

Disaster Management Strategy 2015 – 2020

Disaster

Preparedness

Relief &
Recovery

Prevention/
Mitigation

Rehabilitation &
Reconstruction

Pakistan Poverty Alleviation Fund



Pakistan Poverty Alleviation Fund

PPAF DISASTER MANAGEMENT STRATEGY

July 2015 – June 2020

Second Edition
October 2015



This is what I saw:

Village after village — washed away.

Roads, bridges, homes — destroyed.

Crops and livelihoods — wiped out.

...And ultimately, we must recognize that climate change will bring more incidents of extreme weather.

That is why we must invest more in reducing the risk of future disasters.

August 19, 2010

2010 Pakistan Floods:

**Secretary-General Ban Ki-moon's remarks to
The UN General Assembly**



Foreword

PPAF has heavily invested in poor districts of the country over a period of 15 years in areas of infrastructure, health, education, and livelihoods. But these investments remain at risk when a disaster occurs. Likewise, households who have benefitted from our interventions and improved their condition also fall back into poverty because of loss to their lives, assets, and means of livelihood. PPAF wants to make its investments disaster resilient and see its intervention communities and gradually the people in other disaster prone areas of the country manage disaster risk and recover from natural events, such as floods, earthquakes, and droughts and face growing challenges of climate change effectively without compromising their safety and welfare.

The PPAF Disaster Management Strategy (PDMS) is a framework for action by PPAF and its Partner Organisations with the purpose to: (a) integrate mitigation and prevention measures in interventions for disaster risk reduction, (b) achieve adequate preparedness to cope with an anticipated disaster, before it sets in, and (c) conduct post disaster relief and recovery, reconstruction and rehabilitation.

Benefiting from legacy of the Hyogo Framework for Action and updated in the light of the Sendai Framework—to which Pakistan is a signatory—the PPAF Disaster Management Strategy builds upon a collaborative structure bringing in federal, provincial, and district disaster management authorities, nation building departments, donor agencies, civil society organisations and the private sector.

Developing a resource-backed capacity at the community level is at the heart of all PPAF interventions. Accordingly, the Disaster Preparedness Investment Programme, encompassing capacity building of community based disaster management committees and emergency response teams, construction of emergency shelters, and stockpiling emergency items, is to be implemented in a span of five years, 2015-2020. This programme is to be leveraged by substantially large nationwide investments by PPAF in community managed infrastructure, health, education, and livelihood enhancement. These investments are *inter alia* aimed at an across the board disaster risk reduction, and development of disaster resilient communities.

PDMS provides a short-term framework that covers investment programme in 165 Union Councils from July 2015 to June 2020 for disaster risk reduction, strengthening disaster preparedness, and building a culture of safety and resilience. Also on the anvil are mechanisms for disaster risk transfer, through index based micro-insurance. The Strategy will thus ensure a comprehensive achievement of the Sendai Framework in 165 Union Councils. However, the risk of disasters will be effectively reduced in as many as 1,200 Union Councils, where PPAF will be mainstreaming disaster risk reduction, and supporting community driven interventions till 2020. Alongside, considering Pakistan turning a water scarce country, PPAF envisions to mitigate impacts of drought and prepare its intervention communities in 10 drought prone areas/watersheds of the country so that that they could manage their water resources and navigate through long spells of drought.

Pakistan Poverty Alleviation Fund is indebted to Ms. Yasmeen Lari, Chair and Chief Executive, Heritage Foundation for her inputs in revising the Disaster Management Strategy. The approach provided by Ms. Lari is a paradigm shift in using vernacular methodologies to develop low carbon emission solutions and lays a solid foundation for making community self-reliant and engaging women as key driver of change.

PPAF will utilise its endogenously generated grant fund for rapid deployment of resources at the community level in order to ensure an immediate and effective response to a disaster, encompassing relief and early recovery.

October 2015

Qazi Azmat Isa
Chief Executive Officer

Preface to the Second Edition

It has been 3 years since the first edition of PPAF Disaster Management Strategy was published. This second edition is a revision based on the feedback of panellists and participants when the Strategy was formally launched in March 2013 and the recent global adoption of the Sendai Framework for Disaster Risk Reduction 2015-2030. The Strategy has a revised investment programme prepared till 2020.

The original strategic framework is generic and focuses on all types of disasters but more on floods and earthquake. This edition, in addition to floods and earthquake, documents PPAF's vast experience in drought mitigation and preparedness, which is added as a separate chapter. Owing to the slow set characteristic of disaster, the strategy to cope with drought, though follows the same framework proposed for all other disasters, is contoured to encompass a set of activities specific to drought mitigation and preparedness. The revised strategy now looks at creating an enabling environment for the advancement of women. The idea is to assign women leadership roles and responsibilities in disaster risk reduction efforts and let men join them.

Considerable progress has been made in the past three years. Communities in 52 Union Councils in Sindh have received Community Based Disaster Risk Management training and are prepared to cope with disaster. The use of indigenous material and technologies with low carbon footprint is being promoted in PPAF supported flood and earthquake reconstruction efforts. PPAF, in collaboration with Sussex Partnership NHS Foundation Trust, provided trauma counselling to manage people hit by earthquake disaster in Awaran. Shakeout drills were also conducted in Punjab, KP and Azad Jammu and Kashmir at the school level. The second edition of the Disaster Management Strategy incorporates this new learning and links it with disaster relief as a new approach of PPAF.

Abbreviations and Acronyms

CDD	Community Driven Development
CBDM	Community Based Disaster Management
CBDRM	Community Based Disaster Risk Management
DDMA	District Disaster Management Authority
DM	Disaster Management (Strategy)
DMPP	Drought Mitigation and Preparedness Projects/Programme/Plan
DPM	Disaster Preparedness and Management (Unit of PPAF)
DRRC	Disaster Risk Reduction Centre
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
ERRA	Earthquake Reconstruction and Rehabilitation Authority
FDMA	FATA Disaster Management Authority
HFA	Hyogo Framework for Action
HRE	Hydro power Renewable Energy (Project)
IDPs	Internally Displaced Persons
LACIP	Livelihood Support and Promotion of Small Community Infrastructure Project
MSP	Multi Sector Plan (PPAF)
NDMA	National Disaster Management Authority
NDRMF	National Disaster Risk Management Framework
NGO	Non-Governmental Organisation
PDMA	Provincial Disaster Management Authority
PDRF	PPAF Disaster Response Fund
PPAF	Pakistan Poverty Alleviation Fund
PDMS	PPAF Disaster Management Strategy
PMP	Prevention Mitigation Preparedness
PO	Partner Organisation (of PPAF)
PPR	Programme for Poverty Reduction
PRCS	Pakistan Red Crescent Society
PWDs	Person with Disabilities
SMC	School Management Committee
SUPARCO	Space and Upper Atmosphere Research Commission
ToT	Training of Trainers
UC	Union Council
UCDMC	Union Council Disaster Management Committee
UCDP	Union Council Development Plan
UCERT	Union Council Emergency Response Team
UNISDR	United Nations International Strategy for Disaster Reduction

Glossary¹

Adaptation

The adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

Coping capacity

The ability of people, organisations and systems, using available skills and resources, to face and manage adverse conditions, emergencies or disasters.

Disaster

A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.

Disaster risk

The potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over some specified future time period.

Disaster risk reduction

The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.

Early warning system

The set of capacities needed to generate and disseminate timely and meaningful warning information to enable individuals, communities and organisations threatened by a hazard to prepare and to act appropriately and in sufficient time to reduce the possibility of harm or loss.

Exposure

People, property, systems, or other elements present in hazard zones that are thereby subject to potential losses.

Land use planning

The process undertaken by public authorities to identify, evaluate and decide on different options for the use of land, including consideration of long term economic, social and environmental objectives and the implications for different communities and interest groups, and the subsequent formulation and promulgation of plans that describe the permitted or acceptable uses.

Mitigation

The lessening or limitation of the adverse impacts of hazards and related disasters.

¹ The United Nations Office for Disaster Risk Reduction;
<http://www.unisdr.org/we/inform/terminology#letter-r>

Natural hazard

Natural process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage.

Preparedness

The knowledge and capacities developed by governments, professional response and recovery organisations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions.

Prevention

The outright avoidance of adverse impacts of hazards and related disasters.

Resilience

The ability of a system, community or society exposed to hazards to resist, absorb, accommodate to and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions.

Risk

The combination of the probability of an event and its negative consequences.

Comment: This definition closely follows the definition of the ISO/IEC Guide 73. The word “risk” has two distinctive connotations: in popular usage the emphasis is usually placed on the concept of chance or possibility, such as in “the risk of an accident”; whereas in technical settings the emphasis is usually placed on the consequences, in terms of “potential losses” for some particular cause, place and period. It can be noted that people do not necessarily share the same perceptions of the significance and underlying causes of different risks.

Risk assessment

The systematic approach and practice of managing uncertainty to minimize potential harm and loss.

Risk management

The systematic approach and practice of managing uncertainty to minimize potential harm and loss.

Risk transfer

The process of formally or informally shifting the financial consequences of particular risks from one party to another whereby a household, community, enterprise or state authority will obtain resources from the other party after a disaster occurs, in exchange for ongoing or compensatory social or financial benefits provided to that other party.

Retrofitting

Reinforcement or upgrading of existing structures to become more resistant and resilient to the damaging effects of hazards.

Structural and non-structural measures

Structural measures: Any physical construction to reduce or avoid possible impacts of hazards, or application of engineering techniques to achieve hazard-resistance and resilience in structures or systems;

Non-structural measures: Any measure not involving physical construction that uses knowledge, practice or agreement to reduce risks and impacts, in particular through policies and laws, public awareness raising, training and education.

Vulnerability

The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard.

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EXECUTIVE SUMMARY

Executive Summary

Being uniquely placed to promote a culture of disaster risk reduction and management by integrating DRR through preparedness, prevention and mitigation across all its programmes, and recognizing the need as part of its institutional mandate, PPAF has included disaster risk reduction and management in all its operations and will launch preparedness initiatives in selected Union Councils (UCs) across the country, starting with high-risk districts. PPAF will closely work with the communities and connect the villages and settlements to the UC and district levels.

The PPAF's Disaster Management Strategy is based upon PPAF's defining characteristics, and suggests a holistic approach to poverty alleviation through participation of community institutions and Partner Organisations (POs). The Strategy is aligned with the nine priority areas of the National Disaster Risk Management Framework and the four priority areas of the Sendai Framework. Following these priorities, the PPAF's approach to develop resilience relies upon an integrated, creative disaster preparedness programme that would contribute to three aspects: (1) resilient construction, (2) food security, and (3) diversified income sources. It equally emphasises on conservation of natural resources and avoiding environmental degradation, reducing health risks, garnering strength for individuals from culture, and vernacular heritage, and creative traditions that foster pride and confidence, and dignity and empowerment of women.

The PPAF vision, —restoring hope, securing the future, ending poverty,” dictates the specific goal for this Strategy, i.e., —By 2020, the communities PPAF has worked with have procedures, processes and resources necessary to cope with a disaster, and there is effective coordination and capabilities to mitigate, prevent, protect against, respond to, and recover from the effects of disaster.” This helps sharpen PPAF's mission in terms of disaster management as —To promote, inculcate, and nurture a culture of preparedness and make communities safer by reducing risk of disasters in a coherent and systematic manner, as an integral part of the PPAF supported community driven development (CDD) process to achieve resilience and self-reliance.”

Strategic Framework

Driven by the concept of long term planning and focusing on prevention and preparedness rather than reactive measures, PPAF's Disaster Management Strategy, has two dimensions: (1) Disaster Risk Reduction through preparedness and mitigation and prevention; and (2) Response (relief, recovery), Reconstruction and Rehabilitation.

To make communities resilient to floods, earthquakes and droughts, this Strategy proposes ways through which PPAF and community could reduce the risk of disaster and recover from stress and develop capacity to adapt to climate change.

In order to be effective, the Strategy recognizes the importance of government and other actors, and proposes to establish linkages with them, puts forward an investment package, integrates environmental, heritage and cultural sensitivities,

and builds upon local wisdom and knowledge in the pursuit of sustainable outcomes.

The proposed Disaster Management (DM) strategies for disaster and drought preparedness, relief, recovery, reconstruction, and rehabilitation – which have been elaborated in the Chapters 3, 4 and 5 – include:

Disaster Preparedness

- DM 1: Strengthen institutional arrangements for community based disaster risk management
- DM 2: Know the hazard and community vulnerabilities and capacities
- DM 3: Ensure that adequate response plans; early warning systems, and sufficient capacities are in place to mount a swift and effective response
- DM 4: Develop understanding of underlying causes and build safety at grassroots level in order to empower communities for achieving self-reliance
- DM 5: Help develop technical capabilities of communities leading to local disaster action plan in order to reduce risk and manage disaster
- DM 6: Reduce and protect against social, physical, economic, cultural and environmental vulnerability of the community

Post Disaster Relief, Recovery, Reconstruction, and Rehabilitation

- DM 7: Undertake relief and recovery operations in a community focused planned and coordinated way
- DM 8: Utilise recovery cycle for training communities to avoid displacement and reduce vulnerability
- DM 9: Help community develop a vision for reconstruction and rehabilitation using sustainable procedures

Drought Preparedness, Mitigation, and Rehabilitation

- DM 10: Mobilise community, set up institutional framework, and ensure sufficient capacities are in place to manage drought
- DM 11: Analyse situation on water and land use and help community develop a Drought Mitigation and Preparedness plan
- DM 12: Put in place mitigation infrastructure to reduce and protect against physical, social, and economic vulnerabilities
- DM 13: Prepare communities to manage drought
- DM 14: Move toward climate compatible development
- DM 15: Undertake relief and recovery operations in a community focused planned and coordinated way
- DM 16: Help community rehabilitate in a sustainable way

A US\$ 42 million national investment plan for Recovery, Reconstruction, Rehabilitation, and Preparedness (3R+P) will be implemented during 2015-2020. Part of these funds is available through some of its existing projects while the remaining \$27.81 funds will be raised following a robust fundraising strategy.

National Grants-based Investment Plan for **3R+P**

Description	Disaster Risk Reduction		Response, Reconstruction, Rehabilitation		
	<i>Mitigation+ Preparedness</i>	<i>Preparedness</i>	<i>Relief & Recovery</i>	<i>Reconstruction</i>	<i>Rehabilitation</i>
3R+P cost for flood and earthquake	\$2.83 million (65 UCs)	\$20.75 million (100 UCs)	\$11 million	So far carried out under SCAD. PPAF will work in these areas if donor funds are available.	
3R+P cost for drought	\$7.06 million				
Total 3R+P	\$41.64 million (~\$42 million)				
Funds required	\$27.81 (\$20.75 m for flood & earthquake and \$7.06 m for drought)				

DISASTER MANAGEMENT STRATEGY

1. INTRODUCTION

Sustainable social development is key to poverty alleviation and it is now established that development is not sustainable without considering the risk of disaster. Investments without risk consideration cause development failures, and worst, create development-induced disasters, and thus erode development gains. As a result, the poor are further pushed into poverty and the hard-to-come resources of development agencies are wasted on relief and reconstruction instead of new development.

Disasters in the form of floods, droughts, cyclones, earthquakes cause human misery. Not only there is physical loss, the destruction takes emotional toll as well. Induced by climatic shifts, the ferocity with which extreme weather events have struck in recent years is alarming and frightening. The culture of disaster reduction and management, to respond to these threats, is still evolving around the globe; nevertheless, responsive nations with awareness and understanding of the need for introducing disaster reduction and management in all spheres of national development have invested in this sector and implemented institutional changes and are today in relatively safer situation. Even in some countries in the region disaster risk management (DRM) is well integrated in all sectors of national development. The subject is taught as part of their education curriculum and scholars contribute to enrichment of the subject.²

1.1 The Global Context

To reduce disaster losses globally, in 2005, Hyogo Framework for Action 2005-2015 was designed as the international strategy for disaster risk reduction. The framework was adopted by 168 nations of the world in Hyogo, Japan in 2005 to make their respective communities disaster resilient by year 2015.

Now in March 2015, the global community adopted the Sendai Framework for Disaster Risk

Sendai Framework 2015-2030

The need for improved understanding of disaster risk in all its dimensions of exposure, vulnerability and hazard characteristics;

- Strengthening of disaster risk governance, including national platforms; accountability for disaster risk management;
- Preparedness to “Build Back Better”; recognition of stakeholders and their roles;
- Mobilisation of risk-sensitive investment to avoid the creation of new risk;
- Resilience of health infrastructure, cultural heritage and work-places;
- Strengthening of international cooperation and global partnership, and risk-informed donor policies and programmes, including financial support and loans from international financial institutions.

Source: United Nations (2015) Sendai Framework for Disaster Risk Reduction 2015 - 2030

² The education authorities in Indonesia taught school children about the causes and results of earthquakes, tsunamis and volcanic eruptions. When in May 2006 earthquake hit Yogyakarta, the families sought protection in doorframes, under tables and under beds, and did not leave their houses until the quake was over. Such families escaped serious injury. Likewise, the Central Board for Secondary Education in India has introduced Disaster Management as a separate curriculum for standard VIII from the academic year 2003-2004, IX from 2004 – 2005 and standard X from 2005-2006. Source: Regional Consultative Committee Guideline 6.1 (2007) Integrating disaster risk reduction into school curriculum; <http://www.ineesite.org/assets/ADPCIntegratingDRRIntoSchoolCurriculum.pdf>

Reduction 2015-2030. The Sendai Framework is built on elements, which ensure continuity with the work done by states and other stakeholders under the HFA, and introduces a number of innovations.³ One of the key emphasis points is disaster risk management as opposed to disaster management. Further, the scope of disaster risk reduction has been broadened significantly to focus on both natural and man-made hazards and related environmental, technological, and biological hazards and risks.

1.2 The National Context

Focus Humanitarian Assistance (FOCUS)-an agency of the Aga Khan Development Network, was the first to start a disaster management programme named Prevention Mitigation Preparedness (PMP) in Pakistan in late 1999 in Chitral and Northern Areas (now Gilgit-Baltistan).

At the government level, disaster management was only after 2005 earthquake. In 2007 the Government of Pakistan established NDMA for addressing all aspects of disaster risk management. Since establishing of NDMA a number of milestones have been achieved including: formulating legislation for institutional setup⁴, publishing National Disaster Risk Management (NDRM) Framework⁵, introducing a new National Disaster Response System⁶, establishing provincial and district structures of disaster management, setting up the National Institute of Disaster Management as the premier institute of training and capacity development programmes for managing natural and human-induced disasters occurring in the country, and a conscious support to promoting DRM in the country.

The Pakistan NDRM Framework is fully compatible with the globally accepted Hyogo and Sendai Frameworks and identifies the following nine priorities areas.

