

GREECO

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1. Introduction

A key issue within the GREECO research framework has been to provide explicit considerations in relation to which territorial dimensions are most relevant in pursuing of the green economy, and how. Here a specific focus is a) on territorial factors that have an *impact* (as drivers, enablers or hindrances) development of the green economy, and b) on territorial outcomes that *result from* the development of the green economy related to a given sector.

To facilitate this process, a preliminary scoping document on the territorial definition of the green economy provided a first, top-down conceptual discussion on the meanings and implications of "territory" within the GREECO project. As a result of this discussion, a set of eight overarching territorial factors (each with three to four sub-factors), and seven overarching territorial outcomes have been identified as the main processes or conditions that either influence or result from the pursuit of a greener economy. The document also included a basic operational approach for how each of the sector reports was to use it in order to emphasize territory in a straightforward, operational and consistent way.

Following the second step - a consistent territorial analysis in each sector report - we are now able to synthesize the findings into a sound discussion on how the GREECO project interprets the relationship between territory and the green economy. As such, this report is a third and final step of analysing the territorial definition of the green economy, and it provides the following key results:

- The identification of the most important territorial dimensions that will shape the development of the green economy;
- The relevance of these dimensions within key sectors of the green economy;
- The determination of where, and how, sector-based development initiatives will potentially synergize or oppose each other from the territorial perspective.

- A well-structured, operational and comprehensive definition of the territorial definition of the green economy to be used as an analytical tool for other activities in the project (i.e. the top-down analysis on territorial performance and potentials, as well as on policy impacts).

In turn, a number of policy and research worth findings can be drawn from these results. Perhaps most importantly, this includes insight on socio-economic development with an increased focus on interactions with the material world which can be expected to take place *among* different sectors, and in different types of “places” in Europe. Not least, this should expect to inform and expand the existing discourse on the importance of place-based policy approaches for achieving balanced, sustainable growth. Furthermore, it should point towards how we (as providers of policy insight) can structure future territorial analyses in order to identify new understandings on where green economy potentials are located and how they can be exploited. This especially zero in on what types of data and territorial analysis provides good insight, and how this can be mobilized into new and expanding policy fields - i.e. land use (EU-LUPA), landscapes (LIVELAND) and other approaches focusing on the characterization of spatial implications of green economy in many sectors.

First, a brief discussion on the aims and objectives of exploring the territorial definition of the green economy precedes details on the method and description of key terms. Following these formalities (albeit important ones) the top-down, conceptual perspective provides a framework for interpreting territory vis-à-vis the green economy. This includes an introduction and overview of each of the key territorial dimensions identified as playing a key role in shaping the green economy. Next, a synthesis of the territorial dimensions and outcomes as they were elaborated in each sector report provides a space for a discussion on how certain sectors will complement or oppose each other depending on territorial specificities, and how this can be reflected in future policy making.

2.Aims and objectives

The general objectives of this task are:

- To combine conceptual understandings of *Territory* and the *Green Economy* to deduce a Territorial concept of the green economy. Then use the territorial concept to envision a set of territorial dimensions that can capture the essence of the territorial concept within a) the diverse types of regions in Europe, and b) the diverse activities (sectors) that drive the economy in Europe.
- Based on a synthesis of the insights gained within the sector reports, to define and explain the relevance how each territorial dimension is relevant to the green economy. Again, dimensions are the collective reference to factors that drive, enable or hinder a greener economy, as well as outcomes that result from pursuing it.
- To combine both perspectives to identify ways in which the territorial dimensions (as taken up in the individual sectors) both strengthens and calls into question a top-down approach to defining the relevant territorial concept and its associated dimensions. This will serve to show that identifying and mobilizing (or resolving) these opportunities (or struggles) will be an important policy task for achieving a greener European economy.

Specifically within the GREECO research process, this report reflects the following aims and objectives:

- To provide a direct and robust research link between the territorial definition of GREECO (Task 2.2.1), the sector report (Task 2.2.2) and the policy recommendations (Task 2.5). Also, to deliver relevant findings to top-down analyses on green economy performance and potential in Task 2.3.
- To clearly embed GREECO's territorial definition within the ongoing discourse of territory as taken up by regional policy in Europe.
- To expand a top-down set of territorial dimensions (being characteristics of a territorial concept) within the sector

reports, which are then directly synthesized into explanations of the territorial definitions.

3.Methods and distinction between key terms

The implicit plurality of territory in a green economy, multiplied by a similar plurality in terms of the green economy's multiple sector dimensions, means that it would be impossible to effectively characterize the green economy's territorial perspectives in a single research task. GREECO's resolution has been to create an explicit research dependency between the territorial definition (Task 2.2.1) and the sector reports (Task 2.2.2.). As such, a territorial concept and its associated dimensions are applied to the sector reports from a top-down territoriality approach. This is in order to define, characterize and elaborate the territorial dimensions from the bottom-up. Likewise, the third point of the general objectives highlights another potential utility of pairing the top-down and bottom-up perspective – to identify which complementarities or inherent conflicts will present themselves when pursuing the green economy across the range of sectors that deliver growth in reality - on the ground, so to speak.

