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Integration of Legacy Effects into Evaluation of Ecosystem Governance

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Abstract

With environmental regimes, rapidly emerging and developing, scholars working on the evaluation of ecosystem governance and its capacity to adapt to global environmental change, face a challenge of accounting for the past changes of institutional set-ups and "legacy effects" they created. These effects may include previously taken management actions (including infrastructure development) and formal and informal institutions developed or modified. This is important that even if completely new governance regimes are being emerged/introduced, the inertia of the previous set-up can be persistent, in particular where informal institutions are strong.

This problem has been raised in the course of a larger study looking at the adaptive capacity of forest ecosystems in Belarus. Belarus makes for an interesting case because the country is in socio-economic transition since early 1990s, and it still preserves the national governance, which is very much top-down and not participatory. At the same time, the national government and NG sector closely cooperate with international organisations and EU on a number of initiatives, Belarus has ratified most of environmental MEAs, and the national environmental legislation has often been developed after EU models, i.e. multiple levels of environmental governance emerge and influence the national policy and the implementation mechanisms. Another effect of transition is that the conservation status of many protected areas and mandates of the management agencies are often revised and re-formulated.

To account for the legacy effect on the adaptation capacity of institutions of ecosystem governance, we have developed a methodological framework based on the analytical problems of the Earth System Governance as formulated by Biermann et al (2009) (Architecture, Agents, Allocation, Accountability, Adaptiveness) translated in a set of operational criteria. The criteria were applied to typical institutional set-ups associated with certain conservations categories of forest ecosystems, and mapped nationwide.

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Introduction

Socioeconomic transition, political and administrative reforms can radically change a familiar landscape of governance: new actors come to the scene, but also new formal and informal institutions emerge, while older ones also remain important or often provide a layout for the new arrangements to develop; this effect is also known as "institutional stickiness" (Joung 2002). When it comes to ecosystem (e.g. forest) governance, the past institutional set-ups manifest mostly in established links between local communities/governments and conservation bodies, behavioural patterns of local people and, often, also in management practices (or malpractices). If the conservation site in question is of the national and international importance, the established arrangements from higher hierarchical levels become important, and national and international NGOs, national government, academia, politicians and broader public take their time to get used to the new reality. This institutional inertia is often conceptualised as a "*legacy effect*" (e.g. Liu et al. 2007), and apparently it has an obvious effect on the governance landscape, and needs to be accounted for in evaluations of governance performance, adaptation etc. While this issue has broader implications, in this paper we focus on the two more specific questions, which are central to any evaluation methodology:

1) What aspects of past institutional arrangements matter (are sticky)?
2) For how long do they matter (how sticky they are)?

Apparently, these questions would get different answers across different scales and institutional contexts, however as a way to outline an evaluation methodology and to explore tools and methods of … governance theory, we have run a "legacy effect" scan for forest governance at a nation's level.

In this study we are also trying to put institutional set-ups in *spatially-explicit contexts*, i.e. we appreciate the importance of their geographical locations and intend to account for the spatial interdependencies. Most important, this gives a grasp about relationships between natural and social processes, and also about spatial behaviour of social constructs; viewing institutional set-ups against the specific biogeophysical settings also helps to approach problems of scale and fit. The closest reference to this approach is "landscape governance" that is also primarily concerned with the spatial reference of

governance (Görg 2007, p. 954). The value of spatially explicit information for ecosystem management was recognised a long time ago, and although policy scientists had also identified a number of spatially relevant issues (e.g. 'local trap' (Brown and Purcell 2005)) and the spatially bound configuration of institutional set-ups became evident already a few decades ago (e.g. by (Clark 1987)), the issues of mapping and spatial analysis of environmental governance have not been systematically discussed in scholarly literature as yet. In this paper we seek to address this through a systematic search for spatially-relevant (i.e. geographically attributable) criteria of governance performance, which we tried to put on a map and analyse as geographical phenomena.

