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Monitoring the resilience of people's food security : An overview of approaches taken by the 12 IAP-FS country projects

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Acronyms

AGRA	Alliance for a Green Revolution in Africa
CI	Conservation International
CFS	Committee on World Food Security
CSA	Climate Smart Agriculture
DATAR Resilience	Diversity Assessment Tools for Agrobiodiversity and Resilience
HDDS	Household Dietary Diversity Score
IFPRI	International Food Policy Research Institute
IPC	Integrated Food Security Phase Classification
EO	Earth Observation
EO4SD	Earth Observation for Sustainable Development
ESA	European Space Agency
EX-ACT	Ex-Ante Carbon-balance Tool
FAO	Food and Agriculture Organization
FEWS NET	Famine Early Warning Systems Network
FIES	Food Insecurity Experience Scale
FSIN	Food Security Information Network
GEB	Global Environmental Benefit
GEF	Global Environment Facility
GIS	Geographic Information System
HH-BAT	Holistic Household Baseline Assessment Tool
IAP	Integrated Approach Programme
ICRAF	World Agroforestry Centre
IFAD	International Fund for Agricultural Development
ILM	Integrated Land Management
IPC	Integrated Food Security Phase Classification
LDSF	Land Degradation and Ecosystem Health Surveillance Framework
LDN	Land Degradation Neutrality
METT	Management Effectiveness Tool
NDVI	Normalized Difference Vegetation Index
PoU	Prevalence of Undernourishment
PRIDE	Programme for Rural Irrigation Development
RAPTA Assessment Framework	The Resilience, Adaptation and Transformation Assessment Framework
RIMA	Resilience Index Measurement and Analysis
RIMS	Results and Impact Management System
SDG	Sustainable Development Goals
SEB	Socio-economic benefit
SHARP	Self-evaluation and Holistic Assessment of climate Resilience of farmers and Pastoralists
SLM	Sustainable Land Management
SSA	Sub-Saharan Africa
STAP	Scientific and Technical Advisory Panel
TNC	The Nature Conservancy

UNCBD	United Nations Convention on Biological Diversity
UNCCD	United Nations Convention to Combat Desertification
UNDAF	United Nations Development Assistance Framework
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
WEIA	Women's Empowerment in Agriculture Index
WFP	World Food Programme

Glossary of key terms

These definitions have been derived directly from the RAPTA framework unless specified:

Resilience

The ability of a system to maintain high-level objectives (e.g. sustainability, rural livelihoods, ecosystem services) in the face of unknown changes or disturbance. The term resilience can be coupled with aspirational goals, or system futures which are seen as desirable or ‘good’ (e.g. maintain the resilience of ecosystem services), so long as it is clear that it is not the resilience per se that is desirable.

Specified resilience

Resilience of a system to identified disturbances, with specific thresholds (e.g. capacity of a grazing system to maintain ground cover above 50% during drought)

General resilience

Capacity of the system to cope with all kinds of shocks and disturbances, and so be able to avoid crossing all thresholds, known or unknown, to alternate regimes (features such as ecological diversity, capital reserves, land tenure, education level, gender balance and health status determine general resilience). A system with high general resilience has the capacity to maintain the same identity, while also having the capacity to adapt, or intentionally transform to a different identity, if desired.

Adaptation

A process of change that enables the system to achieve desired goals, including by reducing vulnerability to disturbance or threats such as climate change.

Transformation

The process of moving from one type of system to another that has different controlling variables, outputs, structure, functions, and feedbacks (a different ‘identity’). Adaptation and transformation are seen as a continuum.

1. Introduction

1.1 Background to overview

The Global Environment Facility's Integrated Approach Programme: Fostering Sustainability and Resilience for Food Security in Sub-Saharan Africa has been implemented in 12 countries: Burkina Faso, Burundi, Ethiopia, Ghana, Kenya, Malawi, Niger, Nigeria, Senegal, Swaziland, Tanzania and Uganda. The 5-year programme was designed to promote sustainability and resilience among smallholder farmers through the sustainable management of natural resources – land, water, soils and genetic resources – that are crucial for food and nutrition security. The International Fund for Agricultural Development is the lead agency with the Programme Coordination Unit hosted by the World Agroforestry Centre at their headquarters in Nairobi. Bioversity International, UN Environment, UNDP, FAO, World Bank, UNIDO, AGRA and Conservation International are all involved.

The GEF's IAP-FS programme aims to establish a common framework for assessing project impact on resilience and food security of the target populations. This entails establishing common indicators and baselines across countries so that progress can be tracked against targets and sensible monitoring and evaluation procedures can be put in place.

Socio-economic benefits that are to be monitored at Programme level include number of beneficiary households and an index of their food security. This will be complemented with data from country projects on gender-disaggregated number of individual beneficiaries. The food security index has yet to be determined by FAO but should be included in M&E strategies across IAP-FS projects to ensure impact in this area is measured.

1.2 Scope of work

The principle aim of this work is to provide a preliminary overview of how resilience concepts and food security methodologies have been integrated into the initial project documentation for each of the 12 country programmes that make up the Global Environment Facility's Integrated Approach Programme: Fostering Sustainability and Resilience for Food Security (GEF's IAP-FS) in Sub-Saharan Africa.

The FS-IAP launch workshop determined that there was no mandated tool or process for assessing and reporting resilience or food and nutrition security, but that countries were required to report their impact in these areas.

This overview has three objectives:

- 1) to provide a preliminary overview of how resilience concepts and food security methodologies had been integrated into the initial project documentation
- 2) Review where we were at the start of the project in relation to measuring both food security and resilience indicators across the 12 country programmes

These outputs would then be used to inform ongoing discussions about identifying appropriate indicators and tools for assessing positive changes to the resilience of people's food security.

1.3 FAO food security indicators

The current approaches associated with the Integrated Food Security Phase Classification (IPC) scale used by FAO were taken into account when conducting the overview (Appendix 2).

Food security as defined by the Food and Agriculture Organization (2015) is:

“When all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.”

Based on this definition, four main dimensions of food security can be identified: food availability, economic and physical access to food, food utilisation and stability over time. These are closely interrelated and are summarised below:

- **Availability** is about food supply and trade, not just quantity but also the quality and diversity of food. Improving availability requires sustainable productive farming systems, well managed natural resources, and policies to enhance productivity.
- **Access** covers economic and physical access to food. Improving access requires better market access for smallholders allowing them to generate more income from cash crops, livestock products and other enterprises.
- **Utilisation** is about how the body uses the various nutrients in food. A person’s health, feeding practices, food preparation, diversity of their diet and intra-household distribution of food all affect a person’s nutrition status. Improving utilisation requires improving nutrition and food safety, increasing diversity in diets, reducing post-harvest loss and adding value to food.
- **Stability** is about being food secure at all times. Food insecurity can be transitory with short term shocks the result of a bad season, a change in employment status, conflict or a rise in food prices. When prices rise, it is the poor who are most at risk because they spend a much higher portion of their income on food. Poor people spend a far greater proportion of their income on food than wealthier people. Social ‘safety nets’ can play an important role in supporting people through transitory food insecurity.

The FAO regularly refine the tools and indicators they recommend to organisations and projects working across the world. There is a need for consistency to make national, regional and global datasets robust, comparable, and meaningful. Governmental bodies and NGOs on the international stage rely on these statistics to make evidence-based decisions. The indicators for assessing food security cover all four dimensions mentioned below (see Table 2 below) and some will be more relevant for a country or a project than others. It is important to decide which indicators, and which tools for gathering the required data, are most appropriate for a given context.

The FAO (2017) has highlighted the need for more integrative and large-scale population surveys that include both household- or individual-level food security and nutrition indicators. The GEF Integrated Approach Programme offers the opportunity to collect large scale data on food security and nutrition across 12 major African countries and assess the resilience of these systems to various shocks (actual or predicted). There are many tools already being used successfully by FAO and other international organisations (Appendices 1 & 2), but for data to be of comparable quality there needs to be some overview of the approaches each project is taking to ensure a certain level of consistency (Appendix 3).

Table 1. FAO food security indicators (source: <http://www.fao.org/economic/ess/ess-fs/ess-fadata/en/#.WnIFw1PFJQM>)

FAO FOOD SECURITY INDICATORS (as of October 2017)	DIMENSION
Average dietary energy supply adequacy	AVAILABILITY
Average value of food production	
Share of dietary energy supply derived from cereals, roots and tubers	
Average protein supply	
Average supply of protein of animal origin	
Rail lines density	ACCESS
Gross domestic product per capita (in purchasing power equivalent)	
Prevalence of undernourishment	
Prevalence of severe food insecurity in the total population	
Depth of the food deficit	
Cereal import dependency ratio	STABILITY
Percent of arable land equipped for irrigation	
Value of food imports over total merchandise exports	
Political stability and absence of violence/terrorism	
Per capita food production variability	
Per capita food supply variability	
Access to improved water sources	UTILIZATION
Access to improved sanitation facilities	
Percentage of children under 5 years of age affected by wasting	
Percentage of children under 5 years of age who are stunted	
Percentage of children under 5 years of age who are overweight	
Prevalence of obesity in the adult population (18 years and older)	
Prevalence of anemia among women of reproductive age (15-49 years)	
Prevalence of exclusive breastfeeding among infants 0-5 months of age	

1.4 The Resilience, Adaptation Pathways and Transformation Assessment (RAPTA) framework

Applying resilience thinking is critical to meeting the Sustainable Development Goals related to food security. Very broadly resilience means the capacity of a system (e.g. a farming system) to absorb disturbance (e.g. drought, conflict, market collapse), and recover and maintain high-level objectives (e.g. sustainability, rural livelihoods, ecosystem services). It can be described as “coping capacity”. The disturbance may be a shock - sudden events such as a flood or disease epidemic – or it may be a trend that develops slowly, like a drought.

“Resilience thinking” uses resilience concepts to focus interventions on key drivers, and the most responsive and vulnerable elements of the agricultural system, taking into account the current condition of the system and its trajectory under anticipated shocks and trends. It thereby assists projects to deliver intended outcomes and to achieve long-lasting environmental and production benefits.

As part of the overview we wished to assess how resilience been thought through within the project documents. To do this a protocol was developed (described in Section 2 below) that was based on the Resilience, Adaptation Pathways and Transformation Assessment (RAPTA) framework. RAPTA was developed by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in partnership with The Scientific and technical Advisory Panel (STAP) that advises GEF.

This framework is described in **Designing projects in a rapidly changing world: Guidelines for embedding resilience, adaptation and transformation into sustainable development projects** (O’Connell et al. 2016) and summarized in Figure 1 below.

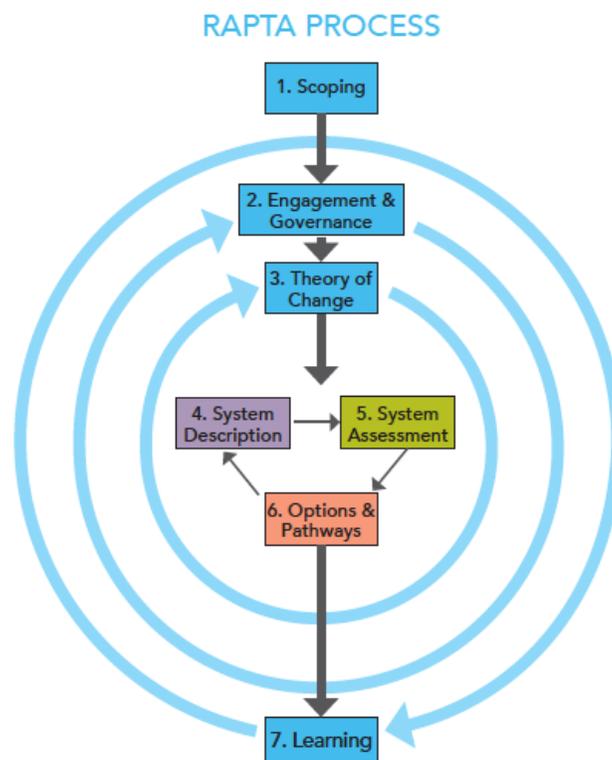


Figure 1: Diagram showing the RAPTA components, the iterative nature of interactions between components, and the embracing nature of the Engagement and Governance and Learning component (From O’Connell et al., 2016)

In summary the critical features of resilience thinking are:

- Goal-oriented
- Systems view: focus on process-level system functions
- Consider linkages between scales – nested approaches
- Apply Theory of Change to identify impact pathways
- Consider trajectory, risks, proximity to thresholds
- Consider adaptation/transformation options
- Devise interventions, and their implementation pathways, to steer away from undesirable futures
- Multi-stakeholder engagement, Learning, Knowledge Management embedded throughout.

The protocol described in Section 3 below used these features as a basis for designing a protocol to explore the degree to which the original project documents Monitor the resilience of people's food security.

2. Overview

This preliminary overview was based entirely on information found in the project proposal documents for the IAP projects held on GEF website. Specifically the documents used for this overview were limited to those available during the period of October - November 2017). The projects are likely to have developed further since these documents were published and it is likely that there is more recent information.

2.1 Protocol structure

The protocol that informed the overview is divided into seven sections. The first six sections use components of the RAPTA framework to explore the degree to which resilience thinking has been integrated into the initial project design. The RAPTA framework incorporates an initial scoping phase (see O’Connell et al. 2016 and Figure 1 above). This element was left out of the overview as all projects had moved beyond this phase i.e. all projects have a justifiable statement on the aspirations and goals of the project and the broad scope, scale and location of project activity have been agreed and defined.

For sections 1-6 the descriptors have been drawn directly from O’Connell et al., (2016). Under each section there then a series of guiding questions that informed the analysis for each of the project documents. We acknowledge that some questions derived from RAPTA are likely to be much better answered through dialogue with the project teams (and are less likely to be clearly answered in the initial project documents used for this analysis). In some cases, information has been provided so the questions have been retained – these may be useful to follow up). In the protocol below these questions are in italics.

The seventh section focuses on how the relationship between food security and resilience has been captured in the IAP programme in Sub-Saharan African countries.

2.2 Section descriptors

1 Multi-stakeholder engagement and governance

“Effective stakeholder engagement means getting the right people involved, in the right way, at the right time, using ethical and transparent processes. Stakeholder engagement seeks to develop shared understanding of the many perspectives on problems and solutions. Defining the roles, responsibilities and accountabilities of stakeholders involved in project design, implementation and governance should be an important component of projects seeking to integrate resilience. *Engagement and Governance* is essential to all phases of the project cycle. Using RAPTA, it comes in early and is continually strengthened and modified as the project develops”.

1A Is there evidence of an initial stakeholder analysis having been conducted?

1B What was the extent and quality of the stakeholder engagement in the project design?

1C What is the project governance structure? What flexibility exists to adjust project design and implementation at different scales?

1D Is there a multi-stakeholder engagement plan?

It is difficult to assess the flexibility of project governance structures from the initial documentation (Component 1C). These may be best explored with project teams in future workshops. Similarly a cross cutting theme for all the projects was the development of multi-stakeholder platforms for knowledge exchange and learning (both key components of the RAPTA framework). The degree to which the efficacy of these arrangements can be assessed

from initial project documents is limited (and so Component 1D is assumed at this stage for all projects)

2 System Description

“Drawing from stakeholders’ diverse perspectives, as well as the literature, the System Description produces a record of the current understanding of what the system consists of and how it is connected, and the assumptions and evidence underpinning this understanding. It forms a fundamental base for assessing the system’s resilience.”

- 2A** Is the system well-understood? (Including biophysical and socio-economic aspects and their linkages?)
- Is knowledge of the system based on published scientific literature, and/or local knowledge?
 - Has relevant past work been identified?
 - Who is the focus of the project?
 - How well does the project address gender issues?
- 2B** Have the key determinants of system structure and function been describe? Have key drivers and shocks been described
- 2C** Have cross-scale interactions been assessed (including connections and feedbacksbetween the focal scale and the scales above and within the focal scale)?
- 2D** Have the sub- system(s) been viewed as complex adaptive social-ecological systems?

3. System Assessment

The *System Assessment* identifies potential risks, points of no return and key controlling influences (‘controlling variables’) associated with anticipated future shocks or changes, as well as opportunities for adaptation or transformation. It draws heavily on resilience concepts and tools that are central to the RAPTA. It is a major focus early in the project cycle and is often revised, through *Learning*

- 3A** Did the project design identify:
- Key values and variables?
 - Likely shocks and stressors?
 - Feedback loops and thresholds?
 - Cross scale interactions considered as crucial for the project success?
- 3B** Are there any activities and strategies in the design of document to improve diversity, redundancy and connectivity to improve general resilience of the systems of interest in a way that contributes to food security?
- 3C** Are there activities and strategies in the design document to improve specific resilience of the system of interest to specific expected and possible shocks or stresses (e.g. Climate change)

Most project documents were not able to clearly articulate resilience thresholds. This is not surprising given the scientific challenges in identifying these thresholds, particularly in more heterogenous systems and in what are for the most cases are data sparse environments.

4. Theory of change and broad pathways

“Existing Theory of Change methods can be complemented and enhanced by RAPTA, by systematically considering resilience, adaptation and transformation (e.g. there is a deliberate consideration of options for transformational versus incremental change). It emphasizes the testing of initial hypotheses, improvement through learning and responsive management. *Theory of Change* is a key activity in the project identification phase and early in the project design phase. It is also an important input into the implementation phase of a project and underpins monitoring and assessment, and project evaluation”.

- 4A What is the goal of the project? How well does the stated goal link to resilient and sustainable food security?
- 4B Is a ‘Theory of Change’ described in the project documents? If not is there enough information provided to develop one?
- 4C What are the type and magnitude of change identified to achieve the goal? (Is resilience, adaptation and transformation considered explicitly within the TOC)
- 4D Are impact pathways described? How robust are the causal mechanism and assumptions underpinning the impact pathways?

5. Options and pathways

“Intervention options are identified and arranged into a provisional order for implementation. Their qualitative and quantitative benefits and costs are estimated. This helps form an implementation plan which is closely linked to *Learning* and is actively updated and adaptively managed over time”.

- 5A Is the project seeking incremental adaptation or transformational adaptation? Are these mentioned explicitly or implied?

6. Learning and adaptive project management

Learning: an iterative component, which encompasses Monitoring and Assessment and Knowledge Management, that connects all other RAPTA components. Effective learning requires a structured approach that utilises the *system description* and *system assessment* to guide the focus of monitoring and assessment (M&A) (e.g. data collection and interpretation), so that the insights gained are used in project design and implementation. Results of M&A inform adaptive management and testing of the *Theory of Change*. Learning is captured to inform future phases of the project and program, as well as future projects. The engagement of stakeholders (e.g. land users, government policymakers, NGOs, community members) in *Learning* is essential to enhance self-assessment, awareness of their roles and their capacity to influence future action

- 6A Information on resilience Indicators
 - What tools, if any, are being proposed for measuring changes associated with resilience of food security?
 - What scales are the tools operating at?
 - Do the scales link to the scales suggested for assessment and reporting?
- 6B Have indicators for resilience been specified?
 - Is there a resilience baseline?
- 6C How is learning reflected in the design of the project?

- What is the role of learning in guiding implementation as well as monitoring and assessing the project?
- Does the monitoring and evaluation component of the project have inbuilt multi-loop learning?

7. How is the food security problem viewed?

Each project document was evaluated against the following criteria:

- Is there an established methodology for measuring food security and nutrition present in the project document?
- What methods are proposed for assessing food security and nutrition in the project document?
- What indicators are being used to assess project progress towards improved food security and nutrition?
- Is food security viewed as food production and availability problem and the project focus is to improve natural resource conservation and management that is expected to increase food production in a way that generates local and environmental benefits? Or
- Is food security viewed from a systems perspective as an availability, access (physical and economic) and/or nutrition utilisation issue and the project also addresses these issues in a way that takes a pressure off from the natural resources?

Section 7 of each country profile provides a summary of the approaches to assessing food security and nutrition according to the country project proposals that were submitted and approved for funding.

3. Country overviews

Below is a summary of the approaches to assessing food security and nutrition according to the 12 country project proposals, submitted and approved for funding. The protocol described in Section 2 was used to provide an initial assessment of the project documents of the 12 IAP projects. The outputs from this are described in sections 3.2-3.13 below.

Underneath each project overview is a recap of what was discussed during the project inception workshop in July 2017 to help track progress.

3.1 Burkina Faso

Project title: Food-IAP: Participatory Natural Resource Management and Rural Development Project in the North, Centre-North and East Regions (Neer Tamba project)

Project summary: Ensure sustainable food security and strengthen smallholder farming resilience.

Project document used for overview:

08-10-16_CEO_Endorsement_Request_Document_Resubmission_signed1_0

3.1.1 Multi-stakeholder engagement and governance

1A Is there evidence of an initial stakeholder analysis having been conducted?

1B What was the extent and quality of the stakeholder engagement in the project design?

A major aim of the project is to increase capacity for national and regional multi-stakeholder platforms. The projects documents mention ‘Demand-driven development’ of lowlands in vulnerable areas is the key element in combating food insecurity under the Neer-Tamba project but this is not detailed further (i.e. it would be helpful to know how this demand was captured? Whose demand? An, to a certain extent, when that demand was captured).

It is unclear whether a broad stakeholder analysis was completed as part of the project development (or whether the project build on other analyses that may have been conducted as part of related projects). It would be useful to know more about the degree of consultation with local stakeholders in the initial project formulation (including male and female farmers – this may have occurred but is not reported). The project documents provide very basic information provided on governance structures (in comparison with other projects). The project is seeking to engage with 17,800 households representing 105,000 beneficiaries.

3.1.2 System description

2A Is the system well-understood? (Including biophysical and socio-economic aspects and their linkages?)

- Is knowledge of the system based on published scientific literature, and/or local knowledge?
- Has relevant past work been identified?
- Who is the focus of the project?
- How well does the project address gender issues?

2B Have the key determinants of system structure and function been describe? Have key drivers and shocks been described

2C Have cross-scale interactions been assessed (including connections and feedbacksbetween the focal scale and the scales above and within the focal scale)?

2D Have the sub- system(s) been viewed as complex adaptive social-ecological systems?

In all three regions the project builds upon successful existing projects Community Investment Programme for Agricultural Fertility (PICOFA) and the Sustainable Rural Development Programme (PDRD). The project draws on baseline data from these projects.

The biophysical constraints in the target region are described (but not at a sub-system level – i.e. the focal scale for the projects). It would be helpful to know the extent to which this had been characterised at the project development phase. The broader socio-ecological characteristics are also less well described (there is only limited information provided on current livelihood strategies and more importantly on the potential for transformation of these systems). The study clearly builds on past work and it is beyond the scope of this assessment to explore the way in which these elements may have been detailed in past projects. It is unclear the degree to which

local level stakeholders were involved with study site characterisation and project development in the initial phases.

Only limited information is provided on current state of governance, analysis of policy stakeholders and key legislation relevant to meeting project goals. However, risks associated with ineffective policy engagement were articulated. It is unclear what the source of this information is?

There is little or no information on cross scale interactions – and this may be an area to follow up on in the workshops.

3.1.3 System assessment

3A Did the project design identify:

- Key values and variables?
- Likely shocks and stressors?
- Feedback loops and thresholds?
- Cross scale interactions considered as crucial for the project success?

3B Are there any activities and strategies in the design of document to improve diversity, redundancy and connectivity to improve general resilience of the systems of interest in a way that contributes to food security?

