Reduction of Disaster Vulnerability Through Local Knowledge

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Ph.D. Development Studies

LAYOUT OF THE PRESENTATION

Introduction

Key Terminologies

Facts

Disasters

Local Knowledge

Conceptual Model for Local knowledge

Disasters in Pakistan

INTRODUCTION

- My Ph.D. study was conducted in two district of coastal area of Sindh due to their socio economic condition and vulnerability towards disaster i.e. District Thatta and District Badin.

- A total of 360 households were selected from two districts, multistage sampling technique was used to select households.

- The present study investigated the past and present status of local knowledge, skills and coping capacity of coastal community for disaster management in Pakistan generally and in Sindh province specifically for reducing their vulnerability to disasters.

- To measure local knowledge and wisdom of the community statistically new model was developed through primary data, "Model for local knowledge". In the model Local Knowledge was dependent variable whereas, age, experience, and living status were independent variable. The impact of these independent variables on dependent variable was measured through multiple regressions.

* Other than low income and social barriers, lack of resources is the major factor that compels them to ignore their self-forecasting. Lack of resources refers to have no transportation, alternate place, shelters and enough food stocks.

* There must be community based organizations at every village level to compel villagers to adopt short term safety measures during and before any disastrous event which they learned from their parentages. Local knowledge and wisdom should be added in policies and policy makers have to give importance to local community at all stages of disaster management planning and process because they are the first victims of any disaster.

* To continue the researcher's efforts in the future the follow up studies may conduct for more preventive and mitigation measures. Natural disasters also recorded throughout the Pakistan so there is a need to focus on the other areas of Pakistan to save vulnerable peoples from distractions

Key Terminologies

* <u>Local Knowledge:</u> Local knowledge is a collection of facts and relates to the entire system of concepts, beliefs and perceptions that people hold about the world around them.

* <u>Disaster:</u> A disaster is an extreme disruption of the functioning of a society that causes widespread human, material, or environmental losses that exceed the ability of the affected society to cope using only its own resources.

* <u>Hazards:</u> Refers to the potential occurrence, in a specific time period and geographic area, of a natural phenomenon that may adversely affect human life,

* <u>Vulnerability:</u> Susceptibility to loss, damage, destruction, or casualty from potential disasters.

* <u>Mitigation</u>: It refers to reducing the impact of the hazard.

Facts

➢ **From 1980 to 2014 about 11093 natural hazard events has recorded with an average of 327 events per year in the world.**

➢ **By 2020 on average over 476 million people per year are likely to be affected .**

➢ **South Asia from 1991 to 2015 more then 985 thousand people have died and 107 million have affected.**

➢ **Pakistan ranked 46th in high mortality risk with 22.8% of total area and 49.6% of total population on risk.**

Disaster

A crisis situation causing wide spread damage which far exceeds our ability to recover.

