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Ecosystem Services Review for Impact Assessment

β version

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IFC

**International
Finance Corporation**
World Bank Group



Ecosystem Services

Provisioning



Regulating



Cultural



Supporting



2012 IFC PS 6:

- “maintain the benefits from ecosystem services”
- “identify (...) those services on which the project is directly dependent for its operations”

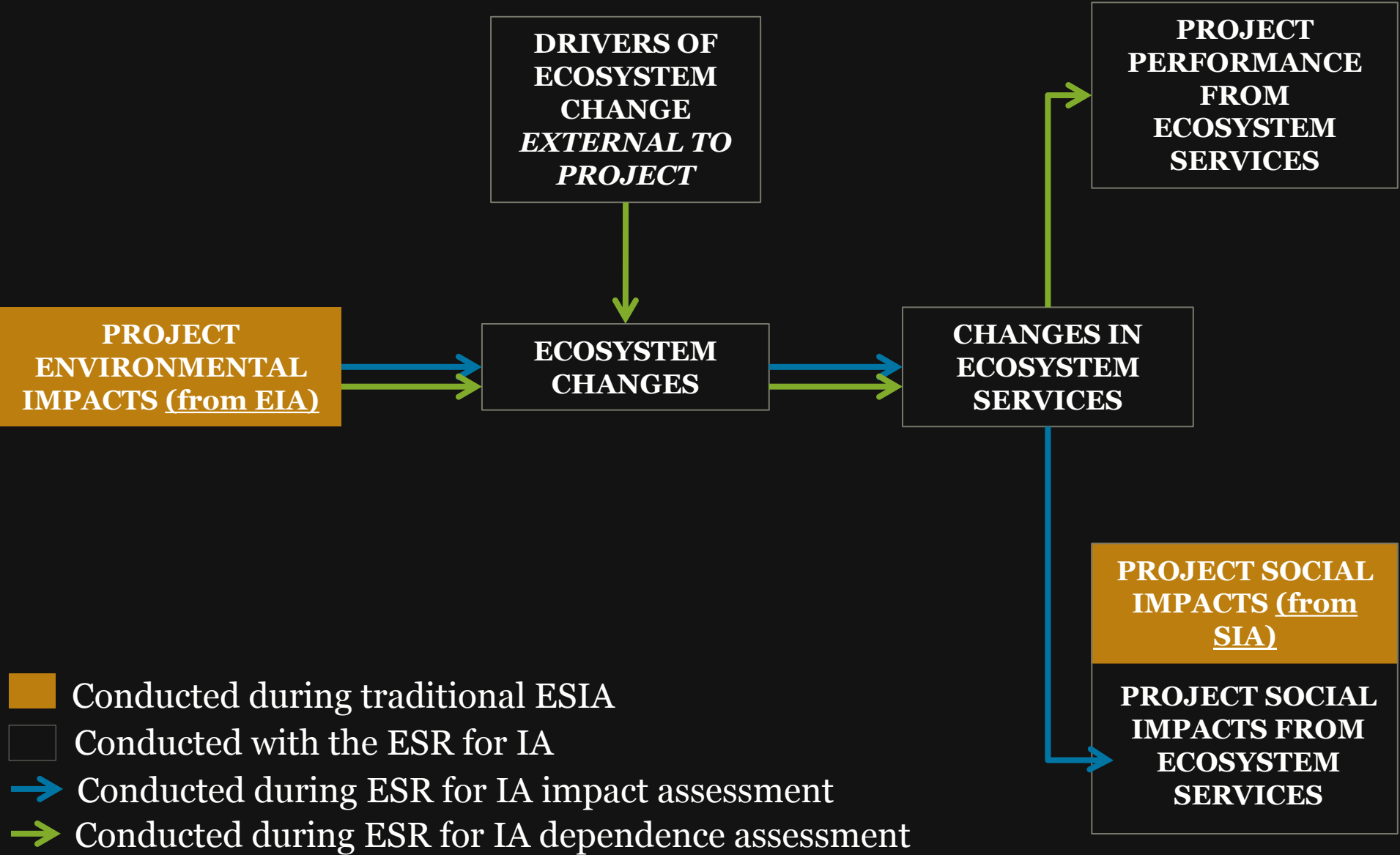
Overview

- ESR for IA: overview
- ESR for IA: implementation steps
- Preliminary findings from retrospective road-tests
- Next steps

