August 20, 2014

LMI Workshop: Water quality breakout group notes

Around the room—WQ concerns

--Development, esp mining. Small scale artisanal mining, especially gold mining. Treatment with mercury, direct discharge of Hg into rivers. No baseline information.

--Equipment—Dept Water Resources has just portable equipment

--Saigon River, NH4+/coliform bacteria, requires Cl- treatment, issue of disinfection byproducts

--data quality (heavy metals, PAHs)

--source tracing from agriculture, urban, industry

--concerns w both point and non-point sources

--nutrients leading to hyacinth production, limiting transportation by boat

--water quality information is lacking in terms of quality as well as quantity

--WQ issues associated w aquaculture (fish and shrimp farms)

--turbidity and suspended sediments

--pesticides from rice farms, can compromise WQ for fish farms

--forecasting of water availability for different users, bounded by ocean conditions as well as river runoff forecasts

--not sure of data for pesticides in MR. Some monitoring is happening--PCBs in water

--urbanization, industrialization,

--sources are from everywhere, so again source identification for pollutants is an issue

--intensive agriculture and aquaculture, high pesticide use

--shrimp ponds, dredging every harvest cycle, dredge spoils directly into the river. Leads to discharge of nutrients, solids, chemicals, plus leads to requirements to dredge rivers

--Catfish farms, daily cycling of water from river into rearing ponds, then discharge to river

--ideas about improved planning for the sequence of water withdrawal/use by different users.

--sluices affect salinity

--sand mining

--in general, local govts often do not have enough knowledge about water quality issues

--need better skills for researcher staff, if they are going to expand to looking at larger datasets that might be available. Need better data handling systems.

--equipment can be deployed for specific research projects, when project is over (i.e. PhD program), who maintains the equipment? Leads to waste of resources.

--water quality gets worse as you move downstream

--groundwater issues—withdrawal lowers water table, leads to issues with arsenic, water table does not recharge with annual cycle

--dams lead to WQ issues, including CH4 production (not monitored), changes sediment loads downstream, sand stopped, fine sediments greatly reduced. Up to 20 mainstream dams, plus another 100 on the tributaries

--MRC has limited set of parameters, things like EDCs and other pollutants not covered.

--2% of total flow is used (10-15 km3 out of ~500 km3)

--fish culture in MR and draining of wastes into the river;

--dams affect fish populations, with unknown consequences

What do you need to improve the situation?

--need baseline data for MR as well as tributaries (13 in Lao alone). 74 WQ stations, sent to lab for analysis. No WQ standards. Measure pH, and maybe 13 or more other characteristics, hopefully will help establish a baseline. Is a 1 year project right now, hopes are to continue into the future.

--need to collaborate with researchers from other MR countries. LNMRS exists.

--in order to have agreement between countries on common measures, some will need equipment and other resources. Capacity building is needed.

--policies are needed, such as water rights, policy on water allocation

--water quality warning system. For example, if there is a large fish kill, local people can inform authorities, but there can be a long time before warnings are issued, or before samples are taken to determine what caused the fish kill

--WQ warning system needs to be automatic, but maintenance is sometimes a problem. Funds for analysis are needed. Maybe give some simple equipment to local farmers. Will get more frequent sampling, from more locations.

--water quality modeling would help with forecasting for water users.

--communication of results is also important, information will need to be translated for a less technical audience

--WQ information system is needed. Visualization of data is needed. An overall WQ model for the MR needs to be developed.

--we need an overview of what is happening now. Need to update existing data on agricultural systems.

--need a network for automatically measuring WQ and transferring information. Desire a platform for sharing data with everyone. Maintenance of data long-term is a concern.

--Need to have better information on land subsidence in the MR Delta, need more stations. Combination of GW withdrawal and less sediment delivery.

--some monitoring of GW quality is occurring, but data and methods are not available

--in terms of WQ standards, LMR countries should agree on a common format, has been done in other regions, and could provide guidance.

--2 large container ports going in, leading to increased traffic, need for navigational channels, risks of oil spills

--in addition to improved monitoring, there is a need for better implementation of policies e.g. control of groundwater withdrawals etc. Wastewater treatment needs to be implemented.

--Warnings needed for incidents like oil spills—how are downstream water users notified?

Collaborations between US and LMR countries?

--US should understand difference in systems. Paperwork can be very different. US researchers need to learn the way things are done in LMR. Misunderstanding can be a large issue. To resolve this, have a small 'pilot' project, to learn how things work, before starting with a big project where people will get frustrated.

--Talk through the project first, ask people what their problems are, what do they need. Don't show up and tell people what they need to do.

--Because reviews are needed, work might need to change, we need to be flexible in the approach.

--another option is to have student exchanges, rather than starting with senior researchers.

--Are there mechanisms to support shared projects?

--some exchanges are planned between VN ministries and US, in October.