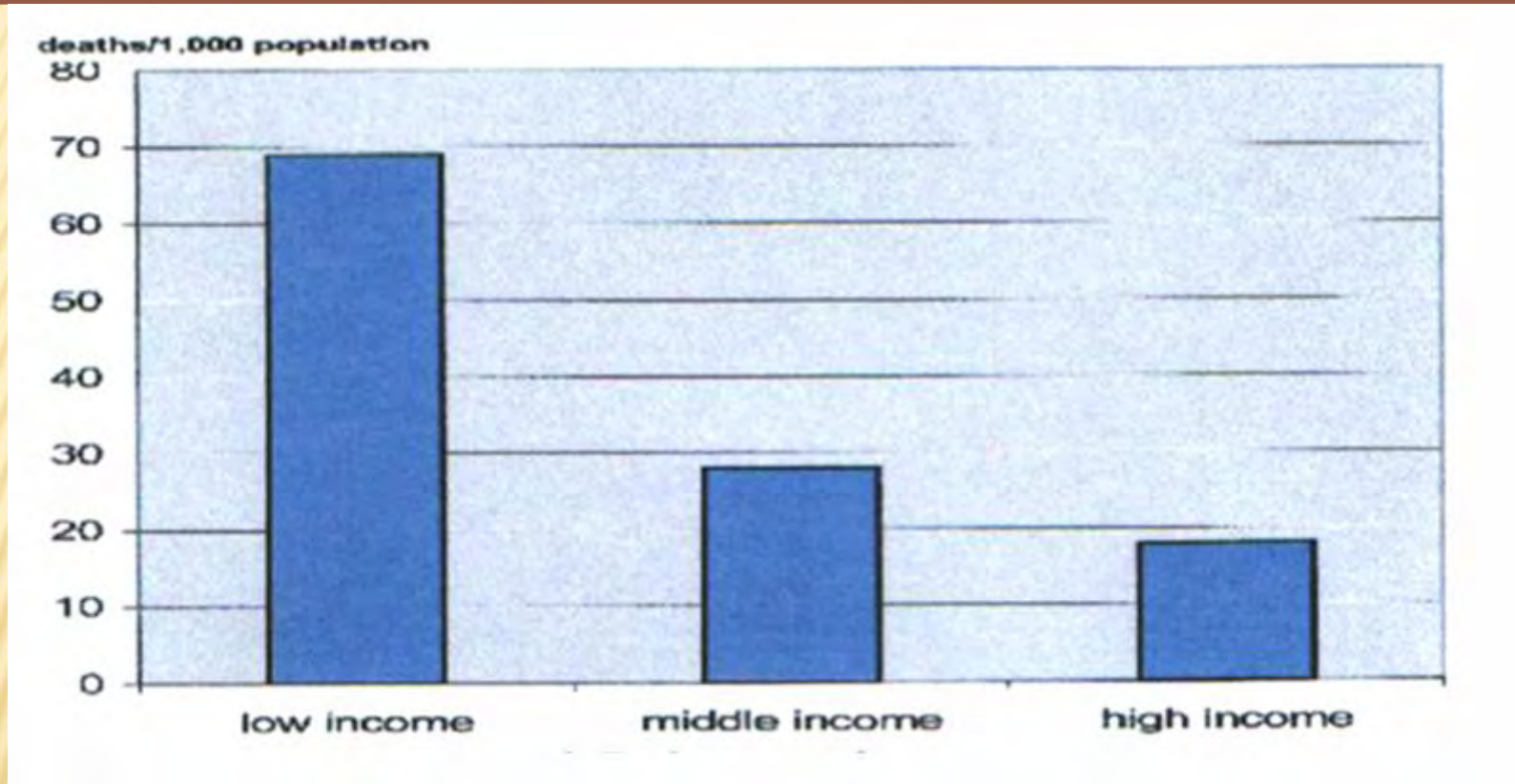## Types of Disasters

Natural Disasters

Man Made Disasters

Key stages within Disaster Risk Management
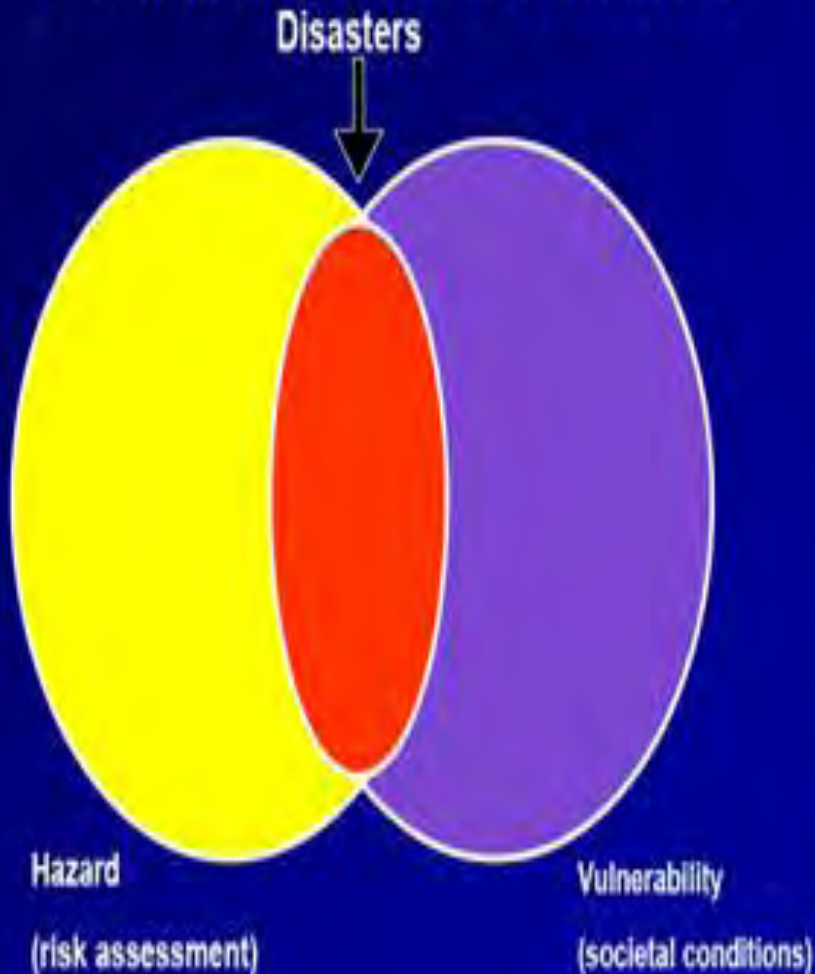
Pre-Disaster

