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July 2013

Tracking Adaptation and Measuring Development (TAMD) in Pakistan

Quarter 1 Report

Pakistan Case Study: Rainwater Harvesting in Kashmir and Khyber Pakhtunkhwa

Tracking Adaptation and Measuring Development (TAMD) Feasibility Testing Phase - Quarter 1

Institute for Social and Environmental Transition (I-SET) Pakistan

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Acronyms

TAMD	Tracking Adaptation and Measuring Development
RWH	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
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

INTRODUCTION AND OVERVIEW OF THE TASK

This quarterly report is based on progress of the TAMD feasibility testing on a climate change related interventions in the first quarter. Rain Water Harvesting (RWH) project of Earthquake Recovery and Rehabilitation Authority (ERRA) in Pakistan was chosen for this purpose, as it aimed at increasing water availability in water scarce mountainous areas. RWH project is a government intervention that has a number of socioeconomic benefits but also qualifies as a climate change adaptation interventions because water availability is projected to become even more uncertain in these areas. The report also describes the vulnerability contexts and contribution of this intervention to reduce the exposure and enhance the resilience of the communities. The quarterly report highlights the data and information system, M&E of for the project, and methodological approach that can be used for assessment and evaluation of RWH project as an adaptation intervention. The report also presents information about the geographical location of RWH and the institutional arrangements, which were in place to implement the project.

Overview of the Selected Interventions

a. Introduction to the Selected Interventions

To test the TAMD framework in Pakistan, a water supply project titled 'Promotion of Rainwater Harvesting (RWH) Project' of Earthquake Reconstruction & Rehabilitation Authority (ERRA) has been selected. ERRA is a government department of Pakistan that was created to manage rehabilitation and reconstruction after the massive earthquake of 2005. Water & Sanitation (WatSan) is the second largest sector of ERRA in terms of number of projects. "Promotion of Rain Water Harvesting (RWH)" is the biggest project of WatSan, ERRA in the public sector of Pakistan. The primary reason to introduce RWH technology in earthquake affected areas was the availability of annual rainfall of 1300 mm/annum that is very unpredictable, shortage of water, and unavailability of ground water. In order to harness the benefits of this natural capital, the technology was introduced by ERRA.

Households located at high ridges, that makes vulnerable to water scarcity as they are furthest from ground and surface water were provided RWH units to the through this initiative. The units were installed to collect the rain water from rooftop which enhance the resilience of the communities significantly in terms water availability, sustainable livelihood, health

improvement and time saving Ahmed.et.al, (2011) [1], (2012)[2].. RWH is considered as direct adaptation to climate change (Pandey 2003)[3].

b. Criteria for Short Listing

In order to select a program for evaluation a criteria was developed to select prospective prototypes for application of the TAMD framework. Following are the categories of activities that were considered for selection;

- Activity labeled as Adaptation/Climate Change e.g GLOF project
- Programmes with clear adaptation mitigation benefits e.g. alternate/decentralised energy
- Public Sector Development Projects with adaptation benefits e.g. livelihood diversification, social protection, insurance etc.

In addition to this, for the sake of diversity we proposed to select activities, which had the following characteristics;

- Those that covered a variety of sectors such as Water, Agriculture, Energy or even multi-sectoral programs.
- Those that were implemented across different scales of governments such as National, Provincial, and District
- That were financed through different sources such as government funded, donor, non-profit, private sector
- That were in different phases of implementation such as in planning stage, in implementation, or completed.

c. Specific Regional Areas or Vulnerability Contexts

Through the RWH project TAMD will be tested in the earthquake affected areas of Khyber Pakhtunkhwa province and State of Azad Jammu Kashmir. The reason of testing the TAMD in the earthquake affected areas is that RWH project that is a significant climate change adaptation relevant intervention made by government. Moreover, these areas are most vulnerable in terms of sustainable source of water and livelihood.

d. Scale of Intervention

[1] Ahmed. A, Mustafa. U, and Nasir. M (2011) 'Impact of Rooftop Rain Water Harvesting Technology on Women Well-being in Hilly and Fragile Areas: Evidence from Pakistan', CEECC Working Paper No. 1, Pakistan Institute of Development Economics, Islamabad Pakistan.

