

RESULTS OF WORKING GROUP DISCUSSIONS

1. Cambodia Group Discussion

The FMM Strategy, Programme, and other MRC-based agreements provide the framework under Component 1 for data collection and exchange, technical and human capacity development, technology transfer, and other ongoing activities. This Annual Mekong Flood Forum further identifies areas of cooperation needed to advance the theme: “Improving Flood Forecasting and Warning Systems for Flood Management and Mitigation in the Lower Mekong Basin” and the “Roadmap.”

C. What are your comments / suggestions to the RFMMC’s “Roadmap for the development of Flood Forecasting System”?

| Activities | Comments / suggestions |
|--|--|
| <p>Short term forecast (1-5 days)</p> <ul style="list-style-type: none"> • Present system? • Use by national Centers? • Use by others? • Areas of Improvements? | <p>- Need further improvement, especially between Pakse and Stung Treng as first priority.</p> <p>-Yes</p> <p>-Yes</p> |
| <p>Medium term forecast (6-15 days)</p> <ul style="list-style-type: none"> • Uses? • Data requirements? • Rainfall data | <p>Very useful for agricultural activities planning including preparedness in extreme conditions</p> |

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| <ul style="list-style-type: none"> • Water level and flow data • Tributary forecasts • Modelling requirements? • Technical and human capacity? • Data exchange? • National commitments? • Time frame (operational by 2009)? | |
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D. What are the lessons learned from the recent floods?

| Category | Activities | Lessons learned |
|---------------------------|--|--|
| Data | <ul style="list-style-type: none"> • Data from within the country • Data from / to MRC | |
| Forecast | <ul style="list-style-type: none"> • Tools • Products | |
| Warning and Dissemination | <ul style="list-style-type: none"> • Timeliness? • Warning message understood by | RFFC provides 5 days forecast DHRW use the RFFC forecast to forecast 3 days. |

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| | <p>Communities</p> <ul style="list-style-type: none"> • Warning disseminated to affected communities? • Community Involvement? • Feedback? • Integration with flood preparedness activities? • Others? | <p>Warning stage on the Mekong Mainstream (5 days forecast) needs more elaborated warning and flooding stages according to users (e.g. warning stage at PNH is 10.50m, but flooding starts at 8.0m in the flood plain at the other side of the Mekong and).</p> <p>END USER</p> <p>-Currently forecast dissemination is still limited to the community level (1st 2nd day lead time) and also limited to the 40 villages (CRC+ACF Projects) ; forecast station at the village (IN THE FLOOD PLAIN)</p> <p>- Communities build their own flood markers (link to the village reference).</p> <p>- Communities wish to receive information from the forecasted station on the mainstream (they need more lead time)</p> <p>- need increase frequency of dissemination and area of coverage.</p> <p>- Need further strengthening for integration with flood preparedness (there is more rooms for improvement in communication and media).</p> <p>- Weather forecasting will be extremely useful in critical conditions</p> |
| Institutional | <ul style="list-style-type: none"> • Inter-agency coordination • Coordination between national | National Flood Forecasting Centre need to be established |

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| | flood Centres - RFMMC | |
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C. What practical next steps can be agreed to from your group towards advancing?

| Category | Possible Activities | Practical Next Steps |
|--------------------------------|---|-----------------------------|
| Data collection | <ul style="list-style-type: none"> • Data network redesign • Consider regional protocols for data-collection • Share development and maintenance lessons learned • Compare hydrologic records at trans boundary points • Other activities? | |
| Data and information exchange? | <ul style="list-style-type: none"> • Adopt specific exchange protocols • Offer more data and information to exchange with regional partners • Request other data and information from regional partners • Compare community based | |

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| | products <ul style="list-style-type: none"> • Other activities? | |
| Technical and human capacity development | <ul style="list-style-type: none"> • Exchange technical personnel with partners in the region? • Undertake joint development projects • Collaborate on joint training programmes • Establish ongoing working relationships among national centres during the flood season • Other activities? | |
| Technology transfer? | <ul style="list-style-type: none"> • Share custom-designed software applications? • Share technology experience (acoustics, transducers, communications, hydrologic and atmospheric models.....) • Other activities? | |
| Other Categories | | |

2. Laos Group Discussion

The FMM Strategy, Programme, and other MRC-based agreements provide the framework under Component 1 for data collection and exchange, technical and human capacity development, technology transfer, and other ongoing activities. This Annual Mekong Flood Forum further identifies areas of cooperation needed to advance the theme: “Improving Flood Forecasting and Warning Systems for Flood Management and Mitigation in the Lower Mekong Basin” and the “Roadmap.”

