Adaptive Landscape Institutions

From place-based landscape research to International public goods

Lessons from FTA phase 1 and ways forward into FTA phase 2

18 December 2017
Gustav Stresemann Institute, Bonn, Germany

CGIAR RESEARCH PROGRAM ON Forests, Trees and Agroforestry

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In partnership with: Bioversity International, CATIE, cirad, INBAR, Tropenbos International, World Agroforestry Centre

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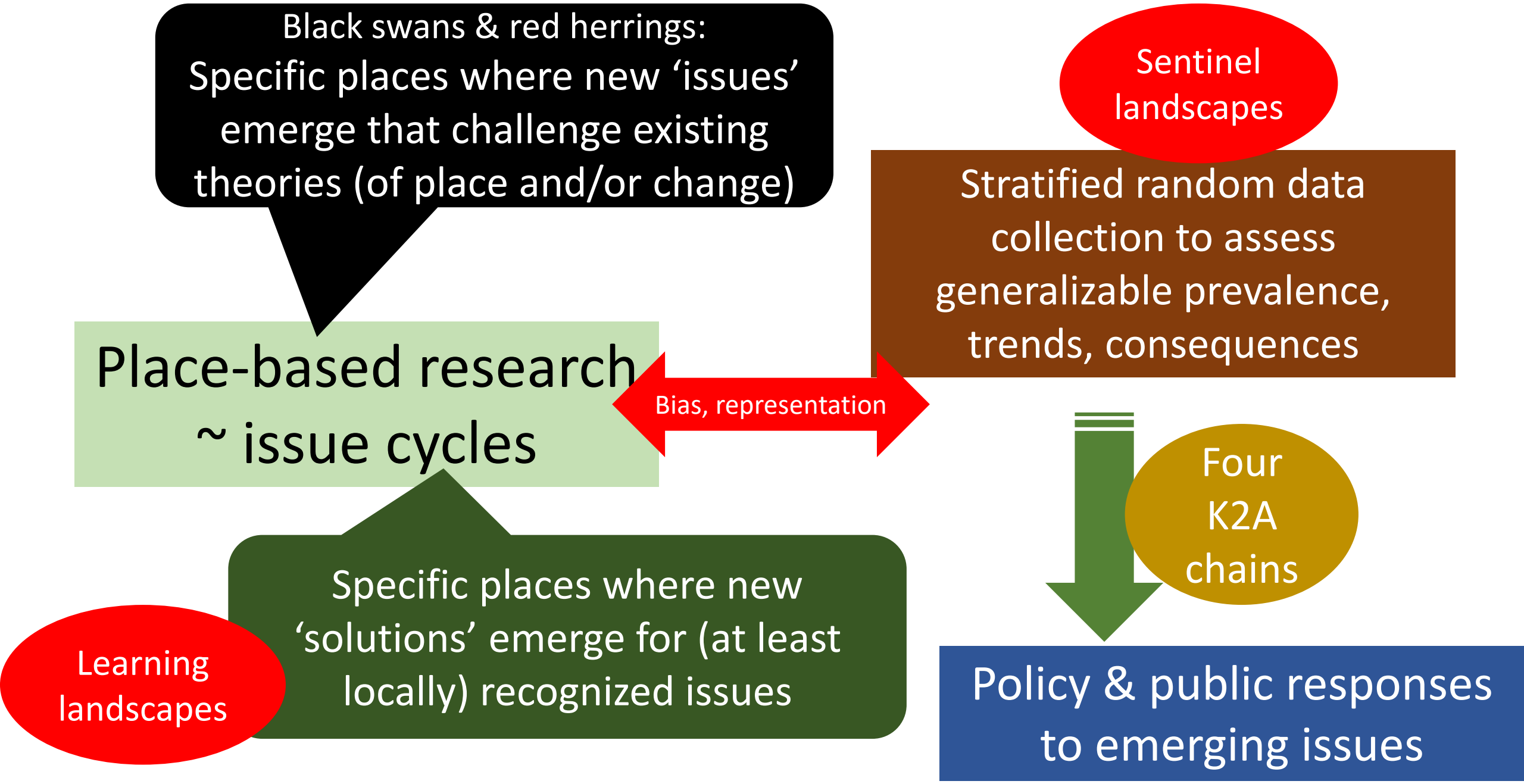

Black swans & red herrings:
Specific places where new 'issues' emerge that challenge existing theories (of place and/or change)
Sentinel landscapes
Stratified random data collection to assess generalizable prevalence, trends, consequences
Place-based research ~ issue cycles
Bias, representation
Four K2A chains
Specific places where new 'solutions' emerge for (at least locally) recognized issues
Learning landscapes
Policy & public responses to emerging issues

A. Theory of Place

Markets ⟷ People

Ecosystem (dis)services

Tree biomass (basal area)

Degradation

Operational forest definition

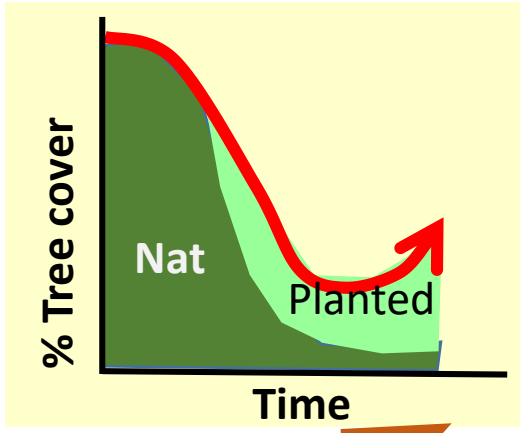
Deforestation

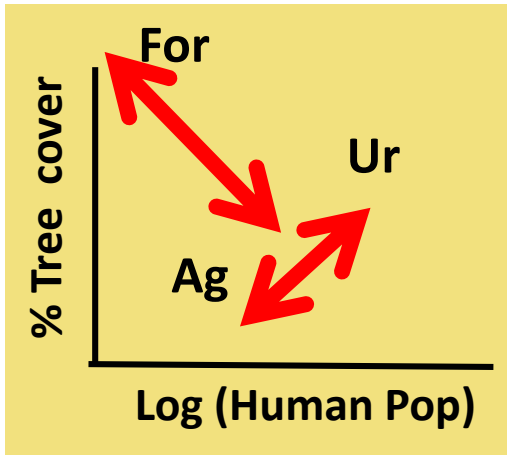
Agro-/Re-forestation

Trees outside forest

Core forest | Logged-over forest | Secondary & agroforest | Grassland & shrub

B. Theory of change (drivers)





- Logging, forest management (For)
- Agricultural (Ag) expansion
- Plantation development
- Agricultural de/re-treeing
- Agroforestation
- (Peri)urban (Ur) re-treeing

