 2009**

- 👉 Following the hydrological agreement and the implementation plan renewed in 2008, MWR has completed the provision of hydrological data from two monitoring stations on Lancang River to MRC Secretariat in the flood season of 2009.**



**Yunjinghong Station**

## **Implementation of providing hydrological data in flood season 2009**

- ☛ **On behalf of MRC, Mr. Jeremy Bird, CEO of MRCs delivered a special letter in November 2009 to MWR to extend appreciation for the Chinese provision of hydrological data, and recognized that those reliable data played a key role in preparing flood prevention and disaster mitigation and reducing losses caused by floods in the downstream countries.**

## **Provision of hydrological data in extremely dry season this year for emergency use**

- ☛ **In order to help downstream countries to encounter drought caused by the extreme weather, since March 22, 2010 the MWR of China has provided the hydrological data collected from two stations, namely Yunjinghong and Manan, to MRC for emergency use.**
- ☛ **MRC and the downstream countries expressed high appraisal and appreciation to China's effort, which was incorporated into the Hua Hin Declaration.**

## Participation in MRC Summit



 A seven experts mission of MWR participated in the MRC Summit and the International Conference.

## Participation in MRC Summit



 Participation in the international conference prior to MRC Summit.

## Participation in MRC Summit

- ☛ Mr. Chen Minzhong delivered a keynote presentation at the summit opening ceremony, namely “Drought Condition in Southwest China and Reasoning of Water Level Declining in Mekong River Mainstream”.



- ☛ Based on data and facts, Mr. Chen roundly introduced in details the status of drought and losses in Yunnan and other parts of the southwestern China, pointed out that the declining of river flow and water levels in the Mekong mainstream was mainly caused by the regional extreme dry weather, not by the hydropower development on Lancang River. Mr Chen also summarized the relevant work had been done by China in helping downstream countries to encounter flood and drought disasters, carrying out technical cooperation and exchange in order to take care of the downstream interests.

## Participation in MRC Summit

- ☛ In addition, a representative from the Yangze River Water Resources Commission introduced the sustainable water resources development notions of “development in protection meanwhile protection in development” and the river harnessing thoughts of “maintaining healthy Yangze River, promoting harmonization between human and water”. He also introduced practices that have been done by China in taken full consideration of downstream flood prevention and drought mitigation, and demands of production, living and ecology during hydropower development and reservoir operation on upstream of the Yangze River.



## **📖 Participation in MRC Summit**

- ☛ **The comprehensive, scientific and objective introduction by the Chinese expert delegation at the Summit has received all around appraisal and achieved good effect. Participants actually understood the drought situations in China from the delegation introduction, and expressed their admiration to the initiatives taken by Chinese government to mobilize the national resources to fight against drought and to secure the people's livelihood. They also recognized that the declining of water levels in the Mekong mainstream was absolutely caused by the extreme dry climate, and the notions of Yangze River management is good for reference to Mekong River.**

## **📖 Launching international training on flood control and disaster mitigation**



- ☛ **The international training course in management of flood control and disaster mitigation for the Mekong countries was successfully held from 17 to 30 June this year in Beijing. 10 high level experts engaged in water resources, flood and drought management and disaster mitigation, and sediment management were invited to give technical training to seventeen professionals from five Mekong countries and MRCs.**

**📖 Launching international training on flood control and disaster mitigation**



**Opening Ceremony**

**📖 Launching international training on flood control and disaster mitigation**



**☞ Attendants exchanging their technical views.**

## **Launching international training on flood control and disaster mitigation**



- ☛ Training contents covering flood control and disaster mitigation management, flood forecasting, drought disaster statistics, integrated river basin plan, sedimentation management, embankment management, river basin informationization etc..

## **Launching international training on flood control and disaster mitigation**



- ☛ Trainees visiting laboratories.

**📖 Launching international training on flood control and disaster mitigation**



☛ Trainees visiting water and sediment regulation at Xiaolangdi Dam on Yellow River and the flood storage and detention facilities.

**📖 Launching international training on flood control and disaster mitigation**



☛ Trainees visiting the Great Wall, Longmen Grotto and the modern National Olympic Stadium.

## **Launching international training on flood control and disaster mitigation**



 **Awarding certificates to trainees.**

## **Launching international training on flood control and disaster mitigation**

-  **This training has achieved good results in aspects of course design, experts lecturing, technical tour and logistical support, and was highly recognized by trainees, which increased mutual understanding between China and Mekong countries.**



## Reception of MRC delegations



- ☛ In October 2009, an 30-expert delegation of MRC, headed by Mr. Te Navuth of the Technical Support Division of MRCS made a visit to the Yangtze River Water Resources Commission, the Yangtze River flood control facilities and flood forecasting system, and made technical exchanges with Chinese counterparts in flood control management etc..

## Reception of MRC delegations



- ☛ The delegation gave high appraisalment to the Three Gorge Project for its great benefits in flood control, power generation and navigation, and the efforts made by Chinese government in addressing environmental protection.

## **Participation in Regional Stakeholder Forum and Mekong Flood Forum**

- **At the third Regional Stakeholder Forum on Mekong BDP, delegates from MWR of China introduced the efforts made by China in taking care of downstream countries interests, promoted mutual understanding and win-win concept, increased understanding on rational water resources development on upstream.**
- **At the eighth Mekong Flood Forum, the representatives from MWR delivered a presentation named “China flood characteristics and disaster status in 2009”, which received special acknowledgement from MRC.**

*Thank you !*

Cooperation between the MRC and ESCIR on the strategic environmental assessment (SEA) of proposed dams on the mainstream of the Lower Mekong River

*August 26, 2010  
Phnom Penh, Cambodia*

Presenter: Shan Jie  
Secretariat, ESCIR, China

outlines

- **10-11<sup>th</sup> of November 2009, KunMing, China. Initial Meeting of Cooperation on the Strategic Environment Assessment (SEA) of Proposed Mainstream Dams in the Lower Mekong River.**
- **27-29<sup>th</sup> of April 2010, KunMing, China. The Second Meeting of Cooperation on the Strategic Environment Assessment (SEA) of Proposed Mainstream Dams in the Lower Mekong River.**
- **19-20<sup>th</sup> of May 2010, Vientiane, Lao PDR. SEA of hydropower on the mainstream Mekong-Regional Workshop on Impact Assessment.**
- **6-10<sup>th</sup> of June 2010, KunMing, China. Technical Visit of Xiaowan and Jinghong Dams on the mainstream of Lancang River.**
- **28-29<sup>th</sup> of June 2010, Ho Chi Minh, Viet Nam. SEA of hydropower on the mainstream Mekong-Regional Workshop on "Avoidance, Enhancement and Mitigation Assessment".**

## **Introduction of ESCIR**

The Ecosystem Study Commission for International Rivers (ESCIR) was established with the approval of the China Association for Science and Technology in December 2007. ESCIR is a legally registered non-profit institution for academic research, and is one of branches of China Society for Hydropower Engineering. ESCIR is formed by experts and researchers from institutions, engineering corporations, power generation enterprises and other organizations related to hydropower development or environmental protection.

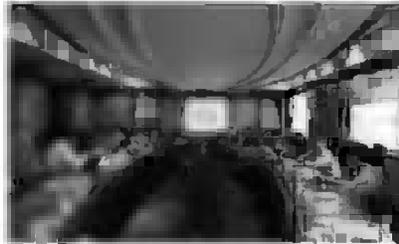
### **Goals of ESCIR**

- To engage in scientific research on protection of international rivers in China.
- To promote sustainable development of international rivers in China.

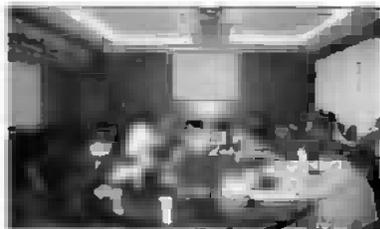
In September of 2009, at the invitation of the Mekong River Commission Secretariat. And with approval of the Ministry of Foreign Affairs of China, the Ecosystem Study Commission for International Rivers (ESCIR) of China began to cooperate with MRC on the Strategic Environment Assessment (SEA) of Proposed Mainstream Dams in the Lower Mekong River.

During the 10<sup>th</sup>-11<sup>th</sup> of November 2009, after much coordination and communication, the Initial Meeting of Cooperation on the Strategic Environment Assessment (SEA) of Proposed Mainstream Dams in the Lower Mekong River between MRCS and ESCIR was held in KunMing of China.

**At the Initial meeting, the MRCS and ESCIR had reached a agreement on the goals, principles of the cooperation on SEA, and had discussed the subject of the next Meeting.**



**•During 27<sup>th</sup>-29<sup>th</sup> of April 2010, The Second Meeting of Cooperation on the Strategic Environment Assessment (SEA) of Proposed Mainstream Dams in the Lower Mekong River was held in KunMing of China. At the meeting, the MRCS and ESCIR had exchanged and shared some information and data on hydrology modeling, which is helpful to analyse the development scenario of lower Mekong basin.**



**During the 19<sup>th</sup>-20<sup>th</sup> of May 2010, at the invitation of the MRC. ESCIR experts attended the SEA Regional Workshop on "Impact Assessment" held in Vientiane, Lao PDR. The Workshop had provided an platform for the participants to communicate with each other, and had deepened the ESCIR's understanding on the SEA.**

**•During the 7<sup>th</sup>-10<sup>th</sup> of June 2010, at the invitation of the ESCIR, Led by Mr. Jeremy Bird, the delegation from MRC as well as the member countries had successfully completed a Technical Visit of Xiaowan and Jinghong Dams on the mainstream of Lancang River. During the Visit, the Chinese experts had given a brief introduction on the engineering characteristics and operating modes of the two dams.**



•During 28<sup>th</sup>-29<sup>th</sup> of June 2010, at the invitation of the MRC. ESCIR experts attended the SEA Regional Workshop on “Avoidance, Mitigation and Enhancement” held in Ho Chi Minh City of Vietnam.



**Thank you**

**NOTE FOR INFORMATION  
HYDROLOGICAL INFORMATION EXCHANGE**

**COOPERATION UNDER THE AGREEMENT ON  
THE PROVISION OF HYDROLOGICAL INFORMATION OF  
THE LANCANG/MEKONG RIVER IN THE FLOOD SEASON**

1. The extension to the Agreement on the Provision of Hydrological Information of the Lancang/Mekong River in the Flood Season and its Implementation Plan for the next five years was made on 29 August 2008 during the Thirteenth Dialogue Meeting in Vientiane, Lao PDR. This has further enhanced cooperation on the Provision of Hydrological Information of the Lancang/Mekong River in Flood Season by the People's Republic of China to the MRC.
2. The cooperation on the Provision of Hydrological Information of the Lancang/Mekong River in the Flood Season was initiated in 2002 when the Agreement on the Provision was signed. As a result two hydrological stations, namely, Jinghong and Man'An in Yunnan Province, People's Republic of China, have been improved. The improvement included the establishment of the Data Centre at the Provincial Bureau of Hydrology and Water Resources in Kunming, the provision of automatic water level equipment and related installation, telecommunication and data management systems, the provision of discharge measurement motor boat and one set of electronic discharge measurement (Acoustic Doppler Current Profiler) and the provision of technical training for operators at the Data Terminal and at both hydrological stations in using these new hydrological equipment.
3. As result of the exceptionally low flows experienced during the dry season of 2010, China provided data on the daily flow and water level including rainfall from 15 March to 31 May to MRC which was circulated to MRC member countries as a cooperation extended additionally for low flow analysis.
4. The MRC and its Member Countries highly appreciated valuable cooperation and assistance from the Ministry of Water Resources of the People's Republic of China and the Bureau of Hydrology and Water Resources of Yunnan Province for all the data additionally provided during dry season of 2010 which is not included in the Cooperation Agreement.
5. In 2010, under the Cooperation Agreement the MRC continues to provide supplementary funds to cover parts of the communication and operation expenses for this system. Twenty-four hourly water level and twelve hourly rainfall data have been sent daily from China to the MRCS for flood forecasting via a telemetry system from 15 June to 15 October each year.
6. However, the automatic equipments at Jinghong and Man'An stations have become worn out in 2010 and some elements have stopped functioning. The technical staff members of the Yunnan Water Resource Bureau and MRCS have discussed this problem. The idea of upgrading the equipment to those currently used by other MRC stations was agreed by both sides. In June 2010, MRC sent an official letter informing the Bureau about the schedule for upgrading equipments and MRC experts later visited the two stations to upgrade the equipment. The two stations have now resumed sending automated data as usual since early August 2010. No days of data were missed as the Bureau sent manual water level and rainfall data at 8:00 and 20:00 hours daily to MRCS via email from 15 June – 31 July 2010 in order to share data while the automatic equipments were not functioning.