3C Are there activities and strategies in the design document to improve specific resilience of the system of interest to specific expected and possible shocks or stresses (e.g. Climate change)

A summary is provided of the general resilience of the Neer-Tamba sub-region. Specific resilience aims of the project focus on climatic shocks (and other drivers are not detailed). The resilience aims of the project are focused on climatic effects (articulated in Table 4 – Page 34 and Table 6 – Page 40). It is not clear which variables the project is seeking to modify in terms of building resilience nor how precarious the system currently is (i.e. there is little information on system thresholds beyond restoration of highly degraded land – i.e. land which has moved beyond a degradation threshold). The project seeks to restore 15,000 ha of highly degraded land. Heavily degraded systems are themselves resilient to change. It may be useful to have indicators to assess the mode and viability of restoration – especially to get to a point in time where ecosystem functions are restored and ecosystem services re-emerge. Restoration is a form of expensive transformation (i.e. there is usually a significant cost in time and resources). Ecological restoration usually seeks to return to a specified baseline condition. The degree to which restored systems (sometime in the future) are themselves resilient will depend on the degree to which the design of these restored systems incorporates ‘transformational adaptation’. Presumably this will be needed to reduce the threats – these ‘design’ elements are not described clearly here (but may be detailed elsewhere).

The project does document general threats particularly in relation to climatic shocks but the specific nature of how these broad drivers manifest at smaller scales is not articulated (nor how different livelihoods systems will be affected. Details on this would be needed to generate a theory of change. The project acknowledges that smallholder systems are likely to be ineffective at dealing with climatically driven system shocks (but details on the causal mechanisms for this are not provided clearly (although can be inferred from different parts of the document).

3.1.4 Theory of change and broad pathways

4A What is the goal of the project? How well does the stated goal link to resilient and sustainable food security?

- 4B** Is a ‘Theory of Change’ described in the project proposal? If not is there enough information provided to develop one?
- 4C** What are the type and magnitude of change identified to achieve the goal?
- 4D** Are impact pathways described? How robust are the causal mechanism and assumptions underpinning the impact pathways?

Project Goals: To promote and implement, within the framework of the Neer-Tamba project, sustainably managed agro-ecosystems that are key to food security in the Northern region.

Key Components: The project is structured to focus on three components (i) capacity building for national and regional multi-stakeholder platforms; (ii) scaling-up integrated approaches to sustainable land management within agro-ecosystems; and (iii) coordination of arrangements including key indicators for decision-making on food security and environmental best practices. No theory of change is provided in the project proposal. Ideally the RAPTA framework suggests that the theories of change associated with project design should map the range of potential adaptation and transformation pathways. These are not mapped here. One could be developed but more is required on the specific resilience challenges. There is not enough information provided on the local context for interventions so that the degree to which, for example, ‘proven technologies in soil and water conservation can be extended to the entire watershed ecosystem (6,500 ha) is difficult to assess. The document describes a process called ‘social engineering’ It is not clear what this is within this context nor what successful social engineering might look like (or how it could be assessed)? The degree to which more vulnerable groups can be socially engineered is also not commented on. (is there likely to be variations in terms of resilience/barriers to ‘human engineering’ for different stakeholder groups?)

3.1.5 Options and pathways

- 5A** Is the project seeking incremental adaptation or transformational adaptation? Are these mentioned explicitly or implied?

The project does not use adaptation or transformation terminology and, as a result, it is not clear whether the project is looking at adaptation or transformation outcomes (although transformation is inferred). No alternate regimes are articulated but, again, are implied by the nature of the interventions. The degree to which different actors may be affected differently as a result of these interventions is also not described. More detail on the local context for interventions would enable clearer indicators to be developed for the different livelihood niches and the varied actors operating within them. However the project does note that “The sustainability of interventions is ensured by the choice of practices and activities having proven their worth over decades, so that the rate of adoption by rural people is no longer an issue”

3.1.6 Learning and adaptive project management

- 6A** Information on resilience Indicators
 - What tools, if any, are being proposed for measuring changes associated with resilience of food security?
 - What scales are the tools operating at?
 - Do the scales link to the scales suggested for assessment and reporting?
- 6B** Have indicators for resilience been specified?
 - Is there a resilience baseline?
- 6C** How is learning reflected in the design of the project?

- What is the role of learning in guiding implementation as well as monitoring and assessing the project?
- Does the monitoring and evaluation component of the project have inbuilt multi-loop learning?

The project will utilise the RIMS MPAT tool to assess household resilience.

It is not clear the extent to which the tool will be used to monitor change nor the degree to which the tool can be scaled out to provide data on changes of general resilience of the system.

Interactions across scales are described (particularly in relation to catchment management).

However, It is unclear how the current and future resilience of catchments was assessed (and will be assessed throughout the project)

There are a number of components where clearer indicators of how the resilience of the food security systems will be monitored – particularly in relation to activities associated with organizing users of watersheds impacted by lowland development. It isn't clear how access to water will be monitored and in changes benefit all stakeholders. The changes will have impacts across scales and current monitoring is primarily at the household level. Is there opportunities to assess changes in general resilience associated with the interventions?

Some of the stakeholders are pastoralists practicing transhumance – this also throws up a particular set of challenges for assessing both their resilience and impacts associated with their activities on other less mobile systems (particularly around water use). There is no information available to characterise the size of this population nor the degree to which these groups' resilience can be assessed? Do CRAs, for example, engage with these groups in the same way they work with more static farming systems?

There is no baseline data provided on current resilience of smallholder farming systems. The project documents state that Improvements in farmers' livelihoods and changes in their liquidity and resilience to climate change can be evaluated using MPAT mapping. This infers targeted data on rural poverty at household and village level will be the main indicator of increased resilience. This isn't very clear and would need to be developed given that the project is seeking to enact a transformation strategy.

- 1.1. How is learning reflected in the design of the project?
- 1.2. What is the role of learning in guiding implementation as well as monitoring and assessing the project?
- 1.3. Does the monitoring and evaluation component of the project have inbuilt multi-loop learning

There is very little information presented on how learning will feed into the future design of the project.

3.1.7 Food security approach

The key aspects related to food security and nutrition that were evident from the project documents are presented in a tabulated format below (Table 3).

Table 2. Burkina Faso project approach to food security.

Criteria	Responses
Is there an established methodology for measuring food security and nutrition present in the project document?	Yes

<p>What methods are proposed for assessing food security and nutrition in the project document?</p>	<p>The Results and Impact Measurement System (RIMS) and Multidimensional Poverty Assessment Tool (MPAT) survey will be used to measure baseline and post-project impact on food security and resilience.</p>
<p>What indicators are being used to assess project progress towards improved food security and nutrition?</p>	<p>The RIMS and MPAT tool evaluates indicators in relation to the following factors: (i) socio-demographic characteristics; (ii) education and enrolment rates in the project area; (iii) employment in the project area; (iv) economic security of households; (v) food security and nutrition; (vi) nutritional status of infants aged 0 to 59 months; (vii) community resilience and catastrophe risk management; (viii) gender, social inclusion and non-discrimination; and (ix) health, water, hygiene and sanitation.</p>
<p>1. Is food security viewed as food production and availability problem and the project focus is to improve natural resource conservation and management that is expected to increase food production in a way that generates local and environmental benefits? OR 2. Is food security viewed from a systems perspective as an availability, access (physical and economic) and/or nutrition utilisation issue and the project also addresses these issues in a way that takes a pressure off from the natural resources?</p>	<p>1. The project document states that ‘[it] is aiming for large-scale transformation of agro-ecosystems. Demand-driven development of lowlands in vulnerable areas identified as the key element in combating food insecurity. The agro-ecosystem is taken into account at the sub-watershed level. In proposing communal management of the agro-ecosystem by all sub-watershed users, the project will strengthen the sustainability of key Neer-Tamba investments on food security in the North region.’</p>
<p>Comments: Although the RIMS and MPAT were mentioned in the project document, the specific indicators to be used were yet to be defined in consultation with stakeholder bodies. Note that the SMART approach usually applies to targets rather than indicators (in the Project Results Framework, it states as an indicator ‘# of smart indicators adopted by the stakeholder network’). Targets should be Specific, Measurable, Attainable, Relevant and Timely. An indicator is the measurable component that will be used to track progress towards reaching the target. As evidenced from the meeting notes below, the most appropriate food security indicators still needed working out but a question to pose to the project team: has the MPAT survey been carried out before deciding this?</p>	

3.1.8 Recap from ‘Minutes GEF-IAP-FS Operational Launch Workshop_ 5-7 Jul 2017_ version 31 Aug’

What are you already doing related to tracking impact (what indicators and approaches for GEBS, resilience and food security)?

- Collected data using the MPAT
- Selecting indicators to be followed up from the national sectoral plan
- Indicators of food security

What will you be doing on this over the next six months?

- Develop tools for environmental monitoring
- Training of ministry staff on GIS
- Work with European Space Agency on thematic maps (*There was an ESA-led capacity building workshop in Morocco (12-15 March 2018) to explore the usefulness of Earth Observation tool for M&E. It was organized for Francophone African countries.*)

Is there support that would be useful in doing this over the next six months?

- Selecting and harmonizing and collecting indicators of impact for the project
- Tools to measure change in ecosystems and gender

3.2 Burundi

Project title: Food-IAP: Support for Sustainable Food Production and Enhancement of Food Security and Climate Resilience in Burundi's Highlands

Project summary: To increase adoption of resilient, improved production systems for sustainable food security and nutrition through integrated landscape management and sustainable food value chains.

Project document used for overview: 03-28-17_CEO_Endorsement_Request_Document_revised

3.2.1 Multi-stakeholder engagement and governance

1A Is there evidence of an initial stakeholder analysis having been conducted?

1B What was the extent and quality of the stakeholder engagement in the project design?

There is clear evidence of stakeholder analysis associated with the initial project design and site selection. Baseline data on food security and gender were clear factors in site selection (and provided clear indicators for evaluating project progress). The project documents imply that there was reasonable consultation and local buy in from community members and local government that fed into the project design. The project is expected to have over 8000 beneficiaries.

3.2.2 System description

2A Is the system well-understood? (Including biophysical and socio-economic aspects and their linkages?)

- Is knowledge of the system based on published scientific literature, and/or local knowledge?
- Has relevant past work been identified?
- Who is the focus of the project?
- How well does the project address gender issues?

2B Have the key determinants of system structure and function been describe? Have key drivers and shocks been described

2C Have cross-scale interactions been assessed (including connections and feedbacks between the focal scale and the scales above and within the focal scale)?

2D Have the sub- system(s) been viewed as complex adaptive social-ecological systems?

The socio-ecological systems have been detailed by both drawing on relevant existing literature and primary data derived from household surveys and FGDs in the project sites. The HH-BAT tool was used to establish a resilience baseline at household level in the study area – and this will be used for M & E activity throughout the project.

Some of the system data derived from these activities may need further rationalisation (see for example **Figure 4** which has vegetation loss, deforestation, habitat loss which may effectively mean the same things and appears to represents effectively a single scale evaluation i.e. the household perspective).

Similarly, whilst a long list of stressors are detailed it is unclear how climate change is likely to directly impact the subsistence farming sector (the main beneficiary identified). The way the stressor has been framed (in Table 12 for example) is vague on detail (perhaps because it draws primarily on a 2007 study).

The beneficiaries for the project are clearly identified but it is not clear, for example, how the figure of ‘30% of the activities will target woman’ was arrived at? The context provided for the

project state that woman are the significant stakeholder group in developing sustainable food systems (and the primary beneficiary for interventions addressing micronutrient deficiency). The project seeks to engage more marginal and vulnerable groups (specifically women, youth and Batwa) and details strategies to improve access, control and management over natural resources and conflict resolution (using the PNTD approach, school activity and through the farmer field schools and value chain development work). Women and youth will be included in agro-business development. The degree that this additional engagement will improve their resilience is unclear. The key factors that determine the (future) resilience of these groups are not detailed in the project documents and may be an emergent output from the resilience monitoring at household level. This could be discussed at workshops?

3.2.3 System assessment

3A Did the project design identify:

- Key values and variables?
- Likely shocks and stressors?
- Feedback loops and thresholds?
- Cross scale interactions considered as crucial for the project success?

3B Are there any activities and strategies in the design of document to improve diversity, redundancy and connectivity to improve general resilience of the systems of interest in a way that contributes to food security?

3C Are there activities and strategies in the design document to improve specific resilience of the system of interest to specific expected and possible shocks or stresses (e.g. Climate change)

Burundi faces a bewildering array of complex interacting stressors. The broad characterisation states that the country as a whole suffers from ‘inadequate infrastructure network, a very low human development index, a general lack of capacity, weak governance and high vulnerability to external shocks’ Given the complexity of the interactions between these stressors (and the wide range of shocks and stressors in play) it isn’t clear in the project documents what the key determinants affecting the resilience of food production systems for the targeted beneficiaries were. The role that climate change will play is discussed broadly – but with less detail with regard to the focal study areas or specific stakeholder groups.

The project does seek to address the general resilience of the focal systems through the promotion of more biodiverse agricultural systems. This focuses on development of neglected orphan crops, and local fruit varieties, leguminous species, local animal breeds for meat and dairy products and developing more ecologically complex agroecosystems (through agroforestry, for example). These activities are likely to both improve general and specific resilience in relation to climate change. There is a possible question relating to the degree that transformation of local diets is viable across the whole study area (what is the scaling out potential?) and, if this is uncertain, whether this will result in resilient food systems for all stakeholders. The initial gender work highlighted variation in variety of food groups eaten by male and female headed households, with a bigger issues associated with female diets – but as discussed above woman are likely to make up only 30% of the target beneficiaries?

3.2.4 Theory of change and broad pathways

4A What is the goal of the project? How well does the stated goal link to resilient and sustainable food security?

4B Is a ‘Theory of Change’ described in the project proposal? If not is there enough information provided to develop one?

- 4C** What are the type and magnitude of change identified to achieve the goal?
- 4D** Are impact pathways described? How robust are the causal mechanism and assumptions underpinning the impact pathways?

Project Goals: To increase adoption of resilient, improved production systems for sustainable food security and nutrition through integrated landscape management and sustainable food value chains.

Key Components: The project is based on the three following components: 1) Strengthened institutional framework and support mechanisms, 2) Improved livelihoods and food security through integrated watershed management, competent producers' organizations and sustainable food systems, and 3) Monitoring and assessment of global environment benefits and socio-economic impacts to inform decision making.

The project does provide a rudimentary theory of change but this appears oversimplified given the complex context in which the project is operating (similarly the associated problem tree perhaps lacks a little depth). The complex stressors that affect Burundi are likely to require interventions that follow both adaptation and transformation pathways. These are not mapped here so it is not clear if they were considered. It is also not clear what a resilient and sustainable food security system should look like in Burundi nor how that might vary across the project area. The current theory of change would benefit from more detail (especially given that a large number of the fundamental stressors are not going to be affected by project activity) and a clearer endpoint.

Some issues (such as watershed management) which are high priority within the project framework are not explicit in how they will feed in benefits at smaller scales (and the sequencing of activities required to achieve resilience are not specified here). There may be a need for clearer indicators associated with what a more resilient watershed system would look like in Burundi (i.e. how much land cover change is required to restore function? How does activity at one scale feed into resilient food security systems for different livelihood models.

There are no impact pathways described in the document so it is a little unclear as to how the goals move beyond what is an attractive set of theoretical interventions to delivering more resilient food security operationally on the ground?

3.2.5 Options and pathways

- 5A** Is the project seeking incremental adaptation or transformational adaptation? Are these mentioned explicitly or implied?

The project is seeking large scale incremental adaptation– but it isn't clear the extent to which this transition will be uniform and the degree that targeted beneficiaries will have resilient food secure systems as a result of the change. The project is also seeking to build resilience of farmers to 'green technologies' and hybrid maize systems by providing alternate models. Presumably there are other actors working to achieve the opposite objectives?

3.2.6 Learning and adaptive project management

- 6A** Information on resilience Indicators
- What tools, if any, are being proposed for measuring changes associated with resilience of food security?
 - What scales are the tools operating at?
 - Do the scales link to the scales suggested for assessment and reporting?
- 6B** Have indicators for resilience been specified?
- Is there a resilience baseline?
- 6C** How is learning reflected in the design of the project?

- What is the role of learning in guiding implementation as well as monitoring and assessing the project?
- Does the monitoring and evaluation component of the project have inbuilt multi-loop learning?

The project is using the HH-BAT tool, a version of the SHARP, the “Self-evaluation and Holistic Assessment of climate Resilience of farmers and Pastoralists” tool developed by the FAO. This is designed to assess the resilience of farmer and pastoralist households to climate change. Due to its nature as a self-assessment tool, HH-BAT has used for project design and will be used throughout the project implementation as a monitoring and evaluation tool.

The HH-BAT tool will provide a household resilience baseline - the degree to which this can be scaled up is less clear from the documents - and the Indicators of broader resilience seem to relate primarily to Increased tree numbers (trees in cropping systems/ agroforestry plus reforestation) and increases in crop numbers (although presumably not hybrid maize) There are plans to link to the Integrated Food Security Phase Classification (IPC) tool for improving food security analysis and decision-making. With regard to learning the project states that M & A of SLM practices and their impacts will 'take advantage' of the wealth of accumulated knowledge: traditional, innovative experiences, projects, research results and lessons learned.

3.2.7 Food security approach

The key aspects related to food security and nutrition that were evident from the project documents are presented in a tabulated format below (Table 4).

Table 3. Burundi project approach to food security.

Criteria	Responses
Is there an established methodology for measuring food security and nutrition present in the project document?	Yes
What methods are proposed for assessing food security and nutrition in the project document?	The project is piloting a number of tools including the use of HH-BAT, a project-customised version of the SHARP tool developed by the FAO to assess the resilience of farmer and pastoralist households to climate change. HH-BAT will be used throughout the project implementation as a monitoring and evaluation tool. It was used to establish a resilience baseline at household level, from which the impacts of project interventions will be observed and assessed. Mentions also linking with the Integrated Food Security Phase Classification (IPC) tool for improving food security analysis and decision-making.
What indicators are being used to assess project progress towards improved food security and nutrition?	(1) % households suffering from moderate and severe food insecurity in intervention micro-catchments; (2) % increasing dietary diversity among project community

	households (% households daily consume (a) at least 5 different food groups, (b) animal protein; (3) IAP TT LD-1 (i): Land area under effective agricultural, rangeland and pastoral management practices and/or supporting climate-smart agriculture.
<p>1. Is food security viewed as food production and availability problem and the project focus is to improve natural resource conservation and management that is expected to increase food production in a way that generates local and environmental benefits? OR</p> <p>2. Is food security viewed from a systems perspective as an availability, access (physical and economic) and/or nutrition utilisation issue and the project also addresses these issues in a way that takes a pressure off from the natural resources?</p>	<p>1. The project document states that ‘Food security has very strong linkages to the restoration of the degraded agricultural lands including steep slopes, riverine areas and wetlands. The improved varieties / agricultural practices (including agroforestry and small livestock) and SLM / INRM actions under the project will ensure increases in crop and livestock yields to reduce the currently high levels of hunger and will contribute substantively to household level food security in the local communities. The wider dissemination of knowledge of sustainable land management (SLM) and integrated natural resource management (INRM) will catalyse wide scaling-out of the win-win-win benefits of SLM / INRM through farmer field schools (FFS) and catchment management in Burundi, which should catalyse improvements in household and community level food security beyond the project’s intervention catchments.’</p>
<p>Comments: A well-developed project document with a clear focus on food security and nutrition. As demonstrated in the minutes below, the project team were considering the use of additional tools such as RAPTA, EX-ACT, LADA and WOCAT. A strategy to integrate SHARP data with LADA, WOCAT and EX-ACT is currently being developed by the project team, supported by Ms Domitille Valée from FAO.</p>	

3.2.8 Recap from ‘Minutes GEF-IAP-FS Operational Launch Workshop_ 5-7 Jul 2017_ version 31 Aug’

What are you already doing related to tracking impact (what indicators and approaches for GEBs, resilience and food security)?

- Socio-economic baseline using SHARP

What will you be doing on this over the next six months?

- Baseline on water quality and identify watershed
- Explore the utilization of RAPTA

- Conduct simulation of EX-ACT
- Form a group for LADA and WOCAT

Is there support that would be useful in doing this over the next six months?

- Expertise on RAPTA
- Expertise on EX-ACT, WOCAT and LADA

3.3 Ethiopia

Project title: Food-IAP: Integrated Landscape Management to Enhance Food Security and Ecosystem Resilience

Project summary: To enhance long-term sustainability and resilience of the food production systems by addressing the environmental drivers of food insecurity in Ethiopia

Project document used for overview:

UNDP_PIMS_5559_ETHIOPIA_FSIAP_PRODUC_incorporating_US_and_Canada_comments_17Jan2017

Notes: This project was designed using the Resilience, Adaptation Pathways and Transformation Assessment (RAPTA) approach. As such, it has all the components identified in the protocol. This project may serve as a suitable template for other projects.

3.3.1 Multi-stakeholder engagement and governance

1A Is there evidence of an initial stakeholder analysis having been conducted?

1B What was the extent and quality of the stakeholder engagement in the project design?

The project has incorporated stakeholder analyses (and broader stakeholder engagement), to formulate the associated Theory of Change, the system description and to frame the project's impact pathways. The project aims to engage with 120,000 households as direct beneficiaries, and indirectly up to a total of 1.4 million people.

3.3.2 System description

2A Is the system well-understood? (Including biophysical and socio-economic aspects and their linkages?)

- Is knowledge of the system based on published scientific literature, and/or local knowledge?
- Has relevant past work been identified?
- Who is the focus of the project?
- How well does the project address gender issues?

2B Have the key determinants of system structure and function been describe? Have key drivers and shocks been described

2C Have cross-scale interactions been assessed (including connections and feedbacksbetween the focal scale and the scales above and within the focal scale)?

2D Have the sub- system(s) been viewed as complex adaptive social-ecological systems?

The project outline provides detailed information on the system based both on the scientific literature and from interactions with local stakeholders. The systems are defined at the woreda scale. The project integrates learning from past projects. Key knowledge gaps were acknowledge and integrated into the project learning.

3.3.3 System assessment

3A Did the project design identify:

- Key values and variables?
- Likely shocks and stressors?
- Feedback loops and thresholds?
- Cross scale interactions considered as crucial for the project success?

- 3B** Are there any activities and strategies in the design of document to improve diversity, redundancy and connectivity to improve general resilience of the systems of interest in a way that contributes to food security?
- 3C** Are there activities and strategies in the design document to improve specific resilience of the system of interest to specific expected and possible shocks or stresses (e.g. Climate change)

The project did identify key variables and stressors. In common with other projects there was no information on thresholds. There are activities that feed both into general and specific resilience and these vary across the systems.

3.3.4 Theory of change and broad pathways

- 4A** What is the goal of the project? How well does the stated goal link to resilient and sustainable food security?
- 4B** Is a ‘Theory of Change’ described in the project proposal? If not is there enough information provided to develop one?
- 4C** What are the type and magnitude of change identified to achieve the goal?
- 4D** Are impact pathways described? How robust are the causal mechanism and assumptions underpinning the impact pathways?

Project Goals: To enhance long-term sustainability and resilience of food production systems by addressing the environmental drivers of food insecurity in Ethiopia. The overarching focus is on integrated landscape management (ILM) to achieve food production resilience in landscapes under pressure.

Key Components: This project is organized around three components: (i) institutional frameworks for enhanced biodiversity and ecosystem goods and services within food production systems; (ii) scaling up the integrated landscape management approach to achieve improved productivity of smallholder food production systems and innovative transformations to non-farm livelihoods; and (iii) knowledge management, learning, monitoring and assessment. Cross-cutting aspects related to value chains, capacity building and knowledge management will be further strengthened through direct support from the regional “Hub” project.

There is a clear theory of change. The impact pathways are clearly defined and the underlying assumptions are clearly identified.

3.3.5 Options and pathways

- 5A** Is the project seeking incremental adaptation or transformational adaptation? Are these mentioned explicitly or implied?

Component 2 of the project explicitly considers both scaling up the Integrated Landscape Management approach to achieve improved productivity of smallholder food production systems (incremental adaptation) and innovative transformations to non-farm livelihoods (transformational adaptation). The degree to which transformation leads to a positive impact on resilient food systems is part of the project learning directly with female smallholders.

3.3.6 Learning and adaptive project management

- 6A** Information on resilience indicators
- What tools, if any, are being proposed for measuring changes associated with resilience of food security?
 - What scales are the tools operating at?
 - Do the scales link to the scales suggested for assessment and reporting?
- 6B** Have indicators for resilience been specified?
- Is there a resilience baseline?

