Sciences & technologies Update

TRANSFORMATIVE PARTICIPATION FOR SOCIO-ECOLOGICAL SUSTAINABILITY

Around the CoOPLAGE pathways

Emeline Hassenforder and Nils Ferrand, eds

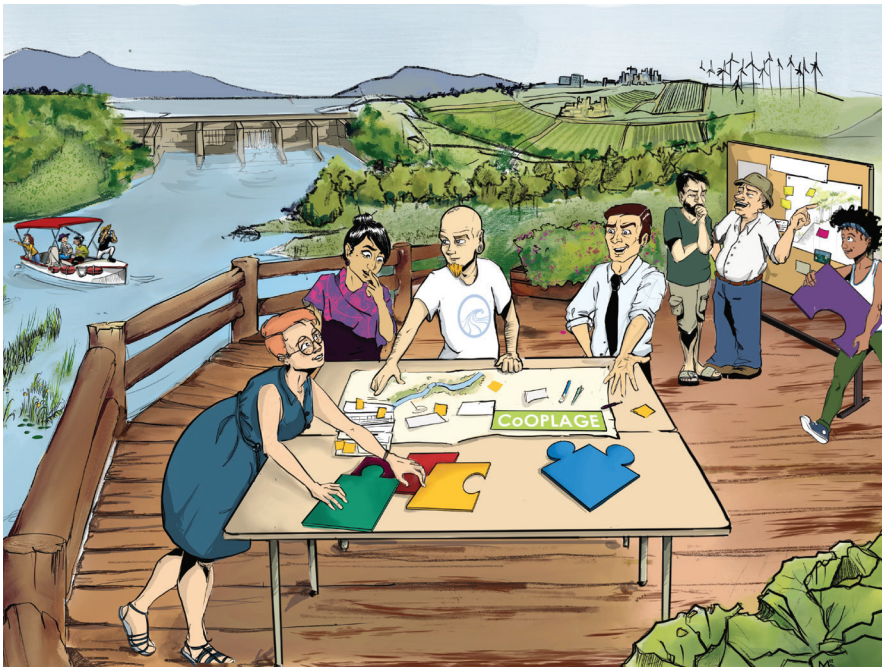

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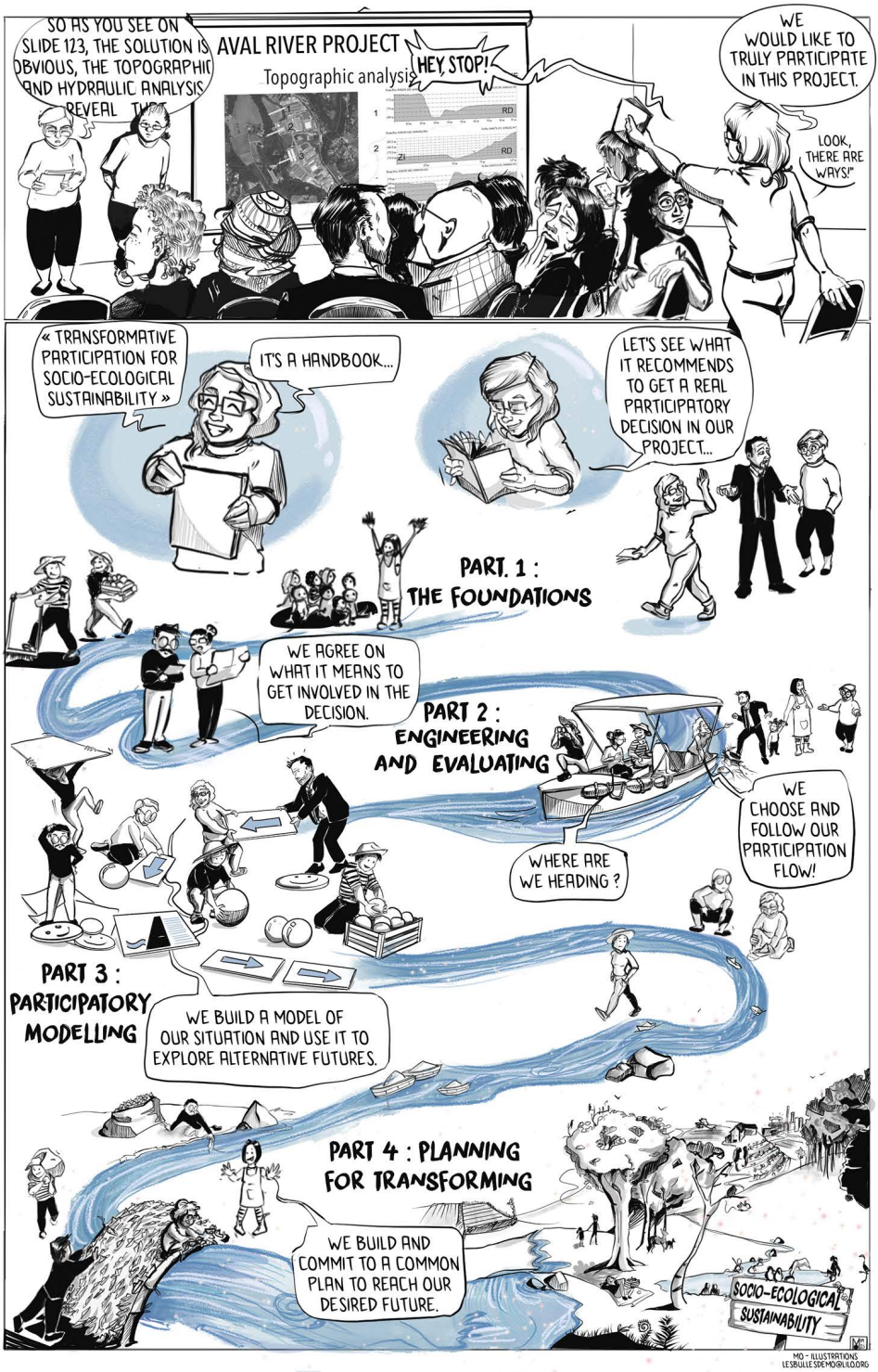
Table of contents


