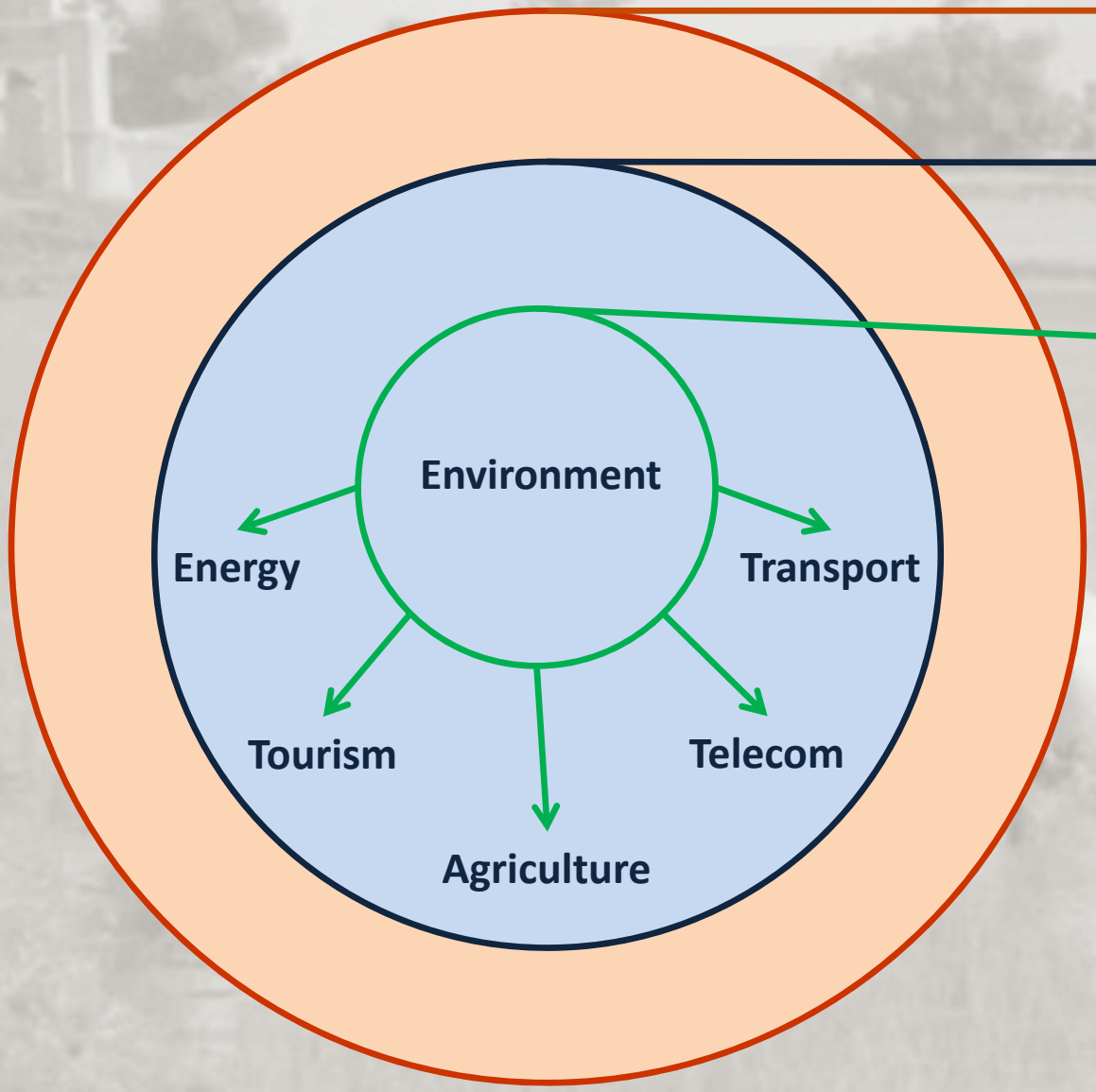
Improving strategic planning: Application of spatial models in the SEA of the Quang Nam LUP 2011-2020

Lothar Linde, Environment Operations Center (ADB RETA6289- CEP-BCI)

Outline

1. GMS and the Core Environment Program
2. SEA of the Quang Nam Land Use Plan 2011-2020
3. Model implementation – Process, results, challenges
4. Other applications

ADB and the Greater Mekong Subregion



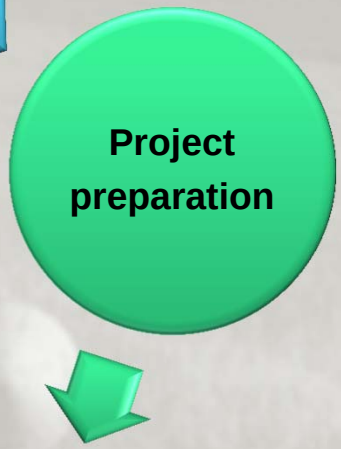
Greater Mekong Subregion

Economic Coop. Program

Core Environment Program and Biodiversity Conservation Corridors Initiative (CEP-BCI)