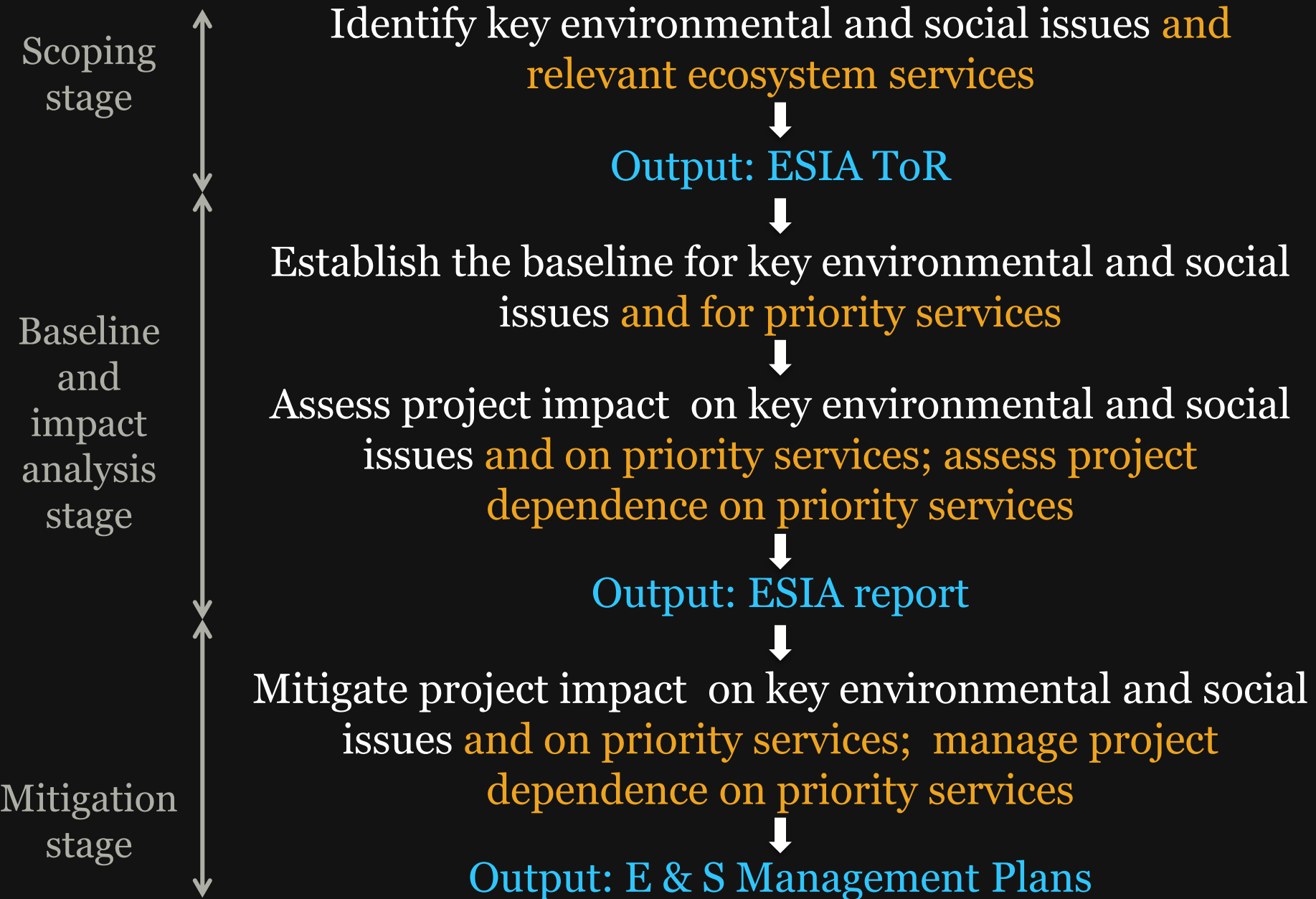
ESR for IA: Objectives

- **Impact:** Maintain the benefits people derive from ecosystems impacted by the project
- **Dependence:** Manage ecosystem-dependent operations to achieve planned performance