The research approach in its schematic form below shows how the top-down and the bottom-up research processes are brought together through a series of straightforward steps. While a number of equivalent approaches might have been applied, the distinctions of the selected one provide a means of understanding and following through the analytical process.

1. At the top, the **Territorial Definition** is the cumulative result of the work completed in the entire task, and in the analysis of territorial dimensions with the sector analyses. As such, it is simultaneously the heading of the task and a term that represents all of the findings through the subsequent steps. Again, this draws on the fact that a territorial definition of green economy cannot be a single statement, but must be multi-faceted in order to reflect the diversity of both the

European regions and their economies, but also their varied material bases.

- Next, the **Territorial Concept** is the essence of the top-down exercise – as how notion of territory is seen in relation to the notion of the green economy. This acts as a basis to identify the key territorial dimensions of the green economy.

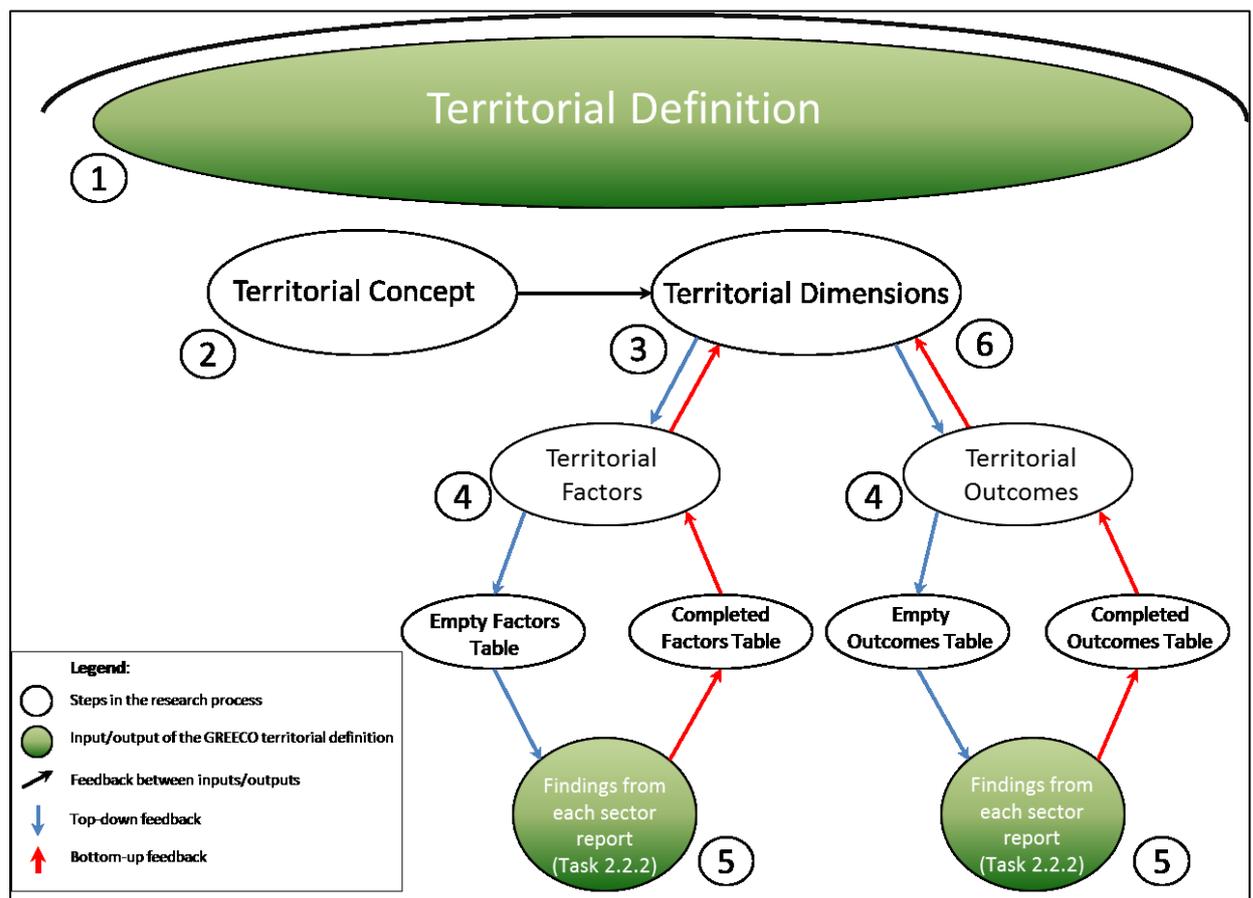


Figure 1: Schematic of the research flow for developing the territorial dimension within the GREECO project

