



IUFRO 9.05 International Seminar  
ASSESSING FOREST GOVERNANCE IN A CONTEXT OF CHANGE  
Sarajevo, Bosnia & Herzegovina, May 9-11, 2012

**Session: Understanding change as revealed by indicators**

## **How to Measure Forest Governance at Local Level: A Set of Indicators**



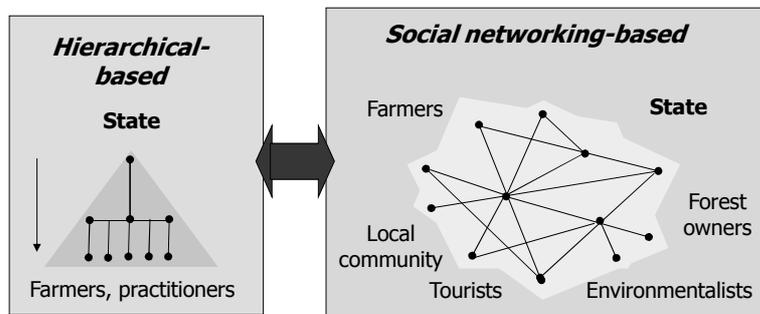
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## **Outline**

- 1. Introduction**
- 2. Background**
- 3. Problem statement**
- 4. Research objective: methods and results**
- 5. Conclusions**
- 6. Open questions**

## 1. Introduction

- From *government* to **network-based governance**  
→ **Multi-level, multi-sector, multi-actor GVC**



- Growing importance of '**good governance**' and **governance assessment** to guarantee successful policy, programs and projects

## 2. Background

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- '**Good governance**' matters at all levels

Therefore,

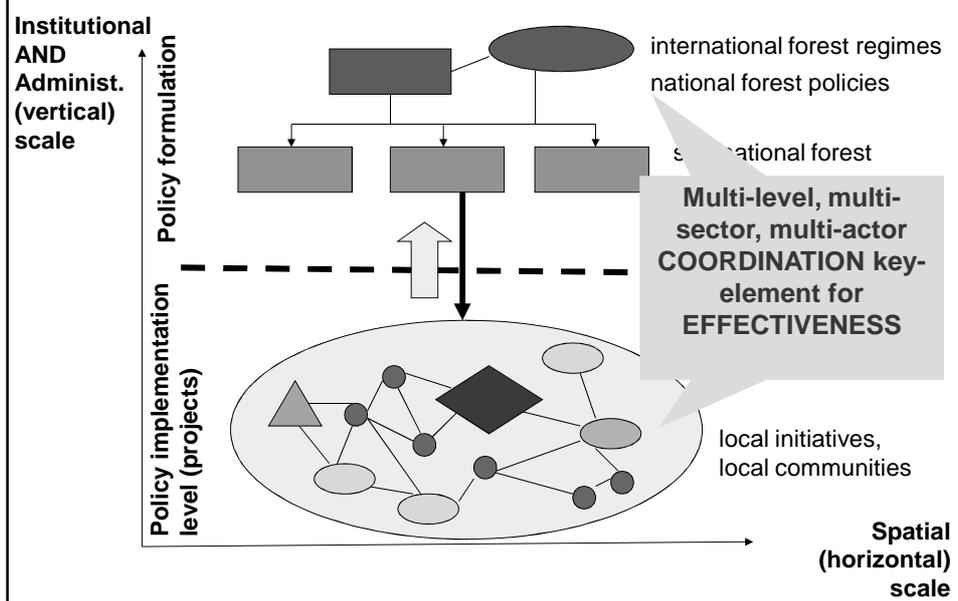
- **Governance assessment (i.e. systematic evaluation) is an useful DSS tool at all levels**



**Scale is a key-aspect** when developing instruments to assess good governance (Rametsteiner, 2009), and both **spatial and institutional/administrative scales** matter (Gibson *et al.* 2000)