1. Institutional and legal arrangements for DRM
2. Hazard and vulnerability assessment
3. Training, education and awareness
4. Disaster risk management planning
5. Community and local level programming
6. Multi-hazard early warning system
7. Mainstreaming disaster risk reduction into development
8. Emergency response system
9. Capacity development for post disaster recovery

In 2008 the Earthquake Reconstruction and Rehabilitation Authority (ERRA) designed and implemented its Community Based Disaster Risk Management (CBDRM) Programme in the nine earthquake affected districts. ERRA DRM

³ United Nations (2015) Sendai Framework for Disaster Risk Reduction 2015 - 2030

⁴ NDMA Pakistan Act No. XXXIV of 2010

⁵ National Disaster Risk Management Framework Pakistan, March 2007; www.ndma.gov.pk

⁶ National Disaster Response Plan (2010) March; www.ndma.gov.pk

programme design was an evolution of the FOCUS' PMP programme. ERRA programme comprised three main components: hazard assessment and mapping, building communities' capacity to respond and mainstreaming DRR in local level development planning. Tools, instruments, and documents were produced under each of these components at the end of the programme. The programme was implemented directly by ERRA under a Project Director with facilitators and trainers in the field.

In 2011 NDMA decided to initiate a CBDRM programme at the country level following the ERRA programme model. Further adjustments were made in the ERRA programme design keeping in view the need to scale up. The NDMA programme envisaged entrusting ownership of the programme to the provinces and implementation through implementation partners selected on merit for their capacity and expertise. From the design the component of assessment and mapping was excluded, being resource intensive and time consuming. NDMA's role was seen as resource mobilisation, technical backstopping, and coordination.

The NDMA programme was shared with a wide range of stakeholders and the model was further tuned incorporating views and feedback. Ironically, the programme had to be abandoned due to non-availability of resources (and lack of will at the decision-making level). However, representatives from a number of agencies—national and international, coordinated with the NDMA DRM team to further discuss the model to align their respective DRM programmes with the NDMA model.

Despite the provincial strategies made by Provincial Disaster Management Authorities (PDMAs) and even strategies at the district level, the role of the authorities has been limited to regulate and coordinate relief and response operations when disaster strikes. While the strategies speak of establishing and strengthening local institutions for DRR at Tehsil, Union Council, and Village levels, but the institutions, except under the work done by ERRA in 9 districts of Khyber Pakhtunkhwa and Azad Jammu and Kashmir, do not yet exist on the ground. Little attention has been paid to disaster risk reduction through preparedness and mitigation/prevention and enhancing the capacity of the communities.

1.3 The PPAF Context

PPAF is uniquely placed to promote a culture of disaster risk reduction and management by integrating disaster risk reduction (DRR) through mitigation and prevention and preparedness across all its programmes. Recognizing the need, PPAF, as part of its institutional mandate, has included disaster risk reduction and management in all its operations and will launch preparedness initiatives in selected Union Councils (UCs) across the country, taking up, initially, in the high-risk districts. The initiatives will be implemented through Partner Organisations (POs), selected on the basis of their comparative advantage of working in these areas. From the level of Union Council- the lowest administrative level- where all action takes place, PPAF will closely work with the communities and connect the villages and settlements below with the authority at the district level above.

The PPAF Disaster Management Strategy (PDMS) is a product of the process that took place at the national level. While implementing the PPAF disaster management activities, cognizance will be taken of all similar activities previously undertaken or concurrently in progress and closely coordinated to avoid duplication of effort. Working through its Partner Organisations, PPAF will carry out a UC specific situation analysis and will involve community institutions established and strengthened through PPAF support.

The PPAF Disaster Management Strategy addresses the organisation's defining characteristics, and more specifically, supports a holistic approach to poverty alleviation through participation of community institutions and Partner Organisations. The Strategy is aligned with the nine priority areas set forth under the NDRM Framework and the four priority areas of the Sendai Framework.

Table 1 shows how PPAF disaster management activities fit into priority areas identified under the Sendai Framework and NDMA framework.

Table 1 Compatibility of PPAF Disaster Management Initiatives with Sendai Framework and NDMA Priority Areas

Sendai Framework Priorities	NDMA Priority	PPAF Outcomes			
Strengthening disaster risk governance to manage disaster risk	<ul style="list-style-type: none"> – Institutional and legal arrangements for DRM – Community and local level programming 	<ul style="list-style-type: none"> – Established linkages at national and provincial levels with disaster management authorities, non-government organisations, development agencies, and private sector – Established Disaster Risk Reduction Centres for coordinating disaster management and emergency response at the revenue village level 			
Understanding disaster risk	<ul style="list-style-type: none"> – Disaster risk management planning – Hazard and vulnerability assessment – Multi-hazard early warning system 	<ul style="list-style-type: none"> – Assessed and mapped local level hazards – Established linkages with government for district and higher level mapping – Established linkages with national agencies for early warning – Established early warning dissemination mechanism within POs 			
Investing in disaster risk reduction for resilience.	<ul style="list-style-type: none"> – Training, education and awareness 	<ul style="list-style-type: none"> – Transferred knowledge to local communities and school children and staff on disaster risk reduction – Disaster risk management mainstreamed across PPAF multi-sector planning 			
	<ul style="list-style-type: none"> – Mainstreaming disaster risk reduction into development 	<p>Risk Factors:</p> <table border="1"> <thead> <tr> <th>1. Fragile Physical Environment</th> <th>2. Fragile Local Economy, Society, Culture, Traditions</th> </tr> </thead> <tbody> <tr> <td> <ul style="list-style-type: none"> a) Dangerous locations b) Dangerous buildings and infrastructures c) Soil erosion and storm protection methods d) Depletion of trees and vegetation </td> <td> <ul style="list-style-type: none"> a) Livelihood at risk b) Low income level c) Life and social capital d) Shared knowledge e) Alternative livelihood by skill training f) Tangible, intangible and cultural reserves </td> </tr> </tbody> </table> <ul style="list-style-type: none"> – Reduced Risk Factors through the implementation of MSP 	1. Fragile Physical Environment	2. Fragile Local Economy, Society, Culture, Traditions	<ul style="list-style-type: none"> a) Dangerous locations b) Dangerous buildings and infrastructures c) Soil erosion and storm protection methods d) Depletion of trees and vegetation
1. Fragile Physical Environment	2. Fragile Local Economy, Society, Culture, Traditions				
<ul style="list-style-type: none"> a) Dangerous locations b) Dangerous buildings and infrastructures c) Soil erosion and storm protection methods d) Depletion of trees and vegetation 	<ul style="list-style-type: none"> a) Livelihood at risk b) Low income level c) Life and social capital d) Shared knowledge e) Alternative livelihood by skill training f) Tangible, intangible and cultural reserves 				

Sendai Framework Priorities	NDMA Priority	PPAF Outcomes
Enhancing disaster preparedness for effective response and to “Build Back Better” in recovery, rehabilitation and reconstruction	<ul style="list-style-type: none"> – Capacity development for post disaster recovery – Emergency response system 	– Developed response capacities at local level through knowledge transfer, capacity building, stockpiling emergency stores and ensuring contingency planning of communities at UC and village level

PPAF is also projecting its voice at the international level and thus linking up local concerns with the global ones. Recently, PPAF was requested by UNOCHA to provide some feedback on humanitarian response in Pakistan. This feedback was organised nationwide by International NGOs mostly, but with PPAF’s larger network and access on ground, PPAF was also a part of the process. So, in June 2015, PPAF hosted a national consultation with various stakeholders, including but not limited to PPAF’s own partners selected on the basis of geographical variation and disaster specific experience. The feedback will be taken to the regional consultation later this year and eventually feed into the Worldwide Humanitarian summit hosted by UN Secretary General next year in 2016.

1.4 Incidence of Poverty and Disaster Vulnerability in Pakistan

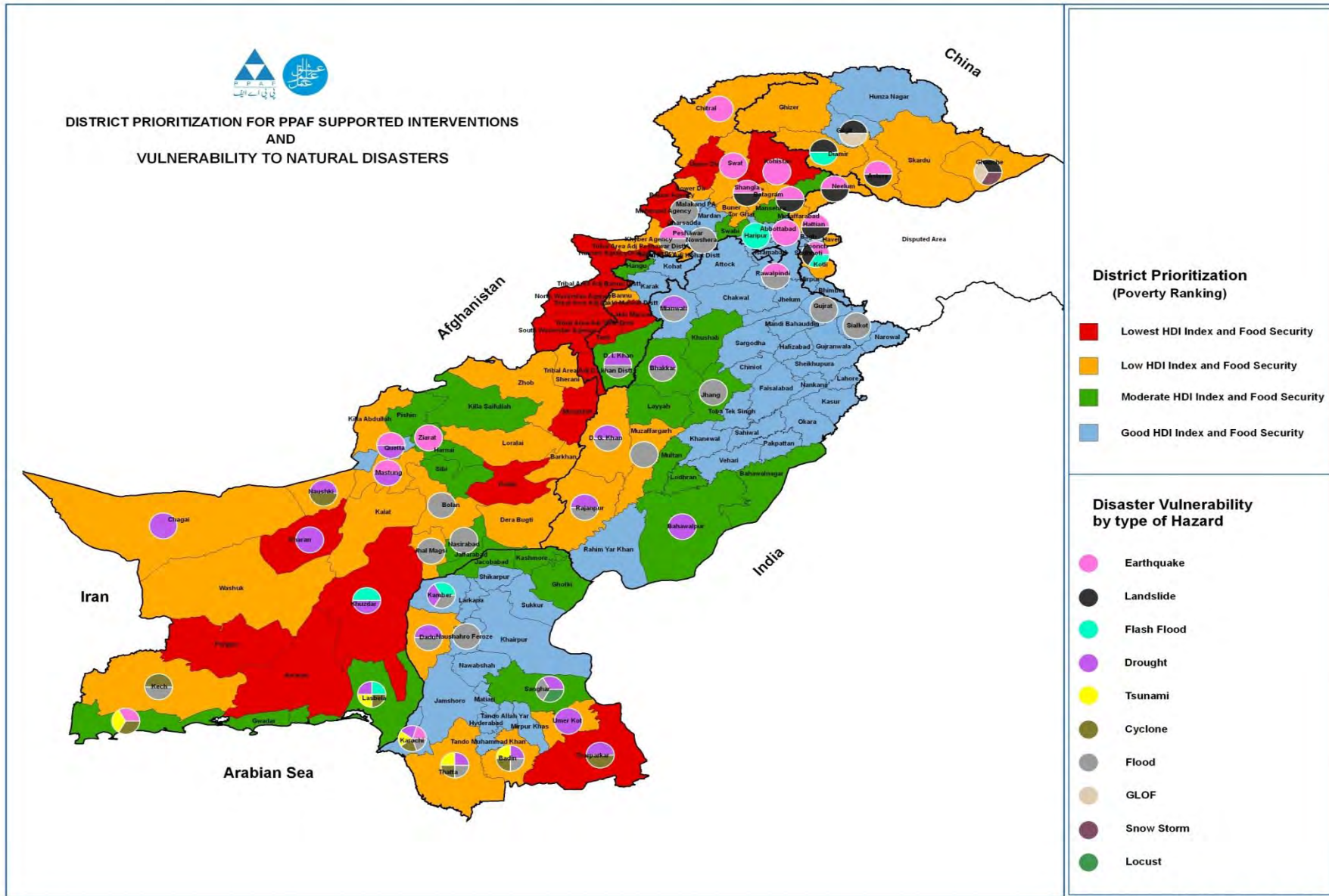
A hybrid map, ‘District Prioritization for PPAF Supported Interventions and Vulnerability to Natural Disasters’ has been prepared by combining the NDMA’s 50 priority districts for disaster management and PPAF’s District Prioritization Map for grant funded and micro finance interventions (Figure 1). The poorest districts are also the disaster high-risk districts. This amply explains the nexus between disasters, poverty, and vulnerability. PPAF will begin its disaster management activities in selected Union Councils of these priority districts; however, in case of a disaster, the affected district will become a priority district despite its non-priority district categorization earlier.

1.5 Types of Major Disasters Confronting Pakistan and PPAF’s Involvement

Earthquakes, floods, cyclones, and droughts have hit Pakistan resulting in loss of social and material assets, economic disruption, and environmental degradation. PPAF is involved in responding to all of these calamities. Chapters 3 to 5 elaborate on ways to reduce risk of rapid setting disaster, such as earthquake and floods.

In 2003, PPAF pioneered local level community managed drought mitigation and preparedness programmes across the country. The programmes are designed by blending the state of the art remote sensing technologies with local wisdom and implemented by representative Task Force (TF).

Since drought is a slow setting disaster and owing to its unique nature, spearheading work, and the richness of PPAF experience in this area, the drought mitigation and preparedness strategy is presented separately under Chapter 5.



Processed and prepared by the PPAF EIDM Group - March 15, 2012

Figure 1 Disaster Prioritization for PPAF Supported Interventions and Vulnerability to Natural Disasters

2. PPAF DISASTER MANAGEMENT STRATEGY

2.1 Vision, Mission, and Objectives

2.1.1 PPAF Vision and Disaster Management Goal

The PPAF vision, —restoring hope, securing the future, ending poverty,” dictates the specific goal for the Disaster Management Strategy. PPAF aims that —By 2020, the communities PPAF has worked with have procedures, processes and resources necessary to cope with a disaster, and there is effective coordination and capabilities to mitigate, prevent, protect against, respond to, and recover from the effects of disaster.” This helps sharpen PPAF’s mission in terms of disaster management as —to promote, inculcate, and nurture a culture of preparedness and make communities safer by reducing risk of disasters in a coherent and systematic manner, as an integral part of the PPAF supported community driven development (CDD) process to achieve resilience and self-reliance.”

2.1.2 Objectives

The objectives of Disaster Management Strategy are:

- To integrate disaster risk reduction in development processes across all programmes of PPAF directly and through advocacy and sharing DRR tools in all development initiatives to be risk conscious and sustainable.
- To build disaster preparedness capacity of PO staff and male and female community members to manage risks and respond to disasters.
- To identify document and disseminate good practices for adopting for replication by partners and other organisations within the country and abroad.
- To pursue holistic disaster management models for achieving self-reliance by communities by scaling up best practice green methodologies

2.2 Strategic Framework

Driven by the concept of long term planning focusing on prevention and preparedness rather than reactive measures, PPAF Disaster Management Strategy, broadly categorized under the two dimensions of: 1) Disaster Risk Reduction; and 2) Response, Reconstruction and Rehabilitation, addresses the concerns for risk management before the occurrence of disaster and crisis management during and after the disaster.

1. Disaster Risk Reduction
 - a. Preparedness
 - b. Mitigation and Prevention
2. Response, Reconstruction, and Rehabilitation

- a. Relief and Recovery
- b. Reconstruction and Rehabilitation

The preparedness, mitigation and prevention activities are planned before the occurrence of the disaster to reduce the risk of disaster, while relief and recovery, reconstruction and rehabilitation and are post disaster activities.

Before	During	After
<i>Risk Management</i>	<i>Crisis Management</i>	
Preparedness	Relief	Reconstruction
Mitigation & Prevention	Recovery	Rehabilitation

Adapted from: Zhang, Jiquan, Norio Okada, Hirokazu Tatano (2005)

In order to be effective, the Strategy recognizes the importance of government and other actors and proposes to establish strong linkages with them, puts forward a financial package, integrates environmental, heritage and cultural sensitivities, and builds upon local wisdom and knowledge.

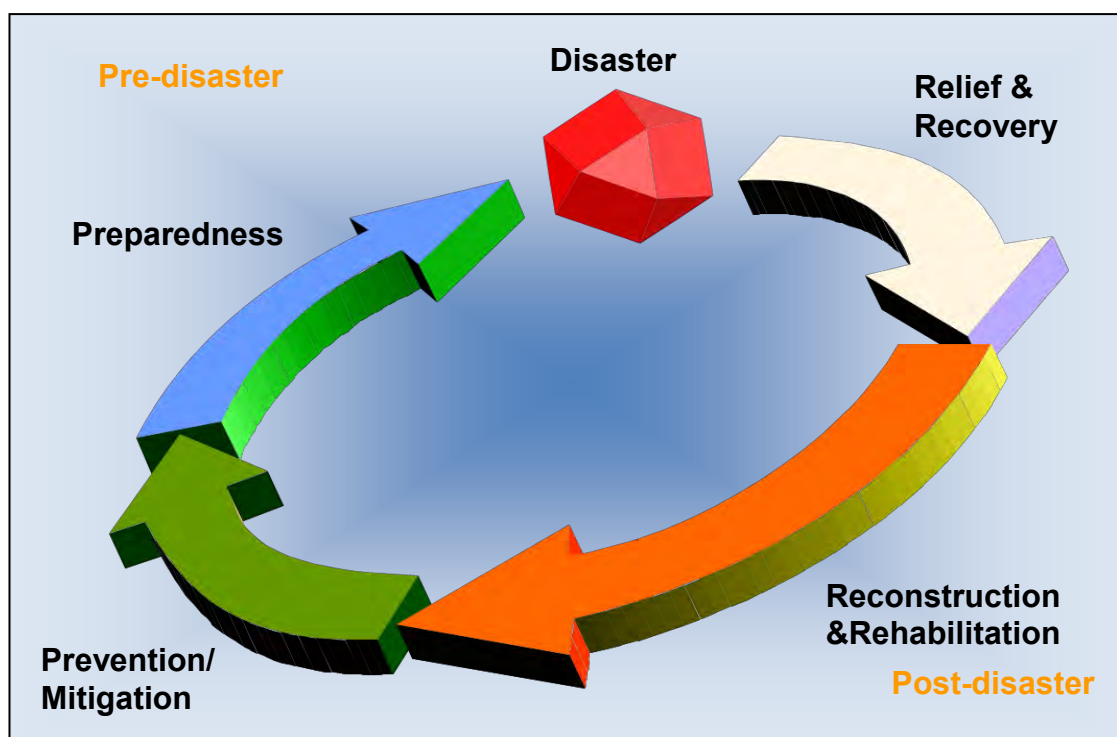


Figure 2 Disaster Management Strategy

3. DISASTER RISK REDUCTION

Natural hazards can affect anyone, anywhere. People are threatened by hazards, mostly vulnerable groups, because of their social, economic, cultural, and environmental vulnerability, which must be taken into account if sustainable development is to be achieved.⁷ Disaster Risk Reduction is the concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including through reduced exposure to hazards, lessened vulnerability of people and property, wise management of land and the environment, and improved preparedness for adverse events.⁸ With climate change the frequency of extreme events will increase and hence arises a greater need for disaster risk reduction.

Each of these disaster preparedness and management (DPM) aspects are detailed out below under the broad classification of preparedness and mitigation and prevention.

Disaster Risk Reduction Framework

- Risk awareness and assessment including hazard analysis and vulnerability/capacity analysis;
- Knowledge development including education, training, research and information;
- Public commitment and institutional frameworks, including organisational, policy, legislation and community action;
- Application of measures including environmental management, land-use and urban planning, protection of critical facilities, application of science and technology, partnership and networking, and financial instruments;
- Early warning systems including forecasting, dissemination of warnings, preparedness measures and reaction capacities.