- 6C** How is learning reflected in the design of the project?
- What is the role of learning in guiding implementation as well as monitoring and assessing the project?
 - Does the monitoring and evaluation component of the project have inbuilt multi-loop learning?

Learning is fully integrated into the projects. Learning is present both in the implementation and monitoring

The project will be using Vital signs and the Resilience Atlas for monitoring. In addition the Resilience Atlas will be used to store baseline data and as a learning tool, by creating a data-driven story for each of the six regions that will highlight successes, lessons learned, and areas where further data collection is required.

3.3.7 Food security approach

The key aspects related to food security and nutrition that were evident from the project documents are presented in a tabulated format below (Table 5).

Table 4. Ethiopia project approach to food security.

Criteria	Responses
Is there an established methodology for measuring food security and nutrition present in the project document?	Yes
What methods are proposed for assessing food security and nutrition in the project document?	A monitoring and assessment program will be put in place using the Resilience Atlas tool and the Vital Signs framework to conduct on-going monitoring of food security and global environmental benefits (GEBs), including land cover, soil organic carbon, vegetation structure and composition, crop and livestock productivity, above ground carbon stocks, land degradation types, severity and causes, effectiveness of ILM and INRM measures, and impacts on ecosystems and livelihoods.
What indicators are being used to assess project progress towards improved food security and nutrition?	Most relevant indicators used for assessing food security: Indicator 2: Number of jobs and livelihoods created through management of natural resources, ecosystem services, chemicals and waste, disaggregated by sex, and rural and urban; Indicator 4: Number of multi-stakeholder and multi-scale platforms in place to support integration of natural resources management in food production practices [including gender dis-aggregated data on participation]; Indicator 5: Number of gender-responsive- & age-sensitive decision-support tools and participatory processes for INRM in food production practices in place; Indicator 6: Number of policies and incentives in place at national and local level

	to support sustainable smallholder food value chains; Indicator 7: Number of smallholder farmers (60% of whom should be women) benefiting from sustainable food value-chains; Indicator 8: Extent in ha of land area and agro-ecosystems under Integrated Land Management [included gender disaggregated data on land ownership / engagement in diversification / MHH and FHH requiring food assistance]
<p>1. Is food security viewed as food production and availability problem and the project focus is to improve natural resource conservation and management that is expected to increase food production in a way that generates local and environmental benefits?</p> <p>OR</p> <p>2. Is food security viewed from a systems perspective as an availability, access (physical and economic) and/or nutrition utilisation issue and the project also addresses these issues in a way that takes a pressure off from the natural resources?</p>	<p>1. The project document states that ‘the premise of the project is based on cost efficiency through achieving synergies that extend across landscape management, food security and value chain development and sustainability.’ ‘Promoting environmental conservation is central to the focus on natural resources and their capacity to support food security. Additionally, the project will strengthen conservation and environmental management at community levels and strengthen poverty alleviation approaches through helping to sustain household livelihoods in the 12 pilot sites. Regarding social safeguards, the proposed project addresses rural communities by supporting multiple livelihood opportunities for the most marginalised (from poor households (including female-headed), to more marginalised women, children and youth).’</p>
<p>Comments: A very comprehensive project document that goes into great detail and covers gender aspects well. The issues identified and activities proposed don't seem to be fully covered/link with what's in the log frame, e.g. reducing post-harvest losses, rainfall index insurance, increasing soil fertility through alternative energy sources (i.e. reducing use of kubit and firewood), water smart agriculture, increased female leadership are all mentioned in the main text but not clearly addressed in the log frame. Food security indicators such as seasonal food availability and dietary diversity are missing, although it's shown that households requiring food assistance will be monitored. More clarity and focus needed to ensure adequate M&E of food security and nutrition. Has since been developed during the EO4SD workshop that was held in Ethiopia at the ILRI campus (5-9 February 2018).</p>	

3.3.8 Recap from ‘Minutes GEF-IAP-FS Operational Launch Workshop_ 5-7 Jul 2017_ version 31 Aug’

What are you already doing related to tracking impact (what indicators and approaches for GEBs, resilience and food security)?

- Setting up project implementation Unit

- Developing workplan and budget
- Collecting baseline data

What will you be doing on this over the next six months?

- GEBs
- Reducing land degradation and combating impact of climate change
- GHG avoided
- Resilience
- Collect and analyse data to understand vulnerability of agro-ecosystems
- Water harvesting for farmers
- Early warning
- Food security
- Food system at the HH level
- Need to understand the causes of nutrition insecurity especially in farming HH

Is there support that would be useful in doing this over the next six months?

- Technical assistance on methodology for doing resilience and food security
- Support on how to develop and design monitoring framework (target and indicators for resilience and food security)

EO4SD brochure on Ethiopia to see details of Earth Observation based indicators to be used:
http://eo4idi.eu/sites/default/files/content/attachments/eo4sd_agri_ethiopia_2017.pdf

3.4 Ghana

Project title: Food-IAP: Sustainable Land and Water Management Project, Second Additional Financing

Project summary: To expand the area under sustainable land and water management practices in selected watersheds

Project document used for overview: 03-23-16_PID_ISDS_Appraisal (note: this doesn't appear to be the most recent document as there's a comment sheet dated 04-06-16 that refers to a revised proposal)

Notes: In comparison to the other projects, there was very little material to evaluate for the Ghana project. This project is a second phase so there may be a wealth of documentation associated with this but there was not enough material to evaluate the way that resilience has been incorporated into the project framework.

3.4.1 Multi-stakeholder engagement and governance

1A Is there evidence of an initial stakeholder analysis having been conducted?

1B What was the extent and quality of the stakeholder engagement in the project design?

The available project documents do not provide any detail on the extent of stakeholder engagement in project formulation, nor the degree to which a stakeholder analysis informed the original project design. The project notes state that preparation of the project included 'extensive consultations with a wide range of stakeholders' and that this process would continue during implementation. Women will make up 40% of the target beneficiaries – but there is not enough information here to understand how that figure was arrived at and whether the key determinants affecting the resilience of food production systems for woman are the same as men?

3.4.2 System description

2A Is the system well-understood? (Including biophysical and socio-economic aspects and their linkages?)

- Is knowledge of the system based on published scientific literature, and/or local knowledge?
- Has relevant past work been identified?
- Who is the focus of the project?
- How well does the project address gender issues?

2B Have the key determinants of system structure and function been describe? Have key drivers and shocks been described

2C Have cross-scale interactions been assessed (including connections and feedbacks between the focal scale and the scales above and within the focal scale)?

2D Have the sub- system(s) been viewed as complex adaptive social-ecological systems?

There is very little specific detail here. The project is building on a past initiative. The project documents acknowledge other initiatives operating in the area.

There is very little information on system structure or scaling components

3.4.3 System assessment

3A Did the project design identify:

- Key values and variables?
- Likely shocks and stressors?
- Feedback loops and thresholds?

- Cross scale interactions considered as crucial for the project success?
- 3B** Are there any activities and strategies in the design of document to improve diversity, redundancy and connectivity to improve general resilience of the systems of interest in a way that contributes to food security?
- 3C** Are there activities and strategies in the design document to improve specific resilience of the system of interest to specific expected and possible shocks or stresses (e.g. Climate change)?

There is very little specific detail here. The project activities focusing on watershed management and creation of forestry reserves will contribute to general resilience of the systems but the how the effects of these changes will impact on specific resilience or on target beneficiaries is not detailed.

3.4.4 Theory of change and broad pathways

- 4A** What is the goal of the project? How well does the stated goal link to resilient and sustainable food security?
- 4B** Is a 'Theory of Change' described in the project proposal? If not is there enough information provided to develop one?
- 4C** What are the type and magnitude of change identified to achieve the goal?
- 4D** Are impact pathways described? How robust are the causal mechanism and assumptions underpinning the impact pathways?

Project Goals: The Sustainable and Water Land Management Project is currently financed by the GEF and in-kind contribution from the Government of Ghana. The project implementation started in May 2011, with a first additional financing in May 2014. The proposed child IAP project will be considered as an Additional Financing, building on the enabling existing systems, structures, and capacities developed under the SLWMP to improve food security using a landscape/ecosystem approach.

Key Components: The IAP support is structured around the following components in line with the IAP program framework: (i) integrated spatial planning; (ii) land and water management (systems, capacity, and monitoring for sustainable land and water management (SLWM)); (iii) implementation of SLWM in micro-watersheds (sub-projects), including national SLWM and Payment for Environmental Services monitoring, and management of riparian and other biological corridors.

Ideally, the RAPTA framework suggests that the theories of change associated with project design should map the range of potential adaptation and transformation pathways. These are not mapped here.

In the documents available there is no theory of change and no indication of what the causal mechanisms or assumptions behind the impact pathways are for the specified project components

3.4.5 Options and pathways

- 5A** Is the project seeking incremental adaptation or transformational adaptation? Are these mentioned explicitly or implied?

There is not enough information to assess whether the project is seeking incremental adaptation or transformational adaptation (but incremental adaptation is implied).

3.4.6 Learning and adaptive project management

- 6A** Information on resilience indicators
- What tools, if any, are being proposed for measuring changes associated with resilience of food security?
 - What scales are the tools operating at?

- Do the scales link to the scales suggested for assessment and reporting?
- 6B** Have indicators for resilience been specified?
- Is there a resilience baseline?
- 6C** How is learning reflected in the design of the project?
- What is the role of learning in guiding implementation as well as monitoring and assessing the project?
 - Does the monitoring and evaluation component of the project have inbuilt multi-loop learning?

As with all IAP projects learning is structured into the project, in this case as integrated spatial development framework for Northern Savannah zone. It is not clear what data will feed into that system nor is it clear what, if any, tools are being used to evaluate resilience of food security systems at any scale.

3.4.7 Food security approach

The key aspects related to food security and nutrition that were evident from the project documents are presented in a tabulated format below (Table 6).

Table 5. Ghana project approach to food security.

Criteria	Responses
Is there an established methodology for measuring food security and nutrition present in the project document?	No
What methods are proposed for assessing food security and nutrition in the project document?	No mention of a specific methodology for assessing food security.
What indicators are being used to assess project progress towards improved food security and nutrition?	No food security indicators explicitly mentioned: PDO Indicator 1: Land area where sustainable land and water management practices have been adopted as a result of the project (hectares); PDO Indicator 2: Land users adopting sustainable land management practices as a result of the project (number); PDO Indicator 3: Management Effectiveness Tracking Tool score: Gbele Resource Reserve and Sanyiga Kasena Gavara Kara (SKGK), Moagduri Wuntanluri Kuwesaasi, Balsa Yening, Wahabu Wiasi, and Gbele-Mole corridor sites (number); PDO Indicator 4: Direct project beneficiaries (number), of which female (percentage).
1. Is food security viewed as food production and availability problem and the project focus is to improve natural resource conservation and management that is expected to increase food production in a way that generates local and environmental benefits? OR	1. The project document states that ‘proposed activities will promote efficient soil and water management practices in the farming systems and empower smallholder farmers to diversify their farms through integration of trees and value-addition through post-harvest management support. Rangeland management and best animal husbandry practices will be

2. Is food security viewed from a systems perspective as an availability, access (physical and economic) and/or nutrition utilisation issue and the project also addresses these issues in a way that takes a pressure off from the natural resources?	promoted to ensure sustainable supply and access to livestock feed and organic manure for achieving food security. These will contribute to carbon sequestration, biodiversity conservation, and increased resilience of the beneficiary communities to climatic variability and ensure food security.'
Comments: The project document was lacking detail but extensive comments were given later by the STAP committee according to the documents available on the GEF website - would need to see latest version to comment further. As shown in the meeting notes below, the project appears to be using the METT tool for assessing biodiversity.	

3.4.8 Notes from ‘Minutes GEF-IAP-FS Operational Launch Workshop_ 5-7 Jul 2017_ version 31 Aug’

What are you already doing related to tracking impact (what indicators and approaches for GEBs, resilience and food security)?

- GEBs – land area under SLM
- GHG avoided
- NDVI
- METT Score - biodiversity
- Food security
- Productivity increases
- Proper land preparation
- Soil and water conservation practices

What will you be doing on this over the next six months?

- Continue implementation
- Review service offer from the regional hub and possibly make request

3.5 Kenya

Project title: Food-IAP: Establishment of the Upper Tana Nairobi Water Fund (UTNWF)

Project summary: The goal for this project is a well conserved Upper Tana River basin for improved water quality and quantity for downstream users (public and private), maintaining regular flows of water throughout the year; protecting remaining aquatic and terrestrial biodiversity and enhancing ecosystem services, such as soil/sediment retention, nutrient retention, amelioration of land degradation hot spots and water yield – that improve food security, economic/green growth, and human well-being for upstream local communities.

Project document used for overview: 05-31-16_UTNWF_PDR_volume_I_main_report_FINAL

3.5.1 Multi-stakeholder engagement and governance

1A Is there evidence of an initial stakeholder analysis having been conducted?

1B What was the extent and quality of the stakeholder engagement in the project design?

The project documents make it clear that project design was preceded by a three year pilot during which local stakeholders, NGOs, local and federal agencies and the private sector negotiated and tested various characteristics of the system the project intends to impact. The project aims to engage with a total of 21,000 smallholder farmer households. A major impact pathway is associated with the development of Water Funds. The Catchment Management Strategies integrate with over 200 sub- Catchment Management Plans (SCMPs), prepared by local communities. It is not clear the extent to which the initial set of priority locations and most promising SLM activity areas involved direct stakeholder consultation.

The project is has a detailed plan for knowledge sharing to enable sustainable climate change adaptation in Kenya – with plans to scale out successful interventions to other water towers in Kenya and beyond

3.5.2 System description

2A Is the system well-understood (Including biophysical and socio-economic aspects and their linkages)?

- Is knowledge of the system based on published scientific literature, and/or local knowledge?
- Has relevant past work been identified?
- Who is the focus of the project?
- How well does the project address gender issues?

2B Have the key determinants of system structure and function been describe? Have key drivers and shocks been described

2C Have cross-scale interactions been assessed (including connections and feedbacks between the focal scale and the scales above and within the focal scale)?

2D Have the sub- system(s) been viewed as complex adaptive social-ecological systems? The project is primarily concerned with enhancing the supply of ecosystem services from the upper Tana catchments primarily to reduce sediment delivery which is adversely affect small holder farming systems. The Tana system has been the subject of much formal study and relevant work has been identified.

The project has built in learning around good targeting of interventions, this will provide data on the extent to which the most vulnerable beneficiaries (including but not restricted to food insecure women and female-headed households) benefit from Water Fund incentives and whether the incentive schemes employed are appropriate to the needs of these vulnerable beneficiaries. This will be reviewed throughout the project. As women and youth form the

majority of vulnerable groups in terms of poverty and/or food insecurity the project has specified the need for greater attention to reach these through targeted incentives etc.

3.5.3 System assessment

3A Did the project design identify:

- Key values and variables?
- Likely shocks and stressors?
- Feedback loops and thresholds?
- Cross scale interactions considered as crucial for the project success?

3B Are there any activities and strategies in the design of document to improve diversity, redundancy and connectivity to improve general resilience of the systems of interest in a way that contributes to food security?

3C Are there activities and strategies in the design document to improve specific resilience of the system of interest to specific expected and possible shocks or stresses (e.g. Climate change)

There is detail on key values and variables and on shocks and stressors. There is less detail on thresholds which is important given the catchment is undergoing relatively rapid and substantial land use changes ‘which involve non guided choices on how the landscapes are managed’.

The project document recognises micronutrient deficiencies as a significant issue within this area (but then says addressing this is out of scope here but addressed in a partner project). It would be useful to look at which aspects of food security will be addressed.

A significant amount of activity is directly addressing deficiencies in the general resilience of upper Tana catchment in a way that contributes to food security.

It is not clear the degree to which co-ordinated interventions are required to provide benefits at the watershed scale (i.e. it is important that there is significant adoption of certain measures to reduce sedimentation – are there thresholds that can be explicitly considered?) . It is also unclear how changes at landscape scales will address the direct food security needs of householders? A clear understanding of how these cross scale interactions will be managed appears crucial for project success?

3.5.4 Theory of change and broad pathways

4A What is the goal of the project? How well does the stated goal link to resilient and sustainable food security?

4B Is a ‘Theory of Change’ described in the project proposal? If not is there enough information provided to develop one?

4C What are the type and magnitude of change identified to achieve the goal?

4D Are impact pathways described? How robust are the causal mechanism and assumptions underpinning the impact pathways?

Project Goals: A well-conserved Upper Tana River basin with improved water quality and quantity for downstream users (public and private); maintaining regular flows of water throughout the year; enhancing ecosystem services, specifically for food security, freshwater and terrestrial biodiversity, and improving human well-being and quality of life for upstream local communities’.

Key Components: The project is structured around three principal components seeking to (i) institutionalize the Upper Tana-Nairobi Water Fund (UTNWF) Platform for policy development and institutional reform, and develop incentives for climate-smart smallholder agriculture; (ii) enable the adoption of sustainable land management practices in the Upper Tana catchment ecosystems; and (iii) develop the requisite institutional and technical capacities for effective

monitoring and assessment of global environmental benefits and resilience. Cross-cutting aspects related to value chains, capacity building and knowledge management will be further strengthened through direct support from the regional “Hub” project.

A theory of change is provided for the project (although the figure presented is quite confusing to interpret). Ideally the RAPTA framework suggests that the theories of change associated with project design should map the range of potential adaptation and transformation pathways. These are not mapped here. There are two primary impact pathways a) the establishment of the Water Fund and b) the application and integration of environmental and socio-economic monitoring tools into policy processes, aiming at (*informing*) landscape approaches and integrated planning for environmental management and human well-being. The impact pathways for these are visualised but there is limited detail in the text as to the causal links that will underpin these – perhaps as these will be developed iteratively with the Water Funds?

3.5.5 Options and pathways

5A Is the project seeking incremental adaptation or transformational adaptation? Are these mentioned explicitly or implied?

The project documents imply that the project is seeking to build on existing resilience (Option A – see section 2.3) in the Upper Tana (with the specific aim to deliver “a well-conserved Upper Tana river”) with adaptation components focusing on integrated land, water and agricultural management and better information being used to inform policy and planning processes. The development of bamboo micro industries is an adaptation measure as are the tree cover targets but this is not detailed here (nor is its potential impact). There is significant activity associated with rehabilitation (feeding into the general resilience of the system) and restoration. Having trajectories (i.e. of some indication how long will it take to achieve food security benefits) associated with these activities would be helpful as would some consideration of the impacts of partial success. There are one or more specific resilience thresholds that are implicit here and would perhaps be better stated explicitly. What proportion of the catchments need to be restored for food security benefits to be achieved? This would also feed into the policy learning objectives

3.5.6 Learning and adaptive project management

6A Information on resilience Indicators

- What tools, if any, are being proposed for measuring changes associated with resilience of food security?
- What scales are the tools operating at?
- Do the scales link to the scales suggested for assessment and reporting?

6B Have indicators for resilience been specified?

- Is there a resilience baseline?

6C How is learning reflected in the design of the project?

- What is the role of learning in guiding implementation as well as monitoring and assessing the project?
- Does the monitoring and evaluation component of the project have inbuilt multi-loop learning?

The project is using the MPAT toolkit with the Women’s Empowerment in Agriculture Index (WEAI) to provide appropriate gender analysis and inclusion of climate change resilience and adaptation strategies. The project is also drawing on “tools and concepts from the GEF’s Resilience, Adaptation Pathways and Transformation Assessment Framework (RAPTA)”. Other

tools include the Upper Tana Wetland Atlas and the EX-ACT tool which will provide data on general resilience and bio-economic tools (implemented by CIAT).

At scale the Land Degradation Surveillance Framework (LDSF) will be used to assess landscape-level ecosystem health. This will provide a baseline setting and monitoring tool kit. These will be complemented with ‘stakeholder needs and expectation assessments’ to allow for an adaptive portfolio of best suited SLM activities to be employed. The inference is that scaling out technologies may take some time – there is no indication of the degree of change required to deliver ES benefits (as opposed to the current disbenefits). It is not clear whether the land areas indicated in the outcomes equate to the land needed for resilience to be achieved (i.e. a threshold) or, instead, are realistic expectations of what can be achieved (which may or may not provide localised benefits)?

3.5.7 Food security approach

The key aspects related to food security and nutrition that were evident from the project documents are presented in a tabulated format below (Table 7).

Table 6. Kenya project approach to food security.

Criteria	Responses
Is there an established methodology for measuring food security and nutrition present in the project document?	Yes
What methods are proposed for assessing food security and nutrition in the project document?	<p>Biophysical monitoring tools and approaches, such as the LDSF will be integrated into partner organisations’ monitoring procedures. IFAD’s Multidimensional Poverty Assessment Tool (MPAT) will form a core part of the Project’s M&E framework to allow for the monitoring of socio-economic parameters, including for gender disaggregated livelihoods. To account for an appropriate gender analysis and inclusion of climate change resilience and adaptation strategies, the MPAT tool kit will be expanded with the WEAI, and tools and concepts from RAPTA. Wetland biodiversity will be mapped and related information be compiled into an Upper Tana Wetland Atlas, and the avoided carbon emissions and sequestration, e.g. through land use changes and agroforestry, will be measured through the EX-ACT tool.</p> <p>If MPAT is used, it will provide an overview of 11 interconnected basic dimensions, such as food security and nutrition, exposure and resilience to shocks, and farmers’ assets. A standard questionnaire is used so that results</p>

	<p>can be compared between households, villages, projects and countries, as well as within a given project over time. The LDSF consists of landscape-level assessments of ecosystem health, including soil condition, vegetation condition/ trends and diversity, land degradation status and carbon assessments. The WEAI is a tool composed of two sub-indexes: one measures how empowered women are within five domains, and the other measures gender parity in empowerment within the household (developed by IFPRI). RAPTA is a framework for ensuring resilience and systems thinking is fully integrated into project design.</p>
<p>What indicators are being used to assess project progress towards improved food security and nutrition?</p>	<p>Number of smallholder farmer households with improved food security, climate change adaptation and resilience capabilities (21,000 HH); Number of smallholder farmer households adopting climate-smart SLM practices (21,000 HH); Number of hectares on which SLM practices are implemented (100,000 ha); Number of hectares influenced to adopt SLM practices (663,000 ha); GHG emissions avoided and/or sequestered (10% increase over baseline through LUC).</p>
<p>1. Is food security viewed as food production and availability problem and the project focus is to improve natural resource conservation and management that is expected to increase food production in a way that generates local and environmental benefits? OR 2. Is food security viewed from a systems perspective as an availability, access (physical and economic) and/or nutrition utilisation issue and the project also addresses these issues in a way that takes a pressure off from the natural resources?</p>	<p>1. The project document states that ‘[it] will work with public and private sector partners to establish the Water Fund as a sustainable financing mechanism to support sustainable land management and integrated natural resource management approaches in the Upper Tana catchment. Through its network of public agencies, NGO and CBO, the Project will support smallholder farmers in the Upper Tana catchment to adopt climate-smart sustainable land management practices, with the aim to increase food security and climate adaptation potential at household level, to stabilise and restore ecosystem services of the targeted area, to conserve and protect the catchments’ ecological integrity and to improve water quality and quantity for both upstream and downstream water users.’ Nutritional aspects are not at the forefront of the project strategy.</p>
<p>Comments: The project document clearly justifies proposed activities, but there’s a lack of methodological detail on assessing food security of target populations besides mentioning MPAT (and no explanation of who would be targeted besides 21,000 smallholders with good</p>	

female and youth representation). There is inconsistency between the main text and logical framework, e.g. in Table 1 on pg 16 it says SLM implemented on 100,000 ha, while in the logframe under Outcome 2.1 on pg. xvii it says SLM implemented on 337,000 ha. Under component 2, there are currently no indicators for water quantity or quality for downstream users, yet this is a central feature of the proposal. No detailed indicators related to food security or biodiversity. Would expect to see something along the lines of 'household food insecurity experience', 'soil erosion prevalence', 'agricultural yields of farmers using SLM practices' against baselines to show the impact more clearly. Would be good to see proposed methods more clearly linked to indicators included in the logframe. RIMS is briefly mentioned but not in detail.

