



EUROPEAN UNION



PROGRAMME FOR IMPROVED NUTRITION IN SINDH (PINS)

In close collaboration with the Accelerated Action Plan, Government of Sindh



ToT on Water Quality Testing – Training Report Hyderabad 22-23 July, 2018

Technical Assistance Partner



Implementation Partners for PINS ER-3 Component



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Acronyms

AAP	Accelerated Action Programme for Improved Nutrition in Sindh
ACF	Action Against Hunger
AFS	Agriculture and Food Security
CLTS	Community Led Total Sanitation
CIF	Community Investment Fund
CO	Community Organization
CRP	Community Resource Person
DRR	Disaster Risk Reduction
ER	Expected Results
EU	European Union
GOS	Government of Sindh
LG	Local Government
LSO	Local Support Organization
M&E	Monitoring and Evaluation
NRSP	National Rural Support Programme
ODF	Open Defecation Free
PHED	Public Health Engineering Department
PINS	Programme for Improved Nutrition in Sindh
PIU	Programme Implementation Unit
PMU	Programme Management Unit
PCRWR	Pakistan Council of Research in Water Resources
pH	Potential Hydrogen
QA	Quality Assurance
SUCCESS	Sindh Union Council and Community Economic Strengthening Support
RSPN	Rural Support Programmes Network
RSPs	Rural Support Programmes
SOPs	Standard Operating Procedures
SRSO	Sindh Rural Support Organization
SDGs	Sustainable Development Goals
TRDP	Thardeep Rural Development Programme
TDS	Total Dissolved Salts
ToT	Training of Trainers
UC	Union Council
VO	Village Organization
WASH	Water Sanitation and Hygiene

Overview

Government of Sindh (GoS) through its Planning and Development Department (PDD) is implementing a six-year multi-sectoral Sindh Accelerated Action Plan for Reduction of Stunting and Malnutrition (AAP), with the objective of reducing stunting rate from the existing 48 percent to 40 percent by 2021. The European Union (EU), under the EU Commission Action Plan on Nutrition 2014, is supporting GoS in addressing the issue of malnutrition. Therefore, EU Brussels Office has approved the four-year Programme for Improved Nutrition in Sindh (PINS) to be implemented in ten districts of Sindh starting from February 15, 2018.

RSPN is leading the PINS Expected Results (ER) 3 component with four partners: Action Against Hunger (ACF), National Rural Support Programme (NRSP), Sindh Rural Support Organisation (SRSO) and Thardeep Rural Development Programme (TRDP). This component includes nutrition sensitive interventions i.e. Water Sanitation and Hygiene (WASH) and Agriculture & Food Security (AFS).

RSPN organized a **2 Day ToT on Water Quality Testing for RSPs WASH Officers and PHED Staff**. This ToT was held on 22-23 July 2018 at NRSP Regional Office Hyderabad. The training was facilitated by Pakistan Council for Research in Water Resources (PCRWR) Ms. Saiqa Imran, Senior Research Officer and Ms. Mufeeza Ahsan, Assistant Scientific Officer. This document outlines the proceedings of the workshop. The agenda is annexed as Annex A, list of participants and definition of EU are annexed as Annexes B and C.

Proceedings of the Workshop

Welcome Note and Introduction

The PINS staff orientation workshop began with a recitation of the Holy Quran by a volunteer from the audience. The participants introduced themselves and Mr. M.R.Kayani, WASH Specialist of PINS Programme welcomed the participants. He described the objectives of the 2 Days ToT on water quality and thanked UNICEF Karachi and PHED teams for joining in this event. He also thanked PCRWR for facilitating the ToT.

He then briefed about agenda as under:

First Day (Theoretical Sessions)

- Understand the water quality issues (safe drinking water) in Pakistan and particular in Sindh Context,
- Drinking water quality standards,
- Sanitary survey to community water sources Water Safety Planning at community/village level,
- Describe different physical (pH, Turbidity and TDS), chemical (Arsenic, Nitrates & Fluoride), and microbiological parameters of drinking water,
- Water Quality interventions/activities under PINS Project,
- Sampling methodology for water testing,
- Water testing/sampling protocols and SoPs,

Second Day (Practical/Lab Sessions)

Practical sessions for drinking water testing (communal source) by using portable water quality test kits:

1. Physical (pH, Turbidity and TDS)
2. Chemical (Arsenic, Nitrates & Fluoride),
3. Microbiological parameters
 - Analyse and interpret water quality data and read and interpret a laboratory water quality testing report
 - Chlorination method for water sources (practical demo)
 - QA Sessions
 - Certificate awarding ceremony

The Proceedings then started as per agenda (attached).