Disaster Occurrence

Post-disaster

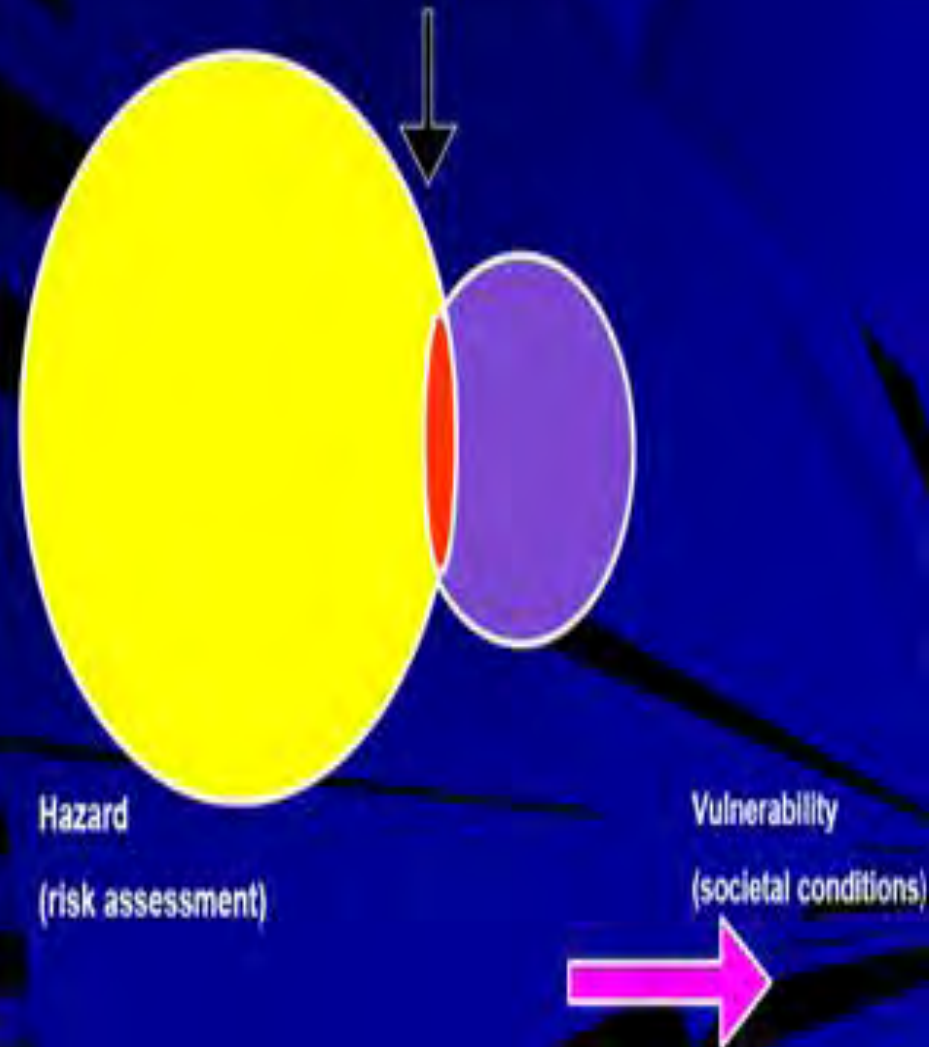# Relationship Between Disaster and Vulnerability

deaths/1,000 population

Disasters do not kill or strike people in the same way, it depends on who you are and to what society you belong. It has inverse relationship with income, i.e. low income fall under key target of disaster and its distraction scale

Above fig. shows that vulnerability is related to level of preparedness for any disaster. Community are found less sustainable when they are poor to social and economic impact.