- Consequently, **Territorial Dimensions** follow directly from the territorial concept as the perspectives (or themes, general characteristics, frames or key parameters, if you will) that 'operationalize' a territorial definition of the green economy. On one hand, and as shown in the schematic below, the dimensions themselves are identified vis-à-vis the territorial concept (from the top-down). On the other hand however, the individual dimensions (the factors and outcomes, as mentioned below) are then analysed through generic preliminary tables that are to be filled out in relation to each

sector report. The results from each table are also synthesized to actually define and elaborate each territorial dimension, thereby providing the bottom-up “reality” of each dimension. As such, the two-stage process of completing analysis on the territorial dimensions is at the heart of the top-down meeting the bottom-up research process and the entire territorial definition of the green economy. It is also notable that instead of providing extended explanations to each territorial dimension in the preliminary tables they have been distributed only with examples of completed tables for certain sectors. This was done in order to not limit the context of the results received by the completed tables, and as part of our expectation that “learning through example” may be much more efficient and effective in ensuring that the results of the individual sectors are translated into a comparative synthesis.

4. Territorial dimensions are distinguished in terms of factors and outcomes. **Territorial Factors** are territorial dimensions that drive, enable or hinder the development of the green economy in European regions. Being territorial, they are place-based – as in non-uniformly distributed in space and depending on the local societal, cultural and political context. This means that they account for the basis of how European regions differ in their pre-conditions for a transition towards a green economy. **Territorial outcomes** are territorial dimensions, -as new or existing territorial phenomena - that are accentuated in one way or another by pursuing the green economy. They answer the question: for achieving some greening of the economy in a given or a set of sector, what territorial outcomes can be expected to take place? This means that they account for the basis of how European regions differ in their “possible effects” for a transition towards a green economy.
5. The bottom up analysis is mainly driven by each of the authors of the sector reports through completing a table on territorial factors and outcomes. These were distributed to the authors during the time allocated for completing the sector reports, and were accompanied by a preliminary version of this report which elaborated the top down perspective on the territorial concept and territorial dimension. The following guidelines were provided in order to structure the results:

- a. The tables should be inserted either directly in each sector report or as an annex to the main report.
 - b. All fields must be completed with a yes (it is a relevant factor or has a relevant outcome) or a no (it is not a relevant factor or does not have a relevant outcome).
 - c. For dimensions where the answer is yes, a rationale must be given that relates to information that is found somewhere in the sector report.
 - d. Some factors or drivers may have multiple relations for a given sector.
 - e. Territorial outcomes should not be stated as being positive or negative in and of themselves. They simply reflect territorial phenomena that are likely to take place either as prerequisites or outcomes when greening the economy.
6. Based on the previous step, the idea is that taking the territorial factors and outcomes (which are not sector-specific in any way) and "sectorised" in the territorial synthesis of each sector report, we can not only identify key sector specific outcomes, but find synergies and oppositions between the sectors. Therefore, the contributions from each sector will be analysed in parallel to identify the key territorial factors and outcomes of the green economy. To do so, the parallel analysis will attempt to the following questions:
- a. What are the most important territorial dimensions that need to be acknowledged in order to achieve policy-led development of a greener economy?
 - b. To what degree are the territorial dimensions sector-specific or cross-sectoral? As a point of departure, this will be done by counting whether each factor, sub-factor and outcome was identified as having relevance across all of the sectors.
 - c. What territorial factors appear to complement the development of the green economy in *multiple* sectors?

- d. What territorial factors are conflicting - in that they show conflicting trade-offs - between promoting green development in one or more sectors while restricting green development in one or more other sector(s)?
- e. To what extent are place-based or a space-blind, sector- and framework-driven economic development models best suited to address regional growth challenges?
- f. What are the territorial implications of a paradigm shift from "brown" to "green" development?

4.A "Territorial Concept" of the green economy

The approach to exploring a territorial concept of the green economy is to first explore the individual concepts of "territory" and "green economy" and then combine them in a deductive, rationale fashion. This ensures that the existing discourse of both concepts is included as a basis of our approach, thereby facilitating realistic, policy relevant results in our analysis. This will include a number of parallel dimensions (factors and outcomes) that we believe to be central parameters describing green economy in a territorial perspective.

GREECO defines the green economy as socio-economic growth that takes place vis-à-vis a more sustainable use of natural resources, preservation of environmental capital and generating fewer environmental risks (OECD 2011a; OECD 2011b; UNEP 2011; UNEP 2012). This clearly reflects a heightened focus on interactions between the economy and the material world - both in terms of how to benefit economically from exploiting natural resources, and how to combine that with improved environmental protection. As such, GREECO also understands that a green economy is one that results in enhanced regional competitiveness and cohesion over the long term, while not exposing territories to significant environmental

risks and degradation. This is foreseen to take place through the implementation of an economic approach that combines and enhances place-based and mutually supportive socio-economic and environmental policies.