CEP-BCI: Areas of intervention

Preview impacts:
Ex-ante SEA, CIA and EIA



Reduce pressure and mitigate impacts:
Biodiversity Corridors, VES, micro-, carbon and ES payments

Monitor and evaluate changes:
Post-evaluative EPA

Spatial analysis

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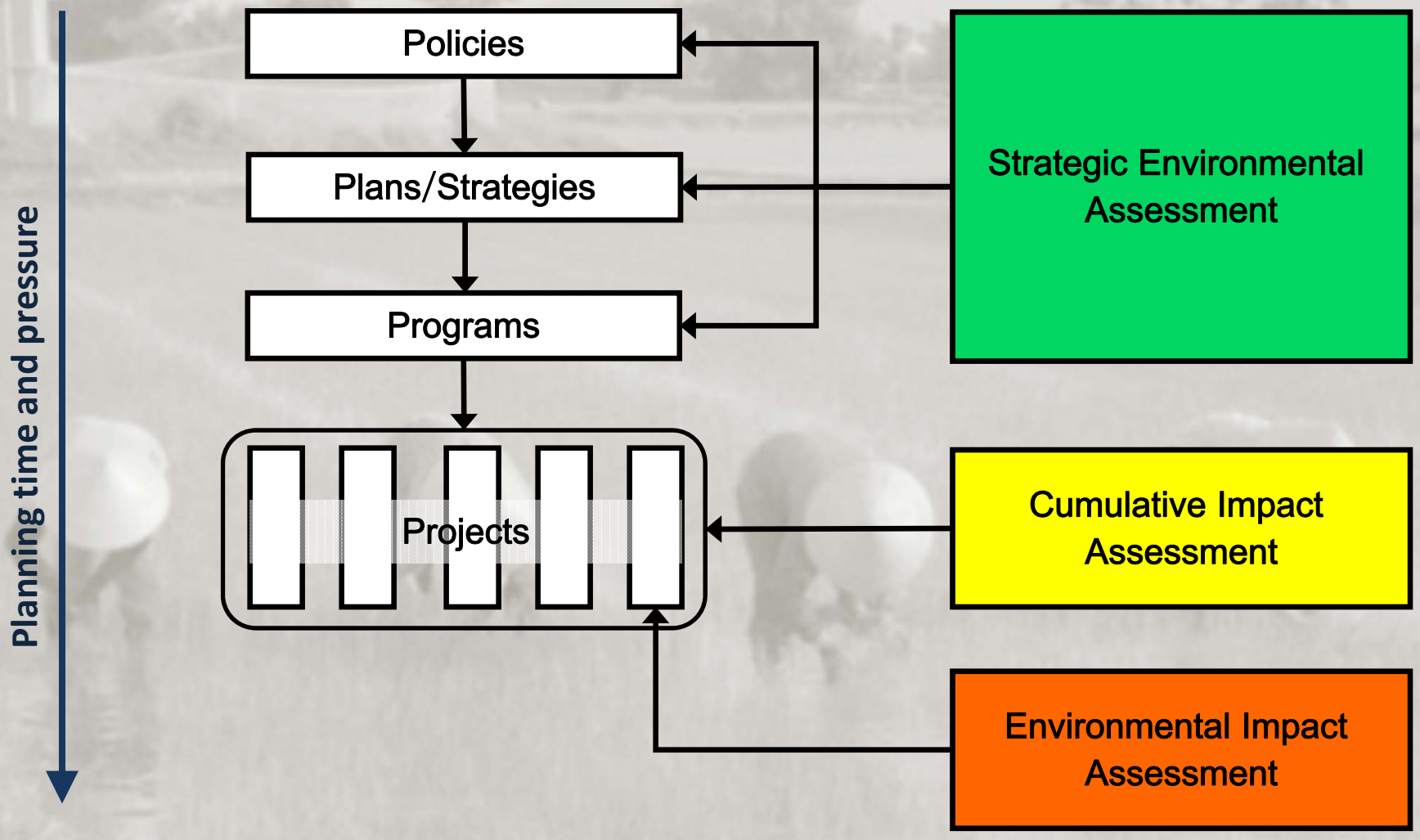
SEA – Principle



SEA of the Quang Nam LUP 2011-2020

Target Plan: Quang Nam Province Land Use Plan 2011-2020

Goal: Environmentally sustainable and economically sound land budgeting and allocation