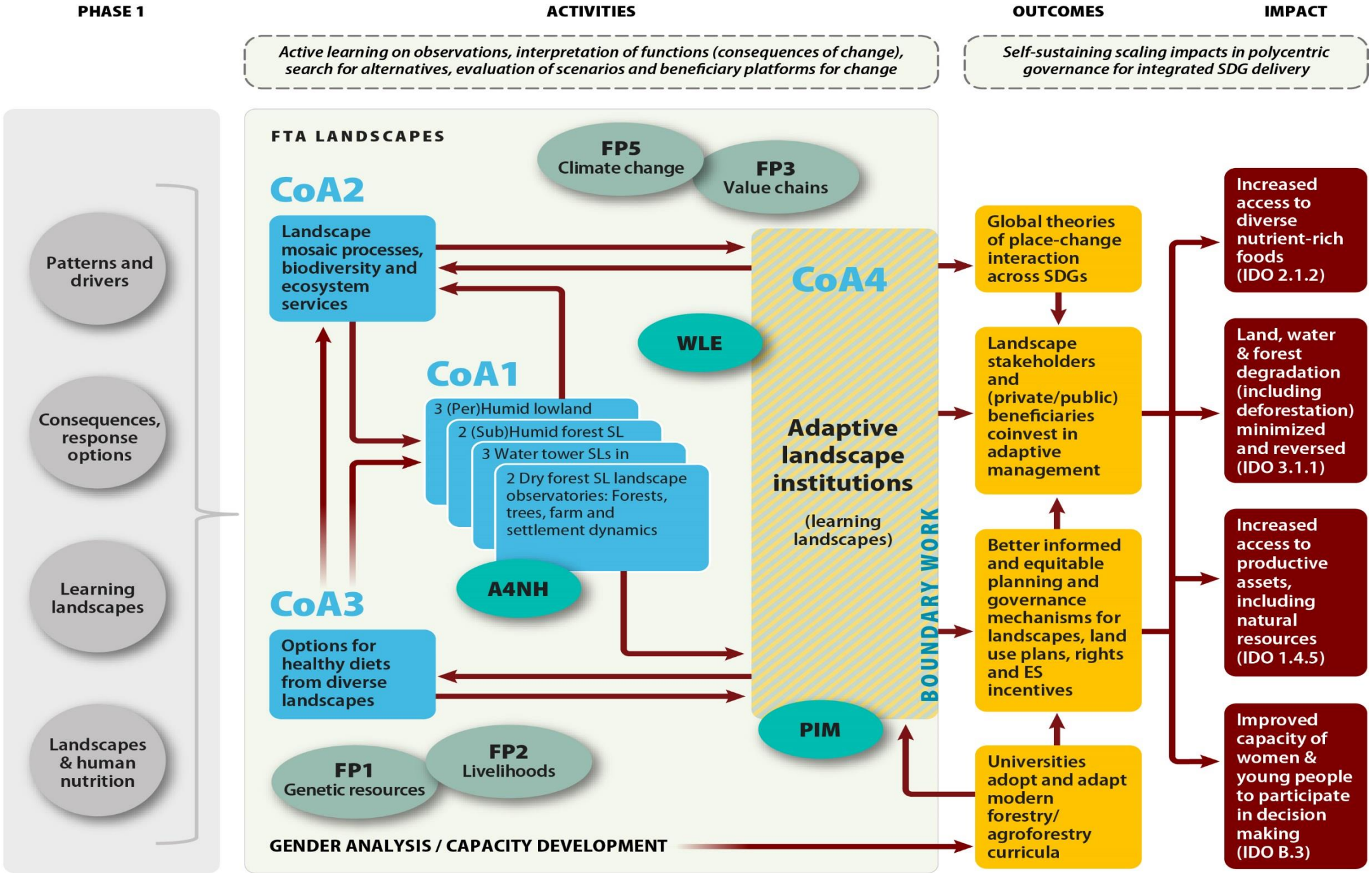
C. Theory of induced change

Intervention

- Changes of awareness, monitoring, analysis of options and scenarios
- Changes of land (use) rights, regulations of conversion, agricultural & urban planning
- Changes in economic incentives, market demand, profitability, taxation, certification

Actors

Van Noordwijk (2017)


PHASE 1
ACTIVITIES
OUTCOMES
IMPACT
Active learning on observations, interpretation of functions (consequences of change), search for alternatives, evaluation of scenarios and beneficiary platforms for change
Self-sustaining scaling impacts in polycentric governance for integrated SDG delivery
Patterns and drivers
Consequences, response options
Learning landscapes
Landscapes & human nutrition
FTA LANDSCAPES
FP5 Climate change
FP3 Value chains
CoA2
Landscape mosaic processes, biodiversity and ecosystem services
CoA1
3 (Per)Humid lowland
2 (Sub)Humid forest SL
3 Water tower SLs in
2 Dry forest SL landscape observatories: Forests, trees, farm and settlement dynamics
WLE
A4NH
CoA3
Options for healthy diets from diverse landscapes
CoA4
Adaptive landscape institutions
(learning landscapes)
BOUNDARY WORK
PIM
FP1 Genetic resources
FP2 Livelihoods
GENDER ANALYSIS / CAPACITY DEVELOPMENT
Global theories of place-change interaction across SDGs
Landscape stakeholders and (private/public) beneficiaries coinvest in adaptive management
Better informed and equitable planning and governance mechanisms for landscapes, land use plans, rights and ES incentives
Universities adopt and adapt modern forestry/ agroforestry curricula
Increased access to diverse nutrient-rich foods (IDO 2.1.2)
Land, water & forest degradation (including deforestation) minimized and reversed (IDO 3.1.1)
Increased access to productive assets, including natural resources (IDO 1.4.5)
Improved capacity of women & young people to participate in decision making (IDO B.3)

Key deliverables

2017 Exchange of lessons learned across the various learning landscapes associated with FTA, including a further review of existing typologies of 'payment for watershed services' settings and as basis for new action research efforts.

2018 Reflection on the multi-scale character of the 'common but differentiated responsibility' phrase that so far is primarily used at international negotiation tables but that may increase space for local adaptive landscape management.

2019 Compilation of lessons learned at landscape scale across the learning landscape networks for reporting on Aichi targets to CBD.

2020 Impact study of the further development and use of the LUMENS tool for participatory planning of land uses providing multiple environmental services. Cost-effective, multi-scale and participatory protocols for monitoring viability of restored forests developed and adopted by key countries and other stakeholders.

2021 Documented investment action of development support partners on the basis of the shared learning that links issues to places and action perspectives

2022 Next-level stock taking of how the 'payment for environmental services' debate has progressed conceptually (combining behavioral economics, applied ecology and institutional political ecology) and in evolving practice.

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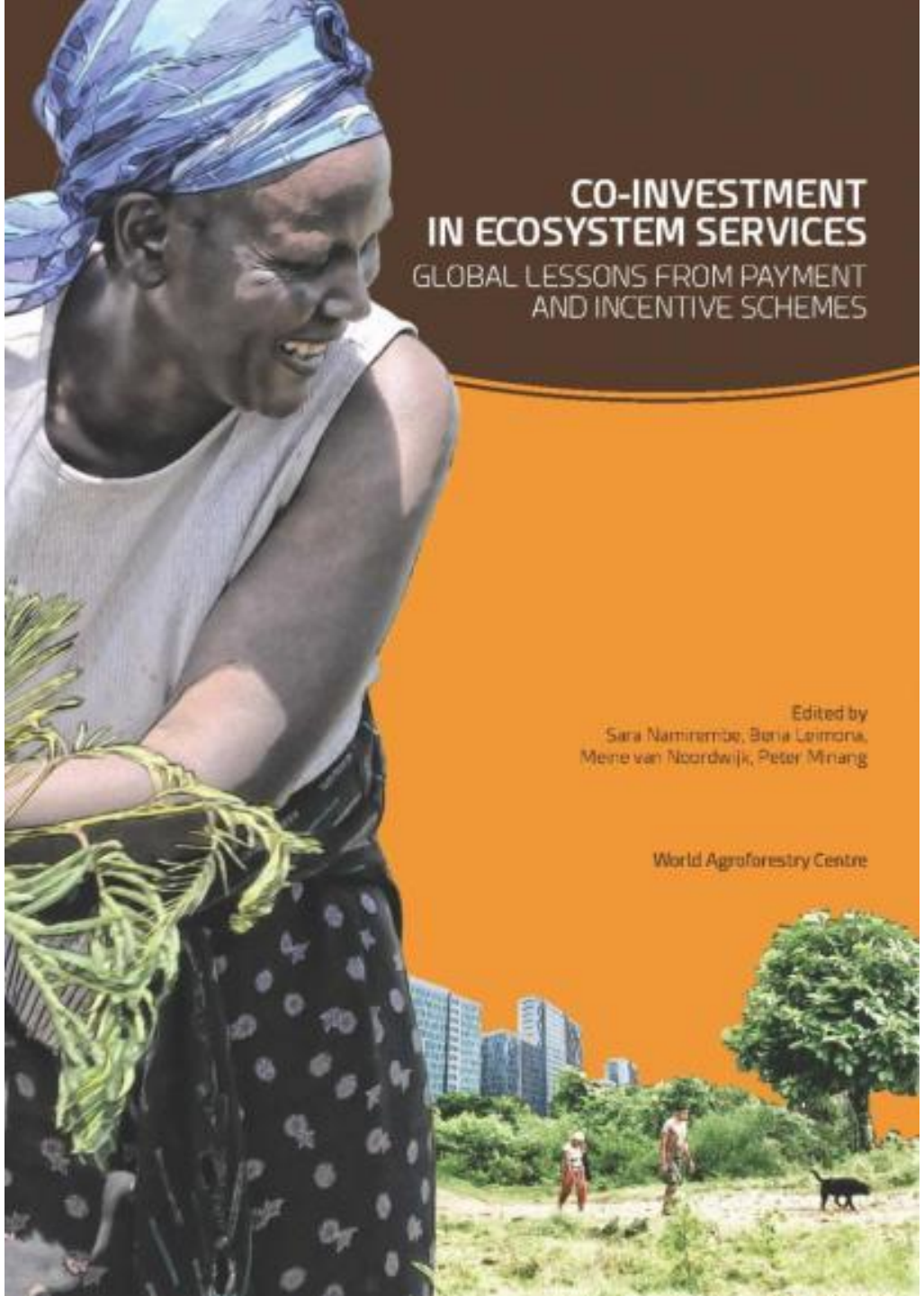
highlights

lessons and bilateral portfolio



http://www.worldagroforestry.org/sd/environmental-services/PES

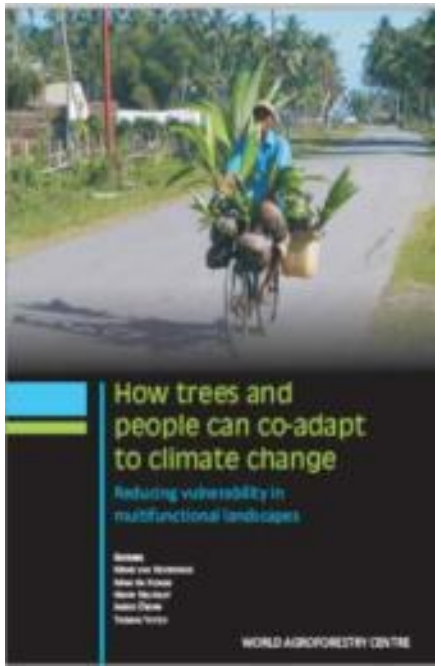
[Co-investment in ecosystem services: global lessons from payment and incentive schemes.]