[2] Ahmed. A, Mustafa. U, and Samad. G (2012) 'Economic Appraisal of Rooftop Rainwater Harvesting Technology in Bagh and Battagram Districts, Pakistan', CEECC Working Paper No. 2, Pakistan Institute of Development Economics, Islamabad Pakistan.

[3] Pandey. N. D, Gupta. K. A, and Anderson M. D. (2003), 'Rainwater Harvesting As an Adaptation to Climate Change: Review Article', 46 Current Science, Vol. 85, no. 1, 10 July 2003.

RWH project is a national level intervention and initiated for earthquake-affected areas. The project is executed by the ERRA along with support of local governments and implementing partners, which are local NGOs and community organizations. ERRA's prime task is to strategize and approve projects and provision of funds to State Earthquake Reconstruction and Rehabilitation Authority (SERRA) and Provincial Earthquake Reconstruction and Rehabilitation Authority (PERRA) to undertake the reconstruction and rehabilitation works in their respective areas. The implementation of the approved strategies is governed through a devolved mechanism with powers resting with the Provincial/State and District governments.

At the Province and State level PERRA and SERRA act as Secretariats for the Provincial/State Steering Committees. These forums have the mandate to approve the Annual Work Plans of their respective local governments. The Provincial and State Governments have created District Reconstruction Units (DRUs) in each of the affected districts. These DRUs act as Secretariat to the District Reconstruction Advisory Committee (DRAC), which is headed by the District Nazim or Deputy Commissioner with representation of all the relevant line departments of the district and elected representatives.

Appraisal of Interventions (Data Sets, M&E Frameworks)

a. Key MDAs or Entry Points

TAMD was initiated in Pakistan after meetings and discussions with multiple stakeholders in Federal Government and civil society. The Ministry of Environment at that time, gave consent to starting the activity in Pakistan. Discussions have been held with the WatSan section of ERRA and they have shown a lot of interest in the evaluation of their program through TAMD process.

As mentioned above in section (1.1 d) Key MDAs or entry points in relation to RWH project includes; Ministry of Climate Change, ERRA, and provincial counterparts government departments (PERRA, SERRA), the local governments and implementing partners that are local NGOs. All of these organizations need to be involved in the evaluation and this process will be followed through in the next quarter.

b. Appraisal of Data Sets and Information Systems Available

In order to test the TAMD framework in Pakistan, all the national data sources and government M&E practices are reviewed. The relevance of these practices in context of TAMD is also analyzed. Most of the data sources in Pakistan do not provide data on environment and climate change variables. In Pakistan there is a standardised M&E system for all projects funded through public financing and does not focus on climate change or environmental issues.

c. Existing M&E System for Assessing the Selected Interventions

i. ERRA M&E

ERRA has its own internal Monitoring and Evaluation (M&E) Wing that monitors the implementation and results of the reconstruction and rehabilitation efforts. The M&E Wing primarily focuses on the project and programme monitoring, data collection, and compilation, as well as the evaluation of the accumulated data to identify the challenges in each sector. As ERRA was largely donor funded, the M&E System follows a harmonized and interrelated (internal and external) mechanism of institutional transparency and accountability. This mechanism is structured around the principles of international validation, regular monitoring and data collection, programmme and financial audits, project reviews and external evaluation of the same through donors and other independent reviews.