## 2. Background: scales

2/4



## 2. Background

3/4

**At large spatial and/or institutional scales** (international, regional, national level):

STRENGTHS 	LIMITS 
<ul style="list-style-type: none"> <li>• sets of C&amp;I available for analyzing policy-making at country level</li> <li>• based on (quite) good available secondary data</li> <li>• pilot applications not only in Developing Countries</li> </ul>	<ul style="list-style-type: none"> <li>• complex sets of indicators</li> <li>• mainly for ex-post assessment of policy effects</li> <li>• marginal attention to innovative dimensions of governance</li> <li>• focus on specific concerns (economic development; FLEGT, REDD+, ...)</li> <li>➔ mainly applied in Developing Countries</li> </ul>

Key-examples:

- the *Forest Governance Diagnostics Tool* (ARD – WB, 2009)
- the *Governance of Forests Toolkit* (GFI, 2009)
- the *Framework for Assessing and Monitoring Forest Governance* (PROFOR/FAO, 2011)

## 2. Background

3/4

**At local spatial and/or institutional scales** (i.e. local level):

STRENGTHS 	LIMITS 
<ul style="list-style-type: none"> <li>• consolidated experiences in forest certification (participation, transparency, accountability)</li> <li>• performance-based indicators (SFM C&amp;I for certification, at FMUL)</li> </ul>	<ul style="list-style-type: none"> <li>• evaluating projects and actions typically and mainly in terms of efficacy of public expenses</li> <li>• very site-/context-specific</li> <li>• based on primary data (direct survey)</li> <li>• not considering some GVC key-components which are of paramount importance in projects implementation (e.g, in REDD+ or other types of PES: distributional effects (equity))</li> </ul>

## 3. Problem statement

Key-instruments (*imperfect proxies*) for assessing something (SD, SFM, GVC) are **INDICATORS**:

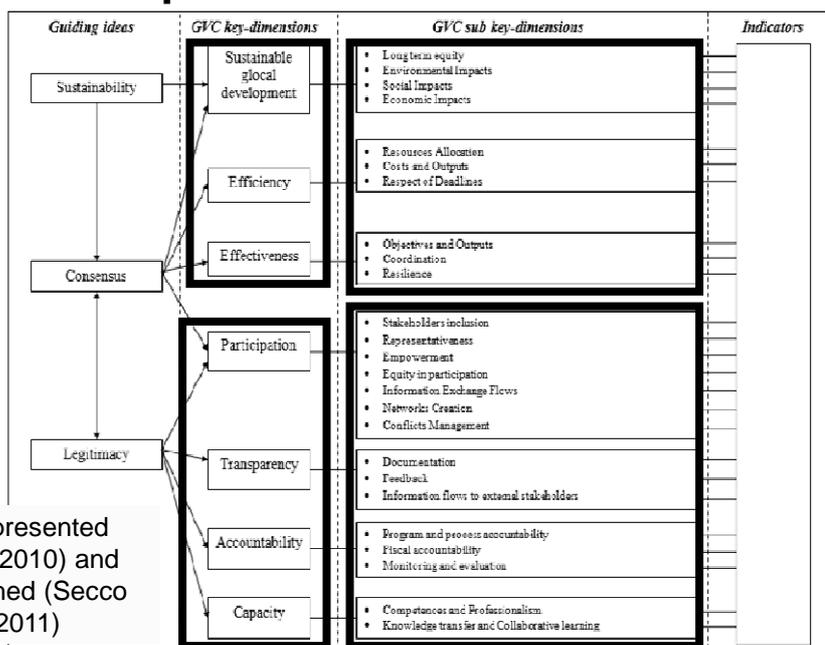
- **indicators based on facts**
- **indicators based on perceptions**

A well-consolidated, clear, simple but still “*able to embrace complexity*” (dividing its into sub-components) **set of indicators** for measuring governance easily, comprehensively and systematically **does not exist in forestry yet.**

## 4. Research Objective and Methods

Research Objective	
To create a practicable method, based on simple indicators to be applied at local level for assessing the quality of NR GVC taking into consideration both traditional (efficiency, effectiveness, sustainability) and innovative (participation, accountability, transparency,...) GVC	
Specific Objectives	Methodology
To create a set of indicators	Indicators (new and already existing in literature). Creation of questionnaires. Pilot surveys. Snowball sampling and ego-network. Face-to-face interviews.
To test how to use existing tools (e.g. SNA tools)	Social Network Analysis (SNA). Correlation, regression analysis, odds ratio.
To test possible more advanced outputs	Construction of composite indices, with normalization and aggregation processes of indicators (OECD/JRC Handbook).
To give proofs it might work	Estimation of costs (of the method based on indicators)

