



PRACTICE Assessment Methods for Actions to Combat Desertification

PRACTICE WP2 board

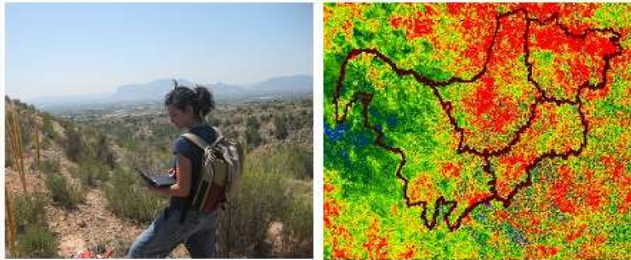


....Moving from Design to Implementation

A Framework for Evaluation of Actions and Indicator Selection

Actions to combat
land degradation

Biophysical data



Socio-economic data

Participatory
and
Integrated
Evaluation



Knowledge exchange

Improved actions
Increased adoption

A Framework for Indicator Selection

Table 1.1. KEY DRYLAND ECOSYSTEM SERVICES (C22.2)

Provisioning Services <i>Goods produced or provided by ecosystems</i>	Regulating Services <i>Benefits obtained from regulation of ecosystem processes</i>	Cultural Services <i>Nonmaterial benefits obtained from ecosystems</i>
<ul style="list-style-type: none"> ■ provisions derived from biological productivity: food, fiber, forage, fuelwood, and biochemicals ■ fresh water 	<ul style="list-style-type: none"> ■ water purification and regulation ■ pollination and seed dispersal ■ climate regulation (local through vegetation cover and global through carbon sequestration) 	<ul style="list-style-type: none"> ■ recreation and tourism ■ cultural identity and diversity ■ cultural landscapes and heritage values ■ indigenous knowledge systems ■ spiritual, aesthetic, and inspirational services
Supporting Services <i>Services that maintain the conditions for life on Earth</i>		
<ul style="list-style-type: none"> ■ soil development (conservation, formation) ■ primary production ■ nutrient cycling 		

MA Framework

- **Consistency with Ecosystem Services Approach**
- **Consistence with UNCCD, CBD and UNFCCC recommendations**
- **Integrating Scientific and Local knowledge → Site-specific Indicators**