The study was done for forests in Belarus, where the socio-economic transition took a rather unusual configuration: the country never showed any interest in the EU integration, and the governance is very top-down (even more so than in Russia or Ukraine), although the multiple layers also emerge, especially in environmental governance, which is supported by many MEAs ratified by Belarus, and by programs of international cooperation and assistance. The national systems of forestry and biodiversity management feature an impressive diversity of management and conservation mandates, which are usually executed by a few responsible bodies. This gives a vast space to all kinds of overlaps and interplays, however at the nation's level the overall performance of the system is rather good, and short of other reasonable explanations, this also can be attributed to robust institutional practices survived the transition, i.e. to the said *legacy effects*. In this way Belarus also can be viewed as a sort of alternative scenario for CEE EU members, while the analysis of institutional set-ups functioning across the scales can help to understand many failures of biodiversity governance not only in these countries, but also in older EU members.

Understanding of institutional set-ups

Governmental bodies are the only important actors in the biodiversity governance of forest ecosystems in Belarus; the extent the governmental structures are ready to consider the local circumstances and cooperate with other stakeholders, directly depends on the conservation status of forest patches (i.e. the conservation mandate and the managing authorities). The managing bodies have different agendas, available resources, administration styles and ways to interact with broader public and NGOs, and
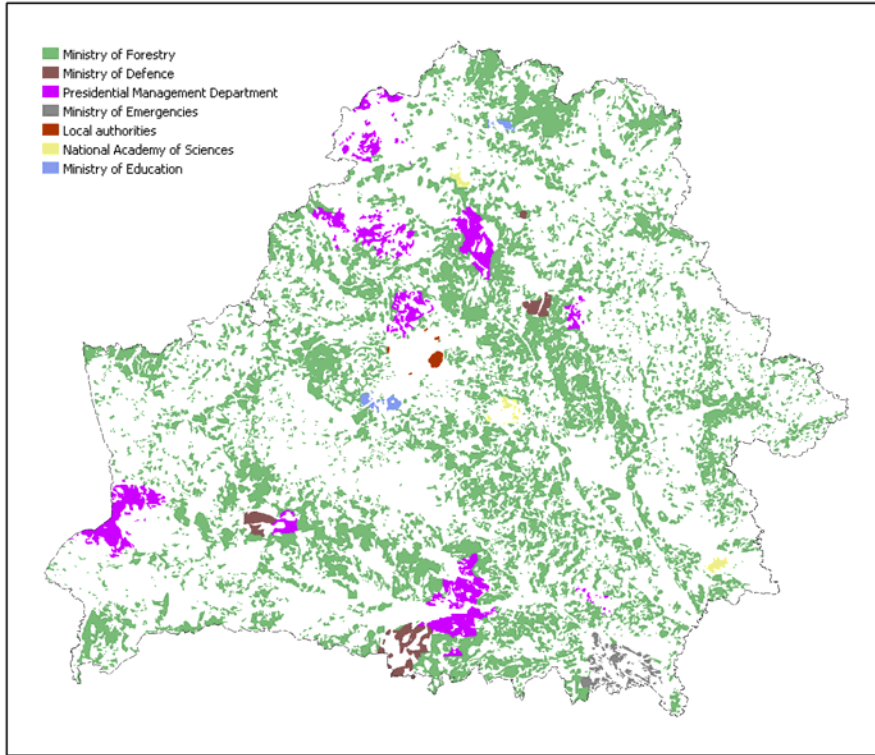
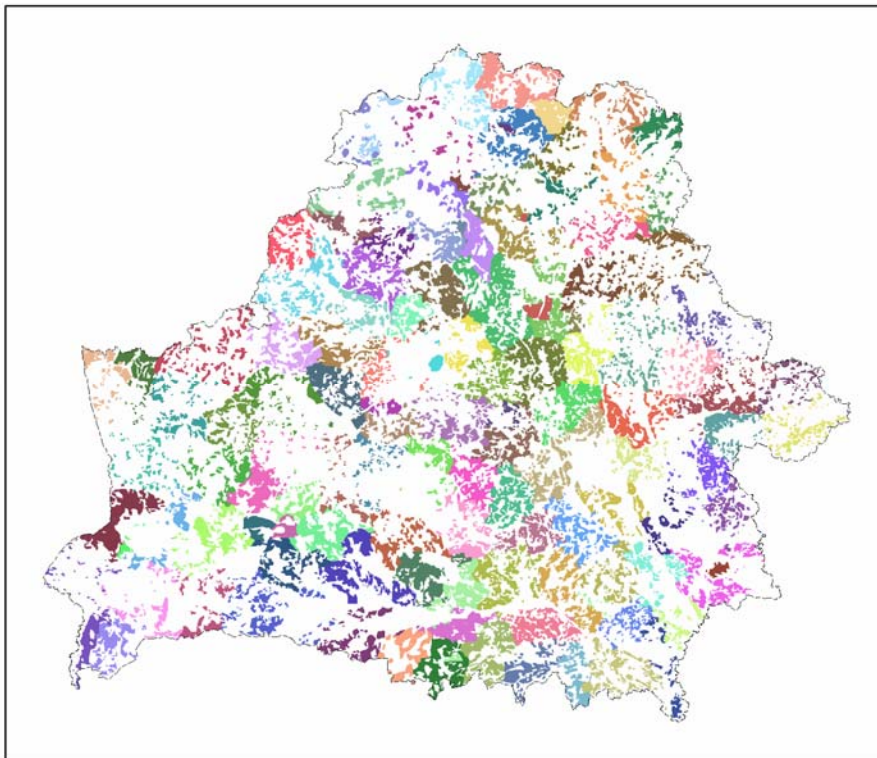**Figure 1: Main groups of management bodies in Belarus**