Tools: CLUE-s, GLOBIO3

Focal agency: Quang Nam DONRE

Other stakeholders: MONRE (ISPONRE), DARD, DPI, PPC

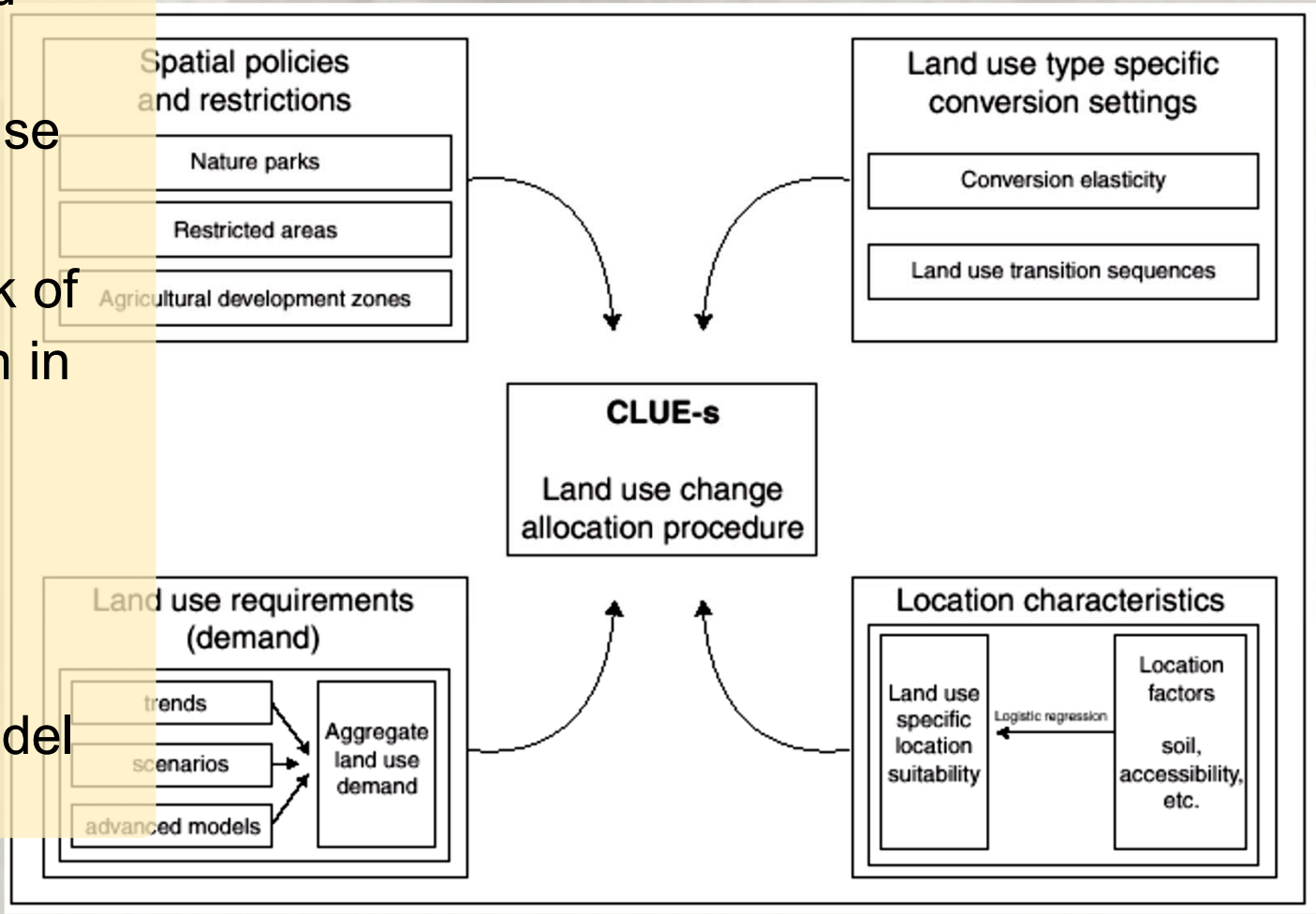
Implementation: Parallel to LUP writing (ex ante - January to December 2010)

Competition for land and resources

Indicator			Increase
Population			2%
Agriculture - industrial plantation coffee, tea) (ha)			136%
Agriculture - orchards (ha)			87%
Tourism - tourists (number of arrivals)	1,362,000	2,400,000	76%
Tourism - revenue (billion VND)			140%
Hydropower - number of dams			-
Hydropower - installed capacity (MW)			-
Hydropower - remaining potential (MW			-