4.1. What is territory?

While the green economy definition is straightforward and operational (in the context of existing EU policy on Cohesion and environmental policy) it is the notion of territory that has perhaps always lacked a conceptual clarity. This is quite clearly reflected by key statements in the 2011 report on How to Strengthen the Territorial Dimension of 'Europe 2020' and the EU Cohesion Policy (Böhme et al). The report begins by presenting how, despite a general consensus on the importance of the territorial dimension for [understanding, interpreting and providing] economic growth; there is little integration between the field of 'territorial development' and other decisive policy fields. The authors emphasize that such a lack of integration is primarily due to lack of understanding of what territory really means. For instance, the failure to translate the provisions of the Territorial Agenda that are relevant for Europe 2020 (including those of Sustainable/Green growth) into clear and operational policy provisions is explicitly mentioned. They also refer to the complexity of the territorial approach in general, which is exasperated by its technical jargon and lack of operational approach (Böhme et al. 2011 p2). Others also believe that perhaps the concept is purposely kept vague, because to define it would be to narrow it, making it less agreeable (and therefore less operational) to all Member States.

If asked about it in an EU policy perspective, many will not refer to a concept at all, but only to its platform within Cohesion Policy. For instance, as Territorial Cohesion being about harmonious development of all *places*, and that citizens are able to achieve development via inherent, unique set of features of their territory (). At the same time, certain statements noted in EU policy documents reflect that the place-based perspective that territorial cohesion intends to operationalize in EU policy does not really differentiate between the concept of "space" "territory" and

“region”. For instance, by including the territorial dimension in Cohesion Policy the 5th Cohesion Report states how “Taking a slightly different approach than previous reports, this chapter distinguishes between policies which have an explicit spatial (regional) dimension as such from those which have only a partial spatial dimension and those which are ‘spatially blind’, i.e., policies which do not distinguish between different parts of the EU”(p. 179). Not only does the sentence make no distinction between that which is “spatial” and that which is “regional” it is quite clearly trying emphasize the role of regions, as the existing administrative boundaries in the EU.

However, GREECO actually positions it as an important distinction that can help to identify a territorial concept to be considered alongside the green economy concept. In this context, we define the space/spatial reflects on the distribution of people, material objects (resources) and activities (processes) in space, in which the spatial scale does **NOT** relate to anything other than physical distances or areas. While territory/territorial also reflects on the distribution of people, objects (including man-made and natural resources) and activities (including flows and processes) in space, the key difference is that the reflection is structured through a pattern of boundaries imposed by individuals or groups. This mainly relates to the political sphere in terms of institutional or administrative boundaries that are agreed upon in order to manage people, objects (resources) and activities in space. The territorial basis is therefore contingent on the clear recognition of the role that human constructions, including political and administrative jurisdictions, cultural values, etc., have in shaping the understanding of place-based potentials.

In this context, it is also important to acknowledge what is meant in terms of “regions” or “regional”. This is certainly different from spatial, and reflects a specific territorial structure - that of administrative divisions that are generally (but not unanimously) sub-national. It generally corresponds with a NUTS 2 or 3 delineation of territorial units as a commonly agreed upon administrative structure in Europe. For some countries (especially Germany, but also France and the U.K. among others) it could include city-states. In fact, the incredible inconsistency in the physical size of regional (NUTS 2 and NUTS 3) units in Europe reflects its purely political (rather than spatial) origins. **It**

furthermore reflects inherited political, administrative, and socio-economic rationales that may not necessarily comply with territorial needs related to a green growth strategy.

5. Combining territory and green economy

The important emphasis in the above discussion is how the notion of territory has been used to accentuate the role of the institutional structures in shaping how policy mobilizes place-based possibilities for development. In our current political and economic development paradigm – stretching since the period of industrialization, and consequently coinciding with the development and rationales of the brown economy – the European territory has continued to be increasingly defined through political/administrative structures. Prior to the development of the EU this was very much linked to the formation and dynamic evolution of nation-building, but since then we have actually seen a parallel increase in the roles of the EU (as a Super-state) and of regions (as sub-states). The latter of which is clearly reflected in the concept of “Europe of the Regions”¹. Either way, the role of space – of the physical distributions of people, objects (resources) and activities – has been continually minimized in favour of government derived boundaries.

