Sciences & technologies Update

TRANSFORMATIVE PARTICIPATION FOR SOCIO-ECOLOGICAL SUSTAINABILITY

Around the CoOPLAGE pathways

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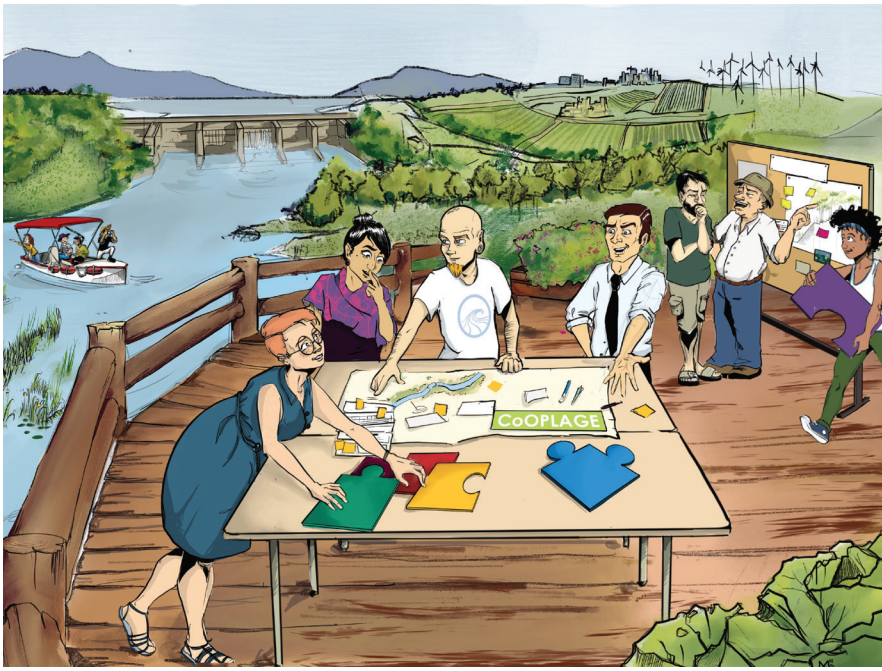

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Conclusion

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This book highlights a multiplicity of pathways, i.e. ways of thinking and implementing participatory approaches in a perspective of sustainability of socio-ecosystems. The book focuses on three main elements that constitute the core of the CoOPLAGE pathways: (self-)engineering and evaluation of participatory processes, modelling and simulation, and planning. These pathways are ongoing: there are as many instances of each tool presented in this book as there are territories where the tool has been implemented. Our research is made and shaped by the socio-ecological system on and for which it works. It is truly stakeholder driven.

Other tools have also been developed before the publication of this book but could not be included.

JustAGrid (2004) is a simple transferable method for eliciting, discussing and choosing principles for shared resources' allocation. It is based on the assumptions that:
– transformative processes in socio-ecological systems redistribute resources' access and use among stakeholders,
– conditions and procedures for this redistribution define social justice in policy design and implementation and,
– stakeholders who can't elicit, deliberate or choose these are at least exposed to unfair treatment (in democratic terms).

Hence a tool for participants to first decide individually of resources' allocation, followed by an aggregation and a collective discussion toward a common proposal of joint principles for shared resources' allocation.

SMAG (2016) for Self-Modelling for Assessing Governance, is a collaborative tool aimed at letting some selected stakeholders remapping the past evolution of governance, through its impact on space, and the most important decisions taken, driven by estimated causes, with induced consequences. The role of local stakeholders is elicited. Conclusions build on this past analysis to propose adaptation of the governance patterns.

Training and MOOC: the CoOPLAGE tools are regularly the subject of initial and professional training. More than 3,500 persons, students and professionals, have been trained (2023). A comprehensive MOOC (eight modules, ~50h training) is available since 2019 that accompanies students to collectively develop their own "CoOPLAGE pathways".

CoOPLANET network: many CoOPLAGE contributors and users are part of a network called "CoOPLANET" intended to share experiences among its members, and validate their expertise. It was launched at the COP22 in Marrakech (2016).