UNISDR (2002) *Living with Risk: A global review of disaster reduction initiatives*, mentioned in 2004, Volume 2

3.1 Preparedness

DM 1: Strengthen institutional arrangements for community based disaster risk management

Preparedness is defined in terms of developing national, provincial, district capabilities including those of women at the village level as foundation work to build upon mitigation and prevention measures whether structural or non-structural to limit or eliminate the risks associated with potential hazard.

Following the second priority action of the Sendai Framework, a critical feature of the PPAF's Strategy is coordination with and developing linkages among development entities across different levels of government, non-governmental organisations, development agencies, communities, and the private sector, and establishing an institutional framework to perform the following tasks:

⁷ Source UNISDR; <http://www.unisdr.org/we/inform/publications/657>

⁸ http://www.unisdr.org/files/7817_UNISDRTerminologyEnglish.pdf

- Mobilising and organising communities and federating up to Union Council level;
- Understanding their specific vulnerabilities to human-induced and natural hazards;
- Facilitate communities to conduct their hazard, vulnerability, and capacity analysis including the underlying, and root-causes of disaster risks and integrate these into their village development plans.
- Setting up an early warning system for timely dissemination of forewarning messages with feedback loop for timely data collection;
- Managing the physical response mechanism (raised platforms, hand pumps, eco-toilets, disaster risk reduction Centres), including periodic maintenance,
- Stockpiling tools, equipment, food items and medicines;
- Managing teams;
- Improving skills, enhancing knowledge, and raising awareness for improved resilience; and
- Establishing participatory monitoring and evaluation system.

For each selected Union Council, the revenue villages will be grouped into three clusters, having 3 to 4 revenue villages each, on the basis of contiguity and geography. From each cluster a core village will be identified through GIS, factoring in ease of access and its relative safe location, as the hub for coordination of disaster risk reduction, management and emergency response at the cluster level and to serve as the Centre for learning and information dissemination to revenue villages and onward to hamlets and settlements around the revenue villages (Table 2 below).

The Village Disaster Management Committee (VDMC) will be formed in each of the revenue villages, to be further represented in the UC Disaster Management Committee (UCDMC) to be formed at the UC level. The UCDMCs within a district will be linked with and represented at the DDMA. PPAF will advocate to PDMA for formal inclusion of at least 2 members from each UCDMC in DDMA or the district level disaster management forum as non-official members.⁹ Similarly, government officials will be invited to become members of UCDMC.

A core revenue village will have a Core Village Disaster Risk Reduction Centre (DRR Centre)¹⁰ where Village Disaster Management Committee – a representative body of all revenue villages in that cluster – will be housed to manage Emergency Disaster Response Teams (ERTs) of all revenue villages in that cluster. There will be sub DRR Centres in rest of the revenue villages. The DRR Centres will serve multiple purposes, including a social hub, a venue for capacity building of communities in income generation skills, literacy, and

⁹ Currently in Mansehra, members of an LSO are serving as volunteers at the DDMA forum.

¹⁰ The area around the DRR centre will be developed as a demonstration area having models of one room shelter, eco-toilet, platforms, *machan* (storage), animal enclosure, roof garden, raised hand pumps, stove platform, etc., depending upon the availability of funds

hygiene trainings, place for stock-piling and a place to gather in emergencies. PPAF emphasizes on inclusive development and giving women leadership roles. At the DRR Centres, women will be overseeing the activities and men will be tasked with the responsibility of taking care of the Centres and equipment.¹¹

The UCDMC with representatives of Village Disaster Management Committees and ERTs will coordinate all activities and disseminate information and will convene in any of the Core Village Disaster Risk Reduction Centres. UCDMCs will liaise with DDMA.

Table 2 Institutional Arrangement at the Union Council Level

UC	Each cluster	Physical response and refuge mechanism	Institution(s) per UC	Members of institutions
3 clusters, each having 3-4 revenue villages and 5 hamlets. Out of each cluster, one revenue village will be selected as Core Village	1 core revenue village	Large-size Core Revenue Disaster Reduction eco-toilet, raised platform hand pumps one room shelter	Union Council Disaster Management Committee	Representatives of Village Disaster Management Committees, ERT members, government officials
	2-3 revenue villages	In each revenue village: Sub-Disaster Risk Reduction Centres, eco-toilet, raised platform hand pumps one room shelter	Village Disaster Management Committee in each cluster, Women DRR Centre Committee, Men DRR Centre Committee	Representatives of Village Organisations from all revenue villages, ERT members; community members
	Around 5 hamlets		In each revenue village: Women DRR Centre Committee, Men DRR Centre Committee, Emergency Response Teams	Village Organisation, Community Organisation, community members
			Members of Emergency Response Teams as focal points	Community members

The selection of members of these institutions will be guided by PPAF's principle of inclusion that emphasises on placing women and youth at the Centre of programme activities. Training and actively involving children, women and youths in resilience-building measures such as paramedical skills and stockpiling, and creating local management, governance and information sharing systems that rely on their participation/leadership will help elicit a more prompt response and will ensure that they are in a state of readiness when a warning is sent out. Hence, it will be ensured that at the revenue village and hamlet level women manage the emergency response teams and they are also members of UCDMC.

¹¹ Following the standard operating procedure of PPAF for community physical infrastructure, the land for DRR centre will be such that community agrees to build the centre on it and is owned by the community.

Hand Pumps on Raised Platforms and Eco-toilets

Disasters, particularly flooding, pose great health threat if there is a lack of sanitation or non-availability of safe drinking water. Construction of eco-toilets and clean water availability are among key elements for disaster preparedness and in order to make communities self-reliant in the face of disasters.

Building hand water pumps that are on elevated earthen platforms for safety during floods and purifying drinking water through solar treatment (*suraj pani*) will provide safe drinking water during floods. The grey water discharged is biologically treated in a plantation bed in the form of circle *kela chakkar* (banana circle) with banana trees or fruits and vegetable planted around for preventive health and food security.

The construction of toilet chamber provides privacy along with hygienic environment leading to better health. The toilet has a mechanism for urine diversion and separating solid faeces, in order that solid waste could be collected in a container for placing in compost pits, while urine is discharged into a plantation bed or receptacle thus addressing WASH (water, sanitation, hygiene) aspects by minimizing the use of water, clean sanitation and hygienic environment.

The strong roof provides space for *Chhat Bagheecha*-roof garden- that incorporates drip irrigation. The toilet provides income generation through sale of excreta/nightsoil. Once the urine and faeces are sold, the money generated can be used to add the hand wash basin and the roof. The incremental methodology can allow families to gradually build up the facility.

Construction of DRR Centres in Villages

The Disaster Risk Reduction Centres (DRRs) are low cost vernacular structures designed to be disaster resistant while using local techniques and materials. The DRR Centres are designed to become the nerve centre of communities. Through these centres a number of activities including income generation skills, literacy and hygiene trainings etc. will be conducted.

The DRR Centres allow women to take ownership. Committees of women are tasked with the responsibility of overseeing the activities and men's committees undertake the responsibility of the safety of DRR Centres and equipment this providing inclusive environment, where men have become equal stakeholders.

Source: Adapted from Heritage Foundation's Women-Centred Community Based Disaster Risk Management Strategy

While trainings of master trainers will take place at the core revenue villages, these master trainers – community resource persons (CRPs) – trained in construction related trades and green skills will travel to the hamlets in the cluster to train communities. Likewise, community resource persons of CBDRM and conflict sensitive training supported by POs will train the communities settled in hamlets.

Why women focused interventions

A key lesson from the 2005 earthquake in Pakistan was that it is primarily the women and children that form the first wave of response and resilience as men folk are often not around when disasters strike. A majority of menfolk 'migrate'—locally, nationally, and internationally—in search of livelihoods. The news of menfolk flooding the airports in the Gulf and its environs to try and get back to their villages, while the women and children struggled to cope with the immediate aftermath of the disaster, was etched in the learning memories of the disaster response teams. PPAF, since then, in addition to streamlining DRM into all its interventions, places an extraordinary emphasis in preparing women and children as the bastions of building disaster resilience.

Women at the forefront- Dera Bugti IDPs relief and repatriation work of PPAF

A women led local support organisation in Union Council Hajipur of Tehsil Jampur organised relief item distribution and led health and hygiene trainings.

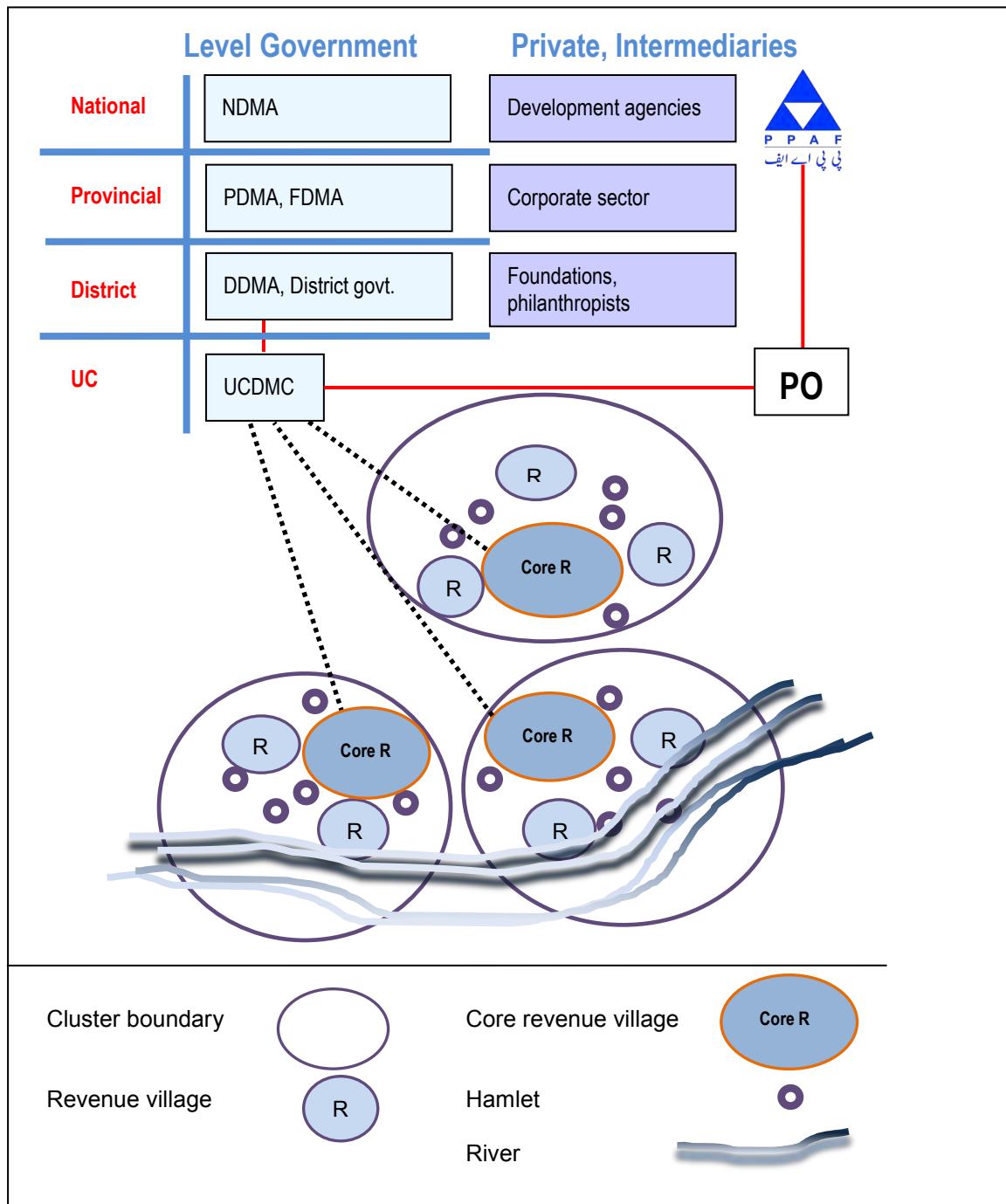


Figure 3 Disaster Management Institutional Arrangement illustrating Village Clusters in a Union Council

Establishing linkages with national, provincial, and district level authorities is pivotal to sustain resilience and ensure ownership. PPAF has worked closely with National Disaster Management Authority (NDMA), Provincial Disaster Management Authorities (PDMAs), FATA Disaster Management Authority (FDMA) and District Disaster Management Authorities (DDMAs), the private sector, Space and Upper Atmosphere Research Commission (SUPARCO), ERRRA, Pakistan Meteorological Department. PPAF will further hold dialogues with them to share information on UCs and resources, map hazards, obtain

information and share progress with DDMA, connect with SUPARCO and Met Office for communicating predictions and warnings.

DM 2: Know the hazard and community vulnerabilities and capacities

Making decision to reduce risk is possible when potential losses are estimated and acceptable level of losses is determined. Estimating potential losses requires analysing hazards, evaluating existing conditions of vulnerability that together could potentially harm exposed people, property, services, livelihoods and the natural resource base on which they depend, and determining capacity of the community to withstand hazardous event (Table 3).¹²As a process, it is generally agreed that risk assessment includes:¹³

- Identifying the nature, location, intensity and probability of a threat;
- Determining the existence and degree of vulnerabilities and exposure to those threats;
- Identifying the capacities and resources available to address or manage threats; and
- Determining acceptable levels of risk.

Table 3 Risk Assessment

Hazard Assessment			Vulnerability & Capacity Assessment				
Determines			Determines vulnerability and capacity to cope				
Geographical location	Intensity	Probability	Physical	Social	Economic	Environmental	Cultural
			Estimates level of risk				
			Establishment of acceptable level of risk				

Adapted from UNISDR (2004) *Living with Risk: A global review of disaster reduction initiatives*, Fig 2.10, Page 63; Davis, Haghebaert and Peppiatt (2004) *In Tools For Mainstreaming Disaster Risk Reduction, Vulnerability And Capacity Analysis*, Guidance Note 9

Communities, supported by POs, will conduct hazard mapping and hazard assessment (HA) and vulnerability and capacity assessment (VCA) using participatory rural appraisal identifying the probability of occurrence of a specific hazard, in a specific future time period, as well as its intensity and area of impact, vulnerable groups, factors that make them vulnerable, including fragility of physical environment, dangerous locations, lack of physical and social infrastructure, fragility of local economy, poverty levels, and how they will be affected, and their needs and capacities. For VCA, there will be a basic matrix showing sector of vulnerability, vulnerabilities, and existing capacities as shown in the textbox below.

¹² UNDP (2010) *Disaster Risk Assessment*, Bureau for Crisis Prevention and Recovery; <http://www.undp.org/10D16BE4-EA5E-476F-90FD-6A33BD3E8E5C/FinalDownload/DownloadId-CDC8E8976F9FCE5D4C3FCB47CEA1412B/10D16BE4-EA5E-476F-90FD-6A33BD3E8E5C/content/dam/undp/library/crisis%20prevention/disaster/2Disaster%20Risk%20Reduction%20-%20Risk%20Assessment.pdf>

¹³ UNISDR (2004) *Living with Risk: A global review of disaster reduction initiatives*, Page 63

Hazard-related Vulnerabilities and Capacities in Different Sectors

Sector	Vulnerabilities	Capacities
Social	<ul style="list-style-type: none"> ■ Occupation of unsafe areas ■ High-density occupation of sites and buildings ■ Lack of mobility ■ Low perceptions of risk ■ Vulnerable occupations ■ Vulnerable groups and individuals ■ Corruption ■ Lack of education ■ Poverty ■ Lack of vulnerability and capacity analysis ■ Poor management and leadership ■ Lack of disaster planning and preparedness 	<ul style="list-style-type: none"> ■ Social capital ■ Coping mechanisms ■ Adaptive strategies ■ Memory of past disasters ■ Good governance ■ Ethical standards ■ Local leadership ■ Local non-governmental organisations ■ Accountability ■ Well-developed disaster plans and preparedness
Physical	<ul style="list-style-type: none"> ■ Buildings at risk ■ Unsafe infrastructure ■ Unsafe critical facilities ■ Rapid urbanisation 	<ul style="list-style-type: none"> ■ Physical capital ■ Resilient buildings and infrastructure that cope with and resist extreme hazard forces
Economic	<ul style="list-style-type: none"> ■ Mono-crop agriculture ■ Non-diversified economy ■ Subsistence economies ■ Indebtedness ■ Relief/welfare dependency 	<ul style="list-style-type: none"> ■ Economic capital ■ Secure livelihoods ■ Financial reserves ■ Diversified agriculture and economy
Environmental	<ul style="list-style-type: none"> ■ Deforestation ■ Pollution of ground, water and air ■ Destruction of natural storm barriers (e.g., mangroves) ■ Global climate change 	<ul style="list-style-type: none"> ■ Natural environmental capital ■ Creation of natural barriers to storm action (e.g., coral reefs) ■ Natural environmental recovery processes (e.g., forests recovering from fires) ■ Biodiversity ■ Responsible natural resource management

Source: Davis, Haghebaert and Peppiatt (2004) In *Tools for Mainstreaming Disaster Risk Reduction, Vulnerability and Capacity Analysis, Guidance Note 9*

DM 3: Ensure that adequate response plans, **early warning systems**, and sufficient capacities are in place to mount a swift and

At the UC level, PPAF will build the response capacity of UCDMC and ERTs through its Partner Organisations and ensure active participation of women in these teams. UCDMC will be trained in local level preparedness planning which will include identification and assessment of hazards, vulnerabilities, and capacities.

ERTs will be trained in basic disaster response: search and rescue, evacuation to safer location, treating victims, handling serious patients, and sending them to medical facilities.

The core village Disaster Risk Reduction Centres will stockpile emergency tools and equipment along with emergency kits at the cluster level to enable the local communities and authorities to effectively respond to emergencies/disasters in future, without having to wait for the external help to arrive.

The DRR Centres will also be a community meeting place, a training Centre and a safe shelter in times of a disastrous event.

POs will be trained to carry preparedness planning and relief and recovery operations and conduct activities in a way that human rights and humanitarian principles are realized in practice.' Safe behaviour and practices, such as integrating humanitarian charter and minimum standards in the areas of water

The minimum standards describe conditions that must be achieved in any humanitarian response in order for disaster-affected populations to survive and recover in stable conditions and with dignity.

The Core Standards are the first set of minimum standards and inform all others. They describe how the processes and approaches taken during a humanitarian response are fundamental to an effective response.

The Sphere Project, Humanitarian Charter and Minimum Standards in Disaster Response (2011, Pg 7)

supply and sanitation, nutrition, food aid, shelter, and health services, manage and supervise the activities to ensure quality of humanitarian assistance that minimum standards of humanitarian assistance are respected.¹⁴

Moreover, POs will follow Humanitarian Accountability Partnership (HAP) standards so that POs and PPAF are more accountable to crisis-affected people by: (1) delivering on what they have committed, (2) the staff is competent to meet the PPAF's commitments, (3) beneficiary community and other stakeholders have access to timely information by using available technology, (4) people including women and other vulnerable and minority groups are involved in

The 2010 HAP Standard in Accountability and Quality Management represents the collective wisdom of the humanitarian sector and affected communities. It helps to reduce the risk of mistakes, abuse and corruption, protects the dignity and wellbeing of affected communities and assists organisations to design and implement accountable and quality programmes.