However, by focusing specifically on the connections between the material world and economic growth, the green economy provides the opportunity to reinvigorate the importance of spatial distributions beyond the traditional contexts of their embedded political/administrative structures. In these terms, the territorial concept in a green economy perspective could even speak of a paradigm shift in terms of how we view the relationship between

¹ A concept which has been discussed by by Borrás-Alomar, Christensen, and Rodriguez-Pose (1994) in their article: “Towards a “Europe of the Regions?” - Visions and Reality from a critical perspective” (Regional Politics and Policy, 4, 2, 1-27, 1994). They emphasize it as a concept which on one hand emerged relatively recently in the European arena as part of a specific historical and political context in the mid 1980's with the new directions of the European integration process. But they at the same time stresses that it has linkages with a previous set of ideas constituting what can be considered as a ‘prehistory’ of contemporary political opinions. In both historical époques stressing the limitations of nation states and consequently the need of creating a new political arena for European development have been emphasized.

administrative regions, territory and space; where political structures are not necessarily the de facto boundaries that define and shape development potentials.

Therefore, we posit that GREECO's territorial concept responds to the essence of the green economy - combining economy - seen here both as economic (monetary) growth and as the underlying structure of society - with a more aware and sustainable use of material resources. As such it requires that we comprehend, plan and conceive policy while explicitly considering the spatial distribution of key ingredients of the green economy - the distribution of people and activities (where they consume resources) and the distribution of resources (which are used as inputs into socio-economic production). In these terms, the GREECO exchanges what has perhaps become a regional-based perspective to territorial, place-based development with a space-based perspective that emphasizes the physical distribution of ingredients of a green economy in Europe. This also acknowledges that places in Europe are comprised of very different constellations of locally-specific factors that will shape both their process (transition) and outcomes (economic activities and spatial impacts) of greening the economy.

6. Territorial Dimensions of the green economy

In order to make GREECO's territorial concept operational within parallel research activities in the project, a set of complimentary dimensions were identified and broadly defined to add more specific context to the concept. However, rather than basing GREECO's territorial dimensions around existing structures, i.e., the six existing TA 2020 priorities or the 'territorial keys' as outlined by Böhme et al., it was decided to consider these existing bases while formulating a set of dimensions that more clearly reflect four core goals and drivers of achieving a green economy, as determined by the GREECO project:

- A more efficient and sustainable use of materials, including natural resources, energy, land and the existing built environment;
- A more acute awareness of environment within socio-economic development, including demand-driven growth of environmental technologies, products and services;
- Ensuring cross-sector complementarities are realized through collaboration in development strategies, including between departments of public authorities at all governing scales;
- Policy-driven eco-innovation across all key sectors means that the green economy will still rely on an existing engine of growth: the entrepreneurial development of technologically advanced products and services.

Aligning the notion of territory to these four bases of the green economy acknowledges that certain factors will condition socio-economic development potential based on greener activities, but also that the promotion of the green economy will have place-based effects (outcomes); i.e., it will impact the spatial distribution of people, material objects (resources) and activities (processes), as well as how we conceptualize and govern development with the support of policies. Therefore, Territorial Dimensions are identified as often-interrelated Territorial Factors and Territorial Outcomes, which operationalize the concept with 'researchable' perspectives in other project tasks, especially the sector reports. While territorial factors and outcomes listed in their preliminary state are not sector-based, their bottom-up elaboration in the sector analyses becomes a benefit when comparing the territorial syntheses from each sector report. This is especially important considering our objective to emphasize the role of territorial dimensions to penetrate and link-up sector-based policies that are expected to contribute toward developing the green economy.

*Territorial Factors are territorial dimensions that **drive, enable or hinder** the development of the green economy in European regions. Being territorial, they are place-based (as in non-uniformly distributed in space) and they depend on the local societal, cultural and political contexts, as well as how these contexts interact with socio-economic and environmental changes. This means that they*

account for the basis of how European regions differ in their "pre-conditions" for a transition towards a green economy.

These factors **can be founded and can interact between, the *physical / material / technological / spatial side*** of green production and consumption (for instance, as physical infrastructure, or distribution of land-based resources); but also ***socially*** (for instance, as consumer and producer cultures; tacit versus coded and formalized knowledge); ***in terms of information*** (for instance, through communication and information services); ***economically*** (for instance, as consumer-driven versus producer-driven), ***or politically*** (for instance, through the goals of territorial cohesion or the interplay between different levels of multi-level governance for policy making/implementation). But, not least, these factors can act as *drivers* of the green economy in some or all sectors, *hindrances* to it in some or all sectors, and/or have *differential effects between sectors*.

Territorial outcomes are territorial dimensions, as new or existing territorial phenomena that are accentuated in one way or another by pursuing the green economy. They answer the question: for achieving some greening of the economy in a given sector(s), what territorial outcomes can we expect to take place? This means that they account for the basis of how European regions differ in their "possible effects" for a transition towards a green economy.

Based on existing territorial knowledge of the ESPON research network, other policy relevant literature, and our own understanding of the green economy, eight main territorial dimensions of the green economy have been identified. These dimensions are then to be described, where relevant, as territorial factors and outcomes² by each of the sectors. The dimensions are:

² While all eight dimensions characterize possible factors, only seven of them have been analysed in terms of territorial outcomes. The dimension "Consumer Relations" is not territorial per se, but it seeks to establish if, and how, territorial issues are important factors structuring the development of the market for different green products and services. It is therefore considered as a factor, but not a territorial outcome of the green economy.