Additionally, a number of new tools have been developed during and since the writing of this book, all aimed at guiding stakeholder participation in the decision-making process toward socio-ecological sustainability (figure 19.1). They open new and alternative pathways that we have begun to explore in response to the demands of stakeholders in the field.

The River Observation and Conservation Kit (ROCK) allows citizens to define what they want and need to know about water or land management, why, how they can get this information and from whom. In other words, ROCK allows to frame informational needs and services, and thus contributes to establish (in a participatory way) a participatory observation device. With ROCK, it is not only the researchers, but also the citizens, who define what information to collect, with whom, where and how. ROCK is materialised in a two-sided form that leads participants to question their information needs and how to respond to them (figure 19.1).

ChangeO'Log is a tool aiming at exploring collectively various change or preservation pathways toward socio-ecological sustainability. It combines PrePar, CoOPLAN and ENCORE described in this book. Participants collectively define what they think should be changed, preserved or adapted in the socio-ecological system. They identify the actors who should act to achieve the proposed changes and those who would be impacted. They identify the management, participation and monitoring and evaluation

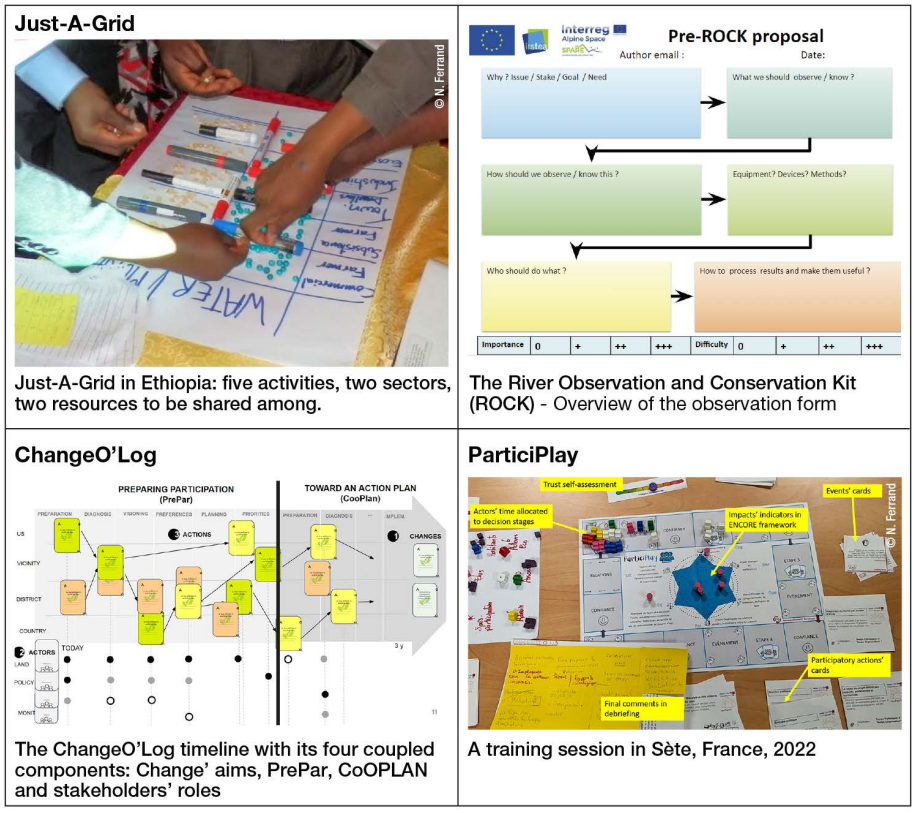

Figure C.1. Four other developments in the CoOPLAGE suite of tools

actions to be implemented to achieve the desired changes. And they articulate these elements in a coherent whole discussed with all the actors concerned. ChangeO'Log therefore brings together participation engineering, planning and monitoring-evaluation of the desired changes towards socio-ecological sustainability.

Participlay is a simple and accessible game aiming at initiating and quickly engaging all audiences to the issues and practices of participatory decision-making and open innovation. Participants collectively set up "participation action" cards, face unexpected events, discuss the social impacts of participation, orient themselves among different trajectories and possible approaches, and mobilise collective intelligence and creativity for innovation.

