WATER LABORATORY QUALITY CONTROL

- Meeting at ANSA
- Presentation by S.Stoveland, Norplan

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PRESENTATION

- WHY QUALITY CONTROL
- OBSERVATIONS FROM WORK IN KABUL
- QUALITY AWARENESS WORKSHOP IN MRRD
- SUGGESTIONS HOW TO DEVELOP A AC FRAMEWORK FOR AFGHANISTAN FOR WATER LABS.

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WHY RAISE THIS ISSUE NOW

- A QUALITY PROBLEM WAS DISCOVERED BEFORE PROJECT STARTUP.
- As part of the hydrogeology project, problems was discovered with local laboratories when validating analysis prior to sampling program. Results differed.
- Problem: Most likely QC missing

LESSONS FROM AWARENESS WORKSHOP

LACK OF QC SYSTEM

- A 3 day quality control awareness workshop was held in June 2013. Though discussion with participants it became apparent that none had a QC system, nor standardised systems
- No standard procedures for sampling.
- No standard method for reporting.
- Not possible to see from reports if analysis are made with field equipment or standard water testing
- Many cannot verify where the samples come from. (sometimes driver collects samples)
- Not always possible to use fresh chemicals.
- No regular calibration to check which that the analyses are correct.

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WATER TESTING LABORATORIES

- Ministry of Rural Rehabilitation and Development
- Ministry of Public Health
- Ministry of Water and Energy
- Ministry of Mines, Afghanistan Geological Survey
- NGO laboratories: DACAAR, other ?
- Private laboratories: VICC, other…?
- Other water testing laboratories

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WHY QC AND QA?

- Obtain trustworthy results
- Provide accurate and precise results
- Provide management, regulators, communities and customers with confidence in the results
- Obtaining certification - accreditation?

QUALITY ASSURANCE (QA) & QC

Quality Assurance (QA): a broad plan for maintaining quality in all aspects of operations. It describes how the laboratory functions in terms of:

- laboratory purpose,
- documentation of all procedures,
- staff training,
- data management and reporting, and
- specific quality control measures.

Quality Control (QC):

consists of the steps taken to verify the validity of analytical procedures.

QA ISSUES

- DOCUMENTATION

- All major processes and procedures must be documented
- Always one version of SOPs and documents.

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EXAMPLES FOR PROCEDURES

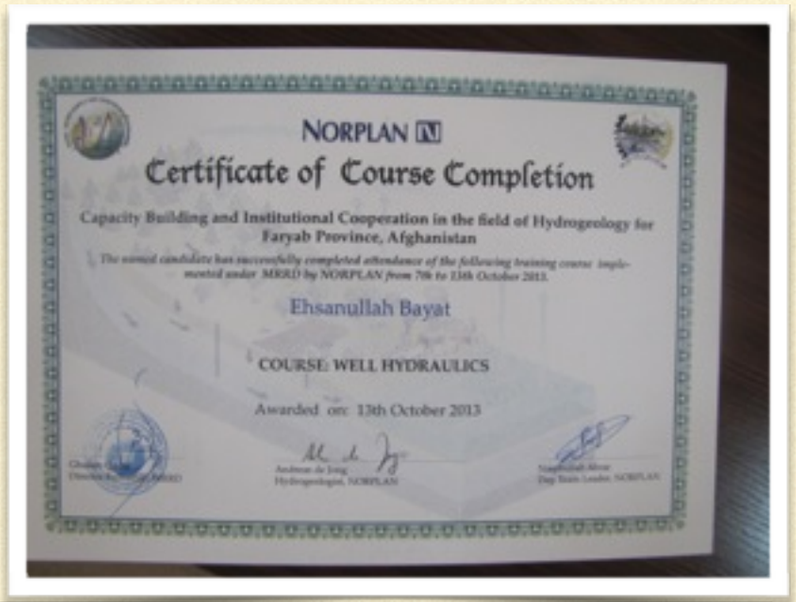
- Sampling
- sampling receipt
- conservation, conservation
- test method (specified, field equipment of standard method?)
- Quality control
- wash and cleaning procedures

DOCUMENTATION

- Receipts of samples
- Receipts of chemicals
- Audits of findings
- Calibration checks, ? Balances, spectrophotometers, etc
- Staffing trained? How?