## Our conceptual framework: to be revised



## Method: Creation of a draft list of indicators (n = 93) - Step 1

3 steps:

1) Adaptation of existing indicators

Derk Jan Stobbelaar, abstract 92, p.34, conference of Wageningen	Commitment to sustainability	1a.1
WB - ARD, 2009, annex 2, p.11	Cost and benefit sharing mechanisms	1a.4
Haniotis Tassos, 2011, presentation at the 122 <sup>nd</sup> EAAE Seminar, Ancona, Italy	Climate change projects	1b.1
EENRD, 2010, pg.38	Social relationships	1c.3
WB - ARD, 2009, annex 2, p.3	Use of budget	2a.1
WB - ARD, 2009, annex 2, p.7	Use of technology	2a.4
EENRD, 2010	Phasing out	3a.4
Hirschi, 2008, p.21	Inter-sectoral coordination	3b.2
Milic, Bogdanov, Heijman, 2011, p.9	Multi-level actions	3b.3
Hirschi, 2008, p.19	Multi-level network	3b.4

Source	Indicator	Code
Derk Jan Stobbelaar, abstract 92, p.34, conference of Wageningen	Commitment to sustainability	1a.1
WB - ARD, 2009, annex 2, p.11	Cost and benefit sharing mechanisms	1a.4
Haniotis Tassos, 2011, presentation at the 122 <sup>nd</sup> EAAE Seminar, Ancona, Italy	Climate change projects	1b.1

Cashore, 2009, (Part 1)	Rationale for decisions	6a.1
GFI, 2009, p.44	Perception of clarity of actors' roles	6a.3
Cashore, 2009, (Part 1)	Clarity of policymaking rules	6a.4
GFI, 2009, p.33	Visible salaries	6b.1
GFI, 2009, p.40	Criteria for monitoring	6c.2
WB - ARD, 2009, annex 2, p.6	Evaluation	6c.3
GFI, 2009, p.50	Degree of diversification among staff	7a.1
Ingold, Balsiger, Hirschi, 2008, p.8	Mobilization of knowledge	7b.1

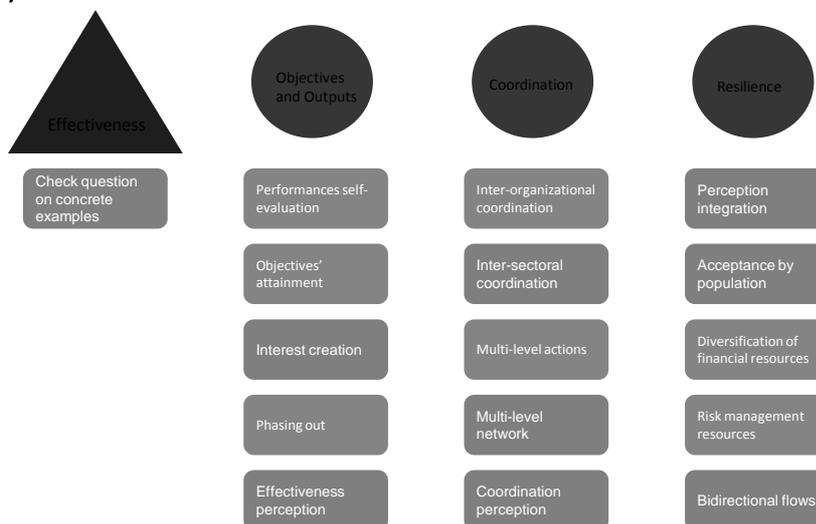
## Method: Creation of a draft list of indicators (n = 93) – Step 2

2) Transformation of expert-based indicators (GFI, 2009; WB – ARD, 2009)