Day 1 – 22nd July 2018

After pre-test, the floor was handed over to PCRWR trainers. The first presentation was made about the “**Water Quality Situation of Pakistan in General and of Sindh in Particular**” The following points were discussed;

i. **Fresh Water Availability in Pakistan**

Per capita availability of water which was 5000 cubic meter in 1951 has decreased to 1000 cubic meters and will further decrease to 660 by year 2020.

ii. Fresh water deterioration

Through the dumping of untreated industrial and municipal waste, Poor sanitation facilities due to open drains and open defecation especially in rural areas.

iii. Health Burden and Economic Lose Due to Water Born Diseases in Pakistan

- 62 percent of Pakistan's urban and 84 percent of its rural population do not treat their water, resulting in 100 million cases of diarrheal diseases registered in hospitals,
- In Pakistan various waterborne diseases account for 20 to 30% of all hospital cases and 60% infant deaths.
- Estimated 250,000 child deaths occur every year in Pakistan due to water-borne diseases
- 20-40 percent of the hospital beds in Pakistan are occupied by patients suffering from water-related diseases.
- In terms of financial loss, the country is bearing Rs.112 billion per year as water, sanitation and hygiene-related diseases.
- More than 1.6 million DALYs (Disability Adjusted Life Years) are lost annually due to diarrhea and almost 90,000 as a result of typhoid

iv. Drinking water initiatives taken by Pakistan Council of research in Water Resources in the Country special focus in Sindh Province

- National Water Quality Monitoring Program (2002-2006 &2014, 2015)
- Rural water quality monitoring program (2005-2010)
- Arsenic Monitoring and Mitigation Program (2004-2010)
- Assessment survey of all existing water supply schemes of the country (2006-2012)
- Monitoring of Nitrate and Fluoride in selected cities of Pakistan (2003-2004)
- Capacity building of the staff of water supply agencies (2006-2012)
- Establishment of National Capacity Building Institute (NCBI)

v. At the end of the presentation following key issues, Challenges and Opportunities were discussed

Key Issues

- Existing water supply schemes only cover about 25 % population of the country
- Outdated infrastructure of water supply schemes and leakage in distribution system are major causes of non-functionality and ineffectiveness of water supply system.
- The sustainability of source and system are the two major constraints in achieving the national goal of providing safe drinking water to all.

- Lack of awareness on water quality issues and inadequate technical capacity of the staff of water supply agencies.
- Improper disposal of municipal, industrial and hospital wastes polluting the surface and groundwater resources.
- Water Shortage and increasing competition for multiple uses
- Improper and heavy groundwater abstraction causing the quality issues of groundwater resources.

Challenges

- The management structures operating without clear policy guidelines
- Lack of regular National Water Quality Surveillance System
- Lack of coordination among stakeholders as too many institutions managing it
- Confusion of social, environmental, commercial, and political aims; as sector is too fragmented
- Erosion of institutional capacity and limited user participation
- Poor financing for water services – private sector participation missing