3.5.8 Recap from 'Minutes GEF-IAP-FS Operational Launch Workshop_ 5-7 Jul 2017_ version 31 Aug'

What are you already doing related to tracking impact (what indicators and approaches for GEBs, resilience and food security)?

- MPAT survey to establish socio-economic baseline
- Water quality and quantity monitoring
- Rating curves
- Automating gauging stations *WRMA/ JKUAT)
- Aquatic Ecosystem monitoring (National Museums of Kenya)
- Biophysical assessments (LDSF)
- Mobile-based dissemination platform (SMS system)

What will you be doing on this over the next six months?

- MPAT analysis and final report
- Finalize other four baselines

Is there support that would be useful in doing this over the next six months?

- TBD from regional baseline assessment

3.6 Malawi

Project title: Food-IAP: Enhancing the Resilience of Agro-Ecological Systems (ERASP)

Project summary: Enhance the provision of ecosystem services and improve the productivity and resilience of agricultural systems of vulnerable rural poor.

Project document used for overview: 02-21-17CEOEndorsementRequestDocumentclean

3.6.1 Multi-stakeholder engagement and governance

1A Is there evidence of an initial stakeholder analysis having been conducted?

1B What was the extent and quality of the stakeholder engagement in the project design?

The ToC and the project's logical framework were validated by an extensive process of stakeholder consultations (although this is detailed in Appendix 4 which is missing from the project documents). Household surveys and focus group discussions were used in the identification of sites for investments in catchment area management (323 randomly sampled respondents were interviewed). The total number of beneficiaries to be engaged directly by the project will be 15,793 men and 16,381 women farmers (which seems quite specific!)

3.6.2 System description

2A Is the system well-understood (Including biophysical and socio-economic aspects and their linkages)?

- Is knowledge of the system based on published scientific literature, and/or local knowledge?
- Has relevant past work been identified?
- Who is the focus of the project?
- How well does the project address gender issues?

2B Have the key determinants of system structure and function been describe? Have key drivers and shocks been described

2C Have cross-scale interactions been assessed (including connections and feedbacks between the focal scale and the scales above and within the focal scale)?

2D Have the sub- system(s) been viewed as complex adaptive social-ecological systems?

The project documents describe the biophysical and socio-economic characteristics of the focal study areas. The ERASP project builds on work (and lessons learned) from the PRIDE project and draws on the experience of a broad range of stakeholders both locally and politically that are required for project success (particularly the Ministry of Agriculture, Irrigation and Water Development). The beneficiaries have been clearly identified based on a systematic selection process (using a broad range of variables including but not limited to food security factors). The key determinants of system structure are described (including the nature of perturbations associated with climate change, degradation and historic agricultural development). Understanding cross scale interactions are key for watershed management. The project will aim to quantify changes in watershed characteristics but there is no information of levels of engagement required to deliver ecosystem benefits and contribute to resilient food systems at broader scales.

3.6.3 System assessment

3A Did the project design identify:

- Key values and variables?
- Likely shocks and stressors?
- Feedback loops and thresholds?
- Cross scale interactions considered as crucial for the project success?

- 3B** Are there any activities and strategies in the design of document to improve diversity, redundancy and connectivity to improve general resilience of the systems of interest in a way that contributes to food security?
- 3C** Are there activities and strategies in the design document to improve specific resilience of the system of interest to specific expected and possible shocks or stresses (e.g. climate change)

The project is primarily about catchment management and rainfall (and the links to sediment delivery) are the key variables the project is seeking to influence. Climate risks are rated as moderate (although it isn't clear what this is relative to!).

There is limited information identifying key knowledge gaps – from a resilience perspective there is very little information on current proximity to critical thresholds – although the need for rehabilitation suggests local thresholds may have been breached? There is no information as to the level of rehabilitation required to meet resilience objectives and whether this is achievable. In terms of general resilience one impact pathway focuses on rehabilitation of wider catchment area the land to improve ecosystem services and secure the irrigation investment. This will be delivered through promoting sustainable production and harvesting of biomass energy resources from communally managed woodlots and pilot small biogas systems; and increasing the incentives to protect forested areas through production of non-timber forest products (NTFPs). If these are successful they should deliver improvements to diversity, redundancy and connectivity. Another impact pathway focuses on farm management strategies to improve soil fertility and soil moisture availability and diversify crop varieties to raise agricultural resilience, productivity and nutritional security. The combination of these pathways should deliver improvements to both general and specific resilience.

3.6.4 Theory of change and broad pathways

- 4A** What is the goal of the project? How well does the stated goal link to resilient and sustainable food security?
- 4B** Is a 'Theory of Change' described in the project proposal? If not is there enough information provided to develop one?
- 4C** What are the type and magnitude of change identified to achieve the goal?
- 4D** Are impact pathways described? How robust are the causal mechanism and assumptions underpinning the impact pathways?

Project Goals: The overall project objective is to enhance the provision of ecosystem services and improve the productivity and resilience of agricultural systems of vulnerable rural poor. This objective encompasses three sub-objectives of addressing land degradation, loss of agrobiodiversity and climate change adaptation and mitigation.

Key Components: The project will be delivered through three components in line with the IAP program framework: (i) multi-stakeholder institutional framework for integrated catchment area management; ii) scaling-up catchment-level, sustainable land management practices; and (iii) monitoring and assessment of ecosystem services, resilience and food security.

ERASP will promote interventions in the three districts covering an estimated 35,000 ha and involving 25,680 farmers. The proposed approach focuses on a more comprehensive landscape planning process for the sub-catchments, adds an agro-ecological approach to improving food security, and raising agricultural yields on rain-fed farming systems through climate-smart and conservation agriculture techniques, supported by credit provision through village lending and savings clubs. Cross-cutting aspects related to value chains, capacity building and knowledge management will be further strengthened through direct support from the regional "Hub" project.

The project has a specific focus on watershed management and this has been considered at a range of scales. Access to water has been identified as a key determinant affecting the resilience of food production systems for both rain fed and irrigated systems. The causal mechanisms associated with the impact pathways are detailed clearly in the text.

The theory of change provided is relatively simple and does not describe outcomes (although these are detailed elsewhere). Ideally, the RAPTA framework suggests that the theories of change associated with project design should map the range of potential adaptation and transformation pathways. These are not mapped here.

The project documents identify a number of critical stressors affecting Malawi (for example 'Recent poverty estimates show a worsening of an already dire situation with over 74% of the population living below the poverty line and about 30% living in absolute poverty'). Reversing these trends will require significant change which suggests that transformational change may be required for some focal areas?.

3.6.5 Options and pathways

5A Is the project seeking incremental adaptation or transformational adaptation? Are these mentioned explicitly or implied?

The project is explicitly seeking incremental adaptation (by developing Irrigation infrastructure, climate-smart agricultural practices for rain-fed and irrigated land and market linkages) rather than transformation. The potential requirement for transformation (as described in the RAPTA protocols) is not explored here and the system assessments do not consider the potential for increased requirements for transformation for some or all stakeholders in the future. This element is highlighted in the quote below:

“Achieving sustained food security will require increasing the returns from sustainable land management to a level that enables people to move out of poverty, **recognising that this can only be achieved** through an integrated agricultural and natural resources development approach given the high population densities and small landholdings”

This quote does not suggest the scale of development required nor does it acknowledge that perhaps moving people out of agriculture could also address poverty issues? There may be viability issues associated with both of these points?

3.6.6 Learning and adaptive project management

6A Information on resilience Indicators

- What tools, if any, are being proposed for measuring changes associated with resilience of food security?
- What scales are the tools operating at?
- Do the scales link to the scales suggested for assessment and reporting?

6B Have indicators for resilience been specified?

- Is there a resilience baseline?

6C How is learning reflected in the design of the project?

- What is the role of learning in guiding implementation as well as monitoring and assessing the project?
- Does the monitoring and evaluation component of the project have inbuilt multi-loop learning?

The project has identified a number of indicators that track total project outreach and increase in overall resilience of the targeted population. These include decreases in months with food shortage and child malnutrition and increase in agricultural production yields. These indicators are monitored through the RIMS and MPAT surveys. Resilience is tracked at the outcome and

output level in terms of reduction in flood risk index, land degradation prevalence and hectares reforested or with recovered vegetation cover (all monitored and assessed through the LDSF) as well as hectares covered with agro-biodiverse resilient systems (monitored and assessed through DATAR). Stream flows and sedimentation levels are also included to monitor ERASP’s effectiveness in protecting the irrigation investments. Finally, carbon sequestered and greenhouse gas emissions avoided, as a global environmental benefit, is monitored and assessed through the EX-ACT.

Results will be fed back into project learning primarily for adaptive catchment planning and management. Evidence will also be used to promote policy mainstreaming.

3.6.7 Food security approach

The key aspects related to food security and nutrition that were evident from the project documents are presented in a tabulated format below (Table 8).

Table 7. Malawi project approach to food security.

Is there an established methodology for measuring food security and nutrition present in the project document?	Yes
What methods are proposed for assessing food security and nutrition in the project document?	Biophysical monitoring tools and approaches, such as the LDSF, EX-ACT and DATAR will be integrated into the project's monitoring and evaluation framework. MPAT will allow for the monitoring of socio-economic parameters against a baseline and includes a module on resilience. To account for an appropriate gender analysis, the MPAT tool kit will be expanded with the WEAI. RIMS will also be used. MPAT will be used to assess and monitor rural livelihoods, household assets, access to quality natural resources, food and nutrition security and resilience in targeted areas. It'll be complemented by gender relevant indicators from the WEAI as well as RIMS. The household surveys will include health issues related to floods and cooking practices (most relevant to women). Household surveys will be aggregated at village level.
What indicators are being used to assess project progress towards improved food security and nutrition?	Indicators not clearly presented, but the most relevant that can be interpreted are: number of food insecure months; incidence of child malnutrition; and yield of rain-fed crops and livestock production. Targets are conflated with indicators, e.g. reducing food insecure months from an average of 4-5 to less than 2 months; reducing child malnutrition by 20%;

	yield increases of about 20% from rain-fed crops and livestock production.
<p>1. Is food security viewed as food production and availability problem and the project focus is to improve natural resource conservation and management that is expected to increase food production in a way that generates local and environmental benefits? OR</p> <p>2. Is food security viewed from a systems perspective as an availability, access (physical and economic) and/or nutrition utilisation issue and the project also addresses these issues in a way that takes a pressure off from the natural resources?</p>	<p>1. The project document states ‘there are two main areas of focus for the project. The first is improving agricultural productivity through sustainable land management approaches and agro-biodiversity, which directly aims to deliver the food security objective. The second, parallel area of action is on catchment management which aims to secure river flow and prevent soil erosion and siltation problems, and floods, thereby protecting the PRIDE irrigation investments and rain-fed areas, contributing to sustained food security over the longer term.’</p> <p>‘The project intends to raise incomes, expand livelihood options and improve food security through three benefit streams. Higher returns to land management are expected through the blended nature of ERASP with PRIDE. Higher agricultural productivity will be one benefit stream. Enterprise development based on natural resources will be another.’</p>
<p>Comments: The project document is well developed and includes baseline results to justify the approach taken. Food insecure months are said to range from 8 months in years of not enough rain to 3 months when good rains. Food insecurity felt by families every year. It would seem appropriate to continue the same measurements taken at baseline, e.g. months of food insecurity and dietary diversity. Reducing time spent collecting firewood and % of income spent on it would also be appropriate (currently average income spent on firewood is 10-20%, with some cases of up to 40%; distance travelled to collect firewood 4km). There isn't a logframe matrix, rather it has a narrative for outcomes and outputs and the indicators are not clearly linked to them. It's mentioned that there are cultural norms regarding food intake which disproportionately affects women and children's food security and nutrition status, but it's not explained how this might be overcome? It seems that access needs to be looked at critically here, not just food production and availability.</p>	

3.6.8 Recap from ‘Minutes GEF-IAP-FS Operational Launch Workshop_ 5-7 Jul 2017_ version 31 Aug’:

What are you already doing related to tracking impact (what indicators and approaches for GEBs, resilience and food security)?

- Soil mapping
- Water quality and quantity monitoring

- Mainstreaming adaptation especially CSA into district and village development plans
- Vulnerability mapping
- Biodiversity and land degradation

What will you be doing on this over the next six months?

- Water quality assessment and quantity
- Early warning system
- Measuring productivity to monitor change
- Establish communication platforms
- Gender and youth indicators

See details of data that will be made available to Malawi project here:

<http://eo4idi.eu/publications/brochure/global-environment-facility-integrated-approach-pilot-iap-program>

3.7 Niger

Project title: Food-IAP: Family Farming Development Programme (ProDAF)

Project summary: Ensure sustainable food security and strengthen smallholder farming resilience

Project document used for overview: 08-02-

16_CEO_Endorsement_Request_Document_signed_0

3.7.1 Multi-stakeholder engagement and governance

1A Is there evidence of an initial stakeholder analysis having been conducted?

1B What was the extent and quality of the stakeholder engagement in the project design?

The project documents state that the intended outcomes that will enable resilience of the family production model in the short and long term by focusing on sustainability at the economic level (profitability of systems, access to capital), the social level (all the local stakeholders become active in decision making processes), and the environmental and the climatic level (management and monitoring of natural resources, implementation of agricultural practices that reduce the impact of climate change on the production system, infrastructures to secure household access to agricultural water, as well as infrastructure designed or located by taking account of climate risks). It is not clear to what extent local beneficiaries in the Tahoua, Maradi and Zinder Regions where consulted in formulating these outcomes? It is also difficult to evaluate whether these outcomes will have equal consequence across the three types of beneficiaries identified and targeted i.e. highly vulnerable family farms, intermediate family farms / moderately vulnerable and iii) less vulnerable family farms? It is also not clear how these groups disaggregate across the focal study areas?

The project will seek engage over 22,400 households or close to 157,000 people (including 30% women and 30% youth) as direct beneficiaries.

3.7.2 System description

2A Is the system well-understood (Including biophysical and socio-economic aspects and their linkages)?

- Is knowledge of the system based on published scientific literature, and/or local knowledge?
- Has relevant past work been identified?
- Who is the focus of the project?
- How well does the project address gender issues?

2B Have the key determinants of system structure and function been describe? Have key drivers and shocks been described

2C Have cross-scale interactions been assessed (including connections and feedbacks between the focal scale and the scales above and within the focal scale)?

2D Have the sub- system(s) been viewed as complex adaptive social-ecological systems?

The project builds on existing studies – and builds on work from past projects. The nature of the intended beneficiaries is described in broad terms but there is very little detail on, for example, how many of the different beneficiaries fall into the three different farmer categories described nor whether these groups need different interventions tailored to their farming contexts? The project documents suggest that the work is primarily taking place at landscape scale and feeding into the general resilience (rather than specific resilience needs at the focal scales).

The project states that ProDAF's main target groups are the vulnerable and moderately vulnerable family farms whose access to food security and markets remains unstable; women and youth constitute the majority of this target population (which begs the question why 30% is

the engagement target for woman?). ProDAF states there are a number of gender specific activities (related to food and nutrition security in particular) with some indicators attached but it is not stated in these documents what the basis for these were and how, for example, the nutritional security dimensions will be addressed?

A number of interventions will require some degree of social capital to be effective (e.g. the establishment of pastoral passage corridors). The capacity to develop the required social capital is likely to be a potential indicator of increased resilience for these systems – depending on the degree of conflict associated with unmanaged pastoral passage. This is likely to mean both bridging and binding social capital.

It is also unclear whether the project outcomes will favour all groups equally (irrigation and improved road infrastructure, for example, will favour people in certain biophysical contexts or those with access to transport - and may lead to alternate, unintended, transformation? There is potential that areas perhaps most at risk from climate induced water stress are those least able to access irrigation? These are primarily scaling questions.

3.7.3 System assessment

3A Did the project design identify:

- Key values and variables?
- Likely shocks and stressors?
- Feedback loops and thresholds?
- Cross scale interactions considered as crucial for the project success?

3B Are there any activities and strategies in the design of document to improve diversity, redundancy and connectivity to improve general resilience of the systems of interest in a way that contributes to food security?

3C Are there activities and strategies in the design document to improve specific resilience of the system of interest to specific expected and possible shocks or stresses (e.g. climate change)?

The project does clearly address general resilience concepts such as redundancy, increased biodiversity and connectivity. There is a lot of detail provided about the nature of intended works but less information detailing how these works will build specific resilience to specific threats (and whether infrastructural changes benefits everyone equally). The project is clearly focused at landscape scale interventions but it is less clear from these documents how the landscape change being proposed feed into change at the household levels (i.e. the cross scale interactions) and the degree of sensitivity local stakeholders have .

There is very limited information on current proximity to thresholds – an important concept in resilience. This is relevant both in terms of understanding the likelihood for success and for assessing the magnitude of change required.

3.7.4 Theory of change and broad pathways

4A What is the goal of the project? How well does the stated goal link to resilient and sustainable food security?

4B Is a ‘Theory of Change’ described in the project proposal? If not is there enough information provided to develop one?

4C What are the type and magnitude of change identified to achieve the goal?

4D Are impact pathways described? How robust are the causal mechanism and assumptions underpinning the impact pathways?

Project Goals: To mitigate these threats and facilitate the sustainable access by local populations to water and land resources available in the watersheds (basins and valleys), the Government of Niger through the IAP program will promote soil and water conservation and soil protection and restoration works (structures) on a large scale. The objective is to sustainably increase the incomes of family farms, their adaptation to climate change and their access to local, urban and regional markets.

Key Components: The project will focus on two key outcomes focused on (i) sustainable family farming to allow rural producers, including women and youth, to diversify their production, increase their yields and build their capacities to adapt to external shocks, notably those related to climate; and (ii) access to markets to help farmers market more efficiently their agro-silvo-pastoral production surplus in semi-wholesale markets that supply the centers of national consumption and transboundary markets. Cross-cutting aspects related to value chains, capacity building and knowledge management will be further strengthened through direct support from the regional “Hub” project.

There is no theory of change provided for the project proposal. Ideally, the RAPTA framework suggests that the theories of change associated with project design should map the range of potential adaptation and transformation pathways. These are not mapped here. Despite the scale of change proposed and the development of considerable amounts of infrastructure it is unclear in the documents how elements of the proposed impact pathways link to resilient and sustainable food security and the development of a theory of change may enable this. Given the climatic conditions the focus on water is appropriate but it seems clear that, for example, increasing yields of rainfed crops by 30 percent and of irrigated crops by 40 percent is likely to result in uneven resilience outcomes (usually in favour of wealthier farmers). The implications of this, in the mid and long term and given the nature of stressors affecting the system, have not been explicitly explored here.

3.7.5 Options and pathways

5A Is the project seeking incremental adaptation or transformational adaptation? Are these mentioned explicitly or implied?

The project is seeking to develop sustainable family farms to diversify their production, increase their yields and their capacities to adapt to external shocks, notably climate. This is primarily incremental adaptation (i.e. a modification to the existing system rather than a transformation). Development of markets is also incremental adaptation. It is not clear the extent to which transformation pathways were considered within the project planning. It is also not clear what the effects of partial success associated with a particular pathway might be

3.7.6 Learning and adaptive project management

6A Information on resilience indicators

- What tools, if any, are being proposed for measuring changes associated with resilience of food security?
- What scales are the tools operating at?
- Do the scales link to the scales suggested for assessment and reporting?

6B Have indicators for resilience been specified?

- Is there a resilience baseline?

6C How is learning reflected in the design of the project?

- What is the role of learning in guiding implementation as well as monitoring and assessing the project?

- Does the monitoring and evaluation component of the project have inbuilt multi-loop learning?

The project is using IFPRI’s climate projection models. In terms of monitoring progress the programme highlights the use of GIS (Activity 1.8) – there is no information on current capacity and the quality of GIS available for the study areas. Current plans are to use remote sensing for monitoring and to assess ecosystem services and resilience through use of geolocalisation, NDVI and ground-truthing missions for land and water rehabilitation as well as periodic soil analysis to show biomass return and ecosystem resilience. Food security will be assessed at household level with the IFAD RIMS survey to identify lean periods and malnutrition). The EX-ACT tool will be used to assess carbon storage.

There are a number of challenges for using remote sensing for evaluating ecosystem service provision but these tools are important for assessing general resilience at scale. Indeed much of the project activity appears to be focused on general resilience. The degree to which project outcomes feed into the key determinant affecting the resilience of food production systems in the focal study areas is less clear?

3.7.7 Food security approach

The key aspects related to food security and nutrition that were evident from the project documents are presented in a tabulated format below (Table 9).

Table 8. Niger project approach to food security.

Is there an established methodology for measuring food security and nutrition present in the project document?	Yes
What methods are proposed for assessing food security and nutrition in the project document?	Monitoring and assessing ecosystem services, global environmental benefits and resilience through: (a) use of geolocalisation, NDVI and ground truthing missions for land and water rehabilitation; (b) geolocalisation, NDVI, yearly supervisions, as well as periodic soil analysis to show biomass return and ecosystem resilience; (c) correlation between rainfall and NDVI to demonstrate the resilience of the farming systems; (d) IFAD RIMS survey to assess food security (lean periods and malnutrition); and (e) remote sensing and EX-ACT tool to assess carbon storage. RIMS impact surveys and additional surveys on outcomes/ impact will also be conducted during the implementation of the project. Impact on food security will largely be assessed through the RIMS survey (baseline, mid-term and completion), which evaluates the duration and repetition of lean season (in months) as well as the malnutrition of children in the project area.

<p>What indicators are being used to assess project progress towards improved food security and nutrition?</p>	<p>The main food security indicators appear to be number of food insecure months (lean periods) and incidence of malnutrition of children.</p>
<p>1. Is food security viewed as food production and availability problem and the project focus is to improve natural resource conservation and management that is expected to increase food production in a way that generates local and environmental benefits? OR 2. Is food security viewed from a systems perspective as an availability, access (physical and economic) and/or nutrition utilisation issue and the project also addresses these issues in a way that takes a pressure off from the natural resources?</p>	<p>1. The project document states that the overall objective is ‘to contribute to sustainable food and nutrition security and strengthen resilience of rural households. The development objective is to sustainably increase the income of 240,000 family farms, their resilience to external shocks, including climate change, and their access to local, urban and regional markets in the three regions.’</p>
<p>Comments: The project document is fairly well developed, although no logframe matrix can be viewed (states that it exists in another document). Perhaps should include more food security indicators, such a dietary diversity if this is already perceived to be an issue and something being addressed by project activities. There’s a transhumant population frequenting the target area – this is mentioned when discussing enhancing fodder resources, but they don’t appear to be fully integrated into the project as beneficiaries. The target population is stated to be farming families.</p>	

3.7.8 Recap from ‘Minutes GEF-IAP-FS Operational Launch Workshop_ 5-7 Jul 2017_ version 31 Aug’

What are you already doing related to tracking impact (what indicators and approaches for GEBs, resilience and food security)?

- Livestock corridor protection
- Waterpoint management- # of waterpoints managed
- Acre of corridor secure and protected
- GEB and M&E tracking impact
- Workshop
- Training
- Indicator of HH targeted, globally spread

What will you be doing on this over the next six months?

- Workshops for data to be collected at national level
- Data collection system – which strategy
- National level
- Partnership with national env center at project level

Is there support that would be useful in doing this over the next six months?

- Participation
- Data method
- Participation from regional hub to support the data to be collected on the GEB indicators

3.8 Nigeria

Project title: Food-IAP: Integrated Landscape Management to Enhance Food Security and Ecosystem Resilience in Nigeria

Project summary: To contribute to enhancing long-term environmental sustainability and resilience of food production systems of Nigeria to achieve improved national food security.

Project document used for overview: 05-23-17_CEO_Endorsement_Request_revised_0

3.8.1 Multi-stakeholder engagement and governance

1A Is there evidence of an initial stakeholder analysis having been conducted?

