



Asian Water Cycle Initiative-Phase 2

Project Design Matrix

Tokyo, May 29, 2014

PAKISTAN

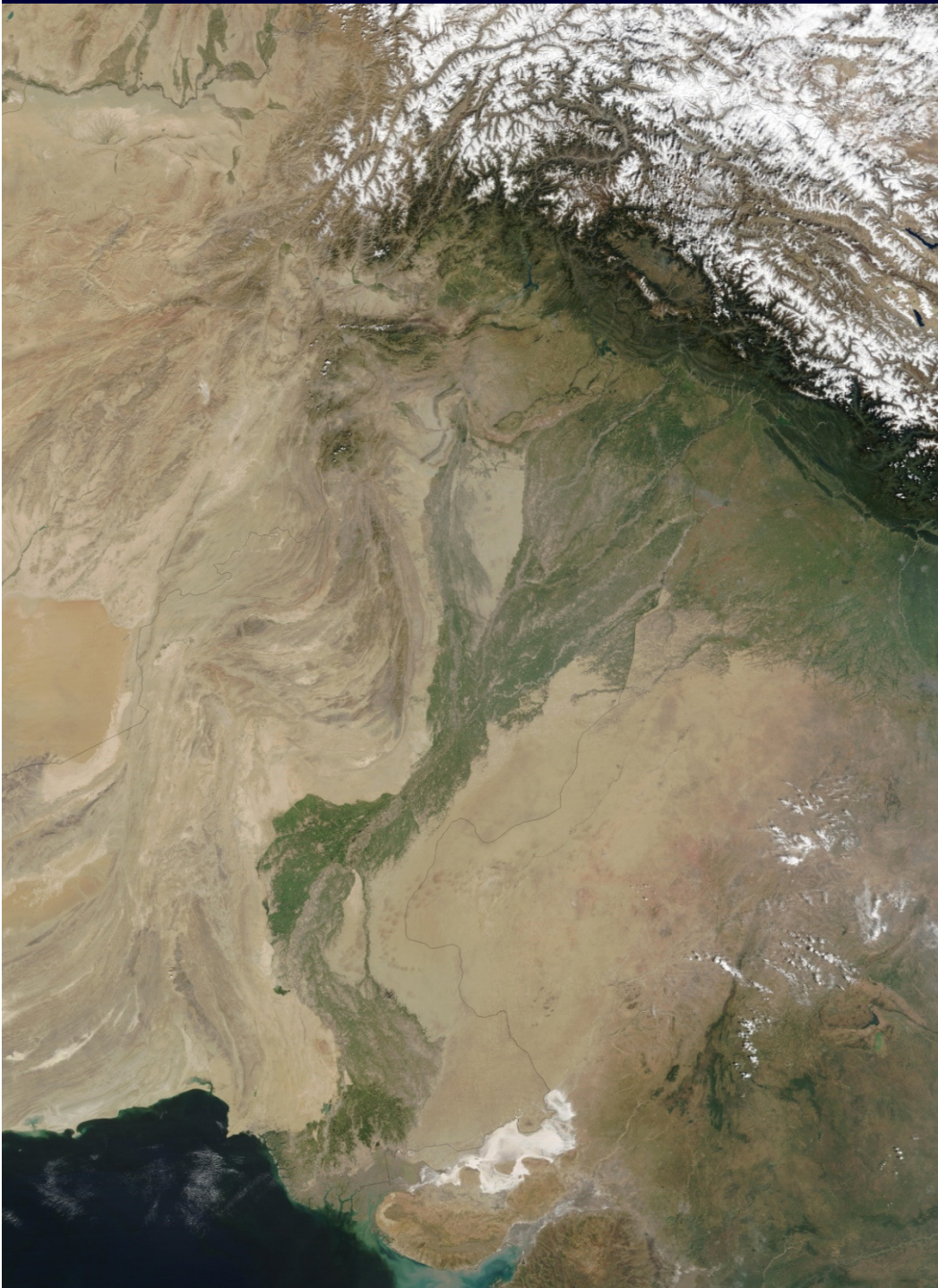
**Water-Food-Energy-Socioeconomic
Nexus**