ESR for IA: Framework



ESR for IA: ESIA process



Overview

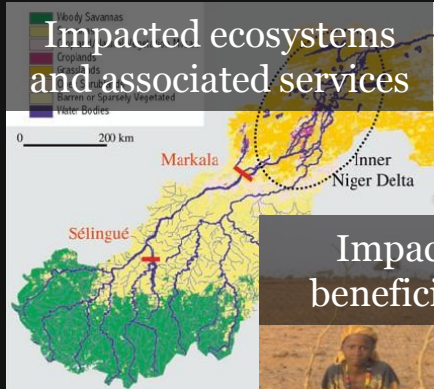
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ESR for IA: Implementation steps



Step 1: Identify relevant ecosystem services

Impact



Dependence



Provisioning

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Ecosystem services the project impacts

Provisioning

Regulating

Cultural

Supporting

Ecosystem services on which the project depends

Step 2: Prioritize relevant ecosystem services

Impact

Could the project affect the ability of others to benefit from this ecosystem service?

Yes or ? ↓

Is this ecosystem service important to beneficiaries' livelihood, health, safety or cultural heritage?

Yes or ? ↓

Do beneficiaries have alternatives to this ecosystem service?

No or ? ↘

Dependence

Could changes in this ecosystem service be such that it could affect project operational performance?

Yes ↓

Does the project have alternatives to this ecosystem service?

No or ? ↙

Priority ecosystem services

Impact Prioritization Tool

From Step 1			Step 2.1: Could the project affect the ability of others to benefit from this ecosystem service?		Step 2.2: Is this ecosystem service important to beneficiaries' livelihoods, health, safety or cultural heritage?		Step 2.3: Do beneficiaries have alternatives to this ecosystem service?		Priority ecosystem services
Relevant ecosystem services	Affected beneficiaries	Affected benefits <i>Note: If one group of beneficiaries derive more than one benefit from a single ecosystem service, add a line.</i>	Y Yes N No (go to next line) ? Unknown	Comments or supporting information	Y Yes N No (go to next line) ? Unknown	Comments or supporting information	Y Yes N No ? Unknown	Comments or supporting information	1 Priority ecosystem services 0 Non-priority ecosystem services
Impacted ecosystem: Tundra									
Wild foods from reindeer	Commercial hunters from towns W, X and Y and their households	Income	?		Y	Commercial hunters get at least 60% of their income from hunting.	N	Commercial hunters cannot get more than 40% of their income from sources other than hunting.	1
		Food and protein intake	?		Y	Reindeer meat is the only source of meat commercial hunters provide to their families.	N	Commercial hunters are poor and cannot afford buying the same quality of food	1
		Quality of life	?	Change in reindeer population is likely to be beyond natural variation within hunting areas, which will be reflected by smaller hunting quotas.	Y		N		1
		Self-esteem	?		Y	Being a commercial hunter has a good social status despite low income.	N	Hunting reindeer is a pillar of community and personal identity. There is no alternative to it.	1
	Ability to help others	?	Y		Sharing of traditional foods is a main component of indigenous culture and well being	N		1	
	Free time hunters from the province and their households	Food and protein intake	?		N	There is no discarded meat. Any decrease in number of animals will impact the benefits derived from reindeer meat.			0
		Quality of life	?		Y		N		1
		Self-esteem	?		Y	The vast majority of households in this Arctic region have an adult with a hunting licence.	N	Hunting reindeer is a pillar of community and personal identity. There is no alternative to it.	1
	Ability to help others	?		Y	Sharing of traditional foods is a main component of local culture and well being	N		1	
Fur from reindeer	Commercial hunters from towns W, X and Y and their households	Income	?		?		Y		0
		Sense of identity (traditional clothes)	?		?	The use of fur is not known.	Y	Can be replaced by seal fur provided that increased seal hunting would still be sustainable	0
	Free time hunters from the province and their households	Sense of identity (traditional clothes)	?		?	The fur of most animals is used. Any decrease in number of animals will impact the benefits derived from reindeer meat.	Y		0