1B What was the extent and quality of the stakeholder engagement in the project design? There is not much information available in the project documents on the extent of stakeholder engagement at the immediate beneficiary scale (i.e. the extent to which small holder farmers were consulted about the project outcomes and the viability of the adaptation measures). There has been very clear policy engagement.

3.8.2 System description

2A Is the system well-understood (Including biophysical and socio-economic aspects and their linkages)?

- Is knowledge of the system based on published scientific literature, and/or local knowledge?
- Has relevant past work been identified?
- Who is the focus of the project?
- How well does the project address gender issues?

2B Have the key determinants of system structure and function been describe? Have key drivers and shocks been described

2C Have cross-scale interactions been assessed (including connections and feedbacks between the focal scale and the scales above and within the focal scale)?

2D Have the sub- system(s) been viewed as complex adaptive social-ecological systems?

The broad context of food security in Northern Nigeria is well understood in terms of scientific documentation and recent evaluations (for example the recent Livelihoods and Economic Recovery Assessment report by the UNDP in 2016). The key determinants of system structure and function are described and relevant past work is identified.

The project documents state that woman contribute up to 80% of agricultural labour and play key roles in food production and income-earning, natural resource management and as decision makers on household food and nutrition security. Land ownership in Nigeria is not clearly defined, and where it is owned, usually this is by men, and the rich elite. It is very likely that females both play a very significant role in food security and are systematically disadvantaged in both decision-making and tenure (there is also variation contextually with the Northwest have predominantly Muslim family structures with polygamy being common. An assumption underpinning the project outcomes is that 'men will support woman's empowerment'. This seems quite an significant assumption (i.e. the likelihood is very low or at the very least likely to be uneven). It is also likely to lead to uneven outcomes as this would be a transformative change and likely to encounter resilience to change. The project sees addressing aspects of this as critically important but woman still make up a significantly smaller proportion (14,000) of the intended beneficiaries (50,000) and it is not clear what the rationale for this was. The causal links associated with suggested impact pathways are not described in detail and from the project

documents it is hard to see how the impact pathways relating to gender (See ToC) will be monitored.

Cross-scale interactions have been assessed but not in detail this may be important if there is only partial success for an impact pathway.

3.8.3 System assessment

3A Did the project design identify:

- Key values and variables?
- Likely shocks and stressors?
- Feedback loops and thresholds?
- Cross scale interactions considered as crucial for the project success?

3B Are there any activities and strategies in the design of document to improve diversity, redundancy and connectivity to improve general resilience of the systems of interest in a way that contributes to food security?

3C Are there activities and strategies in the design document to improve specific resilience of the system of interest to specific expected and possible shocks or stresses (e.g. Climate change)

Detailed information is provided on key values. There is information relating to the general resilience (in terms of redundancy and connectivity) primarily in relation to ecosystem degradation. The on farm activities are seeking to address this and stabilise degradation processes. There are a number of activities that also address specific resilience issues associated with climate change but other activities associated with intensification (and value chains) look like they either assume resilience or do not directly address these drivers?

The food security context in the study area is already in an acute decline. Current evaluations suggest that in some areas of north-eastern Nigeria 46% of households have to borrow to eat. There are a broad range of documented stressors contributing to this – and although the project is likely to deal with significant elements of this there is likely to be a time lag – there is little information on whether the need for more substantial transformation in these systems was explored. This may be particularly true for the displaced households.

3.8.4 Theory of change and broad pathways

4A What is the goal of the project? How well does the stated goal link to resilient and sustainable food security?

4B Is a ‘Theory of Change’ described in the project proposal? If not is there enough information provided to develop one?

4C What are the type and magnitude of change identified to achieve the goal?

4D Are impact pathways described? How robust are the causal mechanism and assumptions underpinning the impact pathways?

Project Goals: To foster sustainability and resilience for food security in northern Nigeria through addressing key environmental and social-economic drivers of food insecurity across three agro-ecological zones.

Key Components: The project will be delivered through three interrelated components:

Component 1 will enhance the policy and institutional enabling environment for achieving improved food security, including the development of PPP for major food crop value chains (cassava, rice, and Sorghum). **Component 2** will scale up sustainable land and water management and climate-smart agricultural practices, targeting women and youth groups in

particular; under this component, a support will target the better commercialization of eight targeted commodities (groundnuts, maize, rice, sorghum, cowpea, yam, poultry, dairy), but also fruit trees and aquaculture. The project will build on previous experiences and partnership with the African Facility for Inclusive Markets for (AFIM), IITA and ICRISAT;

Component 3 will put in place an effective and functional monitoring, assessment and knowledge-sharing system to evaluate the impact of project interventions on food production and household and ecosystem resilience, including global environmental benefits.

The project provides a clear theory of change. Ideally, the RAPTA framework suggests that the theories of change associated with project design should map the range of potential adaptation and transformation pathways. These are not mapped here. The project lists six impact pathways. It details the key assumptions underpinning them. Causal links underpinning some outcomes are not clearly described.

The project focuses on problems with the value chain and the sustainability of the current farming systems. The GEF alternative scenarios identify ‘the scaling up of sustainable land and water management (SLWM) and climate- and water-smart agricultural (CSA/WaSA) practices’. There is little information on where these will be scaled out from and whether there are practices currently available (and that demonstrably work) that are tailored to the different contexts. The project mentions using learning from Niger (and taking farmers to these areas) which suggests that there may not be currently localised SLWM models in place?

The most significant transformations are around the value chain (the public-private partnerships) and the policy environment. There is acknowledgement of significant barriers to policy reform in Nigeria (there have been a number of reform initiatives that have not provided results) this suggests that these transformations would be significant successful but challenging to achieve. In section 5.5, there is some discussion on the potential risks of partial success – this seems to be particularly relevant in the Nigerian context. This would appear to be particularly true for gender related outcomes.

There are significant (and acknowledged) barriers to meeting the project goals. For example ‘Lack of road transport networks from the rural to the urban areas, the high costs of transport, the unavailability of storage facilities and lack of access to finance, often due to lack of assets such as land, are few of the key constraints to the full development of agricultural value chains’. The project is hoping that political reform of the agricultural sector will address these issues but given the large area over which the project is operating there are reasonable risks of only partial success.

3.8.5 Options and pathways

5A Is the project seeking incremental adaptation or transformational adaptation? Are these mentioned explicitly or implied?

The project documents mention transformation but the interventions look more like incremental adaptation from a RAPTA perspective. The project seeks to improve current land use systems rather than transform the livelihood systems. Woman and youth are involved with ‘increased’ groundnut and rice production and processing for improved income and nutrition. Similarly Public-Private Partnerships are an adaptation measure as they are built up around existing products rather than alternate systems

. There is not enough information to assess the extent to which transformation pathways were explored (particularly with local stakeholders) in the participating regions or whether the suggested adaptation measures are likely to deliver even outcomes in the three different contexts

identified as focal study areas. The project is seeking transformation of the power relations among men and women in agricultural markets and adaptation of the existing value chains to promote access.

3.8.6 Learning and adaptive project management

6A Information on resilience Indicators

- What tools, if any, are being proposed for measuring changes associated with resilience of food security?
- What scales are the tools operating at?
- Do the scales link to the scales suggested for assessment and reporting?

6B Have indicators for resilience been specified?

- Is there a resilience baseline?

6C How is learning reflected in the design of the project?

- What is the role of learning in guiding implementation as well as monitoring and assessing the project?
- Does the monitoring and evaluation component of the project have inbuilt multi-loop learning?

The project is seeking to monitor the resilience of food security at both the household and landscape scales. Food security will be assessed through the IPC 2.0 (Integrated Food Security Phase Classification) monitoring systems. In addition, the project documents describe the establishment of ‘a harmonized M&E framework for food security information, multi-scale assessments of sustainability and resilience in agro-ecological zones and landscapes and monitoring of global environmental benefits’. Specific tools mentioned include the Vital Signs (VS) monitoring system and Resilience Atlas mapping. In addition to field data, real time data on land cover changes, water usage and quality, biodiversity and carbon sinks and *stock values of concerned ecosystems* will be collected using satellite imagery from the European Space Agency (ESA) and similar institutions. The Resilience Atlas will be used as a learning tool to disseminate project implementation, progress, achievements.

There is little detail on the nature of baseline measures of resilience taken prior to the project starting. The project, however, builds on a number of existing initiatives so these may exist. The project is seeking to develop a harmonised M&E framework and to establish national and state level multi-stakeholder gender-sensitive platforms, which should provide a solid platform for learning. There are limited specific resilience indicators identified associated with this activity.

3.8.7 Food security approach

The key aspects related to food security and nutrition that were evident from the project documents are presented in a tabulated format below (Table 10).

Table 9. Nigeria project approach to food security.

Is there an established methodology for measuring food security and nutrition present in the project document?	Yes
What methods are proposed for assessing food security and nutrition in the project document?	Modern monitoring and evaluation tools such as the Vital Signs monitoring system and Resilience Atlas mapping will be used. To monitor the food and nutrition security, the work will support the uptake of monitoring systems such as the IPC 2.0 through the

	<p>FEWS NET. In line with the other contemporary resilient food security projects, a project page for Nigeria will be developed on the Resilience Atlas to store baseline data. This will be updated regularly as the Resilience Atlas will be used as a learning tool to disseminate project implementation, progress, achievements.</p> <p>Output 4.2: M&E System for GEBs using the Vital Signs monitoring framework: To establish a functional M&E system to measure the local and global environmental benefits of the project at the landscape level, the project will work on: (i) developing the M&E plan for the project; (ii) conducting physical and socioeconomic baseline surveys for participating states and project communities/sites; (iii) undertaking regular inter-sectoral mapping of the state of land and water resources to monitor land degradation of the target landscapes using GIS and other monitoring tools; (iv) monitoring change in the soil and plant carbon content at least twice during the life of the project; (v) undertaking regular assessment of the effectiveness of introduced SLWM and agro-biodiversity practices in providing local adaptation and global mitigation benefits and improved food production; and (vi) monitoring project performance in terms of outputs and impact. The project will use the expertise of the Vital Signs framework and protocols for monitoring the global environmental benefits and assessing impact within each project site through comparison of outcomes before and after project inception. Under Component 3, the Nigeria child project will work closely with Vital Signs to generate baseline and on-going monitoring data for the status of food security and ecosystem services. This will include, where feasible, full gender data disaggregation.</p>
<p>What indicators are being used to assess project progress towards improved food security and nutrition?</p>	<p>The most relevant indicator directly related to food security is: Indicator 3: Number of smallholder farmers practicing climate</p>

	<p>resilient sustainable agriculture and with increased access to food and improved nutrition disaggregated by sex. The others are also relevant, more broadly focused on livelihood improvement, sustainable land and water management, climate smart agriculture, agricultural production, policy environment, and women and youth engaged in value chains.</p>
<p>1. Is food security viewed as food production and availability problem and the project focus is to improve natural resource conservation and management that is expected to increase food production in a way that generates local and environmental benefits? OR 2. Is food security viewed from a systems perspective as an availability, access (physical and economic) and/or nutrition utilisation issue and the project also addresses these issues in a way that takes a pressure off from the natural resources?</p>	<p>1. The project document states that ‘[the] intervention is explicitly designed to accelerate the adoption of proven sustainable agricultural practices that have been present in many parts of the Sudan-Sahel agro-ecological zone of Nigeria but have yet to be adopted at scale. The GEF intervention will enable this scaling up, including greater value addition and access to markets by the users of the natural capital base in the target agro-ecological zones (including farmers, pastoralists and people using natural capital for manufacturing products). This will also assist in reducing the “gender gap” in agriculture by specifically targeting women to enhance their income security and productivity. Lessons learned will be widely disseminated outside the project area to smallholder farmers in other agro-ecological zones of Nigeria (e.g. guinea savanna and guinea forest) to enable their involvement in scaling-up post-project, thereby improving sustainable and climate-resilient food production and national food security.’</p>
<p>Comments: This is a well-developed project document. The indicators appear to conflate a lot together without a clear methodology for data collection, i.e. how will increased access to food and improved nutrition be measured? Need to be careful not to assume increased food production will automatically lead to increased food security at the household level as it's not just an issue of availability but access and cultural norms. What will be sold and consumed at home? This question is posed because it's apparent that the Government is pushing for increased agricultural production for both export and national food security. The major focus of the project is establishing inclusive value chains; increased value addition for key crops; increasing local production; reducing post-harvest losses; reducing food imports. There's some inconsistency with which food crops will be focused on, it says in the main text there will be 8 commodity value chains but lists 10 (p. 23). Aims to monitor and analyse food and nutrition security at federal, state, local/landscape, and regional levels.</p>	

3.8.8 Recap from ‘Minutes GEF-IAP-FS Operational Launch Workshop_ 5-7 Jul 2017_ version 31 Aug’

What are you already doing related to tracking impact (what indicators and approaches for GEBs, resilience and food security)?

- Setting up project implementation unit
- Develop workplan and budget
- Collect baseline data

What will you be doing on this over the next six months?

- GEBs
- Reducing land degradation and combating impact of climate change
- GHG avoided
- Resilience
- Collect and analyse data to understand vulnerability of agro-ecosystems
- Water harvesting for farmers
- Early warning
- Food Security
- Food system at the household level
- Need to understand the causes of nutrition insecurity especially in farming HH

Is there support that would be useful in doing this over the next six months?

- Technical assistance on methodology for doing resilience and food security
- Support on how to develop and design monitoring framework (target and indicators for resilience and food security)

3.9 Senegal

Project title: Food-IAP: Agricultural Value Chains Resilience Support Project (PARFA)

Project summary: Increasing sustainability and resilience of agriculture and value chains for an enhanced food security in Senegal.

Project document used for overview: 11-23-16_CEO_Endorsement_Request_Document_clean

3.9.1 Multi-stakeholder engagement and governance

1A Is there evidence of an initial stakeholder analysis having been conducted?

1B What was the extent and quality of the stakeholder engagement in the project design?

The project builds on and strengthens work conducted under the PAFA-E project (primarily focused on increased agricultural production and value chains). In terms of resilience the project seeks, for example, to restore 800 ha of 'exondated' (meaning not clear) lands. The project documents make no mention of initial interactions with local stakeholders in these areas in the proposal development i.e. It is unclear whether a full range of stakeholders were involved with the initial project design. The project does state that it will 'use participatory methods to engage the stakeholders in project design'. The problem statements seemed to draw largely on existing documentation rather than interactions with local 'beneficiaries'. The project identifies the key policy actors but not their relative importance in relation to the project goals.

There is an engagement plan in that the project seeks to 'reach out' to around 52,500 people (5,250 households), of which about 40% are women and youth amongst vulnerable communities in 'eco-geographical zones of the selected streams' and involved in a broad range of activities (millet, sorghum, maize, fonio, hibiscus, sesame, cowpeas, and family poultry, fishing continental, horticulture, beekeeping and forestry).

3.9.2 System description

2A Is the system well-understood (Including biophysical and socio-economic aspects and their linkages)?

- Is knowledge of the system based on published scientific literature, and/or local knowledge?
- Has relevant past work been identified?
- Who is the focus of the project?
- How well does the project address gender issues?

2B Have the key determinants of system structure and function been describe? Have key drivers and shocks been described

2C Have cross-scale interactions been assessed (including connections and feedbacks between the focal scale and the scales above and within the focal scale)?

2D Have the sub- system(s) been viewed as complex adaptive social-ecological systems?

The general situation in Senegal is described. There is less information on the specific challenges faced in the targeted sub-systems. The project acknowledge gender in relation to targets for implementation but there is no information presented on specific challenges faced by female farmers or female-headed households. The project documents suggest that interventions will affect stakeholders equally providing they have access to information and resources or are trained in appropriate techniques. The project draws on initial work conducted on value chains (primarily the PAFA-E project – which in turns builds on a number of precursor projects). This Senegalese information appears to be primarily derived from the Rapport National sur le Développement Humain au Sénégal (2009).

3.9.3 System Assessment

3A Did the project design identify:

- Key values and variables?
- Likely shocks and stressors?
- Feedback loops and thresholds?
- Cross scale interactions considered as crucial for the project success?

3B Are there any activities and strategies in the design of document to improve diversity, redundancy and connectivity to improve general resilience of the systems of interest in a way that contributes to food security?

3C Are there activities and strategies in the design document to improve specific resilience of the system of interest to specific expected and possible shocks or stresses (e.g. Climate change)

The project did provide national scale data on the broad range of shocks and stressors that are adversely affecting food security. Some relate to the general resilience at national scales (i.e. loss of agro-biodiversity). The system descriptions also talk about the need and challenges of achieving sustainable intensification. Senegalese agriculture is constrained primarily by land degradation linked to population growth that increases pressure on the natural resources; stagnating yields related to land degradation and weak technological innovations; and difficult access to credit, quality inputs and farm equipment. Degradation, in particular, is driven by ‘inappropriate agricultural practices’, overexploitation of forests, ‘strong human pressure’, climate variability and climate change. A highlighted effect of climate change is increased salinization (especially in the groundnut basin), flooding of low-lying coastal areas (mangroves) and of the groundwater. This will result in an acceleration of the *tanne* (salt flat) formation process, thus reducing the availability of arable land.

The project did not describe or detail the precariousness of food security in the target regions (i.e. at a sub system level). There was no attempt to articulate thresholds.

The project are activities that will improve the general resistance and the specific resilience associated with climate threats but these are conflated with intensification activities. The project identifies the primary beneficiaries as ‘small and medium farmers who practice competitive and sustainable agriculture’ – which is a little concerning and doesn’t necessarily match up with proposed activities.

3.9.4 Theory of change and broad pathways

4A What is the goal of the project? How well does the stated goal link to resilient and sustainable food security?

4B Is a ‘Theory of Change’ described in the project proposal? If not is there enough information provided to develop one?

4C What are the type and magnitude of change identified to achieve the goal?

4D Are impact pathways described? How robust are the causal mechanism and assumptions underpinning the impact pathways?

Project Goals: Through the IAP program, the PARFA will support Senegal in integrating priorities to safeguard and maintain ecosystem services into investments in improving smallholder agriculture and food value chains.

Key Components: To deliver global environmental benefits at scale, critical points in the causal chain of environmental degradation where GEF support can achieve maximum impact have been identified: (i) convening of multi-stakeholder alliances that bring together stakeholders from the public and private; sectors, donors, scientific community and civil society; (ii) demonstrating innovative approaches in integrated natural resources management and promote their scaling-up; and (iii) strengthening institutional capacity in monitoring and assessment of global

environmental benefits, food security and resilience to improve investment decision-making processes. Cross-cutting aspects related to value chains, capacity building and knowledge management will be further strengthened through direct support from the regional “Hub” project. The project goals are closely linked to activity with the PAFA-E project (which is ongoing). The project is utilising the RATA framework (the immediate precursor to RAPTA) and uses terminology suggesting transformation.

There is no theory of change provided (and very limited information on theory of place associated with the 5000+ households targeted by the project). Ideally, the RAPTA framework suggests that the theories of change associated with project design should map the range of potential adaptation and transformation pathways. These are not mapped here. Related to this there is a need to articulate clearer and more explicit impact pathways – particularly given the diversity of farming practices associated with the target beneficiaries and the diversity (and complex interactions) associated with a very broad range of ongoing shocks and stressors present. There are questions about how integrating and strengthening environmental dimensions in PARFA will interact. Do systems need to be resilient before they intensify, especially given that land degradation is a major driver? For example Activity 2.1.1 seeks to create pastoral ponds in the silvo-pastoral areas ‘to allow sustainable water resources management to cope with strong climatic hazards and increased productivity of family farms and livestock systems’ – these activities suggest then need for indicator first to identify when the system is resilient and then when there is additional capacity to support growth?

Similarly, there are tensions in Activity 2.2.2. Mangrove rehabilitation and exploitation. The mangroves were also presumably lost for a reason (given that ‘overexploitation of forests’ has been identified as a driver of degradation). It is not clearly articulated what steps would be taken to safeguard the supply of ecosystem services from a newly restored mangrove system? The original area of mangrove lost is also not articulated (so it is unclear how the restoration target relates to resilience needs). No indicators for resilience are suggested directly related to these activities nor how area of mangrove restored will affect food security at scale? There are suggestion that IGAs (?) can be developed around these sites (to enable oyster production, fishing, beekeeping, processing of seashells, wood) but little or no detail is provided on the opportunity and challenges of doing this – nor details on local stakeholder preferences that would inform buy in?

3.9.5 Options and pathways

5A Is the project seeking incremental adaptation or transformational adaptation? Are these mentioned explicitly or implied?

The project is delivering incremental adaptation. It is not clear the extent to which transformation was considered for some or all stakeholders. The project documents suggest that the project will address existing barriers that prevent transformational change and an alternative scenario to agricultural development and increased food production, however, is not clearly articulated which barriers in particular are limiting transformation. The project is likely to be transformative in relation to value chain activity but there are questions as to how the resilience of this transformation will be measured (and potential trade-offs). The activities in Component 2 are less clear in the project documents as the ‘resilient good practices’ are not described other than to say that the project will take advantage of best practice achieved in other locations.

The project documents talks about scaling out activities – but these are not clearly articulated. There remains the question of scaling out of what to whom? There are opportunities for clearer indicators here. Current environmental targets (and the inferred indicators) relate primarily to

areas rather than people – how many people will be affected by these changes and will all groups benefit equally (will we see disparities between access to benefits for different genders)? There are a number of statements such as ‘The Program will support greening of selected value chains and ensure that they are inclusive and benefit the poor, and women and men equally’ but mechanisms for achieving this are not described nor is the baseline for current resource access. There are coherent plans to develop a baseline of vulnerable groups and there is clear acknowledgement of the steps to integrate woman and other vulnerable groups across the work packages. There is little or no information on whether there has been achieved in other projects. Indicators are suggested to monitor engagement of woman with the project. It may be sensible to develop additional indicators that capture changes in the resilience of vulnerable groups as a result of engagement (the only one mentioned is that men and woman achieve parity in incomes – which does not, on its own, imply resilience). Access to learning is also likely to be important for developing resilience and this could be integrated into the monitoring.

3.9.6 Learning and adaptive project management

6A Information on resilience indicators

- What tools, if any, are being proposed for measuring changes associated with resilience of food security?
- What scales are the tools operating at?
- Do the scales link to the scales suggested for assessment and reporting?

6B Have indicators for resilience been specified?

- Is there a resilience baseline?

6C How is learning reflected in the design of the project?

- What is the role of learning in guiding implementation as well as monitoring and assessing the project?
- Does the monitoring and evaluation component of the project have inbuilt multi-loop learning?

The project does not identify any specific methods for measuring resilience (nor for measuring adaptation/transformation capacity). There is very little information presented on the precariousness of the targeted subsystems (i.e. proximity to critical thresholds) nor are indicators suggested which would demonstrate increased resilience of the food security for specific actors in the system – i.e. would increases in production provide universal and equitable benefit or will certain actors thrive). No specific resilience measuring tools are mentioned (although RATA is referred to) but this may have changed – the project is also using M & E from the PAFE-E project that are not articulated here.

The document does refer to the pastoral unit (PU) model – but it is unclear as to how this would be used (and whether resilience indicators could be derived from it). The project is considering a range of tracking tools. Therefore, some tools and indicators relevant to the regional objectives are still evolving.

The project proposes a number of workshops with a broad range of stakeholders to enable learning. The monitoring and evaluation in relation to resilience is not clearly articulated at this point although there are some obvious starting points. In general the project should be looking evaluate the resilience of food security for specified socio-ecological systems – and indicators associated with sustained changes in food security are required.

3.9.7 Food security approach

The key aspects related to food security and nutrition that were evident from the project documents are presented in a tabulated format below (Table 11).