Humanitarian Accountability Partnership; <http://www.hapinternational.org/>

decision making, (5) there is mechanism in place for people to raise complaints and receive response at the village level, and (6) the process of learning from experience is inbuilt in the system to improve performance through dissemination.

¹⁴ Sphere for Monitoring and Evaluation' together with Sphere for Assessments' guide how to integrate key elements of Sphere's people centered approach into the humanitarian program cycle and should therefore be used together with the Handbook.

DM 4: Develop understanding of underlying causes and build safety at grassroots level in order to empower communities for achieving self-reliance

Understanding local conditions, PPAF will develop sensitive approaches to design frameworks for diverse situations, which include dealing with core poverty issues, physical and social infrastructure deficits, lack of understanding of rights of women and children, and living peacefully in a community to lead to improved quality of life to attain resilience.

Men, women and children will be provided knowledge and skills of making safe structures, will be trained for disaster preparedness so that the community builds a culture of safety and resilience.

Self-reliance will be achieved by removing vulnerability through addressing core poverty and social deficits, e.g., literacy, hygiene, health, income generation through other grant-based PPAF interventions and community efforts, and promoting alternative livelihoods.

Training communities in green skills will enable communities to manage their resources and natural assets in a better way and generate income out of it too, such as better / raised farming, animal enclosures, green roofs, rainwater harvesting to conserve water and regeneration of soil, wetland creation, increasing bio-diversity, forestation, use of local resources and sustainable techniques as opposed to industrialized models and a host of other activities in the rural landscape of the country.

A team of master trainers including women and youth-community resource persons will be trained in these skills at the core revenue village level who will then transfer technical capabilities to the rest of the revenue villages and then to hamlets.

DM 5: Help develop technical capabilities of communities leading to local disaster action plan in order to reduce risk and manage disaster

The Union Council Disaster Management Committee together with community institutions will prepare a local disaster action plan for each community. The plan (Table 4) will chalk out the actions to be taken under each of the strategy of preparedness, mitigation and prevention, relief and recovery, and reconstruction and rehabilitation; elaborate the process of carrying out the actions; and identify who will be doing what. The members will be to carry out these tasks to identify problems, priorities, and what to do and make their assets and themselves safe.

Table 4 Local Disaster Action Plan

Actions	Process	Responsibilities
Preparedness		
Conduct community meetings to identify hazard vulnerability in the community/village	-Area profile: geographic location, land use and settlement, climate, rainfall, hydrology, drainage, natural resource base, threatened wildlife, protected areas and biodiversity hotspots, history of disasters, seasonal calendar of hazards, social and economic activities	UCDMC, PO
Conduct vulnerability and capacity analysis	-Identify vulnerable groups, factors that make them vulnerable and how are they affected, assess their needs and capacities to be built	UCDMC, PO
Disseminate knowledge and information on hazards and safe places and formulate contingency planning mechanisms	-Establish early warning dissemination system -Conduct preparedness drills, -Prepare evacuation plan, routes -Design shelter plan, medical care plan, feeding plan	Information and Communication subcommittee of UCERT
Develop framework for managing response operations and rehabilitation work	-Identify and network with district government, donors for support -Estimate requirements under each cluster for the expected duration of event	PPAF, PO UCDMC
Take steps to integrate and streamline humanitarian charter and identified minimum standards in relief operations	Train UCERT, UCDMC, PO	PPAF, PO
Develop vision for rebuilding	-Train community to build back safer and resilient structures -Consult district government, donors, communities for rehabilitation activities -Identify roles and responsibilities for implementation of post disaster rehabilitation plan and set timelines	PPAF, PO, CO, UCDMC
Mitigation and Prevention		
Identify structural, non-structural, and natural measures to protect the community	Hold community meetings	PO, UCDMC, VDMC
Identify resource needs and availability against the measures	Design programme indicating cost estimates	PPAF, PO, UCDMC, VDMC
Post Disaster (Relief and Recovery, Reconstruction and Rehabilitation)		
Implement evacuation and search and rescue plan, first aid and medical plan, feeding plan	Coordinate with identified agencies for support Follow humanitarian standards and principles (Sphere, HAP) Mark and provide evacuation places for threatened wildlife	PO, UCDMC, VDMC, UCERT
Implement reconstruction and rehabilitation plan	-Identify physical infrastructure, livelihoods, health, education interventions to reduce vulnerabilities and enhance capacities -Prioritize interventions and sequence activities -Build in regulations and standards of NDMA and ERRA in the design of the activities -Assign roles and responsibilities according to the plan	PO, UCDMC, VDMC CO

3.2 Mitigation and Prevention

DM 6: Reduce and protect against social, physical, economic, **cultural** and environmental vulnerability of the community

The needs arising out of hazard and vulnerability assessment is reflected in Village Development Plan which captures needs, proposed solutions, available resources, resources required, sources of funding, and roles and responsibilities for implementation of development solutions with timelines. The Village Development Plans will form the basis of Union Council Development Plan (UCDP) giving information to PPAF units to design structural and non-structural measures¹⁵ to reduce and protect against social, physical, economic, and environmental vulnerability of the communities. The measures (Table 5) will vary from short to long term and consist of policy and planning, physical components, as well as soft component of capacity building as follows.

1. Policy and planning at the national and regional levels
2. Physical preventive and coping/adaptive measures
3. Capacity building at the revenue village/community level

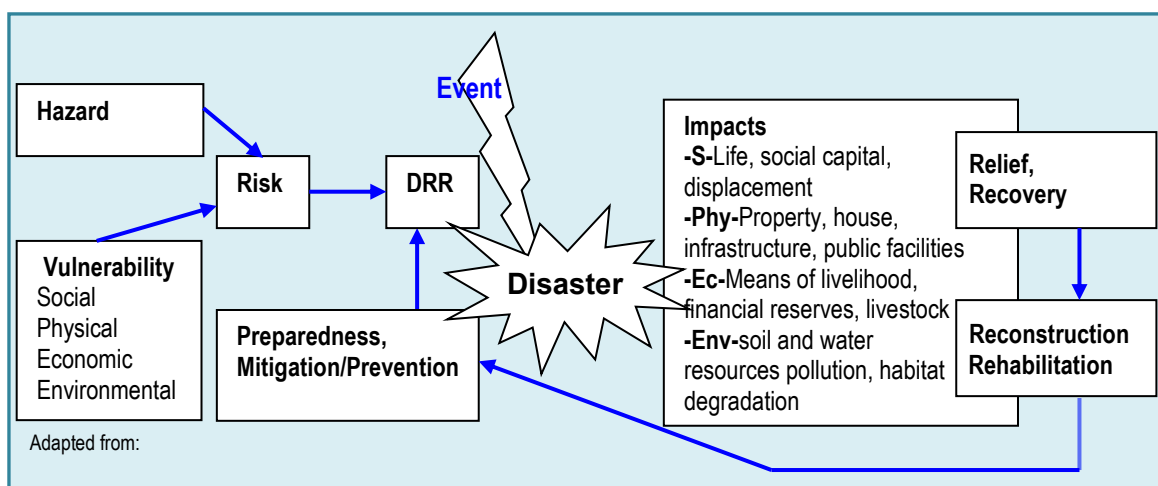


Figure 4 Disaster Risk, Potential Impacts, and Management Cycle

Table 5 Disaster Risk Reduction Measures

Policy and planning <i>Building capacity to respond</i>		Physical infrastructure <i>Reducing exposure to & preventing Hazards</i>		Capacity building <i>Improving community coping mechanism</i>
National level	Regional level	Prevention	Coping/adaptive	Community level
<i>E.g., institutional, policy, capacity building measures, linkages with levels of government, linkages with government services, early warning systems</i>		<i>E.g., building check dams, erosion control structure as part of flood defence mechanisms</i>	<i>E.g., flood shelter for use during a disaster event</i>	<i>E.g., developing a disaster preparedness committee, alternative livelihood trainings, revolving funds, safety nets, public warning systems</i>

Adapted from various sources including DFID (2005) *Natural Disaster and Disaster Risk Reduction Measures*

¹⁵Structural measures: Any physical construction to reduce or avoid possible impacts of hazards, or application of engineering techniques to achieve hazard-resistance and resilience in structures or systems e.g., dams, flood levies, earthquake-resistant construction, and evacuation shelters
Non-structural measures: Any measure not involving physical construction that uses knowledge, practice or agreement to reduce risks and impacts, e.g., building codes, land use planning laws and their enforcement, research and assessment, information resources, and public awareness programs, training and education.

Policy and planning measures comprise measures that integrate DRR into policy framework to build capacity to respond at national and regional levels. The communities will prepare UC level plan for protection against hazards, preparedness and contingency; hazard and climate sensitive land use planning techniques; planning techniques and codes for disaster resistant building construction, financial policies for risk transfer (through insurance and availability of credit, linkages with social safety networks)¹⁶; linkages with district and provincial government for coordinated and well informed efforts; agricultural and food policies for livelihood and food security (such as through crop diversification, crop rotation, growing low delta crops); and development and implementation of early warning systems.

... accounting for disaster losses is a first step towards taking responsibility for, and assessing, disaster risk. Adapting existing development instruments such as national public investment planning, conditional cash transfers and temporary employment programmes, can help to scale up disaster risk management efforts to reach millions of risk-prone citizens. Such strategies reduce disaster risk and strive towards the objectives of the HFA, and are also important for adapting to climate change and achieving the MDGs.

Global Assessment Report on Disaster Risk Reduction 2011

Disaster Risk Transfer

Disasters hit microfinance clients, who are poor and most vulnerable. These disasters lead to loss of livelihoods, higher expenditures, and loss of assets. Critical in disaster management is preparedness, readiness to act immediately and focus on having trigger systems in place that can mitigate the impact of disasters.

PPAF through strategic partnership with SECP, Microfinance Institutions, Insurance companies, the Metrological Department and renowned experts has designed and launched index-based crop insurance and live-weight livestock insurance products. The purpose of all these initiatives is to support action research to develop sustainable market based insurance models, best suited to the economic and social characteristics of deprived communities.

The initiatives piloted highlight the importance of Catastrophic Insurance Pools/Schemes, which should be implemented as a mandatory component of MFIs/MFBs packages to individual clients.

After the success of the pilot, the Index-Based Crop Insurance is up-scaled in the same region; moreover, a comprehensive project for this product is in the pipeline for 10,000 farmers in District Bahawalpur for wheat and cotton crops. Likewise, the pilot of Live-Weight Live Stock Insurance is being up-scaled for the similar location, and an additional 24,000 animals will be insured in districts Tharparkar and Jaccobabad.

To mitigate liquidity and credit risk of MFIs, a sector-wide disaster contingency fund should be established in collaboration with donors, SBP, Government, SECP and Insurance Companies.

Source: Financial Services Group, PPAF

¹⁶ Some Disaster Risk Transfer and Financing options are placed at Annexure-I.

Physical measures reduce vulnerability and exposure of infrastructure to natural hazards and also provide coping and adaptive infrastructure. PPAF's preventive infrastructure will include flood defences (check dams, erosion control structure, mini dams and delay action dam), natural protection against floods (forestation, rangeland management), installation of drainage pumps, and designing disaster resilient infrastructure.

Coping and adaptive infrastructure will comprise strategic stockpiling of relief material, designing contingency mechanisms for coping, such as escape routes, boats for evacuation, building emergency shelter for flood or cyclone, raised platforms in front of public buildings, raised roads and infrastructure, etc. At the revenue village level, multipurpose hall will be constructed, to be used for training purposes, as warehouse for emergency stores, and, in case of a disaster, as readily available safe haven. Also, raised platform will be made for keeping livestock in times of flood. Where applicable, safe passage for the threatened wildlife will be provided for relocation in case of localized disaster.

In the event of disaster, communities are at the forefront as victims of disasters. The very first responders in a disaster are the surviving members of the family, then the neighbours, and the local community. Local level mitigation projects reduce vulnerability and contribute to making communities resilient. **Capacity building** at community level will aim at preparedness measures for community to better respond and cope with the impacts of disaster through education, training, awareness, and capacity building and hence reduce the risk of hazard turning into a disaster. The capacity building measures may include:

- Establishing a community response structure in the form of Disaster Management Committee and rescue and evacuation brigade comprising influential community leaders, Community Organisations, VOs, and LSOs/Task Forces. The Core Village Disaster Risk Reduction Centre will be linked with district level institutional framework
- Giving awareness, skill training and knowledge transfer to selected men and women volunteers at community level on disaster management subjects, including basic search and rescue, emergency healthcare, fire fighting and casualty evacuation, etc.
 - Community based disaster risk management training
 - Skills training of artisans and carpenters in disaster resilient construction
- Building response capacities of the community by establishing Disaster Risk Reduction Centres with stockpiles of emergency tools and equipment, and non-perishable food items
- Sharing with children at school and in the community about hazards and responding to hazards
- Establishing early warning system at the community level
- Establishing mechanism for secure and resilient livelihoods (such as diversifying livelihoods/incomes, diversifying cropping pattern), access to financial reserves (such as through linkages with safety nets, community's own revolving funds)
- Designing evacuation plans and organising drills

4. RESPONSE, RECONSTRUCTION, AND REHABILITATION

4.1 Response

DM 7: Undertake relief and recovery operations in a community focused planned and coordinated way

Relief and recovery are emergency response services and public assistance during or immediately after a disaster to save lives, protect property and environment, reduce health impacts, and meet basic subsistence human needs.

PPAF emphasizes on pre disaster risk reduction so that the preparation pays off and there is minimal loss when a disaster does set in. Emergency response is focused on immediate and short term needs constituting 1) response; 2) evacuation; and 3) relief. HAP standards will be adhered to help PPAF and its partners to design, implement, assess, improve and recognize accountable programmes while saving lives and reducing suffering.

A disaster onset will call for immediate response that would include: locating victims, searching for them and rescuing them. Search and Rescue (SAR) demands expertise and therefore capacity to initiate basic SAR at local level will be developed by training the UCERTs. The Core Village Disaster Risk Reduction Centres will coordinate the deployment of Emergency Response Teams and equipment and supplies.

Following, the victims will be evacuated to safer location; more serious victims sent to medical facility. For more technical SAR, agencies having trained search and rescue teams and specialized equipment will be engaged. PPAF, through its Partner Organisations, will coordinate with government emergency response teams at the UC, Tehsil, and District levels and seek professional support.

The third phase in the cycle will be relief. Depending upon the nature, severity, and extent of a disaster, the relief phase may prevail for a few days to several months. Approximated to Sphere Project, water supply and sanitation services will be provided, medical services will be extended, and food and non-food items will be made available to the disaster-affected population. Special attention will be paid to the needs of women, children, PWDs and elderly people.

During the relief and recovery phase, plans and programmes will be drawn up for reconstruction and rehabilitation of the affected communities.

Some of the previous relief, recovery, and reconstruction activities of PPAF in earthquake 2005, flood 2010 and 2011 are summarized in the textbox below.

PPAF's Role in Relief, Recovery, Reconstruction, and Preparedness

Earthquake 2005: A disaster management committee represented by Partner Organisations, Pakistan Army, and Government of Pakistan set out a framework for PPAF relief activities that started within 24 hours of the 2005 earthquake in AJK and northern Khyber Pakhtunkhwa. Trucks loaded with relief goods carrying tents, beddings, and liquid milk were successfully delivered to affected communities spread over intractable distances and altitudes.

With winter approaching, provision of temporary shelter was prioritized. While other agencies were still in relief phase, PPAF moved to reconstruction phase within a month of the earthquake and managed to deliver CGI sheet kits to 15,000 families.

Earthquake Reconstruction and Rehabilitation Authority chose PPAF as its leading partner for reconstruction and rehabilitation. Following ERRA guidelines, PPAF incorporated earthquake resistant standards and design in housing reconstruction. PPAF then also set out a comprehensive plan to train and orient house owners, skilled laborers, and PO staff in earthquake resistant building designs and techniques. Over 122,000 housing structures were constructed. The transfer of funds was done according to the official assistance strategy with a single installment of Rs. 50,000 per household for a partially damaged housing structure and Rs. 150,000 with a completely damaged housing structure.

CECP Funded Health and Education Facilities: With funds from Community Encouraging Corporate Philanthropy (CECP), 6 health centres and 10 schools in AJK and KP were reconstructed on built operate and transfer model. The construction followed ERRA standards and Pakistan environmental management laws.

Floods 2010: The floods affected around 20 million people spread over approximately 796,000 square km—one fifth of the area of Pakistan. Between August and November PPAF provided food and adequate shelter, tents, and hygiene kits to over 550,000 affectees in 18 flood affected districts. Besides, PPAF installed 140 hand pumps and pit latrines near shelters/camps of displaced population. Critical medical assistance was provided to over 300,000 patients through 110 medical camps in 20 flood affected districts from Kohistan, Shangla, Swat, and Dir Upper in the mountainous north all the way down to Sukkur and Thatta in the plains of Sindh.

Under rehabilitation activities, PPAF planned 774 schemes in 13 flood affected districts. Of these, 107 schemes have been completed. To rehabilitate livelihoods, PPAF provided 2655 trainings, 2411 wage compensations, 1735 asset transfers, and 36 community investment grants. PPAF made provisions for blended feed and pallets for 70,000 animals while over 20,000 animals were vaccinated and drenched bottles were provided for another 9,480 animals.

Rainfall 2011: The heavy torrential rain spell of August and September compounded by numerous breaches caused vast inundation in the southern districts of Sindh. Standing crops were destroyed and over 1.2 million people turned homeless. Badin was the worst hit district, while 13 other districts of Sindh were significantly affected. Responding rapidly to this disaster, PPAF through its POs carried out relief activities in 14 Union Councils of Badin and benefited over 61,000 families.

The Sindh Coastal Areas Development (SCAD) programme: SCAD is known around the country for its positive impacts and as an example of a brave intervention that helped contain a massive ecological disaster through development of protective and productive infrastructure, CBDRM trainings, health, and education, administered in tandem with a workfare program and livelihood, employment and enterprise development interventions in 52 Union Councils in five southern districts of Sindh - Karachi, Badin, Thatta, Tharparkar and Sanghar covering a population of over 1.55 million. PPAF has spent Rs. 2.1 billion (Sept 2015) on the rehabilitation and preparedness of these coastal communities.

2013 Earthquake: PPAF carried out relief operations in Awaran, Balochistan providing 6,000 earthquake resistant transitional shelters using indigenous material (bamboo and mud) having low carbon footprint. Here also, PPAF in partnership with Sussex Partnership NHS Foundation Trust is providing post trauma counseling of people hit by disaster.

Bugti IDPs Assistance Programme 2015: Through provision of nonfood items of Rs. 3.5 million, PPAF has enhanced coping capacity of internally displaced 900 families of Bugti tribe who have migrated to Rajanpur to escape the military operation in Balochistan.

