Lessons and questions arising from the comparative analysis

SCIENTIFIC LESSONS AND QUESTIONS

by
Patrick Caron

The challenge of dealing with complexity

All the case studies that have been presented and discussed proved to be complex. The complexity relates to the situations scientists want to interact with. In all cases, one observe a multiplicity of stakeholders developing their strategies to produce, consume and manage their own resources as well as collective ones, a multiplicity of resources and a multiplicity of uses of the same that are inter-dependant. There is also a multiplicity of institutions that have a specific mandate and strategies and which actions is designed to impact at different levels (local, regional, national, etc).

It also relates to the approaches designed by scientists to address the objectives, both scientific and operational. The type of activities implemented (research, research-development, research-action, etc) always relies on the integration of various disciplines, methods and tools. Dealing with this complexity both in terms of analysis and support for decision making therefore appears as a scientific challenge.

From one scale to another

The typology proposed above shows that it is necessary to integrate activities conducted at different scales to fulfil each of the three research functions. In addition, integrating the results of analysis and experimentation activities undertaken at different scales makes it easier to address the planning support function at a particular level. For example, planning support to local governments (e.g. Guruve, Amatola) involves the packaging of information produced at the administrative unit level. It also takes into account the analysis conducted at some of the stacked organisation levels that are relevant to explain the evolution observed at the administrative unit level. Particular attention is usually paid to the environment as well as micro situations. When available, the results of tests can usefully provide further information regarding possible solutions for problem solving.

In the case of Northern Namibia, outputs for planning derive from observations and participatory interviews conducted at the plot and the community levels. Using remote sensing and Geographic Information System (GIS) and elaborating specific methods to stratify the situations, sample some of them and extrapolate the information obtained locally, made it possible to produce results that might be used for decision-making at regional level. The whole process thus relied on specific methods and tools for each particular level and culminated into a consistent approach.

However, one should notice that the level of marketing channels of organisations is rarely taken into consideration. This might offers opportunities for future development.

Spatial representations: what for?

In all the case studies, spatial representations were discussed by scientists to formalise and share the information produced. Yet, they varied considerably from drawings made by local people themselves to the most sophisticated computerised outputs.

Similarly, their level of use strongly differ from one experience to another, as well as for each type of representation developed by a team. They might be tools for collecting primary data, for scientists to integrate heterogeneous data and conduct the analysis, for representing the information derived from analysis, for packaging and disseminating this information, for stimulating a negotiation process or for supporting decision-making. The choices regarding the objects to be represented and the way to represent them (drawings, maps, models, etc) were illustrated accordingly.

In each case, the contribution of non-scientific stakeholders to the discussion of spatial representations is also varied. They might elaborate a demand, provide information, discuss and validate research outputs, use them for designing new activities or planning.

From spatial approaches to territorial development: a challenge?

Spatial approaches were thoroughly used by scientists involved in the workshop. However, as noticed by Lardon & Moquay (2000), such practices do not necessarily refer to territorial development, understood as an increased control from a social group of the processes that affect their territory. The authors highlight that, although the territory might be considered as a support of activities and as a product of these activities and history, this does not imply looking at it as an organisation factor for such activities, nor as a factor of evolution. The territory is then considered as an object, rather than the subject. According to the authors, it is then a passive rather than active territory and does not account for its capacity of acting, promoting the innovation and the change and participating in the control of evolution processes.

Participatory approaches: different interpretation

During the workshop, participants often referred to participatory approaches which, apart from becoming a fashionable and necessary justification of the research activity, proved to bring in very positive input. Yet, participation covers a great deal of different understandings. For some scientists, it is essentially based on the recognition of the value of indigenous knowledge and a way of accessing and integrating it into the analysis. For others, participation is promoted as an opportunity to ensure the operationality and use of research output through the establishment of partnerships with decision-makers. Stakeholders are then involved in feed back and validation of the results and scientists aim at providing them with elements for decision-making. Finally, although little explored, scientists might have an interest in analysing how the spatial representations they produced change the interpretations stakeholders have of their environment, their situation and their activities and impact on their decisions.