Figure 2: All the management bodies accounted

also possess very different power and legitimacy, and therefore the conservation status of a forest patch may also indicate the way formal and informal institutions of biodiversity governance work. An evaluation of the institutional set-ups associated with the forest patches gives a way for a spatially-explicit attribution of biodiversity governance, at least if the modes of institutional interactions are firmly bound to a certain conservation status, as demonstrated for Belarus.

Having realised the importance of architecture, accountability, allocation of resources, agency and adaptiveness for the systems analysed, we have developed an matrix looking at these five problems as formulated in the research plan of Earth System Governance project (ESG) (Biermann et al 2009). In our analytical framework each of these problems is analysed from the perspectives of fit, interplay and scale as summarised in the Table 1.

The "Architecture" is what the fit-interplay-scale problem is basically all about; it is a fundamental component of the evaluation, as all other evaluation components are to a great extent explained by it. Notions of "fit" in the domain of "architecture" open up great perspectives for spatially explicit analysis and also give an opportunity to link the performance of ecosystem management and the institutional context; closely related problems of "interplay" and "scale" are very much about the evolving the local institutional regimes into higher level architectures, and also about their interference with large institutional frames.

"Agency" accounts for the inclusiveness of the governance system. We agree that the governance should be multilevel, so the multiple centers of governance are included into institutional frames. However, we also recognize the danger of taking the idea of "polycentric governance" into the extreme; that makes the whole governance action (in pursing the institutional frames) disintegrated, uncoordinated and less effective.

"Accountability" is explicitly coupled with the issues of inclusiveness and closely relates to the "Allocation" that also builds on the "architecture". It is very well discussed in the body of literature on environmental justice; together with the "accountability" it relates to another well discussed issue of legitimacy.

Table 1: Analysis of past institutional arrangements – spatially relevant criteria

	Architecture	Agents	Adaptiveness	Accountability and legitimacy	Access and Allocation
Fit	How previous institutional arrangements fitted with natural/socioeconomic/cultural/historical settings	How managing agent of the past fitted to biodiversity value of the area How managing agents of the past matched other actors (state agency and the agency beyond)	What was the match between changes in natural/socioeconomic conditions and social learning capacity of previous agents How good was the fit between ecosystem changes and the amount of resources available to the agent (including technical, economic, monetary, social and human capital)	How good was monitoring (e.g. no monitoring or monitoring with limited validity), Were there any gaps in accountability, Were there any gaps in legitimacy	How good was the fit between resources available and biodiversity value of the area Were there any gaps in access
Interplay	Were the any overlaps with other institutional arrangements: administrative boundaries, water protection zones, transport buffer zones, urban/recreation areas	Were the any overlaps between management and protection agencies Were there any overlaps with non-state agents (Council of Europe, UNESCO)	Were there any institutional barriers for social learning Were there informal institutions effecting adaptiveness	Were there any conflicts between monitoring agencies What were the overlaps with informal institutions effecting accountability and legitimacy	Were there any conflicts or inefficiencies in resource distribution Were there any overlaps with informal institutions effecting access and allocation
Scale	Was the scale appropriate for a particular institution Was the management approach appropriate for the scale How an institution was replicated on different scales How subsidiarity was accounted for	Did the scales of management and protection agencies matched Did actors lose agency on certain scales How good was performance of agents on different scales	Were there any redundant scales limiting the capacity to adapt Was adaptive change on one scale beneficial for other	Were there scales with managing or monitoring agencies not perceived as legitimate Did accountability exist at all scales	Was there a scale disbalance in resource distribution Were agents able to manipulate with access and allocation by redefining the scale of problems