SO AS YOU SEE ON SLIDE 123, THE SOLUTION IS OBVIOUS, THE TOPOGRAPHIC AND HYDRAULIC ANALYSIS REVEAL TH
AVAL RIVER PROJECT
Topographic analysis
HEY, STOP!
WE WOULD LIKE TO TRULY PARTICIPATE IN THIS PROJECT.
LOOK, THERE ARE WAYS!"
« TRANSFORMATIVE PARTICIPATION FOR SOCIO-ECOLOGICAL SUSTAINABILITY »
IT'S A HANDBOOK...
LET'S SEE WHAT IT RECOMMENDS TO GET A REAL PARTICIPATORY DECISION IN OUR PROJECT...
PART. 1 : THE FOUNDATIONS
WE AGREE ON WHAT IT MEANS TO GET INVOLVED IN THE DECISION.
PART 2 : ENGINEERING AND EVALUATING
WHERE ARE WE HEADING ?
WE CHOOSE AND FOLLOW OUR PARTICIPATION FLOW!
PART 3 : PARTICIPATORY MODELLING
WE BUILD A MODEL OF OUR SITUATION AND USE IT TO EXPLORE ALTERNATIVE FUTURES.
PART 4 : PLANNING FOR TRANSFORMING
WE BUILD AND COMMIT TO A COMMON PLAN TO REACH OUR DESIRED FUTURE.
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Part 2
Engineering and Evaluating Participatory Decision Processes

Part 3
Participatory Modelling to Support Decision and Change

Part 4
Planning for Transforming towards Socio-Ecological Sustainability

Introduction

Emeline Hassenforder and Nils Ferrand

⏩ Underlying principles and posture of the book

Our world needs to adapt rapidly to the extreme conditions we have imposed on ourselves. Otherwise, the many prophecies of collapse might be fulfilled. The challenges of the Anthropocene drive us to reconsider and reengineer our ways of thinking, acting and living together and with our environment. However, most current trends are taking us in the wrong direction. This is particularly in terms of consumption and behavioural patterns, systems of financial control at the international level, extractive natural resources strategies, deepening inequalities, lack of effective democracies, the surge in conflicts and wars, distrust between many social actors, and much more. In such a dire situation, where should we—as humans, practitioners and scientists—focus our energy and agency for change?

– After the anthropocentric posture of the past decades, we need to reconsider the environment as a degraded common, and not as a permanent commodity.

– Individualism and competition promoted by liberalism should be replaced with solidarity and respect among humans, and with the other living species and entities.

– The diversity of human beings, specifically their perceptions and aspirations must be acknowledged by all as an asset for confronting the complexity of the situation, as well as a potential limitation requiring new cooperative practices.

– Top-down approaches to public decision-making where public policies are decided by leaders, driven by crowd and media prejudice, and accepted by the people, need to be transformed to revalue the contributions of all stakeholders, increasing the relevance of and commitment to public policies through co-construction with serious methods.

– Leaving a post-colonial North-South posture, we should foster South-North and South-South strategies.

– We should endorse gender-sensitive and indigenist visions of the situation and of the potential options for change instead of the dominant (masculinist) one.