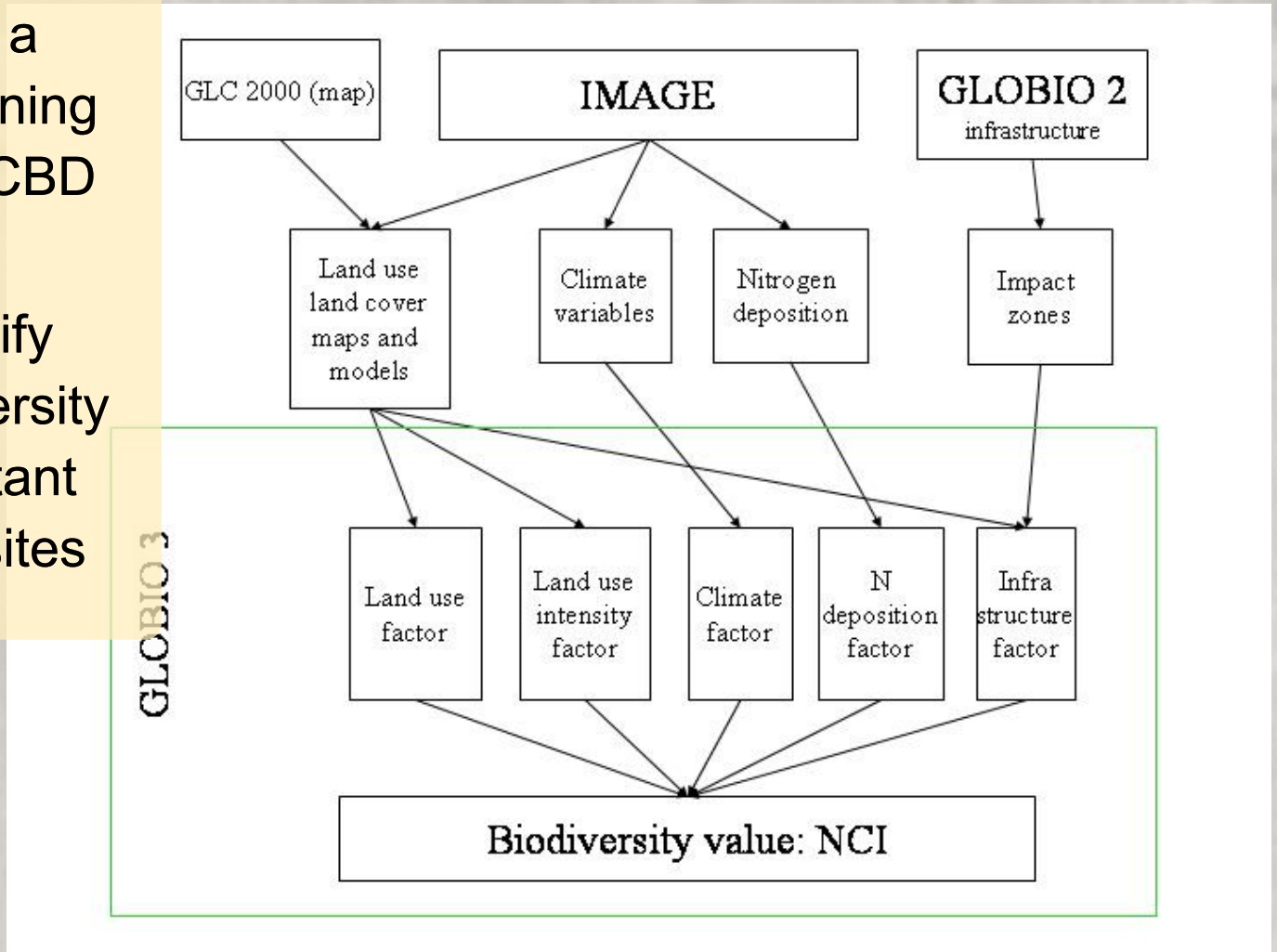
M1: CLUE-s – land conversion in HP catchments

- Used to translate LUP demand figures into future land use maps
- Identifies risk of deforestation in hydropower catchments
- Input into biodiversity pressure model



M2: GLOBIO3 – biodiversity loss in ecotourism sites

- Translates pressure into a map of remaining biodiversity (CBD MSA)
- Used to identify risk of biodiversity loss of important eco-tourism sites



