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Tracking Adaptation and Measuring Development (TAMD) in Pakistan

Institute for Social and Environmental Transition (I-SET)

Q3 Report - Feasibility Testing Phase

Pakistan Case Study: Rainwater Harvesting in Kashmir and Khyber Pakhtunkhwa

Tracking Adaptation and Measuring Development (TAMD) Feasibility Testing Phase - Quarter 3

Institute for Social and Environmental Transition (ISET) Pakistan

ACRONYMS

TAMD	Tracking Adaptation and Measuring Development
PRWH	Promotion of Rain Water Harvesting
ERRA	Earthquake Reconstruction & Rehabilitation Authority
WatSan	Water and Sanitation
PSDP	Public Sector Development Project
KP	Khyber Pakhtunkhwa
AJK	Azad Jammu and Kashmir
SERRA	State Earthquake Reconstruction and Rehabilitation Authority
PERRA	Provincial Earthquake Reconstruction and Rehabilitation Authority
DRUs	District Reconstruction Units
DRAC	District Reconstruction Advisory Committee
MDAs	Ministries, Departments & Agencies
M&E	Monitoring and Evaluation
EMEF	Earthquake Monitoring and Evaluation Framework
EMAC	ERRA Monitoring and Evaluation Advisory Committee
CMTs	Construction Monitoring Teams
SSTs	Social Survey Teams
KAP	Knowledge Attitude Practice
UCs	Union Councils
GCISC	Global Change Impact Study Centre
CEECC	Centre for Environmental Economics and Climate Change
PC	Planning Commission
PIDE	Pakistan Institute of Development Economics
PMD	Pakistan Meteorological Department
IUCN	International Union for Conservation of Nature
UNDP	United Nation Development Programme
IIED	International Institute for Environment and Development
ToC	Theory of Change

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1. INTRODUCTION

1.1 Level of TAMD application

This report presents the tasks and activities, which have been undertaken in third quarter of TAMD project in Pakistan. As explained in earlier quarterly reports, Promotion of Rain Water Harvesting (PRWH) project of (Earthquake Reconstruction & Rehabilitation Authority) ERRA is being tested for TAMD in Pakistan. In portfolio of public sector projects, PRWH is not purely climate change adaptation intervention. Initially this project was designed to provide and supplement rural water resources and to facilitate the rural livelihood systems in far flung mountainous areas and it was not intended to address the climate change problem.

Selection of this specific project was based on the climate compatibility of PRWH in terms of livelihood. PRWH has significantly supported and augmented the climate change adaptation process with clear adaptation benefits across the different sectors. In last two quarters a number of activities were carried out for scoping and indicators development.

This quarter was dedicated for final consultations with relevant agencies, establishing the theory of change, indicators[i] selection and testing, and collection of data and information for these indicators. Following section presents the progress made in last quarter.

1.2 Progress of planned activities

After initial consultations with ERRA on the evaluation of PRWH, it was found that the available data and information in ERRA was aimed at monitoring and evaluating the water and sanitation objectives but not sufficient for evaluation of PRWH for TAMD. To measure the impact of the program in terms of changes in socioeconomic conditions, indicators were developed and discussed with the stakeholders (details in second quarterly report also). Once these indicators were finalized, a formal questionnaire was developed to collect the data from field. In the next stage a team visited the PRWH project sites for scoping of the survey in which study sites and population of both groups (treated and control) were identified.

After the scoping for survey, a full fledge survey was launched at both sites, that includes the Shared Learning Dialogues (SLDs), Focus Group Discussions (FGDs) and household surveys.

Currently data collection process has been completed and in the next stage gathered data and information shall be analyzed and report will be generated based on the findings.

2. STAKEHOLDER ANALYSIS/KEY ENTRY POINTS

A number of meetings were conducted with stakeholders to develop and use a set of socioeconomic indicators for TAMD. Following table presents the major stakeholders of TAMD project in Pakistan. In earlier the stages of scoping, consultations were conducted with the national and sub-national level stakeholders. During this quarter the local level stakeholders were also consulted for applying the TAMD framework. These included the implementers of the PRWH on both sites.