Step 3: Define the scope of the assessment

- Delineate the ecosystem service area that includes
 - Ecosystems supplying priority services
 - Locations where affected stakeholders and project access priority services
- Identify indicators of project impact and dependence on priority services:
 - Priority service supply: flow of ecosystem service based on ecosystem type and condition
 - Priority service benefit: contribution of service to livelihood, health, safety, culture/operations

Dependence

Priority service supply	Benefit to project
Turbidity of water in canals	Maintenance costs for pumps

Step 4: Establish the baseline for priority services

Establish the current benefits to affected stakeholders:
based on socio-economic data and engagement of affected
stakeholders

Current priority service supply	Current benefit to affected stakeholders
1.5-2 ton of rice/ha/ year	<ul style="list-style-type: none">• Farmers' annual income from rice: \$2,000• Rate of malnutrition among children of downstream rice farmers: 15%

Step 5: Assess project impact on priority services

- Predict impact on benefits to affected stakeholders



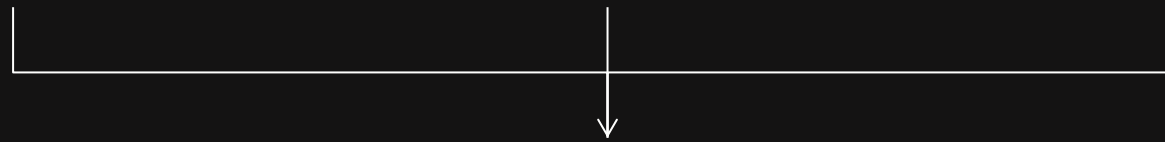
- Assess impact significance

Impact magnitude on
ecosystem service
benefit

Sensitivity of
affected
stakeholders

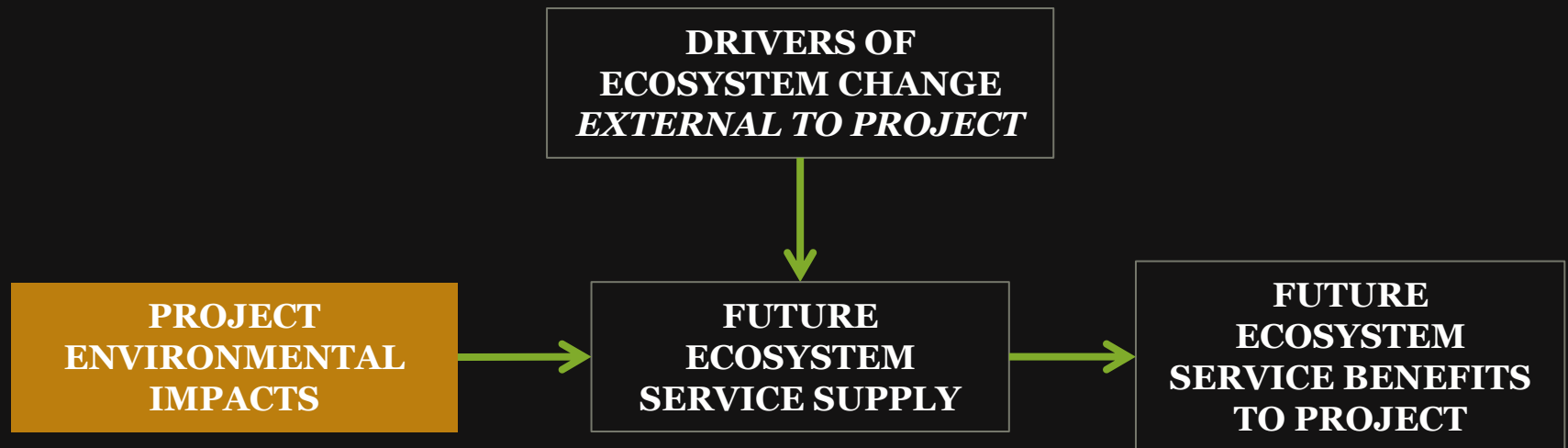
Likelihood of
impact
occurrence

Significance of impact
on ecosystem service



Step 5: Assess project dependence on priority services (*ctd*)

