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# MODULE 8: INDICATORS FOR ADAPTATION AND AGRICULTURE



# Overview

- Why use indicators to track adaptation?
- Function and types of indicators
- Relevant global adaptation indicators

# FUNCTION AND TYPES OF INDICATORS

# Why use indicators to track adaptation?

- An indicator is a measurable variable that helps assess the current situation and track change over a period of time
- Adaptation indicators are essential to:
  - monitor progress towards the implementation of adaptation policies, strategies and actions
  - target, justify and monitor funding for adaptation programmes
  - communicate adaptation priorities to policymakers and stakeholders
  - compare adaptation achievements across sectors, regions and countries
  - provide inputs for international climate change related processes and mechanisms

# Essential characteristics of adaptation indicators

- SPECIFIC Indicators should be clear and easy to understand and relevant to the context
- MEASURABLE. Indicators should be based on readily available data, or on data that can be made available at a reasonable cost
- ACHIEVABLE: Indicators and their measurable units must be achievable and sensitive to change during the life of the project
- ANALITICALLY SOUND. Its validity should be widely accepted
- RELEVANT. Indicator sets should reflect information that can be used for management or immediate analytical purposes. They should provide a balanced coverage of all key adaptation objectives.
- TRANSPARENT. The indicators should be transparent and easy to interpret, i.e. users should be able to assess the significance of the values associated with the indicators and their changes over time.
- TIME BOUND. Progress can be tracked at a desired frequency for a set period of time

# Type of indicators I

- **Process Indicators** indicators measure progress in implementing adaptation policies, plans, projects or changes in institutional decision-making capacity, which create an enabling environment for adaptation.

## AGRICULTURE

- **Outcome/ Results Indicators**

are used to evaluate whether or not the activity, plan or policy achieved the intended objectives or results.

