

**UNFCCC Expert Meeting
on
Socio-economic information
under
Nairobi Work program
on
Impacts, Vulnerability and Adaptation**

Nairobi Work Program, Expert Meeting, Socio-economic information Port of Spain, March 10-12, 2008

1

**Stock taking of Socio-economic
baseline information
and scenario development:
National Scale**

Ainun Nishat Ph.D.
Country Representative, Bangladesh, and
Coordinator, Climate Change Program, Asia Region
IUCN, the International Union for Conservation of Nature

Nairobi Work Program, Expert Meeting, Socio-economic information Port of Spain, March 10-12, 2008

2

Some Definitions.....

- Climate Change: **any change in climate over time.**
- Climate Variability: **variations in the mean state and other statistics** (such as **occurrence of extremes**, etc.) of the climate on all temporal and spatial scales.
- **Adaptation** is a process to **cope** with the changing environment.
- **Mitigation** is interventions to **reduce the sources** or **enhance the sinks** of greenhouse gases.

Nairobi Work Program, Expert Meeting, Socio-economic information Port of Spain, March 10-12, 2008

3

Introduction

Goals set out in 1992 through UNFCCC

- Stabilize the GHG concentrations at a level that would prevent dangerous anthropogenic interference with the climatic system- prevention.
- Such a level should be achieved within a time frame sufficient to allow
 - To allow ecosystems to adapt naturally to climate change.
 - To ensure that food production is not threatened, and
 - To enable economic development to proceed in a sustainable manner.
- Goals of 1992 has not been achieved; negotiations are underway to address the threats, in post Bali regime.

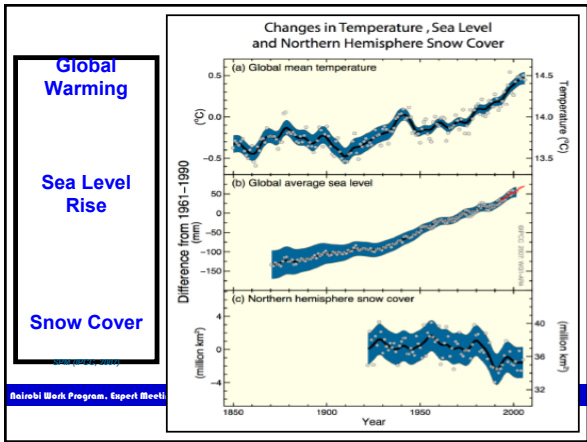
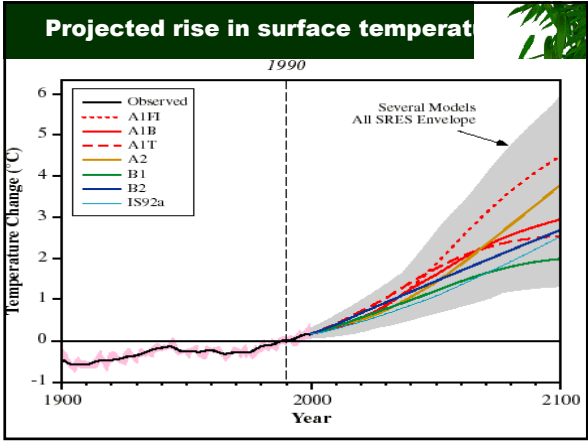
Nairobi Work Program, Expert Meeting, Socio-economic information Port of Spain, March 10-12, 2008

4

Key concerns

- We must prepare for Adaptation to Climate Variability (the already occurring extreme events) and keep in mind the trend indicated in Climate Change forecasts. Time is now to act on Adaptation.
- What is likely to happen:
 - Frequency of extreme events will increase.
 - Intensity of extreme events will increase.
 - Occurrence of erratic and unusual behaviour of weather will be frequent.