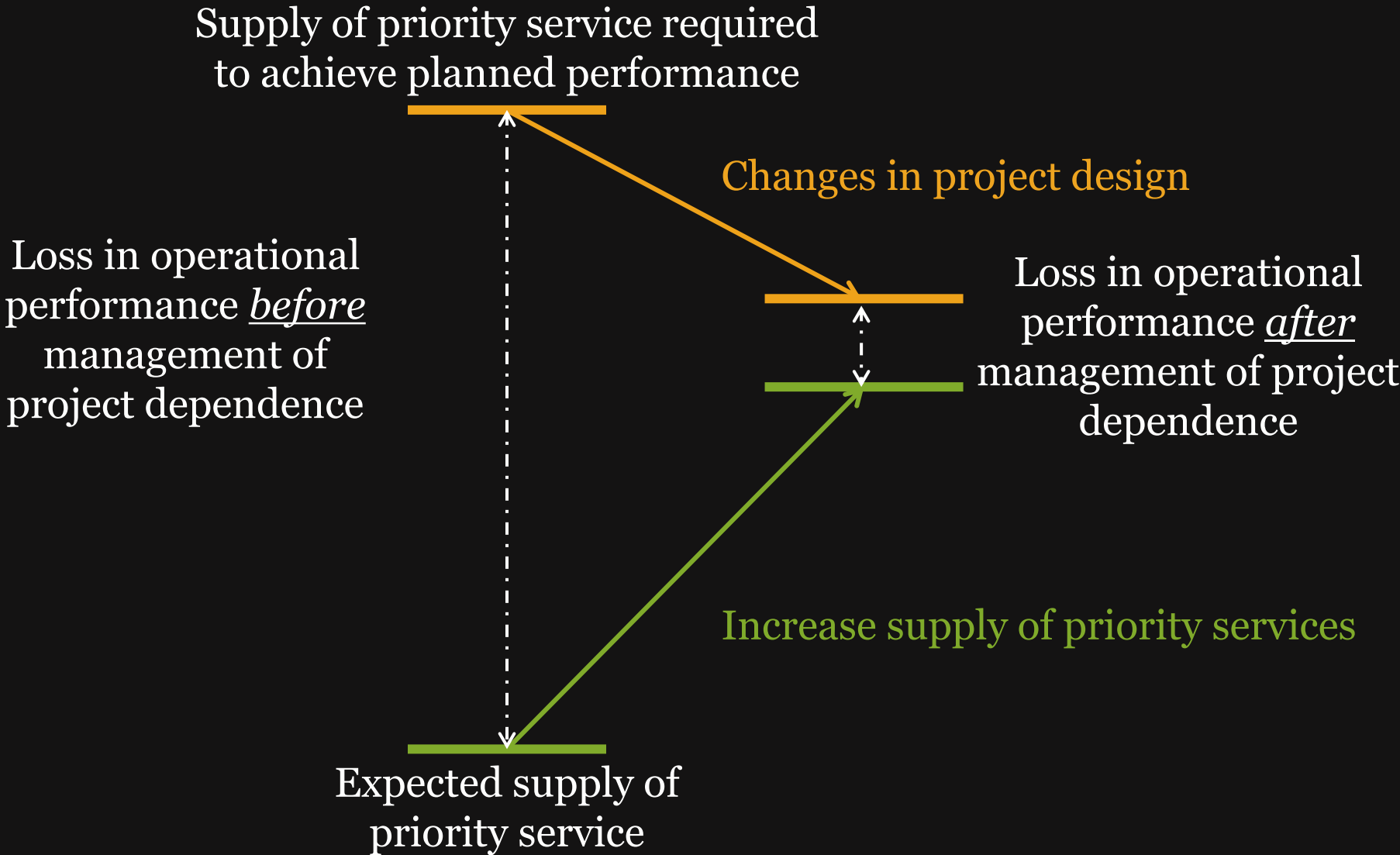
- Predicting ecosystem services over the life of the project



