



POVERTY-ENVIRONMENT ACCOUNTING FRAMEWORK (PEAF)

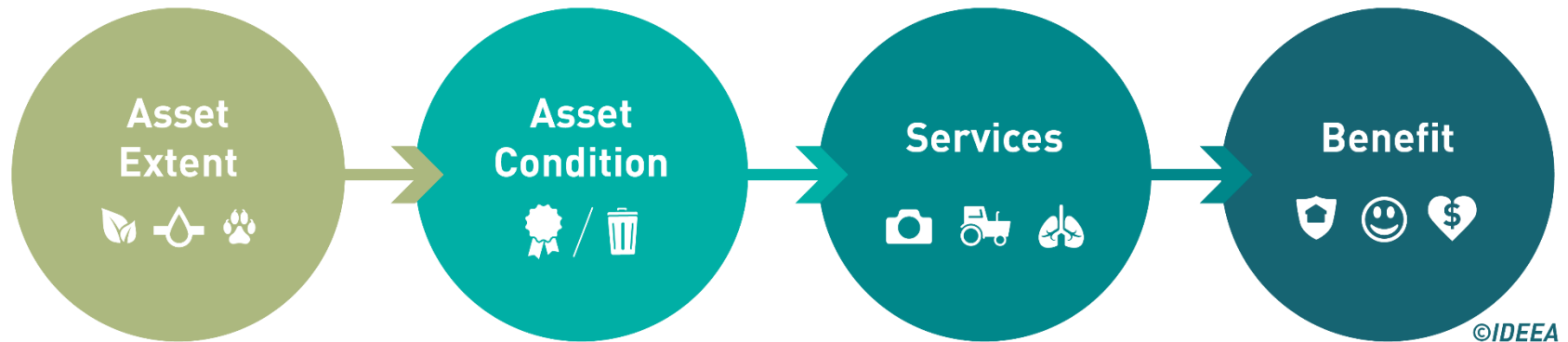
Accounting for social issues

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ENVIRONMENTAL ACCOUNTING CORE MODEL



Single asset framework applied to different landscapes, oceans and ecosystem types

Assess the impact of human activity on asset extent and condition

Asset condition influences the production of ecosystem services

Ecosystem services provide economic and social-wellbeing benefits

POVERTY AND THE ENVIRONMENT: KEY ISSUES

Diverting labour

- Degradation can lower labour productivity, as fuel wood becomes scarce, poor households must spend an increasing amount of time collecting it

Reduced productivity of the poor's natural resources

- Where the poor depend on biomass fuel and confront increasing fuel-wood scarcity, they often shift to using animal dung, fodder, and crop residues for fuel (impacting on the natural function of natural resources).

Impact of poverty on resource management

- Their ability to plan ahead is often restricted to a critically short time horizon (food and water today), often measured in days or weeks.

Risk and access to natural resources

- Generally, the poor are faced with higher risks or greater uncertainty. Poor farmers may perceive their access to land as tenuous because of conflicts inherent in it.