Nairobi Work Program, Expert Meeting, Socio-economic Information Prot of Spain, March 10-12, 2008
5



- Impacts
- Vulnerability
- Adaptation

Nairobi Work Program, Expert Meeting, Socio-economic Information Prot of Spain, March 10-12, 2008
8

Probable adverse impacts and Adaptation Options

<p>Hydro-meteorological events</p> <ul style="list-style-type: none"> • Increase in annual rainfall • Increase in droughts • Occurrence of short duration heavy rainfall • Rainfall at unexpected time • Rise in temperature • Increase in cyclones/typhoon/hurricanes <p>Other Impacts</p> <ul style="list-style-type: none"> • Sea level rise <ul style="list-style-type: none"> - Increase in salinity in coastal belt - Inundation of coastal plains • Increase in river erosion • Increase in coastal erosion • Increase in vector borne disease 	<p>Options for Adaptation</p> <ul style="list-style-type: none"> • Flood management infrastructures (dykes/ sluices, pump stations, flood shelters, etc) • Flood forecasting system <ul style="list-style-type: none"> - Lead time and Language - Dissemination • Disaster management capacity. • Irrigation facilities • Erosion control measures/ river training • Coastal dykes and Coastal afforestation, as appropriate • Watershed management • Adaptation in agriculture <ul style="list-style-type: none"> - Seed varieties - Cropping pattern • Attention to health care system
--	--

Raijhi Work Program, Expert Meeting, Socio-economic Information Prof of Spain, March 10-12, 2008

Potential Climate Change Impacts on Agriculture

<p>Positive impacts (temperate zone)</p> <ul style="list-style-type: none"> • Increased productivity from warmer temperature • Possibility of growing new crops • Longer growing season • Increased productivity from enhanced CO2 • Accelerated maturation rates • Decrease in moisture stress 	<p>Projected changes</p> <ul style="list-style-type: none"> • Warmer temperature • Drier or wetter condition • Increased frequency of extreme climatic events • Enhanced atmospheric CO2 	<p>Negative impacts (tropical and sub-tropical one)</p> <ul style="list-style-type: none"> • Increased Insect infestations • Crop damage from extreme heat • Planning problems due to less reliable forecasts • Increased weed growth and disease outbreaks • Decrease herbicide and pesticide efficiency • Increased moisture stress.
<p>Net impacts on crops will be negative and food security depends largely on the adaptation measure to be taken.</p>		

Raijhi Work Program, Expert Meeting, Socio-economic Information Prof of Spain, March 10-12, 2008

Probable adverse impacts

<p>Agriculture sector</p> <ul style="list-style-type: none"> • Production of crops reduced due in unfavourable climatic conditions. • Increase of pests 	<p>Options for Adaptation</p> <ul style="list-style-type: none"> • Salinity, drought, heat and flood tolerant varieties of crop be developed and introduced. • Traditional varieties of seed be reintroduced as suitable. • Effective flood management system • Effective irrigation and drainage facilities.
--	--

Raijhi Work Program, Expert Meeting, Socio-economic Information Prof of Spain, March 10-12, 2008