Local Knowledge

Local knowledge refers here to knowledge generated through observations and experiences of the local environment by a specific group of people

Local knowledge is knowledge which needs no schooling and certificates; it developed by long and revives experiences of communities living in a certain geological and meteorological surroundings. With the passage of time and modernization, many of such knowledge became extinct. However, in various developing countries still there are congenital communities, in which such knowledge existed and utilized by local people of communities

Managing Disasters through Local Knowledge

- Each segment of society has different norms, values, traditions and environment therefore local knowledge varies from area to area, which differentiate the wisdom of the people according to their surroundings

- This relationship of local people is directly proportional to changes occurred in their environment. People adopted some strategies and techniques against the changes, which occurred in their environment due to natural hazards, such coping strategies, which they learned from their elders, named as local knowledge for disaster management.

- Disaster management is not immediate response but it start from mitigation, preparedness, response, recovery, rehabilitation and reconstruction. Local people possess such wisdom through which they deal with these situations because these people used to live in the same environment from years.

Conceptual Model for Local knowledge

✖ Local knowledge = α + $\beta_1$age + β_2 living status + β_3 experience——— eqn

✖ Where

✖ β_1 is age = Respondent age

✖ β_2 is living status=How long you have been living here

✖ β_3 is experience=How many disaster you have faced
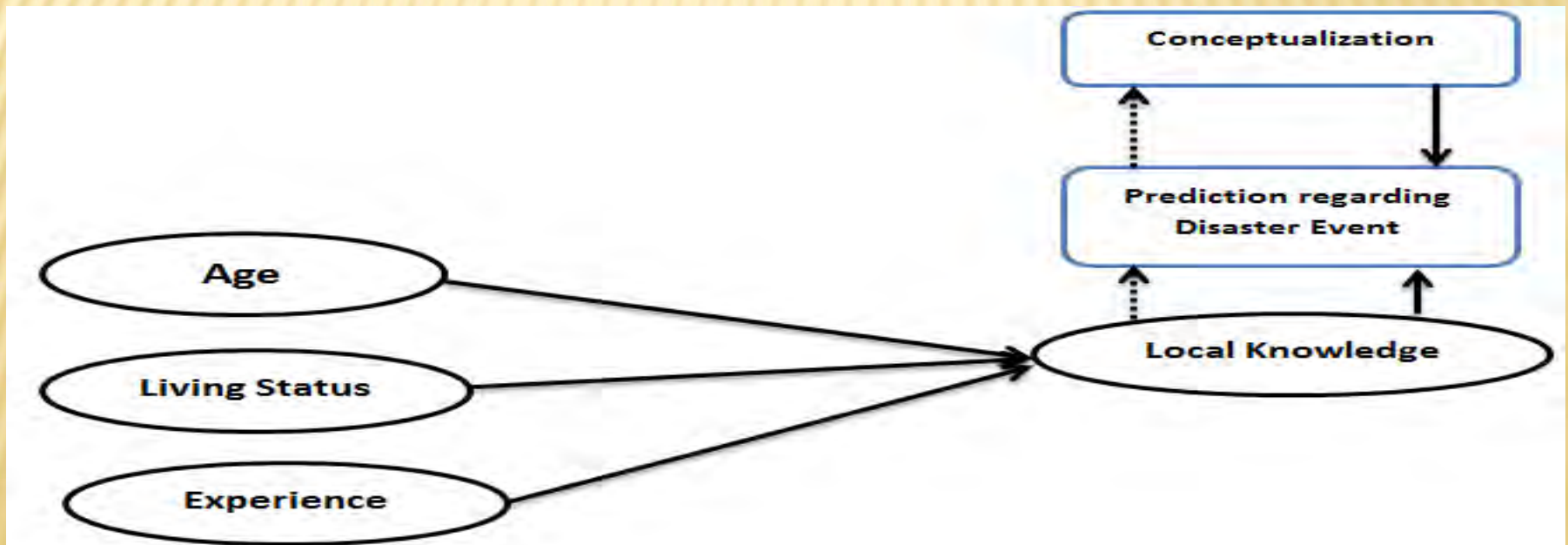
Model Summary

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.806ᵃ	.650	.647	1.893

b. Predictors: (Constant), Experience, Living status, Age

ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2366.004	3	788.668	220.038	.000ᵃ
	Residual	1275.985	356	3.584		
	Total	3641.989	359			

a. Predictors: (Constant), Experience, Living Status, Age
b. Dependent Variable: Traditional Knowledge