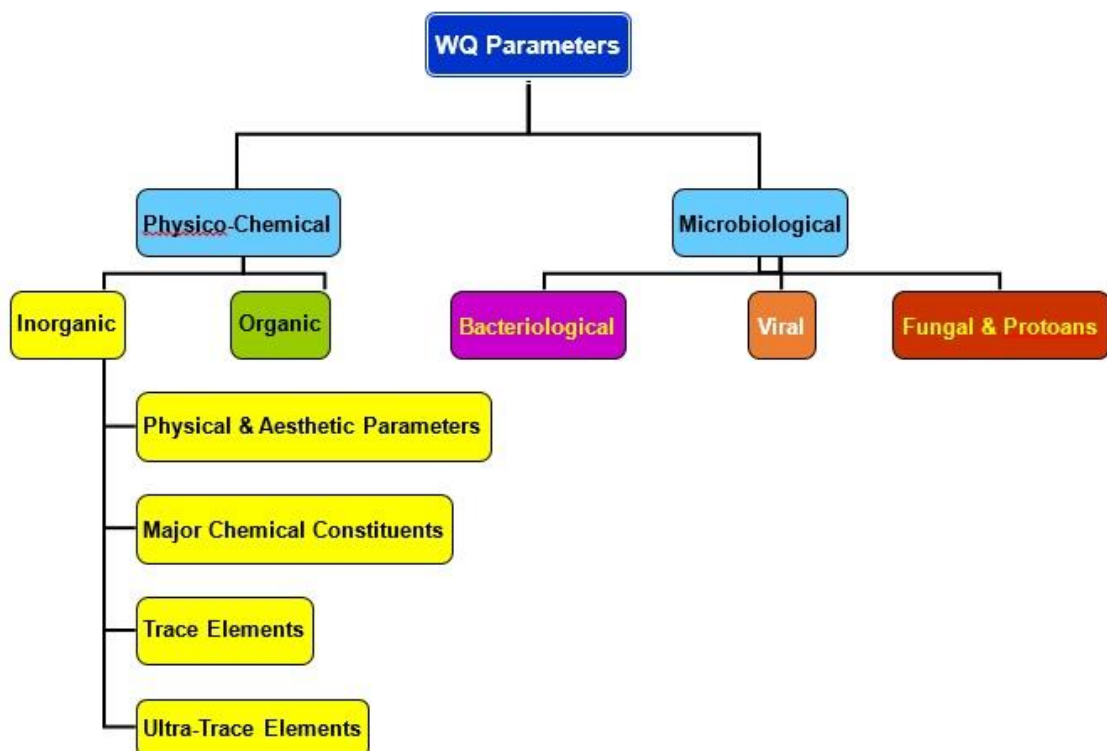
Opportunities

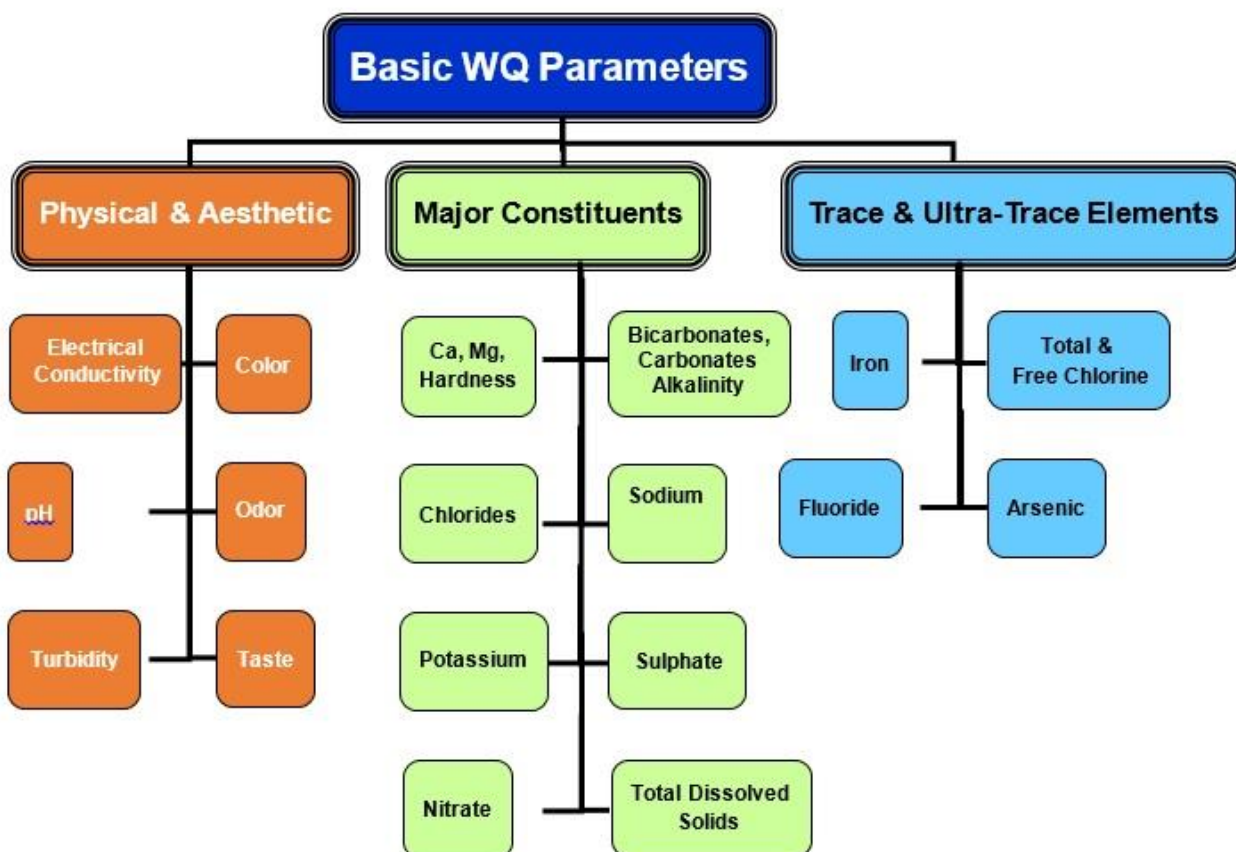
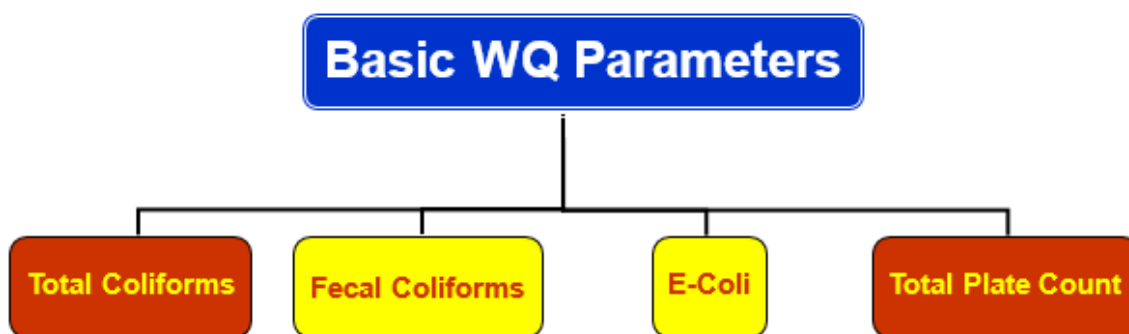
- Time bound targets may be set by the Federal and Provincial Govt. to achieve the SDGs (6.1).
- Moving from over-dependence on single source of drinking water to the conjunctive use from several sources.
- Establishment of new water supply schemes with improved and efficient design and more sustainable/durable material, Instead of installation of filtration plants
- Tap water should be the safe water for all. starting from Pilot level



Activity- 2 Day-1

The second presentation was about the testing of “**Basic Water Quality Parameters Significance and their Analytical requirements**” In this presentation the water quality testing methods of all the basic drinking water quality parameters were discussed





Activity- 3 of Day-1

- Presentation on water sample collection for chemical Parameters Protocols/SOPs
- Presentation on water quality testing for microbiological parameters Protocols/SOPs

The target parameters for PINS are following

- Total Coliforms & *E. Coli*
- Total Dissolved Solids (TDS)
- pH
- Turbidity
- Fluoride
- Nitrate
- Arsenic

Following points were discussed during the lecture delivery

- Sampling Design
- Importance of water sample collection
- Components/requirements for water sample collection
- Type of Water Samples and Preservatives
-

Activity 4 of Day-1

Interpretation of analytical results and report writing

Day 2 – 23rd July 2018

Practical demonstration of water quality parameters was done in PCRWR water quality laboratory, Tandojam Hyderabad, for following parameters

- Total Coliforms & *E. Coli*
- Total Dissolved Solids (TDS)
- pH
- Turbidity
- Fluoride
- Nitrate
- Arsenic