Vulnerabilities

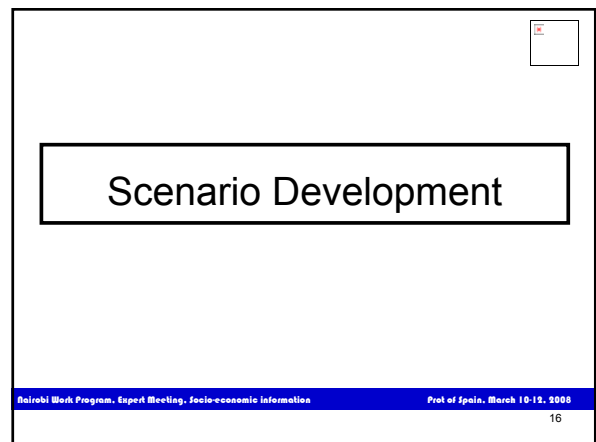
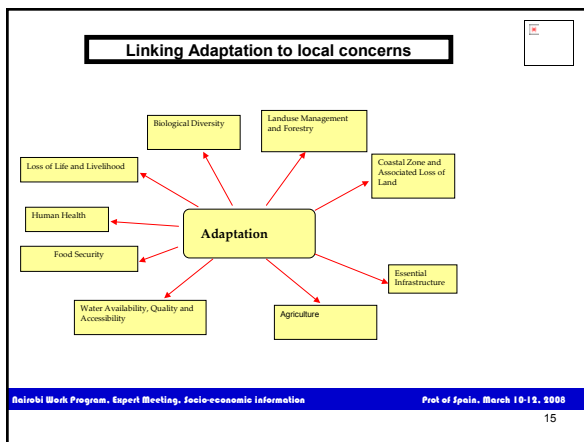
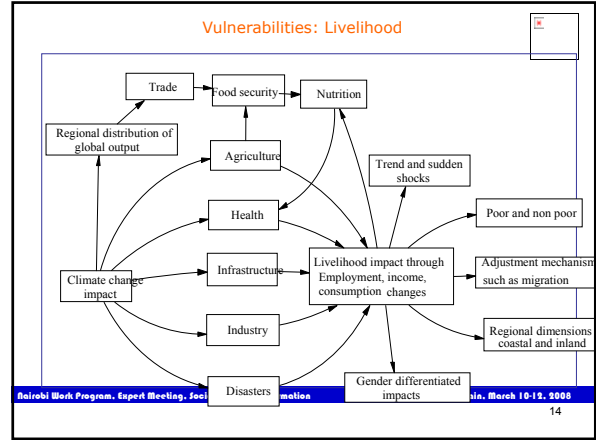
Climate and Related Elements	Most Impacted Sectors
Temperature rise and drought	<ul style="list-style-type: none"> • Agriculture (crop, livestock, fisheries) • Water • Energy • Health
Sea Level Rise and Salinity Intrusion	<ul style="list-style-type: none"> • Agriculture (crop, fisheries, livestock) • Water (water logging, drinking water, urban) • Human settlement • Energy • Health
Floods	<ul style="list-style-type: none"> • Agriculture (crop, fisheries, livestock) • Water (urban, industry) • Infrastructure • Human settlement • Health • Disaster • Energy
Cyclone and Storm Surge	<ul style="list-style-type: none"> • Marine Fishing • Infrastructure • Human settlement • Life and property
Drainage congestion	<ul style="list-style-type: none"> • Water • Agriculture (crop)

Raijhi Work Program, Expert Meeting, Socio-economic Information Prof of Spain, March 10-12, 2008

Vulnerabilities

Physical Vulnerability Context								Sectoral Vulnerability Context
Extreme Temperature	Sea Level Rise		Drought	Flood		Cyclone and Storm Surges	Erosion	
	Coastal Inundation	Safety Intrusion		River Flood	Flash Flood			
+++	++	+++	+++	+++	++	+++	-	Crop Agriculture
++	+	++	++	++	+	+	-	Fisheries
++	++	+++	+	+	+	+++	-	Livestock
+	++	-	-	++	+	+	+++	Infrastructure
++	+++	++	-	++	+	++	-	Industries
+++	+++	+++	+	++	+	+	-	Biodiversity
+++	+	+++	++	++	-	++	-	Health
++	+	++	+	+	+	++	++	Human Settlement
++	+	-	+	+	-	+	-	Energy

Nairobi Work Program, Expert Meeting, Socio-economic Information Port of Spain



Tools and methodologies for analysis

- Statistical analyses based on probability functions on basis of **past observed** data (preferably of 30 years) is used by engineers and professionals to plan and design irrigation projects, flood management infrastructures, drainage systems (also bridges/ culverts) etc. Modification to this approach will be required.
- Results from GCMs/ Climate Models, developed at regional or country level, that will project **future** conditions will be required to **'climate proof'** all infrastructures and decide upon design parameters.