The M&E Wing designs and implements the central M&E system, through the devised Earthquake Monitoring and Evaluation Framework (EMEF), jointly developed and approved by the ERRA Monitoring and Evaluation Advisory Committee (MEAC). Following the 'programme logic model', monitoring is conducted for inputs, outputs, outcomes and impacts of ERRA specific interventions. Field based Construction Monitoring Teams (CMTs) conduct Technical Monitoring at the input and output levels, which provides for the appropriateness, relevance, quality and compliance-related elements.

Field based Social Survey Teams (SSTs) carry out the Social Monitoring presenting the outcomes and social impacts. The social monitoring reports inform the management regarding effectiveness, efficiency and sustainability of ERRA specific services. Combined results of completed facilities/ extension of services and changes in peoples' lives are covered at the impact level.

ii. RWH Project M&E

There is a regular M&E system of ERRA that was used to evaluate and assess the socioeconomic outcomes and potential benefits of the project. Furthermore, it was mandatory for all implementers (local NGOs) to submit the post implementation Knowledge Attitude Practice (KAP) surveys. Besides that, a special initiative was taken by Director General WatSan section in which academia was involved to study the different aspects of the technology ranging from water quality and storage, gender mainstreaming, to socioeconomic outcomes. In this regard a number of Masters Dissertations has been conducted whose findings were shared with the stakeholders of the project.

Appraisal and Selection of Geographical Area

a. Description of the Selected Geographical Areas

TAMD will be tested in earthquake-affected areas of Khyber Pakhtunkhwa and Azad Jammu Kashmir. There are a number of rural districts in both Khyber Pakhtunkhwa and Azad Jammu

Kashmir where this facility is provided. In these areas most vulnerable villages and Union Councils were selected to provide this technology. These areas are mountainous and rely on rain or spring water for livelihood and due to high gradients and distances, fetching water becomes a primary activity of women, children and men.

b. Contextual Vulnerability

In the backdrop of RWH project vulnerability has two dimensions; climate vulnerability and socioeconomic vulnerability. The population of the areas where the RWH project is implemented were already facing the problem of acute water shortage. This was exposing them to diseases (especially for children and maternal health) caused by poor sanitation and hygiene, open defecation, women water fetching, and lack of clean drinkable water.

Geographically, these are hilly and inaccessible areas. This has resulted in lower penetration of basic social services (except education) and the political conflict in Kashmir and now districts of Khyber Pakhtunkhwa have made service delivery even more difficult.

The hilly terrain allows very little agricultural activity. Also the variability associated with climate change is amplified in areas with high relief profile. (i.e. steep mountains.) Droughts, landslides, torrential rains and ensuing flash floods are some of the climatic hazards that adversely affected these areas and these hazards are expected to worsen through the anthropogenic climate change processes.

c. Driving Narratives

As explained in section (1.1b) RWH project is selected to test the TAMD because it is a clear climate change adaptation related investment of government with significant outcomes and impacts to reduce the exposure and vulnerability of the targeted population to lack of water. In addition to reduced vulnerability to water availability, socioeconomic profile of the area is observed to significantly been changed in various ways after the intervention such as; access to basic service of water, diversified livelihood portfolio due to increased livestock holding, reduced dependence on market due to kitchen gardening, improved personal hygiene, proper functioning of Basic Health Unit. We therefore hypothesise that socio-economic conditions of the populations have improved through this interventions and also made resilient through the increased availability of water at the household level.

STAKEHOLDER ANALYSIS/ KEY ENTRY POINTS

Key Entry Points in First Quarter

In Pakistan TAMD is being executed in collaboration with Ministry of Climate Change. TAMD is started off with its detailed scoping in which existing data sources and M&E practices of government were examined. Launching of the TAMD took place at Ministry of Climate Change

Pakistan where idea of TAMD and its scoping was shared with all the stakeholders on 5th March 2013. The participants of the workshop included, Ministry of Climate Change, Global Change Impact Study Centre (GCISC) Pakistan, Centre for Environmental Economics and Climate Change (CEEECC), Planning Commission Pakistan, Pakistan Meteorological Department (PMD), IUCN (Pakistan), UNDP (Pakistan), IIED UK and ISET Pakistan. (See Annex 1 for Details)

Stakeholders Involvement

TAMD testing is being followed through a well articulated process, which is shared with the stakeholders for their comments and inputs at critical stages. Stakeholders participated and gave the input in TAMD related activities through various ways such as; seminars, emails, meeting minutes, and other written communications. All decisions on selecting pilot interventions through selection of indicators will be conducted with participation of all related government agencies.