Table 1 shows that there is 65% variance in dependent and independent variables as R^2 is equal to 0.65. In the table 2 the whole regression model has shown as significant as the significance value is "000".
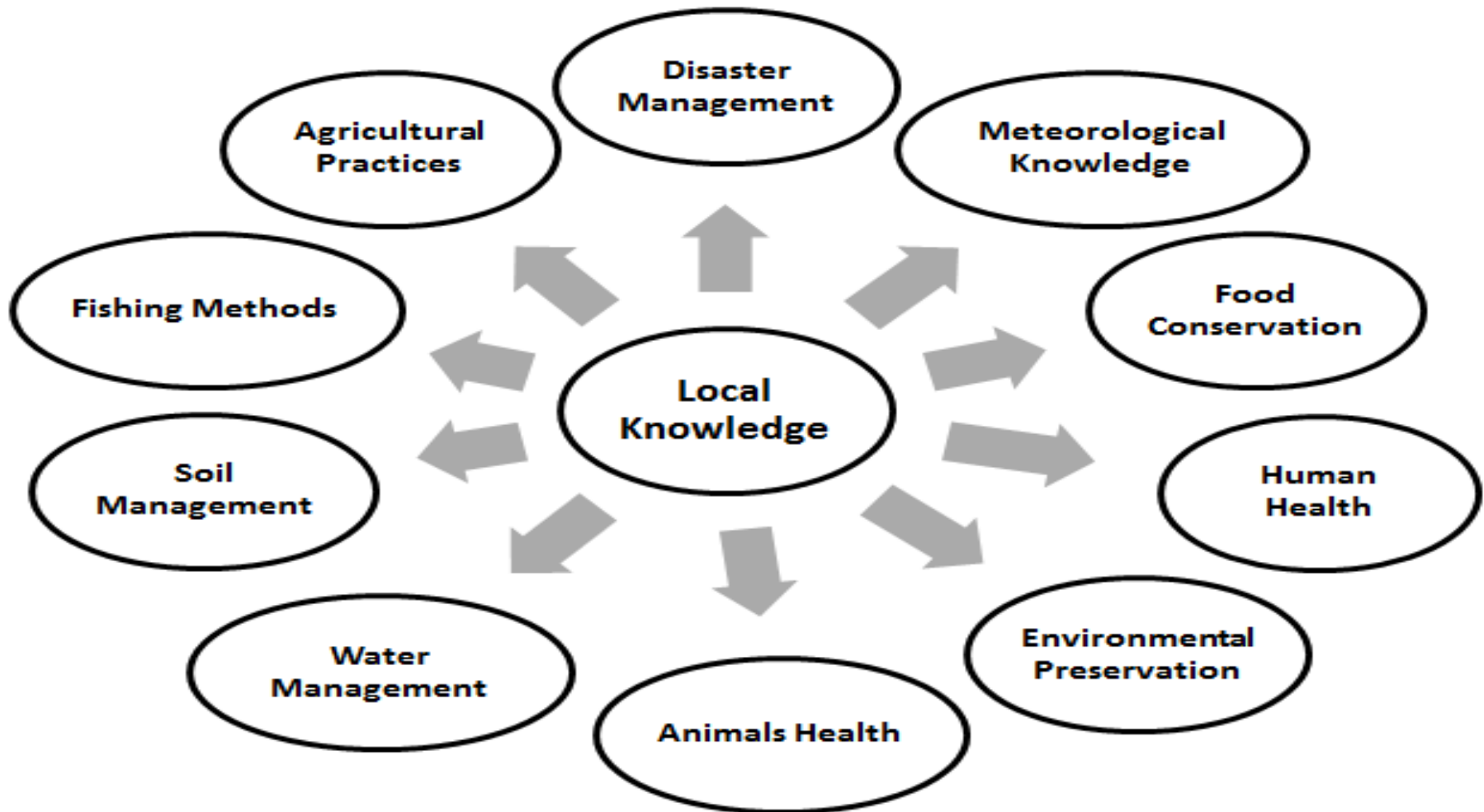
Coefficients of Model