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"Adaptation" is about resources available, and also about the learning capacity and knowledge accumulated and readily available in the institutional set-up. In this sense it makes a clear reference to the inclusiveness, and the learning capacity and experience of multiple actors, which can be involved to the governance or excluded. In situations where formal institutions are missing (or inflexible), the informal arrangements often play an important role, and the analysis can look at how effective they are in a range of situations.

Evaluation of institutional set-ups

Storylines developed for each evaluation band have been based on the evidence obtained from semi-structured interviews conducted in 2008-10 with representatives of all the relevant stakeholder groups involved into forestry governance in Belarus, from published and unpublished reports and studies, pieces of national and local legislation, management plans and programs, internet discussions etc.

Table 2 shows how the evaluation approach described in Table 1 have been operationalised, and Table 3 gives examples of score distribution between the major groups of forest management bodies.

Table 2: An overview of the evaluation criteria applied to institutional set-ups

Score	Architecture	Agency beyond the state	Adaptive governance	Accountability	Allocation
3	Effectively integrated into the existing architecture	Actors easily admitted and involved	Formulated politics of adaptation; responsiveness to change	Transparent management; objectives communicated and accepted	Access perceived as "fair and equitable"
2	⇩	⇩	⇩	⇩	⇩
1	Interactions are restricted or formal	Hostility towards the NG institutions	No formulated politics; rigid decision making	Perceived as not transparent; policies not accepted	Failed to demonstrate fair access / distribution

Table 3 shows scores' estimations for the main groups of management bodies

Evaluation criteria	Types of institutional regimes (Jan 1, 2008)									
	I	II	III	IV	V	VI	VII	VIII	IX	X
Architecture	2	2	2	1	1	1	1	2	2	1
Agents	1	3	3	1	2	1	1	2	2	3
Adaptiveness	2	2	3	3	3	1	2	2	2	3
Accountability	2	2	3	1	2	1	1	1	1	1
Allocation/access	2	2	3	1	2	1	1	1	1	2

I - national parks (managed by the Presidential Management Department)
II - national reserves (Ministries of Forestry and Environment)
III - local reserves (local authorities and the Ministry of Forestry under the monitoring of the Ministry of Environment)
IV - Paleski Reserve (the Ministry of Emergencies)
V - forestry units (the Ministry of Forestry)
VI - military grounds (the Ministry of Defence)
VII - game grounds (the Presidential Management Department)
VIII - forestry units of educational institutions (the Ministry of Education)
IX - research forestry stations (the National Science Academy of Belarus)
X - park forestry units (local authorities)

Accounting for past governance regimes

The evaluation also takes into account the changes that occurred over the last decade, keeping in mind that the past governance set-ups have an inertia, which is likely to have a positive or a negative effect on institutions and institutional arrangements existing in the area, and also means that a certain level of infrastructure was or will be developed. To account for this, the final evaluation score (*IA*) is calculated as a sum of the evaluation of a current governance set up (*AI*) and the change of the score occurred during the decade (*ΔAI*):