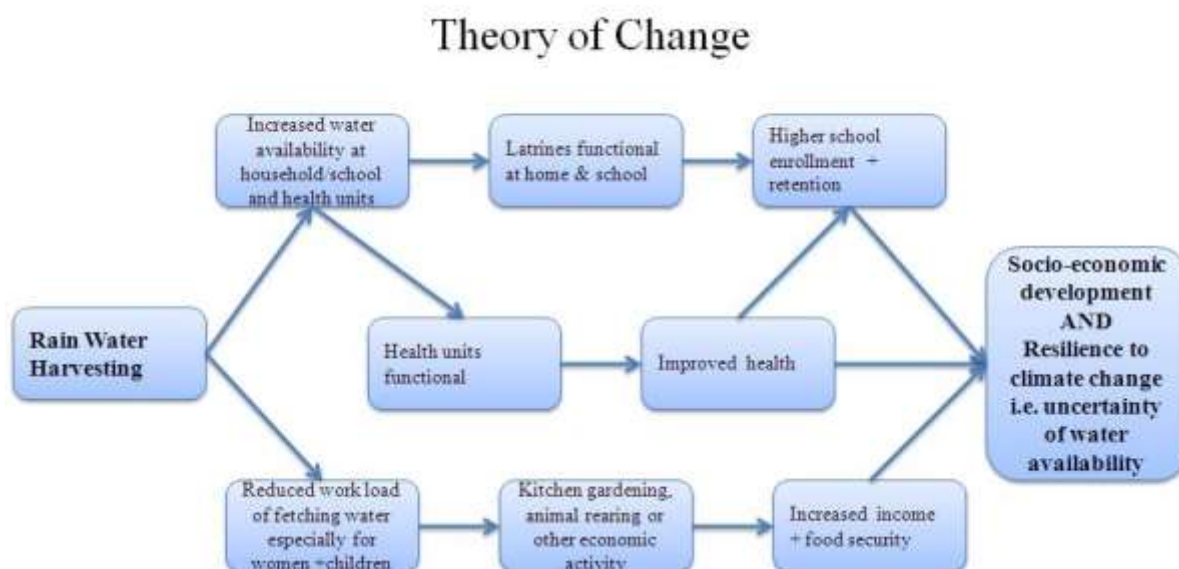**Table: 1 National, Sub-national and Local Stakeholder**

National level stakeholders:
Climate Change Division
Earthquake Reconstruction and Rehabilitation Authority (ERRA)
Centre for Environmental Economics and Climate Change (CEECC)
Global Change Impact Study Centre (GCISC)
Planning commission
Sub-national level stakeholders:
State Reconstruction and Rehabilitation Authority (SERRA)
Provincial Reconstruction and Rehabilitation Authority (PERRA)
Local stakeholders (Implementers):
Maqsood Welfare Foundation
Sukhi Welfare Foundation
Key informants e.g. school teachers etc.
Households and individuals

3. THEORY OF CHANGE (from Planned to Established)

In last quarters (1 and 2), the Theory of Change (ToC) was in predictive stage where we anticipated the impacts and outcomes of PRWH in terms of socioeconomic resilience of the communities, which was suppose to help them in adapting to climate change. The major assumption behind the adoption of PRWH was that, it is a sustainable water source, which is expected to reduce the climate change vulnerability of communities in many ways by augmenting water supply and storage at the household level. In consultation with the stakeholders identified above (see last quarterly report for details) the major outcomes were identified and put into the framework of the TOC as follows.

PRWH will improve and supplement the water supply by supplying water at consumption point, which will increase its availability and reduce the amount of time communities (especially

women and children) spend in fetching water from natural springs and streams. The time and distance also limited the quantity of water available to the households.

It is expected that with increased water supply and availability at household level, sanitation and hygiene of household will improve. This will subsequently reduce the illness and associated health costs. Through RWH water could also be made available to community buildings such as school and health centres.   Due to the dual impact of spared time and functional school washrooms children, especially girls, with be more likely to attend schools. Inability of girls to practice open defecation in the day time is one of the primary reasons for their unwillingness to attend school. This will lead to increased girls enrolment, attendance and sustenance in school.

Increased water availability and the spared time would also allow adults, especially women, to augment their food and income through activities like kitchen gardening, increased animal husbandry or other income generation activities that would also diversify their livelihood sources.

In order to take the TOC from predictive to establish stage a survey was designed for PRWH socioeconomic and environmental impacts evaluation of PRWH. The draft questionnaire was designed and shared with stakeholders. After their comments it was launched to collect the data from project sites. In this quarter, data has been collected against the developed indicators to use and establish the TOC.