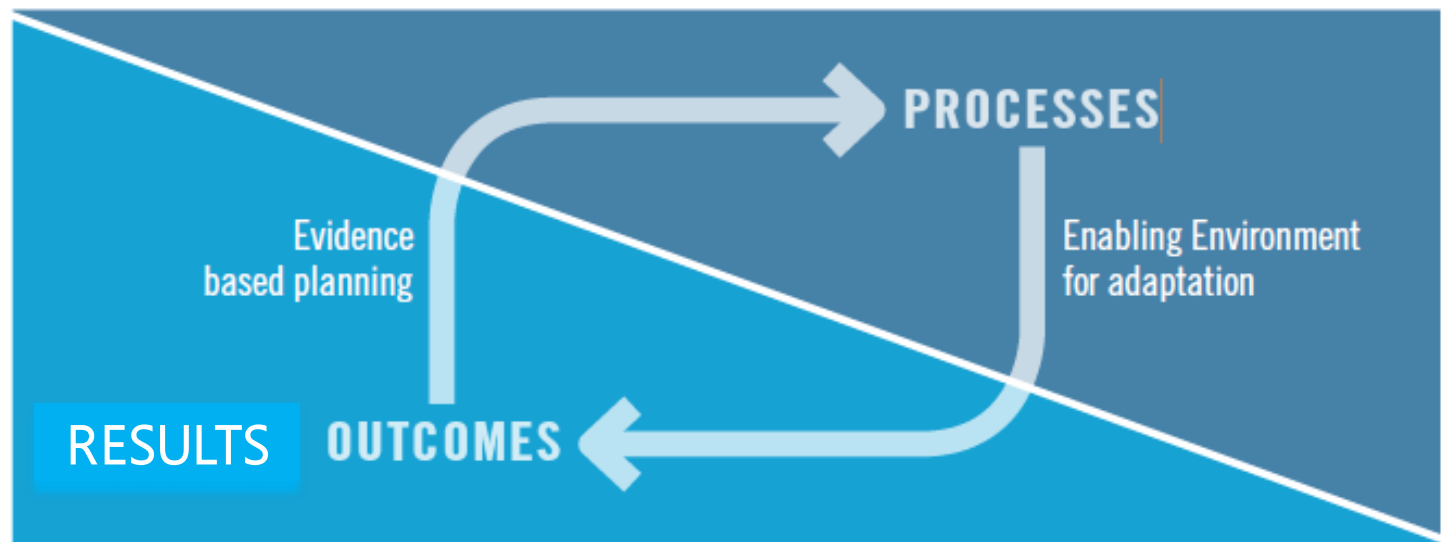
### ELEMENTS OF M&E FOR ADAPTATION IN

PROCESSES



OUTCOMES

RESULTS



Natural resources and ecosystems

Agricultural production systems

Socio-economics

Institutions and policy

LOCAL



NATIONAL

# Case study: Selecting adaptation indicators in Morocco

Process indicators	Outcome indicators
<ul style="list-style-type: none"><li>• Cultivated surface area with drought resistant varieties</li><li>• Forested areas covered by territorial plans</li><li>• Number of farmers involved in pilot irrigation services</li></ul>	<ul style="list-style-type: none"><li>• Demand for water by sector</li><li>• Share of additional fodder for grazing livestock</li><li>• Poverty rate in rural areas</li></ul>

# Type of indicators II

- **Quantitative indicators** – these are the most commonly used. Quantitative indicators provide information on “how much” or “how many”
- **Qualitative indicators** - Qualitative indicators capture judgments or perceptions of changes achieved, provide information on how people feel about a situation, how things are done, how people behave, etc, .
- **Results Indicators** can be measured at different levels:
  - Output indicators** illustrate the change related directly to the activities undertaken within the programme (e.g. percentage of area cultivated with drought resistant varieties)
  - Outcome indicators** relate to medium-to-longer term change (e.g. percentage of poor people in drought-prone areas with access to safe and reliable water)
  - Impact indicators** measure the long-term effect of programme interventions (e.g. increase in adaptive capacity of farmers in community x, disaggregated by sex of household head\*.)



# Gender-sensitive indicators

- **Gender sensitivity.** COP 23 adopted the Gender Action Plan and monitoring gender issues. On the recognition that gender shapes vulnerability and adaptive capacity, frameworks should include sex-disaggregated and gender sensitive indicator
- What can the gender-sensitive indicators do:
  - measure gender-related change in a condition or situation over time
  - measure benefits to males and females as well as changes in relations between them
  - use quantitative and qualitative data disaggregated by sex, age and other socio-economic variables
- Examples of qualitative gender-sensitive indicators: levels of adoption of high yield varieties amongst male-headed compared to female-headed households; proportion of female compared to male workforce in agricultural organizations; percentage of male and female trainees who feel their knowledge of adaptation practices has increased.

# RELEVANT GLOBAL ADAPTATION INDICATORS

# Relevant global sources of adaptation indicators

Several CC Funds have specific guidance on the development of adaptation indicators at programme level. Guidance includes:

WB Climate Investment Funds (CIF)/ Pilot Program for Climate Resilience (PPCR)

UNFCCC Adaptation Fund

UNFCCC Green Climate Fund

GEF SCCF and LDCF

OECD. 2012 *Monitoring and Evaluation for Adaptation: Lessons from Development Cooperation Agencies presents a list of Indicators on Risk Reduction, etc.*

More in the following slides....

# FAO *Tracking adaptation in agricultural sectors*

Main categories	Subcategories	
<b>Natural resources and ecosystems</b>	1	Availability of, and access to, quality water resources for agriculture
	2	Availability of, and access to, quality agricultural land and forests
	3	Status of ecosystems and their functioning
	4	Status of the diversity of genetic resources in agriculture
<b>Agricultural production systems</b>	1	Agricultural production and productivity
	2	Sustainable management of agricultural production systems
	3	Impact of extreme weather and climate events on agricultural production and livelihoods
	4	Projected impact of climate change on crops, livestock, fisheries, aquaculture and forestry
<b>Socio-economics</b>	1	Food security and nutrition (vulnerability)
	2	Access to basic services
	3	Access to credit, insurance, social protection in rural areas
	4	Agricultural value addition, incomes and livelihood diversification
<b>Institutions and policy making</b>	1	Institutional and technical support services
	2	Institutional capacity and stakeholder awareness
	3	Mainstreaming of climate change adaptation priorities in agricultural policies, and vice versa
	4	Financing for adaptation and risk management

# International Institute for Environment & Development (IIED) – *Tracking Adaptation and Measuring Development (TAMD)* framework