E. What are your comments / suggestions to the RFMMC’s “Roadmap for the development of Flood Forecasting System”?

| Activities | Comments / suggestions |
|--|---|
| <p>Short term forecast (1-5 days)</p> <ul style="list-style-type: none"> • Present system? • Use by national Centers? • Use by others? • Areas of Improvements? | <ul style="list-style-type: none"> • Improvement of time issuance flood forecasting from RFMMC to National before noon. (National FFC need to be established within the DMH). • Hydro Meteo station network should be extended based on the appropriate model used, and need to set up at the main tributary of Mekong River. • Rainfall estimation from the satellite for flash flood and widespread flood forecasting. • Skill staffs, facilities as well as methodology. |
| <p>Medium term forecast (6-15 days)</p> <ul style="list-style-type: none"> • Uses? • Data requirements? • Rainfall data • Water level and flow data • Tributary forecasts | <ul style="list-style-type: none"> • Rainfall forecasting. • Good data from water level and flow input in the modeling. • Good cooperation in data exchange among riparian countries and RFMMC. • Should be before 2009 for operation. |

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| <ul style="list-style-type: none"> • Modelling requirements? • Technical and human capacity? • Data exchange? • National commitments? • Time frame (operational by 2009)? | |
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F. What are the lessons learned from the recent floods?

| Category | Activities | Lessons learned |
|---------------------------|---|--|
| Data | <ul style="list-style-type: none"> • Data from within the country • Data from / to MRC | <ul style="list-style-type: none"> • Data from riparian countries should be transmitted to RFMMC on time. |
| Forecast | <ul style="list-style-type: none"> • Tools • Products | |
| Warning and Dissemination | <ul style="list-style-type: none"> • Timeliness? • Warning message understood by Communities • Warning disseminated to affected communities? | <ul style="list-style-type: none"> • Improvement of time for flood forecast products dissemination. |

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| | <ul style="list-style-type: none"> • Community Involvement? • Feedback? • Integration with flood preparedness activities? • Others? | |
| Institutional | <ul style="list-style-type: none"> • Inter-agency coordination • Coordination between national flood Centres – RFMMC | <ul style="list-style-type: none"> • Need to be strengthened. • National flood forecasting centre should be established at riparian countries. |

C. What practical next steps can be agreed to from your group towards advancing?

| Category | Possible Activities | Practical Next Steps |
|-----------------|---|---|
| Data collection | <ul style="list-style-type: none"> • Data network redesign • Consider regional protocols for data-collection • Share development and maintenance lessons learned • Compare hydrologic records at trans boundary points • Other activities? | <ul style="list-style-type: none"> • Use the old regional protocols. |

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| Data and information exchange? | <ul style="list-style-type: none"> • Adopt specific exchange protocols • Offer more data and information to exchange with regional partners • Request other data and information from regional partners • Compare community based products • Other activities? | <ul style="list-style-type: none"> • Agree. |
| Technical and human capacity development | <ul style="list-style-type: none"> • Exchange technical personnel with partners in the region? • Undertake joint development projects • Collaborate on joint training programmes • Establish ongoing working relationships among national centres during the flood season • Other activities? | |
| Technology transfer? | <ul style="list-style-type: none"> • Share custom-designed software applications? | <ul style="list-style-type: none"> • Agree. |

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| | <ul style="list-style-type: none"> • Share technology experience (acoustics, transducers, communications, hydrologic and atmospheric models.....) • Other activities? | <ul style="list-style-type: none"> • Agree. • Capacity building. |
| Other Categories | | |

3. Thailand Group Discussion

Thai National Mekong Committee and
Thai Government Authorities

1. Flood Forecasting and Early Warning Systems
2. Flood Forecasting and Early Warning Center
3. Road Map Mission
4. Other Suggestions

Flood Forecasting and Early Warning Systems

- Medium term forecasts?
 - Concept of sharing of additional rainfall data is accepted
 - Pilot areas of extended flood forecasting system at transboundaries (e.g. Udomxia-Mukdahan area)
- Flood forecasting model?
 - Timely and accurate data is the most important to improve model capability
 - Strengths and Weaknesses of existing model (SSARR) and new models needed to be compared
- National warning and dissemination
 - Line agencies are clearly indicated
- National forecasting
 - Forecast products are collected at Department of Water Resources (DWR)
- Concept is agreed
- Feasibility depends on commitment of NMCs
- In model development & calibration
 - Develop and calibrate hydrologic models...in Phase I is needed?
 - Activities in upstream area (Phase III) should be carried out in parallel with activities in Phase II)
- Other activities related to flash flood should be implemented by RMCs?
- Definition/description/scope of “forecasting framework”
- Current timing of preparations of Regional Flood Report and National Flood Reports are not in the right sequence (regional flood report was prepared before national flood reports)

4. Vietnam Group Discussions

The FMM Strategy, Programme, and other MRC-based agreements provide the framework under Component 1 for data collection and exchange, technical and human capacity development, technology transfer, and other ongoing activities. This Annual Mekong Flood Forum further identifies areas of cooperation needed to advance the theme: “Improving Flood Forecasting and Warning Systems for Flood Management and Mitigation in the Lower Mekong Basin” and the “Roadmap.”