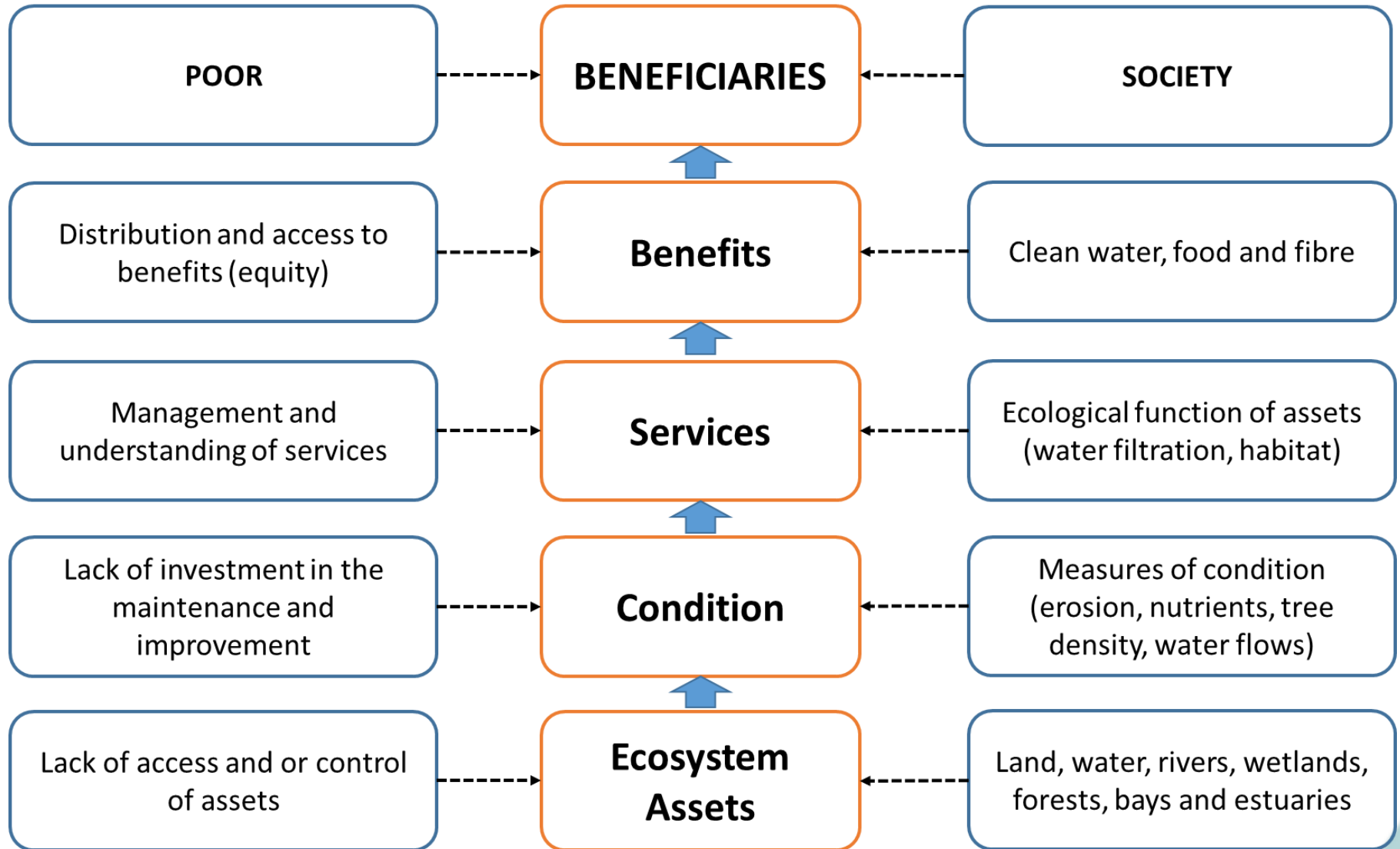
The poor's constraints to manage risks

- Poor households most at risk of falling below the subsistence levels of consumption treat available natural resources as an asset to be drawn down in times of emergency.

DATA LINKING POVERTY AND THE ENVIRONMENT

	Assets	Condition	Services	Benefits
Environmental data	<p>What is the spatial extent of ecosystem assets before and after the investment?</p> <p>Where are the assets located?</p>	<p>How has the condition of the asset changed?</p>	<p>How does the change in extent and condition of the asset impacts on ecosystem services?</p>	<p>What are the environmental benefits?</p>
Social data	<p>Who (and how many) were employed to deliver the program?</p> <p>What groups or industries are reliant upon the asset as a natural resource?</p>	<p>Does a change in the condition impact on the benefits to people either directly or indirectly?</p>	<p>What are the ecosystem services that change as a result of the investment?</p>	<p>What are the benefits, and who benefits (individuals or groups) from an improvement in the environment?</p>

Poverty–Environment Accounting Framework



EXAMPLE: ENVIRONMENTAL OUTCOMES FOR INVESTMENT IN MANGROVES

	Ecosystem Asset extent (before/after)	Average condition (before/after^a)	Change in ecosystem services	Change in benefits (before/after)
Program A (\$2m)	(100ha / 120ha)	(0.7 / 0.7)	Storm and flood protection Habitat for prawn and fish breeding	Probability of loss of life ^b in flood and storm event (70% / 60%) Annual prawn and fish catch (80t / 85t)
Program B (\$2m)	(50ha / 70ha)	(0.3 / 0.4)	Habitat for prawn and fish breeding	Annual prawn and fish catch (60t / 72t)
Program C (\$3m)	(300ha / 310ha)	(0.5 / 0.7)	Storm and flood protection Habitat for prawn and fish breeding	Probability of loss of life in flood and storm event (85% / 90%)

ENVIRONMENTAL EXPENDITURE AND ROI

There are several approaches to calculating the return on investment using the data in the table:

- **Area based ROI:** Program B is the lowest cost, or highest return on investment per ha.
- **Condition based ROI:** Program C is the lowest cost, or highest return on investment per unit change in condition.
- **Services based ROI:** a qualitative assessment of changes in services would suggest Program A offers the greatest ROI because it provides changes in both flood protection and fish and prawn breeding.
- **Benefits based ROI:** Program A is the lowest cost for a reduction in the probability of storm and flood events. Program B is lowest cost for increases in the prawn and fish catch.