Scientific research, through the Intergovernmental Panel on Climate Change (IPCC), the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) and all other targeted programs, seeks to impact policies, behaviours and socio-technical alternatives, but fails to significantly adjust the trajectories of socio-ecological systems. New scientific postures that seek *transformative actionable*

knowledge, built from and with deep interaction with stakeholders and communities can help to overcome these issues. Specifically:
– The detached forms of science that throw standalone academic insights and solutions from the lab, should be re-integrated conceptually and practically with the boundaries of its own data and models, uncertainty about impacts in implementation contexts, a responsive posture, and acceptance of controversies.
– Extractive forms of science that collect data from the field and from the people—as is the case in many citizen sciences projects—but are steered by scientists for the sake of discovery, might switch to an interactive and constructive approach, where questions, processes and their implementation are co-evolved with the concerned social groups in their environment.
– Greedy accumulation of data and knowledge should be questioned in regards to its actual contribution to societal change: use and impact in science, society and policy.
– From a disciplinary science, we should turn towards an undisciplined form of research, which is dynamically responsive to the greatest challenges we face.
– We should restore the central role of social sciences for its capacity to deal with the current failures of techno-solutionism, and cope with social change and governance.

This book, "Transformative participation for socio-ecological sustainability", does not hold the keys to revolutionary change. Based on 20 years of intervention research, coordinated and international, it instead aims at presenting experiences and approaches attempting to embody the above-mentioned principles, with their pros and cons. We hope it may help other researchers and practitioners in developing and implementing their own successful participatory pathways for the benefit of the socio-ecosystems, progressing a few steps forwards against the fate of collapse and towards a better world.

⏩ Why this title?

Supporting people and societies in adapting to their most urgent socio-ecological challenges is the overall goal we endorse in this book. In this regard, socio-ecological sustainability is the overall objective that this book seeks to contribute to. Our assumption is that this objective cannot be achieved without the enhanced participation of all stakeholders (from citizens to policy-makers) in the decisions that affect our social-ecological systems. This means that the participation of the various stakeholders must climb Arnstein's (1969) ladder of participation, i.e. no longer simply informing participants, but building their capacities to decide, act and adapt autonomously (Castoriadis, 1975) towards the sustainability of our socio-ecological systems. Participants must thus acquire a threefold capacity to assess their own situation within a global system, to develop and integrate feasible action plans to tackle their problems, and to self-organise in order to engage and steer their own adaptation pathways.

In this sense, participation must be transformative. And we argue in this book that this transformation needs to be accompanied by approaches, methods and concrete feedbacks, insofar as the participatory processes involved comprise several decision and action steps, and address complex questions of socio-ecological sustainability.

Beyond citizen sciences, beyond top-down "acceptology", beyond non-engaging or manipulatory communication, such transformative research is a new frontier, as well

as a candidate "must-do" in the social and political agenda. Within a wide international community of researchers aware of the urgency, and committed for "action on the ground" with and for the people, the "CoOPLAGE" group has designed, tested, gathered and coupled a specific suite of methods and tools, over 20 years in more than 30 countries. CoOPLAGE is the French acronym[1] for "Coupling Open and Participatory Tools to Let Actors Adapt for Environmental Management". The group's ambition is therefore to instrument this transformative participation in order to contribute to socio-ecological sustainability. The CoOPLAGE group is an interdisciplinary group of researchers and practitioners made up of researchers from the G-EAU joint research unit "Water Matters"[2] in Montpellier who have built the CoOPLAGE suite of tools over the years, and their field partners, whose decision-making needs have driven the construction of the CoOPLAGE tools.

Initially focused on water management, the experiences of the CoOPLAGE group have broadened to encompass issues around sustainable development, poverty, land use, governance and transition. They have been implemented with governments, environmental management institutions, non-governmental organisations, public agencies, citizens' groups, consulting firms and other researchers. The CoOPLAGE tools target various needs in participatory decision-making, including non-canonical ones like the co-engineering of the participation procedure and rules themselves, social justice principles, or self-designed protocols for social impact assessment. This wide set of experiences led to diverse "pathways", i.e. contextual adaptation, redesign, troubles and uncertainties, which helped improving CoOPLAGE and ultimately structured this book.

⏩ Inside or outside the book

In a nutshell, this book aims to give practitioners and researchers an overview of a coherent body of work and results on participatory decision processes aiming at socio-ecological sustainability, implemented in several countries. It covers topics ranging from co-design of participatory processes, to diagnostic, planning, and monitoring and evaluation of processes and impacts—with a common framework based on participatory modelling.

– This book deals with the participation of any stakeholder (citizens, representatives of associations, administrations, private companies, etc.)

– It addresses support to processes initiated in public policies. Emergent, bottom-up or protest participatory approaches (e.g. social movements, contested zones, etc.) are not addressed here. Most authors intervene under public commissioning. It may also support bottom-up dynamics but the initial trigger is often administrative.