⏩ Pending issues and way forward

Within this community, several other issues have emerged over time, and we couldn't address all in this book. Some appear nowadays to be increasingly urgent to address:

Social extension, massification and adoption for general public policies: most of CoOPLAGE developments and tools have emerged in projects led by researchers in collaboration with public institutions. The social pervasiveness is still limited. It's time to foster more "massive" processes, still in line with the principles, but able to cope with very large groups, become prevalent in day-to-day approaches of public affairs, and even being adopted as a "normal" procedure in public policy making and implementation. Online and mobile apps may help, but citizens' engagement winning strategies are still to build. Improvement of guidelines and communication is urgent.

Reassessing long term impacts: some of these applied projects are 15 years old. When transformative impacts were measured, it was soon after the funded phase. It's time to come back and reassess the long-term impacts, in the various terms of the ENCORE framework. Causal imputability may be a challenge, but the perception of stakeholders and their vision of the remnants, when triangulated, could be useful.

Enriching CoOPLAN with empirical evaluative models: in participatory planning with CoOPLAN, the cross-evaluation of the integrated plan with a qualitative and deliberative appraisal (for resources and impacts) is very arguable and contingent. In collaboration with the French unit INRIA STEEP specialised in Material Flow Analysis models (territorial metabolism – Courtonne *et al.*, 2015), or with other categories of socio-environmental models (e.g. multi-agent) we started recoupling the set of actions with an empirical model to compute directly some indicators of impact, to feed the deliberation.

Extending digital participation engineering with CoOPILOT: the development of CoOPILOT (chapter 8) has been a long process. It transferred the knowledge and tools of the CoOPLAGE community to generate a significant breakthrough in support to participation engineering, by integrating new tools like ePrePar. However, its extension for public policy makers and administrators is still pending. As for the physical CoOPLAGE, it may require several adaptations and specialisation, or marketing efforts.

Migrating to other application domains: Developed with a focal issue on integrated water management, CoOPLAGE has, through field applications, addressed a very large set of other domains (risks, biodiversity, energy, food, health, urban, transitions, SDGs). However, some generalisations and transfers are still to be formalised and achieved, as well as improved scientific collaborations with these domains' specialists.

Dealing with emotions and affects – linking with art: the CoOPLAGe approaches are in line with operational research, hence quite "dry" for accounting for emotions and affects, which we reckon to drive several decisions and behaviors. Although engaging the "real" humans in the process, it doesn't give much space and incentive for expressing, sharing and valuing emotions. Participatory modelling and role-playing games offer some. Justice dialogues also trigger "outing" of emotions. However, many alternative combinations or add-on could be considered, with a special attention to be paid to the use of artistic movements. With various media, involving participants in gestures not directly "useful" or productive, can strengthen commitment and social learning. The role of artists themselves could also be reinforced.

Linking with prospective thinking and anticipation: Given the rapid evolution of socio-ecological systems, anticipation, understood as an effort to "know" the future, in the sense of "thinking the future" and "using the future" (Miller *et al*., 2018) appears as a natural perspective for coupling with CoOPLAGE tools. The objective is to develop stakeholder capacities to anticipate sudden shifts and shocks and to make decisions accounting for uncertainty and unpredictability (Rutting *et al*., 2022). Several such experiments have already been implemented, such as the modelling of past, current and future groundwater governance in Tunisia, using visioning and the Futures Triangle.

Restructuring the role of scientific and technical expertise: in the CoOPLAGE tools, scientific and technical experts of the application domains play a limited role. For participatory modelling and planning, their intervention could be normalised when reassessing actions' needs and impacts, as well as when analysing the global action plan as a whole. However, there are methodological challenges when confronting expert protocols and models with the simplified but pragmatic and open formalisms of the CoOPLAGE tools.

⏩ Calling for future collaboration

CoOPLAGE is almost entirely open source, under Creative Commons by-nc-sa license, with a specific use agreement including a protocol for sharing the monitoring and evaluation results.

In such context, we encourage all researchers, practitioners or other stakeholders to reuse the tools, share the results, adapt the methodology and contribute to the community. The core CoOPLAGE group is very tiny, but willing to help and establish common new projects for exploring new issues, domains, tools or challenges. Let's share the best of participation engineering to support the urgent transitions our contemporary world require!

⏩ References

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