4. INDICATORS (TRACK 2) AND METHODOLOGY

4.1 Indicators

A set of indicators was predicted, developed, and finalized in previous quarters. In this quarter those indicators were used in developing the questionnaire that has been employed to collect the data against those indicators. The indicator development and finalization was done with the main stakeholders/MDAs from national and sub-national level. Mainly two types of indicators were developed and used; numeric and categorical. Main categories of indicators used in assessment are as follows; education, water and sanitation, water fetching, kitchen gardening, livestock, women wellbeing to represent the theory of change developed before.

4.2 Methodological approach

The evaluation design is based on using 'difference in difference' approach in a quasi-experimental design. Appropriate non-parametric testing will be used to elicit statistically significant results from smaller sample sizes. Therefore the socio-economic indicators will be tested for both 'with and without' treatment in current state, and 'before and after' analysis using recall data. Using this approach allows a better attribution of the impacts of the intervention by excluding the improvement in socio-economic indicators in business as usual scenario with multiple endogenous and exogenous factors at play that have supported socio-economic development in the project area.

As explained in previous quarterly reports, two types of research methods qualitative and quantitative are being employed to test the PRWH project for TAMD, as an adaptation strategy. PRA tools such as Shared Learning Dialogues, Focused Group Discussions, Key Informant Surveys, are used to identify impacts and issues to be explored in the survey. Quantitative part of research is based on household questionnaires and primary data collection from public social service providers such as schools and health centres. Beside this quantitative analysis, participatory qualitative analysis will also be used to help in establishing causal relationships, explaining apparent anomalies and to verify the empirical findings.

5. EMPIRICAL DATA COLLECTION (b) TRACK 2

A number of data sources including the data bank of ERRA were examined to evaluate the PRWH intervention for TAMD. But these data sources were insufficient in terms of difference of scale (province and district level), lack of appropriate socioeconomic and environmental indicators, and lack of data on specific outcomes and impacts of PRWH intervention. In order to address this issue a primary survey has been conducted on both research sites using a detailed pre-tested questionnaire. Following are the main steps taken to collect the data from the field.

(a) Site Selection

A scoping visit was conducted in both regions (AJK & KP) of the PRWH project to identify the study sites. Sites selection was based on following criteria;

i.   Time since the intervention was made operational (older interventions were preferred so that some impact could already be measured).

ii.   Availability of comparable populations with and without the intervention (with parameters such equal distance from existing water source and similar socio-economic status)

iii. Catchment area for public services such as health and education were easily discernable for both populations.

The design and targeting of the program had already ensured that the interventions were undertaken in water scarce areas, where the households had to spend significant amount of time to fetch water and its availability was limited.

(b) Population and sample size

Following table presents the distribution of population and sample of the research, which is being carried out for the socioeconomic assessment of the PRWH project.

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Table: 2 Population and sample size

Chitra Topi Bagh, AJK		
	Treated/ Targeted	Control
Population	50	180
Sample	35	35
Narian, Nathiagali Abbotabad, KP		
Population	50	130
Sample	35	35

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(C) Sampling methodology

Given the geography of the area, precision, and desired sample size, random sampling technique was most suitable and therefore the houses were selected randomly.

5. CHALLENGES

The main challenge in testing the TAMD application was the lack of appropriate data and indicators. However, this has been addressed by conducting the field survey for primary data collection. Secondly it is still difficult for stakeholders to understand the TAMD framework, due to which sometime they hesitate to participate actively in consultations. Moreover, procedures of government departments are very slow which sometime causes the delays in the progress. However, these challenges are being addressed in all possible ways.

6. CONCLUSIONS AND EMERGING LESSONS

Monitoring of adaptation in TAMD framework is a new approach for evaluating development interventions for adaptation benefits in Pakistan. Therefore, MDAs have little capacity to conduct such evaluations at present. Most of the socio-economic data needed for TAMD is not readily available in either the secondary data or the project specific monitoring and evaluation frameworks. Therefore data on socioeconomic and environmental benefits of the project has been collected. It will be analyzed and results will be presented using the TAMD framework. It is expected that this research will yield some useful results in evaluating PRWH as a climate change adaptation strategy and also pave way for identifying a process and methodology to cost effectively evaluate projects and programs for their adaption outcomes in terms of socio-economic indicators.

For Pakistan, this means that it may not be possible to have standardised forms like the planning commission M&E system for evaluating adaptation benefits of programs. Like most donor funded programs a separate TAMD framework can, however, be developed and used within the M&E budget and some specialised expertise may be needed for designing the TAMD framework within the program design.