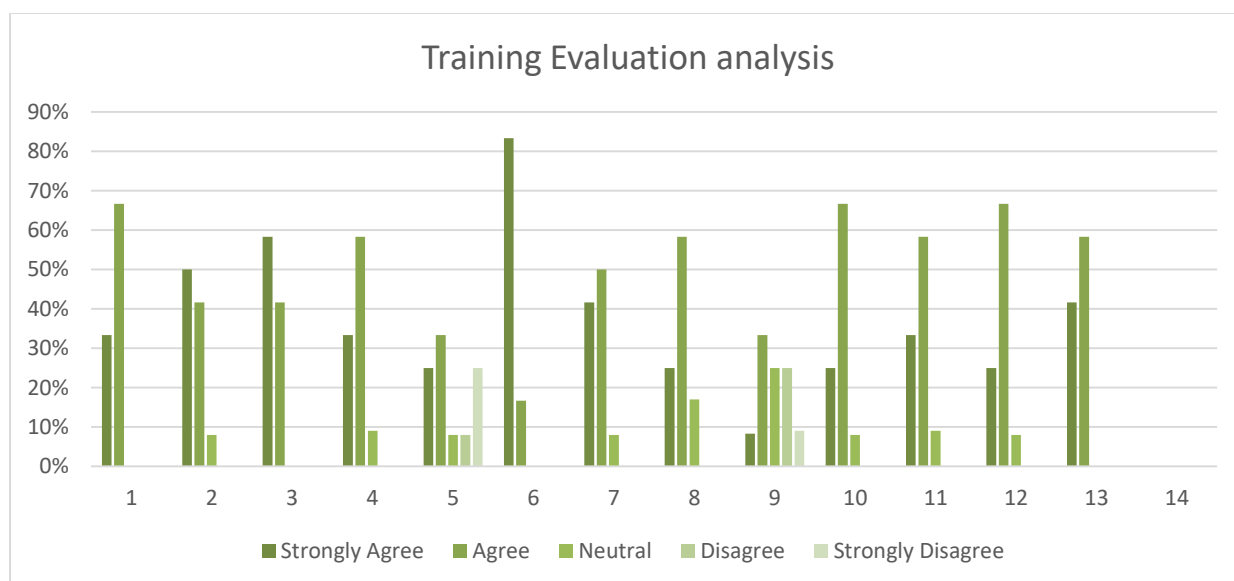
Participants in Water Quality Laboratory of PCRWR Tandojam Hyderabad

Participants' Feedback

In order to receive qualitative and quantitative participants' feedback, the M&E team formulated a comprehensive evaluation questionnaire in the format of questions seeking information on the extent to which the learners felt that they had learned. It explained to the participants that the evaluations were completely anonymous, thus that could be used as a relevant indicator of participants' opinions and impressions.

Evaluation Results

All participants from all three Rural Support Programmes i.e. NRSP, SRSO and TRDP provided feedback on the orientation workshop by filling the Participant's Feedback Form. The summary of feedback provided against each set criteria statements is depicted in the below given table.



Key Findings

The key findings from the analysis of the participants presented in above give table are as following:

- 33% strongly agreed whereas 67% just agreed that the objectives of the orientation workshop were met.
- 50% strongly agreed, 42% percentage just agreed whereas 8% remained neutral while rating that participation of and interaction were encouraged in the workshop.
- 58% strongly agreed, 42% just agreed that the topics covered in the workshop were relevant and appropriate.
- 33% strongly agree, 58% just agreed whereas 9% remained neutral while rating that content was organized and easy to follow.
- 25% strongly agreed, 33% just agreed, 8% remained neutral, 8% remained disagree whereas 25% strongly disagreed that the material distributed were useful.
- 83% strongly agreed whereas 17% just agreed that the facilitators were knowledgeable about the orientation topics.
- 42% strongly agreed whereas 50% just agreed, 8% remained neutral that the objectives of the training were met.
- Only 8% strongly agreed, 33% just agreed, 25% remained neutral, 25% were disagree and 9% remained strongly disagree while rating that the time allotted for the orientation was sufficient.
- 25% strong agreed, 67% just agreed whereas 8% remained neutral while rating that the room facilities for the orientation were adequate and comfortable.
- 33% strongly agreed, 58% just agreed whereas 9% remained neutral while rating that they could effectively use the skills/information gained from orientation in their work.
- 25% strongly agreed, 67% just agreed, 8% remained neutral while rating the statement that whether the personal objectives of the participants were met.
- 42% strongly agreed whereas 58% just agreed that the facilitators address the queries relevant to technical concepts.