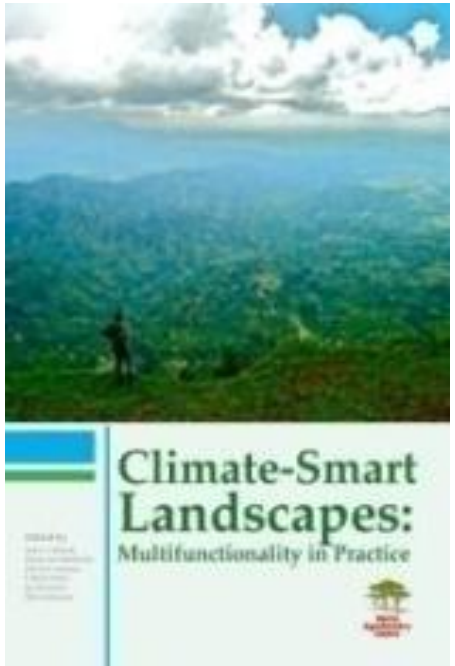
[Typology and metrics of ecosystem services and functions as the basis for payments, rewards and co-investment]

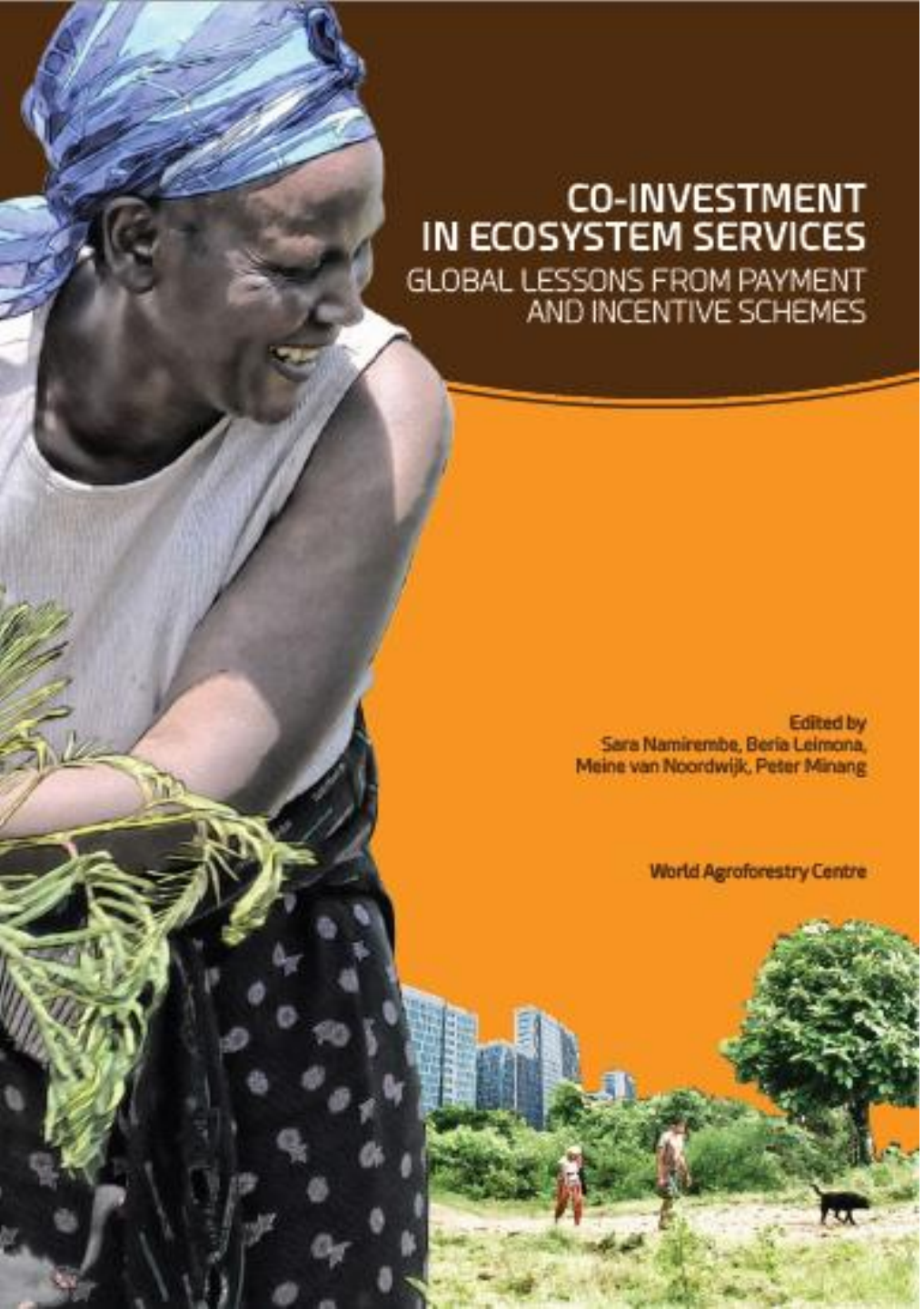
[Tradeoffs]

[Eco-certification and the commoditization of ecosystem services]

[Pro-poor PES designs? Balancing efficiency and equity in local context]







Highlight

- Nature cannot be valued, but the services that people derive from it can and land use decisions to protect or enhance such services can be supported by economic incentives
- Effects of land use on human being, on-site and off-site, are normally a mixture of positive and negative impacts on the various layers of a human well-being pyramid
- Provisioning services, for which markets usually exist, tend to get prioritized over regulating and cultural ecosystem services, unless these other services are actively supported
- Payments for ecosystem services are part of a policy bundle of regulation ("sticks"), incentives ("carrot") and internalized motivation ("sermons")
- We present a framework for analysing the way PES instruments have so far been used, with testable propositions on ecological, economic, social and policy aspects
- Case studies from Asia, Africa and Latin America

Download E-book and/or separate chapters from:

http://www.worldagroforestry.org/sd/environmental-services/PES

Climate-Smart, Tree-Based, Co-investment

in Adaptation and Mitigation in Asia

The Smart Tree-Invest team

Indonesia, Philippines, Vietnam

Presented by Dr Delia Catacutan

Beria Leimona

Sacha Amaruzaman

Betha Lusiana

Rachmat Mulia

Karmina Paola Anit

Dam Viet Bac

Regine Evangelista

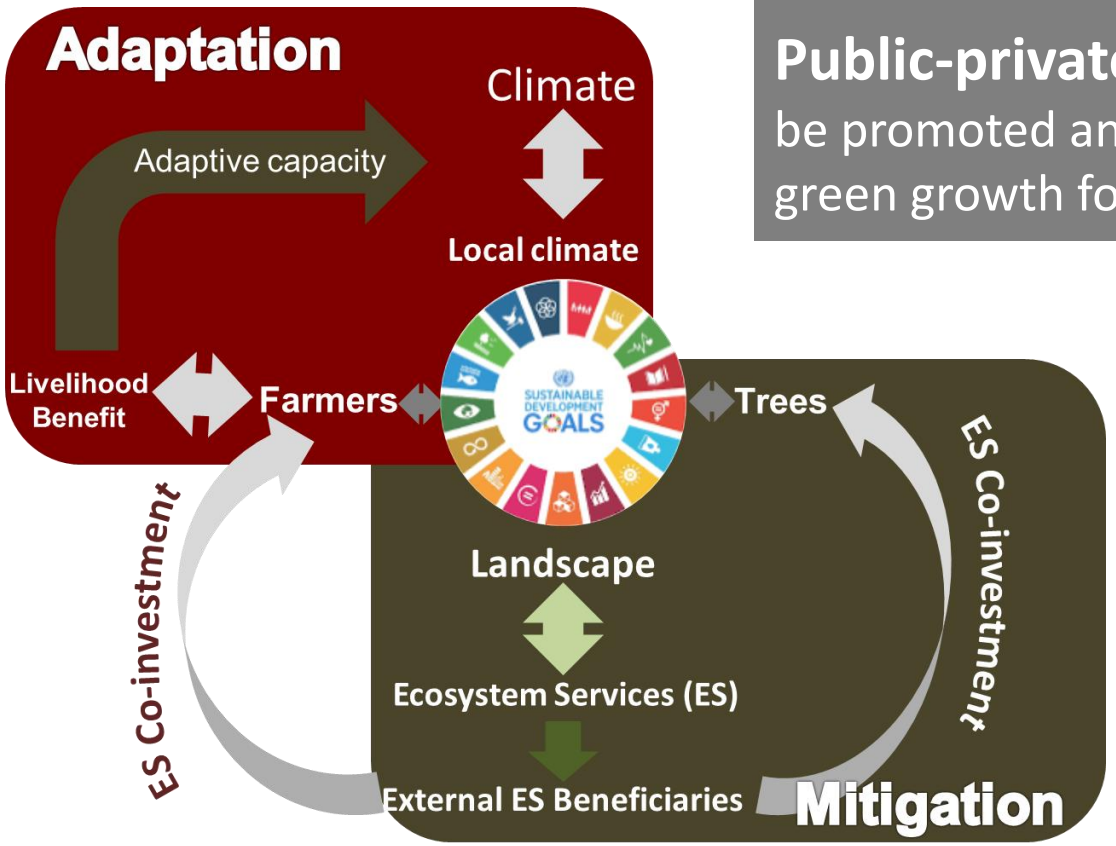
World Agroforestry Centre

CGIAR RESEARCH PROGRAM ON Forests, Trees and Agroforestry

IFAD Investing in rural people

Livelihoods and **resilience** of smallholder farmers through the promotion of **climate-smart, tree-based agriculture** in **Indonesia, Philippines and Vietnam**