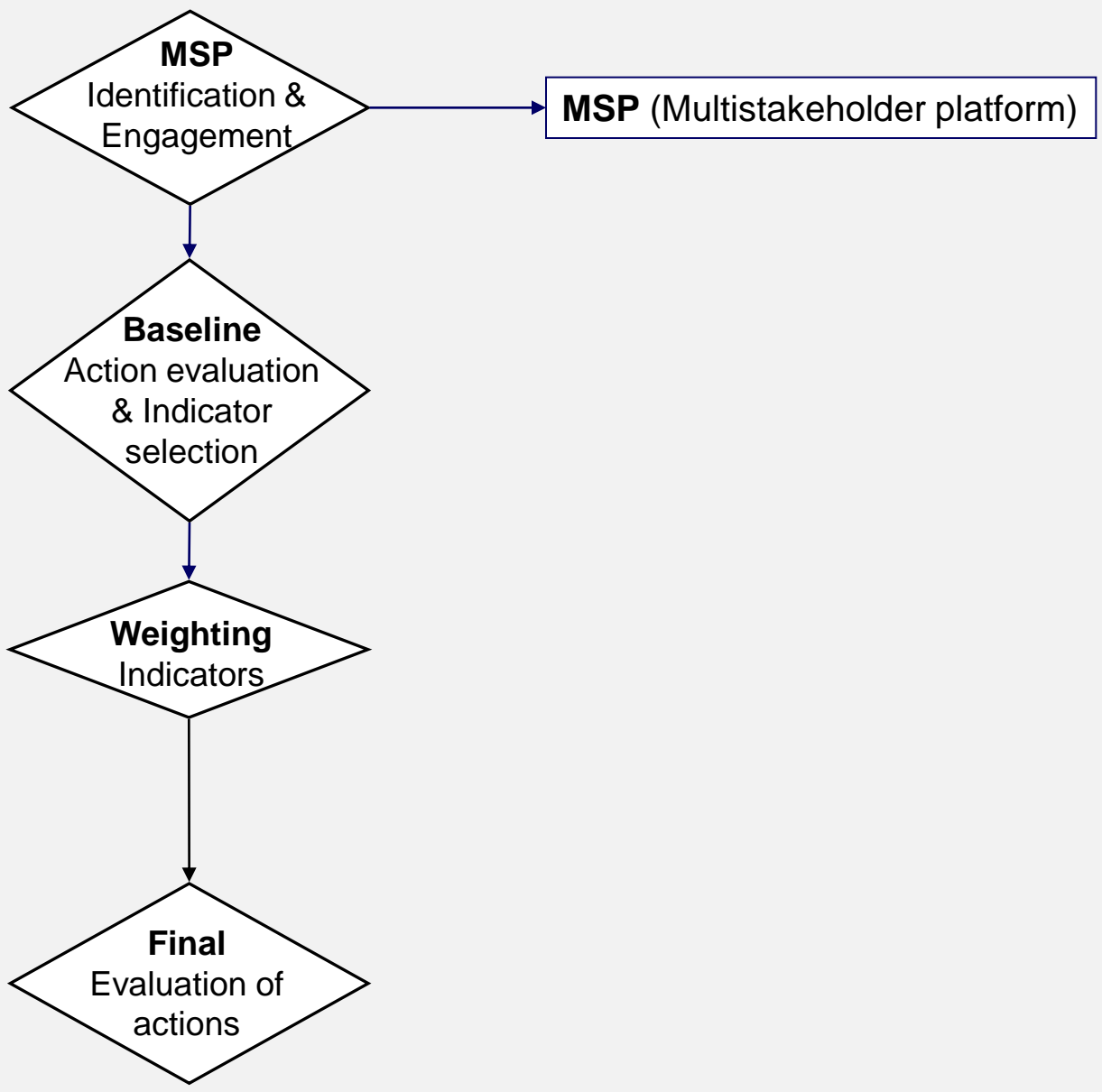
A Framework for Evaluation of Actions

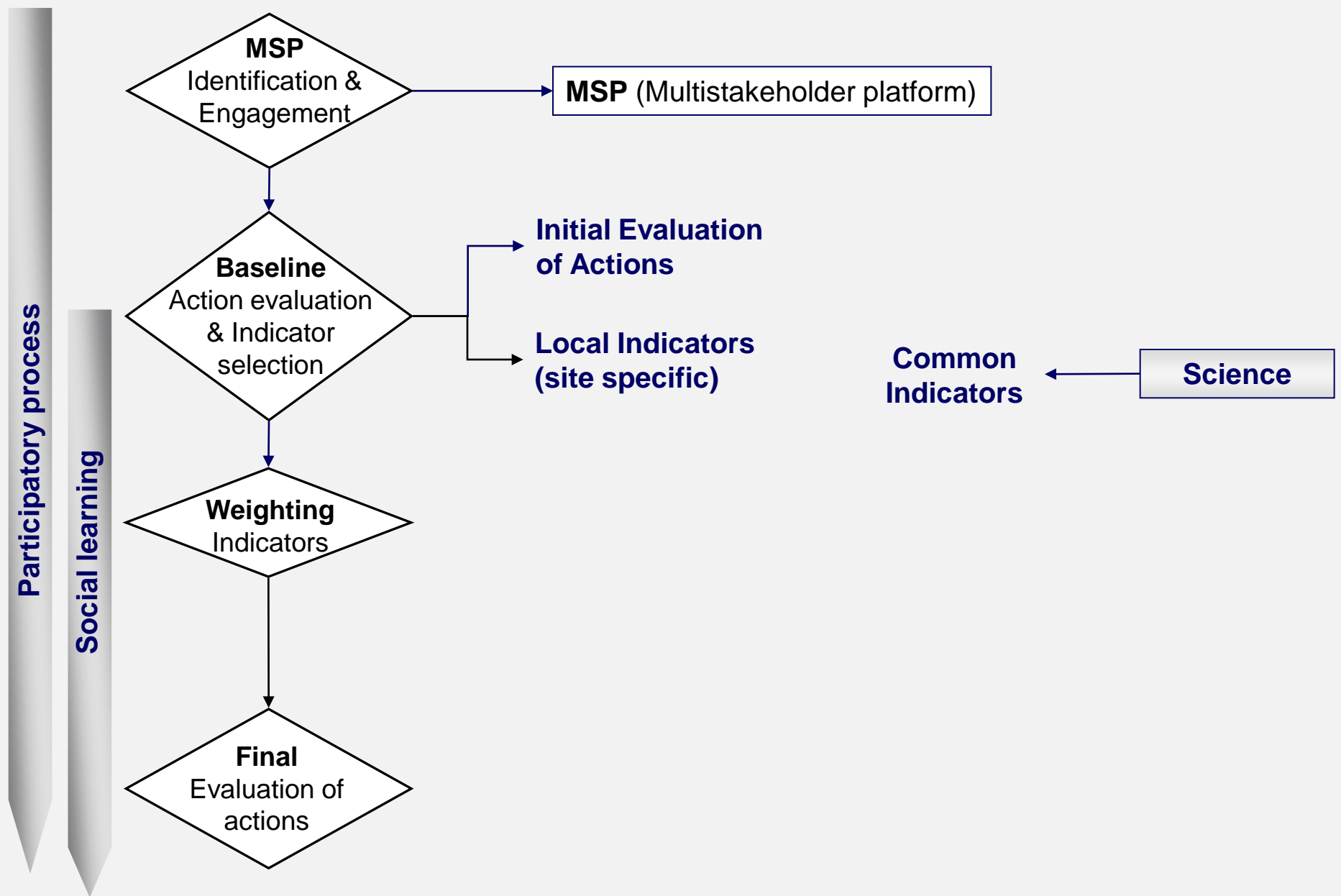
Expert assessment through common Indicators

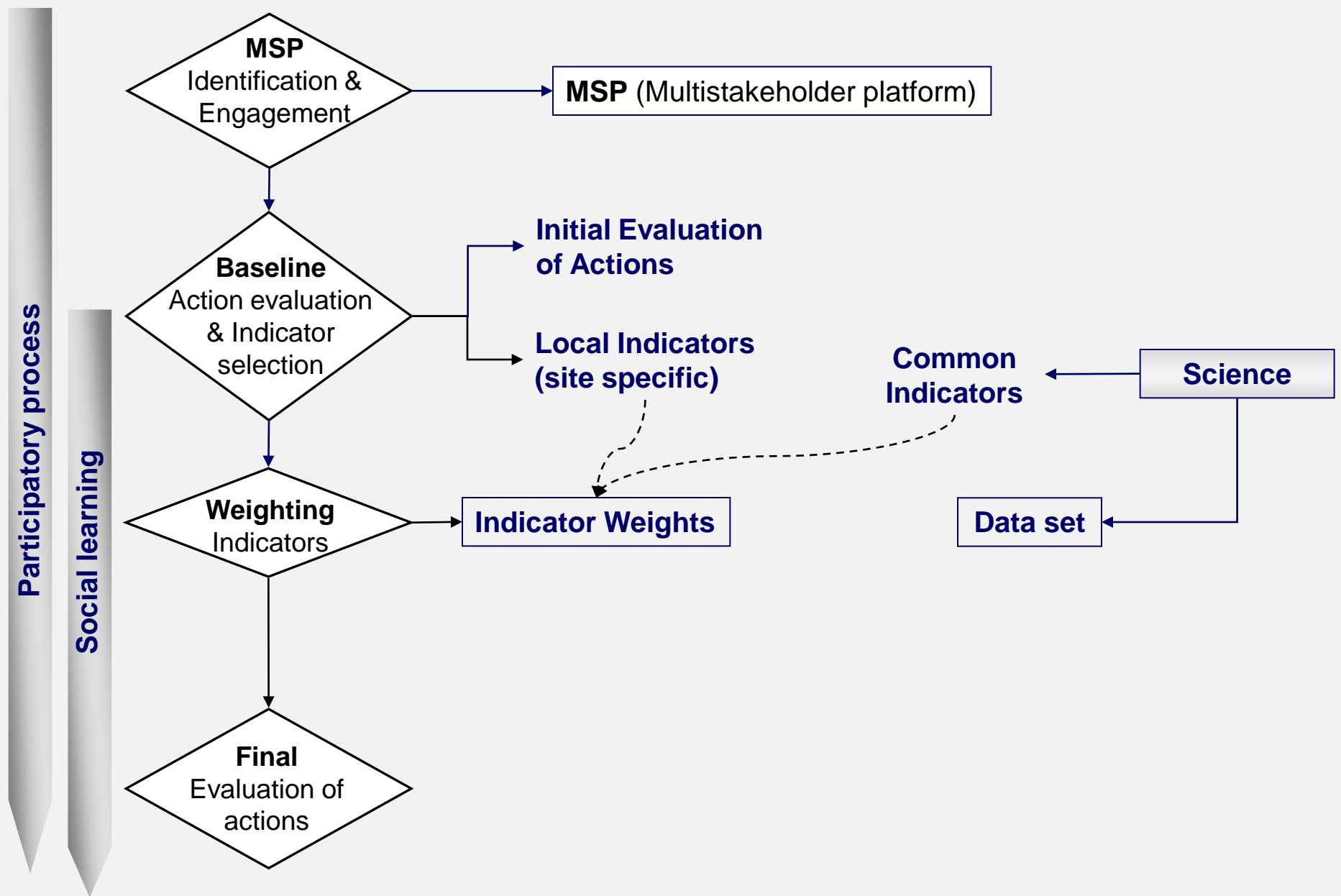
- **Ecosystem Services Indicators**
- **Ground-base biophysical indicator**
- **RS-based indicators**
- **Socioeconomic Indicators**