DM 8: Utilise recovery cycle for training communities to avoid displacement and reduce vulnerability

Emphasizing on preparedness so that there is minimal displacement during next disaster and the community bounces back to usual life in a short period of time, communities will be helped to achieve pre-disaster status by developing protection measures¹⁷, loss estimation of lives, assets and belongings, response mechanism, contingency planning mechanism, physical response and refuge mechanism for families, livestock and household goods.

With the aim to help prevent and reduce natural and human-made hazard exposure and vulnerability to disaster, increasing preparedness for response and recovery, and thus strengthening resilience of the most vulnerable communities, PPAF has forged partnerships with international NGOs to form a consortium called as the P4R (Partnership for Resilience) Alliance. The consortium partners bring in specialized skills in disaster risk reduction that will help communities develop their skills tailored specifically to their environment and socioeconomic context.

4.2 Reconstruction and Rehabilitation

DM 9: Help community develop a vision for reconstruction and rehabilitation using sustainable procedures

To help community recover from impacts of disaster, based on vulnerability assessment, POs will identify what needs to be done in terms of social, physical, economic and environmental vulnerabilities. Then POs will help community develop a vision for rebuilding and rehabilitation and a plan for reconstruction incorporating disaster resilient land use pattern and construction, employing mitigation and prevention measures, integrating humanitarian standards and ecological custodianship by adopting vernacular methodologies concepts for low cost strong and safe elements.

For reconstruction and rehabilitation, water and infrastructure units, and livelihood enhancement and protection unit will be actively involved. Again, Sphere standards will be followed approximately to provide shelter and settlements, water supply, and sanitation services to and promote good hygiene practices among the affected population.

PPAF is building alliances with non-profit organisations to train communities in making low carbon footprint products for incorporating DRR in reconstruction to build back better and safer. This includes houses and community shelters that are built with material having zero or low carbon footprint and built with

¹⁷ Hazard mapping and vulnerability, capacity to respond

participation of households so as to equip them with environmentally friendly building techniques using locally available material, such as bamboo, mud, lime, and stone. Using DRR compliant sustainable construction techniques and employing vernacular methodologies, the POs will help reconstruct and rehabilitate the communities. PPAF will also train communities in skills that would help them make livelihoods out of village own resources. This will include training in green skills for safe flood- and seismic-resilient shelters, eco-toilet, and composting of human waste, smokeless fuel efficient cooking, animal enclosures for hygiene and compost making from livestock waste, elevated earthen platforms for storing, solar water treatment, roof gardens for food safety, plantation, greenery and wetlands from *khads* (ditches), rain water harvesting from roofs and raised bed farming in saline soils and flood prone areas.

5. DROUGHT PREPAREDNESS AND MITIGATION

5.1 Drought in the National Context

Drought is defined as a protracted period of deficient precipitation resulting in extensive damage to crops, resulting in loss of yield.¹⁸ Pakistan experienced a long spell of drought from 1998-2002 when there was precipitation loss by 25% in 1998 against the previous year's record of 609 mm, which then continued to decline till 2002.¹⁹ Overall, 58 of the total 124 districts and minimum of 15 million of the people living below poverty line in Pakistan were severely affected first by precipitation deficiency and then gradually agricultural²⁰, hydrological²¹, and socioeconomic²² droughts.

Balochistan was the most affected province, which experienced almost 70% decline in rainfall from 313 mm in 1997 to 101 mm in 1998.²³

Understanding Drought

It is equally difficult to define (drought), because what may be considered a drought in, say, Bali (six days without rain) would certainly not be considered a drought in Libya (annual rainfall less than 180 mm). In the most general sense, drought originates from a deficiency of precipitation over an extended period of time--usually a season or more--resulting in a water shortage for some activity, group, or environmental sector. Its impacts result from the interplay between the natural event (less precipitation than expected) and the demand people place on water supply, and human activities can exacerbate the impacts of drought.

Source: NDMC, University of Nebraska-Lincoln, USA;
<http://drought.unl.edu/DroughtBasics/WhatisDrought.aspx>; accessed on Feb 4, 2013

The drought situation is very fluid and changes with precipitation. According to the Pakistan Meteorological Department (2000), almost the entire Balochistan, eastern border of Sindh starting from the coastline till Bahawalnagar in Punjab were severely affected. Only Chitral was drought clear. In 2001 only central

¹⁸ National Drought Mitigation Center; <http://drought.unl.edu/DroughtBasics/WhatisDrought.aspx>

¹⁹ National data from 61 met stations of Pakistan

²⁰ Agricultural drought links various characteristics of meteorological (or hydrological) drought to agricultural impacts, focusing on precipitation shortages, differences between actual and potential evapotranspiration, soil water deficits, reduced groundwater or reservoir levels, and so forth.

²¹ Hydrological drought is associated with the effects of periods of precipitation (including snowfall) shortfalls on surface or subsurface water supply (i.e., streamflow, reservoir and lake levels, groundwater). The frequency and severity of hydrological drought is often defined on a watershed or river basin scale. Hydrological droughts are usually out of phase with or lag the occurrence of meteorological and agricultural droughts. It takes longer for precipitation deficiencies to show up in components of the hydrological system such as soil moisture, streamflow, and groundwater and reservoir levels.

²² Socioeconomic definitions of drought associate the supply and demand of some economic good with elements of meteorological, hydrological, and agricultural drought. The supply of many economic goods, such as water, forage, food grains, fish, and hydroelectric power, depends on weather. Because of the natural variability of climate, water supply is ample in some years but unable to meet human and environmental needs in other years. Socioeconomic drought occurs when the demand for an economic good exceeds supply as a result of a weather-related shortfall in water supply.

²³ Water And Power Development Authority (WAPDA); data from 61 rain gauge stations of Pakistan

Punjab and some areas of Azad Jammu and Kashmir (AJK) were drought clear; the rest of the regions in the country had the same level of drought as that in 2000.

In 2002 the situation changed when some parts of Balochistan and Sindh and Rahim Yar Khan in Punjab were under moderate drought; the rest of the country was under weak drought and some areas under emerging drought. As of September 2015, while northern Punjab, FATA, Gilgit-Baltistan, and AJK are categorized as slightly wet to moderately wet regions, Dalbandin, Chagai, Washuk, Kharan and Nushki in Balochistan are still under moderate drought and another 20 districts including Punjgur, Awaran, Kharan and Khuzdar are experiencing mild drought.²⁴

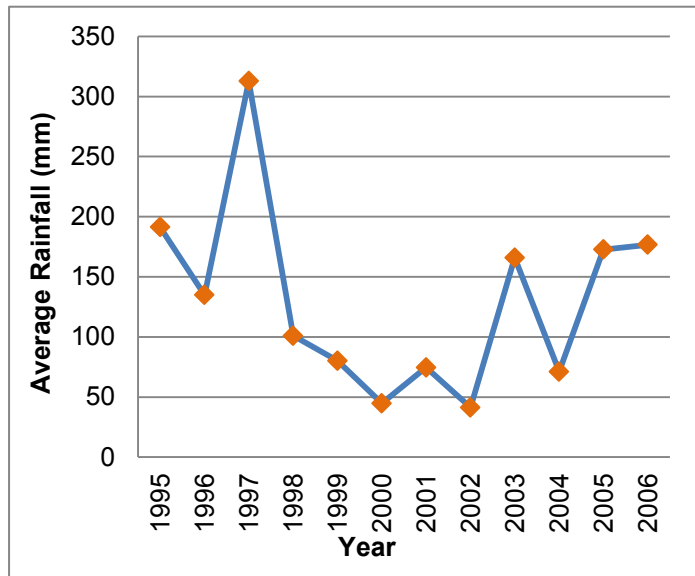


Figure 5 Precipitation in Balochistan

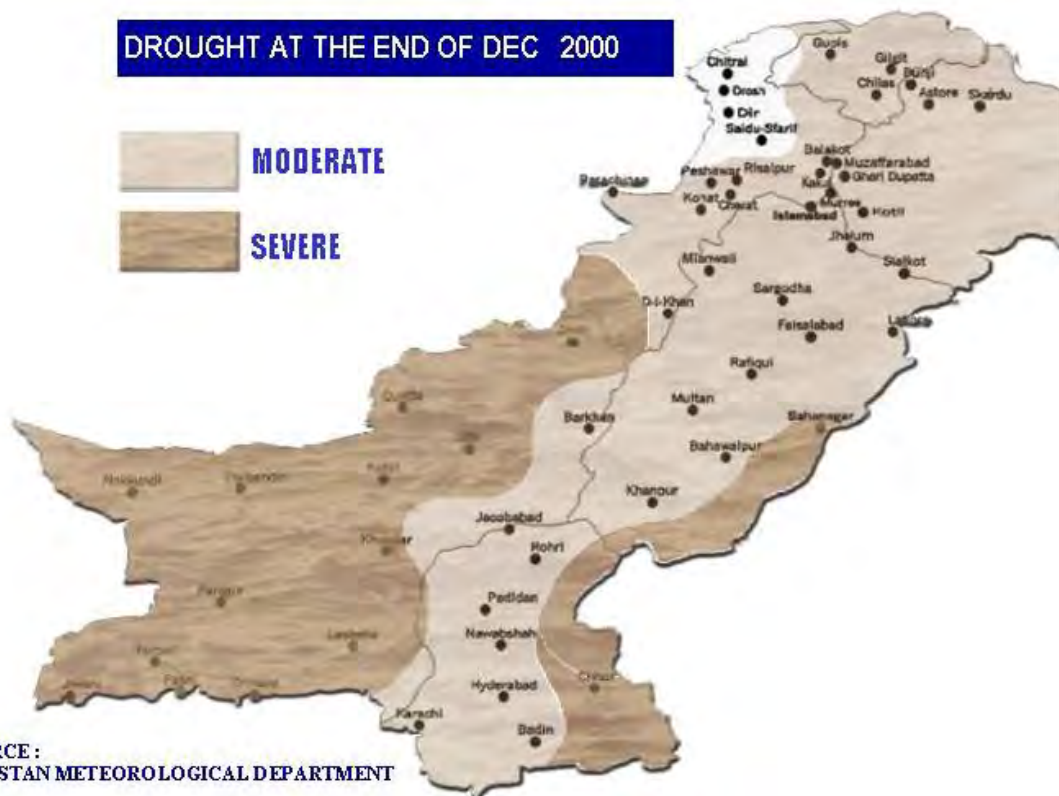


Figure 6 Drought in December 2000

²⁴ Drought Watch Bulletin; <http://www.pmd.gov.pk/ndmc/index.htm>

5.2 PPAF Drought Mitigation and Preparedness Programme

Till the pioneering work of PPAF commencing in the year 2003 of coherently planned drought mitigation and preparedness, the response remained confined to crisis management and emergency relief thus lacking the long term planning dimension.

In 2003, PPAF launched a phased programme of drought mitigation and preparedness, focusing on the less endowed and poverty stricken regions of the country beginning with a pilot in Balochistan. Since then, PPAF is implementing Drought Mitigation and Preparedness Programme through its Partner Organisations with the active participation of beneficiary communities, especially women.²⁵

Generally, a Drought Mitigation and Preparedness Project (DMPP) covers a minimum of one Union Council (UC) to as many as six UCs benefiting on average 15,000 households spread over approximately 50 settlements.

To ascertain that DMPPs have no environmental impacts, Environmental Impact Assessments are conducted and appropriate mitigation measures are taken. THE DMPPs are screened in accordance with Environmental Protection Agency Act 1997, World Bank's policy safeguards, and the PPAF Environmental and Social Management Framework (ESMF).

5.2.1 Piloting Drought Mitigation and Preparedness Projects

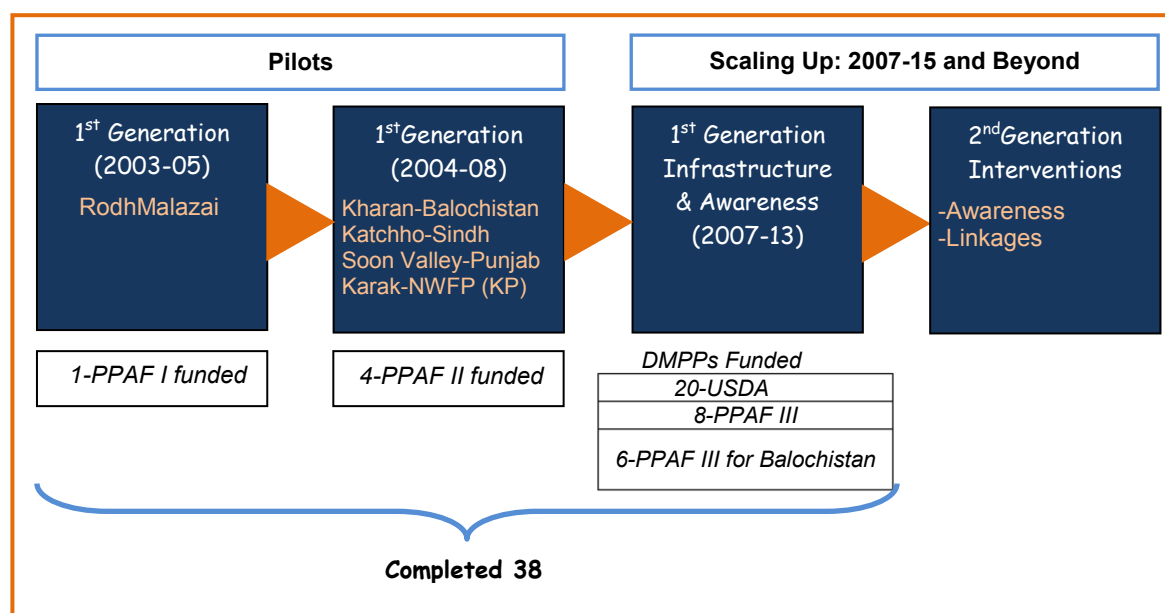


Figure 7 Drought Mitigation and Preparedness Project Pilots and Scaling Up

²⁵Examining and analysing the enormity of the situation, PPAF, under the agreement signed between the governments of Pakistan and USA on August 30, 2002, established National Drought Management Center (NDMC) in 2005 at PPAF. Since then the center has undergone several changes in its agenda to encompass the concerns for water, energy and climate change triggered disasters thus integrating drought with freshwater management agenda and renewable energy.

Infrastructure interventions under Drought Mitigation and Preparedness Projects were piloted from 2003 to 2008 in the four provinces of the country as first generation interventions. The first DMPP pilot was implemented under PPAF-I funding in a drought hit Union Council, Rodh Malazai, District Pishin, Balochistan. Since drought was severe in Balochistan another DMPP was piloted in District Kharan in 2005 under PPAF-II.

Three other first generation pilot projects were undertaken in District Khushab, Punjab and District Dadu, Sindh in 2004, and District Karak, Khyber Pakhtunkhwa (KP) in 2006 under PPAF-II. In 2014, the DMPP at Rodh Malazai completed 10 years of successful operations.

5.2.2 Types of Drought Mitigation and Preparedness Projects

A typical drought mitigation and preparedness project (DMPP) comprises around 80 to 100 subprojects, which focus on: 1) increasing availability of water; and 2) conserving water. The various sub-project types are:

1. Delay action dams and check dams
2. Rainwater harvesting ponds
3. Drinking water supply
4. Water efficient irrigation
5. Flood protection and land reclamation and conservation
6. Rangeland management
7. Natural resource management
8. Diffusion of innovative technologies

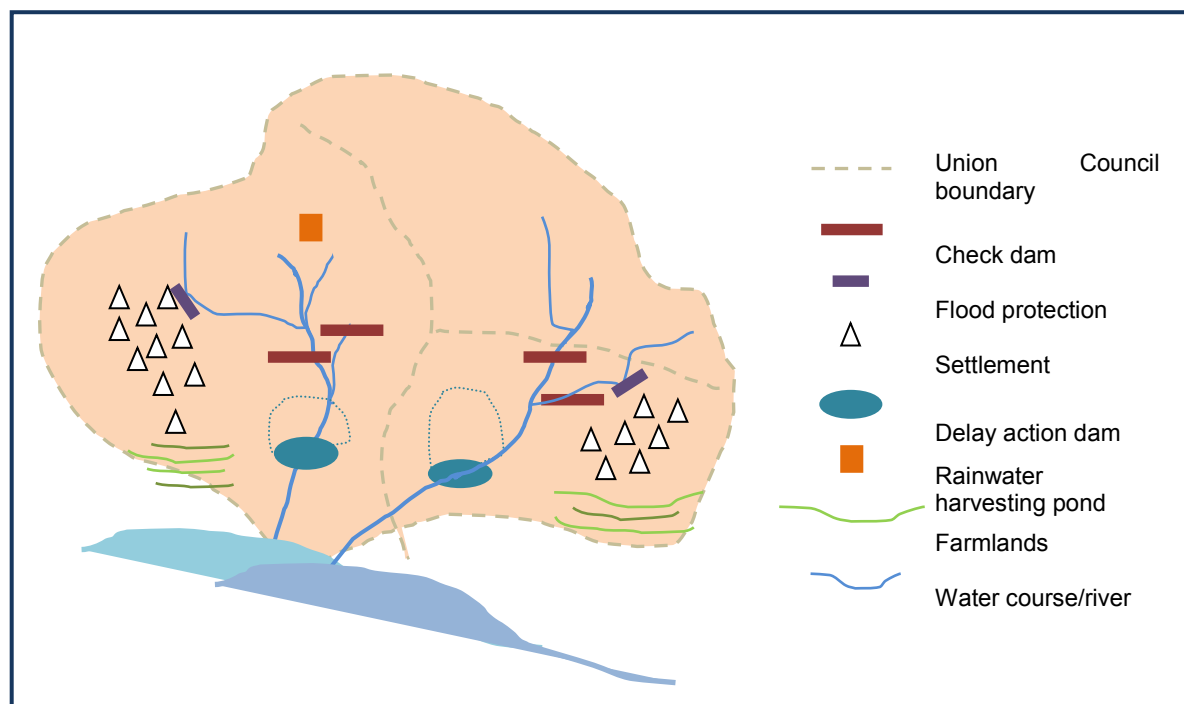


Figure 8 An Illustrative Watershed

Delay Action Dams and Check Dams

Delay action dams (DADs) are constructed across streams to provide a temporary water storage facility and let water slowly percolate into the ground and recharge aquifers downstream of dam. The delay action dam delays passage of floodwater by retaining it for a short period behind an impounding structure and flattening the flood peaks. DADs are envisioned as speed breakers to the natural runoff. The delay action dams, unlike the conventional storage dams, are not intended to store water for long periods.



Delay action dam, Rodh Malazai, Balochistan



Delay action dam, Lava, Chakwal



Delay action dam, Kaila, Soon Valley



Delay action dam, Kahochura, Soon Valley

Check dams are mini structures with gabion ware or compacted soil mainly constructed in the watershed areas to reduce gradient and break the velocity of the flow. Through check dams the water is conducted safely from a higher to a lower point without causing erosion. Constructed across water channels upstream of delay action dam, check dams save the delay action dam from sedimentation by acting as silt trap, hence increasing its life and efficiency.