SmarInvest

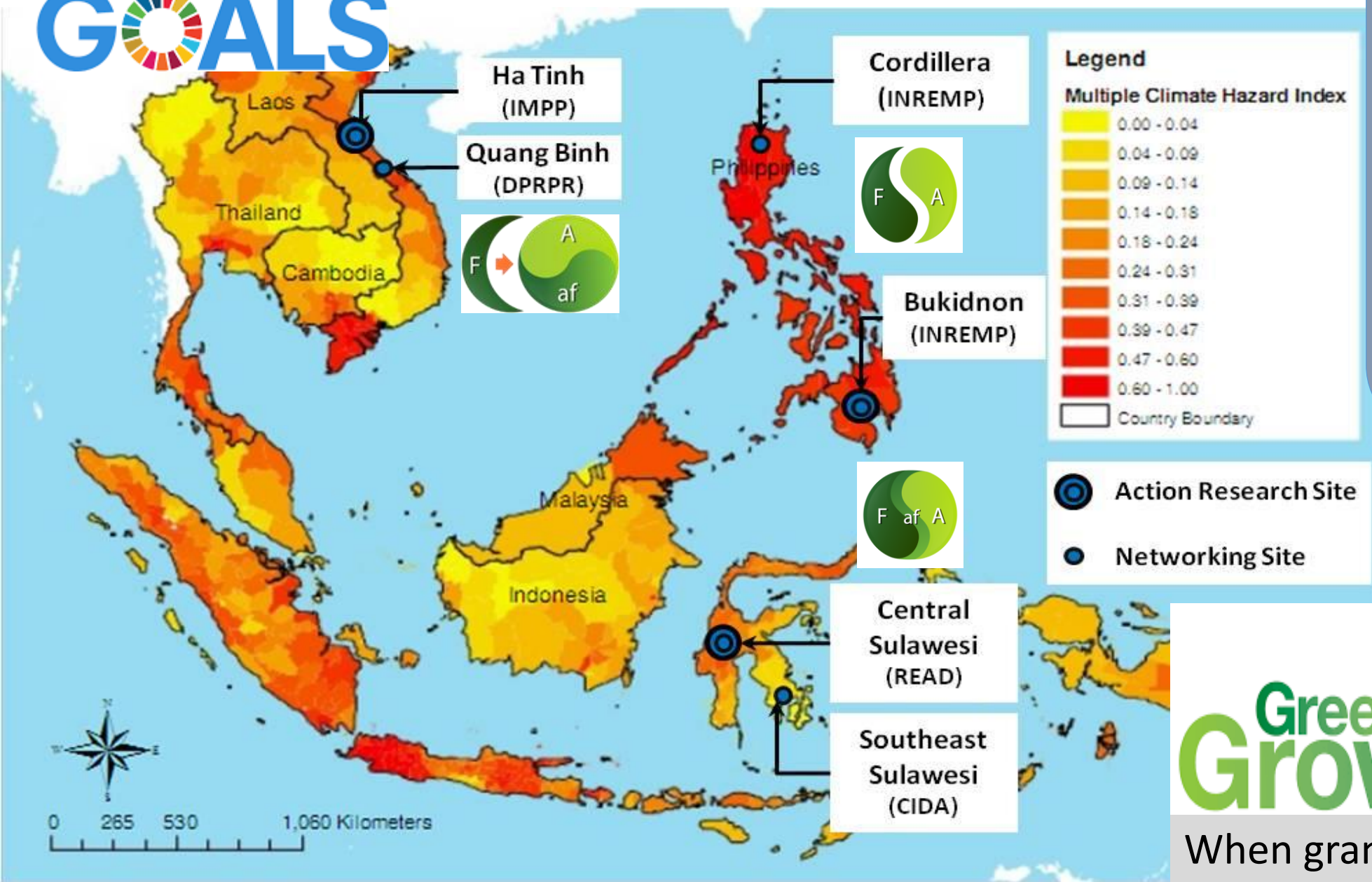


Green approaches: applied universally? Barriers to its implementations?

Sustainable agriculture: concerted efforts to upscaling?

Public-private partnerships be promoted and used to drive green growth for smallholders?

SUSTAINABLE DEVELOPMENT GOALS



- Smart Tree-Invest applies landscape approach
- Sites are defined as cluster that shares similar characteristic (beyond admin. boundaries)

Green Growth

When grant meets investment....

> 1000 Household Survey, state of nutrition and food diversity

- Livelihood capital baseline
- Anthropometric measurement
- 24-call hour recall for mother and toddler's diet

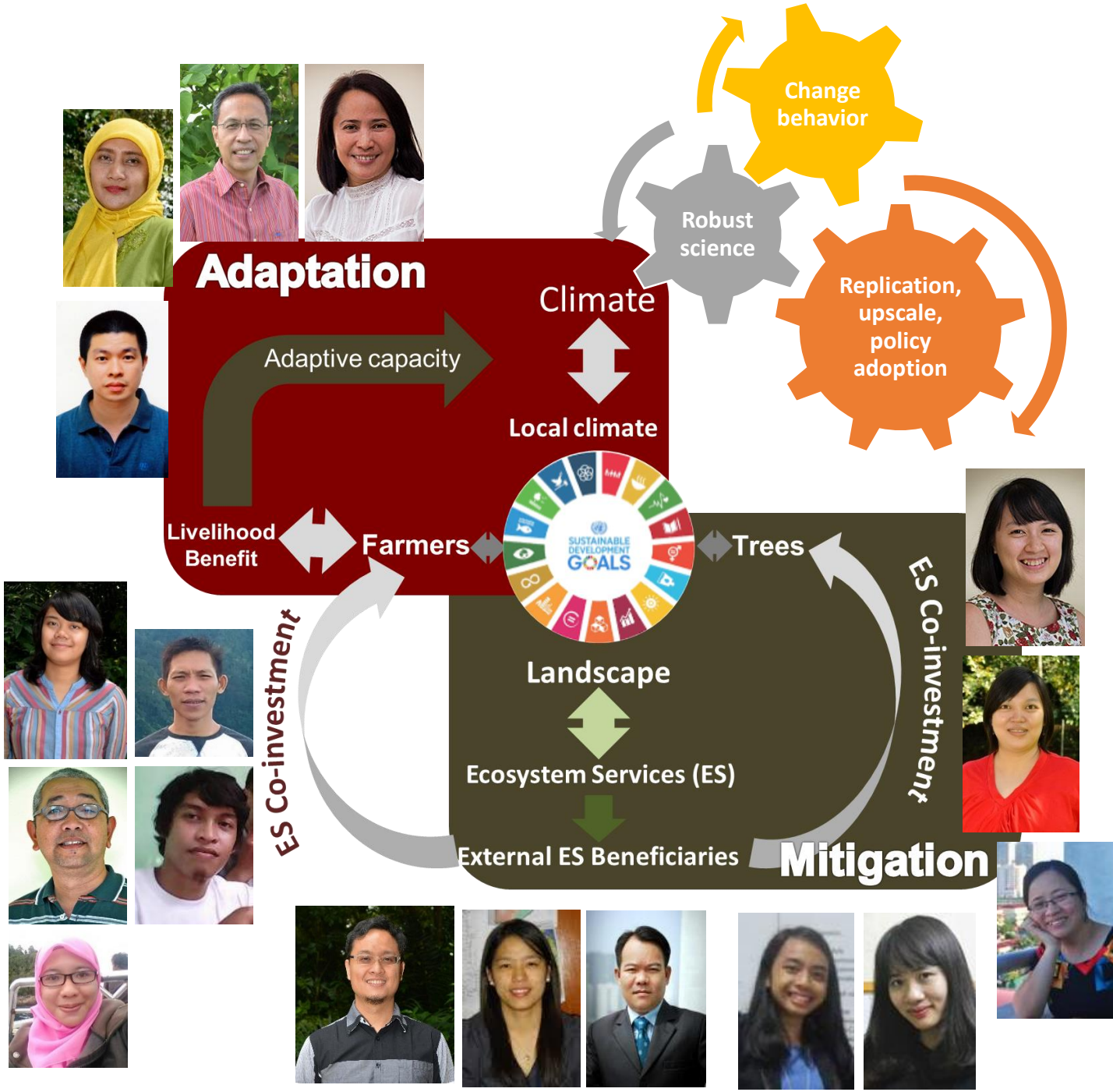
> 130 Focus Group Discussions (>1100 participants)