7. The joint visit to upgrade the field stations was conducted by MRCS staff and Officers of the Yunnan Hydrology and Water Resources Bureau during 26 July to 1 August 2010. The two stations have now been upgraded with new standard equipment and data are automatically sent to MRC via the Kunming data terminal. The visit has enhanced the cooperation and collaboration in hydro-meteorological data collection and information exchange at working level. Technology transfer between the two sides during the visit are of value added to the cooperation. The recent visit has also verified the capacity and success of both sides in fixing technical problems.

8. In response to a request from the delegation from China to the Fourteenth Dialogue Meeting, the MRCS sent an assessment report to the Ministry of Water Resources (MWR) in November 2009 outlining the benefits of the data sharing agreement to both sides. During the Mission of MRCS to Beijing in June 2010, the MWR indicated their appreciation for and acceptance of the assessment report findings.

9. Through the process of implementing the data sharing agreement both sides have developed mutual understanding of each other's needs and capacities that are beneficial for continued implementation of the Agreement paving the way toward strengthening and deepening further collaboration. The data exchanged have been of great value to MRC countries and concerned public. The MRC is of the view that there is a great potential for technical collaboration in other areas, such as year-round data provision as well as exchange of staff and expertise. Future cooperation will focus on capacity consolidation of the concerned technical staff and on equipment maintenance to ensure the long term sustainability of the system installed at stations and data terminals.

Hydropower Development and Environmental  
Management of middle-lower Lancang River



*August 26, 2010  
Phnom Penh , Cambodia*

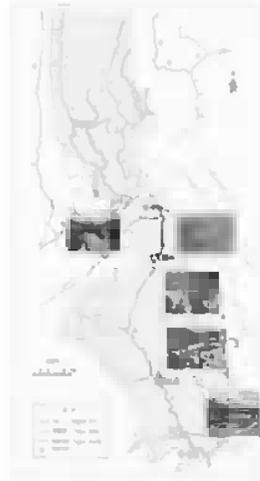
Presenter: Shan Jie  
Secretariat, ESCIR, China

**Outlines**

- **Hydropower development in the Middle-Lower Lancang River**
- **Environmental Assessment and Protection Procedures for Hydropower Development in China**
- **Environmental Management in the Middle-Lower Lancang River**
- **Future Plans**

## Hydropower Development in the Middle-Lower Lancang River

The Lancang River flows through Tibet, Qinghai and Yunnan provinces in China, and the length is about 2160km (contains the border reach of China and Myanmar), the drainage area is 174,000 km<sup>2</sup>, covering about 23.5% of the whole Lancang-Mekong river basin, and the mean annual runoff is about 64 billion m<sup>3</sup>, covering about 13.5% of the runoff of whole Lancang-Mekong river.



The hydropower development planning for the middle-lower Lancang River passed the national examination in 1987. Eight cascades hydropower stations were planned.

Built and put into operation:

● Manwan, Dachaoshan, Jinghong, Xiaowan

Under construction:

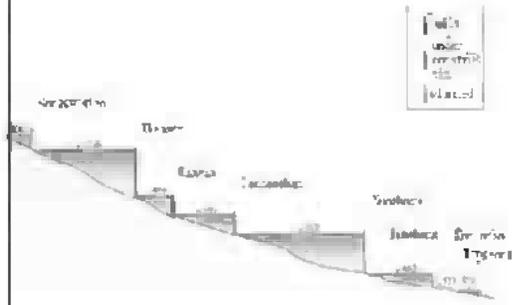
● Gongguoqiao.

Plan:

● Ganlanba, Nuozhadu, Mengsong

(Mengsong cascade will be suspended, cancel or change the dam site to protect migratory fishes)

## Characteristics of the 8 hydropower stations

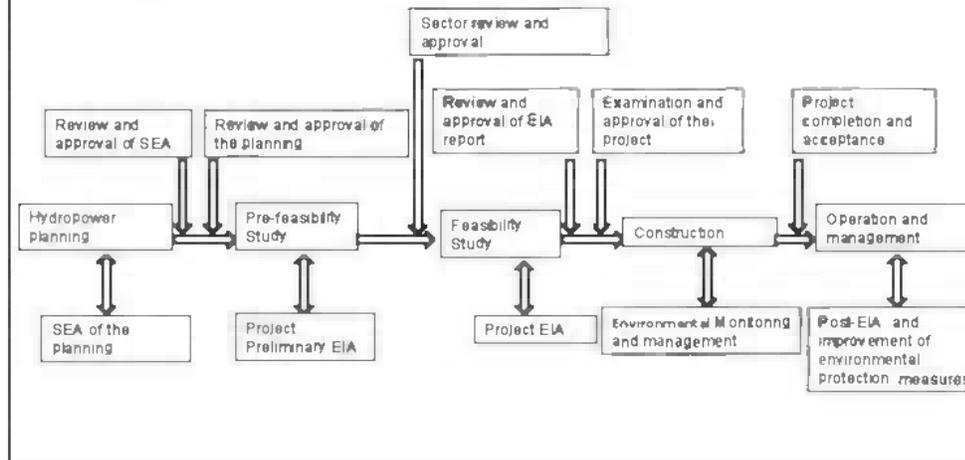


According to the planning, the Xiaowan and Nuozhadu Reservoir will be the core reservoirs, and the total installed capacity of the 8 hydropower stations is about 15.9 million kW and annual power generation is about 72.53 billion kWh.

Hydropower Station	Gonggaqiao	Xiaowan	Minwen	Daxuoshan	Nuozhadu	Jinghong	Qunlanba
Status	Planned	Under construction	built	built	Under construction	built	Planned
Distance to the Hualu River Mouth (km)	750	582	532	420	210	102	75
Normal Water level (m)	1307	1240	994	899	812	602	539
Height of dam (m)	105	292	132	120	261.5	108	/
Annual power generation (billion kWh)							

## Environmental Assessment and Protection Procedures for Hydropower Development in China

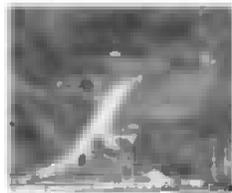
The following procedures have been strictly applied for hydropower development in the middle-lower Lancang River.



## Environmental Management in the Middle-Lower Lancang River

### ● Soil and Water conservation

Starting from preparation stage of each hydropower station in the Lancang River, soil and water conservation has been actively conducted through the combination of vegetation measures and engineering measures.



Spoil disposal area greening measures



Access road greening measures



Slope protection measures



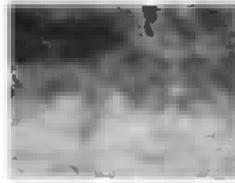
Retaining wall for slope protection of material field

## Terrestrial wildlife conservation for Lancang River hydropower development

During the planning, construction and operation stage of hydropower stations in the Lancang River, many protection measures for terrestrial wildlife are adopted. For instance, replanting gardens for rare plants have been established, wildlife rescue stations have been set up where are needed, and many fodder crops were planted for wild animals.



Replanting garden for rare floras inundated by Xiaowan Reservoir



Replanting garden for rare floras inundated by Jinghong Reservoir



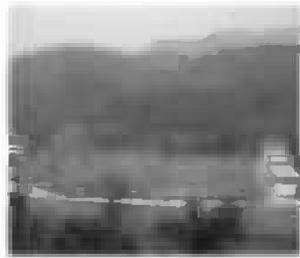
Jingqiang Temple Nature Reserve Wildlife Rescue Station funded by Xiaowan Hydropower Station



Lianhuatang elephant food plant basis funded by Jinghong Hydropower Station

- Aquatic wildlife conservation

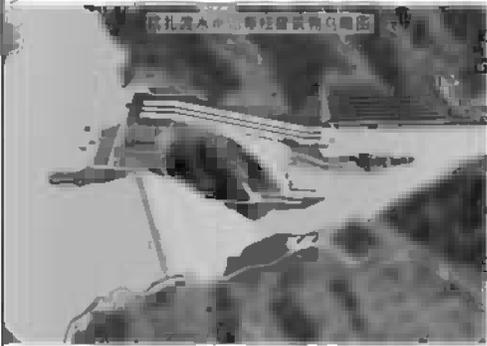
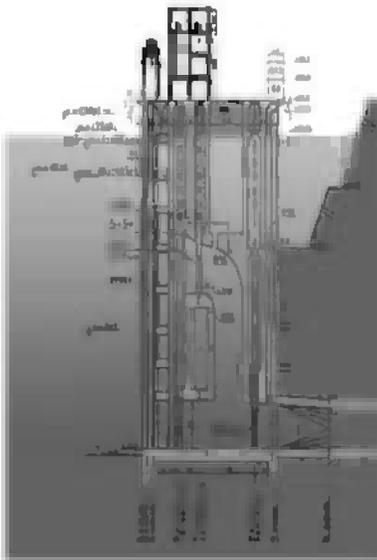
At present, 3 artificial fish breeding and releasing stations are planned at the reaches of Gongguoqlao, Nuozhadu and Ganlanba hydropower stations in the Lancang River. At the same time, It is planned to provide financial support to the establishment of the Buyuanjiang Fish Nature Reserve. The measure of cross-dam fish catching and releasing has also been taken in the reaches of Gongguoqlao cascade to improve gene exchange among fishes.



Nuozhadu artificial fish breeding and releasing stations under construction



cross-dam fish catching and releasing

The stratified water intake measure will be applied in Nuozhadu Hydropower station, this measure can reduce the adverse effect of low temperature water to the downstream reaches, especially for aquatic life. All the above fish protection measures are taken to protect migratory, aboriginal and endemic fishes in the middle and lower Lancang river.

● Water environmental protection

According to the related standards of waste water treatment and releasing, in all of the Lancang river hydropower stations, all production waste water and domestic waste water must be treated to meet the standards before released.




sewage treatment system at the Employer's camp in Xiaowan Hydropower station

sewage treatment for aggregate processing system in Gongguoqiao Hydropower station

#### ● Environmental monitoring

- Environmental monitoring has been planned and implemented for Lancang River hydropower development, including: monitoring on soil and water conservation, ecology, water environment, atmospheric environment, etc.



Meteorological Station at Gongguoqiao dam site



Meteorological Station at Xiaowan dam site

#### **Future Plans**

##### **1) Further optimization of regulation rules for Jinghong Hydropower Station**

- ESCIR plans to start a new research on further optimization of regulation rules for Jinghong Hydropower Station joining with the HydroLancang Corporation, the Energy Bureau and Marine Bureau of Yunnan Province and other relevant departments, to further improve the navigation conditions of downstream.
- 2) Technical Exchange in hydropower development and Environmental protection
  - ESCIR would like to deepen the cooperation with MRC in the future, continue to exchange experiences and advanced technology in sustainable hydropower development, conduct joint research on the environment protection etc., to promote comprehensive utilization and protection of water resources of the whole Lancang-Mekong river basin.



**Thank you**

## **NOTE FOR INFORMATION**

### **PROGRESS ON STRATEGIC ENVIRONMENTAL ASSESSMENT AND STUDY VISITS**

#### **I. Background**

1. The MRC Strategic Environment Assessment (SEA) of the 12<sup>1</sup> proposed hydropower developments on the Lao - Thai and Cambodian reaches of the Mekong mainstream was launched in April 2009. The SEA comprises four main phases: (i) scoping, (ii) baseline assessment, (iii) impact (opportunities & risks) assessment, and (iv) avoidance, enhancement and mitigation assessment. The work is being undertaken in a participatory process in partnership with NMC Secretariats and a wide range of national stakeholders. The SEA is on course to be completed in July 2010.