PARTNERSHIPS AND RELATIONS BETWEEN RESEARCHERS AND DECISION-MAKERS AND OPERATIONALITY OF RESEARCH OUTPUTS

The issue of partnerships between researchers and decision-makers have already been mentioned, but further observations are necessary to address it. They relate to:

The interface between the social demand and the research offer?

To promote the use of research output based on spatial approaches for local planning, scientists might follow different ways, as illustrated by the typology discussed above. The first one consists of identifying the social or political demand and then design approaches and implement methodologies adapted to the research objective. The second one is more common and stems from an attempt made by scientists based on previous achievements or assumptions and brought to policy-makers for further development. They might indeed be complementary, as part of an interactive process.

In all the case studies, scientists have voluntarily and deliberately tried to establish such an interface between the social demand and the research offer. The success of such an enterprise is often moderate and rarely matches the expectations of all partners.

The rationale developed by scientists on the one hand and policy-makers on the other hand, whether individuals, informal local institutions, etc, are specific and sometimes conflicting. The social demand relates to problems to be solved and therefore relies on different principles than the scientific ones. Researchers need to be recognised by their community and thus formulate their offer according to disciplines, concepts and methods. The necessary interface is frequently miss-interpreted.

The rationale developed by decision-makers, financing agencies or end-users of the research results also differ from one another, depending on interest, strategies, alliances and conflicts. This should lead scientists to systematically question who is responsible for the formulation of the demand, and to whose agenda it adheres to. In the case of the Guruve District (Zambezi Valley, Zimbabwe) for example, the conservation and use of biodiversity appears to be a concern for scientists and the national institutions. For the local government, the project offers an opportunity to strengthen their legitimacy and control of land resources and use, while communities are mainly interested in the direct benefits they could get from the project. Dealing with such diverse demands and objectives is not an easy task for designing research activities. Once again, the integration of scale is of fundamental importance for implementing a consistent approach based on heterogeneous demands. As shown by Pienaar in the case of the North-West Province in South Africa, the formal request and the financing of research might be central because of the prevalence of a specific problem such as land related issues in a large number of localities. Addressing this central demand calls for central but also local innovation and, in no case, prevents from using participatory approaches. The example developed by Verlinden & Dayot in Northern Namibia and discussed above shows the path towards possible extrapolation of local studies in order to impact significantly at the regional level. Such an experience also offers an opportunity to explore possible ways of addressing the demands expressed by diverse stakeholders.

In addition, timeframes for scientific production and development might differ significantly. There is a time needed for producing information, another one for conducting the negotiation process or implementing new activities. Scientists are often reluctant in delivering information that has not been validated, while stakeholders involved in development urge them to do so, since they have to make decisions in situations where they cannot rely on incomplete information.

Finally, the terms of reference for the scientists involved in land use and local governance research activities are rarely formalised. Negotiation with stakeholders is usually not undertaken, except between scientific and financing agencies. This situation might lead to suspicions of hidden agenda, as in the example of the Zambezi Valley. On the contrary, it is important to reach a formal agreement, which includes the objectives of the research activity, the property and use of the information produced, the involvement, responsibilities and limits of researchers in decision-making. This certainly raises a challenge for improving partnership and the efficiency of research.

The use of information for decision making support

Methods and information are the main output of the research activities that have been discussed. They aim at modifying the interpretation that stakeholders have of their environment and their own situation and activities by taking into account the factors inducing change in the rural situation, the rules and modalities for such transformation to occur and the consequences they bring. To fulfil this objective, the role of models, designed as theoretical frameworks based on observations, have been highlighted, as in the case of the Amatola District (South Africa). Models also provide generic information that might be used for extrapolation, as in the case of Northern Namibia.