- Vulnerability assessment
- Tree preferences
- Landscape visioning and farmers' perceptions
- SWOT resilience and local knowledge

(Participatory) Ground measurements:

- Spatial analysis (land cover)
- Hydrology (buffering index for watershed)
- Climatic, agro-biodiversity
- Carbon stocks

Multistakeholder trainings (communities, sub-national government officers) **and demo pilots**



Agroforestry 1

- Land management premised ecologically and economically suitable
- Specific practices combining trees, crops and/or livestock and aims for positive interactions

Tools: HH Survey, FGD, pilot activities

Activities:

- Tree nurseries
- Farmers' AF trainings
- AF home garden model

Agroforestry 2

- A part of integrated and multifunctional land use systems
- Landscape level interface of trees and farms, farmers and forest, tree domestication

Tools: FGD, watershed games, ES measurement and monitoring, FALLOW modeling

Activities:

- Business Case development
- Trainings on ES monitoring
- Co-investment schemes

Agroforestry 3

- Unifying concept
- Policy interface between agriculture and forestry

Tools: Outcome Mapping, Policy advocacy, Watershed forum

Policy implications:

- **Indonesia**: Village Fund, Compensation/Rewards and Payment for Ecosystem Services
- **Phil**: Sustainable financing mechanism for watershed management
- **Vietnam**: PFES, New Rural development Program, Local Agricultural Restructuring Program

CASAVA capacity strengthening and vulnerability assessment

Livelihood, Ecosystem Services and Water Efficiency

Research in Action and Development in Pasuruan, East Java, Indonesia

Beria Leimona (L.Beria@cgiar.org)

ESP 9 WORLD CONFERENCE
Shenzhen, China 11-15 Dec 2017
Ecosystem Services for Eco-civilization
Restoring connections between people & landscapes through nature-based solutions

How to engage the private sector in PES?

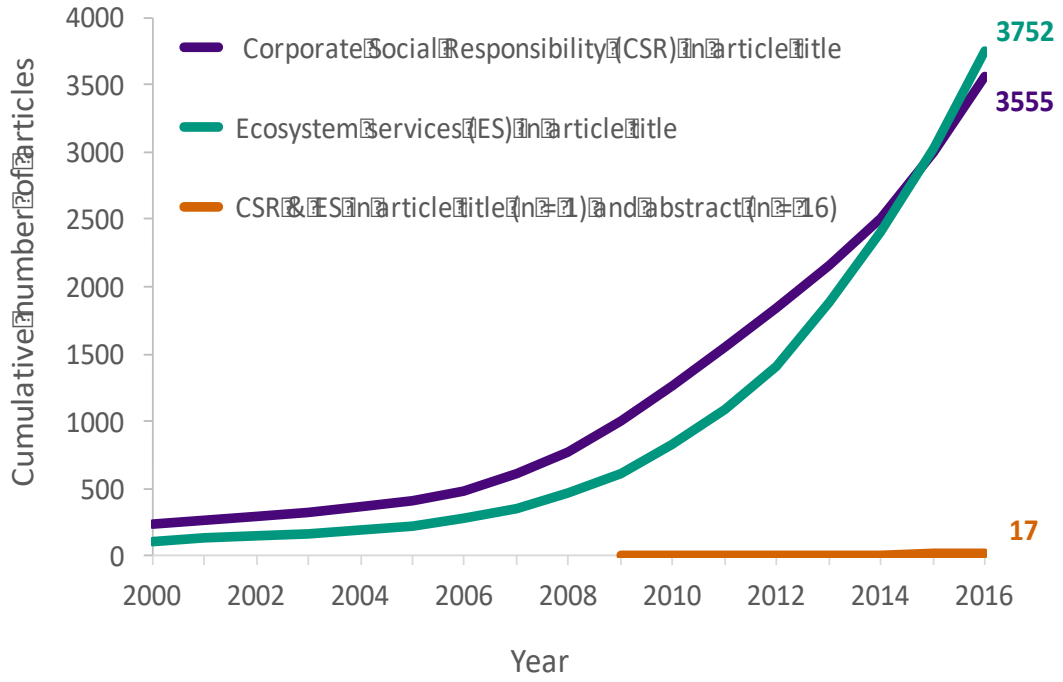
From the Business-side
Business case for investing in ecosystem services and natural capital, related to supply chain management (**production inputs**), and adhering to regulations (**avoiding fines**).

From the PES-side
Need to identify other instruments that are hybridizing with and "inspiring" PES (Wunder, 2015 – *Ecological Economics*)

CSR involves firms being aware of their economic, legal, ethical, philanthropic, & environmental responsibilities to shareholders, stakeholders, and society.

US$ 4.8B yr^{-1} spent on CSR by F500

US$ 1.1B yr^{-1} spent on conservation



B Thompson. 2017. The intersection of Payments for Ecosystem Services (PES) and Corporate Social Responsibility (CSR)

WHAT IS REJOSO KITA?

1. **Multistakeholder watershed governance**
2. **Payment for ecosystem services**
3. **Water efficiency and good consumer behaviours**

Co-investment in landscape stewardship

People

Public **Private**

Initial appraisal of context

Participatory landscape diagnosis (1)

Lives, land-use and livelihood

Land-use practices, systems and technology (3)

Profitability (4)

Gender-sensitive knowledge on vulnerability and adaptive capacity (5)

Landscapes, ecosystem services, tradeoffs

Land use/cover trajectories and drivers (2)

Ecosystem services quantification: **watershed functions and water-use efficiency** (6)

Behavioural changes, transformation, governance for co-investment

Potential business cases, workplan and Outcome mapping (7)

Science to Action

for integrated watershed management and livelihood enhancement

Monitoring and evaluation (7)

Process of negotiated change of

awareness, behaviour and co-investment in watershed protection

provide **scientific basis** for the design, implementation, monitoring and evaluation (M&E) for integrative and participatory **watershed management** and livelihood enhancement in **Rejoso watershed**

Watershed services and water efficiency:
investing in ecosystem services and community's change of behaviour

Sedimentation reduction and Infiltration improvement

Upstream cluster: Sedaeng, Wonokitri, Keduwung Atas

Co-investment 1

- **Activities**
  - Horticulture land enrichment with Casuarina trees
  - Strip-grass planting in critical erosion hot-spots
- **Performance indicators**
  - Infiltration rate
  - Sedimentation rate

Tree density improvement through agroforestry

Midstream cluster: Galih, Petung, Ampelsari, Tempuran and Keduwung Bawah

Co-investment 2

- **Activities**
  - Land rehabilitation
  - Enrichment of trees on the local agricultural land
- **Performance indicators**
  - Basal area
  - Number of trees
  - Infiltration rate
  - Litter thickness
  - Carbon Stock

Sustainable artesian wells management

Downstream cluster: **Gondang wetan dan Winongan**

Co-investment 3

- **Activities**
  - Close the unused artesian wells
- **Indicator**
  - Water efficiency
  - The amount of well that is not being used and willing to be close.

Source: ICRAF findings in Rejoso

Element of conservation contract

(Midstream – Cluster)

- Planting/maintaining a woody tree of at least 500 trees/ha, with maximum 50 trees of sengon
- Making 200 sediment pits per ha, with the size 50x50x40 cm or making terrace with vegetative strips minimum 50% of area
- Allowed to prune the tree for productivity maintenance
- Allowed to clean the weeds
- Not allowed to clean the litter
- Not allowed to cut trees
- Dead tree must be replaced
- Keeping the tree name tag
- Keeping and maintaining the monitoring tools/instruments

Monitoring and payment	%	Monitoring activities
Contract-signing and first payment (December 22-23, 2017)	30	
First monitoring (March 2018)		100 sediment pits /ha and 300 trees/ha
Second monitoring and payment (June 2018)	30	200 sediment pits/ha and 500 trees/ha
Final monitoring and payment (December 2018)	40	200 sediment pits/ha and 500 trees/ha

Element of Conservation Contract

(Upstream – Cluster)

- Planting and maintaining 300 cemara/ha distributed evenly on farms.
- Planting strip-grass along the drainage channel and parallel with the contour, minimum 50% area
- Allowed to clean the weeds
- Not allowed to clean the litter
- Not allowed to cut the tree. If the farmer need to cut the tree, he must report to village chief
- Dead tree must be replaced
- Allowed to prune the cemara (*nutui*) as a plant maintenance
- Must keep tree name tag
- Must keep and maintain the monitoring tools/instruments