STAFF TRAINING

- Staff qualifications, qualified
- Staff trained on specific equipment used in laboratory, (Certified qualified?)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Certificate of Course Completion

Capacity Building and Institutional Cooperation in the field of Hydrogeology for Faryab Province, Afghanistan

The named candidate has successfully completed attendance of the following training course: implemented under MRRD by NORPLAN from 7th to 13th October 2013.

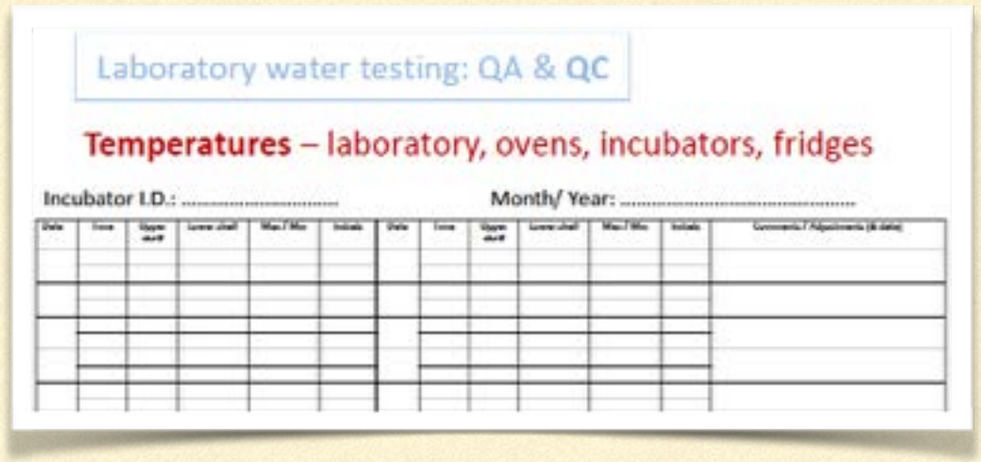
Ehsanullah Bayat

COURSE: WELL HYDRAULICS

Awarded on: 13th October 2013

LABORATORY ENVIRONMENT

- Laboratory suitable for analysis, which?
  - Temperature controlled,
  - Clean facilities
  - Storage facilities for chemicals



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MANAGEMENT REVIEW

- Any regular management review?
- Superviser actually checking quality of facilities?
- Any inter laboratory sample testing and assessment?
- Auditing of lab QC? or QA?

QUALITY CONTROL:

HOW DO YOU KNOW?

- THIS IS WHAT QUALITY CONTROL IS.

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Laboratory water testing: QA & **QC**

Reported result - **how do you know?**

Calculations - checked?

Observations - verified?

+ve / -ve controls used

Analytical conditions - verifiable?
e.g. incubation temperature/time

Correct volumes - verifiable?

Sterile reagents & equipment - verifiable?

Balances/equipment calibrated? - verifiable?

Unique sample ID - verifiable?

Overall QA system
e.g. staff training

POSSIBLE WAY FORWARD TO IMPROVE STANDARDS.

Possible Framework for Laboratory Quality Control/ Quality Assurance systems

Level	ISO Standard17025 Accreditation	National standards	Individual laboratory standards
International QC organisers	International ISO office		
National Level QC organisers	One Accredited National, ISO office Approve, control all labs seeking accreditation.	**Agreed national Lab QC system**	**Lab QC system established for individual labs**
Laboratory owners (Pubic or private institutuions)	Many public & private labs apply for accreditation	**to be developed?**	**developed? all different??**
Laboratory Supervervisors	Lab. control staff signs that standards are followed		
Laboratory analysts/technicians	Lab. staff trained to follow approved procedures, standards		

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Potential Stakeholders QC/QA (and more)