G. What are your comments / suggestions to the RFMMC’s “Roadmap for the development of Flood Forecasting System”?

| Activities | Comments / suggestions |
|---|---|
| Short term forecast (1-5 days) <ul style="list-style-type: none"> • Present system? • Use by national Centers? • Use by others? • Areas of Improvements? | <ol style="list-style-type: none"> 1. Forecast quality is at present only for reference 2. Provided data and regional forecast can be used only for one day purpose, forecast for the second day needs improving. 3. Forecast activities should be consolidated and assessed regularly. 4. H max all days 5. data provision of two times / day at 7 am and 19 pm |
| Medium term forecast (6-15 days) <ul style="list-style-type: none"> • Uses? • Data requirements? • Rainfall data • Water level and flow data | <ol style="list-style-type: none"> 1- more stations to collect data on rainfalls and water levels esp. tributaries 2- forecasting on rainfalls and water levels 3- Tributary forecasts should be done by national sides and exchanged to other countries. 4- Develop and apply more modern software and models |

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| <ul style="list-style-type: none"> • Tributary forecasts • Modelling requirements? • Technical and human capacity? • Data exchange? • National commitments? • Time frame (operational by 2009)? | <p>5- More capable and expertise staff</p> <p>6- More data exchanged follow signed procedures under AHNIP and HYCOS</p> <p>7- VN fully committed</p> <p>8- Ok 2009</p> |
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H. What are the lessons learned from the recent floods?

| Category | Activities | Lessons learned |
|---------------------------|--|--|
| Data | <ul style="list-style-type: none"> • Data from within the country • Data from / to MRC | Good data but sometimes late arrival |
| Forecast | <ul style="list-style-type: none"> • Tools • Products | |
| Warning and Dissemination | <ul style="list-style-type: none"> • Timeliness? • Warning message understood by Communities | <ul style="list-style-type: none"> - warning should be in place and as soon as possible - ok - ok |

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| | <ul style="list-style-type: none"> • Warning disseminated to affected communities? • Community Involvement? • Feedback? • Integration with flood preparedness activities? • Others? | <ul style="list-style-type: none"> - ok - ok - ok - |
| Institutional | <ul style="list-style-type: none"> • Inter-agency coordination • Coordination between national flood Centres – RFMMC | - good and strong cooperation |

C. What practical next steps can be agreed to from your group towards advancing?

| Category | Possible Activities | Practical Next Steps |
|-----------------|--|---|
| Data collection | <ul style="list-style-type: none"> • Data network redesign • Consider regional protocols for data-collection • Share development and maintenance lessons learned • Compare hydrologic records at trans boundary points | <ul style="list-style-type: none"> - More stations including national stations to improve the accuracy and follow signed agreements. - financial support if possible - should have case by case on share developments - more training on data collection - necessary to have at transboundary points |

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| | <ul style="list-style-type: none"> • Other activities? | <ul style="list-style-type: none"> - Continue HYCOS |
| Data and information exchange? | <ul style="list-style-type: none"> • Adopt specific exchange protocols • Offer more data and information to exchange with regional partners • Request other data and information from regional partners • Compare community based products • Other activities? | <ul style="list-style-type: none"> - should have specific protocols - should have data and information from upper parts - should request on climate data and forecast, apart from hydro-meteorological data - data for drought forecast should be considered - |
| Technical and human capacity development | <ul style="list-style-type: none"> • Exchange technical personnel with partners in the region? • Undertake joint development projects • Collaborate on joint training programmes • Establish ongoing working relationships among national | <ul style="list-style-type: none"> - very necessary, study tour, experience exchange, - joint project, call for funds - ok - ok - ok - |

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| | centres during the flood season • Other activities? | - |
| Technology transfer? | <ul style="list-style-type: none"> • Share custom-designed software applications? • Share technology experience (acoustics, transducers, communications, hydrologic and atmospheric models.....) • Other activities? | <ul style="list-style-type: none"> - Should have mechanism to share and transfer software and need more funds support - Yes, share technology experience - - |
| Other Categories | | More high qualified staff and professional experts to be at the Centre, very closed linkage to the MRCS by all means |

The combination and follow-up activities from forums where more stakeholders have opportunities to share information.

5. Summary of Regional Group Discussion

- **Data collection:**

- ☞ communication (including the forecasters) between MRCS and countries is essential
- ☞ on time data transmission from riparian countries to MRC/RFMMC is required
- ☞ emphasis should be given to quality and quantity of data

- **The needs for forecasting by line agencies as well as community should be specified and documented.**
- **Earlier dissemination of MRCS flood forecast products to the countries is required.**
- **Distinguish clearly between the different users of the flood forecasting products (managers versus villagers)**
- **For development of flood forecasting system at MRCS a close link with research institutes is desirable.**
- **Satellite rainfall estimation / climate forecast should be useful for medium term forecast**
- **What are the minimum number of stations / density of stations within the basin required for reliable forecasting?**
- **Distinguish clearly between flash flood and main stream flood**
- **Flood risk mapping is an essential product for flood forecasting at local level.**
- **Use the capacity of the line agencies to develop the forecasting system**