Monitoring and payment	%	Monitoring activities
Contract-signing and first payment (Desember 22-23, 2017)	40	
First monitoring (March 2018)		Strip-grass planting 100% Establish cemara seedling
Second monitoring and payment (September 2018)	30	strip-grass planting 100% Cemara planting 80%
Final monitoring and payment (December 2018)	30	strip-grass planting 100% Cemara planting 100%

Design of Procurement Auction: 2 stages – individual and group at each cluster

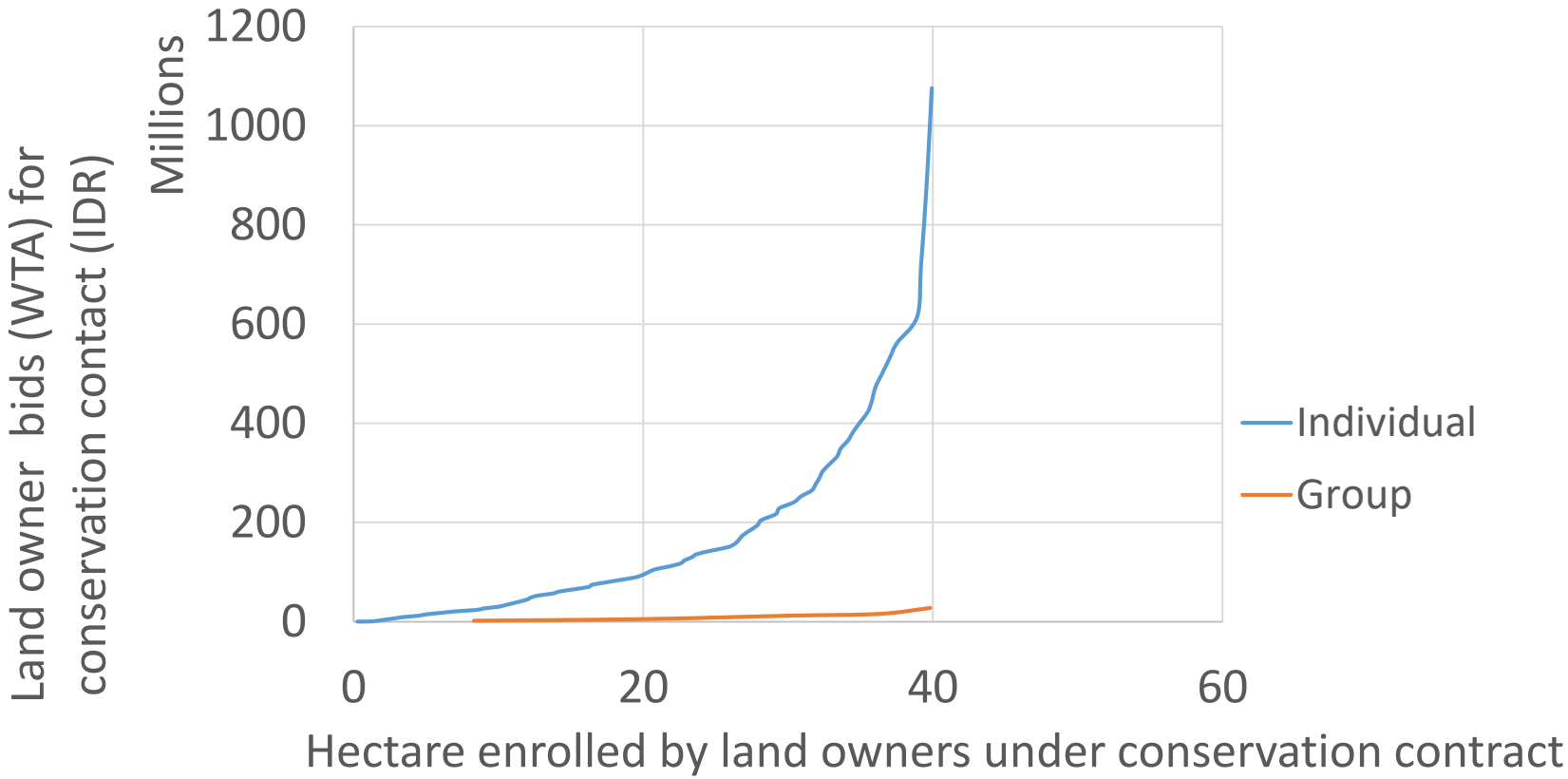
Auction component	**Options**
Auction type	One-sided, sealed bid, 2nd price Vickrey with budget constrained
Tie-rule	Random
Pricing rule	Uniform
Reserve price	Without reserve price
Bidding units	Total WTA
Bidder numbers	Known
Bidder strategy	No collusion
Activities contracted	Determined in advance
Number of rounds	Announced in advance • Individual: 5 trials and1 final; Group: 3 trials and 1 final
Announcement of provision winners	Announce ID numbers
Announcement of amount of limited budget	Concealed

Upstream auction results: individual and group

Individual	Unit	Final round
Total participants	persons	70
Total submitted land	hectare	39.92
Total bids	IDR	620,060,000
Bid per hectare		
Average	IDR	15,365,028
Median	IDR	6,000,000
Min bid	IDR	200,000
Total winner	persons	25
Total winning land	hectare	16.22
Cut-off price	**IDR/hectare**	**4,511,500**
Total contract value	IDR	85,538,040

Group	Unit	
Total group	group	7
Total submitted land	hectare	39.82
Total bids	IDR	579,423,500
Bid per hectare		
Average	IDR	3,937,652
Median	IDR	3,000,000
Min bid	IDR	1,701,743
Max bid	IDR	12,000,000
Total winner	group	4
Total winning land	hectare	25.94
Cut-off price	**IDR/hectare**	**3,196,347**
Total contract value	IDR	94,725,926

Supply curve resulting from reverse auction in upstream



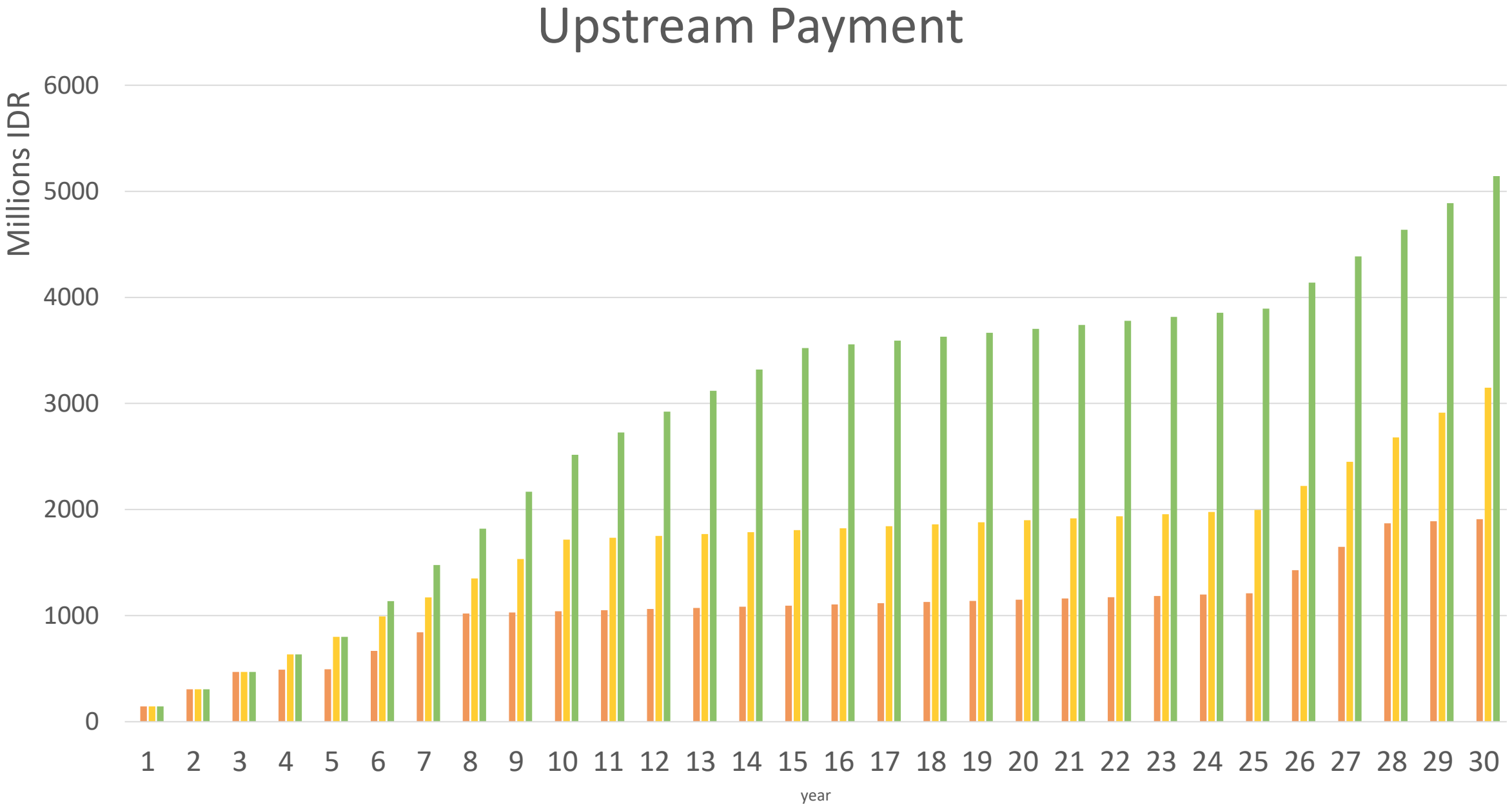
Insight

- Group decision on contact value is more rational and efficient
- Individuals tend to have random bids compared when they are in group
- Collective decisions allow better WTA and acceptance of conservation contract