6.1. Settlement types – important for all sectors

- i. This acknowledges that the manner in which settle in space has an impact on development across all sectors of the economy.
 - ii. Some sectors require rural landscapes of open, natural (or semi-natural) land, be it for cultivation, recreation or a combination of both. In contrast, other sectors require populations of scale in order to provide access to labour or improve efficiency. But in terms of resources, it is well understood that settlement structure has a formidable impact on resource efficiency.
 - iii. For example, the findings of the ESPON project SIESTA note that, "And, taking into account that it is clear that metropolitan areas concentrate GHG emissions, it is also clear that particular urban strategies for each individual city seem to be suitable. All this has direct implications in spatial and urban planning, for instance the need to reduce sprawl and to favour a compact urban model. As it has been suggested by several scholars, the world needs a double revolution: achieving a reduction of GHG emissions and building better urban environment, given that people are concentrated in cities. They are both absolutely inter-related. However, much the discussion around these issues is placed in the context of new buildings and developments, rather than the existing stock of ever-aging buildings." (Compostela, 2012, pp.37)
- b. As a result, we distinguish between **urban areas**, **rural areas** and **urban-rural interactions** as important dimensions that can structure understandings of biophysical, economic, social and policy potentials of the green economy. Especially the latter emphasizes that territorial diversities are actually a boon in the green economy as places with different characteristics have unique roles to play in achieving a green economy.

6.2. Land and land-based resources

- i. This acknowledges that nothing to do with developing an economy exists without some kind of necessary trade-off with land or land based resources. As such, this represents the territoriality of a heightened focus on (and connection between) the material world and a green economy. When coming up with specific factors, the intention was to acknowledge the importance of key ingredients of society and economy, the ability to monitor and control our interaction with the material world, and not least, the importance that natural resource protection has for avoiding the consequences of environmental changes. As such, four sub-sections were identified:
 - c. **Land consumption or dependence** – important for key land consuming sectors: bio-economy sectors on one hand and building and construction (and to a lesser extent the transport sector) on the other hand.
 - i. Other ESPON projects running in parallel with GREECO (i.e., EU LUPA and LIVELAND) have researched the connections between socio-economic development and land use patterns, as well as how information about these themes can be used to improve the recognition of the land dimension within cross-sectoral, territorially explicit policy provisions of the EU. Especially the latter point reflects the plurality of land dimension.
 - ii. For instance, while land cover issues explain a rather objective analysis of land characteristics, discussions of landscape impacts of development often reflect on very subjective impressions of land (i.e. the social and cultural significance of areas. This also reflects the multi-sector sector aspect of the land theme, which understands that land changes do not operate in isolation from each

other (e.g. a change in land cover typically reflects a changes in how land gets used) and how one parcel of land can provide multiple social, economic and environmental functions). Similarly, it sees how land changes (i.e. as the result of infrastructure development) often acts as drivers of change in the surrounding area (residential and economic settlement).

- iii. Further, the EEA's pan-European land cover account (CORINE) provides a number of opportunities for analysing the potentials and impacts of development across a variety of sectors. For instance, as the predominant land-taking" activity in Europe, much the urban and spatial planning (and policy) emphasis of urban built environments (consisting mainly of buildings and infrastructure) has been to limit the consumption of land. Yet this has been rationalized based on a seemingly endless list of arguments and rationales: for maintaining existing environmental, agricultural or other land-based functions of land (c.f. FP6 project PLUREL), for reducing energy and material resource consumption (c.f. FP7 project SUME) and for creating more liveable urban areas (c.f. FP7 project SUME).

6.3. Material Consumption or dependence – *important for all sectors.*

- iv. This dimension quite simply acknowledges that all economic activities interact with material resources – as a means of growing, harvesting, refining or transforming material resources into consumer products, as sectors that consume resources in order to function (i.e. energy and water in buildings), or most commonly, a combination of both. As such, the territorial

perspective or materials can be crucial in a green economy, both in term of where these resources are located, but also how spatial factors can promote the more efficient use of materials.

d. **Energy production and consumption** (or dependence on specific energy types or systems) – Apart from the energy sector, important for most sectors, to account for the variety of energy production opportunities, energy efficiency and the production of more energy efficient goods and services.

i. While closely related to the previous dimension, there are a number of reasons why energy issues deserves specific attention in terms of the green economy. First, as the main contributor to GHG production and climate change, energy management across all sectors is obviously at the heart of achieving a green economy. But more relevant for us, there are not only a number of key spatial aspects related to greening our energy sector, but as we begin to rely more and more on renewable energy sources these spatial dimensions will become more and more important.

ii. As mentioned in terms of material consumption, energy waste from one activity is increasingly harnessed as a useable energy input for other uses (i.e. industrial symbiosis, CHP facilities, etc.). Likewise, all renewable energy resources require multiple spatial considerations in order to determine potentials. For instance, a physical potential for wind or solar energy production must be combined with a socio-cultural potential for people's willingness to accept landscape impacts; just as a physical potential for bioenergy must be combined with the consideration that plants and trees have other social and economic values as well. In the latter case, this is why the GREECO project provides innovative research results in

terms of territorial potentials of bioenergy from agricultural and forest *residuals*.