Check dam



Check dam

Rainwater Harvesting Ponds

Water retention structures are built to hold rainwater and save it as surface water in the dry season to use for drinking purposes for the local population and livestock; irrigate existing rain fed cultivable land; and cultivating more land. Semi lined ponds are constructed near a village or settlement in a small catchment area where in-situ harvesting is done through terracing, building stone wall, and harvesting ponds following the natural topography of the land to retain water where it falls.



Rainwater harvesting pond--Khushkaba Bund, UC
Jangian, Balochistan



Rainwater harvesting pond, Pishin, Balochistan

Water Efficient Irrigation

Water saving technologies like sprinkler, drip irrigation systems are used which reduce water losses up to 35% as compared to traditional flood irrigation system and efficiently apply water to the field. These projects are developed as Integrated Water Efficient Irrigation Projects (IWEIP) consisting of developing water source, conveyance of water through lined channels or pipes to the fields, and field application of water through efficient means like drip, sprinkler or bubbler irrigation techniques depending upon crop water requirements and soil conditions.



Sprinkler irrigation, Soon Valley



Drip irrigation, Soon Valley



Drip irrigation, Soon Valley



Pipe irrigation, Soon Valley

Flood Protection and Land Reclamation and Conservation

During floods, rainwater gushes through narrow gorges along steep slopes resulting in eroding orchards and agricultural lands and may become threat to other physical infrastructure of the area. To deal with the eroding effects of rainwater and high flood, flood protective structures are built which are generally constructed with local stones and meshed with gabion wires. The structures help reclaim land, which would otherwise be destroyed by flood. Also contour walls are built to hold land in place and check dams to check erosion. Contour walls are constructed to stabilize slopes and check soil erosion in the catchment areas of delay action dams.



Flood protection wall



Contour wall for land conservation, Rodh Malazai

Rangeland Management

Principally all areas which are not cultivated and not occupied by houses in and around villages are considered as rangeland. These include the foothills, mountains and in some cases valley bottoms. Rangelands are source of a number of products for the communities. They not only provide forage/feed for the grazing livestock but are also source of fuel wood and water. Generally, during good years, i.e., wet and normal years, livestock totally depends upon these range areas for their feed/forage requirement for the entire growing season.



Rangeland in Mekhtar, Loralai



Rangeland in Rodh Malazai fenced for monitoring change in vegetation

In drought prone or affected areas rangelands have been over exploited. Due to various reasons, there is overgrazing of forage grass and bushes and overcutting of trees. Enclosures are marked for reseeding shrubs and trees species and the area is protected from grazing and cutting for say 2 years. The species grown are native to the area, have low delta water requirement, improve the biodiversity, enhance the biomass production in the area and contribute to the livelihoods of the people. To provide water on the rangelands, stock water ponds are constructed at strategic points where rainwater is harvested and provided for livestock drinking purposes.

Natural Resource Management

Natural resource management is critical for the protection of land, water, soil, plants, and animals to ensure quality of life in the arid regions. Since ephemeral streams bring flashy floods and cause land degradation and soil erosion, as part of water shed management, measures such as interventions to stop soil erosion and water conservation are taken. Communities are given awareness to plant grasses and shrubs on the mountain slopes thus checking gully erosion. These small-scale interventions provide long-term benefits in the form of flood protection and increased lands for grazing and possibility for additional recharge to groundwater.

Drinking Water Supply Schemes

Drinking water supply is not a major DMPP intervention, but provided only to respond to basic human need. Water from the source is pumped into a tank and three ways are considered for onward distribution. At places, households get water from the tank taps directly. Sometimes, water is supplied from the tank to

communal standpipes serving a cluster of houses. Yet at other places household have individual connections.

Diffusion of Innovative Technologies

To wisely manage water resource, where possible, renewable energy is used to pump up water for irrigation and thus reduce environmental impacts due to conventional technologies. Solar powered pumps, biogas plants, etc., generate clean energy to run tube wells in Sheikhpura and Soon Valley. Mini and micro hydro generate electricity under integrated water resource management projects in northern areas of the country.



Solar powered irrigation system, Soon Valley, Khushab



Solar powered irrigation system at Nankana Sahib, Punjab

5.3 PPAF Drought Mitigation and Preparedness Strategy

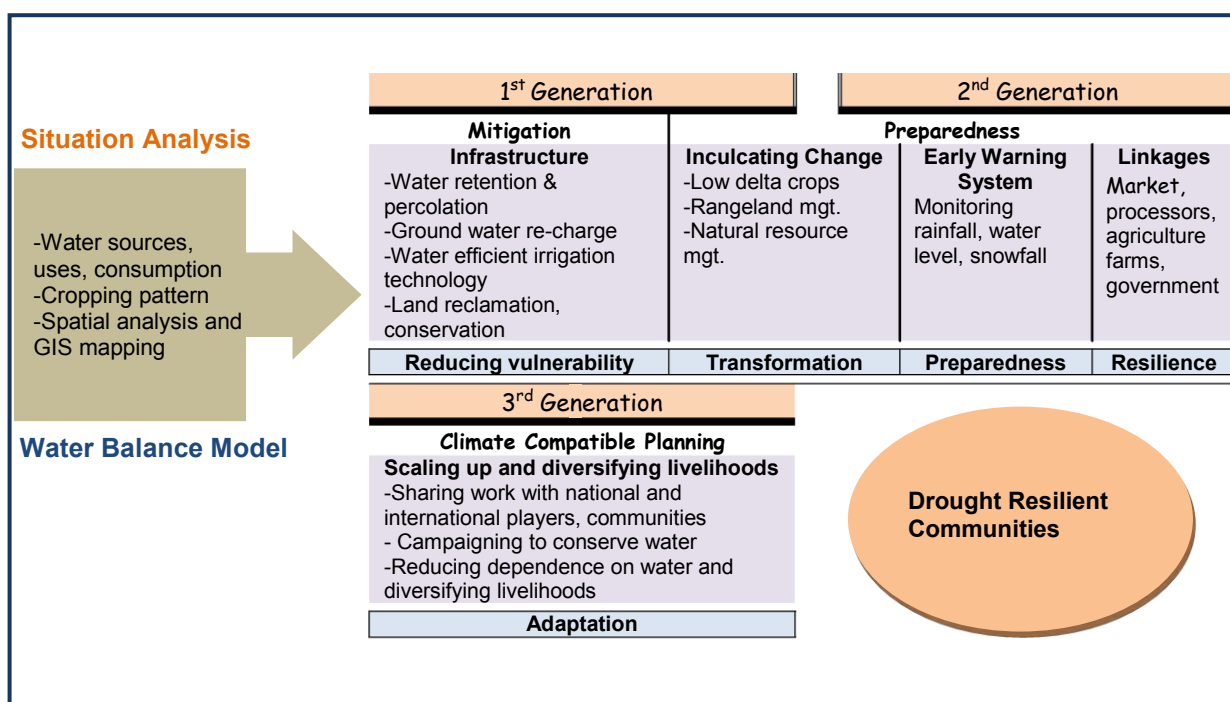


Figure 9 From Drought Mitigation to Climate Compatible Development

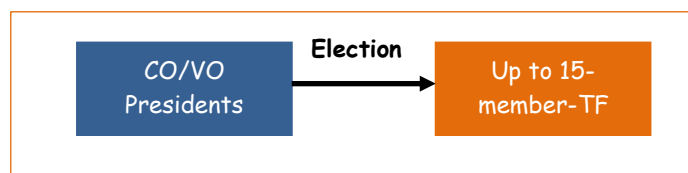
The drought mitigation and preparedness projects are multi-level as well as multi-sectoral. PPAF works with communities at the grassroots level and above partners at the village level and UC level and scaling up to district government, provincial government and national agencies. The idea is to have a significant number of interventions at the local level which when put together will impact the national scene and trigger similar efforts across the globe. Primarily focusing on water, these interventions cut across different sectors reviving associated livelihoods, improving health and nutrition, and establishing market linkages. Having all this experience and demonstrating change at the local level, PPAF shares its work at national and international forums with macro level players and intends to influence the national and international policy dialogues.

While thinking local and remaining locally relevant, PPAF multiplies gains of its interventions with global understanding, technology, and knowledge. Benefiting from global practices and adapting to local circumstances, PPAF has pioneered multi-tier structure of community institutions forming taskforce as apex organisation at the UC or watershed level aligned to research recommendations done by the National Disaster Management Center, Lincoln, Nebraska. Further, satellite-based information is used for analysis and map preparations.

PPAF Drought Mitigation and Preparedness Strategy is embedded in the reality that there are prolonged periods of reduced precipitation, community has inadequate knowledge of the adaptation actions and farmers practice water intensive agriculture, climate change is further going to deteriorate the situation, and drought will remain a recurring feature of the climate. With this in mind, PPAF aims to develop communities with enhanced capacity to survive through drought, by increasing water availability and application efficiency, and ultimately to have prosperous communities. The drought mitigation and preparedness (DMP) strategy is to first mobilise community and set up institutional framework for action; assess situation on water and land use; put in place mitigation infrastructure, prepare community to better manage drought; move toward climate compatible ways so that risks associated with climate change are reduced on a larger scale; and help communities affected by drought to recover and rehabilitate.

DM 10: Mobilise community, set up institutional framework, and ensure sufficient capacities are in place to manage drought

Drought Mitigation and Preparedness Programme will be formulated and implemented under a Community Driven Development (CDD) approach in consultation with Partner Organisations (POs), community, and government. PO will mobilise community and organise households into community organisations (COs) at the community level which will then federate into Village Organisation (VO) at the village level, and Task Force (TF) at project level. POs will make sure that women are also the member of these organisations and also of Task Force. Presidents of all COs/VOs will form a general body from which up to 15 members will be elected to constitute a task force.



The task force will act as a focal body for the purpose of sub projects identification, conflict resolution, project implementation, monitoring, and interacting with other agencies to access financial resources for development work. The task force will be encouraged to get it registered under Pakistan’s laws.

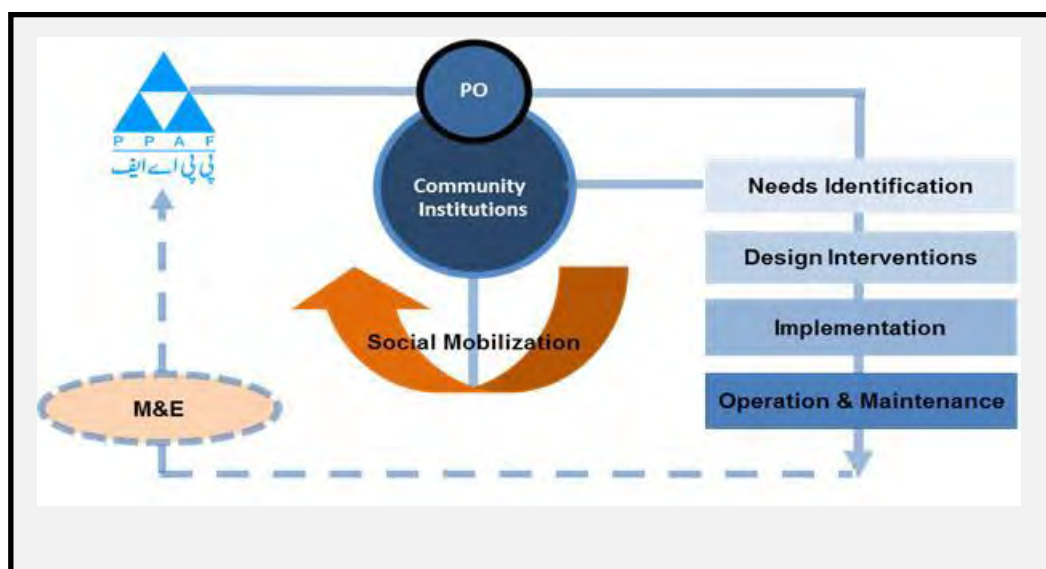


Figure 10 Community Driven Development Approach

In collaboration with PO and village elders, the task force will coordinate local meetings in which women and other vulnerable groups will also take part and monitor construction work and help PO in quality checks and control. Since the task force is embedded in the community, it will also give information to the community on drought related issues. PPAF in turn will monitor PO’s activities. After completion, the COs/VOs and TF will operate and maintain projects. PPAF and PO will closely monitor the whole process. For evidence on project benefits and impacts, PPAF will then conduct terminal evaluation.

DM 11: Analyse situation on water and land use and help community develop a Drought Mitigation and Preparedness plan

Deeply grounded in facts and analysis, the situation analysis will begin with delineation of drought prone areas/UCs that generally constitutes a close basin in the priority districts of PPAF. Then information on water sources, water uses, and water consumption pattern will be collected, and studies conducted to understand hydrology and hydrogeology, etc., of the delineated area and construct a water balance model. The water balance model will factor in inflows and outflows of the

basin. Inflows are water available in terms of streams entering into the watershed, precipitations, dew, rain, and snow fall in the watershed. The outflows comprise water consumed as seepage, taken in by animals, plants and humans, and evaporated from water bodies and plants.

The water balance information will guide to devise ways the inflows and outflows could be balanced and life sustained through the hard times by increasing water availability and decreasing consumptions through efficient use.

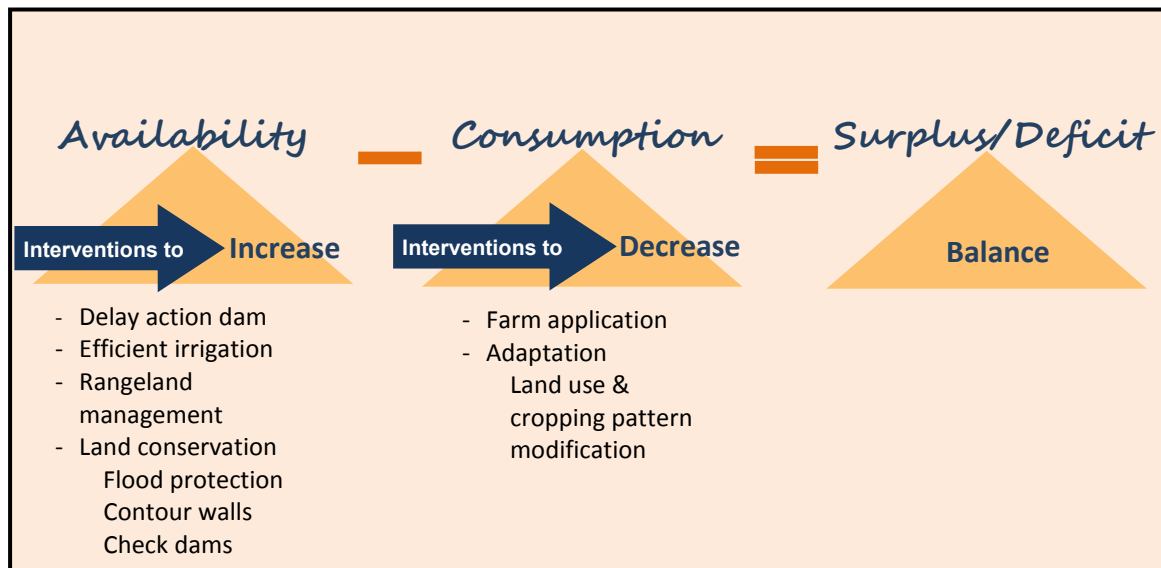


Figure 11 Water Balance Model

For drought mitigation and preparedness, the state of the art technology is combined with local wisdom to arrive at doable robust solutions. Using satellite based geographic information system, digital elevation model will be developed, interventions will be identified, and land use and cropping patterns will be determined. Moreover, impact assessment of the interventions based on time series analysis will be carried out using satellite imageries. Summing up, following maps will be developed.

1. Administrative map: macro-level planning and administrative profile of the area consisting of GIS layers
2. Topography map: comprehensive topography map and inventory of project area showing human settlements and existing infrastructure, including access roads, water sources both natural and manmade (tube wells/storage tanks, streams, ponds)
3. Land use/land cover map: comprehensive land use/land cover map, inventory of agriculture and natural resources and their use, time series based change detection module showing changes in land use pattern
4. Physical infrastructure intervention map: map and inventory of existing and proposed development interventions

Based on this, POs and communities will prepare Drought Mitigation and Preparedness Plan identifying infrastructure projects and interventions for forest and rangeland management, groundwater development and agriculture

development. Also, strategies will be devised to link up with public and private sector to promote backward and forward linkages and develop value chain to diversify agriculture based livelihood activities. Costing of all interventions will be made and timelines established to undertake the work.

DM 12: Put in place mitigation infrastructure to reduce and protect against physical, social, and economic vulnerabilities

Through infrastructure measures-first generation interventions-communities are protected from getting affected by precipitation deficiency and change in hydrological cycle and saved from socioeconomic vulnerabilities. Generally, the focus is on building mitigation infrastructure for retention of water in the watershed. For this, check dams and delay action dams will be constructed so that groundwater aquifers are recharged and more water is available. To conserve water, efficient irrigation techniques will be introduced. The major types of drought mitigation projects that PPAF has undertaken have already been discussed in Section 5.2.2.

Alongside, to ensure implementation of change so as to transform communities, awareness, and behaviour change activities will be executed both under first and second-generation interventions. Crop water requirement will be analysed to shift from water intensive crops to less water consuming crops-more crop per drop. Awareness will be raised on environmental management issues with a focus on natural resource and rangeland management.

DM 13: Prepare communities to manage drought

Moving toward integrated rural development- second generation interventions-the community will be prepared to better manage drought by having early warning system in place and altering water usage based on monitoring indicators, inculcating behaviour change for conserving and efficiently using water, and establishing linkages with public and private sector.

Establishing Early Warning System

Rainfall and groundwater level are indicators of water situation in drought-affected area. Task force will be grassroots monitors trained in gauging rainfall to understand the rainfall pattern and monitoring groundwater levels to determine changes in water balance of the areas. For this representative monitoring points will be selected, e.g., existing open wells tube wells, springs, etc., and installed piezometers for periodic water level and/or quality checks. At regular intervals, basic data to study the time-rate changes in water levels and ultimately indicating the changes in the groundwater storage or water balance of the area will be collected. Based on this information, remedial measures, such as ways to recharge groundwater, crop selection, water conservation measures, and rangeland and watershed management activities, etc., will be devised.

Inculcating Behavioural Change

Awareness and behavioural change activities will comprise:

1. Disseminating information on watershed and rangeland management issues and developing locally feasible solutions; awareness on preserving forests and growing local species
2. Knowing the importance of water and implementation of water balance monitoring system
3. Having knowledge on maintaining livestock population size according to the rangeland caring capacity
4. Building capacity of community organisations in crop optimization and early warning systems, water efficient cropping patterns and techniques
5. Introducing technologies leading toward better environment

Environmental Education material will be developed to give awareness to school children on importance of conserving natural resources of their area and communicating this information to their families.

Cauliflower, which consumes a lot of water, is popularly grown in Khushab. Being in drought region, Khushab needed its water resources to be optimally managed. PPAF first studied water sources and demand and supply of water. Based on its research, PPAF then promoted potato cultivation as potato consumes less water and is grown in August when the region receives monsoon rains.