EXAMPLE: SOCIAL OUTCOMES FOR INVESTMENT IN MANGROVES

Social Outcomes	Population	Capacity building	Benefits (before/after)
Program A (\$2m)	<p>Several villages = 25,000 people</p> <p>(10% are classed as poor and most are living in low lying areas prone to flood and storm events)</p>	Educated 15 people on mangrove planting	<p>Probability of loss of life^a in flood and storm event (70% / 60%)</p> <p>Annual prawn and fish catch (80t / 85t)</p>
Program B (\$2m)	<p>Small village = 5,000 people</p> <p>50% of the village rely upon the mangroves for their protein source (fish and prawns)</p> <p>12% of the village considered poor</p>	Educated 50 people on mangrove planting <u>and</u> pest control in mangroves	<p>Annual prawn and fish catch (60t / 72t)</p> <p>The prawn and fish catch are one of the main sources of food and income for the village</p> <p>All of the poor rely directly on the prawn and fishing industry either for employment or for food when caught directly</p>
Program C (\$3m)	<p>Many villages = 75,000 people</p> <p>(10% are classed as poor and 20% are living in low lying areas prone to flood and storm events)</p>	No one was educated but local people we employed to undertake the work	Probability of loss of life in flood and storm event (85% / 90%)

POVERTY RETURN ON INVESTMENT (ROI)

If the ROI were based solely on poverty or social outcomes **Program A** is the lowest cost per the number of people protected in low lying areas (2,500 in Program A and 1,500 in Program C).

From a capacity building and longer term sustainably point of view **Program B** has educated the greatest number of people.

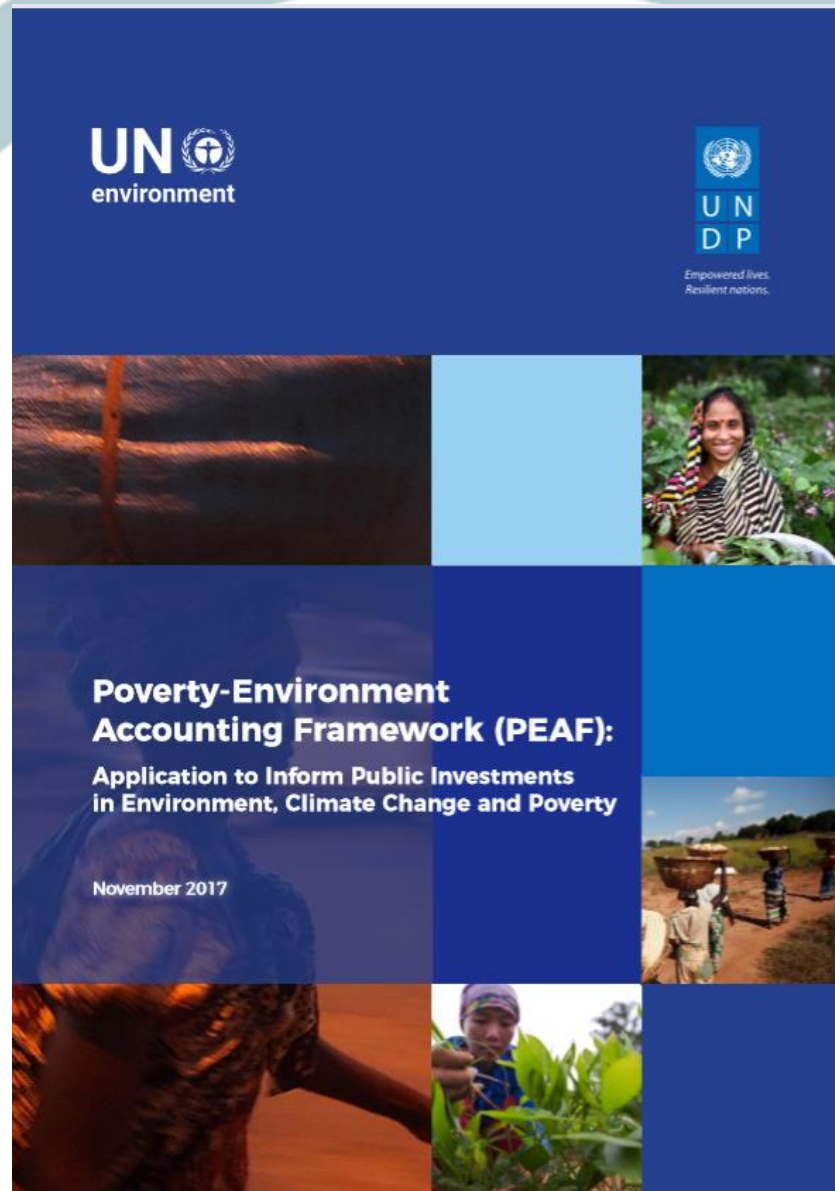
Program C on the other hand spent most of the funds locally but did not provide capacity building.

Program B ROI could also be measured based on the number of people that benefit from increases in local food sources.

POVERTY-ENVIRONMENT ACCOUNTING FRAMEWORK (PEAF)

Provides.....

- Linkages between natural capital (ecosystems) and economic and social-wellbeing
- Quantify cost and benefits of natural capital for inclusion in national and sub-national decision-making (Return on investment)
- Core information set: sustainable use and management, equitable allocation, climate, food security, disaster analysis
- Ecosystem based approach
 - Agriculture, rivers, forests, wetland, estuaries, marine, terrestrial, biodiversity, etc.



Eigenraam, M., & Choi, S. (2017). *Poverty-Environment Accounting Framework (PEAF) Application to Inform Public Investments in Environment, Climate Change and Poverty*. UN Environment, UNDP