Rule of law, stakeholder participation, and environmental management: Evidence from 143 Biosphere Reserves in 55 countries

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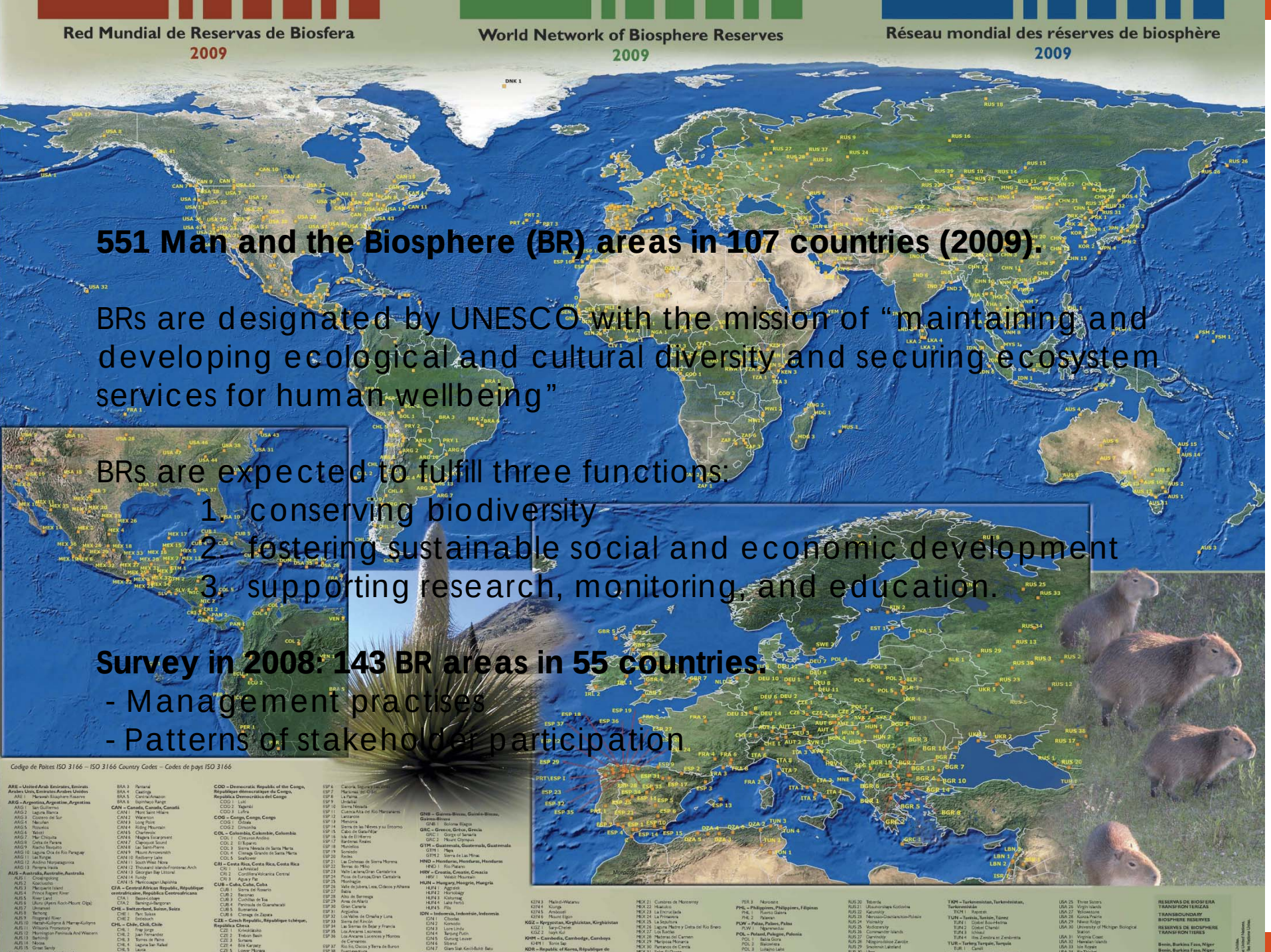
”The stakeholder express”

- ”Stakeholders” are increasingly seen as indispensible actors in policymaking in general and in environmental management in particular.
- Adaptive management and adaptive co-management attribute a pivotal role to stakeholder participation in natural resource management.
- Stakeholder participation is good because:
    1) Legitimacy
    2) Conflict resolution
    3) Local knowledge
    4) Access to civil society networks (bridging organizations)

Two questions

1) Causes of stakeholder participation:
   Does rule of law facilitate stakeholder participation?

2) Effects of stakeholder participation:
   Does stakeholder participation lead to increased conservation performance?