MRRD MOPH MOM/ AFS MEW RuWatSIP NGOs/ Firms

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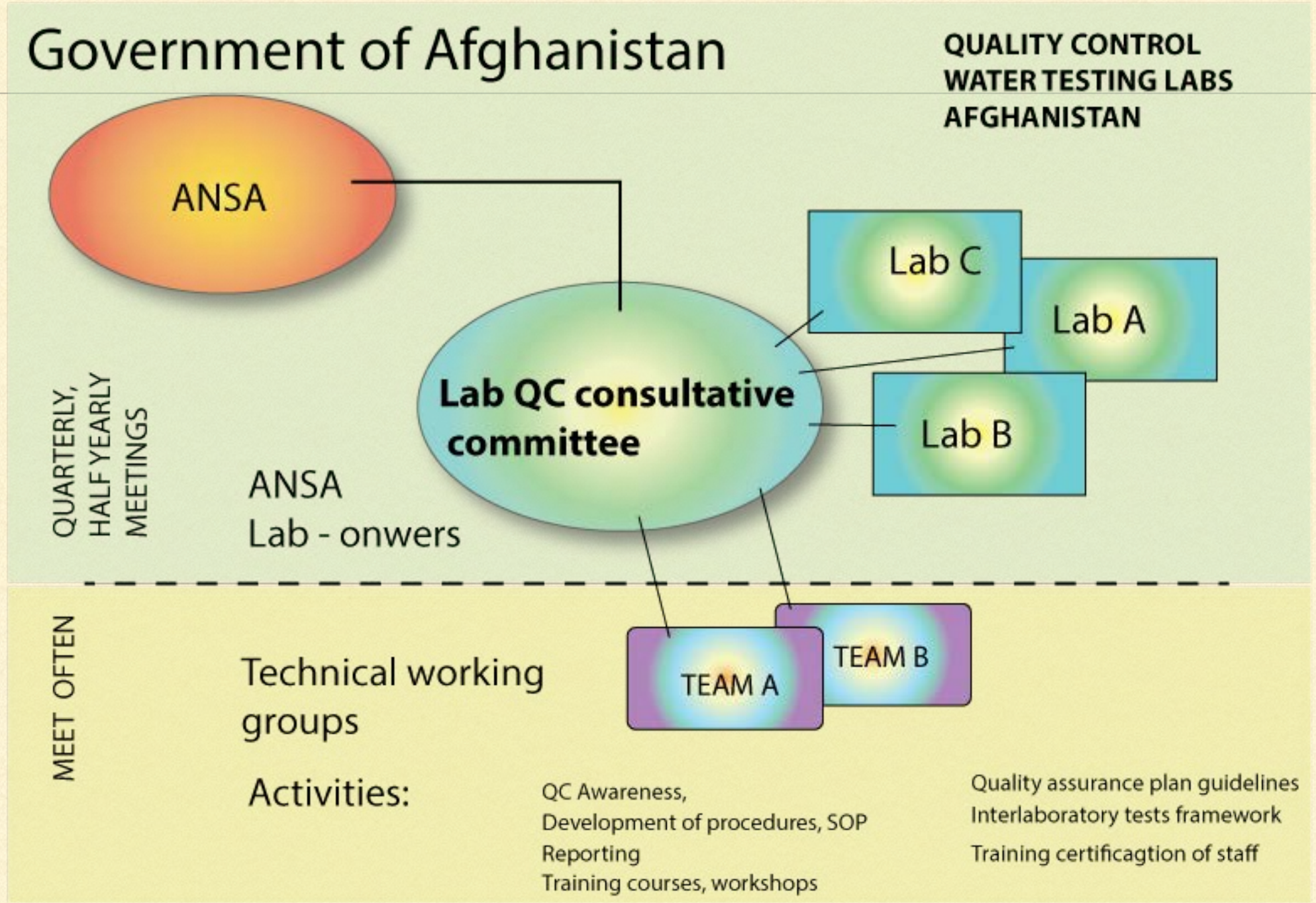
COORDINATION?



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CONSULTATIVE FRAMEWORK

- Proposed next steps:
  - Agree on coordination/ need consultative framework and QC
  - Ask MRRD/UNICEF/NORPLAN/DACAAR and more to organise workshop with technical staff to prepare a roadmap framework for QC and QA systems for Afghanistan
  - First technical workshop can be held within next two months. Participating of all laboratories

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PLANNED QC ACTIVITIES AT DACAAR - POTENTIAL SUPPORT

Betmans strategies to standardize the DACAAR Water quality laboratory are as follow:

1. By the end of July 2014, we will prepare a Standard of Operation Procedure.

2. By end of October- will prepare lab liked environment of DACAAR lab (space, table, freezes, cabinet, sample collection places etc)

3. we are going to buy all standard solutions of chemical test to verify the equipment accuracy and calibration.

