Biomass supply chains development in rural areas: how to take public stakeholders' needs and expectations into account?

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Summary

Northern France is a region where agriculture and industry are important sectors of the economy. These sectors have given the region an advantage for developing the bioeconomy sector. This sector is based on the use of renewable biological resources to produce food, feed, chemistry products, biobased materials, energy ... It is in this context that the "Demonstrating Sites Network" project aims to contribute to developing biomass supply chains in rural areas and to promoting their territorial integration. To do so, project partners are building a consulting procedure which will allow them to guide industrialists willing to develop a bioeconomy project in Northern France and who are looking for biomass supply. The procedure purpose is to give references, tools, methods and feedbacks to the stakeholders interacting with the industrialist (farmers, mayors, bankers, …) and to the industrialist himself. These elements should give them the possibility to organise a durable supply chain from the farmers to the valorisation unit, to integrate the project into the territory and to answer to stakeholders' questions, fears or expectations.

To collect the elements needed to build the procedure, three case studies have been followed. From these case studies, it has appeared that knowledge of public stakeholders' needs and expectations was incomplete to suggest information or ways which would guide them into territorial bioeconomy development. To fill this knowledge gap, a study has been led to identify public stakeholders' needs and expectations regarding bioeconomy development in their territories and to suggest ways to take them into account in the consulting procedure. The study followed four steps: a knowledge review about public stakeholders, consisting in summarizing their missions, their *a priori* motivations to promote bioeconomy in their areas; identification of public stakeholders involved in the three case studies of the "demonstrating sites network" project by interviewing the three industrialists involved; collection of nine public stakeholders' needs and expectation by interviewing them and an offer for feedback and decision-making elements that should be taken into account in the consulting procedure.

The review of public stakeholder's missions and *a priori* motivations to promote bioeconomy underlined that, in France, public stakeholders can have different implications in bioeconomy projects: inspection, welcome, control, service provision, financing and action. Stakeholders interviews allowed to identify two main public stakeholder's needs. Public stakeholders are looking for knowledge and arguments about bioeconomy projects which raise the necessity to explain a project to public stakeholders and to keep them informed of scientific and technological advances on the subject. The other formulated need was the interest of public stakeholders to work in cooperation with other territorial stakeholders involved into the bioeconomy sector and development. It also appeared that it is important for them that a project manager solicits all the territorial stakeholders linked directly or indirectly to his project. It shows a will to integrate and anchor the project to the territory. Moreover, this study showed that the decision-making elements public stakeholders take into account can change according to public stakeholders' missions and territorial context. This assessment underlined the importance of integrating a territorial diagnosis into the consulting procedure in order to identify stakeholders' potential concerns.

This study gave the opportunity to deal in depth with public stakeholders' decision-making process, applied to bioeconomy territorial projects. It highlighted which economic, environmental, social or interpersonal decision-making elements public stakeholders take into account when they have to make a decision about bioeconomy projects on their territories.

Applicable topic: 4. Biomass policies, markets and sustainability
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Introduction

Northern France is a region where agriculture and industry are important sectors of the economy. These sectors have given the region an advantage for developing the bioeconomy sector. This sector is based on the use of renewable biological resources to produce food, feed, chemistry products, biobased materials, energy ... Indeed, the industrial past of Northern France allows it nowadays to benefit from an industrial savoir-faire and society acceptability to new industrial projects. Besides, its agricultural sector is able to produce the raw materials required to supply the bioeconomy sector.

It is in this context that the "Demonstrating Sites Network" project aims to contribute to developing biomass supply chains in rural areas and to promoting their territorial integration. To do so, project partners are building a consulting procedure which will allow them to guide industrialists willing to develop a bioeconomy project in Northern France and who are looking for biomass supply. The procedure purpose is to give references, tools, methods and feedbacks to the stakeholders interacting with the industrialist (farmers, mayors, bankers, …) and to the industrialist himself. These elements should give them the possibility to organise a durable supply chain from the farmers to the valorisation unit, to integrate the project into the territory and to answer to stakeholders' questions, fears or expectations.

To collect the elements needed to build the procedure, three case studies have been followed: a methanation project, a wood chip boilers supply project and bio-based material supply. In each, an industrial project using agricultural territorial biomass, allows to identify stakeholders' needs and expectations towards bioeconomy supply chains and to look for the answers to bring.

From these case studies, it appeared that knowledge of public stakeholders' needs and expectations was incomplete to suggest information or ways which could guide them into territorial bioeconomy development. To fill this knowledge gap, a study has been led to identify public stakeholders' needs and expectations regarding bioeconomy development in their territories and to suggest ways to take them into account in the consulting procedure.