Indicator	Source	Question / Indicator	Problems	Examples of Transformation
Transparency	"Roots for Good Forest Outcomes: an analytical framework for governance reforms", 2009, World Bank, annex2, p.1	Are commercial timber forest products allocations from public forests open and transparent? - The authorities give clear, timely notice of all proposed policies, programs, laws, and projects - The authorities give clear, timely notice of most	Four possibilities of answer, where the perception and knowledge of the expert is fundamental, and where the two "aspects" of the question (openness and transparency) are kept together	Are there official documents in which commercial timber forest products allocations are introduced? Are these documents available to the population? With which means (internet, paper, etc)?
Participation, Accountability	"The governance of forests toolkit (version 1): a draft framework of indicators for assessing governance of the forest sector", The Governance of Forests Initiative, September 2009, p.37	To what extent is there effective public participation in policy-making? - Opportunity for debates among various interest groups - Participation of local leaders and representatives - Participation of stakeholders affected by decisions on land use - Quantity of participation - Breadth of participation by	Indicator is not exclusive of one dimension. Different units of measurement: difficulty of answering and aggregation for analysis. No time-bound indicator. No specific indicator (meaning of "difficult")	Are there opportunity for debates among various interest groups in each phase (ideation, planning, implementation, etc.) of the project? Attraction capacity with respect of gender, age, profession... (percentage with respect to the population proportion).

## Method: Creation of a draft list of indicators (n = 93) – Step 3

### 3) Creation of new indicators



## Method: Field tests of the draft list of indicators

→ 2 national parks (Italy, Montenegro)

### Dolomiti Bellunesi National Park (PNDB)

From: 1993  
Municipalities: 15  
Residents: 80 – 100.000  
Area: 32.000 ha  
Staff: 14 + 35 CTA (CFS)  
UNESCO: 2009



**Sample: 55 - Interviewed: 43**

### Durmitor National Park (PND)

From: 1952  
Municipalities: 3  
Residents: 3.000  
Area: 39.000 ha  
Staff: 25  
UNESCO: 1980



**Sample: 13 - Interviewed: 13**

*Now testing in:*

- 1 PhD thesis "self-evaluation in LAGs (EU LEADER program)"
- 1 FOPER master thesis in BiH, protected area – Adnana Hasanović

### Method: SNA indexes → GVC indicators 1/2

Flow	Measures	Durmitor National Park	Dolomiti Bellunesi National Park
Information	Geodesic Average distance	1,468	1,749
	Distance-based cohesion "Compactness"	0,779	0,632
Total Collaboration	Geodesic Average distance	1,590	1,869
	Distance-based cohesion "Compactness"	0,738	0,578

Compactness measures

Core/periphery analysis

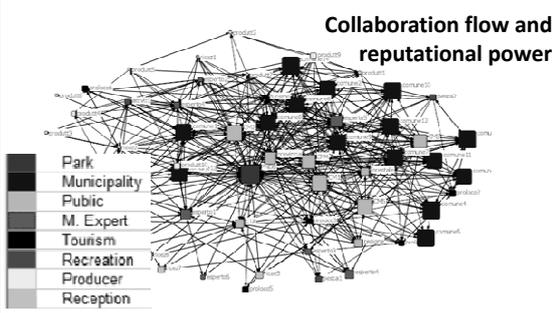
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1 2 3 4 5 6 7 8 9 0 1 2 3
P C T F P P P a e a e a r P
-----
1 PND 1 1 1 1 1 1 1 1 1 1
2 Comune 1 1 1 1 1 1 1 1 1 1 1 1
3 Turisano 1 1 1 1 1 1 1 1
4 ricedz3 1 1 1 1 1 1 1 1 1
5 ricedz2 1 1 1 1 1 1 1 1
6 ricedz1 1 1 1 1 1 1 1 1
7 attivit1 1 1 1 1 1 1
8 esper101 1 1 1 1 1 1
-----
9 attivit2 1 1
10 esper102 1 1
11 attivit3 1 1
12 ricedz4 1 1 1 1 1 1
13 pubblico 1 1 1 1 1 1 1 1
    