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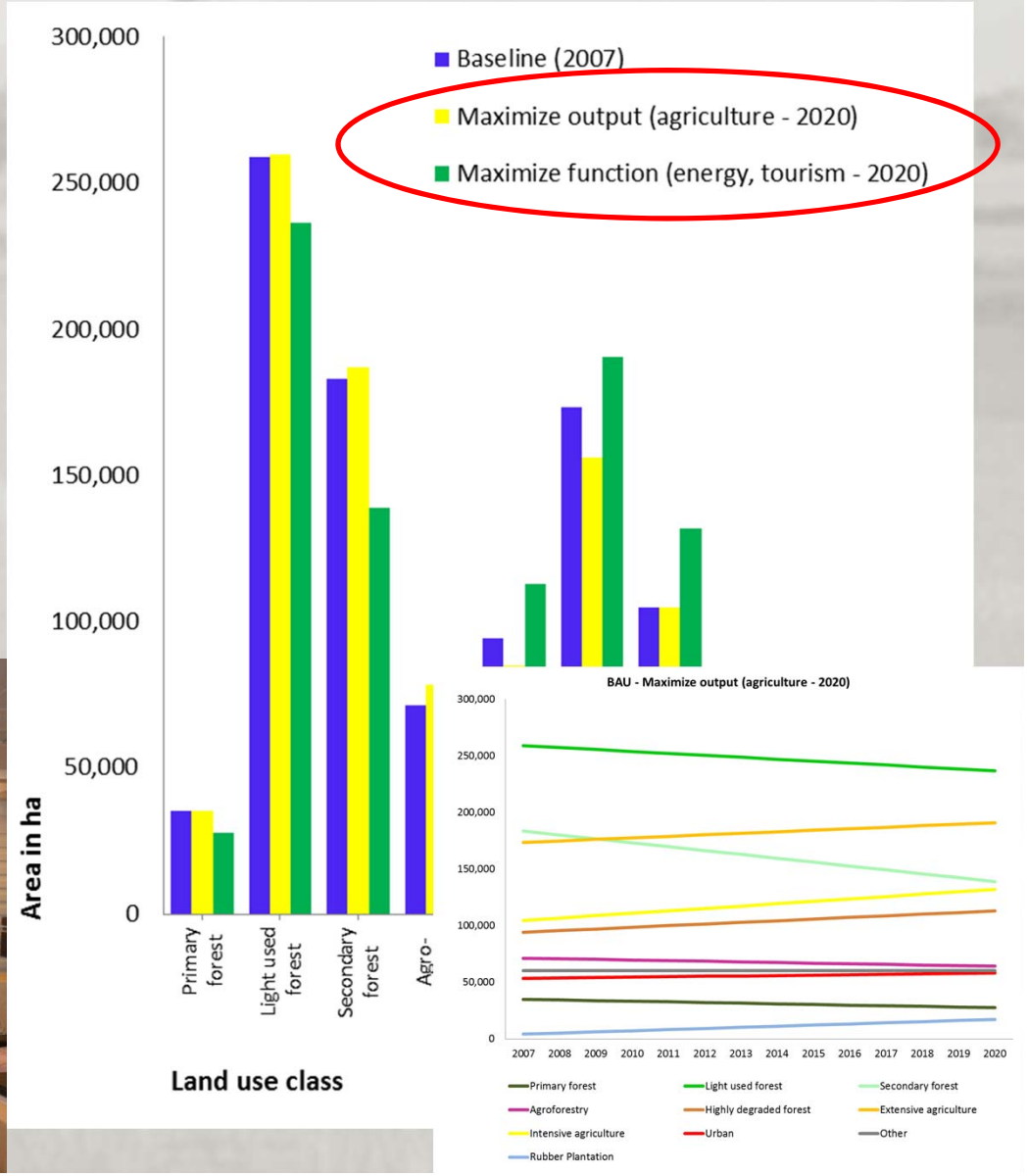
