MODULE 8: INDICATORS FOR ADAPTATION AND AGRICULTURE

Food and Agriculture Organization of the United Nations

UNDP

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Supported by:

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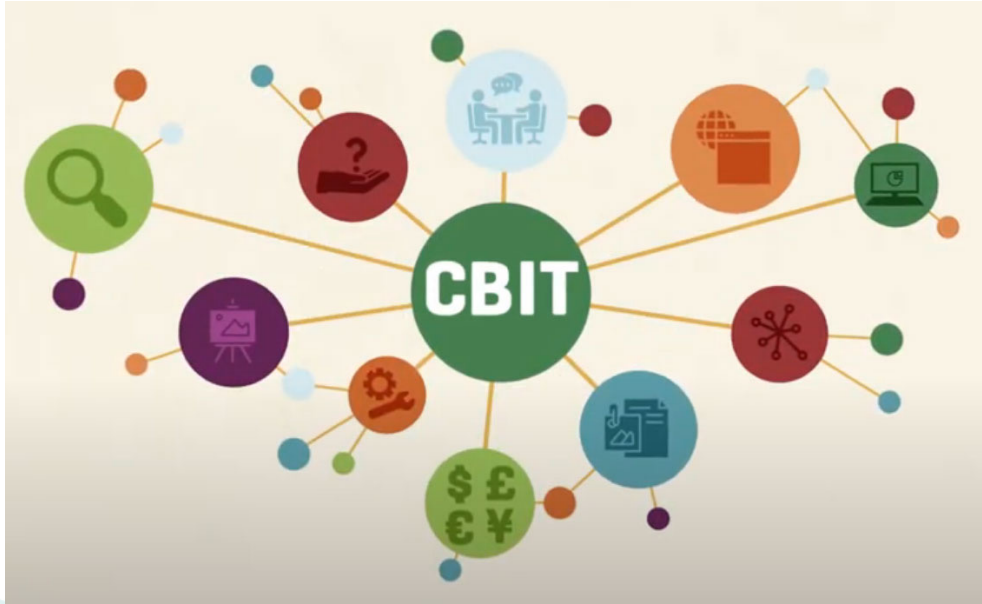
Overview

- 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

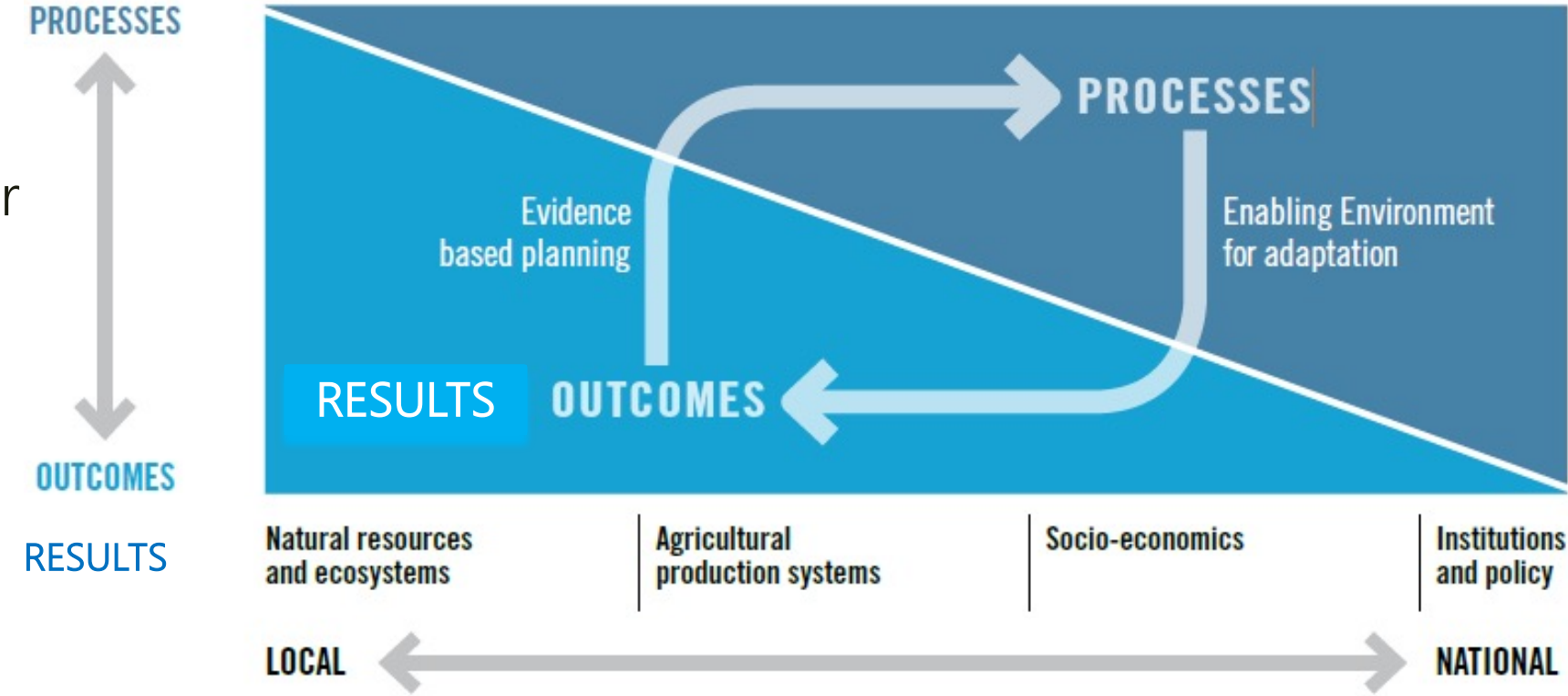
- SPECIFIC Indicators should be clear and easy to understand and relevant to the context
- MEASURABLE. Indicators should be based on readily available data, or on data that can be made available at a reasonable cost
- ACHIEVABLE: Indicators and their measurable units must be achievable and sensitive 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.

ELEMENTS OF M&E FOR ADAPTATION IN AGRICULTURE

- **Outcome/ Results Indicators** are used to evaluate whether or not the activity, plan or policy achieved the intended objectives or results.



Case study: Selecting adaptation indicators in Morocco

Process indicators	Outcome indicators
• Cultivated surface area with drought resistant varieties • Forested areas covered by territorial plans • Number of farmers involved in pilot irrigation services	• Demand for water by sector • Share of additional fodder for grazing livestock • Poverty rate in rural areas

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	
Natural resources and ecosystems	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
Agricultural production systems	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
Socio-economics	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
Institutions and policy making	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)

GIZ 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)	Bottom-up vulnerability indicators (outcome)
• % 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	• 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)
• Human development index • % of climate related national loss and damage in the public and private sectors • Population living below the poverty line • National vulnerability index	• Number of sectors planning, budgeting and implementing adaptation actions • National and county performance contracting systems integrating adaptation targets • Amount of loss and damage from climate hazards per sector • Amount of private sector financing for adaptation	• Number of counties budgeting and implementing adaptation programmes; • No of national and county level programmes incorporating adaptation • Number of households with timely access to climate information • Number of public servants trained on adaptation

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, UNFCCCC 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

Summary of selected indicators

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- .....

IDENTIFY DATA SOURCES, AND BASELINE

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?*

Food and Agriculture Organization of the United Nations

THANK YOU

FAO and the Enhanced Transparency Framework: https://www.fao.org/climate-change/our-work/what-we-do/transparency/en/

FAO SCALA: https://www.fao.org/in-action/scala/en
UNDP SCALA: https://www.adaptation-undp.org/scala

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