Areas of Improvement

On the basis of above the participant's feedback, the below areas of improvement are recommended for future orientations and trainings.

Time Management:

As shown in the summary table given above, a majority of the participants suggested that the time allotted for the sessions was not sufficient. It is highly recommended that adequate time for each

session as well as overall orientation workshop should allocated keeping in mind the content and understanding level of the participants.

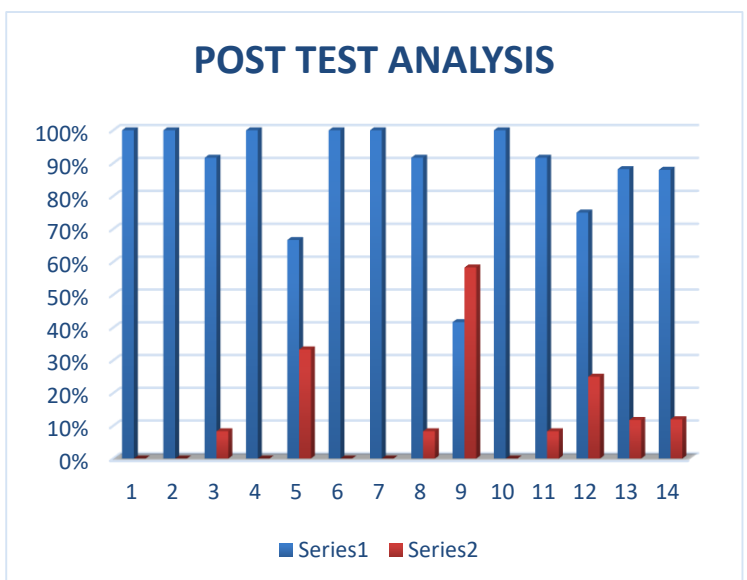
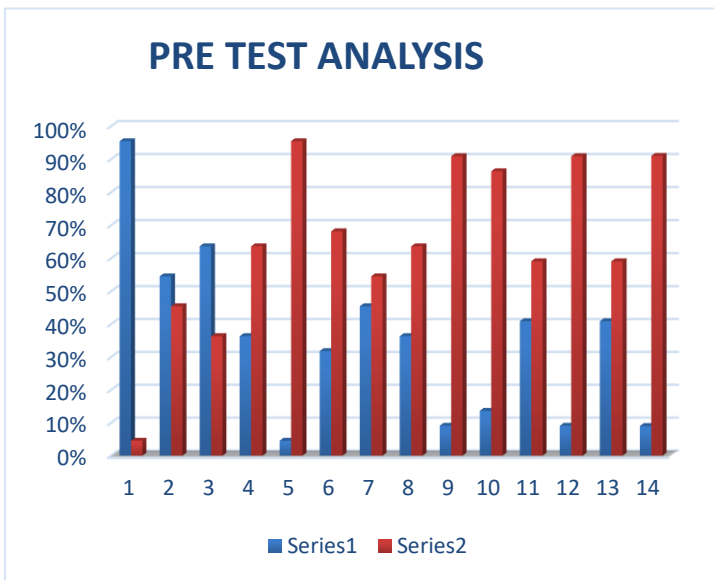
Provision of Relevant and Useful Material:

Although the some participants were, agree but a significant percentage of them remain either neutral or even strongly disagreed with this statement. Therefore, it is recommended that usefulness and relevance of the material to be provided in the future orientation and trainings should be thoroughly reviewed.

Conclusion

In conclusion, the orientation workshop was conducted as per set agenda covering all of it items. Overall, the participants highly rated the majority of criteria statements. However, their feedback suggests that time-management, provision of relevant material need to be improved further.