THEORY OF CHANGE

TAMD framework uses the Theory of Change (ToC) that refers to the sequence of the events which are expected to lead to a particular outcome. In this process of applying ToC and developing the linkage across TAMD tracks, indicators are used to identify the changes, which took place at different stages and their mutual relationship across those stages. As TAMD is based on two tracks; Track-I, and track-II, ToC is the interconnectedness between two tracks. By putting ToC in context of RWH, we can map the sequence of interventions, which have been made to implement the RWH project activities across the different stages ranging from input to final outcome.

In Track I, the project has used multi-tiered approach in which the federal, provincial, and local governments have been involved. The actual implementation was done through local NGO and community participation. The variety and scale of actors involved makes this project a good candidate to test whether the TAMD approach is indeed usable in complex institutional arrangements that are typical of any large scale program that is to be upscaled at the local level.

For track II, RWH technology has provided the water at consumption point and it has a number of impacts. Provision of water has reduced the women water fetching which results in time saving. Saved time of women is being used in productive activities such as; children brought-up, kitchen gardening, agriculture and livestock. Reduced water fetching has a positive effect on children attendance of school and their hygiene. Reduced water fetching also lessened the women workload that has a significant positive effect on women health in terms of reduced illness. Another aspect of domestic water availability is that people started kitchen gardening

that has reduced their dependence on market. Moreover, now Basic Health Unit lab is functional which was not possible before this intervention for the lack of water.

Driving Narratives

To predict the Theory of Change for RWH project few pilot and midterm project assessments were considered. In this regard [Ahmed.et.al, (2011), (2012)] Centre for Environmental Economics and Climate Change (CEEECC) who has carried out detailed socioeconomic assessment of RWH project were considered (see footnotes on page 5).

INDICATOR DEVELOMENT & METHODOLOGICAL APPROACH

Type of Indicators

Table: 1 specifically highlight the contribution of this program in the wellbeing of the people by presenting a number of measurable output and outcomes indicators. These indicators highlight the deliverables of the RWH technology. Specifically the intervention has contributed in following areas; improvement in sanitation and hygiene, women wellbeing in terms of improved health and saving of water fetching time, livelihood diversification, food security, and increased children attendance in schools. These indicators are developed in the light of the research conducted by [Ahmed.et.al, (2011), (2011a), and (2012)] and Knowledge Attitude Practices (KAP) surveys of the implementers of the project. However, it is worthwhile to mention that there are quite a few other benefits, which could not be separately investigated.

Table: 1 Output/outcome Indicators

Output Indicators	Outcomes Indicators
Improved water supply/ per HH increased availability (gallons/pitchers) Increased water storage Reduced time spent for water fetching Additional livestock Kitchen gardening	Improved sanitation &hygiene Improved health/reduced illness Increased children/girls school attendance Increased domestic saving Increased yield of home grown vegetables

Methodological Approach

Since the secondary data is not collected in neither spatial nor temporal dimension that is needed for this assessment (see next section), a cost effective and robust methodology must needs to be developed to reliably measure some of the expected impacts mentioned above. A mixed method methodology using both quantitative and qualitative tools will be followed to conduct the assessment of RWH technology as an adaptation strategy. Focused group discussions, key informant interviews, and case study approach will be used to identify key

benefits of the intervention. Quantitative assessment on measuring key indicators for socio-economic benefit will be used. Households with and without intervention will be sampled to see the "difference in difference" of each key variable.