1. CoOPLAGE: "Coupler des outils ouverts et participatifs pour laisser les acteurs s'adapter pour la gestion de l'environnement".

2. The G-EAU joint research unit "Water Matters" brings together researchers from a wide range of disciplines to work on a common research topic: water. We develop approaches and tools to understand and support sustainable water transformations. G-EAU is part of the ICIREWARD Unesco Centre for Water in Montpellier and engaged in the I-Site Excellence Program of the University of Montpellier. The academic and support staff of G-EAU involves the following institutions: the French National Research Institute for Agriculture, Food and Environment (INRAE), the French Agricultural Research Centre for International Development (Cirad), the French National Research Institute for Sustainable Development (IRD), AgroParisTech, Institut Agro Montpellier and the French Geological Survey (BRGM).

– It deals with participatory *processes*, i.e. including different steps and methods, multiple actors and issues, targeted at a specific change. It does not address *per se* group dynamic or facilitation techniques.
– It is focused on participatory decision-making and action support. It does not cover the lowest ladders of the Arnstein (1969) classification, like information, communication, consultation, and generally refutates "acceptology".
– It does not focus on science targeted participation or citizen sciences. Only one chapter addresses participatory observation (chapter 16).
– It mainly addresses physical or material-based processes, with in-person presence of participants. Only one chapter deals with digital participation (chapter 8) and mainly for its engineering and management. The book does not address electronic debate, pooling or online participatory budgeting.

⏩ Key concepts and definitions

The definitions presented below are those used by the authors. Alternatives may exist in the literature.
– **Stakeholders**: all people or organisations affected by, or potentially affecting, the decision-making process (adapted from Glicken, 2000). e.g.: local authorities, non-governmental organisations (NGOs), companies, inhabitants, tourists, etc.
– **Citizens**: persons engaged in the "life in society", as a community of humans, and who holds some dedicated rights and duties. We restrict citizens to individuals and distinguish them from "representatives" of a civil group, company or any other organisation. e.g.: lay people, the locals, local population, the "general public", etc.
– **Participation**: involvement of stakeholders in decision-making or implementation processes from which they are usually absent, with various *intensity* from simple dialogue to co-management.
– **Participation engineering**: design and operational management of the participatory processes, by assessing context, needs, constraints, goals, and deciding participatory steps, participants, methods, regulation, and finally implementing it with adaptive steering.
– **Participatory**: variant of a given social or political process to its participatory form, with an inclusive approach for design and conduct. E.g. participatory modelling, participatory engineering, participatory observation, participatory monitoring…
– **Consultation**: The French word "concertation" can be roughly translated as consultation. "Concertation" in French is often used interchangeably with the word participation. We use the term consultation to designate participation including solely representatives of stakeholders (local authorities, associations, private companies) and not direct participation from citizens. An example of consultative body is local water committees.
– **Engagement**: action of becoming involved in or towards a participatory or decision-making process, with or for one or more other stakeholders. Engagement can be more or less deliberate (often referred to as involvement or commitment), or externally imposed (by a norm, contract, law, etc.). Disengagement, on the other hand, is the act of not getting involved (in a participatory or decision-making process in particular) and can be reflected in electoral abstention, a drop in associative participation or the weakening of trade union organisations (based on Luneau, 2013).

– **Socio-ecological sustainability**: for a coupled system where human communities interact with their surrounding ecological system (natural environment), the property of preserving the viability (existence and persistence of the state and functions) of the social and the ecological sub-systems, in short and longer term, under changing external constraints.
– **Governance**: effective decision-making processes in a given social system, combining formal rules and institutions, and informal but operative processes.
– **Environmental management**: tactical decisions and their implementation related to the preservation or restoration of the environment of a given social and economic system. May include public and private management, as well as individual behaviors as components of the effective management. Different from Governance which sets the strategic decision and the overall conditions of the management.
– **Decision process/decision cycle**: sequence of social interactions, sometimes structured by external interventions or methods, and leading to some actuated decisions, by persons and groups. A substrate of governance and management.
– **Autonomy**: conditions of a social group to self-decide its own goals and rules, and be able to follow them, without external interference or influence on alternatives, choice or implementation (based on Castoriadis, 1975). In a contemporary and materialistic form, property of a social group to be able to live without influence or dependencies from others, for instance by controlling its own metabolism for basic needs.
– **Modelling**: social process producing a model of a system (an intermediary or boundary object), i.e. a representation under some formalism (descriptive and explanatory language) which can help analysing and managing the same system (based on Minsky, 1965). Often restricted to specialists ("modelers"), it can be extended to participatory modelling where any stakeholder can take part, share her vision and "adopt" the resulting model. Such process is potentially transformative through the induced social learning.
– **Simulation**: activation of a model to assess (with or without a computer) some dynamics in response to initial situations, scenarios, inputs or triggers. Often used for testing management options. *Participatory simulation* (games and role-playing games) are specific types of simulations where some stakeholders "stay in the loop" of simulation, by observing and reacting dynamically to the evolution, around the table or through computers, to exhibit realistic decisions and behaviors. *Social simulations* are representing humans and dynamics of social groups, under various assumptions inspired from social sciences, in interaction with others and the environment.
– **Citizen sciences/participatory sciences**: engagement of citizens in the production of scientific knowledge, by asking them to observe and collect data (e.g. plants, animals in their environment), sometimes formulating analysis or questions.
– **Acceptology**: approach of governance and management where some decisions are pre-structured or pre-made by a group of policy makers and usually experts, who in a second step organise a limited participatory process aimed at getting these decisions to be accepted by other stakeholders, mainly citizens, expecting minimal contest and change of the pre-decision.
– **Participatory planning**: a decision process aimed at getting the participants to co-construct, adapt and adopt an action plan, i.e. a set of different tentative actions, organised in space and time, for one or many sectors or issues, with the constraint of ensuring its feasibility, efficiency and robustness in front of various scenarios.

