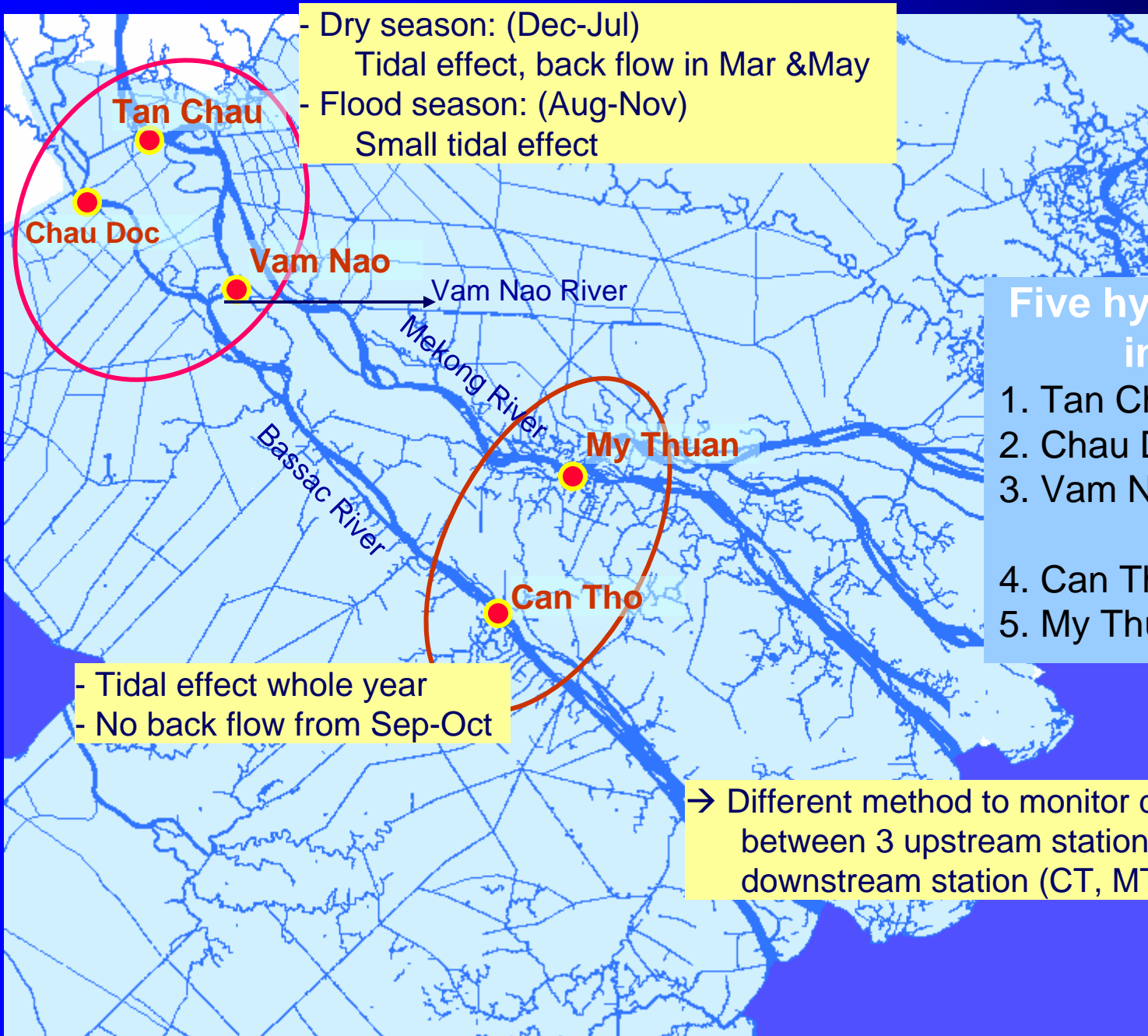


**Regional Workshop on Discharge & Sediment Monitoring and
Geomorphological Tools for the Lower Mekong Basin**

21-22 October 2008, Vientiane, Lao PDR.