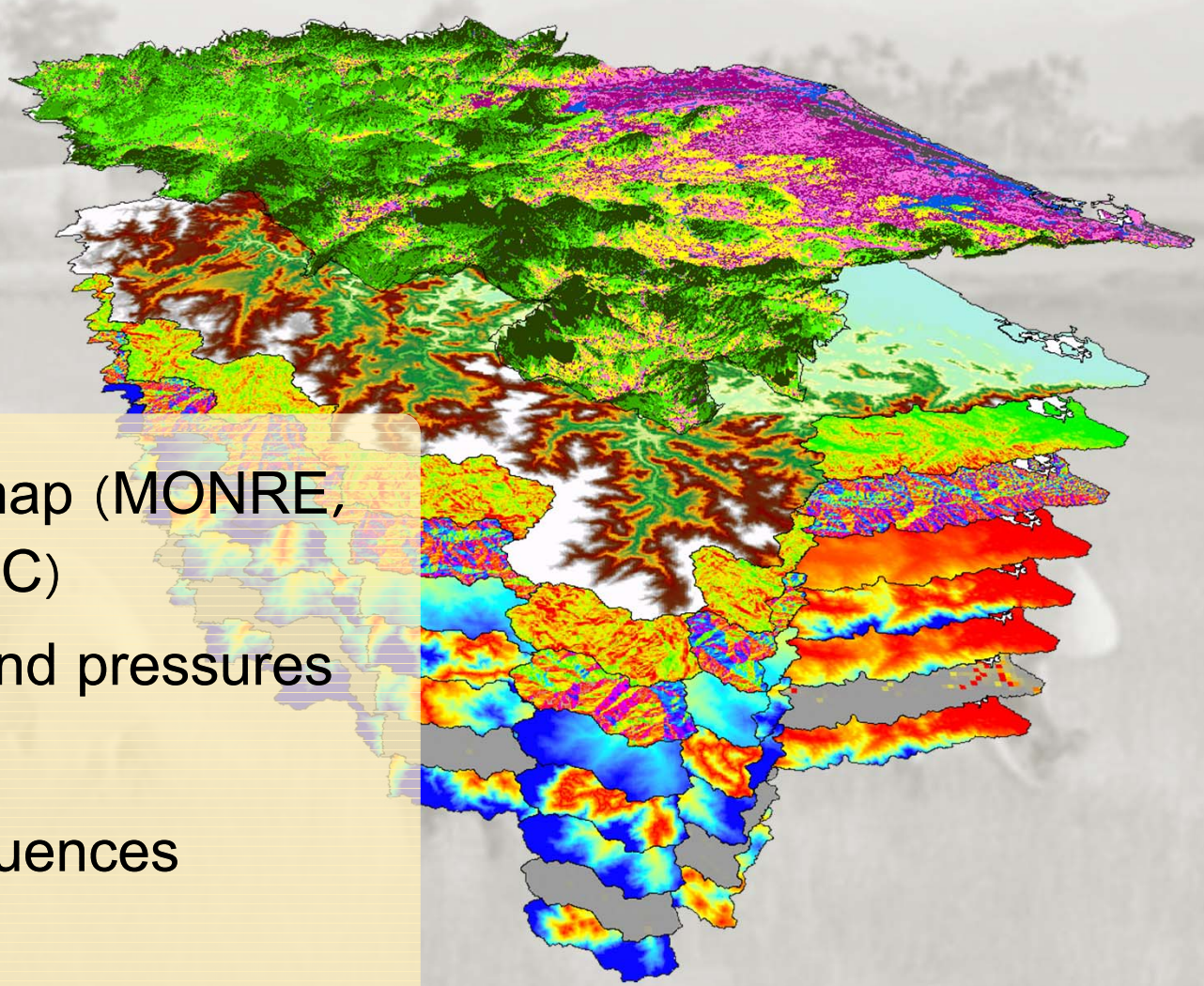
Scenario development