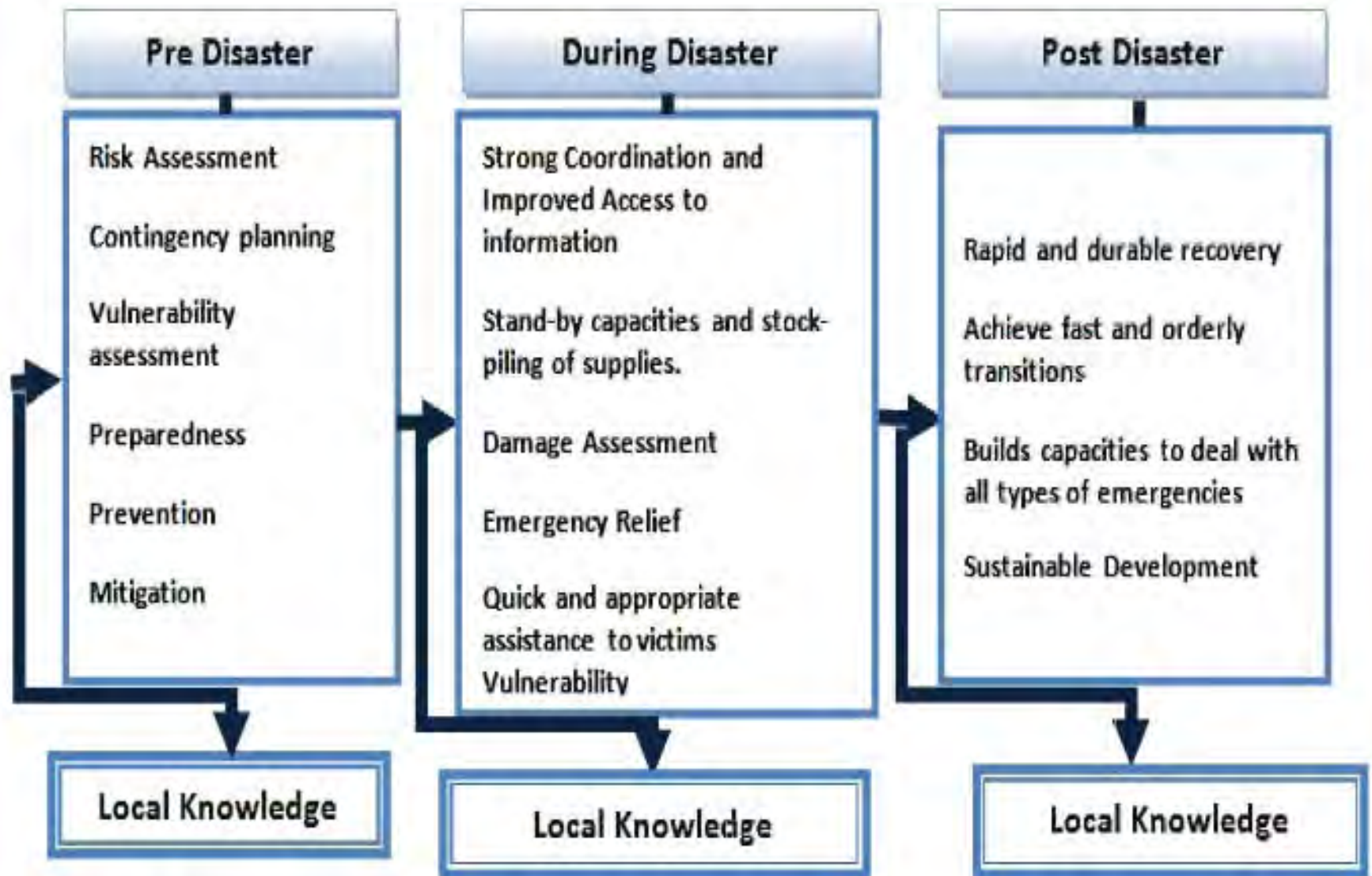| Model		Un standardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	9.626	.229		42.110	.000
	Respondent Age	.413	.164	.197	2.525	.012
	Living Status	.736	.132	.406	5.566	.000
	Experience	.506	.169	.235	2.994	.003

a. Dependent Variable: Traditional Knowledge

Table shows that all three variables i.e. age; experience; and living status; are significant as the significance value in last table is less than 0.05.However, the model as a whole is significant based on ANOVA.

Local Knowledge Dimensions

MODEL FOR DISASTER RISK REDUCTION MANAGEMENT (DRRM) THROUGH LOCAL KNOWLEDGE

Pre Disaster

Risk Assessment

Contingency planning

Vulnerability assessment

Preparedness

Prevention

Mitigation

During Disaster

Strong Coordination and Improved Access to information

Stand-by capacities and stock-piling of supplies.