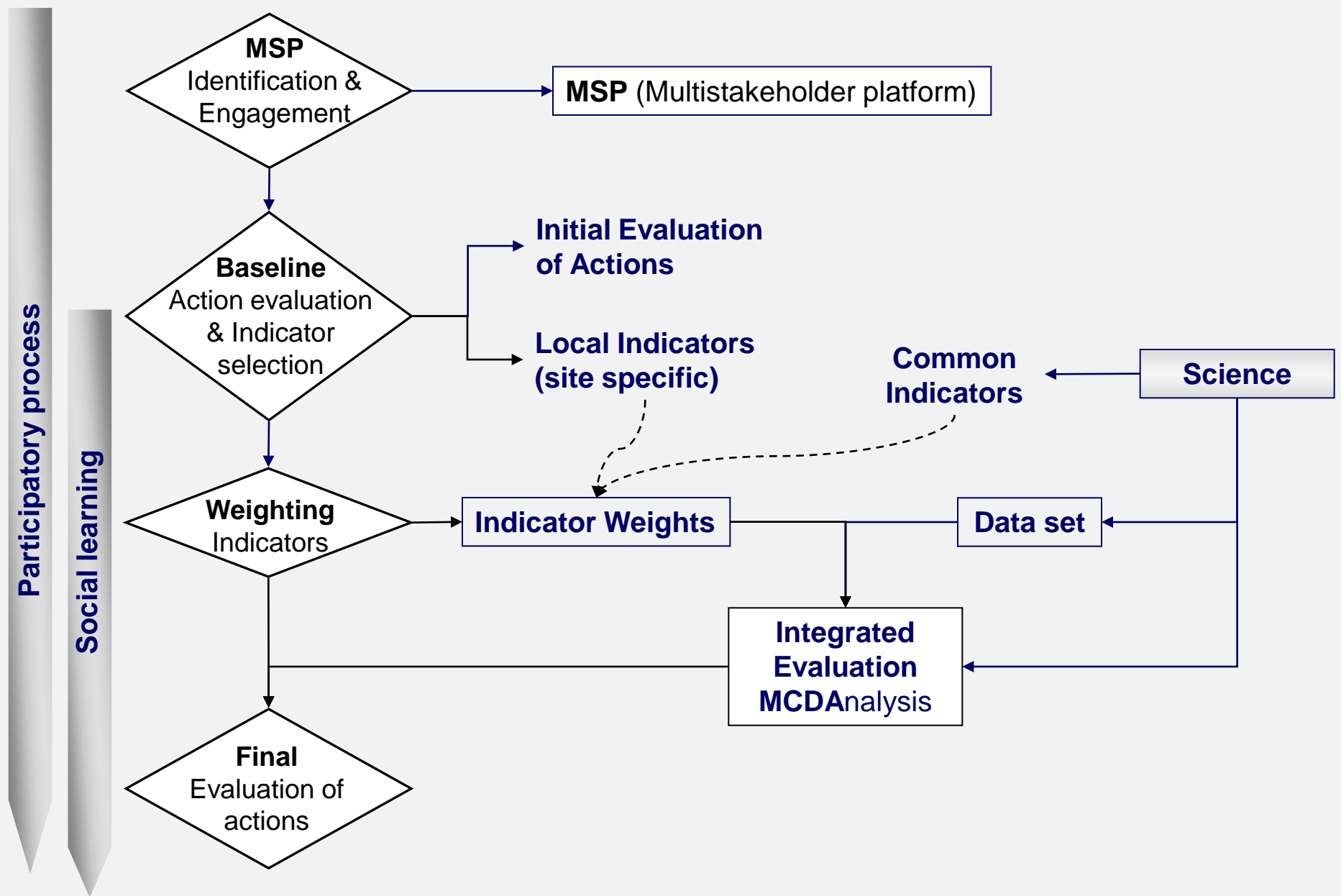
A Framework for Evaluation of Actions

- **Participatory assessment**
- **Linking participatory and expert assessment, and**
- **Integration**