```

Density matrix

```

-----
1 2
1 0.911 0.375
2 0.450 0.250
    
```



### Method: SNA indexes → GVC indicators 2/2

13 indicators used in analysis (Hirschi, 2008; Ingold, 2010; Franceschetti, 2009; Prell, 2009)

SNA Index	Flow	Indicator	Dimension
Density	Information (symmetric)	Social relationships	Sust. 'glocal' development
Density	Formal collaboration	Economic relationships	Sust. 'glocal' development
Park's in-closeness centrality	Information	Use of time	Efficiency
Core/periphery analysis	Total collaboration	Inter-sectoral coordination	Effectiveness
Cliques analysis	Total collaboration	Multi-level network	Effectiveness
Divergences against the Park	Divergences	Acceptance by population	Effectiveness
Park's in-degree centrality	Information	Bidirectional flows	Effectiveness
Core/periphery analysis	Information	Main actors' presence in the core	Participation
Compactness	Information	Network cohesion	Participation
Compactness	Total collaboration	Collaboration cohesion	Participation
Park's betweenness centrality	Total collaboration	Between stakeholders	Participation
Density	Information (symmetric)	Mobilization of knowledge	Capacity
Reputational power	Reputational power	Overall reputational power	Capacity

## Method: Final indicators selection

1/2

### 1) Data accessibility

### 2) Correlation and odds ratio among variables within each sub-dimension and 'cross-checking' questions

### 3) Logical comparison between expected and expressed indicators' results

code	indicator	range	score1	score2	effective	expected	data	notes1	notes2	general notes
4	PARTICIPATION									
	Check question on examples (mean)	0-3	0,08	0,98	2	2	Q			ok
	Check % positive (1-3)	0-100	8	88	2		Q			
	Check % selective (2-3)	0-100	0	24	2		Q			
4a	Stakeholders Inclusion									
4a.1	Adoption of participation	0-100	10	28	2	2	D		circa	ok
4a.2	Participation throughout the project cycle	0-4	0	3	2	2	D ?			ok
4a.3	Stakeholders participation	0-100	27	40	2	2	Q			ok
4a.4	Participants recording	0-100	0	14	2	x	D			ok. Maybe a consequence, but important
4b	Representativeness									
4b.1	Main actors' presence in the core	0-100	75	56,2	1	2	Q	SNA	SNA	maybe not significant
4b.2	represented interests	0-100	40	40	x	2	Q			interesting
4b.3	Facilitation to territorial coverage	0-1	0	1	2	2	D			ok

15 out of the 93 draft indicators have been removed

→ Final set of 78 indicators

→ But 16 need further analysis/refinement

## Method: Final indicators selection

2/2

c. Resilience	3c.1	Perception of integration	The Organization is perceived to be integrated in the territory		scale	1-10		Stakeholders Questionnaire	Q 11q
	3c.2	Acceptance by population	N° of relations with <del>among the</del> <u>stakeholders</u> which <del>are most seen as</del> <u>divergence on the</u> <u>total ego links</u>		%	0-100	<del>Better to use divergence as the</del> <u>www.organso.com</u>	Stakeholders Questionnaire (SNA)	Q 13
	3c.3	Diversification of financial resources	None of the financial sources is providing more than 50% of total financial resources	Amount of financial resources Sources of financial resources	dichot	0-1	List of sources of financial resources (e.g. donors, etc.) Amount of financial resources annually transferred by each source	Organization staff Questionnaire	D 21
	3c.4	Risk management resources	Presence/absence of reserve funds for potential unexpected events (damages, ...)		dichot	0-1	Annual budget and annual balance	Organization staff Questionnaire	D 22
	3c.5	Bidirectional flows	N° of bidirectional flows of information between the <u>organization</u> and other stakeholders on the total n° of stakeholders	In-degree	%	0-100	<i>Note: "organization" is underlined to differentiate this indicator by the 78.1</i>	Stakeholders Questionnaire (SNA)	Q 13

## Final set of indicators (with operational tools) 1/2

### Tool 1. Full list and characteristics of indicators

8. TRANSPARENCY									
Sub-dimension	code	Indicator name	Indicator description	Variables	Unit	Range	Verifiers and Notes	Data collection tool	Referring to ...
a. Documentation	3a.1	Projects exhaustiveness	N° of projects with easy access to comprehensive information on: analysis of the context, objectives, outputs, logical framework, methodology, timetable, resources, financial plan		Σ 3 dichot	0-3		Organization staff Questionnaire	D 34