Method

To have a better understanding of public stakeholders' needs and expectations, four steps have been followed:

1. Knowledge review regarding public stakeholders
2. Identification of the public stakeholders involved in the three case studies of the "demonstrating sites network" project
3. Collection of public stakeholders' needs and expectation by interviewing them
4. Offer of feedback and decision-making elements that should be taken into account in the consulting procedure

Knowledge review of public stakeholders

In the first phase, the different stakeholders who can interact with the bioeconomy project in the territory have been identified and characterized. It consists in summarizing their missions, their *a priori* motivations to promote bioeconomy in their areas according to their tasks, what bioeconomy can bring to their territories (employment, renewable energy, …), the decisions on bioeconomy projects their missions lead them to take and the kind of support they can give. Twenty-One French stakeholders have been identified and characterized according to these elements.

Identification of public stakeholders involved in the three case studies of the "demonstrating sites network" project

To have a better understanding of public stakeholders' needs and expectations about bioeconomy projects, this study chose to focus on the involvement of public stakeholders on the three projects considered in the "demonstrating sites network" project. The idea was to be able to meet public stakeholders linked to these projects and to compare their words to the acts they have eventually carried out to promote bioeconomy development on their territories. To carry out this approach, the three industrialists involved in the "demonstrating sites network" project have been met. They have been questioned about the history of their project and about public stakeholders' interventions in the project. Thanks to these interviews, ten public stakeholders have been identified.

Collection of public stakeholder needs and expectation

Nine of the ten identified public stakeholders have been interviewed individually. For each meeting, the same framework has been used.

The first step was to specify the stakeholder's missions, in order to check the match with the knowledge review. Then, the stakeholder was asked to come back to the case study: which decision did he have to take? how did it take it? To help him to clarify his mind, a drawing inspired by the *Intelligence – Modelling – Choice* (IMC) model proposed by Herbert Simon (Figure 1) was used.

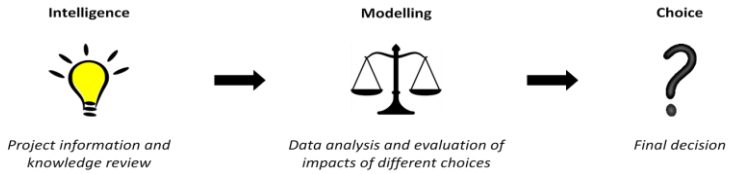

Figure 1: IMC model from Herbert Simon theory

Then, the stakeholder's decision-making process was clarified by pointing out the stakeholder's decision-making question regarding the project and the stakeholder's objectives. These specifications were completed by the decision-making elements the stakeholder had taken into account and by the way he estimated that the project could help him to reach his objective (Figure 2). Finally, the stakeholder had the opportunity to indicate his general needs and expectations about bioeconomy development and his view on this subject.

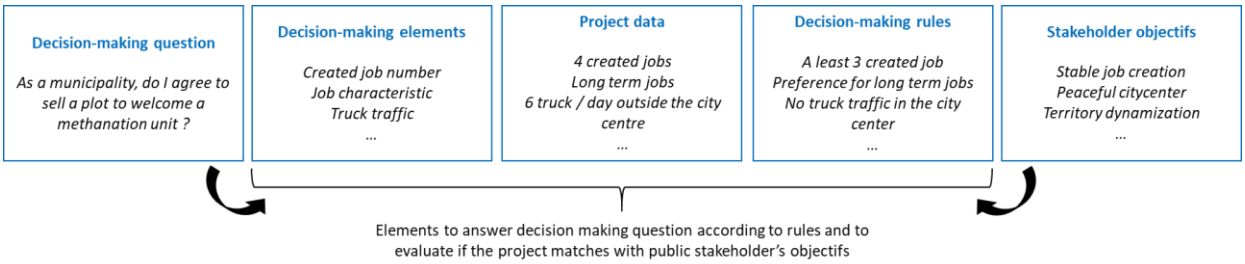

Figure 2: Example of stakeholder decision-making process

Offer of feedback and decision-making elements that should be taken into account in the consulting procedure

Further to the public stakeholders' interviews, the collected data have been analysed to underline the decision-making process that a public stakeholder can follow, to summarize the decision-making elements they frequently use and to give food for thought to build the consulting procedure.

Results

Different involvement of public stakeholders towards bioeconomy projects on territories

The review of public stakeholders' missions and *a priori* motivations to promote bioeconomy underlined that, in France, public stakeholders can have different implications in bioeconomy projects. It appears that the local representatives of the central government [deconcentrated services of the State] take care of the match between bioeconomy development projects and public policies (environmental safety, local urban masterplan, …).