Pre and Post Test Analysis



Annex A: ToT Agenda and Schedule

Day One

Time	Session	Contents & Expected Outcome	Methodology	Resource Person
0900 – 0905	Recitation from The Holy Quran	One of the Participants will recite verses from the Holy Quran.	Recitation	
0905 – 0930	Welcome and Introduction of the participants, trainers and objectives of the training	This session will help participants to know each other and will help in the upbringing of inter personal communication among the participants.	Welcome address and introduction	Programme Director PINS
0930 – 1000	Pre-test	The existing knowledge of the participants on the subject will be assessed. Facilitator will provide the pre-test form and ask participants to fill it	Pre-test form	M&E Team
10:00-1030	water quality issues (safe drinking water) in Pakistan (in general) and Sindh (in particular)	At the end of this session participants will be familiar with drinking water quality issues in Pakistan and particular in local (Sindh) Context	Presentation Discussions	PCRWR
1030- 1100	Drinking water quality standards	At the end of this session participants will be familiar with drinking water quality standards.	Group work Brain storming	PCRWR
11:00-11:15				
1115-1145	Concept of Sanitary Survey and water safety planning	At the end of this session participants will be familiar with the concept of Sanitary survey of community water sources and Water Safety Planning to protect communal water sources for safe drinking water.	Brain Storming Presentation Participatory discussions	UNICEF/RSPN
1145-1230	Water Quality Parameters	At the end of this session participants will understand the different parameters of water quality being measured under Project; i, e. physical (pH, Turbidity and TDS), chemical (Arsenic, Nitrates & Fluoride), and microbiological parameters of drinking water	Presentation	PCRWR
12:30- 1:30				
1:30-2:00	Water Quality interventions/activities under PINS Project	The participants will be briefed about interventions and activities of Water Quality under PINS Project so that participants can understand and link their work/training, accordingly.	Brain storming Presentation Discussion	WASH Team RSPN
2:00- 3:30	Sampling methodology for water testing and field planning	The participants will be briefed about sampling methodology for water quality testing (source/field level) so that participants can follow the methodology in their Programme districts as per given guidelines.	Presentation Discussions	PCRWR
3:30-4:45	Water testing/sampling protocols and SoPs	The participants will be briefed about Water testing/sampling protocols and SoPs to be followed by PIND teams.	Presentation Discussions	PCRWR
4:45-5:00	Next day field/lab plan	The participants will be briefed about next day filed/lab visit and planned activities.	Briefing	RSPN

Day Two

08:30- 09:00	Review of day 1	Participants will review the Day 1 knowledge		
09:00- 1:00	Laboratory tests (water quality)	Practical sessions will be held for drinking water testing (communal source) by using portable water quality test kits for following parameters: 1. Physical (pH, Turbidity and TDS) 2. Chemical (Arsenic, Nitrates & Fluoride), 3. Microbiological parameters	Practical session	PCRWR
1:00- 2:00				
02:00-3:00	Water quality analysis	The participants will be briefed about analyze and how to interpret water quality data and read and interpret a laboratory water quality testing report	Presentation Discussions	PCRWR
3:00-3:45	Chlorination method for water sources (practical demo)	The participants will be briefed about process and chlorination method for water sources.	Practical session	PCRWR
3:45-4:15	QA Session		Participants	PCRWR
4:15-5:00	Training Evaluation, Post – test Closing remarks & certificate distribution ceremony	<ul style="list-style-type: none"> ▪ Group evaluation ▪ Training Completion Certification Distribution Ceremony ▪ Closing Remarks 	PCRWR & RSPN	

Certificate Distribution



Annex B- Participants List



Programme for Improved Nutrition in Sindh (PINS)

PROGRAMME
FOR IMPROVED
NUTRITION IN
SINDH
PINS Funded by the European Union



Attendance Sheet

Training: 2 Days Training of RSPs Project staff and PHED staff on physical, chemical and biological testing

Date: 22nd to 23rd July 2018

Location: Programme Implementation Unit PIU – National Rural Support Programme Hyderabad.