Driving Narratives

As mentioned above in section (3.2) a number of research assessments and evaluation reports were used to determine the choice of indicators and methodology of present analysis. Case studies may also be used to demonstrate the socio-economic impacts of the intervention.

EMPIRICAL DATA COLLECTION

Appraisal of Data Sets

In order to evaluate the RWH project a number of data sources (Table: 2) were examined. Unfortunately these data sources cannot be helpful because of various reasons such as different geographic scales and lack of data on specific outcomes and impacts RWH intervention. As the data on desired variable is not available in secondary sources there is need to have an alternate plan to collect primary data. The WatSan Section of ERRA is interested in carrying out the overall assessment of the project and it has offered to jointly conduct the survey to collect the data on all the aspects of project.

While there are various other options such as; telephonic interviews of 'RWH Village Committees' whose contacts are available with ERRA, personal field visits, and implementers can also be requested to provide data on outcome and impact indicators.

Table: 2 Data Sources Matrix

Data Source	Type of Data	Frequency	Geographic Scale
Pakistan Social and Living Standards Measurement Survey (PSLM) 2010-11	Household socioeconomic & demographic indicators	Yearly	National/provincial /district
Household Integrated Economic Survey (HIES) 2010-11	Household income, consumption expenditure data	Yearly	National/provincial rural/urban
Pakistan Statistical Year Book 2011	Socioeconomic, demographic, agricultural and environment data	Yearly	National
Pakistan Economic Survey 2011-12	Socioeconomic, demographic data	Yearly	National
Social Indicators of Pakistan 2011	Socioeconomic, demographic data	Collected after few years	National

Data Gaps

There are few inadequacies related to data and information system in Pakistan such as; time inconsistency, incompatibility of scale, lack of environment and climate change data, lack of appropriate indicators. As mentioned in section (5.1), a primary survey may be conducted to gather socioeconomic data from the beneficiaries of the project.

POTENTIAL CHALLENGES AND LIMITATIONS

There are few challenges, which may hamper the progress. The most crucial issue is of data availability for the selected project (RWH) to test the TAMD because the available data is lacking at the required scale, time period, and appropriate outcome and impact indicators. Moreover, procedures of government departments are very slow which sometime causes the delays in the progress. However, the offer from ERRA to join and support their evaluation is an opportunity to collect the necessary data in detail.

CONCLUSIONS

The TAMD project has taken a fairly good start in Pakistan. In partnership with IIED, the team has managed to get support from (former) Ministry of Climate Change and other organs of the government related to climate change. So far a single project has been selected for evaluation. The data generated at various scales in Pakistan will not be sufficient to carry out this analysis, hence efforts have been made to work closely with the implementing authority to carry out a joint evaluation. This would allow us to develop indicators for TAMD in the process.

In the next quarter, a field data collection strategy and plan will be made and also some initial field visits will be conducted to understand the project and the project area more thoroughly. At the same time efforts would be made to finalize the second candidate for TAMD analysis,. This would require further consultation with the government stakeholders and and consent from all quarters.

ANNEXURE 1: Inception meeting Tracking Adaptation and Measuring Development (TAMD)

In order to formally launch and operationalize the TAMD, an inception meeting was held on 5 March 2013 in the Committee Room at the Ministry of Climate Change. Mr. Jawed Ali Khan, Director General, Ministry of Climate Change, chaired the meeting. The representatives of different relevant departments and agencies participated in the meeting. Agenda of the meeting and the list of participants are respectively placed at annexures 'A' and 'B'. Proceedings and deliberations of the meeting are summarized as follows:

- Mr Jawed Ali Khan welcomed everyone after which participants were asked to introduce themselves.
- Dr. Simon Anderson then gave a brief background of the role of the International Institute for Environment and Development (IIED} in climate adaptation planning, implementation and effectiveness assessment.
- Dr. Simon then went on to give a presentation on 'The Tracking Adaptation and Measuring Development (TAMD) Initiative – Concepts, Objectives and Design'. Some points raised during discussions regarding this topic are presented below:
    - Questions were raised regarding the selection of countries and the IIED representative.
    - Mr. Jawed Ali Khan also stressed the importance of proving the economic viability of adaptation measures from conception to implementation.
    - Mr Jawed Ali Khan also felt that TAMD would provide huge benefits to Pakistan and in addition, if successfully implemented, could give Pakistan the advantage of setting best practices and thereby paving the way for other countries to follow suit.
    - The designing of the framework was questioned as to whether it was tailor made for the different countries or whether it was a one size fits all approach, to which Dr Simon explained that it was envisioned to belong more to the former category as there was no pre-design rather suggestions for concepts and indicators.
    - Further inquiry was made into the design when preference was expressed for a flexible, non-binding framework, as it would be more likely to fail otherwise. To this Dr. Simon expressed the importance of the modality of 'co-production' with partners in IIED, and also stated how the other countries were now entering the TAMD phase of feasibility testing, which is deemed essential to a useful framework. He also pointed out that the framework was meant do be more liberating than constricting and the feasibility reports would in fact help prove that.
    - Another point raised was the relevance of the framework in regards to plans and policies at different levels. To this Dr. Simon explained that practical testing would be carried out in different countries at different levels. And the current meeting would help in that regard by pointing out the areas of focus for Pakistan. In addition, he also differentiated the TAMD framework from other M&E approaches by pointing out that where the latter tend to be embedded in 'difficult' concepts i.e. resilience, adaptive capacity, etc., the TAMD framework was more grounded on development parameters.
- Dr. Simon then gave a presentation on 'Progress in other countries and the prototype'.
- Fawad Khan then went on to give a presentation on 'TAMD scoping results in Pakistan'. Some points raised during the discussion are presented below:
    - Going forward, there is a need to identify what will be presented by Pakistan at the TAMD workshop in Edinburgh in two weeks' time.
    - Gaps in data were identified in current country, national, provincial and local statistics for example in the presentation of data, the frequency, scale and others.

- Mr. Jawed Ali Khan stressed the role of the panel as an overarching body over provincial planning which would be flexible, inclusive and context specific.
- He also emphasized the need to address the gap between policy and planning and saw the TAMD framework as playing a vital role in that.
- Desire was also expressed to use the TAMD framework in order to develop a climate change data warehouse of sorts.

- Fawad Khan then gave a presentation on 'Options for TAMD prototype in Pakistan'. Some key comments are included below:
  - It was pointed out that the Ministry had just completed the Environmental Information Management Systems project and there were some key findings from this exercise:
    - Data generation typically takes place when external support was available; therefore there was a lack of consistency and ownership.
    - Political attention is needed to address this issue adequately.
    - Data warehousing is essential.
  - Some suggestions were made for the urban focus:
    - Reliable transport.
    - Housing project.
    - Drainage program.
- In conclusion, Mr. Jawed was very hopeful about the future of the TAMD framework and its utility for Pakistan.
- There was general agreement to move ahead with the initiative and that the group of organisations present at the meeting would be invited to review progress at regular intervals.