4. After getting good environment, we propose to buy few lab equipments.

5. Till this time, we hope ANSO will get accreditation from IAC and we apply for the accreditation

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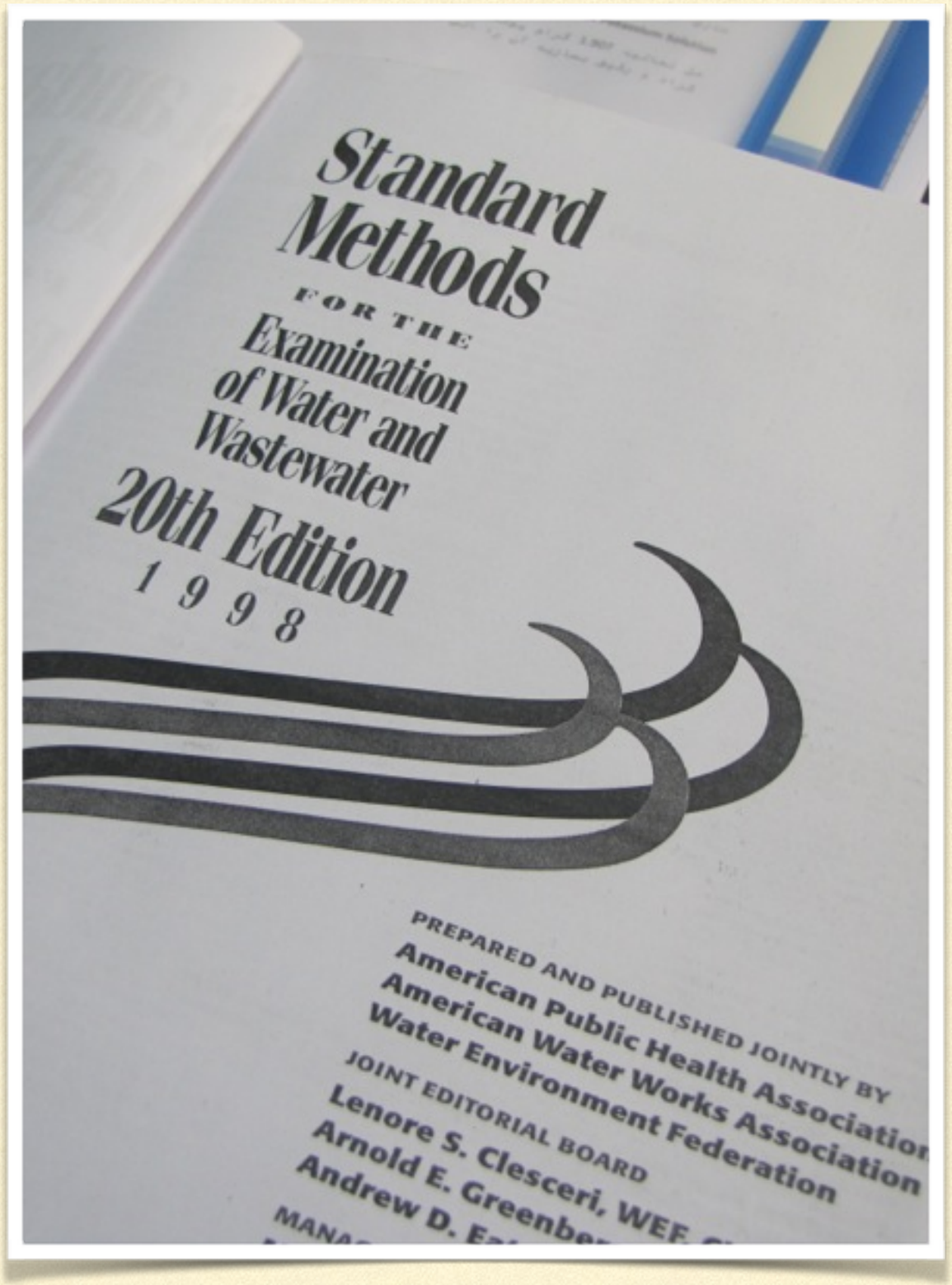
THANK YOU FOR LISTENING.



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