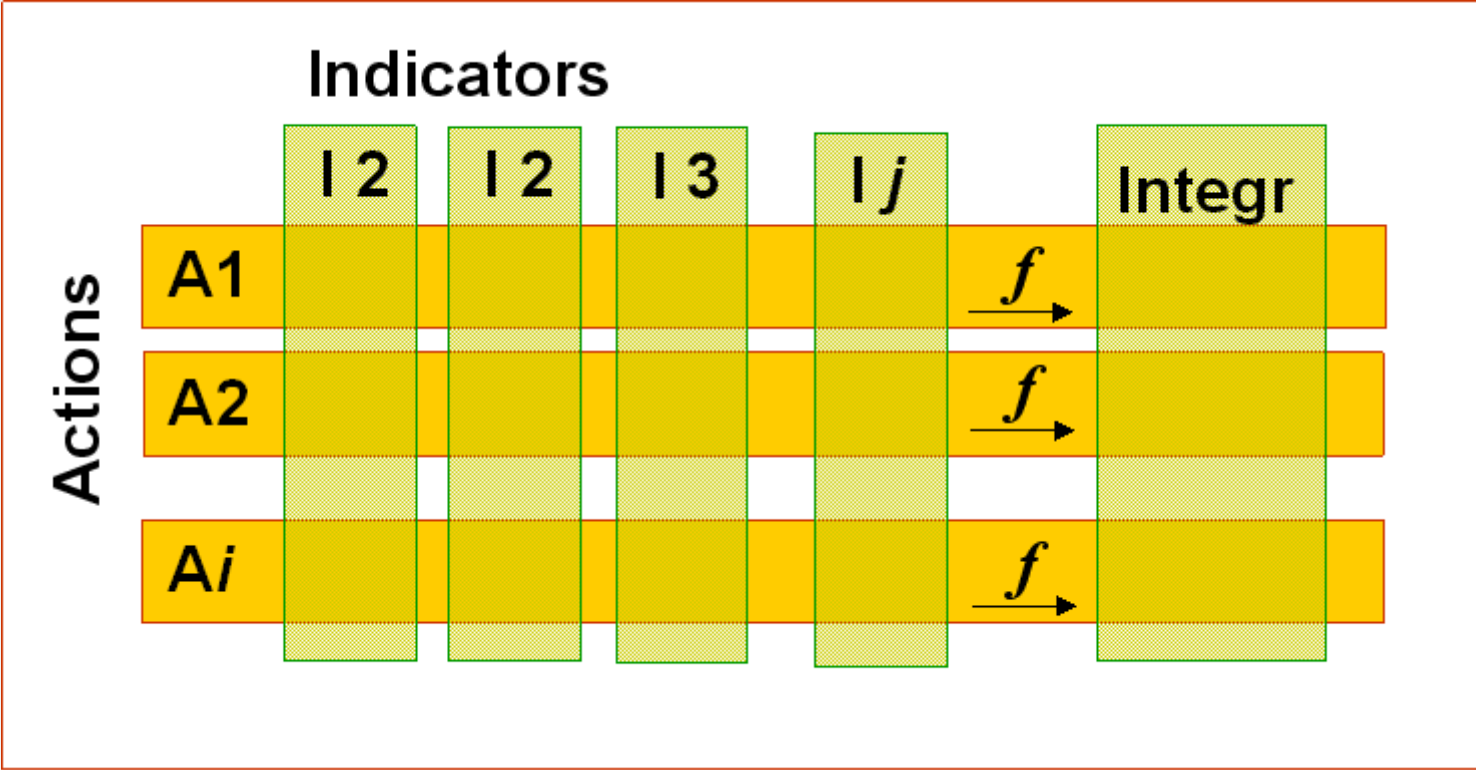


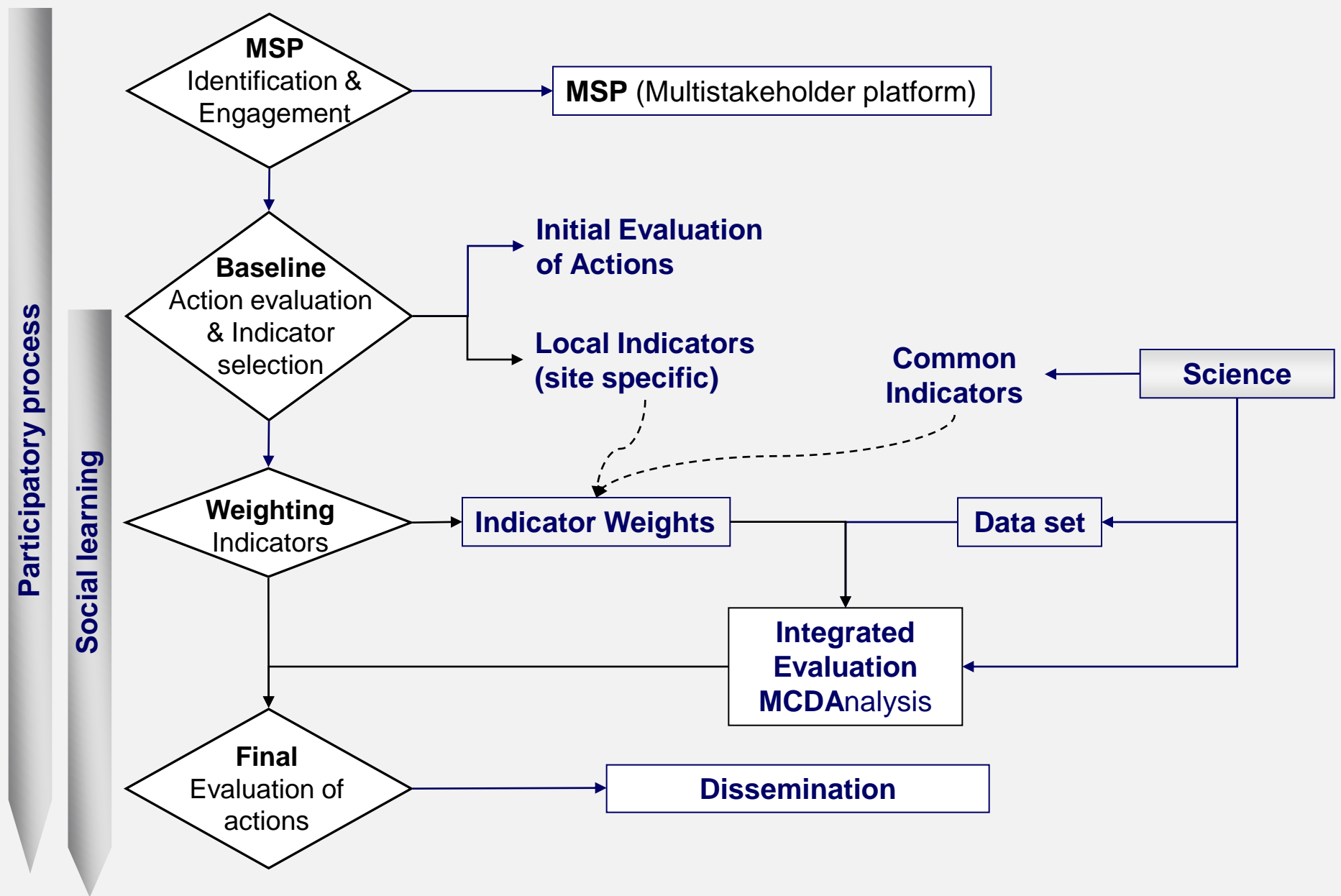






Integration through Multi-Criteria Decision Analysis (MCDA)







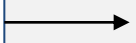
Ground-based Biophysical Indicators and Methods

	Indicators	Proxies / Metrics	Variables
Regulating & Supporting Service	Water and soil conservation	Plant cover & pattern Soil surface condition	Bare-soil connectivity Functional indices for infiltration & nutrient cycling potential
	C sequestration	SOC Above-ground biomass	SOC Above-ground plant volume/biomass
	Biodiversity	Biodiversity of vascular plants	Composition and species abundance of vascular plants



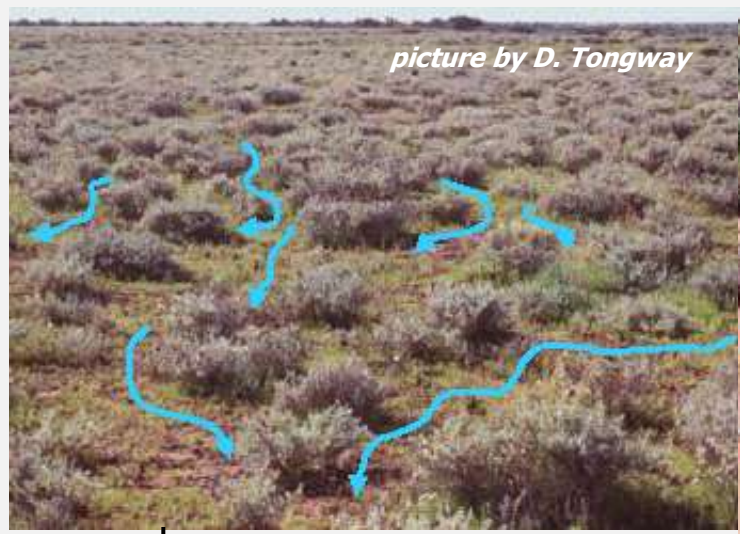
Water and soil conservation

Proxies / metrics

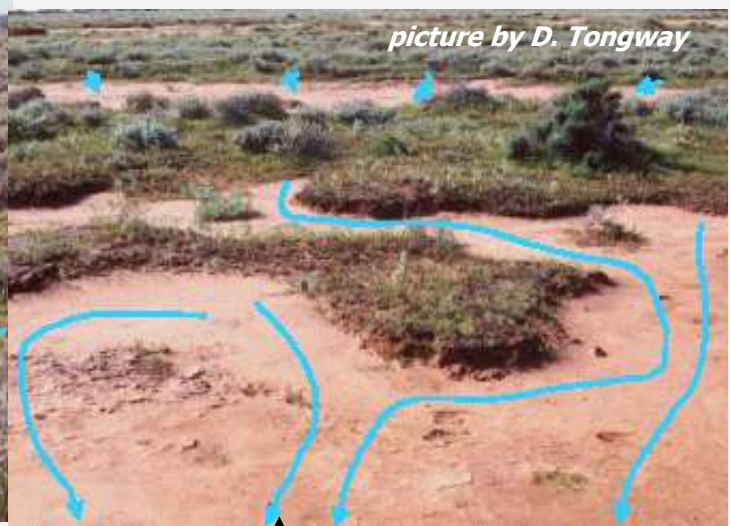


Bare-soil connectivity

Plant cover and pattern



↓ connectivity
↓ runoff and erosion



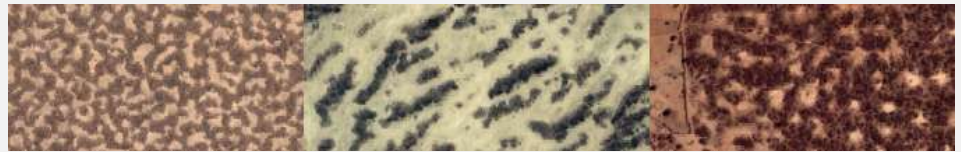
↑ connectivity
↑ runoff and erosion



Water and soil conservation

Proxies / metrics

Plant cover and pattern



Soil surface condition (In particular, bare-soil surface condition)