Table 10. Senegal project approach to food security

Criteria	Responses
Is there an established methodology for measuring food security and nutrition present in the project document?	No
What methods are proposed for assessing food security and nutrition in the project document?	No mention of a specific methodology for assessing food security. More focused on environmental assessments.
What indicators are being used to assess project progress towards improved food security and nutrition?	States in the project document: ‘At this stage, the tracking tools, at the IAP-FS regional level, have not been confirmed yet. Therefore, some tools and indicators relevant to the regional objectives, are still evolving.’
<p>1. Is food security viewed as food production and availability problem and the project focus is to improve natural resource conservation and management that is expected to increase food production in a way that generates local and environmental benefits?</p> <p>OR</p> <p>2. Is food security viewed from a systems perspective as an availability, access (physical and economic) and/or nutrition utilisation issue and the project also addresses these issues in a way that takes a pressure off from the natural resources?</p>	<p>The project document states that ‘PARFA’s overall goal is to contribute to improving the economic situation and the ecological environment of rural communities. The development objective of the project is to improve the food security of smallholder farmers as well as their resilience to environmental degradation and climate change.’</p> <p>‘Since PARFA was integrated into the GEF’s regional programme IAP-FS, its coordination will replicate that of the latter and include three components: (i) support to multi-stakeholder platforms; (ii) upscaling of sustainable and resilient good practices; and (iii) monitoring and evaluation of environmental impact and of project outcomes.’</p>
<p>Comments: Indicators include the target rather than just how it'll be measured, e.g. '300 ha of degraded lands recovered' should be 'ha of degraded lands recovered'. The value should then be given in the target column. One of the overall goals is 'to reduce the prevalence of chronic malnutrition in children under 5 by at least 5%' and the development objective is to 'Contribute to improving food security of smallholder farmers as well as their resilience to environmental degradation and climate change', but there are no indicators included in the logframe directly related to food security status under any of the outcomes. How will malnutrition in children or food security of smallholder farmers be measured?</p>	

3.9.8 Notes from ‘Minutes GEF-IAP-FS Operational Launch Workshop_ 5-7 Jul 2017_ version 31 Aug’

What are you already doing related to tracking impact (what indicators and approaches for GEBs, resilience and food security)?

- Identification of indicators

What will you be doing on this over the next six months?

- Launching of Steering committee 25 July 2017
- SC to help identify indicators
- Work with Center of Ecological Studies in Senegal (CSE)
- Baseline of GEF indicators
- Finalize Programme activity for 18 months

Is there support that would be useful in doing this over the next six months?

- Capacity development on data collection and data

3.10 Swaziland

Project title: Food-IAP: Climate-Smart Agriculture for Climate-Resilient Livelihoods (CSARL)

Project summary: Smallholder households (disaggregated by wealth, gender and age) in the project chiefdoms sustainably enhance food and nutrition security and incomes from through diversified climate resilient agricultural production and market-linkages.

Project documents used for overview: 07-05-16_CEO_Endorsement_Request_Final **and** SWZ SMLP_CSARL impl supp mission report May 2017 _0014-598543617-3197_1672

Notes: There is not a great deal of information about the Swaziland project on the GEF website (only one project document is available).

3.10.1 Multi-stakeholder engagement and governance

1A Is there evidence of an initial stakeholder analysis having been conducted?

1B What was the extent and quality of the stakeholder engagement in the project design?

CSARL aims to deliver impact primarily through the formation of Chiefdom Development Plans (CDPs) within the Inkhundla. It is unclear to what extent local stakeholders were involved with the project design (principally for component looking at SLWM interventions) although user groups have been involved in identifying degradation sites. The project will directly engage more than 90,000 people as beneficiaries.

3.10.2 System description

2A Is the system well-understood (Including biophysical and socio-economic aspects and their linkages)?

- Is knowledge of the system based on published scientific literature, and/or local knowledge?
- Has relevant past work been identified?
- Who is the focus of the project?
- How well does the project address gender issues?

2B Have the key determinants of system structure and function been describe? Have key drivers and shocks been described

2C Have cross-scale interactions been assessed (including connections and feedbacks between the focal scale and the scales above and within the focal scale)?

2D Have the sub- system(s) been viewed as complex adaptive social-ecological systems? There is limited detail on the key determinants of system structure and function (these may be detailed in other documents).

A broad overview of the system is provided. A previous project (LUSLM) provided a testing ground for sustainable land and water management, however, question remain about taking these to scale as the project documents infer that outcomes from LUSLM did little to manage soil degradation.

Women form a majority in the Project area, and many households are female-headed, due to male out-migration for income and due to the effects of the AIDS pandemic. Forty per cent of the households are female headed or female managed. The Project's choice to concentrate on food crops and small livestock provides an implicit focus on women, and helps address priority nutrition needs.

Cross scale interactions are not detailed.

3.10.3 System assessment

3A Did the project design identify:

- Key values and variables?
- Likely shocks and stressors?

- Feedback loops and thresholds?
- Cross scale interactions considered as crucial for the project success?

3B Are there any activities and strategies in the design of document to improve diversity, redundancy and connectivity to improve general resilience of the systems of interest in a way that contributes to food security?

3C Are there activities and strategies in the design document to improve specific resilience of the system of interest to specific expected and possible shocks or stresses (e.g. Climate change)

There is only limited information here on key values, shocks and stressors. The information on climate stress is not specific to the study area nor to particular livelihood systems. There is limited information here presented on the livelihood systems the project seeks to interact with (although references are made to appendices where this information may be)

The project seeks to conserve areas of high biodiversity value and significant effort into a) rehabilitation of 4,625 ha of severely degraded rangelands, b) restoration of vegetative cover in degraded catchments and c) protection of plant diversity in rangelands and grasslands through control of alien invasive plant species. These activities will contribute to the general resilience. Impacts on specific resilience, particularly for stressors associated with climate change, is inferred but causal mechanisms are not described.

3.10.4 Theory of change and broad pathways

4A What is the goal of the project? How well does the stated goal link to resilient and sustainable food security?

4B Is a ‘Theory of Change’ described in the project proposal? If not is there enough information provided to develop one?

4C What are the type and magnitude of change identified to achieve the goal?

4D Are impact pathways described? How robust are the causal mechanism and assumptions underpinning the impact pathways?

Project Goals: The CSARL project aims to enhance the food and nutrition security, as well as promote the livelihoods of smallholder farmers through diversified, climate-resilient agricultural production practices and associated market linkages.

Key Components: The project is structured around three principal components, seeking to (i) promote integrated, multi-stakeholder development planning processes in 37 chiefdoms; (ii) scale-up sustainable land and water management practices; and (iii) strengthen capacities at the national and sub-national levels to monitor ecosystem services and resilience, and to carry out associated knowledge sharing and reporting activities. Cross-cutting aspects related to value chains, capacity building and knowledge management will be further strengthened through direct support from the regional “Hub” project.

There is no theory of change presented. The impact pathways relate to the components outlined above. There is little explicit detail on the assumptions behind the impact pathways – although previous project experience and learning have been used to inform the current sustainable land and water management practices. It is difficult to assess whether uptake is likely to be even for different stakeholders (particularly in relation to context)

3.10.5 Options and pathways

5A Is the project seeking incremental adaptation or transformational adaptation? Are these mentioned explicitly or implied?

The project is delivering incremental adaptation. It is not clear the extent to which transformation was considered for some or all stakeholders.

3.10.6 Learning and adaptive project management

6A Information on resilience Indicators

- What tools, if any, are being proposed for measuring changes associated with resilience of food security?
- What scales are the tools operating at?
- Do the scales link to the scales suggested for assessment and reporting?

6B Have indicators for resilience been specified?

- Is there a resilience baseline?

6C How is learning reflected in the design of the project?

- What is the role of learning in guiding implementation as well as monitoring and assessing the project?
- Does the monitoring and evaluation component of the project have inbuilt multi-loop learning?

The project has identified learning as a critical output and is seeking to strengthen capacities at the national and sub-national levels to monitor ecosystem services and resilience, and to carry out associated knowledge sharing and reporting activities. The main body of information for M&A will be generated using selected ‘decision-support’ tools. These include Multi-purpose Poverty Assessment Tool, (MPAT), Land Degradation Surveillance Framework (LDSF), Ex-ante Carbon Assessment Tool (EX-ACT) and the Diversity Assessment Tool for Agro-biodiversity and Resilience (DATAR). These tools are working both at household and landscape scales. A number of indicators have been identified and collectively they will provide some measure of resilience. There are likely to be critical knowledge gaps around the current state of ecosystem function and the proximity to thresholds (all important aspects of resilience thinking and all challenging to measure).

3.10.7 Food security approach

The key aspects related to food security and nutrition that were evident from the project documents are presented in a tabulated format below (Table 12).

Table 11. Swaziland project approach to food security

Criteria	Responses
Is there an established methodology for measuring food security and nutrition present in the project document?	Yes
What methods are proposed for assessing food security and nutrition in the project document?	MPAT, DATAR, LDSF, and then RIMS incorporated later.
What indicators are being used to assess project progress towards improved food security and nutrition?	To be defined
1. Is food security viewed as food production and availability problem and the project focus is to improve natural resource conservation and management that is expected to increase	1. The project document states that ‘[it] is designed to provide a sound ecological base for production through scaling-out of CSA, soil and water conservation measures, rooftop

<p>food production in a way that generates local and environmental benefits? OR 2. Is food security viewed from a systems perspective as an availability, access (physical and economic) and/or nutrition utilisation issue and the project also addresses these issues in a way that takes a pressure off from the natural resources?</p>	<p>rainwater harvesting, homegardening, indigenous poultry and goats, beekeeping and fruit orchards - creating 'climate resilient households' - and at farm level, conservation agriculture, agroforestry and small-scale irrigation. The SLWM activities are expected to build climate resilience into the production system, while contributing to climate change mitigation through sequestration of carbon in soils and vegetation. At a broader scale the Project will help communities address management of rangelands, eroded areas and forests. By doing so, this child project will contribute to safeguarding natural capital to enhance environmental sustainability, achieve food security and improve resilience of the production systems.'</p>
<p>Comments: There was a lack of detail in original document but improved by the IFAD team in a later iteration. "A priority issue is to present the draft monitoring indicators to the partners and to get their feedback and suggestions on the same" Quote from IFAD project review document. Confirmation of indicators was going to happen in May-July 2017 time. In the reviewed document, there was conflation of key performance indicators and targets.</p>	

3.10.8 Recap from 'Minutes GEF-IAP-FS Operational Launch Workshop_ 5-7 Jul 2017_ version 31 Aug'

What are you already doing related to tracking impact (what indicators and approaches for GEBs, resilience and food security)?

- Monitoring program on land degradation (OC, land cover, productivity)
- Some existing capacity but need training (have about 10 people)
- Need socio-economic capacity

What will you be doing on this over the next six months?

- Build capacity of teams
- Engage stakeholders (NGOs, governments, communities)
- Data collection for baseline
- Put together existing data

Is there support that would be useful in doing this over the next six months?

- Strengthening GIS and socio-economic capacity
- Have expert do inventory/needs assessment on capacity, equipment data
- Guidance on available global data freely available

3.11 Tanzania

Project title: Food-IAP: Reversing Land Degradation Trends and Increasing Food Security in Degraded Ecosystems of Semi-Arid Areas of Central Tanzania

Project summary: To reverse land degradation trends in central Tanzania and Pemba (Zanzibar) through sustainable land and water management and ecosystem-based adaptation

Project document used for overview: 05-15-

17_CEO_Endorsement_Request_Document_LDFS__2

3.11.1 Multi-stakeholder engagement and governance

1A Is there evidence of an initial stakeholder analysis having been conducted?

1B What was the extent and quality of the stakeholder engagement in the project design?

There is evidence of detailed stakeholder analysis and the projects builds on a number of existing initiatives. The project has a detailed stakeholder analysis.

3.11.2 System description

2A Is the system well-understood (Including biophysical and socio-economic aspects and their linkages)?

- Is knowledge of the system based on published scientific literature, and/or local knowledge?
- Has relevant past work been identified?
- Who is the focus of the project?
- How well does the project address gender issues?

2B Have the key determinants of system structure and function been describe? Have key drivers and shocks been described?

2C Have cross-scale interactions been assessed (including connections and feedbacks between the focal scale and the scales above and within the focal scale)?

2D Have the sub- system(s) been viewed as complex adaptive social-ecological systems?

The project document provides a comprehensive system description including a detailed analysis of the biophysical and socio-economic context. A number of historic and existing projects are listed and feed into the project design. The project beneficiaries are clearly identified - twenty-two villages in five districts, counting almost 13,000 households (69,555 people). The project identifies smallholder agro-pastoral farmers vulnerable to climate change impacts as the primary beneficiaries. This includes three target subgroups: Food insecure subsistence smallholder agro-pastoral farmers, mostly food secure subsistence smallholder agro-pastoral farmers and market oriented agro-pastoral farmers.

The key determinants of system structure are well described

3.11.3 System assessment

3A Did the project design identify:

- Key values and variables?
- Likely shocks and stressors?
- Feedback loops and thresholds?
- Cross scale interactions considered as crucial for the project success?

3B Are there any activities and strategies in the design of document to improve diversity, redundancy and connectivity to improve general resilience of the systems of interest in a way that contributes to food security?

3C Are there activities and strategies in the design document to improve specific resilience of the system of interest to specific expected and possible shocks or stresses (e.g. Climate change)

The project does identify key values and variables and the likely shocks and stressors. There is no explicit assessment of ecosystem or livelihood thresholds and how these vary across scales. The project includes a range of measures that will contribute to the general resilience of the system (indeed the focus is on landscape scale initiatives creating an enabling environment for livelihood transformation). Within this are activities that respond to specific stresses.

3.11.4 Theory of change and broad pathways

4A What is the goal of the project? How well does the stated goal link to resilient and sustainable food security?

4B Is a 'Theory of Change' described in the project proposal? If not is there enough information provided to develop one?

4C What are the type and magnitude of change identified to achieve the goal?

4D Are impact pathways described? How robust are the causal mechanism and assumptions underpinning the impact pathways?

Project Goals: To reverse land degradation trends in central Tanzania and Pemba (Zanzibar) through sustainable land and water management and eco-system based adaptation.

Components: The project area consists of five districts including Kondoa, Mkalama, Nzega, and Magu in mainland Tanzania and Micheweni in Zanzibar (Pemba Island). In each district the project area covers one or two wards with two or more villages (in total 22 villages) sharing the same resources in a landscape. To achieve its objective, the project is structured into three inter-related components. Component 1 will build capacity of customary, village and district institutions in natural resources management and joint village land-use planning. This will support the development of climate change adaptation capacities and mainstreaming of sustainable land and water management and biodiversity conservation practices among selected village communities sharing the same resources. Component 2 will support the sustainability of ecosystem services and food and nutrition security in five focus areas: (i) conservation agriculture and other climate- smart agricultural practices; (ii) rain water harvesting and micro-catchment management; (iii) sustainable rangeland management; (iv) tree nurseries and sustainable woodland management; and (v) income generation activities and linkages to markets for sustainably produced and climate-resilient communities. Component 3 will focus on monitoring and assessing the progress in sustaining ecosystem services.

The project provides a detailed theory of change – although structurally it is difficult to see logic of how the barriers feed into project outputs (e.g. the Gender Gap). Ideally the RAPTA framework suggests that the theories of change associated with project design should map the range of potential adaptation and transformation pathways. These are not mapped here and nor are the assumptions underpinning the causal links although they can be inferred in the text.

3.11.5 Options and pathways

5A Is the project seeking incremental adaptation or transformational adaptation? Are these mentioned explicitly or implied?

The project is focussed on general resilience – and is seeking incremental adaptation at that scale. The aim is to support small holder farming systems to create an environment where transformation is possible if desired. The degree to which food insecure subsistence smallholder agro-pastoral farmers may want to transform is not assessed here.

3.11.6 Learning and adaptive project management

6A Information on resilience Indicators

- What tools, if any, are being proposed for measuring changes associated with resilience of food security?
 - What scales are the tools operating at?
 - Do the scales link to the scales suggested for assessment and reporting?
- 6B** Have indicators for resilience been specified?
- Is there a resilience baseline?
- 6C** How is learning reflected in the design of the project?
- What is the role of learning in guiding implementation as well as monitoring and assessing the project?
 - Does the monitoring and evaluation component of the project have inbuilt multi-loop learning?

The project has a strong focus on learning. Component 1 will build capacity of customary, village and district institutions in natural resources management and joint village land-use planning. This will support the development of climate change adaptation capacities and mainstreaming of sustainable land and water management and biodiversity conservation practices among selected village communities sharing the same resources

The project proposes a set of coherent indicators tracked using a variety of tools. This includes the IFAD Results and Impacts Monitoring System (RIMS) household survey tools, the Land Degradation Surveillance Framework (LDSF), and the Ex-Ante Carbon Balance tool (EX-ACT). The DFID KPI4 Methodology will be used to assess the number of people whose resilience has been improved as a result of project support. The Multi-dimensional Poverty Assessment Tool (MPAT) will be used to capture climate adaptation capacities and food security at household level. These tools are working at a range of scales from intra-household to landscape and the scales link to the scales suggested for reporting.

Key indicators include household resilience to climate variability (specifically decrease in month with food shortage and child malnutrition); reduction in the land degradation prevalence; increase in yield per hectare; number of farmers adopting conservation farming and SLM practices at the landscape level; hectares reforested or with recovered vegetation cover (all monitored and assessed through the LDSF) as well as hectares covered with improved pasture and management practices integrating biodiversity, and water availability for primary livestock and horticulture needs and carbon sequestered and greenhouse gas emissions avoided.

3.11.7 Food security approach

The key aspects related to food security and nutrition that were evident from the project documents are presented in a tabulated format below (Table 13).

Table 12. Tanzania project approach to food security

Criteria	Responses
Is there an established methodology for measuring food security and nutrition present in the project document?	Yes
What methods are proposed for assessing food security and nutrition in the project document?	GEF tracking tool for IAP-FS programme, LDSF, EX-ACT, MPAT includes climate adaptation and food security questions. Household resilience to climate variability and change will be monitored through a Resilience Scorecard tailored to the project's

	outputs; this will supported by the application of MPAT. The EX-ACT tool will be used for monitoring carbon benefits of the project. The EX-ACT tool can be informed by the data generated by the LDSF monitoring exercise.
What indicators are being used to assess project progress towards improved food security and nutrition?	"Indicators used should monitor the progress in increased ecosystem services food security and income disaggregated by different resources user groups (the three project sub-target groups, pastoralists and hunter-gatherers where applicable)." pg 10
1. Is food security viewed as food production and availability problem and the project focus is to improve natural resource conservation and management that is expected to increase food production in a way that generates local and environmental benefits? OR 2. Is food security viewed from a systems perspective as an availability, access (physical and economic) and/or nutrition utilisation issue and the project also addresses these issues in a way that takes a pressure off from the natural resources?	1. The project document states '[it] will maintain globally significant biodiversity in semi-arid areas of Tanzania through improving sustainable land management in production systems (agriculture, pastureland, rangelands, and forests) that buffer the landscape and are under increased pressure from inadequate landscape and resources management. These improved practices introduced will lead to, not only increased productivity and biodiversity, but also reduced land degradation and carbon emissions.'
Comments: This is a well-developed proposal with project beneficiaries clearly stated. Logframe not available to review so it's not clear what indicators are going to be used for measuring progress against targets. It's shown in the meeting notes below that the project team were also interested using Vital Signs.	

3.11.8 Recap from 'Minutes GEF-IAP-FS Operational Launch Workshop_ 5-7 Jul 2017_ version 31 Aug'

What are you already doing related to tracking impact (what indicators and approaches for GEBs, resilience and food security)?

- Preparing workplan
- Revisit indicators

What will you be doing on this over the next six months?

- Identify support needs
- Engage

Is there support that would be useful in doing this over the next six months?

- Data analysis: socio-economic and biophysical (Vital Signs and regional baselines)

3.12 Uganda

Project title: Food-IAP: Fostering sustainability and resilience for food security in Karamoja sub-region

Project summary: To contribute to enhancing long-term environmental sustainability and resilience of food production systems in the Karamoja Sub-Region

Project document used for overview: 02-03-17_Project_Document_PAD_Revised_0.pdf

3.12.1 Multi-stakeholder engagement and governance

1A Is there evidence of an initial stakeholder analysis having been conducted?

1B What was the extent and quality of the stakeholder engagement in the project design?

Current livelihood strategies were assessed at the project outset (using SHARP).

The document provides a clearly articulated and a detailed inventory of key stakeholders provided (see Table starting Pg. 76). Approaches for capacity building are provided (summarised in Table 13 Pg. 109).

3.12.2 System description

2A Is the system well-understood (Including biophysical and socio-economic aspects and their linkages)?

- Is knowledge of the system based on published scientific literature, and/or local knowledge?
- Has relevant past work been identified?
- Who is the focus of the project?
- How well does the project address gender issues?

2B Have the key determinants of system structure and function been describe? Have key drivers and shocks been described

2C Have cross-scale interactions been assessed (including connections and feedbacks between the focal scale and the scales above and within the focal scale)?

2D Have the sub- system(s) been viewed as complex adaptive social-ecological systems?

The socio-ecological system is characterised in detail. The sub system boundaries are clearly defined. The project provides a comprehensive characterisation of the study area – but there are acknowledged data gaps.

3.12.3 System assessment

3A Did the project design identify:

- Key values and variables?
- Likely shocks and stressors?
- Feedback loops and thresholds?
- Cross scale interactions considered as crucial for the project success?

3B Are there any activities and strategies in the design of document to improve diversity, redundancy and connectivity to improve general resilience of the systems of interest in a way that contributes to food security?

3C Are there activities and strategies in the design document to improve specific resilience of the system of interest to specific expected and possible shocks or stresses (e.g. Climate change)

The project identifies two main threats to the Karamoja sub-region system: Land degradation and Climate change. These are broken down into specific threats and resilience strategies respond directly to these (the threats are summarised in Table 4 – Page 34 and Table 6 – Page 40). A

summary is provided of the general resilience of the Karamoja sub-region. The system is precarious at present with drought events causing considerable instability. The initial assessment suggests the current system is ineffective at dealing with system shocks (although key indicators of this are not articulated).

3.12.4 Theory of change and broad pathways

- 4A** What is the goal of the project? How well does the stated goal link to resilient and sustainable food security?
- 4B** Is a ‘Theory of Change’ described in the project proposal? If not is there enough information provided to develop one?
- 4C** What are the type and magnitude of change identified to achieve the goal?
- 4D** Are impact pathways described? How robust are the causal mechanism and assumptions underpinning the impact pathways?

Project Goals: The overall goal of the project is to improve food security by addressing the environmental drivers of food insecurity and their root causes in Karamoja sub-region. The specific objective of the project is to contribute to enhancing long-term environmental sustainability and resilience of food production systems in the Karamoja Sub-Region.

Key Components: The project has three components: Component 1: Establishment of stronger district and landscape-based planning frameworks that support community-based land-use planning. Component 2: Scaling-up of improved production technologies with a view to increase yields, diversify food production and increase incomes, while conserving natural resources. The project will increase production through climate resilient production techniques, and also support efforts to diversify production to increase income and reduce vulnerability to food insecurity. A strong emphasis will be placed on rehabilitating ecosystem services through restoration, agro-forestry, natural regeneration and sound pasture management. The project will also target specific activities towards women and youth, who are among the most vulnerable, to ensure equality of participation and remove underlying vulnerabilities and Component 3: Monitoring and assessment as a tool to inform scaling-up and policy change. Cross-cutting aspects related to value chains, capacity building and knowledge management will be further strengthened through direct support from the regional “Hub” project.

A clear theory of change is provided. Ideally the RAPTA framework suggests that the theories of change associated with project design should map the range of potential adaptation and transformation pathways. These are not mapped here. Detailed information provided on current state of governance, analysis of policy stakeholders and key legislation relevant to meeting project goals. Risks associated with ineffective policy engagement articulated. Detailed analysis is provided of potential pathways to improved governance and reduced risks from poor policy decisions (one of the major goals of the project).

3.12.5 Options and pathways

- 5A** Is the project seeking incremental adaptation or transformational adaptation? Are these mentioned explicitly or implied?