- Indicator 1: Climate change integration into planning
- Indicator 2: Institutional coordination for integration of climate risk management
- Indicator 3: Budgeting and finance
- Indicator 4: Institutional knowledge and capacity
- Indicator 5: Use of climate information
- Indicator 6: Institutional capacity for decision-making under climatic uncertainty
- Indicator 7: Participation, stakeholder engagement in decision-making to address CC
- Indicator 8: Awareness among stakeholders of CC issues, risks and responses
- Indicator 9: Numbers of people better able to cope with climate change and variability (disaggregated by gender/age)

# *GlZ adaptation indicators for agriculture from 10 national adaptation M&E systems*

## Climate parameters

- Change in annual temperature
- Mean monthly temperature
- Number of hot days
- Change in annual precipitation
- Monthly precipitation
- Extreme precipitation events

## Climate impacts

- Number of households affected by drought, disaggregated by sex of head of household
- % of total livestock killed by drought
- Number of surface water areas subject to declining water quality due to extreme temperatures
- Number of hectares of productive land lost to soil erosion
- % of area of ecosystem that has been disturbed or damaged
- Areas covered by vegetation affected by plagues or fires
- Shift of agrophenological phases of cultivated plants
- Losses of GDP in percentage per year due to extreme rainfall

## Adaptation actions

- Percentage of farmers and fisherfolk with access to financial services, disaggregated by sex
- Total sum of investments in programmes for the protection of livestock
- Number of inventories of climate change impacts on biodiversity
- Uptake of soil conservation measures
- Percentage of treated wastewater
- Percentage of agricultural land with improved irrigation
- Number of farmers involved in pilot irrigation messaging projects,
- Number of women organised in agricultural cooperatives
- Cultivation of varieties of red wine which like warmth

## Adaptation results

- % of poor people in drought-prone areas with access to safe and reliable water
- Number of cubic metres of water conserved
- % of water demand for cash crops being met by existing supply
- % of water demand for home gardens and cooking being met by existing supply
- % of livestock insured against death due to extreme weather events
- % of farmland covered by crop insurance
- % of additional fodder for grazing livestock
- Increase in agricultural productivity through irrigation of harvested land
- Increase in the percentage of climate resilient crops being used
- % of cultivated surface cultivated with drought resistant varieties
- Turnover generated by agricultural cooperatives

# Case study: National adaptation indicators of Kenya MVR+ system

## Top-down county-level institutional adaptive capacity indicators (process)

- % of population by gender in areas subject to flooding and/ or drought in the county who have access to information on rainfall forecasts
- % of poor farmers and fishermen in the county with access to credit facilities or grants
- % of total livestock numbers killed by drought in the county
- % of area of natural terrestrial ecosystems in the county that have been disturbed or damaged by what?
- % water demand that is supplied in the county
- % of poor people by gender in drought prone areas in the county with access to reliable and safe water supplies

## Bottom-up vulnerability indicators (outcome)

- Number of hectares of productive land lost to soil erosion
- % rural households with access to water from a protected source
- Cubic meters per capita of water storage
- % of land area covered by forest
- Number households in need of food aid



# Case study: Kenya NAP indicators

National	Sector	County (examples)
<ul style="list-style-type: none"><li>• Human development index</li><li>• % of climate related national loss and damage in the public and private sectors</li><li>• Population living below the poverty line</li><li>• National vulnerability index</li></ul>	<ul style="list-style-type: none"><li>• Number of sectors planning, budgeting and implementing adaptation actions</li><li>• National and county performance contracting systems integrating adaptation targets</li><li>• Amount of loss and damage from climate hazards per sector</li><li>• Amount of private sector financing for adaptation</li></ul>	<ul style="list-style-type: none"><li>• Number of counties budgeting and implementing adaptation programmes;</li><li>• No of national and county level programmes incorporating adaptation</li><li>• Number of households with timely access to climate information</li><li>• Number of public servants trained on adaptation</li></ul>