551 Man and the Biosphere (BR) areas in 107 countries (2009).

BRs are designated by UNESCO with the mission of "maintaining and developing ecological and cultural diversity and securing ecosystem services for human wellbeing"

BRs are expected to fulfill three functions:

1. conserving biodiversity
2. fostering sustainable social and economic development
3. supporting research, monitoring, and education.

Survey in 2008: 143 BR areas in 55 countries:

- Management practises
- Patterns of stakeholder participation

Measuring stakeholder participation:

Four stakeholder categories:

1. Scientists
2. NGOs and volunteers.
3. Local nature administration
4. Local resource users and inhabitants

Two BR functions:

1. **Decision making:**
    1. Representation in BR coordinating team
    2. Representation in BR steering committee
    3. Involvement in BR goal setting
    4. Involved in designing BR projects
2. **Implementation:**
    1. Involved in implementing projects or management measures
    2. Involved in day-to-day management of ecosystems
    3. Involved in monitoring changes in biodiversity or other changes in the BR ecosystem.

Measuring BR conservation effectiveness:

Normalized Difference Vegetation Index

(NDVI). Change in biomass index between 1996 and 2004 within BR areas (%). Satellite image data.

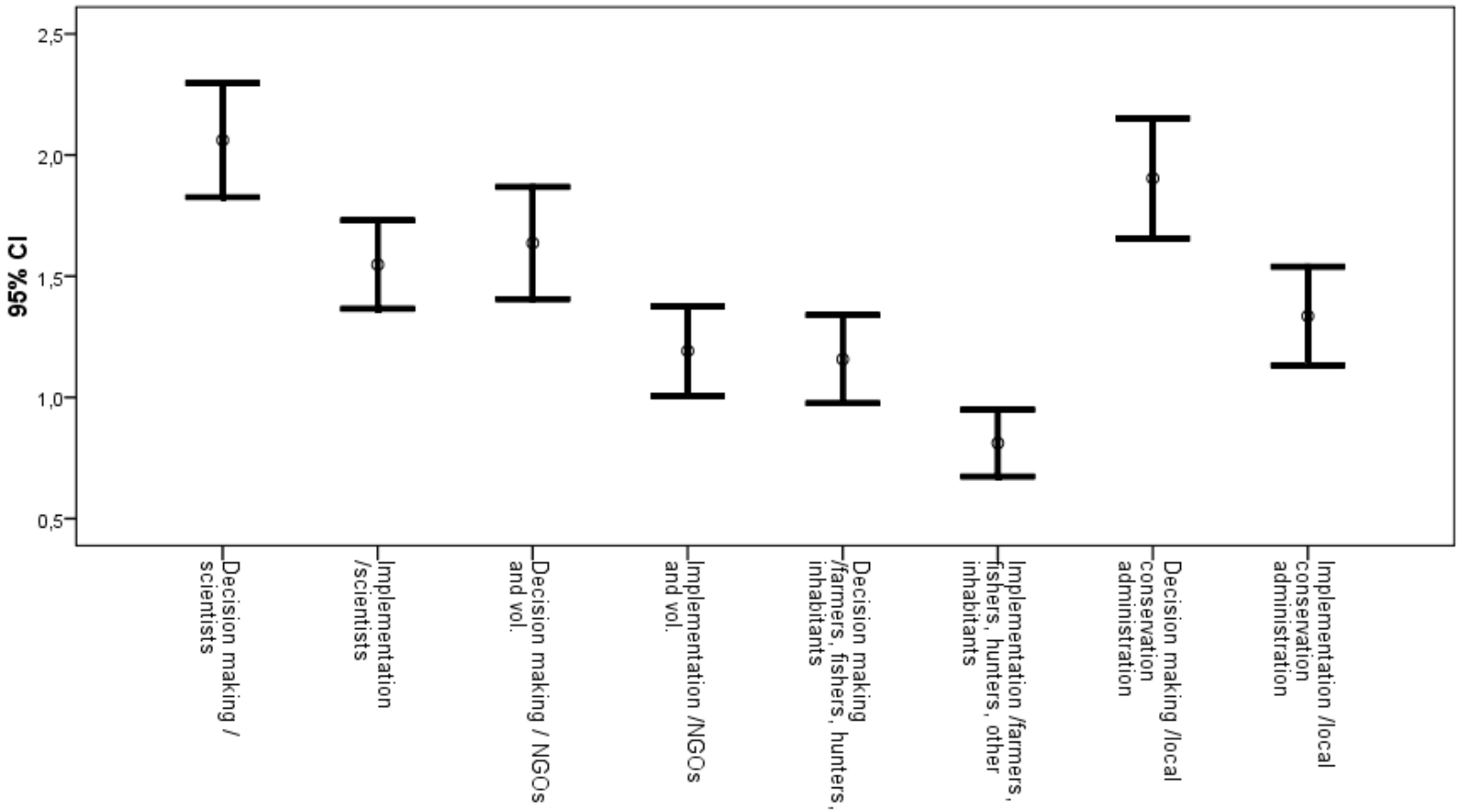
Self-assessed effectiveness in biodiversity conservation.