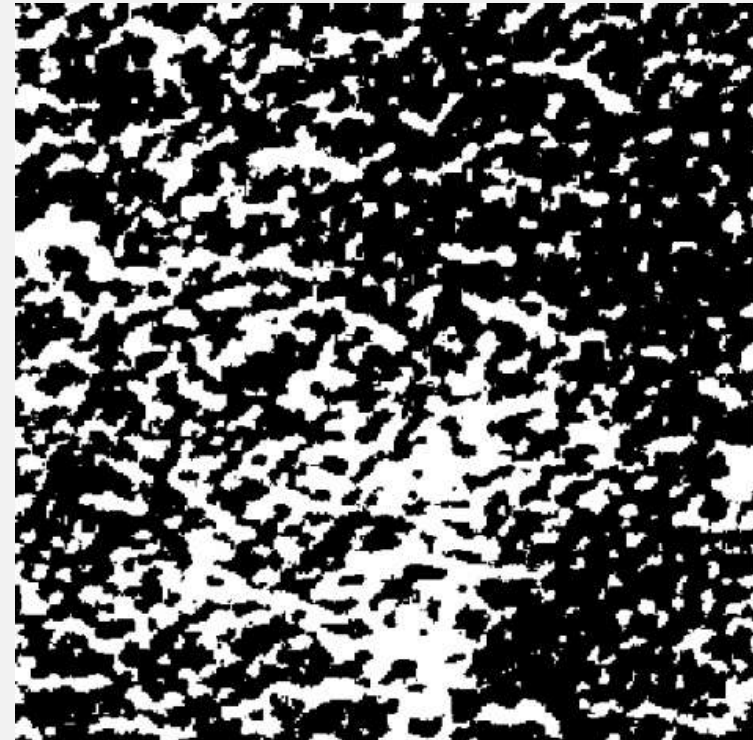
Measuring bare-soil connectivity

Inputs from vegetation maps, aerial photos, high-resolution satellite images,

Google Earth screenshot_2007 image
(30x30 m)



Binary transformation

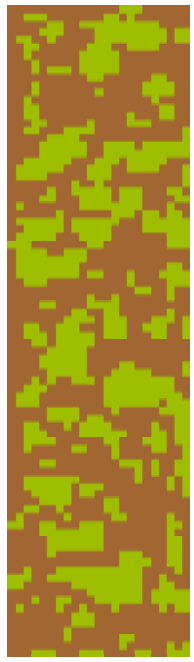


Vegetation cover = 66%

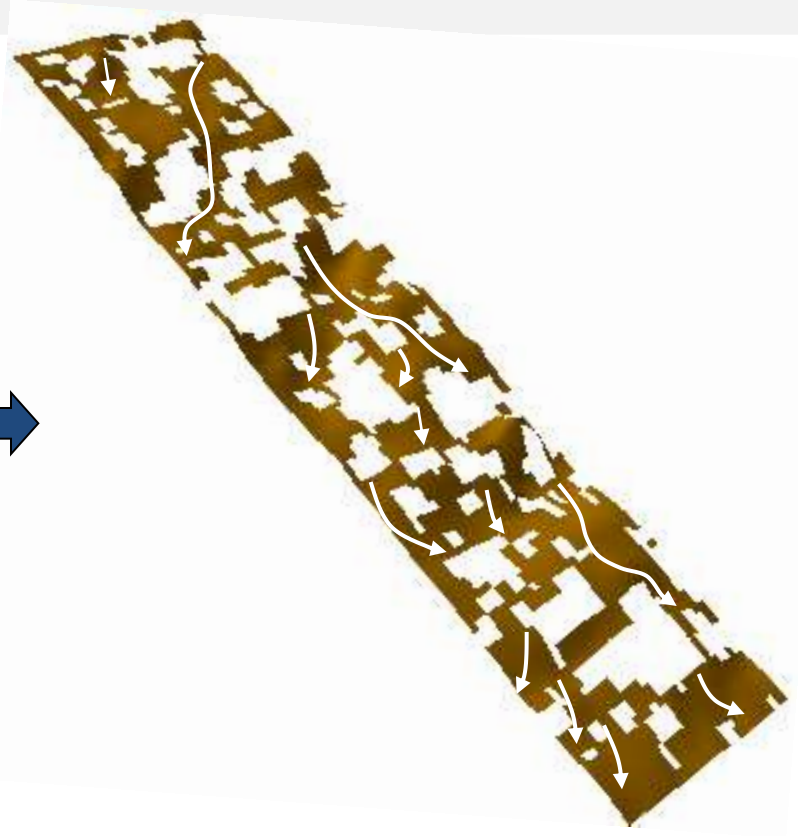
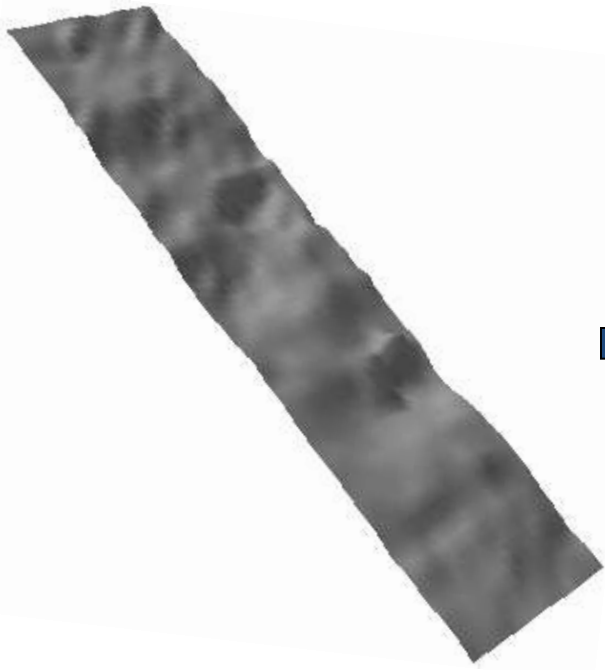


Measuring bare-soil connectivity

Vegetation maps + topography (DEM)