The resilience aims of the project are clearly articulated. The project seeks incremental adaptation (detailed on Pg. 75). The resilience aims of the project are clearly articulated in response to the specified threats these (the threats are summarised in Table 4 – Page 34 and Table 6 – Page 40). Alternate regimes are articulated. The extent to which alternate states are likely to be resilient is discussed in terms of land use change but less so in terms of livelihoods. How will changes affect different stakeholder groups?

There is limited discussion of implications of livelihood diversification at scale – but this is something that may need to be captured given that transformation is seen as critical to achieving food security objectives.

There is a need for more detail about interactions between interventions. For example, the project mentions specifically moving farmers towards sustainable charcoal production but this is sketched out rather than described in detail (This may be due to lack of data). This is part of the project aims to develop resilient value chains for increased income, but the impact of this will have implications for ecosystem service delivery at scale. It is not clear how this will be assessed?

3.12.6 Learning and adaptive project management

6A Information on resilience Indicators

- What tools, if any, are being proposed for measuring changes associated with resilience of food security?
- What scales are the tools operating at?
- Do the scales link to the scales suggested for assessment and reporting?

6B Have indicators for resilience been specified?

- Is there a resilience baseline?

6C How is learning reflected in the design of the project?

- What is the role of learning in guiding implementation as well as monitoring and assessing the project?
- Does the monitoring and evaluation component of the project have inbuilt multi-loop learning?

A major aim of the project is to deliver knowledge platforms that enable bridging of knowledge systems between policy, science and farmers. Two components address learning a) Establishment of stronger district and landscape-based planning frameworks that support community-based land-use planning and b) Component 3 the project seeks to use monitoring and assessment as a tool to inform scaling-up and policy change.

Indicators are provided for monitoring change in resilience (detailed in the Results Matrix provided in project document Annex 1, Pg. 140). The project is primarily using the Self-evaluation Holistic Assessment of climate Resilience of farmers and Pastoralists (SHARP). This was used for a baseline assessment of household resilience and proposed for use of M & E throughout the project. Other tools include; the Resilience Atlas (developed by Vital Signs Uganda); the Resilience Index Measurement and Analysis (RIMA) and the GEF MSP which will enable the use of global data sources to assess and monitor land degradation at multiple scales which is developing a multi-scale indicator of land degradation. It is a little unclear how these tools integrate with each other and particularly in relation to monitoring resilience at scales other than the household. SHARP does include scaling considerations but these are still assessed from the householders' perspective.

Interactions across scales are described (particularly in relation to catchment management). It is unclear how increases in the general resilience of catchments feeds into food security for specific beneficiaries and whether this is likely to result in even outcomes.

Transformation of livelihood systems into 'more resilient states' (one example here was 'bee keeping') also carry risks. Wide scale adoption of these technologies could limit return from investments through market saturation (and only benefit certain stakeholders) Diversification carries risks – especially at scale. There may be a need to consider how the resilience of transformed livelihood systems will be assessed and the risks of 'dropping back'.

3.12.7 Food security approach

The key aspects related to food security and nutrition that were evident from the project documents are presented in a tabulated format below (Table 14).

Table 13. Uganda project approach to food security

Criteria	Responses
Is there an established methodology for measuring food security and nutrition present in the project document?	Yes
What methods are proposed for assessing food security and nutrition in the project document?	Resilience and food security measured by SHARP, a modified SHARP tool called HH-BAT - Food security and livelihood survey including: Food Insecurity Experience Scale (FIES); Household Dietary Diversity Score (HDDS). These involve a 12-month recall of household food insecurity experience to indicate seasonality and severity of food insecure periods and a 24hr recall of household consumption of different food groups to indicate dietary diversity/access to different foods. Vital Signs, RAPTA and RIMA are also proposed as tools to use to assess resilience.
What indicators are being used to assess project progress towards improved food security and nutrition?	<p>Goal level indicator: Percentage of households suffering from hunger in Karamoja; Development objective level indicator: Increase in intra and inter-seasonal livestock and crop productivity arising from SLM and INRM practices.</p> <p>Outcome 2 indicators: Number of hectares of cropland/rangeland/forest under integrated natural resources management and SLM per district; Increase in crop yields by farmer records; Increase in water availability through biophysical monitoring; Number of people participating in alternative livelihoods schemes addressing SLM/INRM in the broader Karamoja landscape, 60% of which are women; Increase in household incomes measured by household surveys.</p> <p>Outcome 3 indicators: Level of resilience as measured by the SHARP, HH-BAT, Vital Signs and RAPTA tools: Increased levels of agro-ecological and social resilience by end</p>

	of project; Reduced perception of risk and vulnerability by end of project; Reduced levels of food insecurity.
<p>1. Is food security viewed as food production and availability problem and the project focus is to improve natural resource conservation and management that is expected to increase food production in a way that generates local and environmental benefits? OR</p> <p>2. Is food security viewed from a systems perspective as an availability, access (physical and economic) and/or nutrition utilisation issue and the project also addresses these issues in a way that takes a pressure off from the natural resources?</p>	<p>2. The project document states that ‘[it aims] to achieve better access to food and nutrition for households in the Karamoja sub-region. As such, the project will seek to increase food production and income from non-food agricultural production in order to reduce food insecurity during all seasons. The project will also develop mechanisms to ensure that vulnerable groups are included in project activities and, as a result, have better access to food.’</p>
<p>Comments: This is well developed project proposal with extensive detail on stakeholder groups and the socio-ecological context. There’s a lot of information that could be translated better into the logframe matrix. The indicators need to be developed further and link clearly with outcomes and the activities that will take place. There doesn’t appear to be data collected on number of months/which months household food insecurity is experienced. The FIES doesn’t capture it (the questions are focused on how often people experience different levels of food insecurity experience in a 12-month period) but maybe a question about this will be included in the larger survey of which it’s part? The number of (consecutive) months in a 12 month period people face food insecurity would be an indicator of how extreme the situation is and whether the project is successfully reducing it. There’s likely to be a consistent ‘hunger’ period across the population that needs addressing. Baseline information may already be available (there’s mention of certain periods when there’s general food scarcity) that future data could be measured against.</p>	

3.12.8 Recap from ‘Minutes GEF-IAP-FS Operational Launch Workshop_ 5-7 Jul 2017_ version 31 Aug’

What are you already doing related to tracking impact (what indicators and approaches for GEBs, resilience and food security)?

- Soil mapping
- Watershed assessment – small scale
- HH socio- economic survey – SHARP
- National level
- Forest reference level
- Crop genetic diverse assessment (but not in sites)
- Vulnerability mapping
- Biodiversity
- Land degradation

What will you be doing on this over the next six months?

- Resilience to drought
- Identify landscape
- Arrival of rain
- Amount of rain
- Complete socio-economic data
- Review SHARP analysis
- Nutritional diversity in diet
- Link to LDN targeting setting to align data collection

4. General findings

Below the key initial findings from the analysis are presented. These are meant primarily as discussion points rather than project proscriptptions.

4.1 Adaptation, transformation and visualising alternate pathways

Based on the project documents alone it seems reasonable to suggest that in some cases, when considering both the general resilience and both current and future stresses, that there was a high probability that some form of transformation (i.e. a significant shift) would be required. This may require more explicit consideration of the degree of precariousness of the system (i.e. proximity to thresholds) both in terms of household level resilience and the general resilience within the system. Consideration of the need for significant transformation (either immediately or in the medium, to long term) was not very evident within the project logic or Theories of Change despite evidence that unmanaged transformation was occurring – restoration was much more evident (i.e. action taken when a system has moved past the point of supplying ecosystem services and needs active management to restore those functions)

The RAPTA framework suggests that the theories of change associated with project design should map the range of potential adaptation and transformation pathways (see Figure 2 as an example).

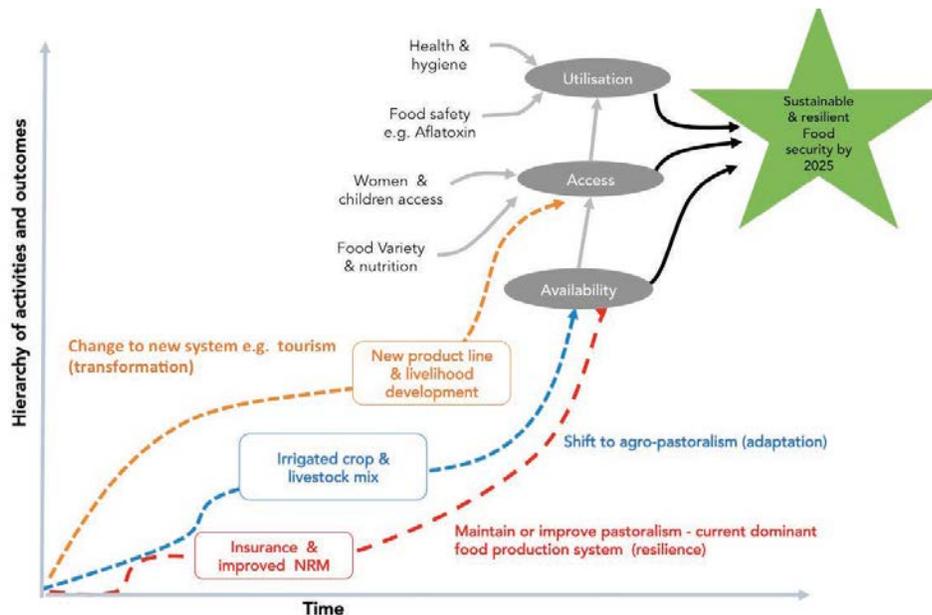


Figure 2: An example of adaptation and transformation pathways which could be implemented to meet the food security goal (taken from O’Connell et al., 2016)

The term ‘transformation’ is used in many of the project documents but most projects actually appeared to be suggesting adaptation measures. Is there a need for more information on both the desirability and capacity to transform (as defined in RAPTA) the system at all relevant scales? In almost all cases, alternate pathways were not explicitly considered in the project documents (perhaps not surprisingly given the nature of these documents and their intended purpose). It was also clear for projects dealing with high numbers of beneficiaries if there is likely to be more

variability both in desirability and capacity to transform. Is this something that should be assessed regularly and the implications fed back into the project logic?

The mechanism to explore this may be to develop both livelihood system and landscape levels TOCs to look at whether transformation emerges more clearly?

Finding 1

Build alternate pathways into TOCs where appropriate and consider developing multiple TOCs at finer scales to explore what indicators emerge

4.2 Impact pathways

Theories of change (ToC) are a central component of the RAPTA framework. The ToC provides a monitoring, evaluation and learning system (Thornton et. al., 2017). In this context, the ToC can be used to identify the factors that enable or inhibit the behavioral changes towards more resilient food security systems. Within the RAPTA framework, the Theory of Change identifies the impact pathways by which the clearly stated goal of the projects are met. This would list the immediate outcomes associated with interventions, followed by one or more intermediate outcomes, which then come together with other impact pathways to deliver the final outcomes. In detailing the impact pathways the RAPTA frameworks suggests identifying explicitly the underlying assumptions and evidence that underpin the impact pathway. It also explicitly identifies the key stakeholders that will enable, support or link to that impact pathway.

Theory of Change were present in many of the project documents (but not all). The content of Theories of Change were also variable quality across the project documents

- Where present they often tended to be ‘meta’ ToCs (i.e. very big picture and difficult to track back to specific stakeholder groups). As such it was difficult to see how malleable the ToCs are in different project contexts (i.e. how they relate to specific beneficiaries or specific landscapes)
- Even in cases where rudimentary theories of change were developed the evidence base underpinning some impact pathways were implied rather than presented.
- It was often unclear the extent to which proposed impact pathways had existing ‘track records’ within the countries – for example many projects talked about scaling out SLM technologies without detailing the evidence showing current success.
- ToCs valuable to crosscheck that monitoring tools capture appropriate indicators as we do this/ They also help to filter out intervention effects from ‘background noise’.

Finding 2

Possible need for more iterative development of TOCs. Within the RAPTA framework these should be reviewed regularly. It may also be helpful to have TOCs at a range of scales (and integrate alternate pathways where appropriate)

4.3 Assessing capacity for transformation and adaptation

RAPTA provides a basic framework for considering both the magnitude of change being considered (specifically whether the project looking at incremental or transformational adaptation) and the nature of that change and suggests a need for an explicit assessment (with all stakeholders) of both the likelihood and desirability of those changes. This requires consideration

of both the current system state and the magnitude of the drivers of change (both positive and negative).

The RAPTA framework suggests there is a need to consider explicitly the degree of change that will be required to meet project objectives. When considering project design this has at two important components: The first is that the capacity to change needs to be explicitly considered - many of the systems incorporated into the IAP projects are already displaying some degree of resilience to positive change (i.e. the systems had low or very low general resilience - highlighted in the risk statements). Attempts to develop these systems do need to consider explicitly how unhelpful forms of resilience may limit project progress along the specified impact pathway. T

here were also no clear indicators describing capacity to change.. This may be particularly important where adaptation and transformation have potentially critical time lags associated with them in systems suffering from acute stressors or subject to shocks that are more frequent.

Finding 3

Develop indicators that assess transformation capacity. This could be captured through studies on stakeholder aspirations

4.4 Consideration of cross scale interactions

Many impact pathways were operating at different scales. It was not clear how enhanced resilience (through adaptation or transformation) at one scale feeds into other impact pathways operating at other scales. Restoring ecosystem functions to watersheds, for example, will involve taking coordinated action at scale. The livelihood systems affected by these changes will normally only become more resilient only when there is enough accumulated change in the system. Partial adaption will not necessarily infer resilience. It is often not explicit whether there is an order to activity, (i.e. in situ livelihood systems need to be stabilised and enhanced before taking actions to restore watershed function at scale).

Most of the country programmes suggest activity that provide both indirect and direct impacts on the resilience of people's food security where:

- **Indirect benefits** are primarily derived from changes in regulating function (changes in soil health, or water regulation - often associated with landscape approaches). Contribute to general resilience and
- **Direct benefits** are those where food security is derived from interventions that directly adjust the **Availability, Access, Utilization and Stability** components of food security (see the FAO food security dimensions)

Do we have mechanisms/indicators that can explicitly relate indirect benefits to changes in people's food security?

4.5 Assessing learning

For many of the IAP projects there did not appear to be any indicators associated with learning. There were tools feeding into the scientific data base but for these to be valuable outputs they then need to feed effectively into decision making (often in a different form) – therefore the

effectiveness (i.e. the utility, quality and reach) ‘knowledge platforms’ are important to evaluate in terms of their contribution to the resilience of food security. This is particularly important for areas such as gender where we are strong on diagnosis but less so on implementation (i.e. delivering change).

This may highlight a tension between standardised indicators (derived from the same tools working in different contexts) and context specific indicators (that meet the needs of local decision makers).

Related to this (and the way learning is integrated into RAPTA) is the need for:

- Clear statement of assumptions and knowledge gaps in project logic – all explicitly fed into the project learning
- Indicators associated with engagement with learning from all actors - e.g. to what degree have local knowledge systems been integrated into project formulation and M&E activity?

All projects have identified mechanisms to enable stakeholder learning, many through new knowledge platforms. There are clearly, by design, mechanisms and resources to enable project learning both within the target countries and across the IAP partner projects. There are clear resilience implications associated with these platforms but it is not clear how the contributions of knowledge platforms to the resilience of food security systems will be assessed? The underlying assumption is that there is a need to enhance capacities at different levels—individual, organizational and system.

Is there a need to formally identify potential indicators that could be used to assess, among other things, the levels of engagement and the reach of the platforms? This would require formal assessments of who needed access to learning and metrics associated with measuring whether learning reaches those in need in a timely fashion and in formats that is useful? It also needs metrics associated with engagement. Do all stakeholders commit to the knowledge platforms? How is this learning assessed? Is there a QA process? Are knowledge platforms trusted by all stakeholders? To what extent will the platforms be used for other forms of knowledge transfer?). No project specified any tools for evaluating project learning and how that filters into enhanced resilience of the various systems in need of enhanced food security.

Finding 5

Development of Indicators associated with the effectiveness of the knowledge platforms

4.5 Links between restoration and adaptation

There were a number of projects seeking to restore degraded landscapes primarily to address degradation process that were making food systems vulnerable (through loss of substrate, sedimentation of watercourses, etc.). Whilst many projects identified the drivers of degradation in these systems (such as requirements for fuelwood) there was little explicit consideration of the energy required to enable restoration and whether restored systems needed to be transformed to secure their long-term viability i.e. to what degree is transformation required to stop future degradation?

It would also be helpful to have explicit indicators to assess the mode and viability of restoration – especially in terms of energy required to get ecosystem functions restored to the point that ecosystem services emerge. Restoration is a form of expensive transformation (i.e. there is usually a significant cost in time and resources) and restoration to a baseline state has high risks of being degraded again.

4.7 Standardising some resilience M&E tools

At present, there is some tools that are common to a number of projects (for example the MPAT tool). There are modifications to this tool that may be appropriate for use more broadly across the study areas (such as the Women's Empowerment in Agriculture Index (WEAI) being piloted in Kenya). Given the need for cross project learning is there scope to enhance this learning by integrating some common/standardised indicators?

4.8 Other points to consider:

4.8.1 Change instability

Both adaptation and transformation do not automatically imply improved resilience (and given that the process of change is unlikely to be instant and may increase instability in the short term there is potential for people to 'drop back'). Should we consider developing indicators that explicit consider the stability of systems in flux.? This is an emergent property of the system as it changes

Change can lead to instability. Consider how monitoring of beneficiaries might need to change at this point to capture/limit potential beneficiaries dropping back or out?

4.8.2 Risks of partial success

Many projects are developing value chains concurrently with SLM activities. Building resilience will usually require some degree of redundancy to be integrated into the system. Having sustainable land management systems seems to be a key precursor to effective market integration? Connecting farmers more efficiently to markets through value chain development prior to stabilising them could lead to unintended consequences. It may also offer competitive advantage to early adapters, etc. The implications for this potentiality is not explored here. This may also be important where projects are working closely with other projects

There could be some work looking at how the consequences of partial success (for example where the value chain elements succeed but SLM adoption does not meet in the initial targets). Where does partial success take us and could these potentially further destabilise food security?

4.8.3 Relationships between 'theories of place' and 'theories of change'

There is a sense in many of the project documents that scaling out SLM technologies was straightforward (with the aid of appropriate dissemination/learning environments and exchange activities). At the same time there is only limited information presented on the localised contexts where these technologies/interventions will be deployed (and some projects are operating across very large areas). There is a link between theories of change and theories of place (van Noordwijk, 2017). There are risks associated with potentially significant assumptions about the viability of deploying 'successful' interventions in very different contexts. This is known to be problematic for agroforestry for example (see Coe et al., 2014). Scaling out technologies is likely to require detailed socio-ecological characterisation to ensure a good fit to local livelihood needs. The project documents may not be the appropriate vehicle for providing these data (although detail was provided in the Ethiopian context) – but this is something that could be followed up at the country workshops.

4.8.4 Local knowledge

Understanding theories of place requires local knowledge. It is unclear the extent to which local stakeholders were involved in initial focal site characterisations and, in almost all cases, there is limited information of the specific contexts for interventions (with the exception of Ethiopia which provided a woreda by woreda characterisation). Many projects stated that consultation had occurred but there is not a great deal of detail on the nature and purpose of these consultations (and their scale). Local knowledge is likely to be very important for ground truthing scaling out options and for understanding community dynamics (among other things). It would be helpful to know how local knowledge is being integrated in each of the projects.

4.8.5 Gender

A significant number of projects use what appear to be arbitrary figures (often near the figure of 30% of targeted stakeholders) for identifying gender engagement targets. This is despite often noting a significant unbalance in agricultural workloads in favour of men (for example, in Burundi women are the majority of the agricultural labour force and are involved in post-harvest activities (storage, preservation, processing and marketing). If the aim is to develop more resilient food security systems then to what degree are women the key stakeholders?

Where the percentages have been used, it is not clear how this figure has been calculated nor its justification as a target at focal study scale? There is a fundamental issue relating to the degree that the lack of empowerment for women in agricultural decision-making is a major barrier to achieving resilience in their food security?

4.9 Summary of food security approaches

From the overview of the 12 IAP-FS country project documents, it became apparent that the majority of the IAP-FS projects were designed without a programme-wide clear and consistent methodological framework for assessing food security and nutrition (Table 15). Although the projects are operating in different socio-ecological environments, many of the development objectives are similar in scope. In such cases, it makes sense to ensure consistent methods are used for monitoring and evaluation purposes. In cases where projects are not using relevant indicators to assess food security and nutrition status, we suggest that these are adopted so that they produce comparable data to the other country projects. A set of 'global indicators' suitable across projects and a subset of 'context specific indicators' may be necessary, but there should be a shared goal of producing a robust dataset with comparable and meaningful data across the 12 countries.

In terms of monitoring and assessment, all country projects must report on the Global Environmental Benefits (GEBs) that are relevant to their national priorities, as agreed with IFAD-GEF. Countries are also expected to report on any progress in terms of resilience and food security, but since no standard tool or common methodology was negotiated with the teams at the design stage, there has been greater freedom on the format for this reporting. The regional hub will be addressing this issue, by consolidating approaches for monitoring and assessing food security and resilience, including the identification of some indicators that will be monitored at regional level.

It was stated during a team meeting in November 2017 that food security and nutrition should be considered as an element of a broader approach on resilience, rather than an additional focus of the monitoring and assessment (M&A) component. The most appropriate 'global indicators' to be used across projects seem to be the FAO's traditional indicator of the extent of hunger, Prevalence of Undernourishment (PoU), as well as the complementing Prevalence of Severe Food Insecurity, which is

estimated based on data collected from adult individuals or households using the Food Insecurity Experience Scale (FIES). These are both categorized under the 'Access' dimension of food security indicators according to FAO (2017). When assessing the resilience of food security and nutrition for households and communities, it is also important to consider indicators that feature under the 'Availability', 'Stability' and 'Utilization' dimensions (*see Table 1*).

Lessons can be learned from Burundi and Uganda as these were both highlighted by the programme team as having relatively advanced frameworks to monitor and assess food security and nutrition.

Table 15. Tools and frameworks currently proposed to be used by IAP-FS projects.

Name	Type (tool or framework)	Burkina Faso	Burundi	Ethiopia	Ghana	Kenya	Malawi	Niger	Nigeria	Senegal	Swaziland	Tanzania	Uganda	Use of tool/framework per week
Diversity Assessment Tool for Agrobiodiversity and Resilience (DATAR)	Data collection tool and framework													2
Earth Observation	Data collection and analytical tool													5
EX-Ante Carbon Balance Tool (EX-ACT)	Data collection tool and framework													5
Integrated Food Security Phase Classification (IPC)	Data collection tool and framework													2
Land Degradation Assessment in Drylands Mapping Tool (WOCAT-LADA)	Data collection tool and framework													1
Land Degradation Surveillance Framework (LDSF)	Data collection tool and framework													4
Management Effectiveness Tool (METT)	Data collection tool and framework													1
Multidimensional Poverty Assessment Tool (MPAT)	Data collection tool													5
Resilience, Adaptation Pathways and Transformation Assessment (RAPTA)	Framework													4
RESILIENCE ATLAS	Analytical tool													2
Resilience Index Measurement and Analysis (RIMA) model	Data collection and analytical tool													1
Results and Management Impact System (RIMS)	Data collection and analytical tool													5
Self-evaluation and Holistic Assessment of climate Resilience of farmers and Pastoralists (SHARP); HH-BAT	Data collection and analytical tool													2
Vital Signs monitoring framework	Data collection and analytical tool													3
Women's Empowerment in Agriculture Index (WEAI)	Data collection tool													2

4.14 Recap from ‘Minutes GEF-IAP-FS Operational Launch Workshop_ 5-7 Jul 2017_ version 31 Aug’

- Subcomponents 3.1 and 3.2: Conservation International explained how it intends to develop a framework for multi-scale monitoring and assessment of ecosystem services and socio-economic benefits, as well as to establish quantitative baselines for ecosystem services and gender disaggregated measures of food security at multiple scales. This work will build on existing initiatives in collaboration with several partners, such as Vital Signs and the Earth Observation for Sustainable Development (EO4SD), the latter led by the European Space Agency (ESA).
- Subcomponent 3.3: Bioversity International and UN Environment described plans for developing national capacity to apply appropriate tools and practices for monitoring resilience at multiple scales, especially in terms of crop and livestock agrobiodiversity. This will build on existing initiatives and tools, such as the Platform for Agrobiodiversity Research (PAR) and the Diversity Assessment Tool for Agrobiodiversity and Resilience (DATAR). In particular, it is envisaged the creation of a south-south team, composed of 48 people (two women and two men from each country), with the capacity and knowledge to lead work on assessing and integrating crop and livestock agrobiodiversity into agricultural production.