Dr. Ghulam Rasul

Chief Meteorologist

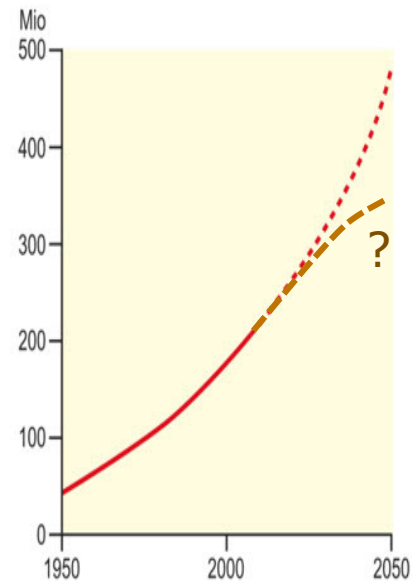
Pakistan Meteorological Department

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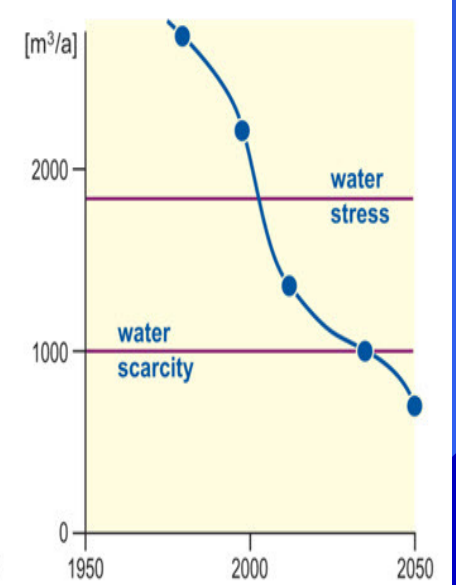


Indus River Basin: Water scarcity: a frightening perspective

Total Population of Pakistan



Water Availability per Capita



(Winiger, 2010
Data: J. Briscoe, U. Qamar, 2006)

Too Much Water and Too Little Water

- **Cloudburst Events** 2001, 2003, 2007, 2008, 2009, 2010, 2011, 2012
- **Prolonged Drought** 1999-2002
- **Historic River Flooding** 2010, 2011, 2012
- **Tropical Cyclones** 1999, 2007, 2009, 2010, 2011, 2012
- **Snowmelt flooding** 2005, 2007 and 2010
- **Drought at sowing stage** 2009, 2010, 2011
- **Abnormally wet April-May** resulted into crop damage

Methodology

- Consortium of countries sharing HKH cryosphere water resources;
- Sharing knowledge, experience and capacity among member countries;
- Training of professionals on emerging techniques;
- Climate Change Impact Assessment and Adaptation will go hand-in-hand;
- Assessment of water cycle variability and development of flood & drought early warning system

Solution to the Problem

- A Comprehensive adaptation package was developed by combining
 - Bio-physical factors
 - Policy change
 - Socio-economic factors
 - Information Technology and others



Adaptation Impacts

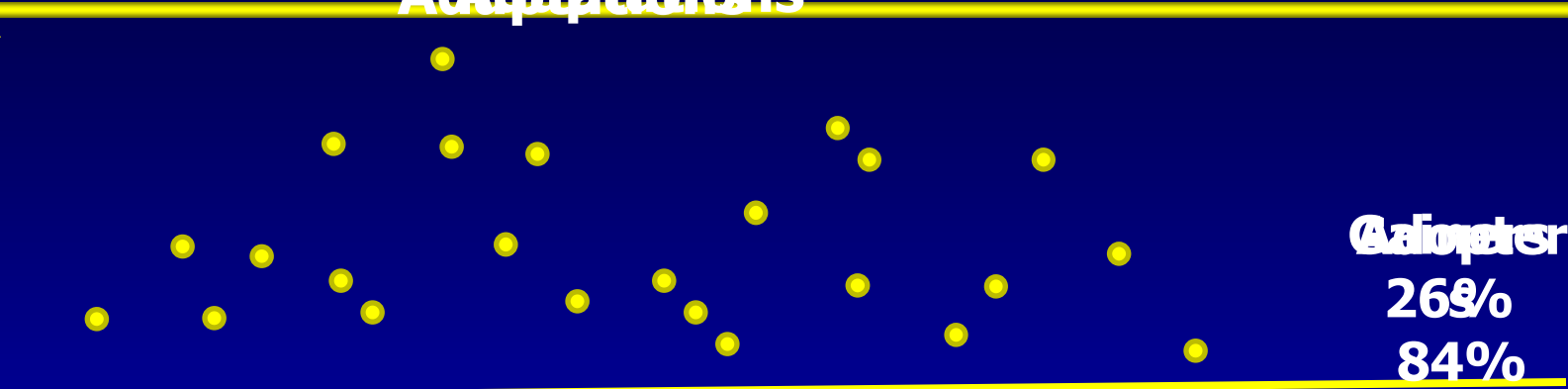
- **About 84 percent farm households would adopt the package due to increase in net farm income**
- **Significant reduction in poverty among farm households**
- **Improvement in the livelihood due to increase in farm income**