+



Patch and inter-patch map

topography map

Connectivity of runoff-source areas

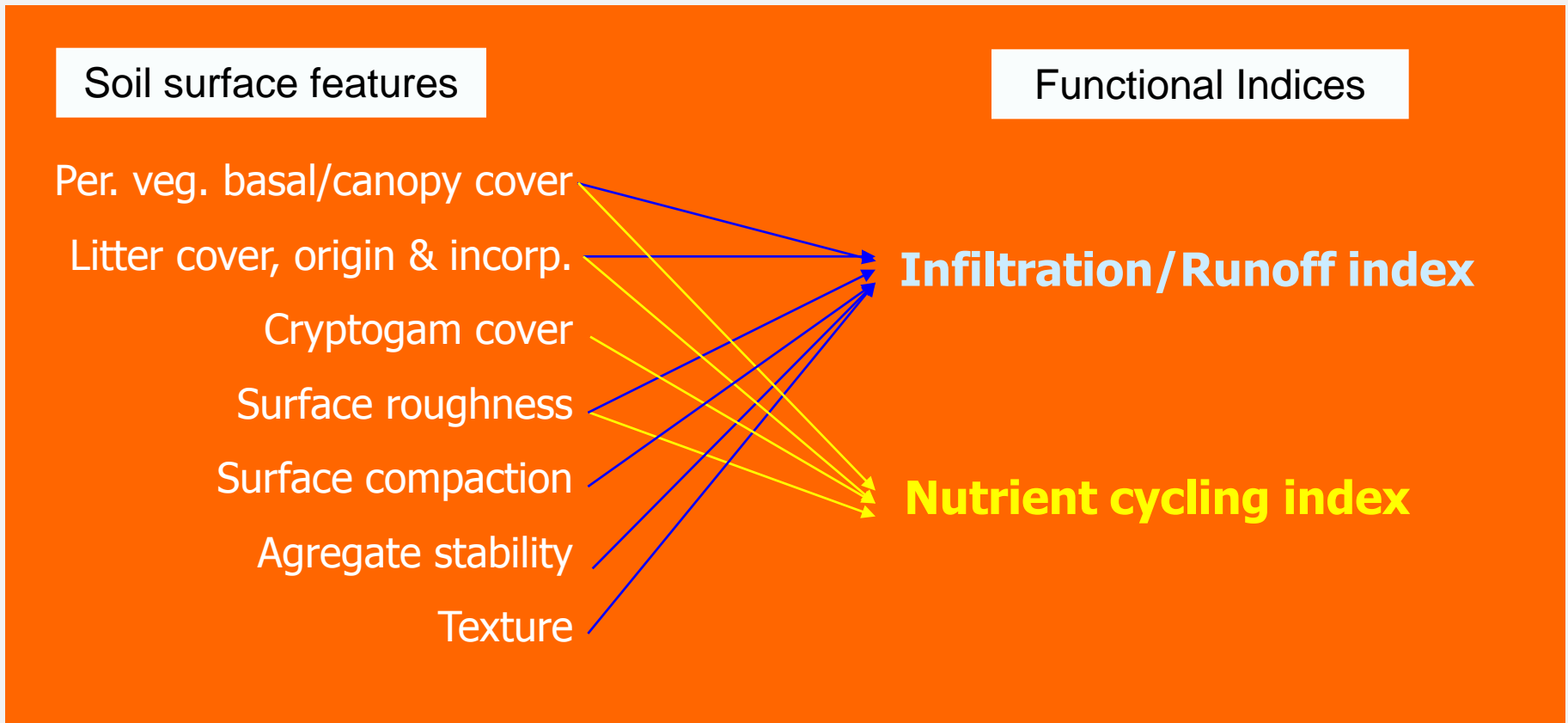
→ Flowlength index, *FL* (Mayor et al. 2008)

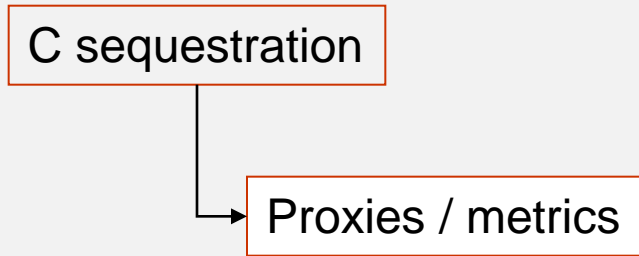


Soil surface condition (In particular, bare-soil surface condition)

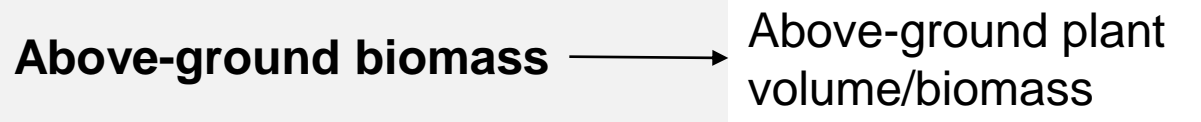
Potential for water regulation through infiltration
Potential for nutrient cycling

Estimated from a set of soil surface features (semiquantitative assessment):



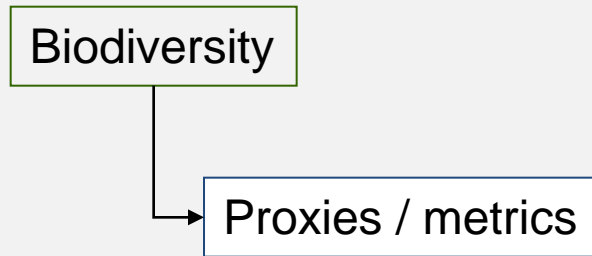


Soil Organic Carbon



Plant cover x plant height → volume

Validation through biomass sampling (per main functional group)



Biodiversity of vascular plants → Composition and species abundance of vascular plants

Species richness

Diversity and Evenness indices

Abundance of selected key species

Including: Invasive alien species

Threatened species

This does not preclude the use of other metrics of site-specific interest.

Any data available is useful, but should be consistently measured for every action considered for evaluation in each site



Ground-based Biophysical Indicators and Methods

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Stakeholders platform engagement and Baseline evaluation

AGOST SITE

Anahí Ocampo; Guadalupe Ortíz; Anna Urgeghe

PRACTICE study sites in Spain: AGOST

Ayora



AGOST

Albatera



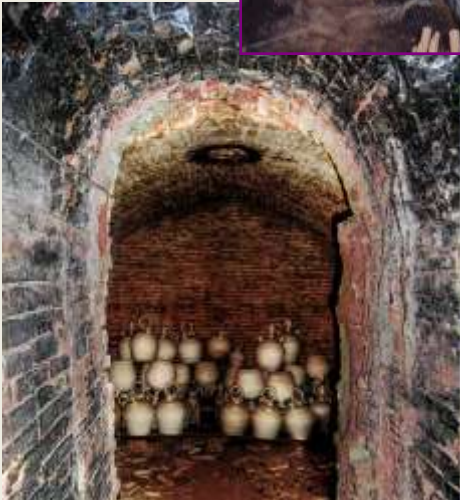
Land use and activities

Past

- Agriculture and wood gathering
- Alpha-grass fiber exploitation

Present

- Vineyard
- Clay industry (mining, pottery, construction)
- Recreation – hunting





VENTÓS catchment (1600 ha)



5 different actions in Ventos catchment :



- NO action. Alpha-grass steppe without reforestation, S-facing slopes.