Such an ambition calls for adopting certain steps when implementing the research process. First comes the need to identify, together with the decision-makers and end-users, what type of information should be produced and what it should be used for. Scientists can then elaborate the methods to collect and process data. Finally, the type of representation and support used to translate scientific into operational information is fundamental for turning the information into an input for decision-making and highlights the social responsibility of the researcher.

Participatory approaches and consensus: avoiding the confusion

Behind the notion of participation, one can often identify the explicit or implicit search for consensus, as a way to promote collective and public action. One should then question whether this search is part of the scientific process or of the social process of using the research output.

During the Amatola District case study presentation, Lhopitallier highlighted for example that the planning process belongs to stakeholders involved in decision-making. Nevertheless, scientists might play an important role by identifying conflicting issues for decision-making, providing information related to these issues and proposing adequate specific methods and tools to be applied in the negotiation process. The map and other spatial representations can be used for integrating heterogeneous data, stimulating the dialogue between stakeholders, identifying problems, imagining scenarios or solutions, making decisions and strategic choices, planning the allocation of resources, etc.

In addition, divergences in representations might be meaningful and relevant to be taken into account in the planning process. Looking at consistencies and inconsistencies between different sources of information and different stakeholders' representations proves to be a powerful way of elaborating information. Men and women respectively look at sources of water in a very different way in the Zambezi Valley according to the way these places are used, and this very clearly comes to bear when they are asked to represent their community through drawing.

Similarly, it was suggested that the mapping of conflicts or strategic interests vis-à-vis productive resources, might be a powerful output to stimulate decision-making.

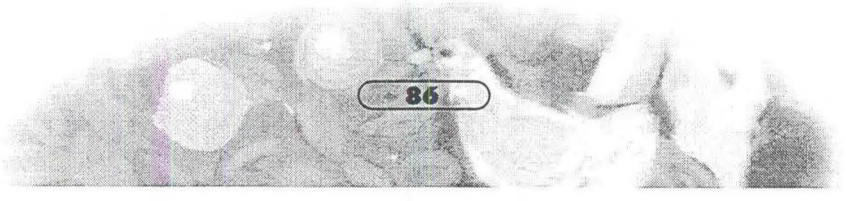
CONCLUSION

By organising the Workshop "*Spatial approaches for land use and local governance*", the choice was to explore case studies and draw lessons from them, rather than conducting a theoretical process. The intention was to identify generic outputs and common interest and problems for possible valorisation and collaboration.

The experiences presented and discussed during the workshop were all part of **Research-Action** programmes, in which researchers work together with rural development stakeholders. The role of the latter is recognised as central. The research output aims at supporting decision-making in a changing and uncertain environment by providing stakeholders with relevant information.

The case studies clearly demonstrate that stakeholders' strategies contribute to the production of new and diversified spaces and territories. In return, identifying the diversity of such spaces help in characterising stakeholders/ strategies and practices. The approaches that were developed usually involves the identification of the diversity that characterises the research subject as the first step. An attempt is then made to analyse the factors, the actors and their activities that contribute to this diversity: Who is doing what? Where? When? How? Why? With (or without) who? The approaches pay more or less attention to the changes along history, but all explicitly refer to various geographical scales and to the integration of spatial, social, economic, ecological, technical and political factors. Specific methods and tools are tested for each component of these approaches, which lead to the development of rural development models to represent the collective process of transformation of local societies and management of resources. These models integrate the factors that contribute to changes, including the intervention of local and central governments, the rules and modalities for such changes to occur and their consequences.

The experiences discussed are all innovative. They rely on proactive initiatives from researchers, which try to make their results available to decision-makers in order to impact on development. However, as discussed above and for reasons that have been explored, the junction between the social demand and the research offer is facing limits and raising challenges.



These experiences are at different stages of advancement. Some of them are still intentions (Mozambique, use of GIS in the Eastern Cape Province), other ones are on-going and their results still lack validation and valorisation. The more advanced offers a good basis for extrapolation of the methods and knowledge produced. Actually, all of them were conducted in one single locality. One can easily foresee the amount of work to be undertaken before applying similar approaches in a large number of situations or deriving from them activities to be undertaken at national level in order to impact significantly on development. This was however identified as a major challenge by Prof. Van Zyl during the opening speech of the workshop.