– **Monitoring and evaluation (of participatory processes)**: a way to collect and provide useful data at the right time and in the right format to the actors who need it to make decisions towards socio-ecological sustainability. Participatory observatories can thus be seen as a perennial form of monitoring and evaluation of participatory approaches or of the socio-ecological systems in which they are rooted, aiming at providing reliable information to renew knowledge and support policy-making. *Monitoring* can be distinguished from evaluation in that it is a way of collecting and providing data throughout the process with the aim of improving and adapting it when necessary. *Evaluation* is more punctual (ex-ante, in-itinere, ex-post) and aims at assessing the value of the process (efficiency, impact, relevance, sustainability...) in order to provide relevant lessons for the upcoming or future processes. Monitoring is often done by people involved in the process while evaluation is often done by external people.

⏩ Content of the book

This book includes an introduction composed of several chapters, and four parts. The current section lays the foundation for the book and draws the link among the various chapters. The introductory chapter 1 puts the content of the book into perspective in relation to what is being done elsewhere on the same subject. It specifies the values and postures underlying the approaches presented in the book, what these approaches are inspired by, and on the contrary, what they do not address. This perspective is at once historical, geographical, prospective and thematic. Chapter 2 presents the CoOPLAGE approach, its historical background and a set of complementary tools designed to meet the needs of stakeholders in supporting socio-environmental transition. The CoOPLAGE approach is in some ways the umbrella that embraces most of the chapters of this book: only six of the 19 chapters do not refer to the CoOPLAGE approach (the 3rd introductory chapter, as well as chapters 4, 6, 11, 15, 16). The introductory chapter 3 is a cross-talk between three people evoking the context of citizen participation in water management in France: a facilitator working for a non-governmental organisation who has been accompanying and facilitating local participatory processes for eight years, the former head of public policy evaluation and research projects on participation at the scale of a large watershed (river basin agency), and the person in charge of the territorial animation of water policy at the Ministry of Ecological Transition at the national level. They discuss current trends, key events, main obstacles and levers, as well as anecdotes and recommendations for citizen participation in water management.

The first part of the book addresses the foundations of public participation for socio-ecological sustainability: developing a culture of participation, the profession of territorial facilitator, the construction of social acceptability, the posture of researchers accompanying participatory processes and issues and challenges of e-participation. Chapter 4 is an interview with the Head of the Culture of Public Participation Unit at the General Commission for Sustainable Development at the French Ministry of Ecological Transition and Solidarity. She explains the concept, the objective and functioning of participation charters, which set the values and principles to which the various actors commit and guide the implementation of participatory processes. She details the role of warrants who ensure the sincerity and smooth running of participation. She also evokes the levers for upscaling a culture of participation, namely education, training, more interactions among researchers and policy-makers, reference frameworks and

spirits and attitudes. Chapter 5 evokes the profession of territorial facilitators, who support and facilitate participatory processes for the development and conservation of agricultural land in Tunisia. The chapter is based on the testimonies of two facilitators. It shows how this profession seeks to create a link with the population and with all the stakeholders involved. Chapter 6 explores the notion of social acceptability. It argues against participatory approaches that aim to gain acceptance for pre-established technical measures and shows how, in two cases, these approaches have instead opened up a space in which various technical solutions could be discussed. The two cases concern water reuse and artificial wetland buffer zones. Chapter 7 highlights how researchers accompanying participatory processes in support of water policies regularly change their posture, from participation engineers to knowledge transcribers, through trainers of facilitators, evaluators of the participatory process, etc. The chapter includes four testimonies of researchers having adopted different postures in the course of a participatory process. Chapter 8 tackles the issues and challenges when designing a digital platform for supporting participatory policy making. It elicits the potential use conditions and the features provided by various platforms.