Projection of payment for 30 years
(with scenario continuous payment in: 3, 5, and 10 years)

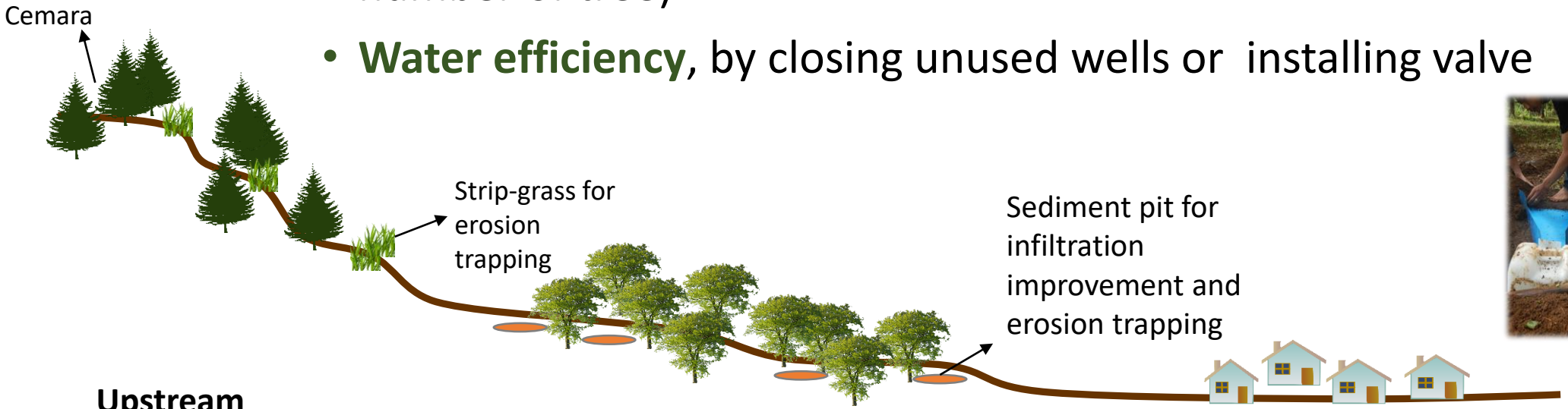
Upstream cluster		
Total horticulture upstream cluster (2015)	3075.39	Hectare
Total horticulture Rejoso (2015)	6506	Hectare
Target in 30 year	97%	
Contract value	3200000	IDR
NPV rate	0.01	

Year	1	2	3	4	5	6	7	8	9	10	30
additional land (hectare)	45	50	50	50	50	100	100	100	100	100	150
cummulative land (hectare)	45	95	145	195	245	345	445	545	645	745	2995
Land growth annually	1%	3%	5%	6%	8%	11%	14%	18%	21%	24%	97%
Contract value	3200000	3,232,323	3,264,973	3,297,952	3,331,265	3,364,914	3,398,903	3,433,236	3,467,915	3,502,944	4,282,815
Annual additional payment	144,000,000	161,616,162	163,248,648	164,897,624	166,563,257	336,491,428	339,890,331	343,323,567	346,791,482	350,294,426	642,422,279
Total payment (3 years)	144,000,000	305,616,162	468,864,810	489,762,434	494,709,529	667,952,309	842,945,016	1,019,705,327	1,030,005,380	1,040,409,475	1,908,058,412
Total payment (5 years)	144,000,000	305,616,162	468,864,810	633,762,434	800,325,691	992,817,119	1,171,091,289	1,351,166,208	1,533,060,065	1,716,791,235	3,148,508,386
Total payment (10 years)	144,000,000	305,616,162	468,864,810	633,762,434	800,325,691	1,136,817,119	1,476,707,450	1,820,031,018	2,166,822,499	2,517,116,926	5,144,641,817


Upstream Payment
Millions IDR
6000
5000
4000
3000
2000
1000
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
year

Impact to ecosystem services

- **Infiltration improvement** through maintaining the surface roughness by keeping the presence of litter and rock *(based on Brawijaya research)*
- **Sediment and runoff reduction**, through soil conservation and increasing basal area and soil cover by tree, strip-grass and sediment pits
- **Increasing carbon stock**, through tree enrichment (or adding the number of tree)
- **Water efficiency**, by closing unused wells or installing valve



Upstream
Soil protection and infiltration improvement

Midstream
Infiltration improvement

Downstream
Water management

FOREST AND LANDSCAPE RESTORATION ASSESSMENT [FLORAS]

Restoring multi-functionality of landscapes in Southern Sumatra, Indonesia

Andree Ekadinata, Chandra Irawadi Wijaya, Sonya Dewi, Arga Pandiwijaya, Harry Aksomo, Adrian Dwiputra, Subekti Rahayu, and Asri Joni

World Agroforestry Centre

WRI INDONESIA

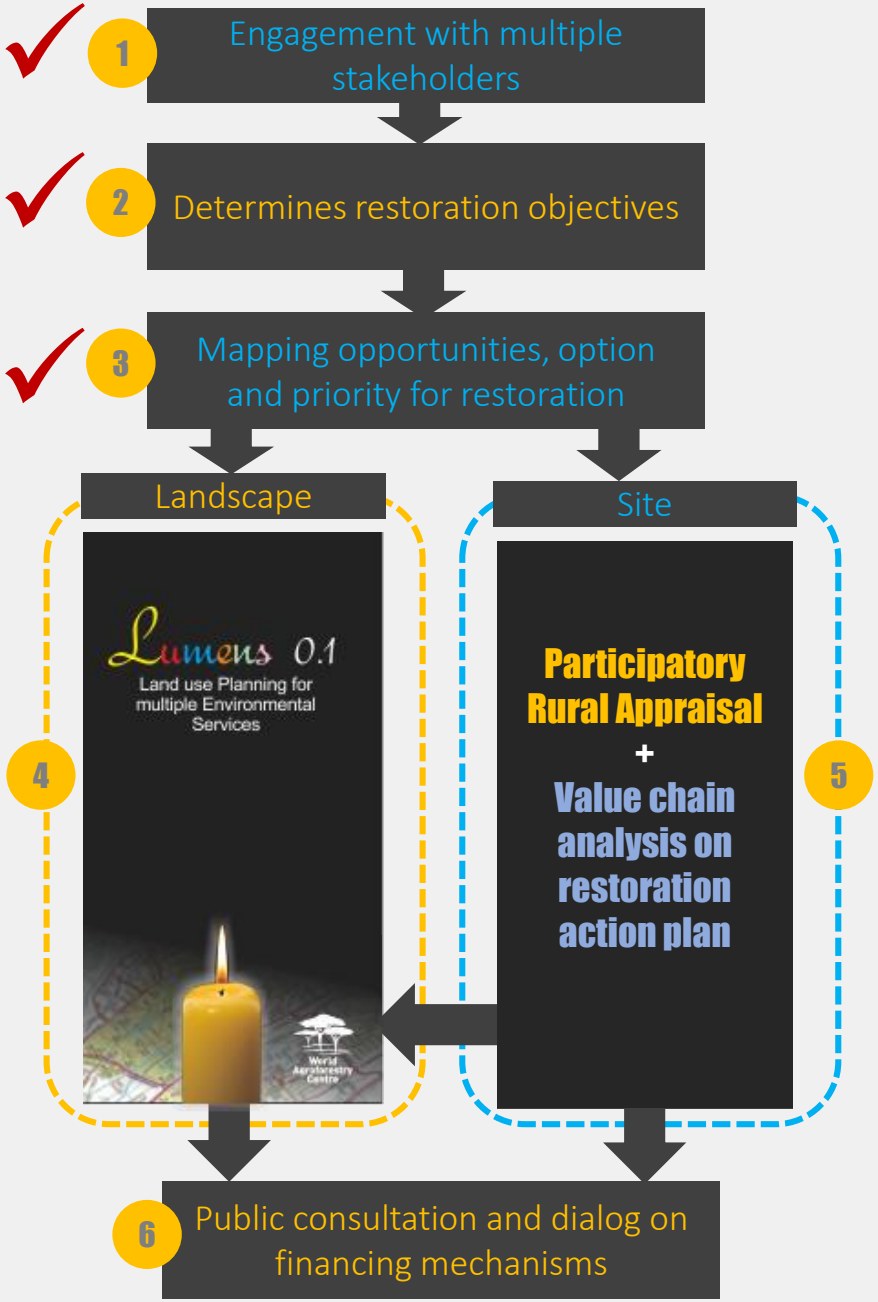
Forum DAS Sumsel

ROAM

IUCN and WRI. 2014. A guide to the Restoration Opportunities Assessment Methodology (ROAM): Assessing forest landscape restoration opportunities at the national or sub-national level. Working Paper (Road-test edition). Gland, Switzerland: IUCN. 125pp.