The workshop offered a good opportunity for exchanging information, methodologies and experiences, promoting the scientific production derived from each experience through their formalisation and publication and initiating a comparative analysis of approaches implemented in different and specific contexts. The development of a scientific and institutional framework for improved collaboration and interaction between scientists might now show the path for addressing the numerous questions raised by this analysis. Such exchanges will also have to involve in the future other partners that could not participate in the workshop.

There is a need to analyse other experiences, implement new ones and explore further their scientific contribution to research and development. As stated by Verlinden, the question is "how to be collectively creative in the future?" Collaborative activities might be designed to address issues of common interest, such as the valorisation of approaches, concepts, methods and results or the improvement of methods for integrating different scales of analysis, experimentation and planning.

Unanimously, the local level is recognised as particularly relevant for analysing the changing situations, co-ordinating individual, collective and public stakeholders' initiatives through negotiation and programming the appropriate resources and actions to support development. To do so, spatial approaches prove to be operational and provide adequate information for natural resources management and land-use related decisions and local governance, not only because of the very nature of the research subject, but also since they make it possible to integrate different scales in the process. However, such approaches raise numerous questions and therefore challenges. They relate to concepts, methods and tools to be designed, adapted and validated. They also relate to partnerships and, more specifically, to the relationships between the scientific community and the society, even more so because of the public good characteristic of the information produced.

BIBLIOGRAPHY

Brunet, R., 1990. Mondes nouveaux : géographie universelle. Ed. Hachette/Reclus, Paris, 551 p.

Camagni R., 1991. Local "milieu", uncertainty and innovation networks: towards a new dynamic theory of economic space. In: Innovation networks: Spatial perspectives, Camagni R. (Ed), Belhaven Press, London.

Caron, P., 1998. Espace, élevage et dynamique du changement. Analyse, niveaux d'organisation et action. Le cas du Nordeste semi-aride du Brésil. Doctorat Thesis in Géography, Univ. Paris X - Nanterre, France. 396 p.

Caron, P, Swanepoel, F., Stroebel, A., 1999. Spatial Approaches for Land Use and Local Governance: Introductory Note. In: Workshop "Spatial approaches, land use and local governance", University of Pretoria, SACCAR, Pretoria, 24-26 November 1999, 10p.

Courlet C., Pecqueur B., 1996. Districts industriels, systèmes productifs localisés et développement. In: Les nouvelles logiques du développement, Abdelmalki et Courlet, L'Harmattan, Paris, p. 91-102.

Lardon, S., Moquay, P., 2000. Séminaire INRA-Cemagref-ENGREF Modèles Spatiaux pour le Développement Territorial, Synthèse, INRA-Cemagref-ENGREF, Paris, France. 19 p. To be published.

Lhopitallier, L., 1999. Amatola Zoning Project. In: Workshop "Spatial approaches, land use and local governance", University of Pretoria, SACCAR, Pretoria, 24-26 November 1999, 30 p.

Morgan, G., 1999. The use of Geographic Information Systems in Agricultural Research: A Case Study. In: Workshop "Spatial approaches, land use and local governance", University of Pretoria, SACCAR, Pretoria, 24-26 November 1999, 4 p.

Ricard, X., Nyamuno, C., Lafage, B., 1999. What negotiation for what participation? A case study in participatory Land Use Planning. In: Workshop "Spatial approaches, land use and local governance", University of Pretoria, SACCAR, Pretoria, 24-26 November 1999.

Verlinden, A., Dayot, B., 1999. Working with local knowledge system in a GIS for natural resource assessment, planning and management in North Central Namibia. In: Workshop "Spatial approaches, land use and local governance", University of Pretoria, SACCAR, Pretoria, 24-26 November 1999, 20 p.