The second part of the book addresses altogether the evaluation and engineering of participatory decision-making processes. Chapter 9 focuses on the engineering of participation, i.e. thinking about the objectives, design, choice of methods, implementation, and monitoring and evaluation of a participatory process. The authors present the PrePar tool and identify four key ideas to keep in mind and six structuring questions to ask, to support project leaders in preparing their participatory process. Chapter 10 explains how to evaluate a participatory process: how to assess the participants' demographics while preserving anonymity, how to assess whether all participants could express their opinions, or else how to assess impacts of the process on participants' knowledge, relationships or practices. It discusses issues of task sharing and subjectivity. This chapter includes an insert about the "Participation compass", an app to organise and track participatory processes. Chapter 11 introduces a conceptual framework for assessing the learning effects of participatory processes. It is centered around four main questions: Who learns? What is learned? How does learning take place? And what is learning for? The chapter highlights the need to detail the methodology used to assess learning (when to assess? How to assess? Who assesses? Why assess?) and the contextual and procedural factors impacting learning. The framework is then applied to five case studies in France.

The third part of the book focuses on an approach allowing stakeholders to unveil and make collective decisions about socio-ecological systems in a sustainable and autonomous way: participatory modelling and simulation. Participatory modelling consists of constructing, together with different stakeholders, an object (the model) that allows a number of questions to be answered on a real target system (Minsky, 1965). All five chapters focus on a specific object: role-playing games. Simulation (i.e. the fact of using or running the model) is then used to explore different management options and their social and environmental impacts under different scenarios. Chapter 12 deals with the design and use of role-playing games as methods for implementing participatory approaches for socio-ecological sustainability. It addresses various methodological points about this approach in the form of questions and answers, and then presents the kit for designing the participatory role-playing game "Wat-A-Game" (WAG). Following the chapter, an insert provides a concrete example of a game

designed with WAG: LittoWAG is a companion game designed to collect the perception of citizens on the management and adaptation of the coastline to risks. Chapter 13 introduces "L'Eau en Têt", a role-playing game designed with the WAG kit, and used for educational purposes in agricultural high schools in France. Chapter 14 presents WasteWAG (wastewater game), a role-playing game and participatory planning tool for individual and collective sanitation systems designed for urban and rural areas of Senegal. The chapter highlights the singularity of the modelling process, modelled over several successive stages, which contributed to the debate of technical knowledge with local stakeholders. Chapter 15 shows how role-playing-games, often triggered by researchers, may altogether constrain the expression of participants' concerns but also have transformative effects over engineers' vision of local knowledge, reusability of the tools for other purposes, and stakeholders' views on the role of Cambodian preks (drainage canals) in the mosaic landscape. Chapter 16 presents the issues and functioning of participatory observatories. Three examples of participatory observatories of varying duration (from one week to several years) illustrate the diversity of existing observatories and highlight the key role of stakeholders in these mechanisms.

The fourth part of the book presents various tools and processes aiming at co-producing plans toward socio-ecological sustainability. In these experiences, the process is at least as important as the results (i.e. the plans). Chapter 17 presents the CoOPlan approach, aimed at enabling a group of participants to co-construct together a collective strategy (instantiated in an action plan) to change together in their environment. The chapter provides a comparative discussion of the implementation of the CoOPlan approach in four cases (Uganda, metropolitan France, New-Caledonia, Tunisia), highlighting the adaptations made. At the end of the chapter, an insert provides an overview of the French case: a participatory process which engaged over 340 participants in the Drôme river basin in France in order to prepare the revision of the water development and management plan. Chapter 18 summarises the planning process that was implemented in New Caledonia to produce the Shared Water Policy in 2019. The chapter recapitulates the main steps and tools that were used, and what were the main results and feedbacks of participants and organisers. Chapter 19 presents a participatory process implemented in Benin to support the bricolage of local water management institutions. The particularity of this approach is that it combined various tools, including diagnostic, modelling and simulation (role-playing-game), planning and social justice elicitation tools. The approach as a whole was centered on the notion of ecosystem services, with a desire to hybridise the notions of ecosystem services with local knowledge and know-how and to formalise the commitment of the stakeholders concerned to implement sustainable economic alternatives favorable to ecosystems.

The conclusion presents new participatory tools that were being developed during the writing of this book along with pending issues and ways forward.

These 19 chapters address different themes related to socio-ecological systems: agriculture, diffuse pollution, flooding, territorial development, education, sanitation, wetlands, ecosystem services, etc. They also highlight different participatory tools allowing transformations towards socio-ecological sustainability: evaluation, planning, engineering, role-playing-games, observatories, facilitation, etc. Finally, they include cases and examples from eight countries (figure 0.1).