Damage Assessment

Emergency Relief

Quick and appropriate assistance to victims Vulnerability

Post Disaster

Rapid and durable recovery

Achieve fast and orderly transitions

Builds capacities to deal with all types of emergencies

Sustainable Development

Local Knowledge

Local Knowledge

Local Knowledge

Disasters in Pakistan

Due to geo-physical conditions, climatic extremes, and high degrees of exposure and vulnerability, Pakistan is a disaster-prone country. A range of hydro-meteorological, geo-physical and biological hazards including avalanches, cyclones and storms, droughts, floods, glacial lake outburst floods (GLOF), earthquakes, landslides, tsunamis and epidemic pose risks to Pakistani society. Some of these hazards (e.g. floods, landslides etc.) are predominantly seasonal and occur on an annual basis, whereas other hazards such as earthquakes and tsunamis are rare events but potentially highly destructive. In addition to natural hazards a variety of human-induced hazards threaten Pakistani society, economy and environment. They include industrial and transport disasters including oil spills, nuclear hazards, urban and forest fires as well as civil unrest.

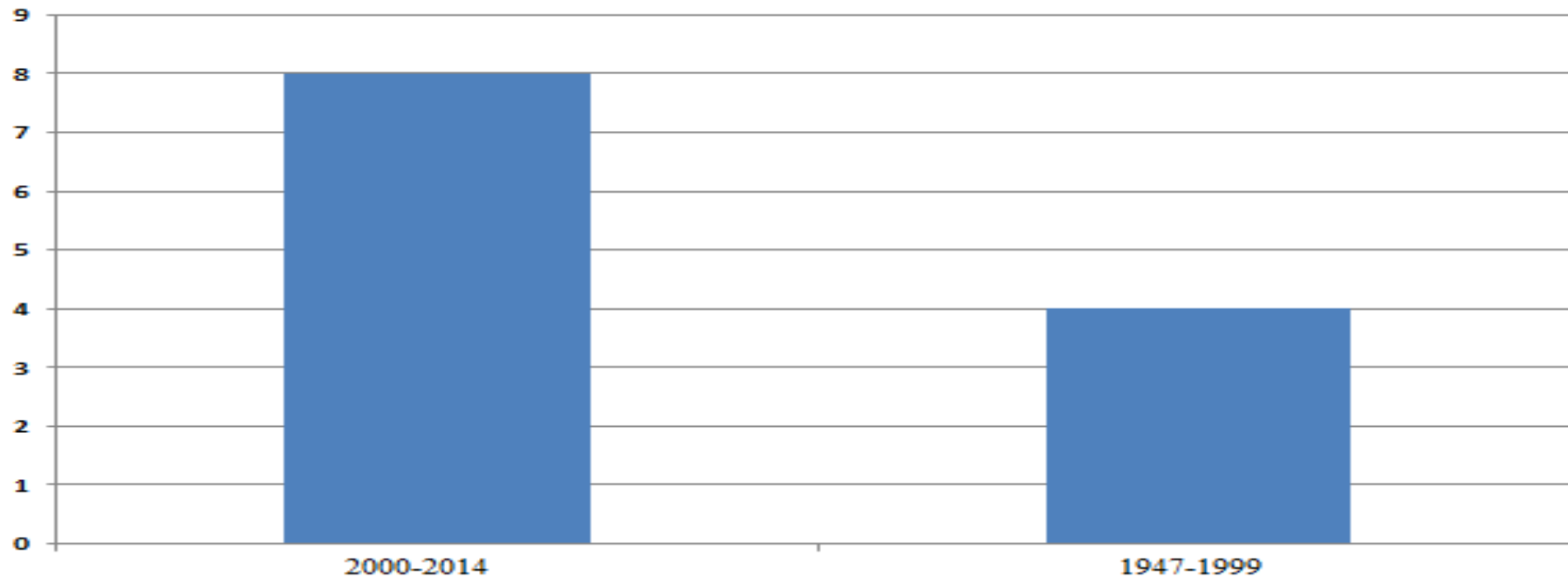# Rate of Disasters in Pakistan in Last 67 Years (1947-2014)

Figure shows that, rate of disasters increased in the last 14 years as compared to last 53 years. This is due to impacts of global climate change after 1990s in Pakistan.

Disasters Administrative Structure of Pakistan

In Pakistan, at present, disaster management and planning is mostly controlled at the province and the national level which is strongly centralized management process from top to bottom.

Proposed Institutional Structure for Disaster Management

* Village level bodies/Local level bodies can play the role of bridge between community and internal and external implementing agencies.

* An improved institutional structural link is needed at district and village level, as the currently Disaster Management system is operational mainly at district level in Pakistan, which is also top to bottom system, for better result it must be a two way process.