- iii. In the Commission's 5th Cohesion Report it is notable that energy policy is explained as having no explicit spatial dimension. As such, it is important for the GREECO project to not only imply the importance of considering place-based specificities when devising energy strategies, but by providing new information on renewable energy potentials, to show region's their relative basis for pursuing green energy opportunities.

e. **Management of ecosystem services** (types of ecosystems/landscapes; spatial characteristics of ecosystems; options for maintaining and developing these services) – *Crucial for agriculture, forestry, fisheries, tourism, energy and water management sectors.*

- i. This dimension responds to the fact that many sectors have a direct and unbreakable connection to the protection of the environment and maintaining the diversity and resilience of the ecosystems, as well as the variety of functions they provides. For instance, agricultural and forest areas, as well as water reservoirs often have parallel functions as providing natural habitats for plants and animals.

6.4. Market relations (Production; consumption; export, import) and innovation – Important for all sectors

- ii.* This dimension intends to capture the territorial dimension of the market structure in the key sectors of the green economy.

- f.* Similar to the policy and governance dimension below, it is arranged in four sections based on territorial scale: thus according to the relevance of markets operating on the local and regional, national, EU, and finally, the global scales. From the policy provision perspective the intention is to identify which sectors share similar territorial patterns in terms of: supply of labour and inputs, location of primary market(s) and competition. The idea being that how these market relations are situated in space can provide information on which spatial scale has the best opportunity to most provide policy provision, and which sectors may benefit most from consideration within territorial policy agendas.

6.5. Inter- and intra-territorial relations – Important for all sectors

- i.* This is an extremely broad theme, which means that sector responses can potentially cover a wide range of issues. As such, it has been subdivided into three separate territorial dimensions, relations *within*, *between* and *among* regions.

- g.* **Relations 'within' territories** asks about how a greening of the sector relates to/depends on place-based factors such as for instance economic relations, production- and consumption patterns, characteristics of interaction, networks, social relations, and local cultures.

- i.* The introduction of the concept of “National systems of Innovation” illustrated a major change in perception of how knowledge is viewed, supported, and developed. It moved the attention towards the whole process of innovation (where the search for development, adaptation, imitation and adoption of technologies that are new to a specific context are needed). The relations within the territories represent in a similar way a network of organizations within an economic system that are directly involved in the creation, diffusion and use of scientific and technological knowledge, as well as the organizations responsible for the coordination and support of these processes.

- ii.* A key element in this connection is the concept of social capital, which is seen to develop in the community and the territory through processes of interacting, experiencing and learning. Maskell (2000) stresses how social capital refers to the values and beliefs that citizens share in their everyday dealings and which becomes an asset attained through membership of a community situated in a territorial context³. Likewise, Steadman (2002) emphasizes how place satisfaction (conceptualized as an attitude toward a setting) and attachment (conceptualized as personal identification with a setting) provide a basis for both learning, interacting, and eventually change. Issues such as attachment, satisfaction, and meanings all have independent effects on willingness to engage in behaviours that maintain or enhance valued attributes of the setting⁴. And this is crucial for the process of greening as it

³ (2000) Peter Maskell (2000): Social Capital: Critical Perspectives p. 111.

⁴ Steadman, R. (2002): Toward a Social Psychology of Place Predicting Behavior from Place-Based Cognitions, Attitude, and Identity. Environment and Behavior September 2002 vol. 34 no. 5 561-581

often requires breaking up of generally accepted ideas and behaviour.

h. **Relations 'between' territories** are meant to include consideration of a number of potentially important territorial factors.

i. Dipping into the governance dimension, this includes the importance of networks for sharing information and ideas. But it also reminds us that economic products or activities (i.e. a house, a car a holiday, etc.) are a composition of a number of inputs -each coming from its own place and via its own development process; all of which have to be organized and managed accordingly. One of the most important elements in this regard is consideration of the flow of people between regions. We already know that population change is expected to take place in a highly uneven manner, both between macro regions (i.e. east versus west Europe) and within Member States (rural population decline contrasted by urban population growth).

ii. This territorial dimension will perhaps have an unmatched effect on how regions can expect to develop in the medium to long term, and it must be considered in order to determine how to most effectively invest in regional development. For instance, growing regions must undoubtedly consider how to accommodate growth while limiting the impact on the natural environment, and keeping in mind that whatever is built now will shape resource efficiency for decades, even centuries to come. Likewise, shrinking regions must look inwards to remind themselves to promote their local qualities and determine how existing specifics can be transitioned into new growth opportunities.

i. **Relations 'across' territories** is a crucial dimension to consider because a greener economy, based on an

increased consideration of the connection between the economy and the material world, can also become a more specific or specialized economy.