Nairobi Work Program, Expert Meeting, Socio-economic information Prot of Spain, March 10-19, 2008

17

Tools for analyses

- **Hydro-dynamic models** for predictions of floods, river flow, river erosion, coastal erosion
- **Community Based Vulnerability Assessment** will be an important tool.
- **PRA analysis/ consultations** with **local communities**
- **Community's role in disaster management** be enhanced.

Nairobi Work Program, Expert Meeting, Socio-economic information Prot of Spain, March 10-19, 2008

18

Planning horizons

- Target year
 - 2012 – to match with Kyoto protocol ?
 - 2015 – to match with MDG Targets ?
 - 2030, 2050, 2100 to match with IPCC projections. ?
- Short term, Mid Term and Long term scenarios may be developed;

Nairobi Work Program, Expert Meeting, Socio-economic information Prot of Spain, March 10-19, 2008

19

Baseline Socio-economic data

Nairobi Work Program, Expert Meeting, Socio-economic information Prot of Spain, March 10-19, 2008

20

Data on Population

- Demographic data
 - Population density and distribution
 - Growth rate
 - Trend analysis
 - Population tree
 - Urban population
 - Migration pattern
- Source:
 - Census Reports (carried out every 10 years)
 - Statistical Year books (published every year)

Nairobi Work Program, Expert Meeting, Socio-economic information Prot of Spain, March 10-12, 2008
21

Socio-economic data

- Socio-economic information
 - Education
 - Housing characteristics
 - Income distribution
 - Malnutrition
- Source:
 - Census Reports (every 10 years)
 - Statistical Year books (published every year)
 - Demographic and health surveys (every two years)

Nairobi Work Program, Expert Meeting, Socio-economic information Prot of Spain, March 10-12, 2008
22

Agriculture related data

- Reports of Agriculture census (2.8 million HH covered in 2005; countrywide survey now going on)
 - Land holding pattern
 - Irrigation
 - Land use pattern
 - Cropping pattern
 - Fertilizer use data
 - Introduction of new crops
- Detailed survey for 20,000 HH
 - Farming operation details
- Annual
 - Agricultural wages
 - Crop yield (crop cutting survey)

Nairobi Work Program, Expert Meeting, Socio-economic information Prot of Spain, March 10-12, 2008
23

Contents of BBS Annual Report

- General features and Environment
- Area, Population, Household and Household Characteristics
- Labour and manpower
- Agriculture: Crops, Livestock Forestry and Fishery
- Industry
- Energy
- Transport and Communication
- Prices and wages
- Education
- National Income
- Consumption, Household, income and expenditure
- Health, Family Planning and Social Statistics

Nairobi Work Program, Expert Meeting, Socio-economic information Prot of Spain, March 10-12, 2008
24

Other agriculture sector data

- Livestock survey (1988, 2005 some data)
- Fisheries resources survey (2003)
- Forestry Sector assessment (2007)
- Forestry Master plan data (1995)

- Rural energy survey data (2003)

Rairobi Work Program, Expert Meeting, Socio-economic information Prot of Spain, March 10-19, 2008

25

Sources of expertise

Rairobi Work Program, Expert Meeting, Socio-economic information Prot of Spain, March 10-19, 2008

26

Expertise.....

- Adaptation to Climate Change may be achieved by extension of normal development planning process by taking into account the projected scenarios; Model results from GSM models is required;
- Traditional knowledge may provide planning option specially with respect to disaster management;
- Advanced forecast of climatic event will assist to be better prepared;
- Participatory planning and active involvement of local communities are essential.

Rairobi Work Program, Expert Meeting, Socio-economic information Prot of Spain, March 10-19, 2008

27

- Thanks for your patience

Rairobi Work Program, Expert Meeting, Socio-economic information Prot of Spain, March 10-19, 2008

28