2. The broader purpose of the SEA is to identify potential development opportunities and risks, as well as contribution of these proposed projects to regional development by assessing alternative mainstream hydropower strategies. In particular, the SEA focuses on the regional distribution of costs and benefits with respect to economic development, social equity and environmental protection.

3. The SEA will enhance the baseline information and assessment framework for government review of project-specific EIAs prepared by developers in a timely way. It is also designed to inform how the MRC can best enhance its support to Member Countries when the PNPCA process is triggered for an individual mainstream proposal. The SEA findings will be fed into the BDP process and inform steps that MRC programmes may consider in the next MRC Strategic Plan Cycle (2011-2015) to address knowledge gaps that are identified concerning mainstream development proposals.

4. In December 2009 the Scoping phase of the SEA was completed with the submission of the five volumes of the Inception Reports and supporting materials. These were circulated to NMCS and placed on the MRCS website in January 2010 for all stakeholders to access, including:

- Volume I: The Main Inception Report
- Volume II: Mainstream project profile summaries
- Volume III: National scoping consultation summaries
- Volume IV: SEA Theme papers and additional studies proposals
- Volume V: The SEA Communications, Consultations and Capacity Building Plan

5. The SEA Inception Report presents the outcomes of the scoping consultations as well as the methodology and design of the SEA for the subsequent phases. Excellent cooperation was received to move forward with the support of the National Mekong Committee Secretariats and MRCS programmes coordinated by the MRC Initiative for Sustainable Hydropower.

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<sup>1</sup> The number has increased to 12 to include the Thakho run of river project being proposed for another stream of the Mekong in the Khone falls area and for which some initial information has been provided in drafting this note. The preliminary information has been formally sent by LNMC to MRC for circulation to other Member Countries and was only initial information provided to the consultant for their study. An earlier version of the Thakho project was formally notified to the MRC in July 2001, but it was effectively dropped by the developer at that time and the prior consultation process did not take place

6. In November 2009, China appointed a strategic partner for the SEA and arrangements were made with China's Ecosystem Study Commission for International Rivers (ESCIR) to collaborate in a programme of technical exchange on SEA matters and assessment concerning the influence of Lancang-Mekong dams in the lower basin. Through ESCIR, the relevant agencies in Yunnan Province are involved and a mission from MRC to Yunnan was conducted in December 2009 as the first stage in this cooperation with ESCIR. This cooperation includes joint working sessions to ensure mutual understanding of the hydrological, morphological and environmental analysis, exchange visits and ESCIR participation in the key regional workshops the SEA held in 2010.

7. Work on the baseline phase of the SEA was started in December 2009 in parallel with completion of the Scoping Phase. This phase involved gathering information in each country and at regional level on the most important development concerns and analyzing their past trends and current status. The preliminary stages of the baseline assessment were presented in a multi-stakeholder regional workshop in Phnom Penh 27-28 January 2010. The draft baseline report was circulated and posted on the MRCS website at the end of February 2010.

## **II. Progress in the Impact Assessment Phase and the Mitigation Avoidance and Enhancement**

8. In late February 2010, the SEA team began work on the Impact Assessment Phase. This systematically considered the cross-sector development risks and opportunities of developments on the mainstream with reference to the baseline projections of key themes. Scenarios "with and without" various groupings of mainstream developments have been assessed against a projection of the baseline trends. These assessments are coordinated with the BDP scenario analysis work and IWRM strategy development. This phase culminated with a regional workshop held in Vientiane (19-20 May 2010) where findings from the assessment of the impact of the 20 year scenario of the Basin Development Plan for LMB with mainstream hydropower development were presented. In return, important observations and comments from government and other stakeholders were exchanged and captured.

9. The Mitigation Avoidance and Enhancement phase started after the Impact Assessment workshop and culminated with a workshop held in Ho Chi Minh City on 28-29 June 2010. It offered the opportunities to a wide range of stakeholders to address how key uncertainties are dealt with and whether it is possible for the countries of the basin to minimize or offset the potential loss of fisheries and other livelihoods while recognizing the significant financial and other benefits of the hydropower generation. Participants from China's Ecosystem Study Commission for International Rivers (ESCIR) attended both events.

## **III. Visits to Yunnan (China)**

10. During the second quarter, ISH organized two more trips to Yunnan, China. The first one occurred during 26-30 April 2010 in which ISH and the MRC Modelling Team (MT) met with ESCIR modelling experts and exchanged technical information and simulation techniques. Each party recognized that it is very critical to maintain the momentum and strength of this technical cooperation because the needs for additional data are becoming more significant. Both viewed that it is absolutely essential to generate a better understanding related to hydrological changes stirred by hydropower dams' development in both parts of the Mekong Basin. To emphasise this determination ESCIR has delegated two senior engineers to attend the Impact Assessment workshop and Mitigation Avoidance and Enhancement workshop. Thus, while attending the Impact Assessment workshop, the two Chinese Engineers also met the MT to continue their discussion on modelling subjects. They also took a component of the MRC model (IQQM) to further fill in with their own data, run it and then analyse the result with the MRC MT.

11. Following the objective of gathering knowledge related to the Chinese dams a second trip was arranged to enable the visit of Jinghong and Xiaowan dams, during the period from 6 to 9 July 2010. Each member state has sent three senior representatives to join this mission hosted jointly by ESCIR and the Hydro Langcang Company. The visit was fruitful. The participants have seen and learnt the Chinese experience in trying not only to optimize their overall development performance but also their will to advance sustainable forms of hydropower through mitigation measures gradually incorporated into the operation of their dams, one among several measures aimed to reduce the negative impacts to the lower part of the Mekong Basin.

#### **IV. Important On-going Works**

12. The SEA has completed its planned 4 phases. In order to make its findings clear and concise for the readers, in particular the decision makers, a Final Report is now underway. It will summarize the findings of the SEA studies by starting with the rationale and needs of this SEA, then to present the Baseline Scenario up to year 2030 without a dam on the mainstream thus to highlight key issues by theme and country forming a robust foundation to allow the reader to understand the full scale of issues, opportunities and risks related to Mainstream dams. The distribution of costs and benefits will be incorporated to help evaluate the various levels of challenges and trade-offs. Finally, in the conclusion part a series of recommendations will attempt to provide thoughts on how to improve regional policies and procedures including the PNPCA process.

#### **V. Outcomes**

13. The four SEA phases have been completed generally successfully according to the objectives. It was also interesting to see the general acceptance of the SEA approach by all stakeholders, appreciation of the SEA work to date and the openness of MRCS for allowing independent inputs and comments. Consequently, in a full basin wide perspective, the wide range of participants including China representatives, all have been actively involved in the identification of the impacts of proposed mainstream developments, their assessment, the comparison and adoption of feasible options or alternatives. The final report will be issued shortly. This SEA process has positively amplified the cooperative strengths of the riparian states and opened additional thoughts for the elaboration of the PNPCA process. It also provides insight into the application of SEA more generally to other policy and programmatic aspects of water resources development in the Lower Mekong Basin.

# **Navigational Cooperation on the Lancang-Mekong River**

**the 15th Dialogue Meeting**

August 26-27,  
Phnom Penh, Cambodia

- Part One
- Progress of Navigational Cooperation since the 14th Meeting
- Part Two
- Suggestions on future navigational cooperation with MRC

## **Part One Progress of Navigational Cooperation since the 14th Meeting**

- September 9-11, 2009, seminar on inland navigation in the city of Ho Chi Minh.
- Issues related to navigation development on the Mekong River

- MRC invited Chinese experts to join in the relevant work concerning the standardization of cross-river facilities on the Mekong River.

- **The 8th MRC Navigation Advisory Body (NAB) Meeting on August 9, 2010 in Bangkok, Thailand**
- **Chinese delegation was invited to attend the meeting as an observer.**

- **China's intention to participate in the preparation of the guidelines on planning, design, construction and operation of ship locks**
- **Achieving the consistence of standardization of navigation channel on the Lancang-Mekong River**
- **Ensuring the smooth and safe navigation**

## **Part Two Suggestions on future navigational cooperation with MRC**

- The 9th Meeting of Joint Committee on Coordination of Commercial navigation on the Lancang-Mekong River (JCCCN) among China, Lao PDR, Myanmar and Thailand noted the information presented by the representative of MRC on possible areas of cooperation between JCCCN and MRC.

- From the perspective of navigational development, such as the uniformity of the standards of navigation aids and ship locks, we have the same purpose as MRC.
- Therefore, we hope to:
- Participate in MRC's preparation of setting the standards for river-crossing facilities
- Participate in MRC's projects related to navigation development

- Further cooperation and more exchanges on navigation technology in a view to promoting and expediting regional cooperation in developing navigation.

Thank you!

## **NOTE FOR INFORMATION**

### **NAVIGATION PROGRAMME**

#### **I. Progress since the Fourteenth Dialogue Meeting**

1. MRCS, the Government of Belgium, the Viet Nam Inland Waterway Administration and PIANC organized a regional seminar on Inland Waterway Transport in Ho Chi Minh on 10-11 September 2009 in which navigation specialists from China and Myanmar also attended.

2. Prior to the seminar, a separate meeting was held between the NAP team and representatives of China to define the cooperation activities for Lancang-Mekong navigation development. At the meeting, the NAP team informed China of its plan to carry out a second phase study to formulate a Guideline on Planning, Design, Construction and Operation of Navigation Ship Locks in relation to development of the proposed hydropower projects on the Lower Mekong mainstream.

3. The NAP team proposed to jointly conduct the above mentioned Study (Phase 2), it was proposed that cooperation can be done either by (i) Chinese experts participating in the study team or (ii) MRCS study team could consult and seek input from Chinese experts.

4. MRCS is looking forward to the confirmation from China on the above mentioned proposal.

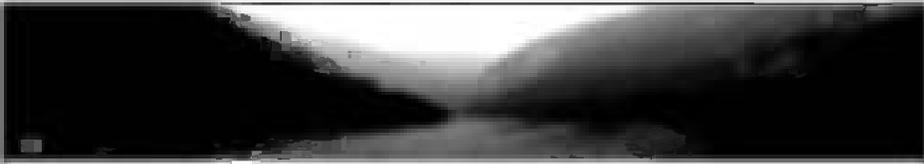
5. The cooperation between the MRCS and the Joint Committee on Coordination of Commercial Navigation (JCCCN) has recently increased. MRC NAP representatives have twice been invited to attend the JCCCN meetings in the past as observers. In addition, JCCCN representatives of China and Myanmar will be attending the upcoming 8<sup>th</sup> Navigation Advisory Body (NAB) Meeting on 9 August 2010.

6. The opportunity of observing each other's meetings is very useful and beneficial for strengthening cooperation between MRC and the dialogue partners. This kind of practice is also important in terms of knowledge sharing as well as updating each side on the latest navigation development on the Lancang-Mekong River.

#### **II. Planned Activities**

7. NAP will continue to follow up on the proposed cooperation outlined above.

8. Subject to the approval by the Navigation Advisory Body, NAP may organize a regional workshop on the development of a professional short course training syllabus for the Inland Waterway Transport College of the MRC member countries in October or November 2010. Navigation specialists from P.R. China and Myanmar would be invited to participate in that workshop.