Survey data. Regression factor scores from BR managers' ratings of seven different aspects of BR performance.

Measuring rule of law

1. **Property rights index.** Legal protection of ownership rights 0 = lowest protection, 100 highest protection.(Heritage Foundation: data year 2002).
2. **Political rights index.** Associational and Organizational Rights, 0 (lowest) -12 (highest). Freedom House, data year 2005

Patterns of stakeholder participation



Rule of law and stakeholder participation: rates of participation in decicion making activities

	Scientists	NGOs	Locals	Local admin.
BR age	-.017	-.019	**-.036*** **	-.018
BR size (log)	-.066	.112	-.029	.005
Pristine / cultural landscape	-.116	-.304	-.035	**-.674** **
HDI index	-2.307	-.254	**-1.902***	-.566
Population density	-.001	.000	-.001	-.001
Property rights	.016	-.002	**.014***	-.007
Political rights	**-.108***	.091	-.037	-.081
Chi^2	10.57	15.28*	25.02**	24.02**
R^2	.07	.10	.15	.15

Table shows seemingly unrelated regression coefficients. p > .05 = *, p. > .01**, p. > .001= ***. N =136

Rule of law and stakeholder participation: rates of participation in implementation activities

	Scientists	NGOs	Locals	Local admin.
BR age	-.002	-.017	-.017	-.011
BR size (log)	-.040	.010	.004	-.078
Pristine / cultural landscape	-.075	-.354	-.240	**-.537***
HDI index	.611	-.597	.214	-.506
Population density	.001	-.004	-.001	-.001
Property rights	.002	8.410	.003	-.001
Political rights	-.045	**.105****	**-.061***	-.013
Chi^2	4.73	19.77**	16.57*	8.72
R^2	.03	.12	.10	.06

Table shows seemingly unrelated regression coefficients. p > .05 = *, p. > .01**, p. > .001= ***. N =136

Rule of law: Summary

- Overall weak effect of rule of law on stakeholder participation
- **Property rights** seem to influence participation of locals in BR decision making procedures.
- **Political rights** have a positive effect on NGO participation in implementation activities, but a negative effect on the participation of scientists in decision making and locals in implementation.

Rule of law and stakeholder participation in BR decicion making: effects on conservation effectiveness

	NDVI change 1996-2004 (%)	Self-assessement of BR managers
Scientists	-.103	**.248****
NGOs	.116	**-.228****
Locals	-692	.017
Local admin.	.845	-.028
BR age	-.047	.015
BR size (log)	-.778	-.007
Pristine / cultural landscape	-2.229	.384
HDI index	6.443	.995
Population density	-.015	-.009
Property rights	**-.148***	-.008
Political rights	**1.117****	.021
R^2	.21	.22
N	105	115

Table shows OLS regression coefficients. p > .05 = *, p. > .01**, p. > .001= ***

Rule of law and stakeholder participation in BR implementation: effects on conservation effectiveness

	NDVI change 1996-2004 (%)	Self-assessement by BR managers
Scientists	**-1.244***	**.338****
NGOs	1.358	**-.294****
Locals	**1.759***	.053
Local admin.	.304	-.012
BR age	.012	.101
BR size (log)	**-.860***	-.027
Pristine / cultural landscape	-1.848	.390
HDI index	7.982	-.103
Population density	-.012	-.001
Property rights	**-.169****	-.002
Political rights	**1.061****	.017
R^2	.27	.25
N	105	115

Table shows OLS regression coefficients. p > .05 = *, p. > .01**, p. > .001= ***

Stakeholder participation and conservation effectiveness: summary

- **No agreement** between self-assessment and NDVI models.
- **No effects** of stakeholder participation in decision making on biomass change.
- Positive biomass change is associated with **higher rates of local stakeholder participation** in implementation, but also **negatively linked** to scientist's participation.
- Self-assessed conservation effectiveness is associated with a **higher rate of scientist participation** and a **lower rate of NGO participation** in both decision-making and implementation.

Conclusion

Does rule of law facilitate stakeholder participation?

- Probably not.

Does stakeholder participation lead to increased conservation performance?

- Yes, but the strongest effect are from participation of local stakeholders on the implementation side.