



# QUALITY ASSURANCE

MEKONG RIVER COMMISSION



## Quality Assurance (QA)

- QA is the definitive program for Laboratory Operation that documented in Lab QA system
- QA system consists of:
  - ~ QA manual
  - ~ Written procedures
  - ~ Work instructions
  - ~ Records
- QA systems are essential for seeking accreditation
- QC and quality assessment are included in QA

## Quality Assessment

- ▣ This process used to ensure all control measures are being performed well and data produced by lab are reliable
- ▣ Checking Correctness is the most important step in data quality and data reliability

## Checking Correctness of Analyses

Ion Balance

$$IB (\%) = 100 \times \frac{\sum \text{Anions} - \sum \text{Cations}}{\sum (\text{Cations} + \text{Anions})}$$

Measured EC and Calculated EC

$$0.9 < \frac{\text{calculated EC}}{\text{measured EC}} < 1.1$$

## Checking Correctness of Analyses

- 3 Measured EC and Ions sum  
10 x anions, meq/L = (0.9 – 1.1) EC  
10 x cations, meq/L = (0.9 – 1.1) EC
- 4 Nitrogen TEST
- 5 Phosphorus TEST
- 6 Ion Balance TEST
- 7 EC different TEST

## Checking Correctness of Analyses

Finally we are using reliability score to evaluate the quality of data.

$$\text{Reliability Score (\%)} = 1 - \frac{(A+B+C+D+E+F)}{(4 + G + H)}$$

Where:

- A = Ion Balance percentage (%)
- B = EC Cation Test
- C = EC Anion Test
- D = EC Ion Test
- E = Nitrogen Test
- F = Phosphorus Test
- G = Total Nitrogen Test
- H = Total Phosphorus Test



## Run Reliability TEST

- A small program written in macro/excel to run all calculations
- Reliability scores reflect level of data reliability
- Other TEST's help us in data evaluation and interpretation.

THANK YOU

for

Your Attention