**Flood Forecasting System  
A Decision Support System for Flood  
Management in Changjiang**

**Yan Huang**

Bureau of Hydrology  
Changjiang Water Resources Commission

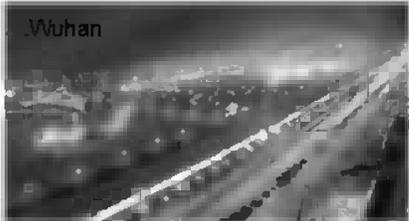
27 Aug 2010, Phnom Penh



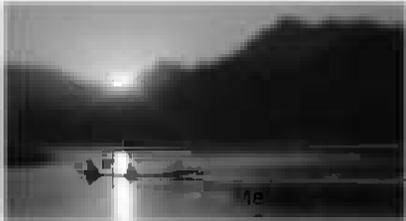
CWRC

Training Course on FFS, 2011

- **Topic:** Flood Forecasting Technology
- **Time & Period:** ~2weeks in 2011
- **Location:** CWRC, Wuhan, China
- **Organiser:** Ministry of Water Resources, China
- **Participants:** from Mekong basin



Wuhan



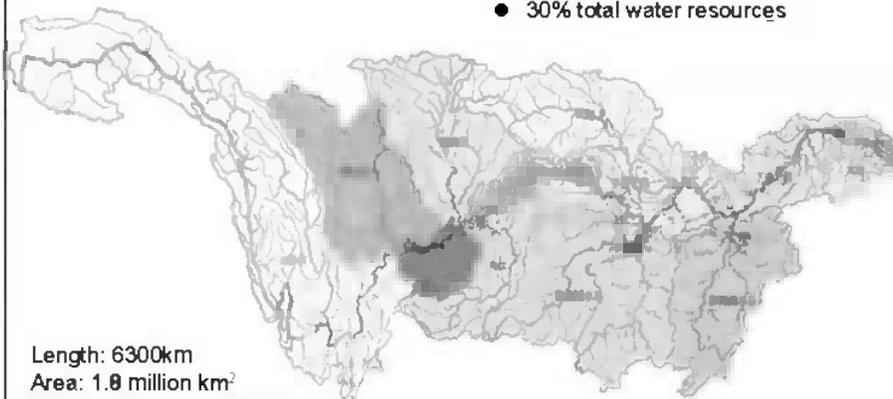
18

Training course 2011

- Background information
- Decision Support System for Flood Management
- Flood Management Practices in 2010
- Some Remarks
- Training Course in 2011 on FFS

**The river of life**

- 20% China
- 30% Chinese population
- 30% total water resources



Length: 6300km  
Area: 1.8 million km<sup>2</sup>  
9 Major tributaries (50,000km<sup>2</sup>)  
Annual rainfall 1086mm, annual runoff 996 billion m<sup>3</sup>

[Background Info](#)

$Q_{\text{wuhan}} = 71100 \text{ m}^3/\text{s} - 1998$ ;  $Q_{\text{TRG}} = 70000 \text{ m}^3/\text{s} - 20 \text{ July } 2010$



- The largest detention basin is Jingjiang river reach
- The flood inlet gates to this basin is ~ 1 km in length
- Discharge capacity of 7,700 m<sup>3</sup>/sec;
- Area of 920 km<sup>2</sup>;
- home for 520,000 people (in 1954 when the detention basin was used the population was 100,000)



Background Info



- Return way for floods 2900km<sup>2</sup> (=~13 billion m<sup>3</sup> storage)



Jinjiang dike



Repaired Ghibi dike

[Background Info](#)



Dikes - Wuhan river bank in 1998



Dikes - Wuhan river bank in 2010

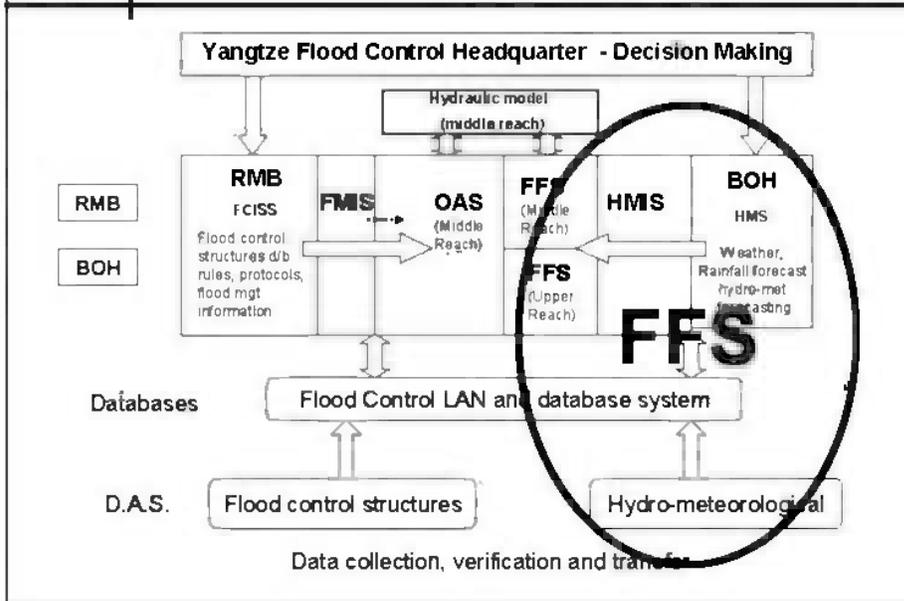
[Background Info](#)

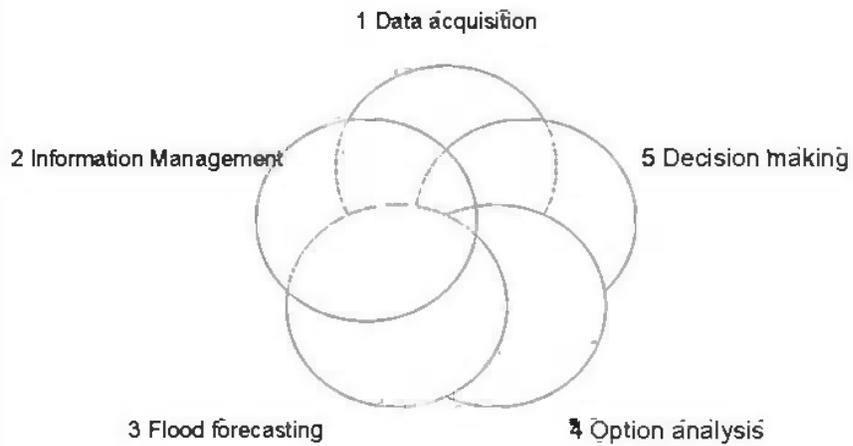


**Three Gorges Reservoir**

- For flood control, power and navigation
- Storage capacity 39.3 billion m<sup>3</sup> (22.15 billion m<sup>3</sup> for flood control)
- Generation capacity 18,200MW
- 185 m crest elevation; 2,39.5 m long
- Normal Pool Level 175m

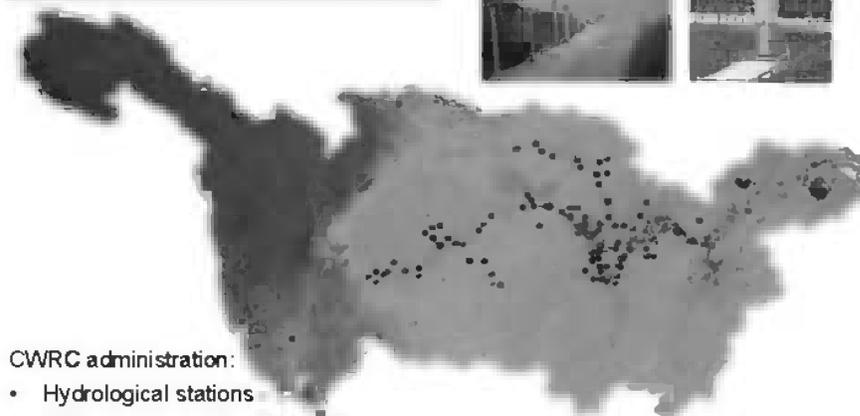
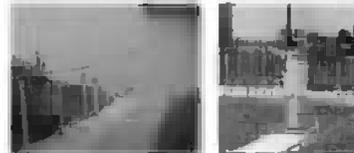
Background Info





DSS

Hydrological Gauging Site Network

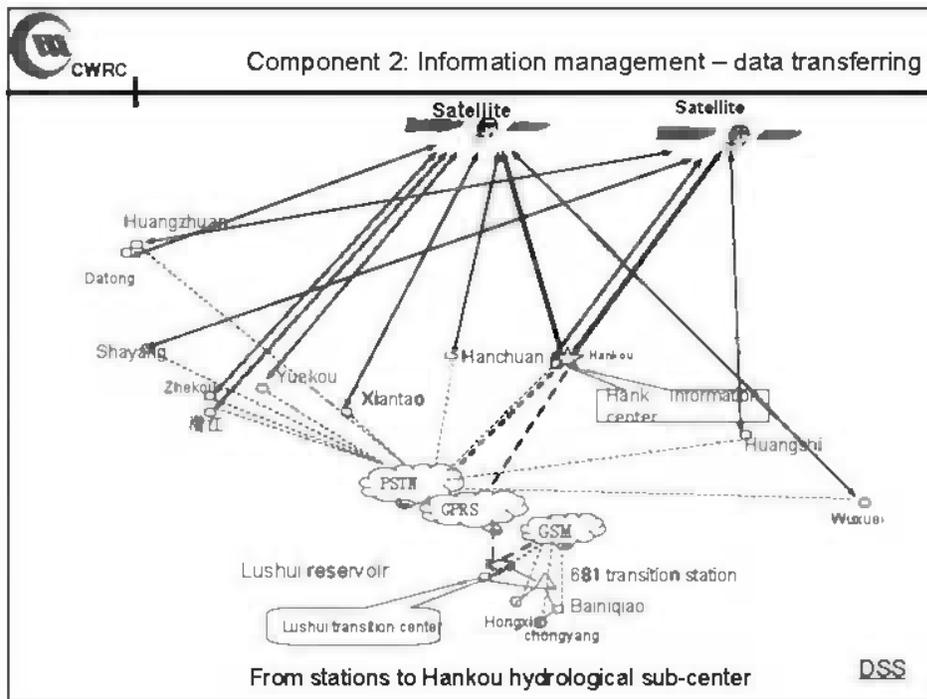
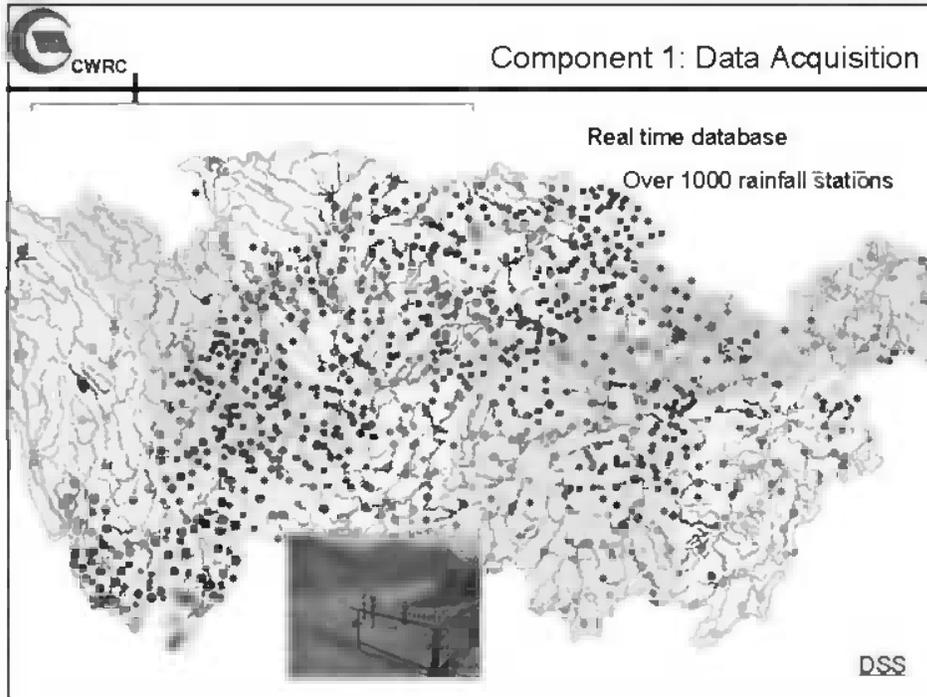


CWRC administration:

- Hydrological stations
- Water level gauging site - 233
- Rain gauge - 24

Automatic monitoring stations 118

DSS

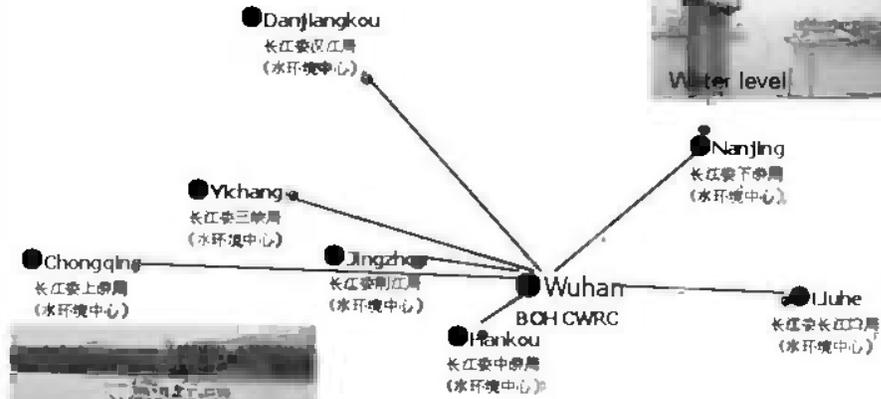




Component 2: Information management – data transferring

From sub-centers to BOH the Information Center in Wuhan

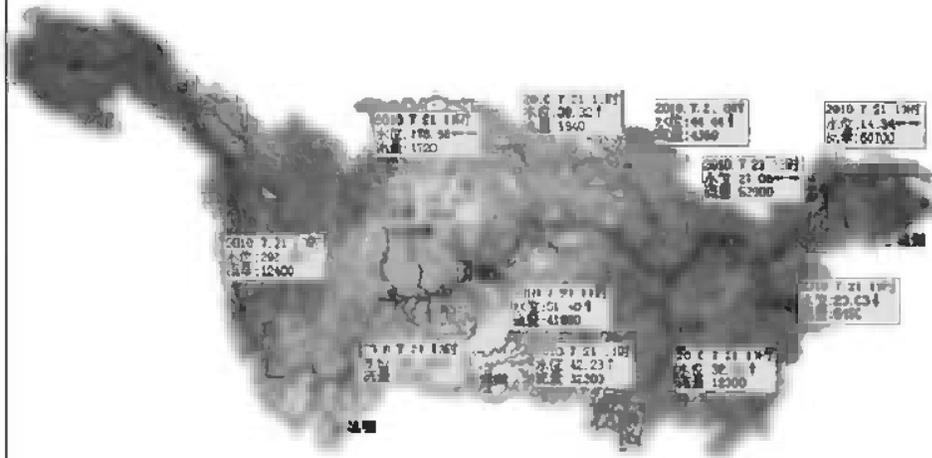
BOH Headquarter



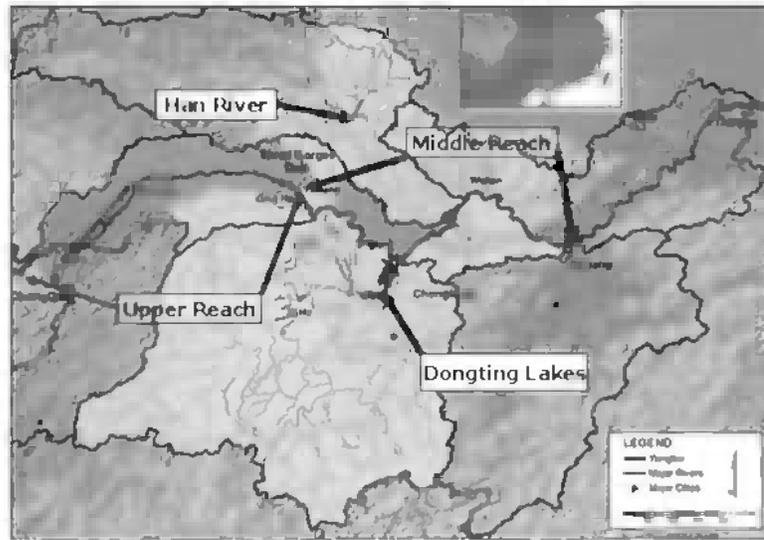
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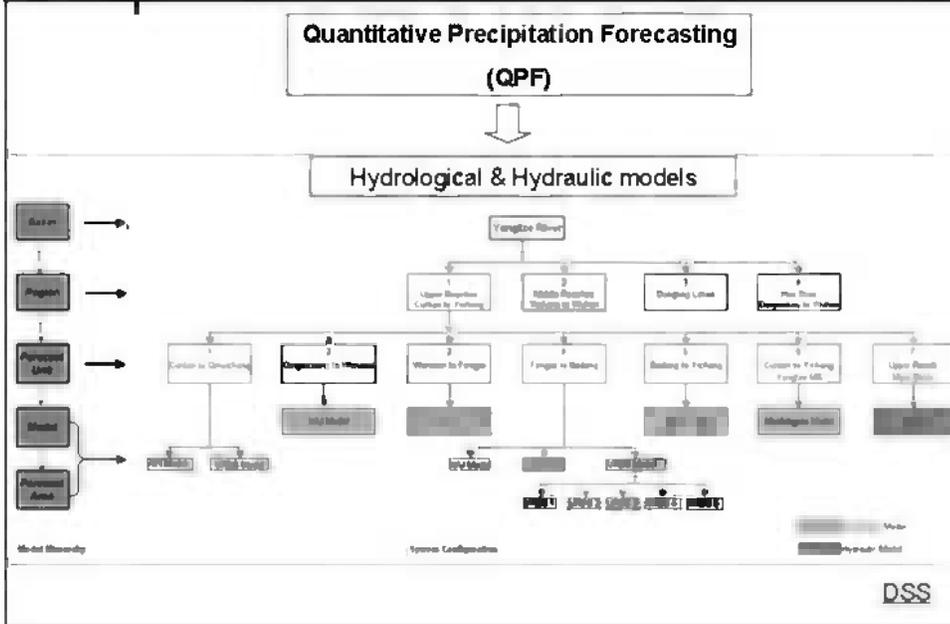
Component 2: Information management – publishing (website)



DSS



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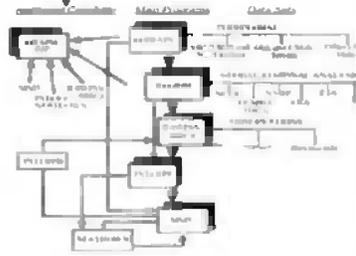


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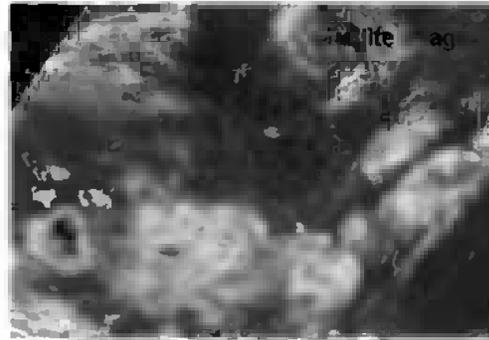


### Component 3: FFS - Meteorological Forecasting (QPF)

- Based on national meteorological center products using 9210 project MICAPS system (v2.0)
- Satellite-based multiple channel + special telecommunication path
- FY-2C satellite image receiving and processing system (3D)
- Individual radar information processors
- Real time integrated meteorological information system (B/S mode)
- MM5 quantification precipitation forecasting (QPF) system -

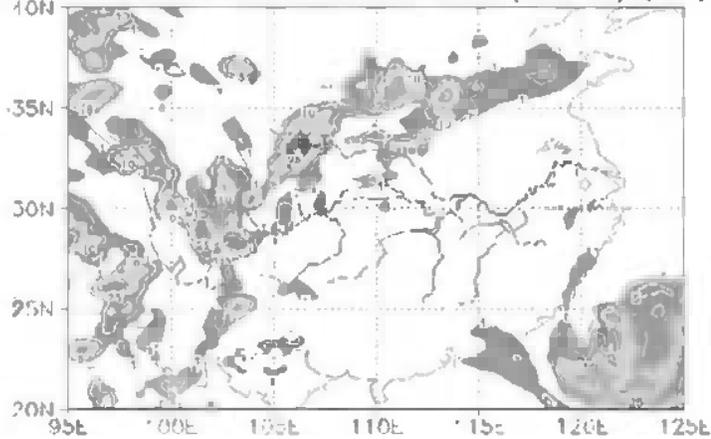


Meteorological Model MM5



### Component 3: FFS - MM5 QPF Results

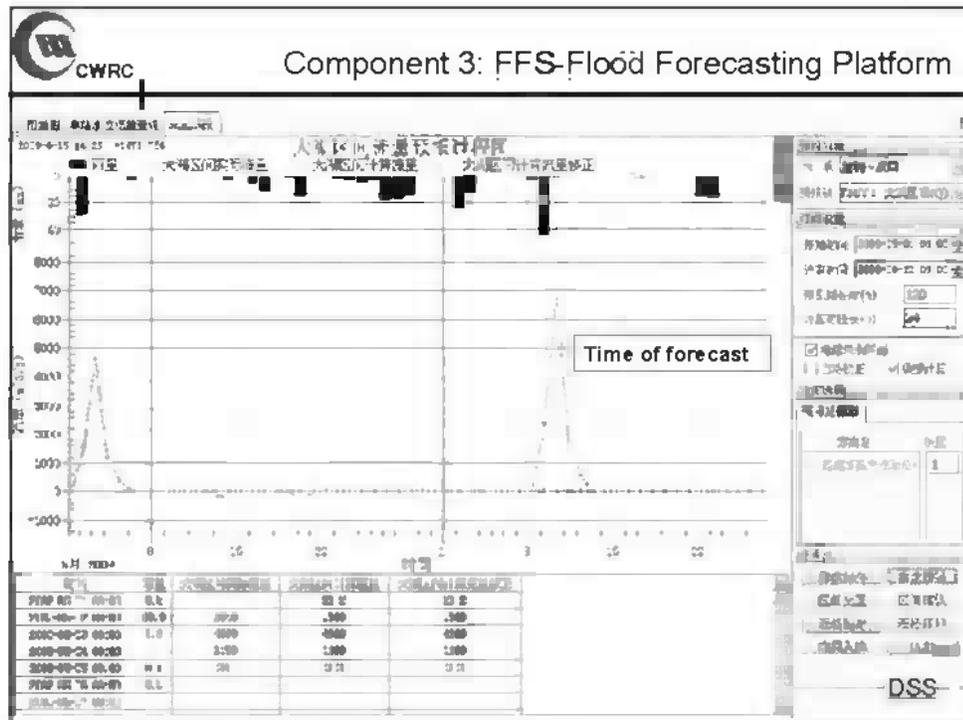
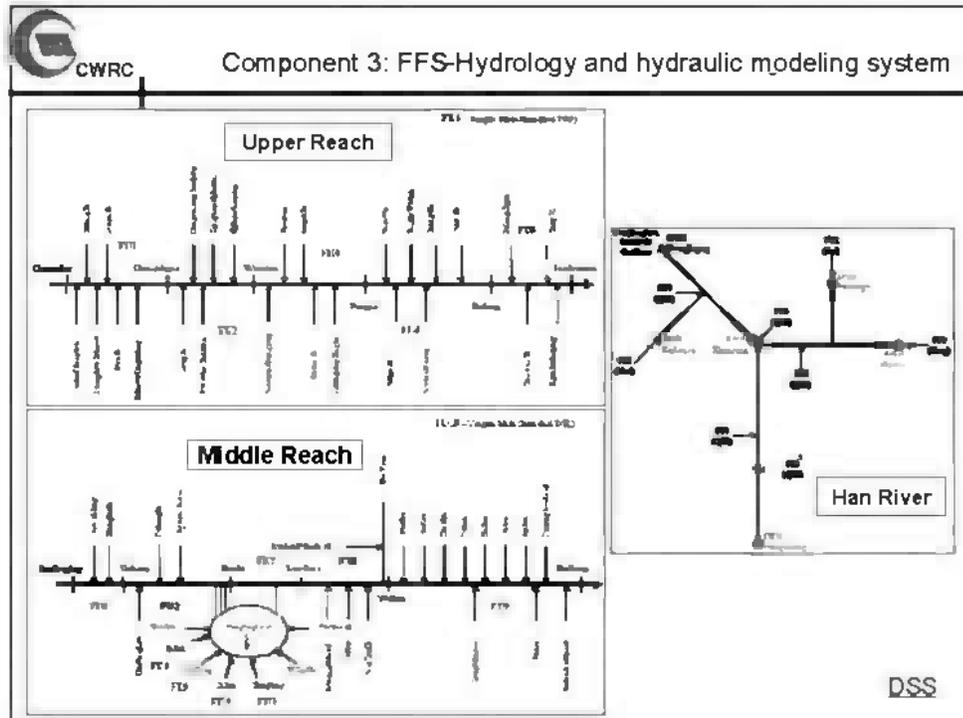
CWRC: Accum Rain INI: 2005071712 (06-12h) (mm)