Source; Social Assessment for Pakistan Poverty Alleviation Fund (PPAF-III)

Demonstration farms will be set up to demonstrate water efficient irrigation methods, benefits due to changes in cropping pattern, cultivating new variety of crops and moving to low delta crops. At places nurseries will be set up to facilitate the farmers of the areas get healthy seeds.

Establishing Linkages

Considering the potential advantages of improved linkages, PPAF will connect task forces to research and extension services, technology and information, backward and forward production linkages in agriculture, etc. Task forces will be taken to meteorological department to know how the department works, the instruments used to gauge rain, snow, and temperature, etc. Task forces will visit agriculture institute/farms to learn about the new varieties of fruits, crops that can be grown in that area and the services that agriculture/horticulture department can provide to the farmers.

Soon Valley Development Project (SVDP) facilitated Small Farmers Cooperative Network take dealerships of Engro Chemicals, Fauji Fertilizer Company, Green Force, Lays Chips and Ismaeel Industries. Also, SVDP facilitated coordination with middlemen and discussed their issues.

Source: Social Assessment of PPAF-II, Pakistan Poverty Alleviation Fund

PPAF will capacitate and facilitate Task force to link with market to sell the new low delta crops and with industries for using the agriculture produce.

DM 14: Move toward climate compatible development

There are vast tracts of land in the country affected by drought or prone to drought and PPAF alone cannot address the situation. So, PPAF will look toward

a wide pool of people and scale up its activities by motivating and facilitating others to develop resilience in vulnerable community. Besides, to adapt to a changing climate the interventions will also focus on conservation of water and reducing dependence on water for livelihoods.

PPAF will involve a broad body of national and international players, donors, all levels of government and private/corporate sector, disseminating knowledge, and showcasing its work on drought for transformation of communities.

There will be intense campaigns for conserving water as the available water resource cannot support the multiplying population and usage pattern. While raising awareness on low delta crop to conserve water will be covered under second generation activities, under third generation, efforts will focus on reducing dependence on water for livelihoods and diversifying sources of livelihoods building on local assets, skilled workforce, and value added production and processing, establishing public utilities for drinking water supply schemes and renewable energy, scaling up home solar system through micro finance, etc.

DM 15: Undertake relief and recovery operations in a community focused planned and coordinated way

PPAF is generally not involved in relief activities in areas where drought sets in. However, PPAF will assist government distribute food bags and non-food items in drought affected as it is currently doing in Tharparkar through already in place local support organisations at the UC level.

DM 16: Help community rehabilitate in a sustainable way

PPAF has intervened in areas affected by drought to rehabilitate them and help them sustain the renewed life. Rehabilitation activities in drought-hit areas will be embedded in mitigation measures. By virtue of mitigation activities, the communities will develop coping mechanism to deal with future droughts.

Profile of the affected area becomes a basis of rehabilitation interventions. Taking into account existing social structure, community institutions at community, village and watershed level will be established. Watershed management projects will be identified to preserve soil, vegetation, and water resources of the watershed. Agriculture and livestock rehabilitation plans will be developed. Trainings will be conducted to build capacity to implement, manage and operate these projects.

An example of rehabilitation work is PPAF strategic framework and accelerated drought mitigation and preparedness programme to address food and nutrition deficiency crisis in Tharparkar by ensuring water security, ensuring food and nutrition security, and promoting rural connectivity.

6. IMPLEMENTATION ARRANGEMENTS

6.1 Implementation Framework for Flood and Earthquake Disasters

During development of PPAF Disaster Management Strategy, various national disaster management agencies, such as NDMA and PDMA's officials have been consulted to capture their views on building capacities of communities in disaster preparedness at District and Union Council levels. The entire relief and recovery operations are taken in consultation and collaboration of District Disaster Management Authority involving identification of the Union Councils and the design of relief packages.

Guided by its institutional mandate, PPAF will act as facilitator, catalyst and resource bank for promoting disaster management in its target communities across the country. The Disaster Preparedness and Management (DPM) Unit of PPAF implements the activities in selected UCs. The Unit will also be responsible for overall coordination of activities implemented by Partner Organisations and provides technical backstopping to ensure quality, coherence, uniformity and consistency.

GIS technology will also be used at the planning stage to collect, and analyse geospatial information. In post disaster situation, the information will be used to locate the areas affected, understand the extent of damage and where emergency services are required.

Special attention will be paid to women's potential role in disaster management, not merely as vulnerable victims but as agents for advocacy, planners and implementers. PPAF Strategy envisages participation of women during all phases of implementation. It will be ensured that there are female community trainers/facilitators as well as female participants as UC Disaster Management Committee members, Village Disaster Management Committee and Emergency Response Team members in each revenue village of the cluster.

6.1.1 Action Plan

Step 1: Identification of POs

PPAF will identify POs in selected UCs for carrying out disaster management activities. Implementation will include all aspects: technical advice, community resource mobilisation, training, procurement/distribution/stockpiling of critical supplies, and monitoring and evaluation. Their role will be critical in eventually mobilising communities to defray maintenance costs to sustain the initiatives. So far 10 POs in 42 UCs in southern Sindh have been identified.

Step 2: Preparation of Training Manual/Modules/Material

The DPM Unit has designed and structured comprehensive disaster preparedness training manual, course modules, and awareness raising material for Partner Organisations for capacity building of UCDMC and UCERTs in disaster preparedness and management to be used for all future trainings. For planning and designing of these, materials already developed by various national

and international organisations were consulted. This material will be updated and revised in the light of new knowledge and circumstances as preparedness interventions are scaled up across the country.

Step 3: Capacity Building of Partner Organisations

Two types of trainings will be imparted to the communities 1) the CBDRM trainings will be conducted by POs in UCs; 2) skills development training to artisans and carpenters of the communities to build flood resilient structures will be delivered.

In 2013, a ten-day-capacity building/Training of Trainers (ToT) programme was arranged for 10 POs in Hyderabad following the best practices of internationally recognized Community Based Disaster Risk Management programme model. The trainings were conducted by master trainers arranged through the facilitations of POs. These master trainers had conducted such similar trainings post 2005 earthquake and 2010 super flood catastrophes. The trained PO staff is at present imparting training to Disaster Management Committees and Emergency Response Teams in 4 districts of southern Sindh. So far, in all CBDRM trainings 50% women participation has been ensured.

Step 4: Capacity Building of Community

Following the pattern of capacity building training conducted in Badin, Thatta, and Mirpur Khas in 2013, CBDRM and skills training will be given to the community as indicated below.

- 5-day community based disaster risk management training in core revenue village of each cluster
- 4 to 10-day skills training of artisans and carpenters disaster resilient construction techniques in revenue village of each cluster

Step 5: Establishing Disaster Risk Reduction Centres

In any disaster the first 24 hours are called the “golden hours” from the perspective of saving lives. Disaster Risk Reduction Centres will be established in core villages in target UCs that will be managed by members of Community Organisations, VOs, and LSOs/Task Forces. To build the response capacities of the community, stockpiles of emergency equipment will be kept at DRRCs. The DPM Unit, in consultation with respective POs, has prepared a standard stockpiles list with specifications in accordance with the World Bank Procurement Guidelines. The list is adjusted keeping in view the needs and hazard profile of the region’s geography and meteorology. One room sub DRRCs will be set up in the revenue villages other than the core revenue villages.

6.2 Implementation Framework for Drought Mitigation and Preparedness Projects

Drought mitigation and preparedness projects are aimed to strengthen resilience to drought by improving access to water and making it available for agriculture, livestock and domestic consumption and thus reducing vulnerability to drought, developing resilient livelihoods and adapting to absorb climate shocks.

Step 1: Identification of Partner Organisation

Discussions will be held with Partner Organisations from districts that were worst affected by drought in 1998. They will be asked to identify UCs/watersheds that are water stressed and prepare proposal for drought mitigation and preparedness programme.

Step 2: Identification of Areas

Based on PO proposals, PPAF team will verify water situation in the UC/watershed proposed and complete process of identification of area for future interventions.

Step 3: Capacity Building of Community

PPAF's POs will organise households into community groups at three tier-community, village, and UC/watershed-and build their organisational and project management capacity. In the same line, PPAF and its Partner Organisation will build technical capacity of the community.

Step 4: Analysis of Situation

In the identified areas, water studies will be conducted to know about water sources, water uses, and water consumption pattern to understand hydrology, and hydrogeology etc., and construct a water balance model.

Satellite based geographic information system will be used to construct digital elevation model and determine land use and cropping patterns.

Step 5: Identification of Interventions

The situation analysis will lead to identification of interventions. Under first generation interventions check dams and delay action dams and other hard interventions will be identified. Under second-generation interventions, behaviour change and awareness raising campaigns will be designed. Following this, in the face of growing challenges of climate change, third generation interventions will be determined.

Step 6: Implementation of Interventions

PO and the community together will design the identified projects with guidance from PPAF. Three types of committees will be formed: project management committee, implementation committee, and maintenance and operations committee. Women will also be part of these committees. In collaboration with PO and village elders, the task force will coordinate local meetings and monitor construction work and help PO in quality checks and control. PPAF in turn will monitor PO's activities. After completion, the maintenance and operations committees of the COs/VOs and TF will operate and maintain projects.

6.3 Sustainability

PPAF's current initiative of community based disaster management is not intended to be a one off activity. The community capacity for disaster management will be built and sustained for responding to hazardous events that beset them from time to time. This entails putting in place a coherent and consistent mechanism to replenish the expended supplies of stores and revisiting

the Core Village Disaster Risk Reduction Centres for updating the knowledge and skills of group and response teams through refresher programmes. Following will be some of the ways for ensuring sustainability of the initiatives:

- Continued organisational support from PPAF and POs to Disaster Risk Reduction Centres and its teams
- Involving a variety of members in the UC Disaster Management Committee so that the group could benefit from links, connections, and personal interest of the members. At present representatives of various district government departments, such as health and education, revenue, and police are encouraged to be members of the UC Disaster Management Committee. Such a combination of members has turned out to enhance coordination between UCDMC and District Disaster Management Authority.
- The UCDMC has been trained to liaise with DDMA and Pakistan Meteorological Department, local weather stations for effective and functional early warning system.
- To learn from good examples and add up to the knowledge, the UCDMC and response teams and POs will be taken on exposure visits to communities practicing best early warning systems.
- Mechanisms will be developed for selection/election procedure for members of UCDMC to fill vacancies so that the capacity of the group to function effectively is not compromised.
- Lessons learned in the field are documented and broadly disseminated among all stakeholders as well as with the international community of experts and practitioners in the area of disaster management.

6.4 Governance of Disaster Response-Role of PPAF Units in Implementation

Disaster Preparedness and Management is a cross cutting theme in all sectors of development. The PPAF Disaster Preparedness and Management Strategy will be implemented as part of the Multi Sector Planning concept envisaged in the new PPAF Operations Manual. All PPAF units will contribute knowledge, support and resources to disaster management activities as a whole and in the areas of their specific expertise in particular.

PPAF has remained engaged at the national level in responding to disasters striking in different parts of the country. PPAF played a significant role in relief, recovery and reconstruction after the October 2005 earthquake. PPAF also responded effectively during the 2009-10 IDPs crisis following the military operations in KP, at the time of the country-wide floods in 2010 and 2011. However, building upon its response experience, PPAF now is gradually moving toward preparing its communities to be resilient. The various areas PPAF's units of Disaster Preparedness and Management (DPM), Institutional Development (ID), Sector Development Unit (SDU), Education Health and Nutrition (EHN), and Livelihood Enhancement and Protection (LEP) will work in include:

- Training of PO master trainers/facilitators, capacity building and trainings of community volunteers
- Supporting mitigation projects identified by communities and ensuring disaster resistant construction
- Strengthening water, sanitation and hygiene infrastructure in the communities and its restoration after a disaster
- Carrying out income generating activities, livelihood protection, and restoration of livelihoods after a disaster
- Introducing disaster management in education institutions including making plans for strengthening through retrofitting of school buildings
- Coordinating training of health responders and assisting procurement of first aid stores for UC level first aid kits to prepare for disasters and later setting up medical camps for relief and recovery
- Checking compliance of initiatives with environmental and social management framework
- Educating, warning and informing people to act and protect themselves
- Conducting post trauma counselling of people in disaster hit areas.
- Conducting training and mock drills at PPAF supported schools in UCs along with CBDRM training to reduce the risk of disaster. The training focuses on capacity and skills building of children, teachers, and school management staff so that there are adequate procedures and systems at school to build mitigation and prevention measures, and respond to disaster through relief and recovery measures.

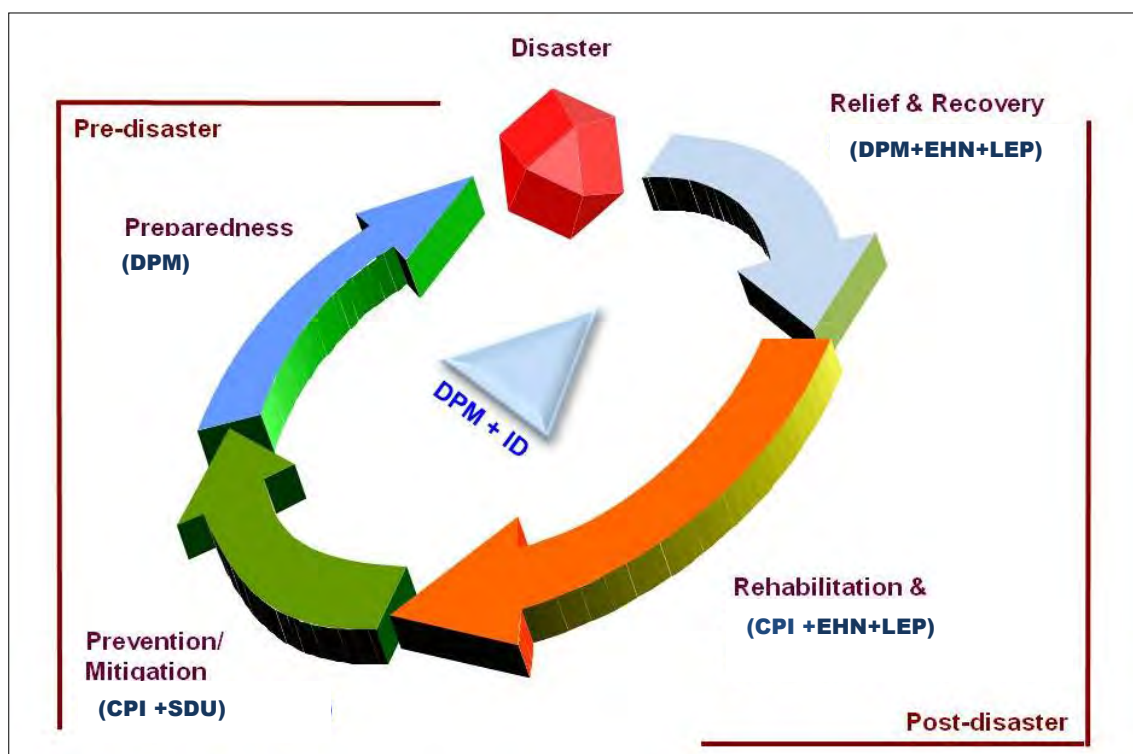


Figure 12 Disaster Management Cycle

6.5 Monitoring and Evaluation

POs will be responsible for smooth implementation of the activities, ensuring achievement of expected results and timely completion of activities. The DPM team will be engaged during the course of implementation of activities to ensure achievement of the goals. PPAF will undertake internal monitoring and manage third party. The PPAF's Monitoring, Evaluation, and Research Unit will be responsible for monitoring outcome and output indicators, measured through an online MIS based monitoring, evaluation and reporting system. For impact assessment, PPAF will hire independent consulting organisation to carry out third party assessments to measure the extent to which objectives of the programme or project have been achieved and how effectively the change has been achieved.

PPAF intends to collaborate with Global Earthquake Model (GEM) project, which aims to collect the latest data, information, and models and standardize the method of analyses so as to provide the best available data publicly to everyone. This database thus developed, Global Earthquake Model Earthquakes Consequences Database (GEMECD) will serve to

The earthquake consequences data will be assembled and stored in GEMECD which collates and compiles consequences of more than 60 global events with records of building damage due to ground shaking, damage to lifelines and other infrastructure, effects of secondary and induced hazards (ground failure, tsunami, fire following), human casualties, social disruption, and economic loss.

inform users on consequences from past events, as a benchmarking tool for analytical loss models and to support the development of tools to create vulnerability data appropriate to specific countries, structures, or building classes. PPAF will use this data not only for baseline purposes but also for vulnerability and capacity assessment.²⁶

²⁶ Information reproduced from correspondence between PPAF and GEM

7. INVESTMENT PROGRAMME

7.1 The Multi-Pronged/Multi-Layered Investment Modality

Capitalizing upon its institutional strengths and resources, PPAF Disaster Management Strategy will be financed through a multi-pronged/multi-layered investment modality. This will ensure having in place an efficient and sustainable prevention, preparedness, response, and restoration mechanism. The investments towards various segments of the disaster management cycle will thus be actualized as follows:

- a. Disaster Risk Reduction being mainstreamed in all grant based interventions, including: infrastructure, health, education, and livelihood enhancement and protection of the poorest and most vulnerable segments. Involving an investment of US\$ 2.83 million²⁷, it will ensure making 65 Union Councils²⁸ (716,625 people) resilient to a variety of disasters, by year 2020.
 - i. Formulated in the aftermath of the 2011 rain triggered disaster, the on-going US\$ 9.93 million²⁹, Southern Sindh Recovery, Reconstruction, Rehabilitation, and Preparedness Programme under SCAD is one of the PPAF's current responses to a staggering disaster situation.
- b. Disaster Risk Transfer of micro-credit borrowers, through index based micro-insurance, (Annexure – I)
- c. Disaster preparedness incorporated at the community level, through the establishment of Disaster Risk Reduction Centres, stockpiling of equipment and non-food items, capacity building and training. This US\$ 20.75 million investment component is being financed through available resources of different donors. Another US\$ 7.06 million envisioned to be spent in drought mitigation and preparedness at the local level.
- d. Readiness for responding to disasters through relief and early recovery by using the endogenously generated PPAF grant fund. So far, PPAF has spent US\$ 10.53 million between 2011 and 2015 on relief and early recovery. Though the spending on relief and early recovery is not predictable and varies from as low as US\$ 0.11million to as high US\$ 3.51 million, annually on average PPAF has been spending US\$ 2.11 million from 2011 to 2015. Since the extent and cost of reconstruction and rehabilitation cannot be determined

²⁷ Funding for the DRR related activities is available under the KfW sponsored LACIP (Phase-I), HRE (Phase-I), and possible HRE (Phase-II), and Italian funded PPR project. Mainstreaming of the DRR cost in softer and physical infrastructure is 2% in HRE-Phase I and for a possible HRE (Phase-II) project. The PPR community physical infrastructure funding is around 1% for developing resilient infrastructure. Currently, the LACIP (Phase-I) project has a separate disaster management component worth EU 1 million. The estimated overall cost for the DRR activities on average comes to US\$ 2.83 million.