No. of Participants: (Male) _____ (Female) _____

Sr#	Name of Participant	Designation	Organization / RSP	Address	Contact #	Signature	
						Day One	Day Two
1	Saigra Imran	Senior Research Officer	PCRWR	Islamabad	03005107877	Saigra	Saigra
2	Mufazeh Ahsan	Asst. Scientific Officer, PCRWR	PCRWR	Islamabad	03214392412	Mufazeh	Mufazeh
3	Dhanji Md	WASH Officer	NRSP	District T. Akhgar	0932-263796	Dhanji	Dhanji
4	Tarique Hussain	Senior Research Asst. PHED	PHED, Hyd.	Hyderabad	03003077418	Tarique	Tarique
5	Asadullah Solangi	Field Engineer	NRSP	Hala	0333-5635541	Asad	Asad
6	RASHID RAUF	Assistant Engineer P.H. Encc Divin KAR	P.H.E.D KARACHI	Karachi	0307-2212339	R. Rauf	R. Rauf
7	Zahida Jamali	WASH officer	UNICEF	Karachi		Zahida	Zahida
8	Ali Karz	WO (SRSO) Shikarpur	SRSO	Shikarpur	03337264636	Ali Karz	Ali Karz
9	Khuram Zameer	Wash officer	SRSO	Kambar Shahohalpur	0346 8973088	Khuram	Khuram
10	Alta-ur Rehman	Capacity Development Specialist	RSPN	RSPN, Islamabad	03335713291	Alta-ur	Alta-ur



Programme for Improved Nutrition in Sindh (PINS)



2

Attendance Sheet

Name of Participant	Designation	Organization / RSP	Address	Contact #	Signature	
					Day One	Day Two
Enayatullah Khan	Project Manager	RSPN	SBD	-	[Signature]	[Signature]
M. Umar Soomro	WASH Officer	TRDP (PINS)	Behwan Distt Jam.	0311-0357094	[Signature]	[Signature]
Mukesh Kumar	WASH Officer	NRSP	Mafiani	03322034558	[Signature]	[Signature]
Muhammed Younis	WASH officer	TRDP	Jamshoro	0300-3257092	[Signature]	[Signature]
Dr. Asadullah Khan Mangochi	Coord. Tech & Liaison of SHARF	RSPN/PINS	Karachi	0300-2694987	[Signature]	[Signature]
SHARF - UO/AMONG	Assistant Engineer	PHE D Hyd	HYDERABAD	03337532206	[Signature]	[Signature]
Sabira QM	WASH officer	SRSO	Larkana	03363461481	[Signature]	[Signature]
Naveed Anwar Memon	Field Engo.	NRSP	Thatta	03342051286	[Signature]	[Signature]
Abdul Ghani	WASH officer	NRSP	Thatta	0331-3008944	[Signature]	[Signature]
Sheeraz Ahmed	field engineer	SRSO	Larkana	0336-2717024	[Signature]	[Signature]
Aziz Ahmed	PITD Engg	NRSP Thatta	N. Feroze	03023985637	[Signature]	[Signature]
Archi Hussain	WASH officer NRSP, Sujawal	NRSP Sujawal	Sujawal	03332806976	[Signature]	[Signature]
MOHAN THAKUR	WASH Engineer	RSPN Karachi	Karachi	03332977035	[Signature]	[Signature]

Annex –C Certificate



PROGRAMME FOR IMPROVED NUTRITION IN SINDH (PINS)

In close collaboration with Accelerated Action Plan, Government of Sindh

Certificate of Participation

Presented to

Ms. Zahida Jamali

on successfully completing the Training of Trainers on

Water Quality Testing and Analysis of Water Quality Parameters using Physical, Chemical and Microbiological Techniques

Conducted by National Water Quality Laboratory | Pakistan Council of Research in Water Resources

22nd - 23rd July, 2018 | Hyderabad-Sindh, Pakistan

SAIQA IMRAN

Senior Research Officer, PCRWR

MUFEEZA AHSAN

Assistant Scientific Officer, PCRWR

PINS is funded by the European Union



Annex D

Definition of European Union: “The European Union is made up of 28 Member States who have decided to gradually link together their know-how, resources and destinies. Together, during a period of enlargement of 50 years, they have built a zone of stability, democracy and sustainable development whilst maintaining cultural diversity, tolerance and individual freedoms. The European Union is committed to sharing its achievements and its values with countries and peoples beyond its borders”.

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RSPN is leading the PINS Expected Results (ER) 3 component with four partners: Action Against Hunger, National Rural Support Programme (NRSP), Sindh Rural Support Organisation (SRSO) and Thardeep Rural Development Programme (TRDP). This component includes nutrition sensitive interventions i.e. Water Sanitation and Hygiene (WASH) and Agriculture & Food Security (AFS).



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