06:06:00/06:06:00

Basin 6h accumulative rainfall forecast

DSS

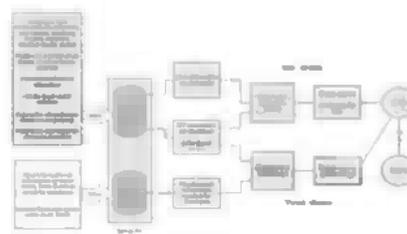


Year	Station	Average Absolute Error (m)				
		1-day	2-day	3-day	4-day	5-day
2010 (June-Aug)	Hankou	0.04	0.09	0.10	0.12	0.19
	Datong	0.06	0.06	0.07	0.09	0.09
1998	Hankou	0.05	0.13	0.21	0.30	0.38
	Datong	0.04	0.09	0.15	0.21	0.26

DSS

Changjiang Flood Control Headquarters needs to know:

- Nature of existing flood threats
- Reservoirs: impacts of regulating outflows to the middle reach
- Detention basins: to divert flood water from the main channel
  - to which basins.
  - in what sequence
  - timing of breaches and gate use
  - the costs & benefits (socio-economic impacts & reduced water levels).



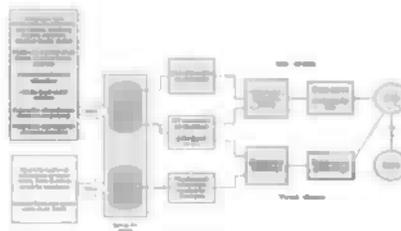
DSS

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DSS

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DSS



Decision making meeting 29 June 2010

- Real time information
- Historical information
- Hydraulic structure operation
- Retention basin and gate
- Meteorological scenarios
- Decision making

DSS

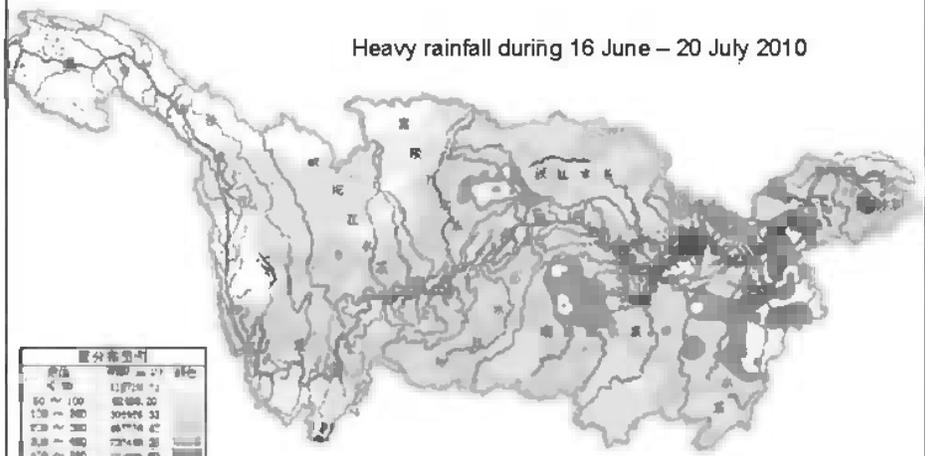
**DSS Workshop****Speak the same language**

DSS



# Flood 2010 – heavy rain in mid-downstream

Heavy rainfall during 16 June – 20 July 2010

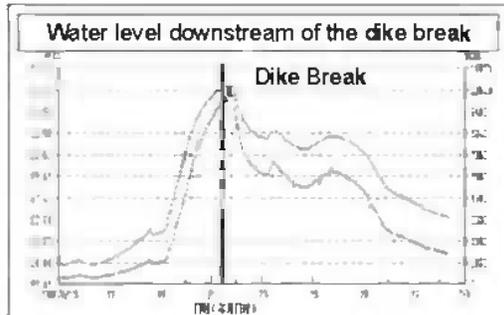


雨量	站数	占站数%	占雨量%
4.99	11774	71	1.0
50 ~ 100	6666	41	20
150 ~ 300	3049	19	31
350 ~ 500	677	4	42
550 ~ 800	274	2	25
850 ~ 1000	149	1	15
1050 ~ 1500	57	0	6
1550 ~ 2000	24	0	3
2050 ~ 3000	10	0	1
3050 ~ 4000	5	0	0

Flood Management 2010



# June 2010 - big flood at tributary of downstream



Dike break at 18:30, 21 June 2010  
Fuhe – tributary



Flood Management 2010

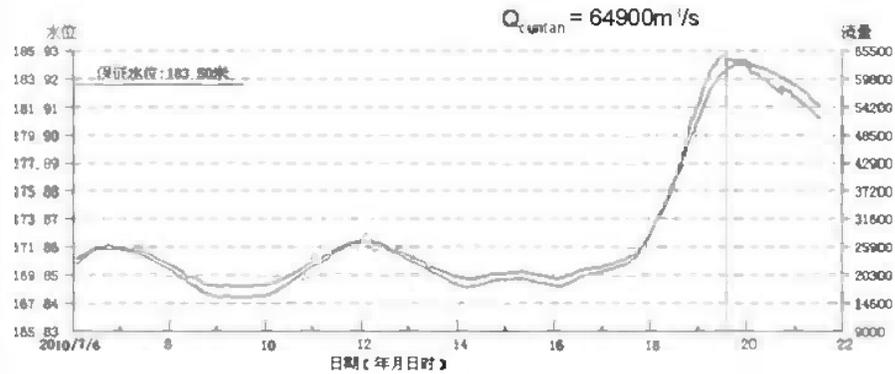


Qu river at Upper Changjiang river



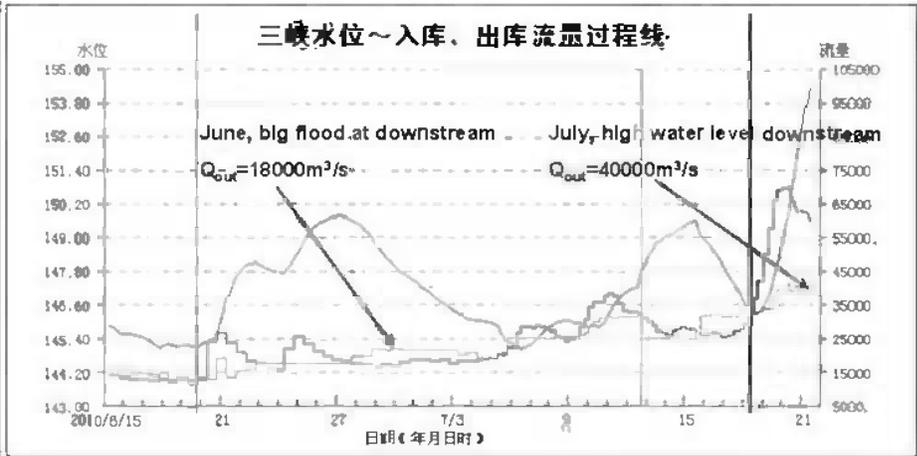
Flooding at Ciqikou

Flood Management 2010



Cuntan – gauge upper of the reservoir

Flood Management 2010



Flood Management 2010

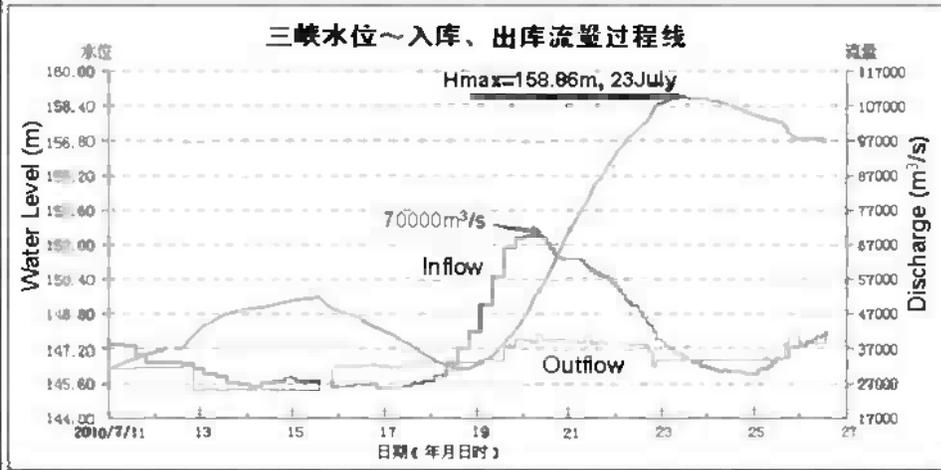


Limit the discharge from three gorges reservoir to 40,000m³/s (<inflow)





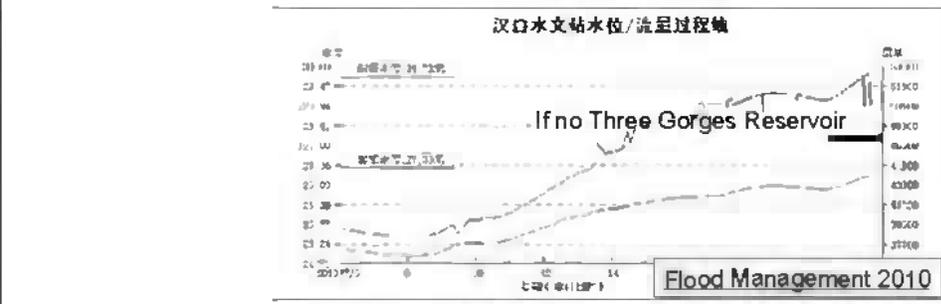
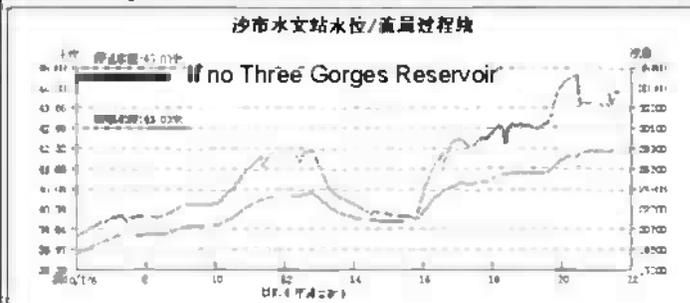
Flood 2010 - to reduce flood risk at downstream areas