* Equal representation of all the sections of the community based on social, economic status, gender and induce the participation of traditional communities.

* There needs to be a balance in division of role and responsibilities of government and NGOs. So the role of government and NGOs does not undermine with each other. Most important for donor agencies, their support to NGOs does not undercut the centrality of the district government in planning and service delivery, they have to avoid from overlaps, duplication, competition and local government must be in the loop regarding any support or development program.

Proposed Institutional Structures for Disaster Management
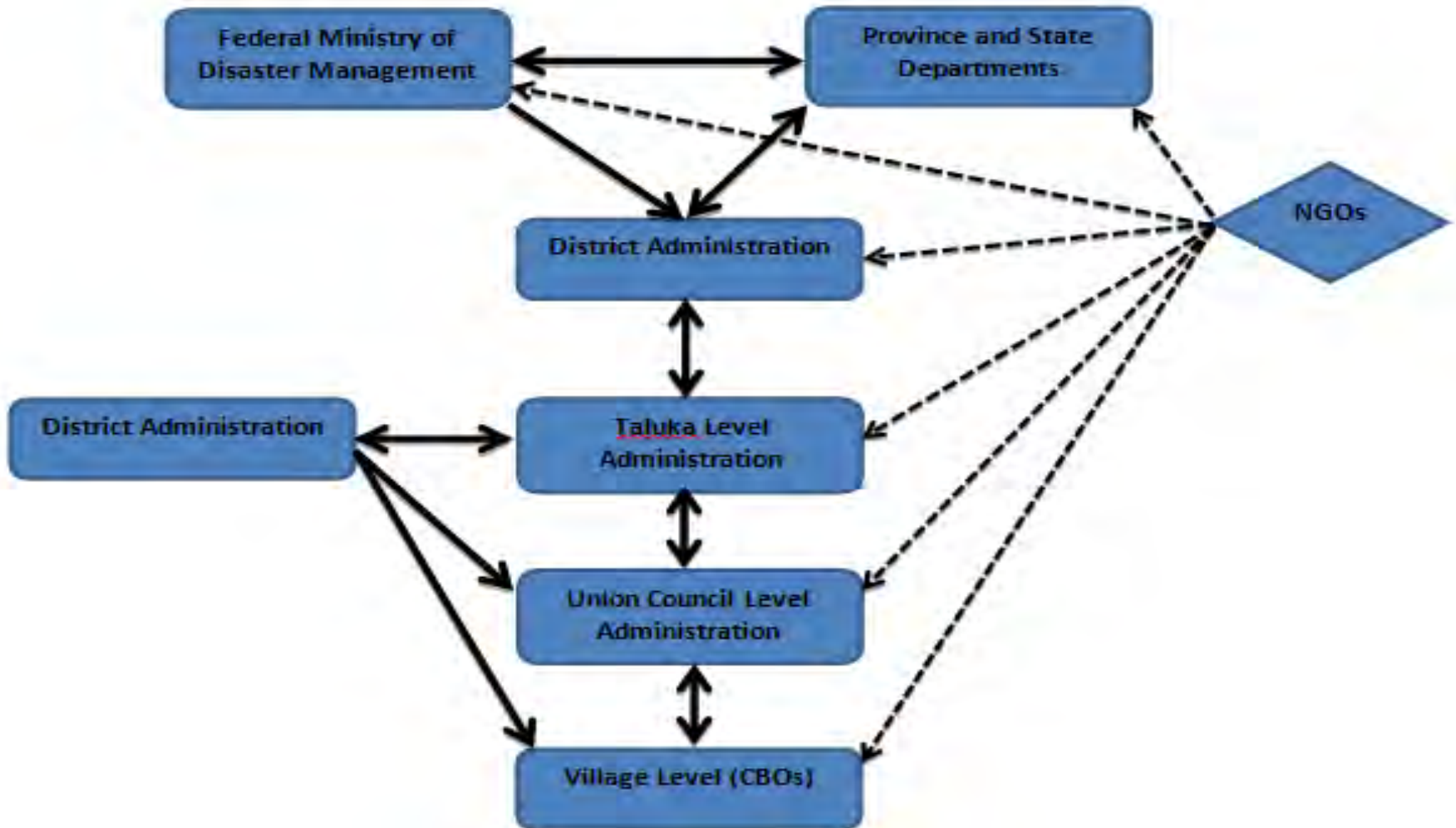
"There's no **disaster** that can't become a blessing, and no blessing that can't become a **disaster**".

THANK YOU ALL