- Aleppo pine plantation (50s-60s), N-facing slopes



- Aleppo pine plantation (70s-90s), S-facing slopes



- Recharge dam



- Dams on creeks and "barrancos"

Stakeholder platform engagement process

CEAM and University of Alicante team proposed a:

Initial list of Potencial Stakeholders (PSH)

Identification of Categories

37 Names of Potencial Stakeholders

9 PSH from the initial list

14 new PSH = chain referral

6 PSH from chain referral

Interviewed at present

15

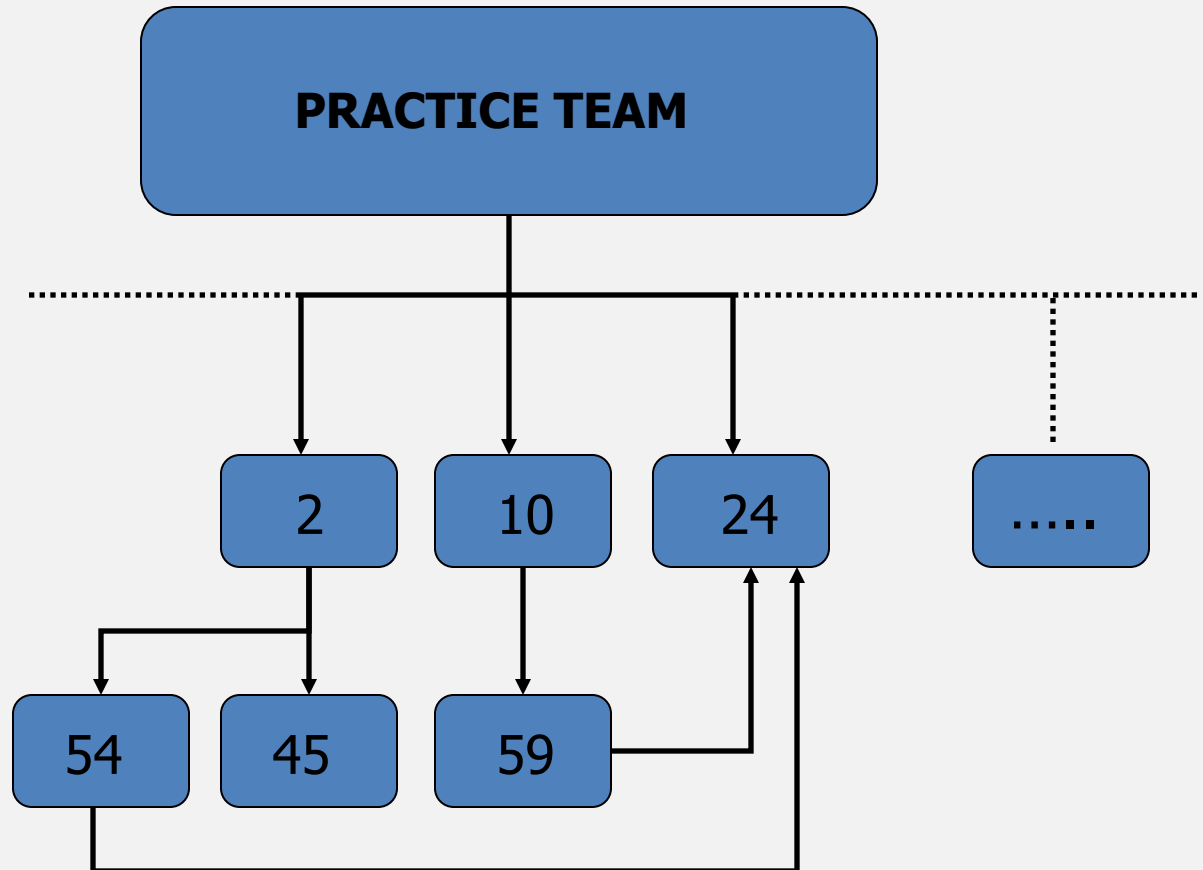
14 Stakeholders

1 NO Stakeholder

Stakeholder platform engagement process

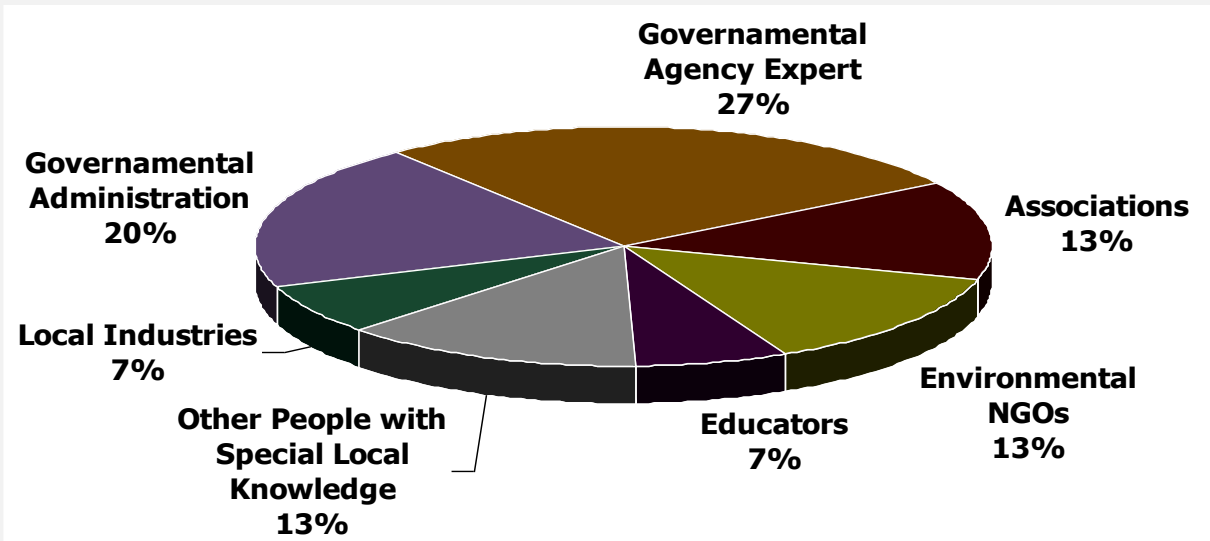
SH code:	Recomended by:
24	59; 56; 54
45	2
46	44
49	42
50	44, 29
51	44
52	24, 49
53	44
54	2; 29; 42
55	42
56	8; 42; 54
57	29
58	57
59	10
60	58
61	58
62	59
63	4; 54
64	4; 56
65	4; 56
66	4; 49