Annexure 1A: Inception Meeting

COMMITTEE ROOM, MINISTRY OF CLIMATE CHANGE, ISLAMABAD

TUESDAY, MARCH 5, 2013

TIME	TOPIC	SPEAKER
14.30	WELCOME, INTRODUCTION AND OBJECTIVES OF THE MEETING	MR. JAWED ALI KHAN, DIRECTOR GENERAL, MINISTRY OF CLIMATE CHANGE
15.00	THE TAMD INITIATIVE – CONCEPTS, OBJECTIVES AND DESIGN	DR. SIMON ANDERSON, HEAD OF CLIMATE CHANGE GROUP, IIED, UK
15.15	QUESTIONS/ANSWERS (DISCUSSION)	MR. FAWAD KHAN, SENIOR ASSOCIATE, ISET-PK
15.30	PROGRESS IN OTHER COUNTRIES AND THE PROTOTYPES	DR. SIMON ANDERSON, HEAD OF CLIMATE CHANGE GROUP, IIED, UK
15.45	TAMD SCOPING RESULTS PAKISTAN	MR. FAWAD KHAN, SENIOR ASSOCIATE, ISET-PK
16.00	QUESTIONS/ANSWERS (DISCUSSION)	DR. SIMON ANDERSON, HEAD OF CLIMATE CHANGE GROUP, IIED, UK
16.15	OPTIONS FOR TAMD PROTOTYPE IN PAKISTAN	MR. FAWAD KHAN, SENIOR ASSOCIATE, ISET-PK
16.30	QUESTIONS/ANSWERS (DISCUSSION)	DR. SIMON ANDERSON, HEAD OF CLIMATE CHANGE GROUP, IIED, UK
16.45	CONCLUSIONS AND WAY FORWARD	MR. SYED MUJTABA HUSSEIN, DEPUTY SECRETARY, MINISTRY OF CLIMATE CHANGE
17.00	VOTE OF THANKS	DR. SIMON ANDERSON, HEAD OF CLIMATE CHANGE GROUP, IIED, UK

Annexure 1B: List of Participants

Sr#	Name of Participant	Designation	Ministry/Department/Agency
1.	Mr. Mohammad Ijaz	Joint Secretary.	Ministry of Climate Change
2.	Mr. Irfan Tariq	Director	Ministry of Climate Change
3.	Mr. Syed Mujtaba Hussain	Deputy Secretary	Ministry of Climate Change
4.	Mr. Sajjad Hyder Yaldaram	Deputy Secretary	Ministry of Climate Change
5.	Mr. Zia ul Islam	Director	Ministry of Climate Change
6.	Mr. Syed Amjad Hussain	Head, CDM	Ministry of Climate Change
7.	Mr. Intsar Ali	IT Expert, CDM	Ministry of Climate Change
8.	Ms. Shehneela Iftikhar	NAMA Officer	Ministry of Climate Change
9.	Ms. Nazish Iqbal	NAMA Officer	Ministry of Climate Change
10.	Ms. Saima Nazir	CDM Officer	Ministry of Climate Change
11.	Dr. Arshad M. Khan	Executive Director	Global Change Impact Study Centre (GCISC)
12.	Mr. M. Munir Sheikh	Head of Climatology	GCISC
13.	Mr. Ghazanfar Ali	Head of Water Section	GCISC
14.	Dr. M. Mohsin Iqbal	Head Agriculture Section	GCISC
15.	Mr. Mohammad Irfan	Director General	National Highway Authority (NHA)
16.	Dr. Rehana Siddiqui	Director	Centre for Environmental Economics and Climate Change (PIDE)
17.	Mr. Hamid Marwat	Chief (Environment)	Planning Commission
18.	Mr. Hazrat Mir	Chief Meteorologist	Pakistan Meteorological Department (PMD)
19.	Ms. Miriam Kugele	CC Coordinator	IUCN (Pakistan)
20.	Mr. Saleemullah	Programme Analyst (Env and CC Section)	UNDP (Pakistan)
21.	Mr. Bilal Ali Qureshi	Prgramme Officer	UNDP (Pakistan)
22.	Dr. Simon Anderson	Head of Climate Change Group	IIED, UK
23.	Mr. Fawad Khan	Senior Associate	ISET-PK
24.	Mr. Atta ur Rehman	Research Associate	ISET-PK
25.	Ms. Sharmeen Malik	Environmental Economist	ISET-PK
26.	Mr. Ajaz Ahmed	Environmental Economist	ISET-PK

Project materials

Climate change

Keywords:
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