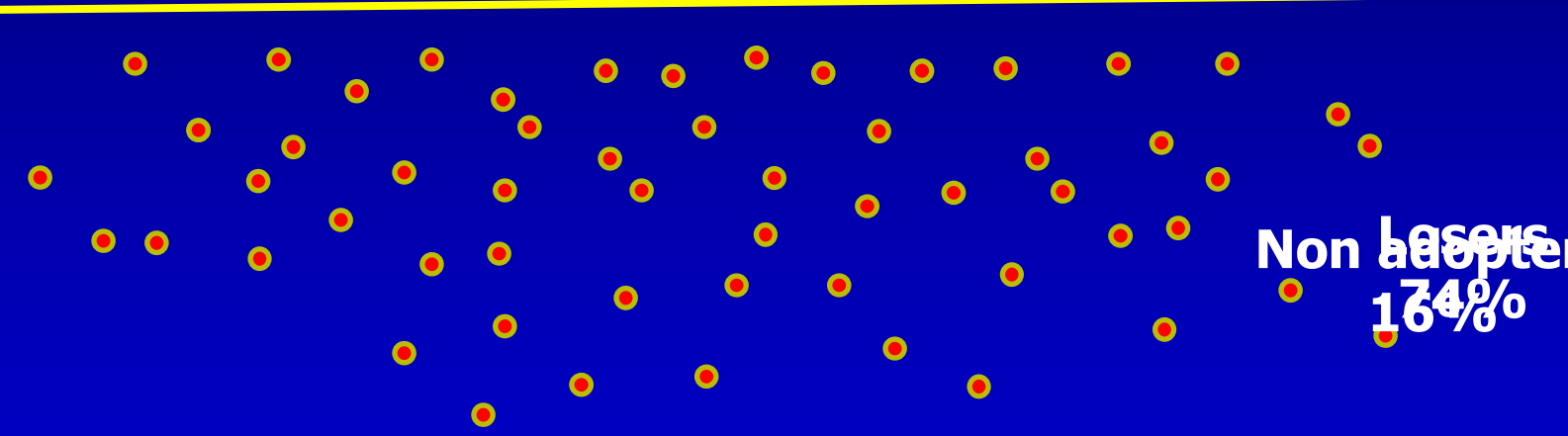
After Adaptations
Before Adaptations

Losses (Rs)

0



Adopters
26%
84%



Non adopters
16%
74%

Farm Population (%)



Create awareness among the common farmer



Need for effective adaptation policy

Roles & Responsibilities

Farming Community

- Actions
- Adjustments
- Management

Government

- Strengthen the Institutions
- Policy Support
- Infrastructure Development

Responsibilities

Society

- Awareness
- Public-private partnership
- Capacity Building

Global Partnership

- Sharing the Ideas
- Bearing the responsibilities
- Trade

Lead Local Organizations

1. Pakistan Meteorological Department (PMD), Islamabad
2. Pakistan Agricultural Research Council (PARC), Islamabad
3. University of Agriculture Faisalabad (UAF)
4. Water and Power Development Authority (WAPDA), Lahore
5. Global Change Impact Studies Center (GCISC), Islamabad
6. National University of Science and Technology (NUST), Islamabad
7. Foreman Christian College Chartered (FCC) University, Lahore

International Organizations

1. University of Tokyo-Japan
2. ICIMOD-Nepal
3. Colorado University-USA
4. BIOFORSK – Norway
5. World Bank/Asian Development Bank

Thank you