- Past trends?
- Economic projections?
- Sector demands?
- National targets?
- Int. commitments?
- Aspirations? Goals?

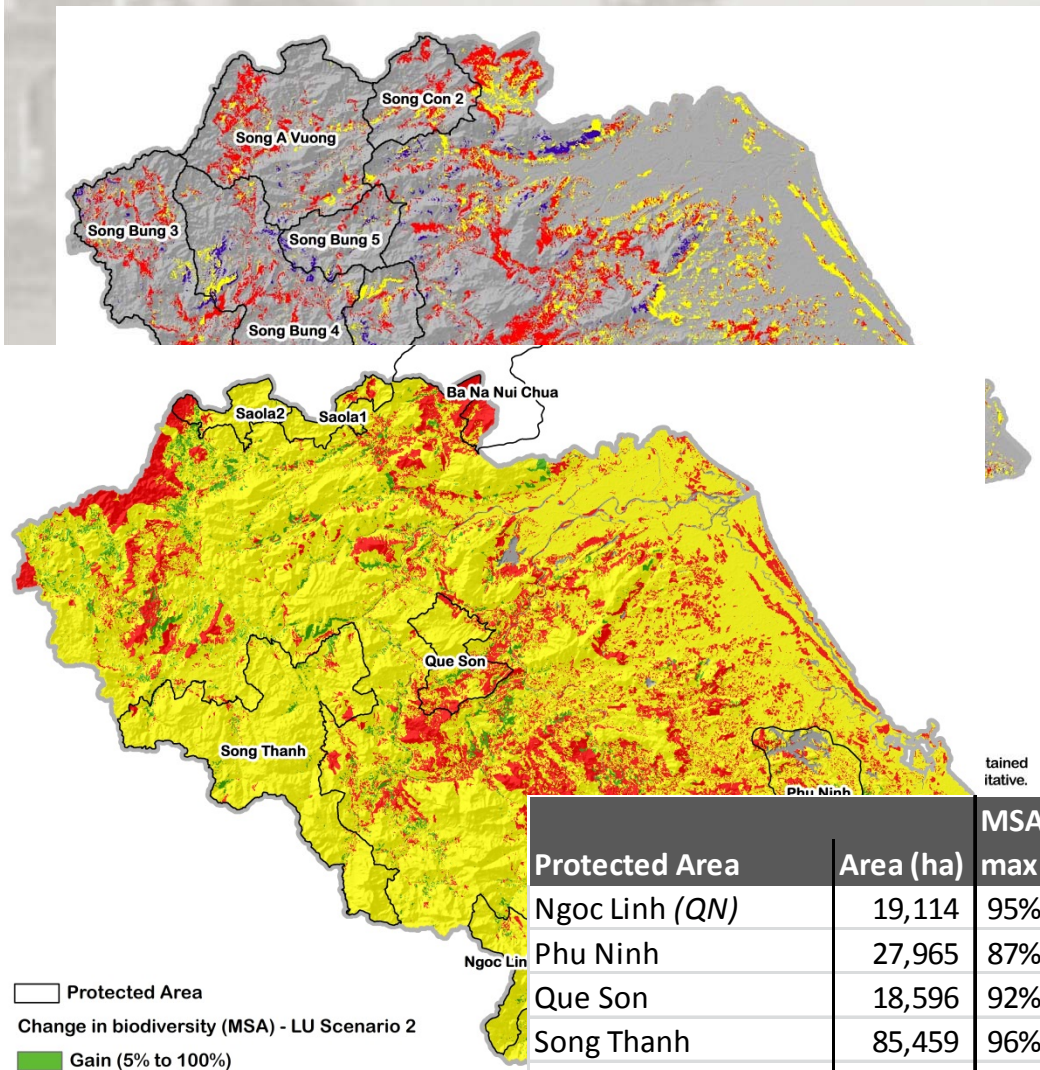


Spatial data and knowledge inputs



- Combined LU map (MONRE, MARD-FIPI, EOC)
- Driving forces and pressures
- Restrictions
- Conversion sequences (CLUE-s)
- MSA values (GLOBIO)

Outputs



Outputs:

- Provincial CLUE-s and GLOBIO3 maps (2 sc)
- Province, PA, HP catchment and commune statistics
- Chapter and appendix in SEA LUP report to PPC

		MSA 2007		MSA 2020 (Scenario 1)				MSA 2020 (Scenario 2)			
Protected Area	Area (ha)	max	mean	max	change	mean	change	max	change	mean	change
Ngoc Linh *(QN)*	19,114	95%	50%	95%	0.7%	49%	-0.3%	95%	0.0%	49%	-1.1%
Phu Ninh	27,965	87%	29%	87%	0.0%	29%	-0.5%	87%	0.0%	27%	-2.2%
Que Son	18,596	92%	42%	92%	-0.2%	42%	-0.5%	90%	-2.5%	38%	-4.3%
Song Thanh	85,459	96%	49%	96%	0.0%	48%	-0.3%	96%	0.0%	48%	-0.9%
Ba Na Nui Chua *(QN)*	3,220	76%	36%	76%	-0.2%	33%	-3.7%	53%	-23.4%	25%	-11.7%
Sao La 1	8,005	96%	58%	96%	0.0%	57%	-0.9%	96%	-0.7%	53%	-4.9%
Sao La 2	9,881	65%	48%	64%	-0.2%	48%	-0.7%	64%	-0.7%	46%	-2.3%

Outcomes – Model contributions to SEA

- Visualized outcome of different land demand scenarios
- Quantified magnitude of conflict with other sectors (CLUE-s: HP, GLOBIO: tourism)
- Communicated risks to and facilitated discussion between individual sector agencies (MONRE, DPI, DARD, MOIT)
- Led to revision of LUP demand allocation (revision of targets, strengthening and integration of PA and BCI sites)
- Capacity institutionalized through on-the-job SEA and GIS trainings