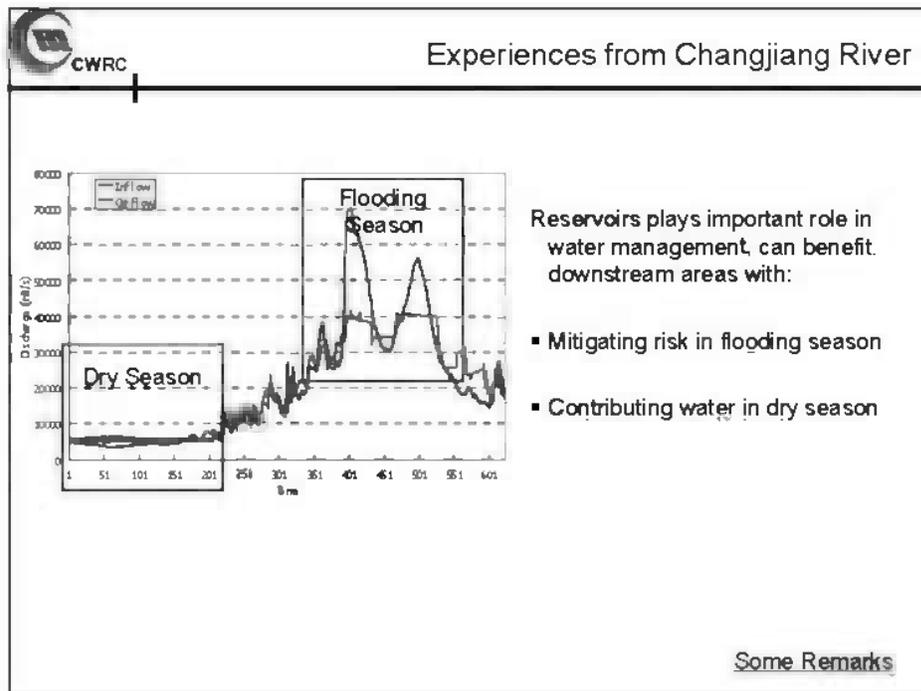
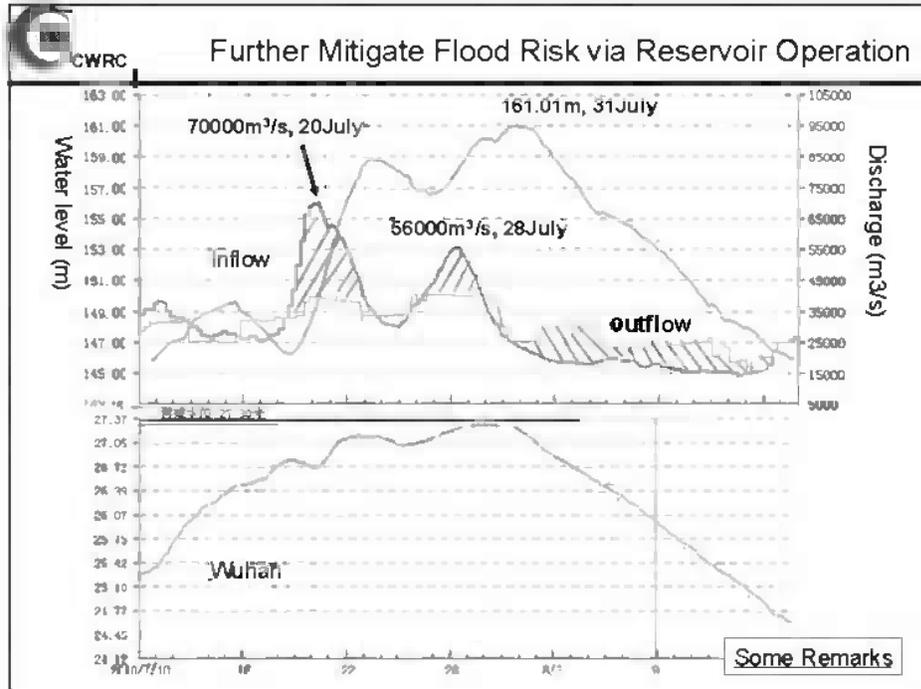
Flood Management 2010



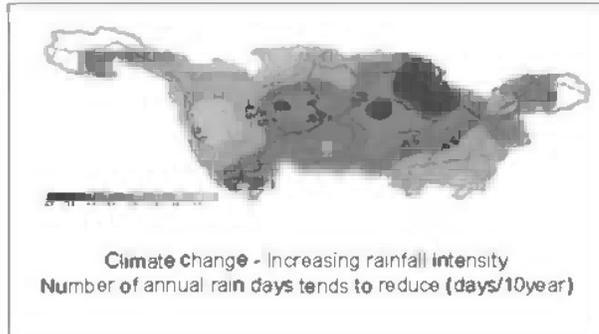
Significantly mitigated flood risk at downstream areas



Flood Management 2010



- Basics: data measurement, QPF, models
- Climate change, e.g. increasing occurrence of extreme events
- Change of river morphology at downstream of the reservoir
- Others...



Some Remarks

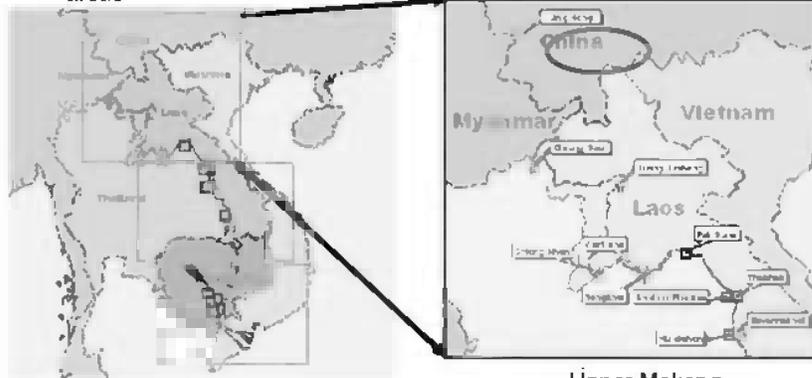
- Development of flood forecasting technology is an never-ending process
  - Combination of QPF and hydrological/hydraulic modelling is a necessary
  - Needs for long-term prediction is increasing
- Flood management is more than technology
  - Dealing with complexity and uncertainty
  - Trade-off between conflicting players, regions, interests
- Increasing public participation

~~.....We are willing to share our experiences of technology knowledge.....~~



Some Remarks

- Mekong River – a Trans-boundary River, 4880km long, basin area 0.812 million km<sup>2</sup> (20.2% in China)
- It is our responsibility to facilitate water/flood management at downstream areas



Mekong River Basin

Upper Mekong

Training course 2011

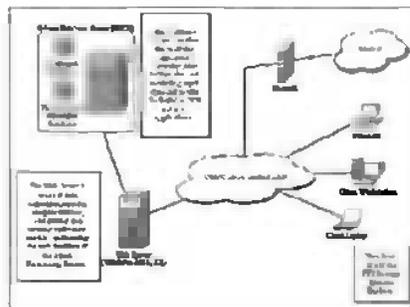
- **Topic:** Flood Forecasting Technology
- **Time & Period:** ~2weeks in 2011
- **Location:** CWRC, Wuhan, China
- **Organiser:** Ministry of Water Resources, China
- **Participants:** from Mekong basin



Wuhan



Training course 2011

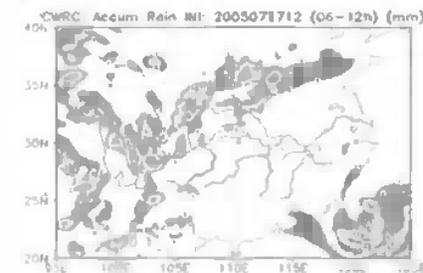


**Course topics:**

- Information management, database
- Hydrological and hydraulic modelling
- Quantitative precipitation prediction
- Practise real time flood forecasting
- Field trip

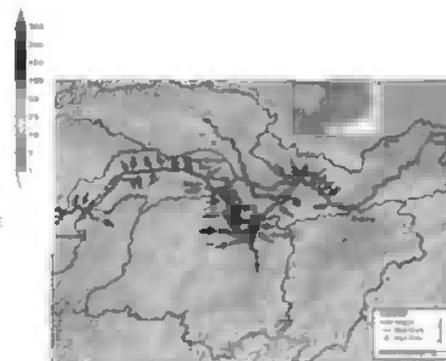
Changjiang Flood Forecasting Architecture

Training course 2011



Quantitative Precipitation Forecasting

**Key elements: QPF & Modeling**



Application of Hydrology & hydraulic models

Training course 2011

Thanks for your attention!

&

Welcome to Wuhan!



## **NOTE FOR INFORMATION**

### **UPDATE ON RIVER FLOOD FORECASTING AND FLASH FLOOD GUIDANCE ACTIVITIES**

1. The development of a new Mekong River Flood Forecasting System (FFS) was completed prior to the 2009 flood season and it was put into operational test over the year's flood season. The new Mekong FFS consists of different models: Unified Basin Run-off Simulation (UBRS), ISIS, and Regression, and they are all linked to a forecasting platform called Flood Early Warning System (FEWS), which is operated through a client-server based system. HydMet has been used for data collection through a Short Message Service (SMS) and transfer tool for all national line agencies and the Regional Flood Management and Mitigation Centre (RFMMC).
2. The system performance evaluation report of the new Mekong FFS was developed and reviewed by the Technical Task Group (TTG), which was formed by the MRC member countries in order to verify the performance of the new Mekong FFS by working closely with the flood forecasting team of the RFMMC with the aim of ensuring proper switchover from the old flood forecasting system (SSARR and Regression) to the newly developed system (FEWS-URBS, ISIS, and improved Regression). A regional consultation meeting was held and, through the meeting, the RFMMC obtained official acceptance from the MRC member countries to allow the RFMMC to operationalise the new Mekong FFS in this 2010 flood season and onwards as the system is robust, user-friendly, more reliable, and it can offer an increased ability to provide satisfactory and more accurate forecasts at more locations as well as the possibility for longer lead-times and more runs.
3. Further progress has been made in the cooperation through the implementation of dedicated contracts between the RFMMC and the national agencies responsible for flood forecasting in the field of data collection and transfer for the new Mekong FFS. Most of the actual improvement of the network has been implemented and as a result of this water level and rainfall stations have been upgraded and established with improved communication by using SMS. The main issue still to be addressed is how to improve the quality of data collection and transfer. In addition the RFMMC has also developed a bias correction tool for NOAA's Satellite Rainfall Estimate (SRE) which is the main data input for the new Mekong FFS. It is expected that after fine-tuning the tool would help improving the accuracy and quality of the SRE input, which ultimately will lead to better forecast accuracy.
4. The implementation of website improvement has been on-going. Given the member states, public and especially media attention on low flow conditions the RFMMC had daily updated the river monitoring webpage during weekdays in the last dry season. It would not have been possible without daily provision of data from responsible national line agency of each member country as they normally provide data only once a week. In addition with weekly data (*water level, rainfall, and discharge*) provision from China of its two stations (*Jing Hong and Man 'An*), the RFMMC had also updated and shared the received data in tabular and graphic forms weekly (see also Agenda item G1.1). For this 2010 flood season, daily river flood bulletins generated from the new Mekong FFS, daily weather notice and weekly flood situation reports are being produced and made available on the MRC's main page and flood page. The flood forecasting team of the RFMMC has also been prepared for engaging in the second run of daily flood forecasts during critical periods (subject to telemetry data availability) and medium-term forecasts (6-10 days).
5. Having clear benchmarks established would help very much in determining what the stakeholders: the MRC member countries and the RFMMC itself should expect from the new

Mekong FFS and how the present prototype system measures up to this. To address this need and requirements a report was produced by a renowned expert on flood forecasting to come up with (1) Performance Indicators (minimum values or benchmarks for flood forecasting accuracy) suitable for the Mekong Basin, considering its unique properties; and (2) Comparison with other large river basins worldwide and discussion of the differences, focusing on flood forecasting and performance. The report was presented to the MRC member countries during a regional meeting and as a result the MRC member countries took note of the proposed performance indicators and recommended the RFMMC to gradually implement it.

6. A capacity building plan for dedicated staffs of the national centers and line agencies have been developed and implemented. It is the first step of capacity building on the development and operations of the new Mekong FFS of the RFMMC, and intimately connected to the MRC's Integrated Capacity Building Programme (ICBP). A three-day national training course on forecast modeling and piloting of the new Mekong FFS in each MRC member country has been conducted as planned in the capacity building plan (Cambodia , 2-4 June 2010, Lao PDR, 8-10 June 2010, Thailand, 29 June-1 July 2010, and Viet Nam, 22-24 June 2010). The issue of having a national pilot project for the application of the new Mekong FFS in a particular river basin was discussed as a number of follow-up actions were identified towards the establishment of a national pilot system in each MRC member country.