Figure 0.1. Localisation of the cases included in the book. The numbers in the black boxes correspond to the chapters dealing with the cases.

The editors of this book have sought to apply the principles they advocate: participatory, inclusive, transparent and open writing. The book was co-written by 50 researchers and 29 practitioners (decision-makers, politicians, associative actors, territory managers, etc.). It brings together authors and examples from different parts of the world (Figure 0.1). Most of the chapters were written by interdisciplinary teams (management sciences, modelling, agronomy, geography, sociology, economics, etc.) or a-disciplinary teams. The publication is open access which was a sine qua non condition in our choice of publisher. Even the choice of the title (in French) was discussed with all the authors!

Acknowledgements

Over more than 20 years, the development of the CoOPLAGE group, methods and tools has been supported by many contributions of researchers, practitioners, interns, administrative staff, who all played a role in this cooperative process. Let them all be acknowledged for their help and inputs (see the list of contributors at the end of the book).

References

Arnstein S. R., 1969. A Ladder Of Citizen Participation. *Journal of the American Institute of Planners*, 35(4), 216-224.

Castoriadis C., 1975. *L'Institution imaginaire de la société*, Paris, Seuil.

Glicken J., 2000. Getting stakeholder participation "right": a discussion of participatory processes and possible pitfalls. *Environmental Science & Policy*, 3(6), 305-310.

Luneau A., 2013. Engagement. *In* Casillo I., Barbier R., Blondiaux L., Chateauraynaud F., Fourniau J.-M., Lefebvre R., *et al.* (eds.), *Dictionnaire critique et interdisciplinaire de la Participation, DicoPart* (1ère édition). GIS Démocratie et Participation. https://www.dicopart.fr/engagement-2013

Minsky M., 1965. Matter, Mind and Models. *Proc. of the IFIP Congress*, 45-49, New York.

Chapter 1

Participatory approaches to developing sustainable futures: A global perspective

Katherine Anne Daniell

This chapter provides a brief overview of the use of participatory processes for developing sustainable futures around the world, with a particular focus on the emergence of participatory methods in the late 1960s and early 1970s. It also reflects on the diversity of current participatory methods. The influences and perspectives of CoOPLAGE in the light of the global context are reflected on, including how its underlying methods stem from a cybernetic, complex systems and engaged political approach. The chapter concludes with potential evolutions and innovations of CoOPLAGE, such as opportunities for integration of emerging technologies and more creative envisioning methods.

⏩ Sustainable futures, pasts and presents?

Involvement of people in developing sustainable futures for their communities is as old as humanity. A diversity of environments across the planet created different needs and interests for societies to manage their survival in relation to these places. Exploitation—without sufficient care and attention to processes of renewal—has led to destruction and death of both humans and the ecosystems sustaining them. This is still the case today, and the balance and process of renewing systems to well-functioning and flourishing states, particularly at the now greatly interconnected global scale, is increasingly fragile.

Where society persists and works with and sculpts their environments through the application of tools and technologies for mutual benefits, ongoing thriving in the same places is made possible. Over time, sometimes over millennia, each one of these social-ecological systems has created specific governance and self-organising systems with rights, responsibilities and relationships to carefully uphold. From the approaches of Caring for Country of Australia's Aboriginal and Torres Strait Islander peoples, including the participatory maintenance of vegetation through mosaic burning and river and aquaculture systems through sophisticated governing arrangements between families and nations like at Baiame's Ngunnhu (the Brewarrina Aboriginal fish traps) (Pascoe, 2014; DCCEEW, 2021) to the terraced agricultural landscapes in South-East Asia, to the rain-farming systems in Africa and oasis management in the Middle East (e.g. Aubriot, 2022), or the Dutch Water boards for managing land and water through it below sea level after having built canal and dyke systems (Dolfing and Snellen, 1999),

organised involvement of communities and governing systems to promote long-term maintenance and sustainability is key in their effective functioning (see for example Ostrom 1990; Ostrom *et al.*, 1999; Dietz *et al.*, 2003).

Much of the challenge in many of our current day systems around the planet relates to paces of social-ecological transformation, higher populations of humans, greater and faster engineering of environments, competition for the basics (and not so basic needs) for human and ecosystem thriving, complexity and number of governing (and governing influencing) entities working under a diversity of rules and purposes, which can lead to exclusion, inequity, waste and destruction of the systems on which we all rely. Throughout history such challenges have led to social uprisings and moments of clarity on our collective humanity and how change in governance systems may be necessary to include people usually not making decisions about our collective future.