7. ANNEXURE 1: QUESTIONNAIRE FOR PRWH EVALUATION

RWH SOCIOECONOMIC IMPACT ASSESSMENT QUESTIONNAIRE

1. GENERAL INFORMATION

Respondent Name: _____	NIC No. _____
Age:_____	Education (years of schooling):_____
No. of HH: _____	Male / Females
District: _____ UC: _____	Village Name: _____
Phone No. _____	Date of Interview: (mm/dd/yyyy) _____
Installation date:_____	Enumerator Name: _____

2. WATER AVAILABILITY/USAGE

Water information		Before RWH	Now
Per day availability (liters)			
Per day demand (liters)			
Per day supply (liters)			
Per day water shortage (liters)			
Storage capacity (liters)			
Payment (Rs.) for water collection			
Daily Usage(liters)	Sanitation/washroom		
	Per day kitchen use		
	Per week clothes washing		
	Per week house washing		
	Per day livestock use		
	Per day kitchen gardening		
Uncertainty about water availability (1=increased, 2=decreased)			
Distance from water source _____ (km).			

3. WATER QUALITY PERCEPTIONS

Type of water you are using?_____ (1) Tap water (2) Well/Bore (3) RWH (4) Spring (5) Other	Satisfied with the quality of water you are using? _____ (1) Yes (2) No
If no why? Give the reason _____ (1) Dirty (2) Polluted Storage (3) Not Filtered (4) Other	Rain water is drinkable? _____ (1) Yes (2) No
If no why? Give the reason _____ (1) Dirty (2) Polluted Storage (3) Not fresh (4)Other	Treating rain water to purify it? _____ (1) Yes (2) No
If yes, how?_____	Have you ever boiled the drinking water? _____ (1) Yes (2) No
If no, why? Give the reason_____	Do you think rain water quality is better than other _____ (1) Yes (2) No

4. WATER FETCHING & TIME SPENT

Water fetching information	Before RWH		Now	
Did/doing water fetching? (1) Yes (2) No				
No. of family members involved in water fetching:	Male	Female	Male	Female
No. of school going age children involved in water fetching:	Boys	Girls	Boys	Girls
Daily time each child of school going age give to water fetching (hrs):	Boys	Girls	Boys	Girls
Per day HH total time for water fetching (hrs)[1]:				

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1 To calculate the time saving per day total time will be compared in before & after RWH

No. of male family members in off-farm employment:		
Mention the activities where the saved time is invested:		

5. LIVELIHOOD AND FOOD SECURITY

Livelihood and food security	Before RWH	Now
Livestock (no. of cattle) heads owned by the household:		
Per day water availability for livestock (in litres):		
Yield of the livestock (e.g. milk, meet etc.): (1) Blow average (2) Average, (3) Above average		
Per month monetary value of livestock yields (Rs):		
Per month savings[2] due to livestock related products (RS):		
Have kitchen gardening? (1) Yes (2) No		
Per month savings[3] from kitchen gardening yield (Rs.):		
Per annum you earned from increased kitchen gardening (Rs.):		

6. SANITATION & HYGIENE

Sanitation & hygiene	Before RWH	Now
Have functional toilet/washroom? (1) Yes (2) No		
Constructed the toilet/washroom? (1)Before RWH (2) Now		
No. of times weekly you take shower:		
No. of times weekly you clean your house:		
No. of times you wash your clothes in a week:		
Awareness of sanitation & hygiene (1) Below average (2) Average, (3) Above average		
Open defecation: (1) Yes (2) No		

7. HEALTH IMPROVEMENT

Health information	Before RWH	Now
Per month frequency[4] of illness in water fetching women:		
Per month medical cost of the whole household:		
Annually no. of cases of miscarriages reported in your community:		
Have rural health centre/dispensary in your locality: (1) Yes (2) No		
Rural health centre/dispensary is functional: (1) Yes (2) No		

8. EDUCATION

Education information	Before RWH	Now
No. of days children of school going age remain absent from school due to water fetching:		
No. of girls from your HH attending the school:		
If girls were not attending the school before RWH, reasons?		
Community school has the functional toilets? (1) Yes (2) No		
Community school has the drinking water? (1) Yes (2) No		
Community school has the boundary wall? (1) Yes (2) No		

[i] Indicators were developed in previous quarter (quarter 2).

2 Saving means the amount which earlier was spent to buy the livestock byproducts from market
3 Saving means the amount which earlier was spent to buy the vegetables from market
4 No. of time a women became ill in a month due to WF diseases e.g. muscular spasm, backache, and headache

Project materials

Climate Change

Keywords:
Monitoring and Evaluation (M&E),
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