Step 6: Mitigate impact on priority services

Gain in benefit from positive project impact on priority services	Enhance positive project impact on priority services	Current benefit			
	Compensate for loss in benefit due to negative project impact		Current benefit		
	Rectify negative impact on priority services			Current benefit	
	Minimize negative impact on priority services				Current benefit
	Avoid negative impact on priority services				

Step 6: Manage dependence on priority services (ctd)



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ESR for IA: preliminary feedback from retrospective road-tests

- Unveil social impacts as a result of environmental impacts
 - Support collaboration between environmental and social practitioners
 - Go beyond environmental impacts in terms of impacts on livelihoods
- Unveil dependence on environment for continued performance

Overview

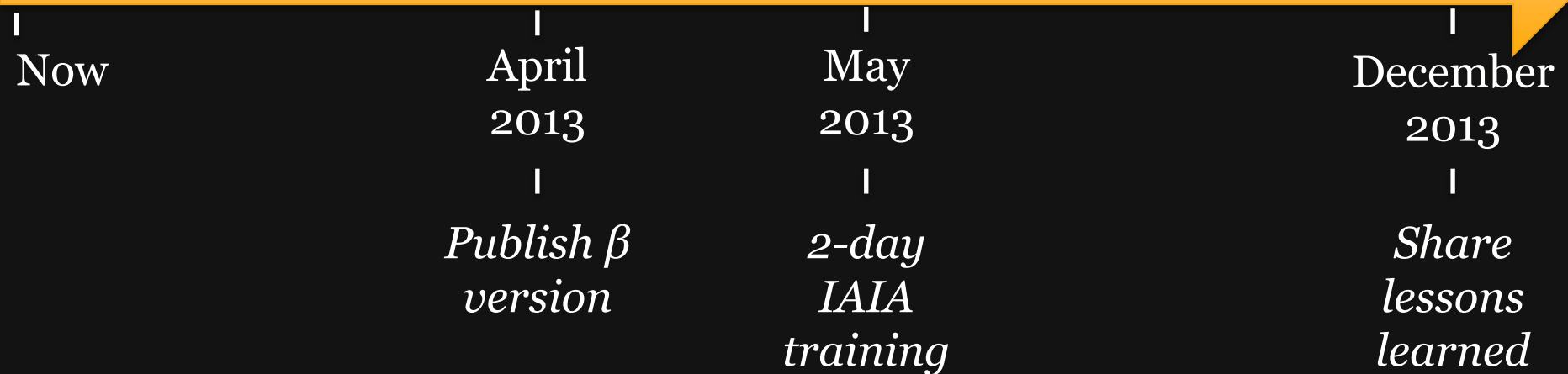
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ESR for IA: next steps

Conduct on-going road-tests



Continuous improvement of ESR for IA text and tools





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A photograph of three people in a rural, agricultural setting. They are wearing traditional conical hats made of woven straw. The person on the left is standing, wearing a brown long-sleeved shirt and a colorful patterned sarong. The person in the middle is sitting, wearing a light-colored long-sleeved shirt and a patterned sarong. The person on the right is sitting, wearing a brown long-sleeved shirt and a patterned sarong. They are surrounded by tall, dry grasses and a blue sky with scattered clouds.

Thank you

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Fictive project

Project

- Small oil facility (also produces electricity)
- Partial drainage of wetland
- Upgrade of existing road
- Water abstraction from lake
- Gas flaring

Environmental setting

- Large inland lake
- Grassland bottom of valley
- High erosion of lake shores
- Degraded bushland on steep slopes (risk of landslides)

Social setting

- Poor fishing communities along lake; some livestock
- High incidence of HIV/AIDS, malaria and water-borne diseases
- Dirt road, no electricity, no water supply and no waste treatment
- New guesthouse targeting rare bird species