⏩ Moments when the potential or challenges for sustainable futures comes into focus: the need for participation

1968 and the beginning of the decade that followed was one of those moments. From the Apollo mission's Earthrise photo and the growing "global" and environmental consciousness[1], to the global student protests and riots including May 68 protests in France (Morin *et al.*, 1968), and one of the first computer art and interactive technology exhibitions in London Cybernetic Serendipity (Reichardt, 1968) it was a period of awakening and developing new processes of participation and engagement that have shaped subsequent generations of practice and research. The research building from this moment included Shelley Arnstein's paper on the Ladder of Public Participation highlighting need for real sharing and moving power of decision-making to citizen control as a part of community organising and urban development in the United States (Arnstein, 1969), the development of the French Groupe des Dix and their cybernetic approaches to rethinking the relations between humans, natures and technologies and how that complexity is better governed by bringing science and politics together (Chamak, 1997; Vivien and Dicks, 2019), to the development of systems dynamics models in North America (Forrester, 1968), new South American pedagogies to overcome oppression (Freire, 1968), and pushes in many parts of the world for Indigenous rights, including the first legal land rights cases in Australia (De Costa, 2006).

In the renewal of democratic thinking and a search for justice of the more marginalised in society, publications like Rawls' (1971) book had a large impact in terms of advocating for larger diversity of views engaged in civil action which will enable greater societal freedom and justice, and Habermas' books (1972, 1984) over the period also led to reflections on legitimation, knowledge and communicative action. Participatory planning and purposeful systems also lay the foundations for the "Search Conferences" of Merriyn and Fred Emery (1974) in Australia. It was also the time of the United Nations Scientific Conference "The Earth Summit" (1972) that set out principles for preserving and enhancing the human environment through international environmental actions. Specifically, this was a period of understanding that many of the traditional operational research methods and their specific quantification principles

1. Earthrise, photo taken on December 24, 1968, by Apollo 8 astronaut William Anders, https://www.hq.nasa.gov/office/pao/History/alsj/a410/AS8-14-2383HR.jpg

were not as applicable to social and environmental challenges and research leading to the development of scientific paradigm shifts (Kuhn, 1962) and the birth of the "soft" operational research community where new definitions of these situations included "messes" (Ackoff, 1979), "practical problems" (Ravetz, 1971), "ill-structured problems" (Simon, 1973) and "wicked problems" (Rittel and Webber, 1973; see Rosenhead and Mingers, 2001 for an overview) and later community operations research movements with their emphasis on understanding and working to reduce marginalisation of those typically excluded from decision-making about their lives (Midgley, 2001).

The turn to participatory practice and methods for altering power structures and dominant cultures was also strong in the arts and cultural domains. This included the development and global transmission of forms of emancipatory theatre like Boal's *Theatre of the Oppressed* (1973), which first took hold in South America, where spectators were no longer passive but became "spect-actors" and could through their own action change the direction of the theatre to explore pressing issues. Brand's *Whole Earth Catalog* (1968), published intermittently likewise aimed to give everyone the tools, including ways of thinking in whole systems, methods for self-sufficiency and collective learning, and was important for inspiring counter-culture bottom-up community environmental movements.

However, at this moment, not everything was about concerns of democracy and governance. Researchers were also interested in how to replicate complex systems and evolutionary processes using mathematics and digital computing, and the beginning of research on cellular automata from von Neumann in the early 60s (1966), and many more in the years after (e.g. Arbib, 1966; Yamada and Amoroso, 1969), plus the growth in the use of systems dynamics used in urban systems (Forrester, 1969) and to represent the World's processes through the Club of Rome's publication *The Limits to Growth* (Meadows *et al*., 1972), set the scene for simulation modelling and games to understand interacting behaviours, whether human, biological, ecological or strategic across space and time. These were vital in the development of models and representations of what systems and their states through time could be considered to be sustainable and/or resilient, and what might need to change to navigate them in such directions. Bringing all these areas together, changing societies, technologies and environments, it is not surprising it was also one of the core moments when traditional scientific practice was challenged and its ill fit to globally interconnected challenges outlined across many disciplines leading to the development of transdisciplinary and participatory research and praxis (Lassudrie-Duchêne, 1968; Piaget, 1972; Jantsch, 1972). Echos of the challenges of this period can be found both through many centuries and decades of history and in the following years, as all these (r)evolutions built on and lay the foundations for other participatory practices and managing the challenges of sustainability through other moments of change and awareness of the need for alternative approaches to navigating complex systems.

⏩ A diversity of participatory practices

Fast forward through the decades, and the diversity of approaches to participatory practice for navigating towards more sustainable futures continues to grow and evolve across the world. The development of computational and communications infrastructures has enabled a range of new systems for gathering and structuring diverse inputs