Challenges

No.	Types of land	Area 2001	Area 2005	Area 2010[1]	Increase, decrease (+/-)			Average/yr
					2001-2005	2005-2010	2001-2010	
I	**Agricultural land**	**540,673**	**606,905.91**	**801,625.35**	**66,232.91**	**194,719.44**	**260,952.35**	**26,095.24**
1	Land for agricultural production	89,494.00	110,958.20	113,048.14	21,464.20	2,089.94	23,554.14	2,355.41
1.1	*Land for rice crop*	*59.265.00*	*56,444.73*	*56,43.00*	*-2,820.27*	*-9.73*	*-2,830.00*	*-283.00*
1.1.1	Wet rice	49,097.00	49,657.90	49,314.12	560.90	-343.78	217.12	21.71
2	Forestry land	430,003.00	539,869.53	681,432.99	109,836.53	141,563.46	251,399.99	25,140.00
2.1	*Protective forest land*	*193,562.00*	*288,420.33*	*309,306.40*	*94,858.33*	*20,886.07*	*115,744.40*	*11,574.44*
2.2	*Specialized use forest*	*85,458.00*	*78,035.17*	*129,628.38*	*-7,422.83*	*51,593.21*	*44,170.38*	*4,417.04*
2.3	*Production forest land*	*151,013.00*	*173,414.03*	*242,498.21*	*22,401.03*	*69,084.18*	*91,485.21*	*9,148.52*
3	Land for aquaculture	1,688.00	3,423.20	3,549.78	1,735.20	126.58	1,861.78	186.18
4	Remaining agricultural land[2]	53,150.00	38,251.89	38,893.54	-14,898.11	641.65	-14,256.46	-1,425.65
II	**Non-agricultural land**	**56,776.00**	**76,766.08**	**87,765.00**	**19,990.08**	**10,998.92**	**30,989.00**	**3,098.90**
1	Land for office of productive institution	370.00	476.85	[illegible]1	106.85	-97.14	9.71	0.97
2	Land for national defense	3,086.00	3,303.13	[illegible]6.17	217.13	1,183.04	1,400.17	140.02
3	Land for security	2,273.58	622.09	[illegible]235.81	-1,651.49	1,613.72	-37.77	-3.78
4	Land for industrial zone	210.00	777.91	[illegible]166.15	567.91	388.24	956.15	95.62
5	Mineral land	2,347.00	1,165.01	1,557.76	-1,181.99	392.75	-789.24	-78.92
6	Monument land	64.00	85.43	178.92	21.43	93.49	114.92	11.49
7	Land for waste disposal sites	34.00	48.48	67.83	14.48	19.35	33.83	3.38
8	Religious land	296.00	296.23	297.61	0.23	1.38	1.61	0.16
9	Land for cemetery	4,236.00	4,949.50	5,537.10	713.50	587.60	1,301.10	130.11
10	Land for infrastructure development	10,774.00	13,150.73	21,655.03	2,376.73	8,504.30	10,881.03	1,088.10
11	Remaining non-agricultural land[3]	33,085.42	51,890.72	50,202.91	18,805.30	-1,687.81	17,117.49	1,711.75

[1] Total area in 2010 increases because during the period 2001-2010, there is adjustment to administrative boundary of a region adjacent to other province, leading increase of over 3000ha.
[2] Including land for highland rice, annual plants, and other agricultural land.
[3] Including residential land, land of business and production facilities, land for building material production, river and stream, other non-agricultural land

- Circular 5: uncertainties on requirement for provincial SEA; CIA / EIA (project: impact) character rather than SEA (plan: scenario, projection)
- Spatial data: thematic and temporal inconsistencies (same dataset, between datasets)
- Statistical data: methods and data not transparent
- Trend data / analysis: DONRE only “receives”, general weakness in abstract forward planning
- …

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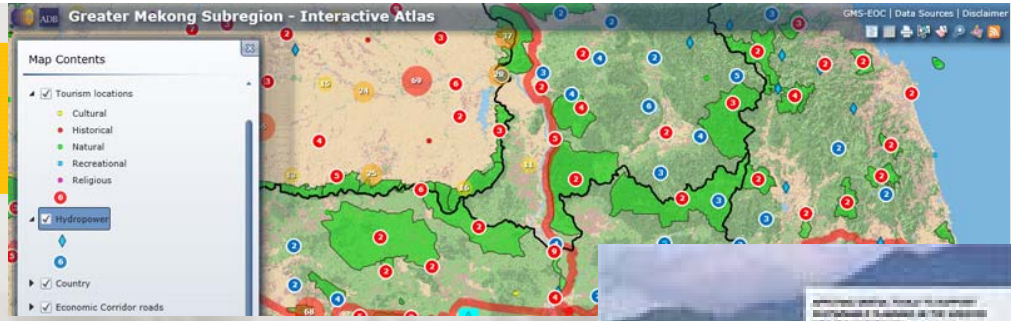
CEP-BCI: Spatial appl.



Journals, Fora, Interactive Atlas of the GMS

Strategy

CLUE-s
GLOBIO3

Project preparation

SMCA / MCDA

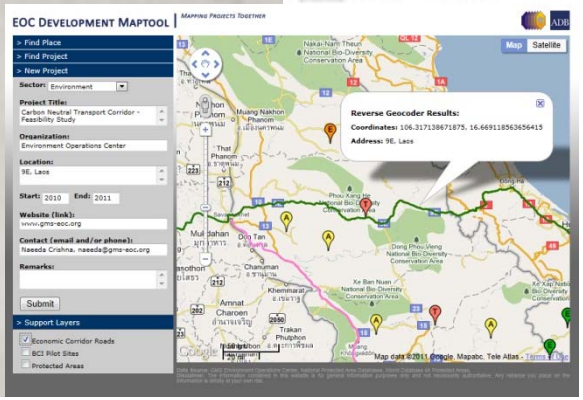
BCI habitat and species distribution models

Project implementation

Monitoring and evaluation

Web-based, crowd-sourced mapping

Publication and communication



Thank you!

Questions & feedback:

(lothar@gms-eoc.org or lothar.linde@yahoo.de)