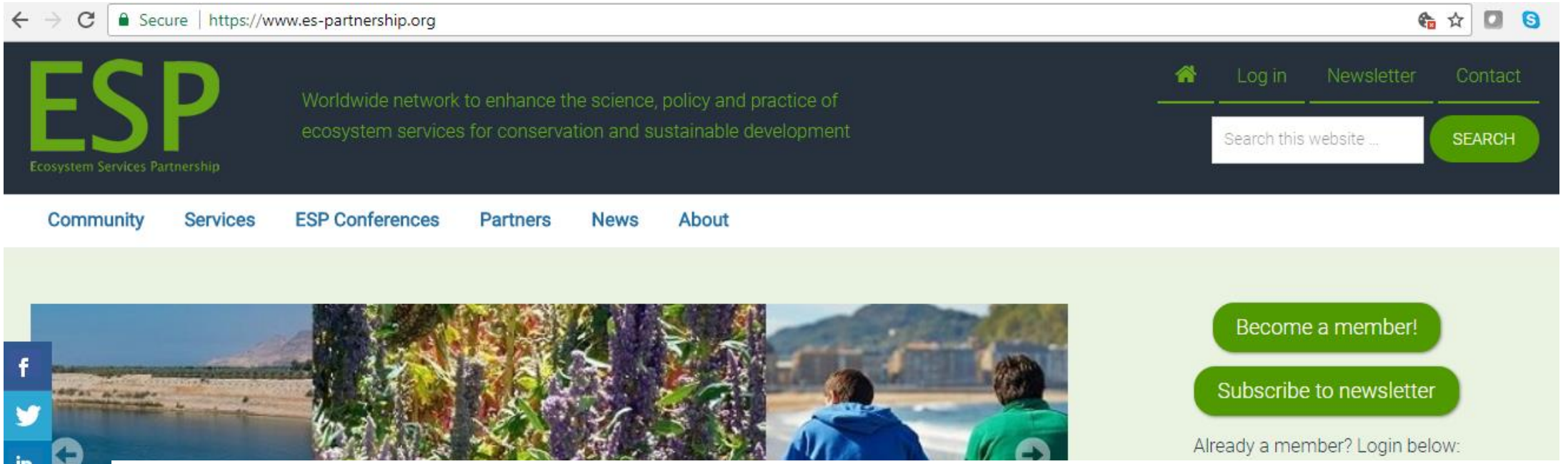
[FLORAS]

- translates Restoration Opportunities Assessment Methodology (**ROAM**) framework into technical steps which match the scale of work, suit the local contexts and acknowledge historical standpoints of Indonesian stakeholders
- aims to facilitate and strengthen capacity of local partners **through multi-stakeholders dialogs and training sessions** to: (i) identify the needs and potentials for restoring functions, incl. their feasibilities, (ii) develop strategy and action plan on restoring multi-functionalities of their forest and landscape restoration



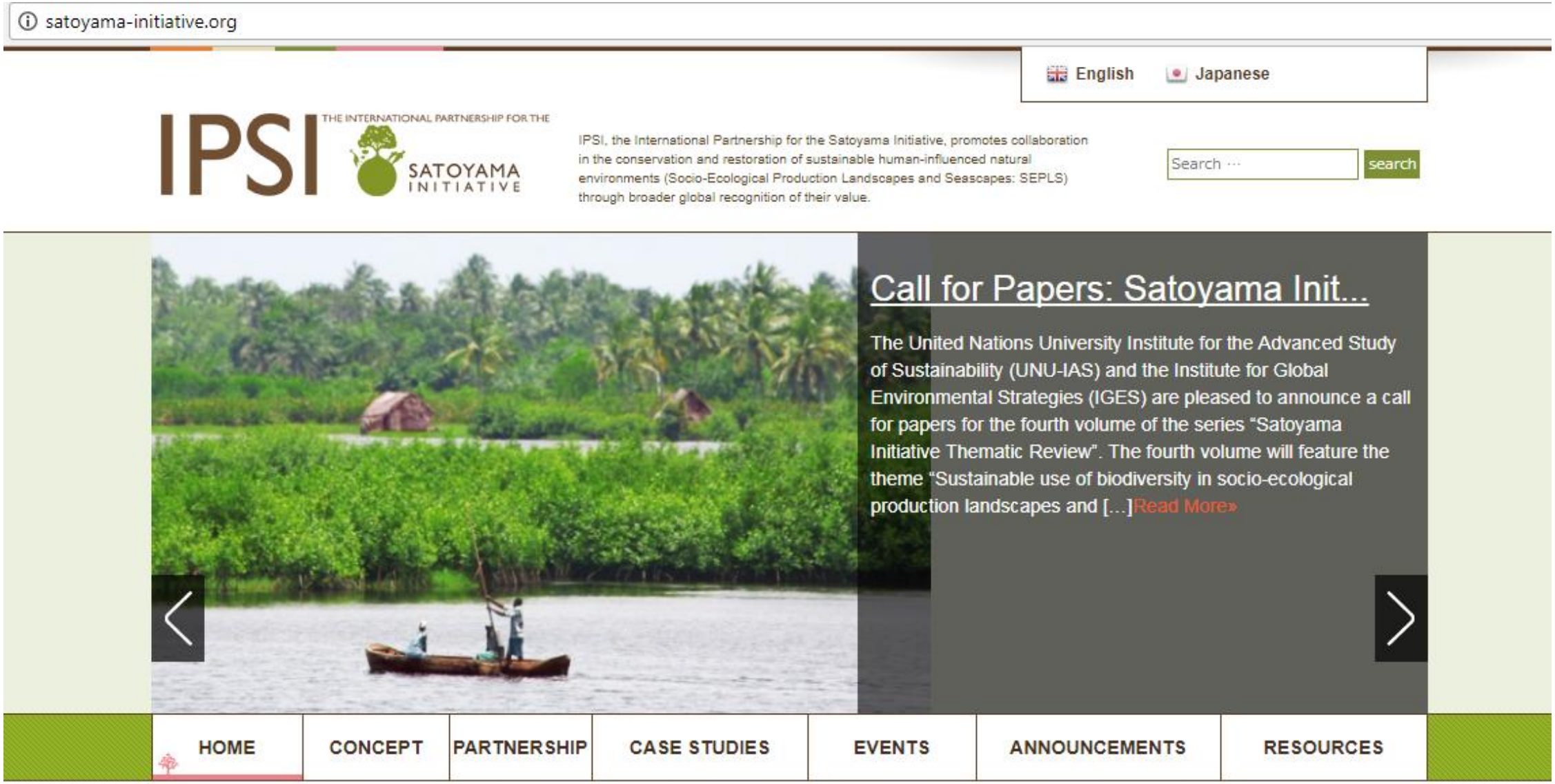
priorities

partnership



Thematic Working Groups

- Collect, synthesize and exchange information on the WG theme to advance the science and application on that topic.
- Stimulate collaboration between the main organizations involved with the WG Theme.
- Organize workshops during regional and global ESP-conferences or other events.
- Publish (joint) papers
- Develop guidelines for Ecosystem Services Assessment.
- Contribute to international assessments e.g. TEEB National studies, Sub Global Assessment (follow-up MA), IPBES.
- Contribute to international assessments such as TEEB National studies, Sub Global Assessment and IPBES.



Aichi Biodiversity Target 11 is, "By 2020, at least 17 per cent of terrestrial and inland water areas and 10 per cent of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services, are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures, and integrated into the wider landscape and seascape"

SGP The GEF Small Grants Programme | 25 YEARS

COMMUNITY ACTION GLOBAL IMPACT

gef | UNDP Empowered lives. Resilient nations.

Established in 1992, the year of the Rio Earth Summit, the GEF Small Grants Programme embodies the very essence of sustainable development by "thinking globally acting locally". By providing financial and technical support to projects that conserve and restore the environment while enhancing people's well-being and livelihoods, SGP demonstrates that community action can maintain the fine balance between human needs and environmental imperatives.

OUR COMMUNITIES

BIODIVERSITY

CLIMATE CHANGE

LAND DEGRADATION

SUSTAINABLE FOREST MANAGEMENT

INTERNATIONAL WATERS

CHEMICALS