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Appendix 1

FAO food security assessment tools, current reports, and useful websites as provided by Gianluca Gondolini of FAO (Gianluca.Gondolini@fao.org)

Summary of tools for assessing food security and nutrition

Name and summary of tool	Further details
<p>Integrated Food Security Phase Classification (IPC) The IPC is a set of standardized tools that aims at providing a "common currency" for classifying the severity and magnitude of food insecurity. This evidence-based approach uses international standards, which allow comparability of situations across countries and over time. It is based on consensus-building processes to provide decision makers with a rigorous analysis of food insecurity along with objectives for response in both emergency and development contexts.</p>	<p>http://www.ipcinfo.org/</p>
<p>Prevalence of Undernourishment (PoU) PoU is the FAO measure of food deprivation and is based on a comparison of usual food consumption expressed in terms of dietary energy (Kcal) with certain energy requirement norms. The part of the population with food consumption below the energy requirement norm is considered undernourished ("underfed").</p>	<p>http://www.fao.org/docrep/005/Y4249E/y4249e06.htm</p>
<p>Food Insecurity Experience Scale (FIES) The FIES is a new metric for food access at the household and individual levels. Application of the FIES in the Gallup World Poll in 2014 enabled FAO to calculate comparable estimates of the prevalence of moderate and severe food insecurity for 146 countries covering nearly 90% of the world population.</p>	<p>http://www.fsincop.net/resource-centre/detail/en/c/415747/ http://www.fao.org/3/a-as583e.pdf</p> <p>Main contacts of the Voices of the Hungry team: Chiamaka Nwosu <Chiamaka.Nwosu@fao.org>; Terri Ballard <Terri.Ballard@fao.org>; Aymeric Songy <Aymeric.Songy@fao.org></p>
<p>Resilience Index Measurement and Analysis (RIMA) RIMA is a quantitative approach that enables a rigorous analysis of how households cope with shocks and stressors. Comparisons can be made between different types of households (for example, male-headed versus female-headed or urban versus rural) in a given country or area. Resilience analysis using RIMA provides the necessary evidence to more effectively design, deliver, monitor and evaluate assistance to vulnerable populations, based on what they need most</p>	<p>http://www.fao.org/resilience/background/tools/rima/en/</p>

<p>Dietary Diversity Indicators</p> <p>Quantitative surveys for dietary intake in individuals can be expensive and time consuming to conduct. Dietary diversity tools have been developed and validated as simple proxies for dietary intake. At household level, the proxy “<u>Household Dietary Diversity Score</u>” (HDDS), developed in 2010 is a measure of access to food. At individual level, the “<u>Minimum Dietary diversity-Women (MDD-W)</u>”, developed in 2014 has been validated by secondary analysis as a proxy for assessing diet quality and the adequacy of micronutrient intakes in women of reproductive age.</p>	<p>Nutrition assessment: http://www.fao.org/nutrition/assessment/tools/en/</p> <p>Guidelines for measuring household and individual dietary diversity: http://www.fao.org/documents/card/en/c/5aacbe39-068f-513b-b17d-1d92959654ea/</p> <p>Guidelines for measuring dietary diversity for women: http://www.fao.org/documents/card/en/c/57157ba0-91a7-4087-ab59-d922d7020cc2/</p>
<p>Self-evaluation and Holistic Assessment of climate Resilience of farmers and Pastoralists (SHARP)</p> <p>The SHARP tool addresses the need to better understand and incorporate the situations, concerns and interests of family farmers and pastoralists relating to climate resilience.</p>	<p>http://www.fao.org/in-action/sharp/en/</p>

Food security and nutrition online platforms:

Name of platform	Further details
<p>The Committee on World Food Security (CFS) is the foremost inclusive international and intergovernmental platform for all stakeholders to work together to ensure food security and nutrition for all. The Committee reports to the UN General Assembly through the <u>Economic and Social Council (ECOSOC)</u> and to FAO Conference.</p>	<p>http://www.fao.org/cfs/en/</p>
<p>The Food Security Information Network (FSIN) is a global initiative co-sponsored by FAO, WFP and IFPRI to strengthen food and nutrition security information systems for producing reliable and accurate data to guide analysis and decision-making</p>	<p>http://www.fsincop.net/</p>
<p>Food Security Cluster coordination of food security response</p>	<p>http://foodsecuritycluster.net/</p>

Food security and nutrition major reports:

Title of report	Further details
<p><i>The State of Food and Agriculture</i></p> <p>FAO's major annual flagship publication, aims at bringing to wider audience balanced science-based assessments of important issues in the field of food and agriculture. Each edition of the report contains a comprehensive, yet easily</p>	<p>http://www.fao.org/publications/sofa/en/</p>

accessible, overview of selected topic of major relevance for rural and agriculture development and for global food security.	
<i>The State of Food Security and Nutrition in the World 2017</i> This report monitors progress towards ensuring access to food for all (SDG Target 2.1), and putting an end to all forms of malnutrition (SDG Target 2.2). For the first time, this year's report provides two measures of food insecurity. It marks the start of a new era in monitoring progress towards achieving a world without hunger and malnutrition – an aim set by the 2030 Agenda for Sustainable Development (2030 Agenda).	http://www.fao.org/state-of-food-security-nutrition/en/ http://www.fao.org/3/a-I7787e.pdf

Webpages on the FAO website that contain current approaches and global data on food security and nutrition:

http://www.fao.org/economic/esa/esa-home/en/#.WhL_DE2otOx
http://www.fao.org/nutrition/assessment/en/
http://www.fao.org/in-action/food-security-capacity-building/project-components/nutrition/methods-and-tools-mapping/en/

Appendix 2

Monitoring and assessment tools as detailed in the following project document and suggested to project partners to use: ‘Minutes GEF-IAP-FS Operational Launch Workshop_ 5-7 Jul 2017_ version 31 Aug’

Monitoring and assessment tools summarised in project meeting notes
DATAR - The Diversity Assessment Tool for Agrobiodiversity and Resilience (DATAR) is an evolving multicomponent tool to describe agricultural biodiversity and resilience at landscape level. It provides the information needed to support farming communities in the maintenance and use of traditional crop varieties, livestock breeds and fish populations to improve productivity and ecosystem resilience. The elements of DATAR have been developed and tested by Bioversity and the Platform for Agrobiodiversity Research (PAR). Main contact: Rose Nankya, Bioversity International: r.nankya@cgiar.org
EO4SD - The GEF-IAP-FS is one of the target programs of the EO4SD (Earth Observation for Sustainable Development) “Agriculture and Rural Development Cluster” - an European Space Agency (ESA) initiative which aims at mainstreaming the use of Earth Observation (EO) information products and services at large scale for international development projects. The objective of the EO4SD is to support and complement key aspects of the IAP Regional Hub, including Conservation International and its program Vital Signs, with EO services and capacity for land monitoring and assessment at both IAP country project and regional levels. These services can provide independent and authoritative environmental variables in order to build up a stronger Indicator Framework that can demonstrate how different IAP programs investments are addressing drivers of environmental degradation and agro-ecosystem resilience, delivering food security outcomes and generating global environmental benefits. Main contact: Anna Burzykowska, ESA: Anna.Burzykowska@esa.int
IPC - The Integrated Food Security Phase Classification (IPC) is a set of standardized tools that aims at providing a "common currency" for classifying the severity and magnitude of food insecurity. This evidence-based approach uses international standards, which allow comparability of situations across countries and over time. It is based on consensus-building processes to provide decision makers with a rigorous analysis of food insecurity along with objectives for response in both emergency and development contexts. In addition to the IPC, other useful sources could be used for assessing food security, such as the Famine Early Warning Systems Network (FEWS NET). Main contact: Martin Ager, FAO: martin.ager@fao.org
Landscape Portal - The Landscape Portal is ICRAF’s interactive online spatial data storage and visualization platform. It comes with a rich set of features to store, document, search and retrieve, and visualize spatial data and maps. Some of the upcoming features include: time-series analysis; toolkits for interactive modelling; mapping of phenology; species abundance mapping; species diversity mapping (e.g. trees); vegetation analysis; soil mapping (e.g. soil organic carbon, pH, etc.). Main contact: Tor Vagen, ICRAF: t.vagen@cgiar.org
RAPTA - The Resilience, Adaptation Pathways and Transformation Assessment Framework (RAPTA) provides a tool to align approaches and monitoring towards common objectives, contribute to integrated strategies, and pursue synergies in reporting between the Rio Conventions. Developed by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in partnership with GEF Scientific and Technical Advisory Panel (GEF STAP), the RAPTA guidelines give practical guidance on the application of RAPTA in project design. They are targeted at practitioners working with local stakeholders to devise effective

development projects that build resilience to shocks, stresses, and major external change. Main contact: Guadalupe Duron or Annette Cowie, GEF STAP: Guadalupe.duron@unep.org / annette.cowie@dpi.nsw.gov.au

RIMA & SHARP - Two key resources developed by FAO and partners for assessing resilience are the Resilience Index Measurement and Analysis (RIMA) and the Self-evaluation and Holistic Assessment of climate Resilience of farmers and Pastoralists (SHARP). RIMA is a quantitative approach that enables a rigorous analysis of how households cope with shocks and stressors. Comparisons can be made between different types of households (for example, male-headed versus female-headed or urban versus rural) in a given country or area. The SHARP tool addresses the need to better understand and incorporate the situations, concerns and interests of family farmers and pastoralists relating to climate resilience. Main contacts: Martin Ager, FAO: martin.ager@fao.org / SHARP: Anne-Sophie Poisot, FAO: annesophie.poisot@fao.org

Vital Signs - Launched in Africa with a grant from the Bill & Melinda Gates Foundation to Conservation International, Vital Signs provides near real-time data and diagnostic tools to leaders around the world to help inform agricultural decisions and monitor their outcomes. This program is led by CI in partnership with the Earth Institute at Columbia University and the Council for Scientific and Industrial Research in South Africa. Main contact: Alice Ruhweza, Conservation International: aruhweza@conservation.org

Appendix 3

Below is a short summary of the tools being used to provide indicators and assess food security and resilience across the 12 IAP-FS projects, according to the project documents used for overview. There were no uniform ways of measuring resilience of food security systems. There was significant reliance on compound indicators and proxies for measuring resilience.

Tool name	Summary/purpose	Further details	Host organization	Primary contact person	E-mail
Diversity Assessment Tool for Agrobiodiversity and Resilience (DATAR)	<p>DATAR was developed by Bioversity and is a multicomponent tool to describe agricultural biodiversity and resilience at landscape level. DATAR follows a heuristic framework to assess:</p> <ul style="list-style-type: none"> • Diversity of crop species and varieties, livestock breeds, and fish populations; • Ability to access diversity and associated information; • Extent of use of the available materials and information about them; • Benefits obtained by the farmer and farming community from use of diversity and • Community perspectives on social ecological resilience. <p>It aims to provide the information needed to support farming communities in the maintenance and use of traditional crop varieties, livestock breeds and fish populations to improve productivity and ecosystem resilience.</p>	<p>http://agrobiodiversityplatform.org/cropbiodiversity/datar-supporting-farmers-and-rural-communities-in-the-maintenance-and-use-of-agricultural-diversity-agrobiodiversity-to-improve-sustainable-production-and-resilience/</p>	Bioversity International	Rose Nankya, Bioversity International	r.nankya@cgiar.org

Earth Observation	<p>Earth Observation-based technology is exceptionally well suited to support the implementation of long-term and large scale development programs that aim to resolve the data and information gaps concerning the status and change in land use, vegetation cover, agricultural production and water productivity. The launch of the European Union Sentinel satellites as part of the Copernicus program makes available an unprecedented amount of free and open access data. The Sentinel satellites carry both optical and radar sensors and provide images at multiple spatial scales, ensuring adequate access to timely information. Especially when coupled with appropriate ground information and on-site validation using hierarchical field survey and sampling protocols, Earth Observation is a powerful tool to support and inform statistics and comply with reporting obligations. Amongst its uses, it can be used to generate the Normalized Difference Vegetation Index (NDVI) of an area: The normalized difference vegetation index (NDVI) is a simple graphical indicator that can be used to analyze remote sensing measurements, typically, but not necessarily, from a space platform, and assess whether the target being observed contains live green vegetation or not.</p>	<p>http://eo4idi.eu/sites/default/files/publications/eo4sd_agri_foodsecurity_africa_2017.pdf; https://earthobservatory.nasa.gov/Features/MeasuringVegetation/measuring_vegetation_2.php</p>	European Space Agency	Anna Burzykowska, ESA	Anna.Burzykowska@esa.int
EX-Ante Carbon Balance Tool (EX-ACT)	<p>EX-ACT is an appraisal system developed by FAO providing estimates of the impact of agriculture and forestry development projects, programmes and policies on the carbon-balance. The carbon-balance is defined as the net balance from all greenhouse gases (GHGs) expressed in CO2 equivalent that were emitted or sequestered due to project implementation as compared to a business-as-usual scenario. It is a land-based accounting system, estimating C stock changes (i.e. emissions or sinks of CO2) as well as GHG emissions per unit of land, expressed in equivalent tonnes of CO2 per hectare and year. The tool helps project designers to estimate and prioritize project activities with high benefits in economic and climate change mitigation terms.</p>	<p>http://www.fao.org/tc/exact/ex-act-home/en/</p>	FAO	?	EX-ACT@fao.org

<p>Integrated Food Security Phase Classification (IPC)</p>	<p>The IPC is a set of standardized tools that aims at providing a "common currency" for classifying the severity and magnitude of food insecurity. This evidence-based approach uses international standards, which allow comparability of situations across countries and over time. It is based on consensus-building processes to provide decision makers with a rigorous analysis of food insecurity along with objectives for response in both emergency and development contexts. The IPC tools and procedures are compatible with whatever data collection systems, methodological approaches, and institutional arrangements exist in-country, and allow comparison of findings over time and across countries.</p> <p>Widely accepted by the international community, the IPC describes the severity of food emergencies. Based on common standards and language, the five-phase scale is intended to help governments and other humanitarian actors quickly understand a crisis (or potential crisis) and take action. Along with the scale, IPC provides a framework for technical consensus, protocols for classification, tools for communication, and methods of quality assurance. In practice, analysts use various methods of data collection and analysis (e.g., food prices, seasonal calendars, rainfall, rapid food-security assessments, etc.), but with the IPC, they can describe their conclusions using the same, consistent language and standards. This harmonized approach is particularly useful in comparing situations across countries and regions, and over time.</p> <p>The Famine Early Warning Systems Network (FEWS NET) uses the IPC to describe the anticipated severity of acute food insecurity in its reports and mapping.</p>	<p>http://www.ipcinfo.org/fileadmin/user_upload/ipcinfo/docs/1_IPC_Brochure_2017.pdf</p>	<p>FAO</p>	<p>Martin Ager, FAO</p>	<p>martin.ager@fao.org</p>
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Land Degradation Assessment in Drylands Mapping Tool (WOCAT-LADA)	LADA is a methodological approach designed to provide a framework for assessment of land degradation and sustainable land management in drylands. It grew out of the Land Degradation Assessment in Drylands project supported by GEF and executed by FAO during the period 2006-2010. It draws on tools developed with the World Overview of Conservation Approaches and Technologies (WOCAT) for the assessment of SLM. WOCAT has developed a well-accepted framework for documentation, monitoring, evaluation and dissemination of SLM knowledge, covering all steps from data collection, to a database and to using the information for decision support. WOCAT tools provide a unique, widely accepted and standardised method of application.	http://www.fao.org/nr/kagera/tools-and-methods/lada-local-level-assessment-manuals/en/ ; https://www.wocat.net/global-slm-database/wocat-tools-and-modules	WOCAT, FAO	?	?
Land Degradation Surveillance Framework (LDSF)	The Land Degradation Surveillance Framework methodology is designed to provide a biophysical baseline at landscape level, and a monitoring and evaluation framework for assessing processes of land degradation and the effectiveness of rehabilitation measures (recovery) over time. The LDSF has a strong analytical framework built into it for modelling and mapping of a range of indicators of ecosystem health. The main LDSF database is hosted at the World Agroforestry Centre (ICRAF) and integrates information from field surveys, laboratory analysis (including NIR and MIR spectroscopy) and remote sensing. Mapping outputs are produced at multiple spatial scales, with fine-resolution maps produced at 5m or higher resolution, high resolution maps at 30m and moderate resolution maps at 250m to 500m resolution.	http://landscapeportal.org/blog/2015/03/25/the-land-degradation-surveillance-framework-lds/	ICRAF	Tor Vagen, ICRAF	t.vagen@cgiar.org

<p>Management Effectiveness Tool (METT)</p>	<p>The METT is one of the two most widely used/adapted globally applicable generic systems developed to assess protected area management effectiveness. It is used to report progress towards the Convention on Biological Diversity. METT has been designed to track and monitor progress towards worldwide protected area management effectiveness.</p> <p>The methodology is a rapid assessment based on a scorecard questionnaire. The scorecard includes all six elements of management identified in the IUCN-World Commission on Protected Areas Framework (context, planning, inputs, process, outputs and outcomes), but has an emphasis on context, planning, inputs and processes. It is basic and simple to use, and provides a mechanism for monitoring progress towards more effective management over time. It is used to enable park managers and donors to identify needs, constraints and priority actions to improve the effectiveness of protected area management.</p> <p>It was originally developed by the World Bank/WWF Alliance for Forest Conservation and Sustainable Use.</p>	<p>https://www.conservationsgateway.org/ExternalLinks/Pages/mett-management-effective.aspx</p>	<p>The Nature Conservancy</p>	<p>?</p>	<p>?</p>
<p>Multidimensional Poverty Assessment Tool (MPAT)</p>	<p>MPAT has been tested exhaustively in a number of countries by independent evaluation and peer review, and is increasingly being used by IFAD to assess rural poverty. It is designed to produce targeted data on rural poverty at household and village level. It can be combined with IFAD's Results and Impact Management System (RIMS). When combined, the indicators provide an overview of 11 interconnected basic dimensions, such as food security and nutrition, exposure and resilience to shocks, and farmers' assets. A standard questionnaire is used so that results can be compared between households, villages, projects and countries, as well as within a given project over time.</p>	<p>https://www.ifad.org/topic/overview/tags/mpat</p>	<p>IFAD</p>	<p>?</p>	<p>?</p>

Resilience, Adaptation Pathways and Transformation Assessment (RAPTA)	<p>RAPTA was developed by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in partnership with STAP.</p> <p>The RAPTA guidelines give practical guidance on the application of RAPTA in project design. The guidelines are targeted at practitioners working with local stakeholders to devise effective development projects that build resilience to shocks, stresses, and major external change.</p>	http://www.stagef.org/the-resilience-adaptation-and-transformation-assessment-framework	CSIRO, STAP	Guadalupe Duron or Annette Cowie, GEF STAP	Guadalupe.duron@unep.org / annette.cowie@dpi.nsw.gov.au
RESILIENCE ATLAS	<p>RESILIENCE ATLAS was developed as an interactive analytical tool for building (1) understanding of the extent and severity of some of the key stressors and shocks that are affecting rural livelihoods, production systems, and ecosystems in the Sahel, Horn of Africa and South and Southeast Asia; and (2) insights into the ways that different types of wealth and assets (i.e., natural capital, human capital, social capital, financial capital and manufactured capital) – and combinations among these – impact resilience in particular contexts.</p> <p>The RESILIENCE ATLAS database was created by integrating and analyzing more than 12 terabytes of data from over 60 of the best available datasets related to resilience, and summarizing the output in the form of easy to understand maps that can shift focus from regional to national and, where the availability and resolution of the data permit, to local scales.</p>	https://www.resilienceatlas.org/about	Conservation International	?	?
Resilience Index Measurement and Analysis (RIMA) model	<p>In 2008 the FAO pioneered the development and use of Resilience Index Measurement and Analysis (RIMA) to measure resilience to food insecurity. RIMA is a quantitative approach that enables analysis of how households cope with shocks and stressors. Comparisons can be made between different types of households (for example, male-headed versus female-headed or urban versus rural) in a given country or area.</p> <p>Note: There is a second iteration of the tool RIMA II which uses both direct and indirect measures of resilience. RIMA II uses the Resilience Capacity Index (RCI), which can be employed as to predict food security and the</p>	http://www.fao.org/resilience/background/tools/rima/en/	FAO	Martin Ager, FAO	martin.ager@fao.org

	Resilience Structure Matrix (RSM). The indirect approach looks at the determinants of food security loss and recovery. RIMA II is not being used in the IAP-FS projects.				
Results and Management Impact System (RIMS)	<p>RIMS is a comprehensive system for measuring and reporting on the results and impact of IFAD-supported country programmes. The Results and Impact Management System (RIMS) provides information on three levels of results:</p> <ul style="list-style-type: none"> • First-level results refer to project activities and outputs • Second-level results relate to project outcomes and reflect changes in beneficiaries' behaviour, improved performance and sustainability of groups, institutions and infrastructure • Third-level results are associated with project impact on child malnutrition and household living standards. <p>There is a full guide provided with indicators to use in baseline, mid-term and impact surveys.</p>	https://www.ifad.org/what/operating_model/tags/rims/1965685	IFAD	?	?
Self-evaluation and Holistic Assessment of climate Resilience of farmers and Pastoralists (SHARP); Holistic Household Baseline Assessment	All SHARP surveys are project customised and are administered using an android-based tablet application. The tool is used to assess the resilience of smallholder farmers and pastoralists in a multidimensional way. There are core questions for assessing resilience and others that can be adapted to suit the context. A current version of SHARP is called the Holistic Household Baseline Assessment Tool (HH-BAT), designed for assessment of climate resilience with particular reference to food security, nutrition and displacement issues.	http://www.fao.org/in-action/sharp/en/ ; http://www.fao.org/3/a-i4495e.pdf ; link to download app: https://play.google.com/store/apps/details?id=org.fao.sharp	FAO	Anne-Sophie Poisot, FAO	annesophie.poisot@fao.org

Tool (HH-BAT).					
Vital Signs monitoring framework	<p>The Vital Signs framework aims to provide near real-time data and diagnostic tools to better inform agricultural decisions and monitor outcomes – potentially providing integrative measurements of agriculture, ecosystem services and human well-being. These measurements are made at all scales that are relevant to agricultural decision making—from a household to a farm, a landscape, and at the scale of a nation, a continent, and the globe.</p> <p>The indicators Vital Signs measure include sustainable agricultural production, water availability and quality, soil health, biodiversity, carbon stocks, climate resilience, household income, nutrition and market access.</p>	http://www.vitalsigns.org/	Conservation International	Alice Ruhweza, Conservation International	aruhweza@conservation.org
Women's Empowerment in Agriculture Index (WEAI)	<p>The WEAI is a survey-based index designed to measure the empowerment, agency, and inclusion of women in the agricultural sector. The WEAI was initially developed as a tool to reflect women's empowerment that may result from the United States Government's Feed the Future Initiative, which commissioned the development of the WEAI. The WEAI can also be used more generally to assess the state of empowerment and gender parity in agriculture, to identify key areas in which empowerment needs to be strengthened, and to track progress over time.</p>	http://www.ifpri.org/publication/womens-empowerment-agriculture-index	IFPRI	?	?