	3a.2	Accessibility	Information on structure, decisions process, resources and projects with respect to the organization are public available on the web.	Presence/absence on the web of information documents on: 1) ownership structure and investors' relations, 2) board and management structure and decision-making process; 3) financial information; 4) project cycle (decisions taken, activities, results).	Σ 4 dichot	0-4	Resources refer to points 2) and 3); budget, staff, salaries, organization chart, administration and decision-making rules.	Organization staff Questionnaire	D 35

## Final set of indicators (with operational tools) 2/2

### Tool 2. Detailed description of each of the 78 indicators

#### I. SUSTAINABLE GLOBAL DEVELOPMENT

##### a. Long Term Equity

###### 1a.1 Commitment to sustainability

**Description:** Presence/absence of formal commitment to sustainability and at least one objective per each sustainability dimension (Environmental / Economic / Social) is stated in written

**Phases:** a

**Data collection tool:** Organization staff Questionnaire

**Question:**

D1: Does a formal commitment to sustainability exist? (Y/N)

D1a: Is at least one concrete goal stated in written by the Park for the environmental impact dimension? (Y/N)

D1b: Is at least one concrete goal stated in written by the Park for the social impact dimension? (Y/N)

D1c: Is at least one concrete goal stated in written by the Park for the economic impact dimension? (Y/N)

**Unit:** dichotomous **Other tools:** - 2 questionnaires

**Final Range:** 0-4 **- Indicators list divided by project's phases**

**Verifiers and note:** **- Imputation data file**

## Costs

### Overheads costs

- **Software's** free and easy
- **Operational tools** already prepared
- Time spent to **organize** the field work

### Field survey costs

- **Transportation costs (to reach the area, to move around)**
- **Interviews to organization's staff:** 3 interviews of 2 hours each (dichotomous questions)
- **Inteviews to stakeholders:** 25' meadian intevievw (estimates vary on contexts and outliers)
- **Contacts:** at least one week of phone call, e-mail and letters

### Data mining costs

- 20' to input a stakeholder questionnaire
- 2h to input Organization's data
- 8h to calculate indicators

**Total (time): one month of work, one person (3-5,000 €)**

## 5. Conclusions

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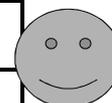
- Simple, cheap , reliable and expeditious instrument (dichotomous questions, process-oriented indicators) (with the exception of the SNA indexes):
  - easily adaptable to different organizations/contexts
  - To be used also by small organisations, in their self-evaluation ('GVC baseline')
- But, the number of indicators is still high (78)
- Assessment results should be used for comparing performances of an organisation with respect to its initial 'GVC baseline' and/or an ideal 'good governance' model.

## 5. Conclusions

2/2

### • Potentials in SCALING UP indicators?

Dimension	Indicators	Methodology
Account-ability	Project progress updated online	Website monitoring
Sustainable Glocal Development	Formal commitment towards SFM standards	Documental analysis.



Dimension	Indicators	Methodology	Problems in transferring into national level
Effectiveness	Feedback (satisfaction analysis, complaints)	Perception survey and document analysis about dedicated staff in public administration	Difficulties in collecting statistically significant data
Participation	Network creation (social capital)	Collaboration degree density "before-after" (SNA)	Difficulties in defining and monitoring high number of stakeholders in dynamic participatory processes



## 6. Open questions... future research?

- **More case-studies/tests are needed** (redundancies – aggregation weights – multivariate analysis – lower number of indicators).
- Need to refine/to create new **indicators for certain complex sub-dimensions (e.g. sustainable glocal development, resilience and institutional changes)**
- **Definition of an ideal, minimum 'good governance' level:** who has the right for? Stakeholders (who are they?) consultation?



# Thank you for attention!

**Laura, Riccardo and colleagues**

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