²⁸ LACIP-16 UCs, PPR 38 UCs, and RE-11 UCs and 50% of the population of these UCs

²⁹ Allocated for not just mainstreaming DRR, but also for rehabilitation and reconstruction from PPAF-III resources

until well after the occurrence of disaster, it has not been included in this investment programme and will be done once donor funding is available.

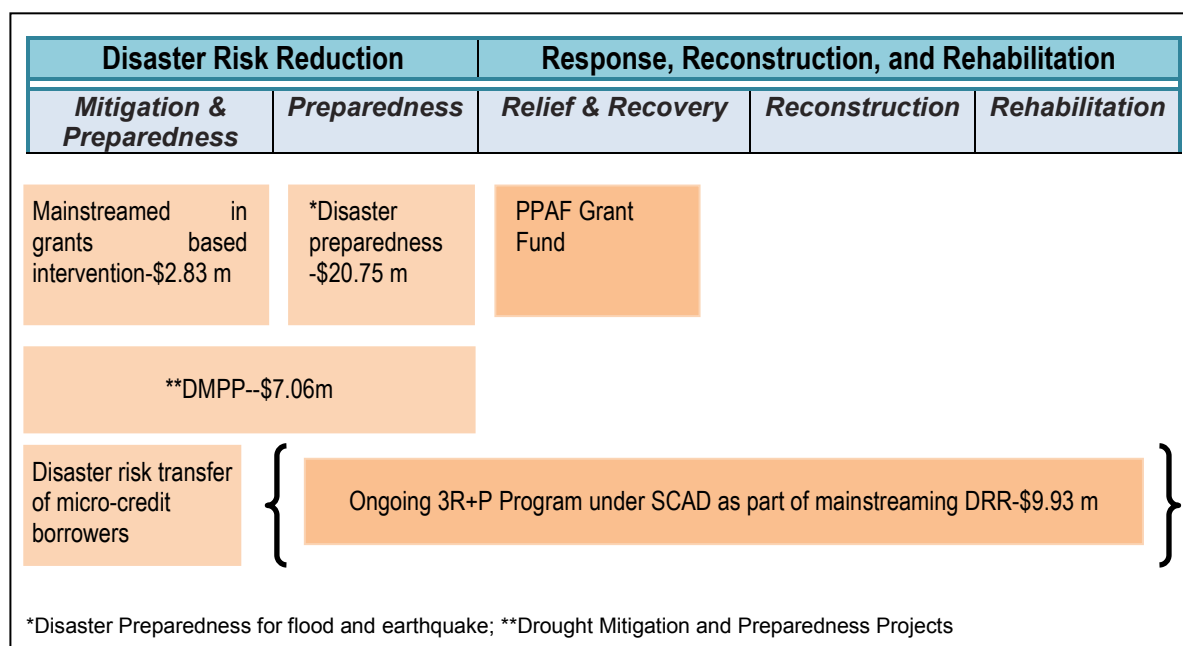


Figure 13 Multi-Pronged/Multi-Layered Investment Modality

7.2 Disaster Preparedness Investment for Flood and Earthquake

The scope of preparedness for an unavoidable disaster in a vulnerable community has been outlined in paragraph (d) above. As none of the current donor funded projects/programmes has a specific provision for this component, it is presented here with more detail than the rest of the components (without prejudice to their comparative importance).

The PPAF' approach to developing resilience is an integrated, creative disaster preparedness programme that would contribute to three aspects: resilient construction, food security, diversified income sources. PPAF is also committed to fostering and supporting women that will dignify their status and empower them. These interventions, where possible, will be women led, women focused to bring them at the forefront in a way that men join them; otherwise women will be left behind.

The cost per UC in terms of training of UC Disaster Management Committee, Emergency Response Teams and POs, school safety shakeout drills, stockpiling, construction of Disaster Risk Reduction Centre/Women's Centre, raised platforms, eco-toilet, installation of hand pumps, resilient roof of one room for ultra-poor, and PO operations is Rs. 21.79 million (US\$ 207,547.62).

Overall, PPAF will spend a sum of Rs. 2.47 billion- US\$ 23.59 million-on disaster preparedness and mitigation for flood and earthquake disasters in 165 UCs selected considering: the degree of vulnerability to disaster, where stakes are high owing to PPAF's prior investments, and where mature Partner Organisations

are working or have a demand based interest to work in the future. Work has started in 16 UCs under Livelihood Support and Promotion of Small Community Infrastructure Project (LACIP) financed by the Federal Republic of Germany through KfW. Also, till Sept 2016, under Programme for Poverty Reduction (PPR), funded by the Government of Italy 13.75 million EU will be invested in 38 UCs for community physical infrastructure which includes 879,338.84 EU³⁰ of infrastructure for flood protection besides 128,706.61 EU³¹ for ensuring building disaster resilient infrastructure, which totals to around 1 million EU for disaster risk reduction.

In addition to LACIP and PPR, KfW funded Hyrdo power and Renewable Energy (HRE) (Phase-I) project worth 10 million EU is being implemented in 11 UCs. Of this amount 2%, i.e., 200,000 EU (Rs. 24.2 million), is allocated for making the renewable energy projects disaster resilient. HRE (Phase-II) funds-250,000 EU (Rs. 30.25 million)-are also expected in the future to be spent on disaster resilient renewable energy projects between July 2016 and June 2020 in the same 11 UCs identified under HRE (Phase-I) project. Other than these 65 UCs of LACIP, PPR, and HRE, US\$ 20.75 million are needed to expand interventions in 100 UCs and make them disaster resilient (Table 6).

Going into details of activities at the core revenue village level, trainings on CBDRM, green skills, working in conflict affected areas will be conducted, stockpiling done, and Disaster Risk Reduction Centres/Women Centres built. The Centre will be surrounded by a raised platform where 50 households could move in times of disaster. An eco-toilet and a hand pump will be provided will be made/installed at the platform for demonstration purposes so that households could design their toilets along those lines. In the rest of the revenue villages, Sub Disaster Risk Reduction Centres/Women Centres will be built along with the raised platforms.

Taking into account the vulnerability of ultra-poor to disasters, at the revenue village level, disaster resilient safe roofs will be built for ultra-poor so that there is at least one safe room in the household. On average 357 households live in a village and 15% (60 households) fall between 0-18 on the poverty score card. Since not every village is affected, approximately 30 households per village, 300 ultra-poor households in a UC will be supported to make resilient roofs. This cost also includes refresher training workshops in the following year, and replenishment of stockpiles. The PO operation cost is 15% of programme cost (excluding the PO capacity building component and stockpiling).

³⁰ Four flood protection infrastructure projects in each of the 38 selected UCs

³¹ 1% of infrastructure cost other than that of flood protection infrastructure

Table 6 Disaster Preparedness Investment at a Glance (Flood and Earthquake)

Description	Per UC Cost (Rs)	Units and Level
CBDRM, skills training, training in working in conflict areas, and kits for master trainers	4,500,000	One per core revenue village (3 per UC)
Stockpiling	900,000	One per core revenue village (3 per UC)
Core Village DRR Centre/Community shelter with raised platform	4,500,000	One per core revenue village (3 per UC)
Revenue Village DRR Centre/Community shelter with raised platform	6,300,000	One per revenue village (2-3 per cluster, 7 per UC)
Demo eco-toilets	150,000	1 per revenue village
Demo raised hand pumps	200,000	1 per revenue village (3-4 per cluster, 10 per UC)
Resilient roof of one room for ultra-poor	2,400,000	50% of ultra-poor households per revenue village (30 per revenue village, 90-120 per cluster, 300 per UC)
PO operational cost	2,842,500	
PPAF operation cost	1,421,250	
Cost per UC (Rs) million	21.79	
Cost per UC (US\$)	207,547.62	
Cost of 100 UCs (US\$) million	20.75	

US\$ ~ Rs 105 as of Aug 26, 2015

Disaster preparedness is a separate activity for which the investment programme spreads over 5 years, from July 2015 through June 2020. Of the 50 priority districts identified by NDMA, PPAF has already worked in 4 districts in Sindh. Looking at the timeframe, in the period 2015 through 2020, PPAF will invest in another 165 UCs, on average 10-12 UCs per district.

In 16 UCs, disaster preparedness interventions are envisioned to be covered by June 2016 under LACIP with an amount of 1 million EU (Rs. 121 million). In Year-1, 32% of the LACIP funds have been disbursed and 40% of 1 million EU for DRR under PPR funds equivalent to Rs. 48.7 million have been committed. Also during this period the HRE (Phase-I) funds worth Rs. 24.2 million for making the renewable projects disaster resilient have been committed (Table 7).

In Year-2, 38 UCs under LACIP, PPR, and HRE (Phase-II) intervention UCs will be covered. In Year-3, interventions in 40 new UCs will be started. In 33 UCs activities will be completed where at risk households will develop resilience to natural hazards. In Year-4, work will finish in 37 UCs and activities will take off in another 25 UCs.

In Year-5, by June 2020, interventions in 38 UCs and overall 165 UCs will be completed. As a result of this, households in 165 UCs will have developed coping mechanisms to absorb disaster shocks and developed capacity to restart life in the shortest possible time after a disaster event.

Table 7 Disaster Preparedness Investment Programme (Flood and Earthquake)

Description	Year-1 (2015-16)	Year-2 (2016-17)	Year-3 (2017-18)	Year-4 (2018-19)	Year-5 (2019-20)	Total
On-going UCs	57	3	3	2		65
New UCs		35	40	25		100
Total UCs to be covered	57	38	43	27	0	165
Completed UCs		57	33	37	38	165
Total amount to be invested (Rs) Million	111.71	485.38	880.78	665.88	332.94	2,476.67
Total amount to be invested (US\$) Million	1.06	4.62	8.39	6.34	3.17	23.59
Funds required for new UCs (US\$) Million*		3.11	8.30	6.23	3.11	20.75

US\$ ~ Rs 105 as of Aug 26, 2015

*Assuming HRE (Phase-II) funds are available and additional \$20.75 million will be required

An amount of US\$ 20.75 million is required to invest in 100 UCs between 2015 and 2020.

7.3 Drought Mitigation and Preparedness Investment Programme

Drought is a recurring phenomenon. At present not much could be predicted about the districts that will be under stress in the future other than those which have already been identified. Since 2003, PPAF has carried out/in process of carrying out 38 DMPPs in 26 districts. On average a DMPP costs Rs. 72 million (Table 8).

Looking at the timeframe and time taken to complete a DMPP, which is 2-3 years, by 2020, PPAF will undertake 10 DMPPs assuming the following.

1. Security environment: likelihood of a safe and secure environment for implementing project activities
2. Policy environment: the political will continues to support, provincial and federal governments and provincial disaster management authorities facilitate PPAF
3. Financial resources: a deep donor interest remains to fund the activities

Table 8 Drought Mitigation and Preparedness
Investment at a Glance

Description	Per Project Cost (Million Rs)
Average DMPP Cost	72
Average PPAF share	60
PO operational cost @15% adding all shares	9
Cost of a DMPP	69
PPAF operational cost @ 7.5%	5
Cost of a DMPP including all operational costs	74
Total cost of 10 DMPPS	742
Total cost of 10 DMPPs in US\$ Million	7.06

US\$ ~ Rs 105 as of Aug 26, 2015

The drought situation in the country shows that Balochistan is the most affected province followed by Sindh and Punjab. Within in the timeframe of 5 years, July 2015-Jun 2020, PPAF will execute 10 new DMPPs (Table 9).

In Year-1, planning of 10 DMPPs will begin and resources will be identified.

In Year-2, between 2016 and 2017, PPAF will identify districts and Tehsils/Union Councils for initiating 3 DMPPs.

In Year-3, work will continue on the three DMPPs started in Year-2 while 4 new projects will take off.

In Year-4, work will continue on seven DMPPs, three new projects will be started and work on four projects will be completed.

In Year-5, six DMPPs will be completed and hence work on all the 10 new DMPPs will come to an end.

Table 9 Drought Mitigation and Preparedness Investment Programme

Description	Year-1 (2015-16)	Year-2 (2016-17)	Year-3 (2017-18)	Year-4 (2018-19)	Year-5 (2019-20)	Total
New		3	4	3	0	10
Ongoing		0	3	7	0	10
Completed		0	0	4	6	10
Funds needed -Rs Million		148.35	259.61	222.53	111.26	742
Funds needed-US\$ Million		1.41	2.47	2.12	1.06	7.06

US\$ ~ Rs 105 as of Aug 26, 2015

An amount of Rs. 742 million, i.e., US\$ 7.06 million will be required to implement these 10 proposed DMPPs, funds for which will be raised.

7.4 National Grants-based Investment for 3R+P

Under 3R+P Programme of PPAF, the national investment plan for Recovery, Reconstruction, Rehabilitation and Preparedness starts in 2015 and ends in 2020 involving an amount of approximately US\$ 42 million (Table 10). Of this amount, US\$ 34.59 million are envisioned for mitigation, preparedness and relief and recovery for flood and earthquake disasters, the breakdown of which is: US\$ 2.83 million on mitigation and preparedness interventions in 65 UCs under LACIP, PPR, HRE (Phase-I) and HRE (Phase-II); US\$ 20.75 million on preparedness efforts in the proposed 100 UCs and; US\$ 11 million³² spending on relief and recovery. On mitigation, and preparedness in drought prone/hit areas US\$ 7.06 million are proposed to be spent.

Altogether on mitigation and preparedness for flood, earthquake and drought, PPAF will be spending a total of US\$ 30.65 of which US\$ 27.81 million will be raised through a robust fundraising strategy.

³² Projected on the basis that PPAF has spent on average US\$ 2.11 million annually on relief and early recovery during 2011-2015

Table 10 National Grants-based Investment Plan for 3R+P

Description	Disaster Risk Reduction		Response, Reconstruction, Rehabilitation		
	Mitigation+ Preparedness	Preparedness	Relief & Recovery	Reconstruction	Rehabilitation
3R+P cost for flood and earthquake	\$2.83 million (65 UCs)	\$20.75 million (100 UCs)	\$11 million	So far carried out under SCAD. PPAF will work in these areas if donor funds are available.	
3R+P cost for drought	\$7.06 million				
Total mitigation and preparedness	\$30.65 million				
Total 3R+P	\$41.6million (~\$42 million)				
Funds required	\$27.81 (\$20.75 m for flood & earthquake and \$7.06 m for drought)				

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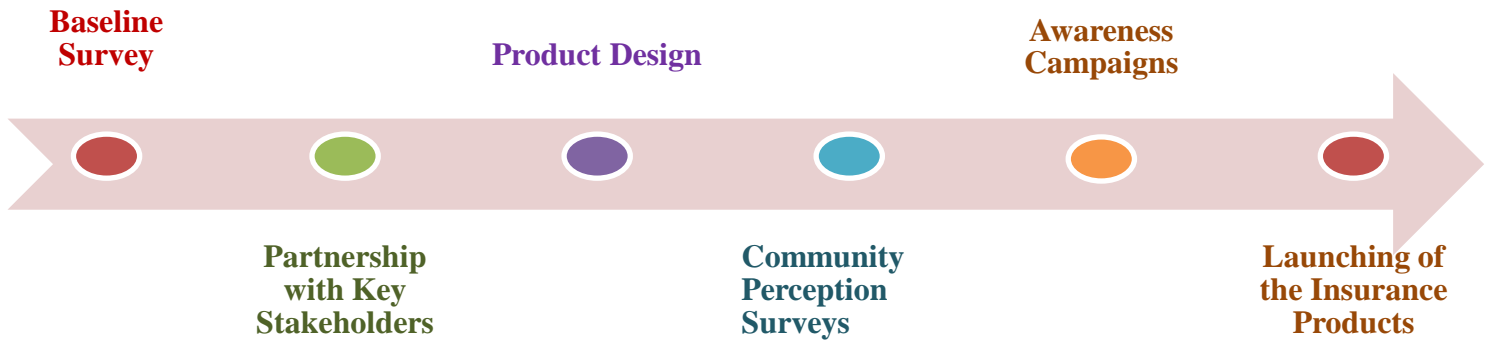
Annexure-I Micro-Insurance for Risk Transfer

In order to protect clients and mitigate risk of loss inherently found in investments for crop and livestock, PPAF designed and implemented index-based crop and livestock insurance products with particular focus on small and marginal income farmers. The designed products revolve around the characteristics of sustainability, scalability, affordability and flexibility. These products were developed in collaboration with SECP, Pakistan Meteorological Department, NARC, insurance companies and experts from the field of insurance and agriculture. The initiative provided the platform for all the involved stakeholders to work together in order to develop these products and implement them for the un-served communities of the region. Input from communities was an integral part of the design and roll of the products. Furthermore, PPAF has signed an MOU with MicroEnsure for refining, developing, and implementing micro-insurance products through its POs. MicroEnsure will develop and refine products for the mass market and PPAF will assist the placement of these products for the POs. These products are not only risk mitigating tools for the MFIs to further grow and expand themselves, but also act as an attractive mechanism for the private companies to enter this market.

Weather Index-Based Crop Micro-Insurance: The weather index-based crop insurance product is first of their kind for Pakistan. The product has been customized to farmers' needs, local crop and weather requirements, and based on detailed economic models. The insurance companies provided compensation to policy holders when rainfall recorded by weather stations of the insured farmland remained below a minimum threshold. The claim payment was based on the value of the index and not on actual losses measured in the field. This index-based mechanism was superior to traditional crop insurance, as issues of moral hazard and claim processing were mitigated. The claims payment process is quick and inexpensive to administer. The products were piloted in Soon Valley and Talagang, with partners. PPAF provided initial subsidies for premiums to small and marginal farmers with landholding with less than 4 acres and also provided funds for the development of infrastructure, client awareness, and promotion of the scheme in these communities. The product was piloted for wheat crop, and insured 2,376 acres. As a way forward, a product for wheat and cotton crop is being developed which will be rolled out for 10,000 small farmers in District Bahawalpur.

Live Weight Livestock Micro-Insurance: The first of its kind in the world, the product utilised historical data on the growth rate of different species of animals under different feeding regimens. An index was created using this data to gauge the average growth of an animal on a daily basis. The sum insured was linked to actual weight of animals at the time of insurance, rather than on a value agreed between the farmer and the insurance company. The claims payment was based on initial value of the animal and the weight gained by the animal measured through the index. This meant that farmers would receive compensation for the animal as well as the value they added through their efforts. The live-weight livestock insurance product has been implemented in Districts Chakwal, Khushab, Layyah and Muzaffargarh and Tharparkar with almost 13,618 animals insured with five POs. The product has demonstrated real benefits for farmers while ensuring transparency and sustainability. To date livestock owners have been compensated against the death of 237 animals, which has further build their confidence for buying insurance policy for their animals. Going forward the project will be further scaled up in district Jacobabad and Tharparkar catering to larger animals for insurance. Overall, 21,300 cattle will be targeted by the project in the coming phase.

PROCESS FLOWCHART





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