$$IA = AI + \Delta AI$$

Figure 3 shows changes in institutional set-ups during the last decade associated with re-formulation of forestry management mandates, administrative reforms etc, and Figure 4 shows final evaluation scores accounting for the legacy effect.
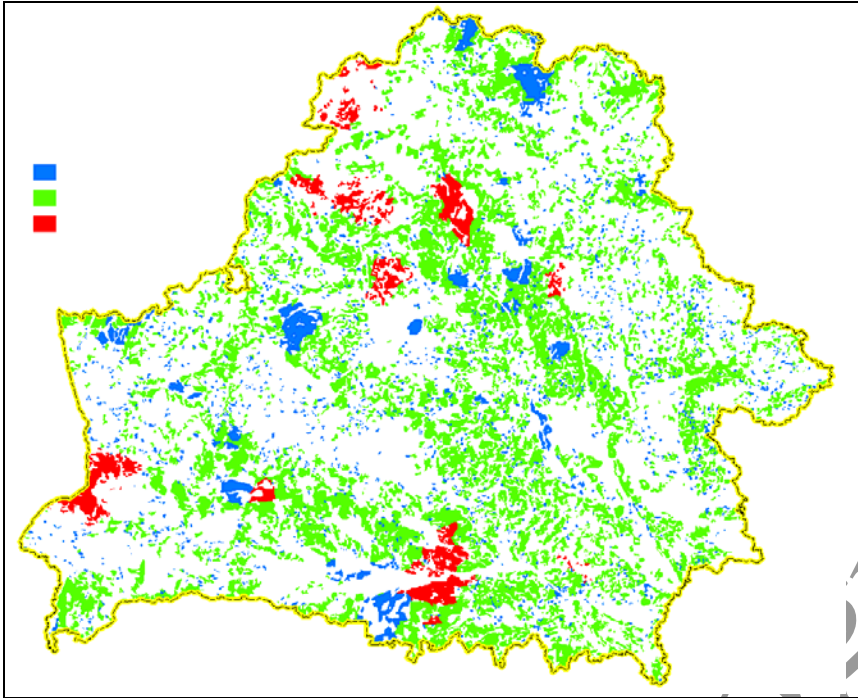
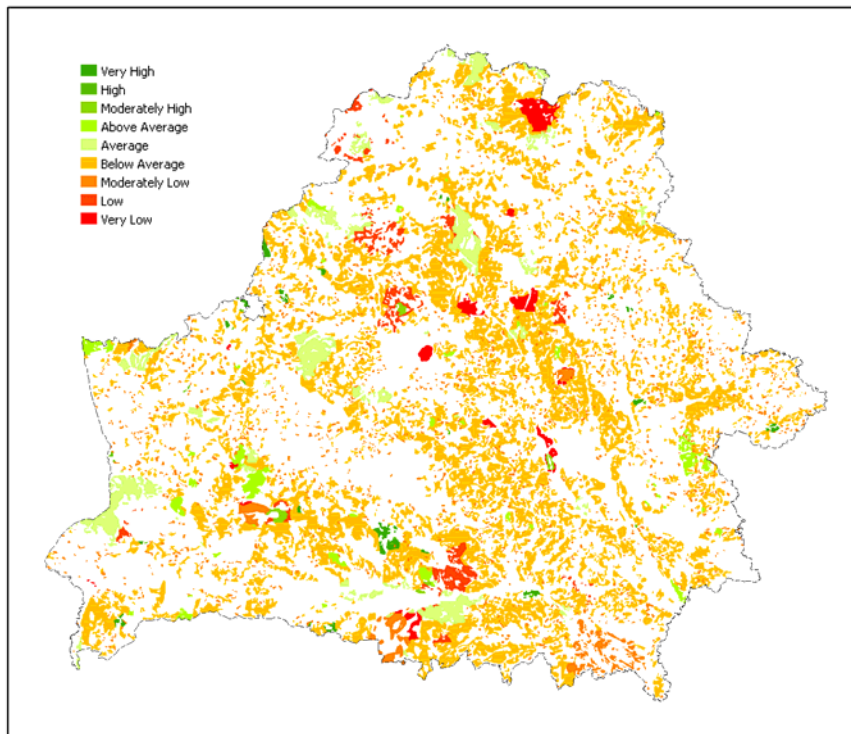**Figure 3: Directions of changes in institutional set-ups during 1998-2008**

Figure 4: Evaluation of institutional set-ups associated with forest management mandates and their changes during 1998-2008

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Conclusions

Governance frames do not make cause a significant legacy effect, while governance

regimes (Paavola et al. 2009) are quite sticky.

Sources of governance regime legacies:

- Significant legacy effects are associated with the fact that it takes time for agents to redefine who they are and what their interests are.

- Shortage of resources to implement institutional changes.

- Sympathetic officials in key governmental agencies.

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