7. The Mekong River Commission (MRC) and the Office of US Foreign Disaster Assistance (OFDA) have been implementing the Asia Flood Network Program (AFN) for the Lower Mekong River Basin. The core activity is to apply the Regional Flash-Flood Guidance System (RFFGS) in the MRC member countries. In October 2009 the MRCFFG System was established through the installation of computational and dissemination servers at the RFMMC, which allowed the line agencies of the MRC member countries and the RFMMC to get access to the FFG products for training as well as for practicing. The guidance and threat information is to be provided to the Secretariats of the National Mekong Committees (NMC) and responsible National Line Agencies (NLA) in each country so as to provide them with yet another tool to use in preparation and dissemination of flash-flood warnings to communities at risk. This tool, and the capacity of the MRC-RFMMC and NLAs of the member countries to use it, will provide important lessons learned towards the global system envisioned by the WMO and member countries.

8. A five-day MRCFFG System in-depth regional training course and hands-on operation and a three-day national training course were organised in each member country to provide an opportunity to a wider specialised staff of flood forecasting and warning agencies and disaster management agencies of the MRC member countries to have better understanding and hands-on operations with the MRCFFGS. This will enable them to confidently evaluate the system as well as to effectively utilise the FFGS products for their own countries, leading to the operational testing of the MRCFFGS in the 2010 flood season, which will ultimately contribute to better preparedness and reduction of lives lost and damages due to flash floods for flash flood vulnerable communities in the LMB in the future.

9. A number of activities have been carried out in order to enhance the operations capacity of regional national operators and the performance of the MRCFFGS such as building-up confidence through constant practices and operations of the MRCFFGS, improvement of accuracy of Hydro-Estimator, MRCFFGS operational fine-tuning and detailing the Concept of Operations (ConOps) and National Operating Procedure (NOP), developing a GIS related tool for enhancing the application and use of the MRCFFGS, formulation of a proposal for second phase of the MRCFFG System implementation with a focus on technical support, re-fresh training, national outreach, on-line training materials, system maintenance and back-up. The MRCFFGS has been put into operational testing during this 2010 flood season.

10. The cooperation between MRCS and China has far reaching benefits in terms of regional cooperation and a growing understanding of the importance of engagement between all riparian countries. The International Training Program on Management of Flood

Control and Disaster Mitigation held for 2 weeks in China, starting from 18 to 30 June 2010, sponsored by Ministry of Water Resources of China and also MRC/FMMP+IKMP were supported international travel expenses. A total of 16 participants attended the course. This included 1 participant from Myanmar, 5 from Lao PDR, 3 from Cambodia, 3 from Thailand, 2 from Vietnam, and 2 MRCS staffs from IKMP and FMMP. This training gave the opportunity for all trainees in deepen understanding of flood and drought hazards, and learn useful knowledge on flood control and disaster relief for their own countries. Furthermore, this training course is a willingness of broader cooperation not only at the present but also in the future between MRC, member countries of the Mekong watershed and its Chinese counterpart.

## **OTHER AREAS OF POTENTIAL COOPERATION**

1. In general, cooperation and coordination between the MRC and the Dialogue Partners through the MRC programmes are increasing. The modalities for enhancing this cooperation should build on concrete technical cooperation, also using expertise available in China and Myanmar. Recognizing the importance of the sustained cooperation and communication between the upper and lower riparian countries, the MRC is regularly distributing to Dialogue Partners the MRC Work Programme and Annual Report documentation as well as technical series publications.

2. Further areas of potential cooperation are set out below:

- **Staff Exchange**

3. To enhance expert exchanges and knowledge sharing in terms of flood forecasting, hydrodynamic, and other areas, reciprocal visits in relevant areas of interests could be developed in the near future. One knowledge sharing activity was a recent visit of the MRC to the Jinghong and Xiaowan Hydropower Projects in China on 6-9 June 2010.

4. Other exchange visits to consider in the future could also include climate change modeling and adaptation, sediment monitoring and management, and water quality monitoring.

5. In addition, the MRC Integrated Capacity Building Programme (ICBP) through the Junior Riparian Professional Project is seeking to build up a regional network of Water Resources Training Institutes. In 2011, ICBP also plans to have a Junior Riparian Professional from both China and Myanmar.

6. The secondment of Chinese staff to the MRC Secretariat and reciprocal visits of experts could also be an opportunity to enhance increase expert exchanges and enhance knowledge sharing in some areas such as flood forecasting, hydrodynamic, and other areas. Other exchange visits to consider in the future could also include climate change modeling and adaptation, sediment monitoring and management, and water quality monitoring.

- **Climate Change**

7. The Climate Change and Adaptation Initiative (CCAI) concept and framework was endorsed at the Twenty-ninth Meeting of the Joint Committee in March 2009. The overall scope of the CCAI is climate change impact assessment and adaptation planning and implementation within the Mekong River Basin. This initiative will provide direct benefits to the people and local communities that rely on the water and related resources of the basin for their livelihoods and also increase capacity of the people of the LMB to adapt their livelihoods. The cooperation with China and Myanmar under CCAI would aim at improving the forecasting of climate change impacts and hydrological modeling in the LMB. Involvement of China and Myanmar in the Mekong Panel on Climate Change would also significantly strengthen its role in the region and be of mutual benefit to all parties.

- **Watershed Management**

8. MRC's Watershed Management project plans to organize an international conference on "Integrated Watershed Management for better National and Transboundary River Basin Management: Lessons learned and Challenges for the Mekong Basin"

9. The three-day international conference aims at creating an international platform to foster joint learning and sharing of experiences and knowledge on Integrated Watershed Management (IWM); examining the opportunities for up-scaling of IWM in the Mekong Region; raising awareness on the importance of watershed management on the overall health of the Mekong River Basin in its changing environment; exploring financing mechanisms (e.g. benefit sharing and payment for watershed services); and convincing medium and high level government officials from the riparian countries (including China and Myanmar) as well as MRC to realize the importance of watershed issues at local level, and their potential influences or impacts at the national and transboundary river basin scales. This conference is planned for February or March 2011, just one month before the MRC-GTZ WSMP ends.

10. A more detailed concept, programme and sessions will be further developed together by a Conference Committee and with trusted co-convenors.

11. The results/findings/recommendation from the conference will be used to guide and develop MRC's future programming and engagement on integrated watershed management for better national and transboundary river basin management.

- **Fisheries**

12. MRC Fisheries Programme (FP) has been actively promoting fisheries research and development in the Mekong region for many years. It was aware of the extensive research by scientists in China on fish passage and aquaculture and their role in mitigating or compensating for the effects of dam construction. Recently, FP expressed its interest in extending the opportunities for cooperation and information sharing with Chinese fisheries scientists. The primary focus of interest is the Mekong River system, but the results of research at other locations such as Chiang Jiang River would also be very useful and informative. The sites of particular interests are fish passage facilities (e.g. fish ladders) and fish breeding and rearing stations. An official letter (OSV 0656) was sent to MRC's China focal point in Bangkok on 10 August 2010 to explore the possibility of strengthening cooperation between MRC and China on the issue of fisheries.

## **NOTE FOR INFORMATION**

### **DISCUSSION ON STRENGTHENING COOPERATION AS A FOLLOW UP TO THE FIRST MRC SUMMIT AND THE MRC HUA HIN DECLARATION**

1. Further to guidance given by the Heads of Government of MRC Countries through the Hua Hin Declaration and Statements made by each leader as well as Dialogue Partners at the First MRC Summit on 5 April 2010 on strengthening the cooperation between the MRC and its Dialogue Partners, there has been significant progress on increasing cooperation with both countries.
2. An MRC Delegation comprising of three delegates from each Member Country and four MRC Secretariat staff were invited to visit the Jinghong and Xiaowan Hydropower Projects in China on 6-9 June 2010<sup>1</sup>. This was the first MRC visit to dams on the Lancang River and also the first visit by any international group to Xiaowan which is nearing completion. The delegates were very well received and the Mission resulted in both a better understanding of the operation of the upstream dams in China and improved relationships between Chinese officials and MRC delegates.
3. The MRC shared a discussion paper on further cooperation with China following the First MRC Summit before the MRC mission to China. Meetings between the MRC Secretariat and relevant agencies in China, National Energy Administration, Ministry of Foreign Affairs, Ministry of Water Resources and the Ecology System Commission for International Rivers (ESCIR), were held on 10 June 2010 in Beijing to discuss future cooperation and some of the ideas included in the discussion paper. On technical issues, China acknowledged receipt of the report of experiences with data sharing in the flood season since 2002 and indicated its concurrence with the report. Upon the request from the MRC Secretariat on the year-round hydro-meteorological data from the Jinghong and Man 'An stations, China indicated that there were still some internal constraints that would need to be considered and until further notice suggested keeping the current practice of providing only flood season data with additional data being provided on an emergency basis such as during the extreme dry season this year.
4. China suggested that it would like to maintain and increase cooperation under the current framework as MRC's Dialogue Partner at thematic and sector levels. It indicated that a number of new initiatives could be discussed at the Fifteenth Dialogue Meeting on 27 August 2010. China also welcomed MRC's invitations extended to Chinese experts to participate in MRC conferences and meetings and also the inclusion of Chinese nationals to the Junior Riparian Programme. China also indicated that it was still favourably considering the possibility of seconding a staff member to MRCS.
5. A discussion paper on the possible accession to MRC by Myanmar was prepared in response to positive indications raised during bilateral discussions on the subject between Myanmar and Viet Nam and in response to a briefing provided to the Secretariat by Viet Nam. During the bilateral talks between the Ministers of Viet Nam and Myanmar, Myanmar indicated their willingness to initiate discussions on possible membership of MRC. A draft paper dated 10 August 2010 was shared with Myanmar before a visit by MRC on 16-18 August 2010. The outcome of the Mission will be briefed at the Fifteenth Dialogue Meeting.

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<sup>1</sup> A separate Technical Visit Report will be prepared by ISH to focus on the technical aspects of the Jinghong and Xiaowan Hydropower Projects.

## **MATTERS FOR INFORMATION**

### **DATE AND VENUE OF THE SIXTEENTH DIALOGUE MEETING**

1. Following MRC practice, the annual Dialogue Meeting is held back-to-back with the Working Session of the MRC Joint Committee which takes place at the Headquarters of the Mekong River Commission.
2. With regard to rule 6 of the Rules of Procedures of the MRC Joint Committee, the annual working session of the Joint Committee should normally be held during the month of July.
3. To facilitate the travel plan arrangements of the Delegations from the Dialogue Partners and the Member Countries to attend the Sixteenth Dialogue Meeting and to assist the Secretariat in its preparations, the Secretariat would like to propose for your consideration the Sixteenth Dialogue Meeting be held during the week of 25-29 July 2011 in Vientiane.

**CLOSING REMARKS**

By

**H.E. Mr. Pich Dun**

Secretary General of Cambodian National Mekong Committee  
Acting Member of the MRC Joint Committee for Cambodia

*Excellencies,  
Distinguished Delegates,  
Ladies and Gentlemen,*

We have reached the end of the session for today.

It has been a productive meeting and I would like to thank everyone for contributing to a good discussion.

The spirit of cooperation between the MRC and its Dialogue Partners is one of the strengths of the organization – and I am glad to see that this was evident today.

I look forward to seeing how the steps to increasing this level of cooperation develop. I feel confident that the recommendations and conclusions we have arrived at are the right ones – based on your frank discussion and interaction.

The MRC is an important organization. It is growing in political influence – establishing broader regional linkages – and becoming more integrated with other political organizations, such as the GMS and ASEAN.

The scope for upstream/downstream cooperation is huge – and if done well will have a huge impact on the daily lives of those living in the basin – many of whom face poverty today.

In closing today - I would like to extend a warm thank-you to everyone who attended today. I wish to express my gratitude to all the delegates – including of course our friends from the Myanmar and Chinese government who took the time to participate and present.

I would like to express my appreciation to the staff of the MRC Secretariat in arranging logistical support, preparing the many documents and developing the agenda – as well as supporting this meeting in such a professional fashion.

I hope you have a pleasant stay in Phnom Penh and remind you that you are invited to attend a dinner hosted by the MRC Joint Committee at 1830 this evening. I hope I can see you there and declare this meeting closed.

*-ends-*