Chain Referral



Step 1: Stakeholder identification

Stakeholder platform composition at date

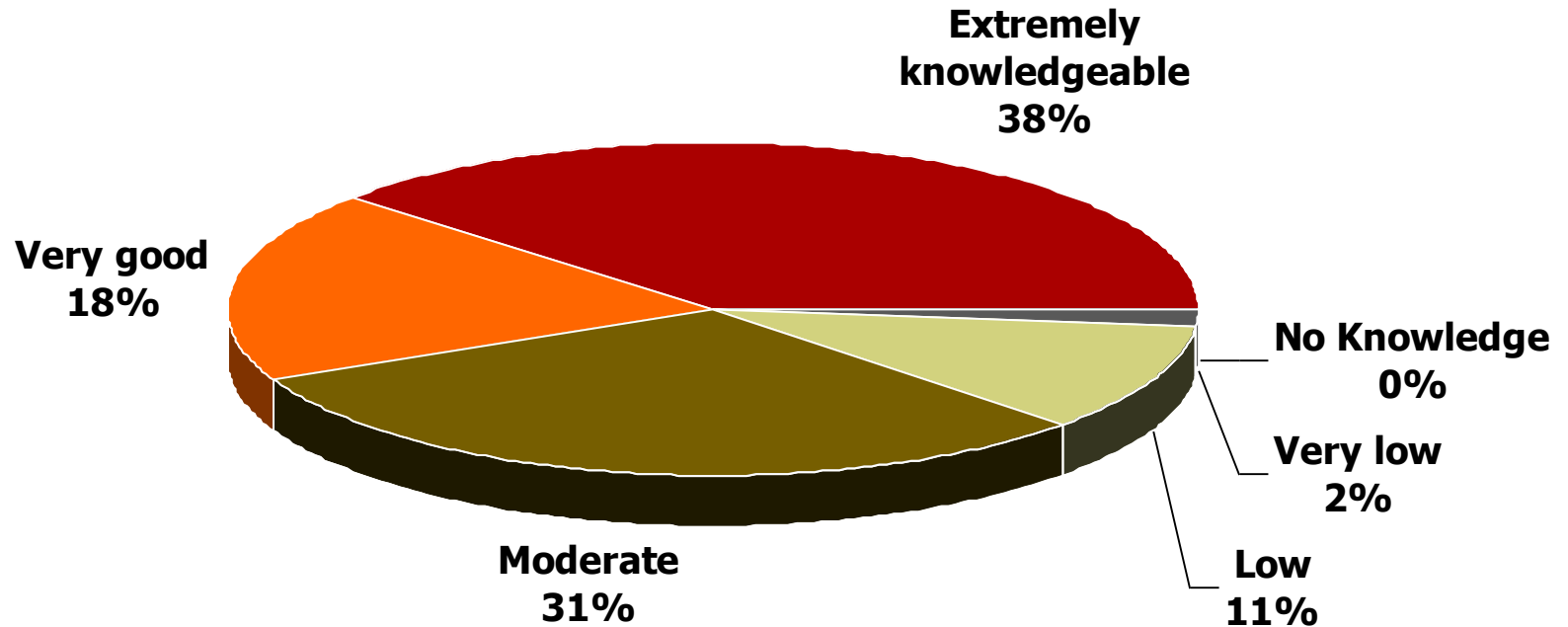


Category <i>Subcategory</i>	Stakeholders Name
Gov. Administrations: <i>Elected Officials</i>	Agost Major
Gov. Administrations: <i>Civil Servents with Knowledge</i>	Current environmental coordinator
Governamental Agency Experts: <i>Forestry</i>	<i>Department of Environment</i>
Associations: <i>Recreation</i>	Hunting Association
Associations: Cultural	<i>Miren per Agost</i>
Environmental NGOs	Ecologistas en Acción
Educators	Agost High school
Other People with Special Local Knowledge	Past Environmental Coordinator
Local Industries	Pottery Industry owner

Step 2: Baseline evaluation

Step 2: Average rate of Knowledge

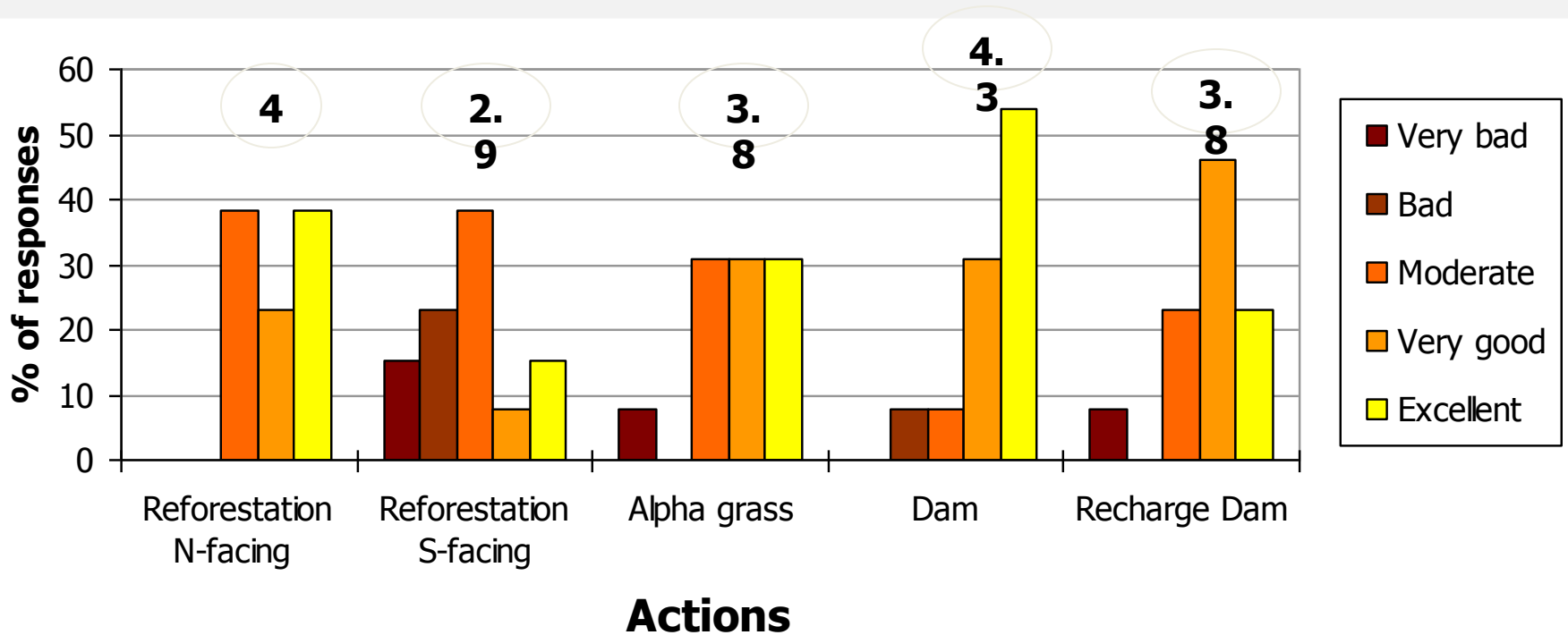
On a scale of 0 to 5, where 0 is "I don't know about this action" and 5 is "extremely knowledgeable," how would you rate your knowledge of these actions?



Step 2: Baseline evaluation

Step 2: Overall opinion on the actions

Do you think this action has been a good choice? On a scale of 1 to 5, where 1 is "very bad choice" and 5 is "excellent choice," how would you rate this action?



Step 2: Baseline evaluation

Positive and negative outcomes

"Very good action"

Dam on creeks

Positive	Negative
Avoid floods	Visual impacts (Not integrated with the landscape)
Labor	
Avoid soil erosion	
Recharge of the aquifer	
None negative outcomes	

"Moderate action"

Forestation on the south slope

Positive	Negative
Stop erosion	Lack of plant diversity (monospecific)
Sequestration of CO ₂	Increase erosion (machine for subsoiling)
Avoids losing organic matter of soil	Risk of fire
	Destroy aquifer

Step 2: Baseline evaluation

Indicators from positive and negative outcomes

- **Soil Conservation**
- Water conservation
- Animal diversity
- Plant diversity
- Landscape aesthetic quality
- Flood prevention
- Carbon sequestration
- Labor
- Provision of goods
- Recreation use
- Cultural and natural heritage conservation
- Soil quality
- Fire risk/prevention
- Vegetation cover
- Resistance/resilience of species used

- Soil consolidation
- Avoid erosion
- Retencion of sediments
- Keeping the soil
- Soil protection
- Fixation of soil

Do you have any other criteria that you would suggest to consider?

Cost

Local involvement on the decision

Number of autochthonous/exotics plants