# Considerations when choosing indicators

1. **Process and results.** The selection of indicators should comprise both process- and result-based indicators
2. **Adaptation at the local level.** Adaptation tracking should accurately capture changes at the local level, since adaptation is first and foremost a local issue
3. **Multifaceted nature of adaptation.** Adaptation is a multifaceted process; therefore, multiple indicators should be used to track to adaptation
4. **Data availability.** The availability and quality of data can be inadequate. To counter this problem, existing data sets, developed for other purposes, may be used
5. **Institutions and policy dimensions.** Indicators from adaptation policies, programmes and projects that are implemented within a broader socio-economic and institutional context are to be considered

# STOCKTAKE AND SELECTION OF EXISTING NATIONAL INDICATORS

# Stocktake of existing national adaptation indicators

(prior mapping to be carried out by national consultant (or facilitator), where possible)

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# Selection of indicators relevant for the country

- *Which of the global climate impact, vulnerability, process and/or outcome indicators might be relevant for your M&E Framework? Why?*
- *Which of the indicators in e.g. Climate Change Policies, NAP, NDC, UNFCCC National Communications are relevant for the agriculture sector?*
- *Are there adaptation indicators in agriculture programmes? Could they be scaled-up to sectoral level?*
- What are their strengths and weaknesses? How credible and reliable is the data behind the indicator? How often is the data collected and by whom etc.?
- Identify which indicators have worked to date, which haven't and why

# Exercise: Adaptation info under ETF

How can you use the national M&E framework/indicators to inform global reporting

## Adaptation information needs under ETF

- A) National circumstances, institutional arrangements and legal frameworks
- B) Impacts, risks and vulnerabilities
- C) Adaptation priorities and barriers
- D) Adaptation strategies, policies, plans, goals and actions to integrate adaptation into policies
- E) Progress on implementation of adaptation
- F) M&E of adaptation actions & processes
- G) Info related to averting, minimising and addressing loss and damage
- H) Cooperation, good practices, experience and lessons learned
- I) Any other info related to impacts & adaptation

# IDENTIFY DATA SOURCES, AND BASELINE

# Summary of selected indicators

- .....

- .....





# Case study: existing data sources in Kenya

Data source	Relevant sector	Description of data
Kenya Meteorological Department	All Agriculture	-Climatic data -Agro-meteorological stations collect data on climate
Kenya Agricultural Research Institute	Agriculture Livestock	-Data on food, horticultural and industrial crops, animal production, animal health, soil fertility, vegetation, agroforestry, and irrigation. *
Department of Resource Surveys & Remote Sensing	Forestry Wildlife Livestock	Data on livestock/wildlife numbers and distribution, vegetation cover, forests, species composition, biofuel, biomass, crops, land degradation, and human settlements.
Water Resources Management Authority	Water	Data on flow volumes at river gauging stations; from hydro meteorological weather stations.
Kenya Forest Service	Forestry	National-level statistics on forestry, forest cover, land use change, timber and fuelwood consumption.
National Environment Management Authority	Water	Data on water quality.
Kenya National Bureau of Statistics	All	Socio-economic data.
Monitoring and Evaluation Directorate	All	Process-based indicators on expenditure on adaptation and related activities.

# Overview of existing data sources

(prior mapping to be carried out by national consultant or facilitator)

- .....

- .....



# Exercise 2: Data sources and Baseline

Step 1: In small groups, review potential data sources (20 min)

- Feedback to plenary and update mapping, as needed (20 min)

Step 2 In small groups, identify indicative baselines (20 min)

- Feedback to plenary and update mapping, as needed (20 min)

# Identify relevant data sources and baseline

- *What type of data and information do you require to fulfil the purpose of the M&E system?*
- *What data is available on climate change impacts and vulnerability?*
- *What data is available on adaptation?*
- *What data is available in the agriculture sector? Which available data sets are relevant for adaptation?*
- *What development data sets are relevant? Is data sex-disaggregated?*
- *Who provides this data? Who gathers this data? Who stores this data? What is the capacity to analyse it? Who has access to it?*
- *Is there new data that you will need to collect?*
- *How will data from different sources be collected, aggregated and analysed, and by whom? Do data-collection teams have capacity to use gender-sensitive methods?*



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# THANK YOU

# FAO CBIT AFOLU TEAM

CAPACITY BUILDING INITIATIVE FOR TRANSPARENCY

FAO CBIT – AFOLU PROJECT

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