Concerning decentralized services, which are territorial entities to whom the State delegates mission and responsibilities, there are two situations:

- Local community services (municipalities, urban communities) are inclined to welcome projects in their territories and guide them in order to integrate them into the territory. A particularity of these decentralized services is that they also can be project managers and so develop bioeconomy in their areas thanks to their projects, by building a biomass heating network to power a school and the city hall for example.
- Regions can finance projects in order to bring economic dynamism to territories.

Table 1 summarizes the different potential involvements of public stakeholders towards bioeconomy projects in territories.

Table 1: Potential involvement of public stakeholders toward bioeconomy projects

	Inspection	Welcome	Counsel	Service provision	Financing	Action
Deconcentrated services of State	✔					
Decentralized services		✔	✔		✔	✔
Public institutions for industry				✔	✔	
Public institutions for administration					✔	
Chambers of Commerce and of Agriculture			✔		✔	
Financial institution					✔	
State associations			✔			

Public stakeholders' needs

Public stakeholders' needs depend on their missions and the objectives they follow. Specific needs were mainly formulated by stakeholders with a consulting mission or likely to welcome bioeconomy projects in their territories. Two main needs have been identified:

- Public stakeholders are looking for knowledge and arguments about bioeconomy projects: getting more information about biobased material, having an idea of the impact of such projects on a territory, the research in progress on the subject … Such needs can be taken into account in the consulting procedure built in the "Demonstrating sites network" project by producing training media including description and feedback of similar projects in another territory. It also raised the necessity to explain a project to public stakeholders and to keep them informed about the scientific and technological advances on the subject.
- The other formulated need was the interest of public stakeholders to work in cooperation with the other territorial stakeholders involved in the bioeconomy sector and development. An answer to this need could be brought in the consulting procedure by introducing a discovery phase of the bioeconomy sector and its stakeholders, with a role play for example. A tool like a role play would allow public stakeholders to understand a project and its potential obstacles properly, and to find out interaction between territorial stakeholders. It can be a first step to help them accept the project and be part of it. To go further, a meeting with bioeconomy clusters can complete their knowledge about the sector and its governance.

Public stakeholders who have been met also formulated recommendations to project managers. These recommendations are another way to know their needs and expectations. It appeared that it is important for them that a project manager solicits all territorial stakeholders linked directly or indirectly to his project. It shows a will to integrate and anchor the project to the territory. They also appreciate when visits of similar projects are organized. It is an efficient tool to remove doubts about the project (olfactory harmful substance, explosion risk, …) and to communicate and involve stakeholders into the project.

Decision-making elements public stakeholders are looking for

Having an idea of the decision-making elements public stakeholders are looking for gives the opportunity to take them into account in the consulting procedure and to offer a more efficient communication between the project manager and the public stakeholders. This study has shown that the decision-making elements the public stakeholders take into account can change according to public stakeholders' missions and territorial context. The following results are general trends gathered from the nine public stakeholders interviewed. These results should be understood considering this aspect of the methodology.

Public stakeholders whose mission is to look for the locals' well-being carefully consider the environmental impacts of the project (greenhouse effect, energetic independence, olfactory harmful substance, …), the socio-economic ones (job creation and protection, service provider origins, …) and also the economic aspects of the project (savings and revenues the project can bring to the locals, …).

Public stakeholders whose mission is to promote economic development in the territory assess especially socio-economic and economic aspects (jobs, territorial anchorage, business model robustness, sources of funding, …). They also focus on the feeling they can have for the project manager: does he have experience in the field of bioeconomy, of management? Is the spirit of the project in tune with public policies? Is it an innovative project and can it raise territorial attractiveness?

Finally, public stakeholders in charge of the examination of the project for the State differentiate themselves from other public stakeholders because they follow a settled methodology to examine the project which matches regulations and public policies.

As said previously, decision-making elements also change according to the territorial context. It appeared that, with more or less the same elements in mind, public stakeholders gave, for example, more significance to job creation in a territory with high unemployment. This assessment underlined the importance of integrating a territorial diagnosis in the consulting procedure in order to identify the stakeholders' potential concerns: unemployment, poverty, previous similar bad experience, other similar project in the territory and potential risk of competitiveness.

Conclusion

This study gave the opportunity to deal in depth with public stakeholders' decision-making processes, applied to bioeconomy territorial projects. It highlighted which economic, environmental, social, interpersonal decision-making elements public stakeholders take into account when they have to make a decision about bioeconomy projects in their territories. These elements change according to their mission and the territorial context. Added to public stakeholders' needs and expectations, they allow to offer steps and tools to complement the consulting procedure being built in the "Demonstrating sites network" project. For example, a territorial diagnosis should be done for each project to have a better understanding of the context, and public stakeholders have to be informed of the project and the way it works. A role play could also be another future development of this study to try to promote bioeconomy development in territories towards public stakeholders.

Bibliography

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