**Discharge and Sediment monitoring
in the Mekong River in Viet Nam**



- Dry season: (Dec-Jul)
Tidal effect, back flow in Mar & May
- Flood season: (Aug-Nov)
Small tidal effect

- Tidal effect whole year
- No back flow from Sep-Oct

→ Different method to monitor discharge and sediment between 3 upstream stations (TC, CD, VN) and 2 downstream station (CT, MT)

- ### Five hydrological stations in mainstream
1. Tan Chau - Mekong River
 2. Chau Doc - Mekong River
 3. Vam Nao - Vam Nao River
 4. Can Tho - Bassac River
 5. My Thuan - Mekong River

Discharge monitoring (1/2)

1. At Tan Chau, Chau Doc & Vam Nao stations:

- Dry season: (Dec – Jul)
 - Hourly water velocity at index verticals with current meter and anchored boat.
 - Detailed discharge measurement: with ADCP
(For calculation relationship $V = a \cdot V_{\text{index}} + b$)
 - 3 campaigns/year in Jan, Apr and Jul,
 - About 35 meas for normal flow and 35 meas for back flow (for only 2nd campaign) per each campaign
- Flood season: (Aug – Nov)
 - TC. CD: measured with ADCP, every 2-3 days
 - VN: measured with current meter, every 2-3 days

2. At Can Tho & My Thuan stations:

- Hourly water velocity at index verticals with current meter and anchored boat.
- Detailed discharge measurement: with ADCP
 - 4 campaigns/year in Jan, Apr, Jul, Nov.
 - About 35 meas for normal flow and 35 meas for back flow (not for the 4th campaign) per each

Discharge monitoring (1/2)



- Using ADCP

- for discharge measurement at Tan Chau, Chau Doc in the flood season
- for detailed discharge measurement at all 5 stations.

- Using Current meter

- for hourly water velocity at index verticals (at 6 depths).
- for water velocity at Vam Nao station in the flood season (at 5 depths)

Calibration of current meter every 2 years.



Sediment monitoring (1/2)

1. At Tan Chau, Chau Doc & Vam Nao stations:

- Dry season: (Dec – Jul) - just starting from 2008.
 - Every day at index vertical.
 - Detailed sediment measurement:
 - 3 campaigns, the same period with detailed discharge measurements.
 - Arrange 4 additional anchored boats at 4 remaining verticals (for collecting sediment sample at 5 verticals at the same time).
 - About 22 meas for normal flow and 22 meas for back flow (for 2nd campaign) per each campaign.
- Flood season: (Aug – Nov)
 - Every day at 7AM at index vertical.
 - 25 meas at 6 verticals

2. At Can Tho & My Thuan stations:

No sediment sampling

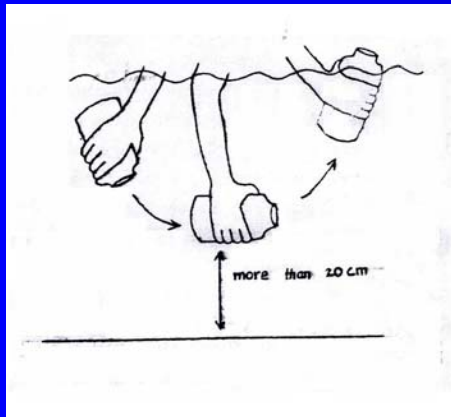
Sediment monitoring (1/2)



- Sampling with sampler (3-5l) + winch + weight (50kg).
- Sampling method: depth integrated
- Filtering sediment sample at stations
- Scaling filter paper and sediment sample at lab in HCMC.



Water Quality monitoring



- Sampling at 15 every month at all 5 main stations
- Sample is taken in the middle of river and 30-50 cm under surface
- 18 analytical parameter:
 - T°C, pH, EC, Ca, Mg, Na, K, Alk, SO₄, Cl, NH₄-N, NO_{3&2}-N, Tot-N, Tot-P, COD_{Mn}, DO, and Al
 - 2 revised parameters : Chlorophyll-a and Pheacal coliform analysed for stations since July 2007

UTILIZATION OF WATER QUALITY, DISCHARGE DATA

1. Water quality data

- Monitoring the trend variation of water quality
- Planning of water resources utilization
- EIA report on water resources planning project
- Water Quality model.

2. Discharge data

- Monitoring the trend variation of water quantity.
- Calculation of water balance, flow distribution.
- Hydraulic model, Salinity Intrusion model, Water Quality model (VRSAP, SAL and SALBOD for BOD₅)

Recommendation

1. Equipment for discharge and sediment monitoring at key stations, including ADCP, boat, GPS, DGPS, suitable sampler (for suspended sediment and bed sediment), electric winches... should be upgraded.
2. Training and technical assistance should be provided.

Thank you for your kind attention