- i. On one hand, this relates closely to the previous discussion on market relations, and acknowledges that by placing an increased focus on local resources potentials, the green economy requires connections to other regions that provide a market for selling locally-produced goods and services and for buying those which can't be produced locally. At the same time, it also must consider the role that physical connections between territories have on development opportunities in different sectors, and how these relate to achieving a greener economy.

6.6. Place-based factors – Important for all sectors

- j. The notion of “place-based” is the essence of the term territory. It reflects that many of the fundamental components comprising economy - be it people, natural resources, partnerships and networks, knowledge, etc. – are located in space; and not only individually, but relative to each other. As such, we have introduced four additional perspectives that try to capture some more important place-based dimensions that can be used to interpret how certain areas can respond to potentials of the green economy.

- k. **Competitiveness through strong local economies** – *Potentially important for all sectors*

- i. Like the notion of the main heading “place-based factors”, this dimension very much embodies the essence of the territorial perspective. That is, to plan and realize economic activities that acknowledge the many locally embedded

resources (including human ones, such as the previous emphasis on social capital) which are needed to achieve sustainable growth. From a sector-based perspective, this dimension provides the opportunity to interpret the importance of local factors and conditions in achieving growth.

I. **Multi-functionality** – Especially important for all “space and resource-consuming” sectors, i.e., bio-economy sectors, building and construction, housing, waste and water.

i. Closely connected to the previous factor on Land consumption or dependence, the expression “multifunctional land use” refers to land which serves different functions by combining its variety of qualities, i.e. that different material, mental, and social processes in nature and society take place simultaneously in any given area and interact accordingly. It therefore means the co-existence of ecological, economic, cultural, historical, and aesthetic functions. Furthermore, even a single land use can involve numerous functions. Paracchini et al. (2011) therefore emphasizes that the concept of multifunctional land use provides a favourable approach based on the recognition of that in order to maximize the benefits obtained from a given parcel of land, a more equitable balance of the competing economic, environmental and social demands on land is more sustainable in the long-term than an unbalanced system based on individual sector based rationale.

ii. Connected to the notion of space, and especially in a land-based perspective, multi-functionality reflects an understanding that land use planning (and spatial planning in general) must promote and incorporate multiple functionalities to maximize efficiency and performance in a sustainable way. This is in contrast to the trend over the past 50 to 60 years, where development

of urban, rural and peri-urban regions alike has led to spatial and functional segregations, thus mono-functionality. As such, multi-functionality promotes the fact that space (or land) in itself is a resource, and while our planning and development traditions may not have promoted its most efficient use, we can now envision ways of incorporating policy provisions on the multiple uses of land and its resources to maximize liveability (a term which reflects the combination of economic, socio-cultural, historical and aesthetic function of land and landscape. (Haber, 1977)

m. **Tacit/experiential knowledge** – Potentially important for all sectors

- i. Unlike coded, scientific or explicit forms of knowledge, tacit knowledge accounts for any knowledge that cannot be transferred through direct means (such as informing someone through writing or speaking). In a territorial context, this dimension acknowledges that many of the intangible assets of the region are indispensable to advancing the green economy, and, because of this, they are embedded as experience- and historically-based knowledge structures within the local society. On one hand, these may not be easily transferrable, yet they may also imply that new skills associated with the development of the green economy can be transitioned from the supply of existing jobs of the brown(er) economy.
- ii. They also appreciate that local solutions - ones that may seem rudimentary in a given place - could actually be practical, transferrable and therefore innovative solutions in other places as well. The development of the Danish windmill industry illustrates well how non-conventional means of development resulted in Denmark's pioneering role within the wind energy industry; where, for many years, it the leading producer of

wind power in the world. When the industry started in Denmark even the most basic renewable energy technologies were non-existing and had to be acquired through trial and error. As such, no single invention, institute, company or person can be identified as the key actor to this industrial breakthrough. In contrast, as new knowledge and experience was developed holistically and iteratively it was shared and generously made available for anyone that might be in need of practical use of it - whether it was homebuilders, SMEs or regular industrial companies.

- n. **Proximity** – Potentially relevant for all sectors, depending on interpretation
 - i. This open-ended, exploratory dimension is based on an understanding that economic activities are not only located in space, but they positioned in a specific locational context vis-à-vis all other economic activities, resources, inputs, actors, markets, etc. within a given area. Therefore, connected to other dimensions such as multi-functionality, market relations and territorial relations, this seeks to explore how proximity is an important for achieving a greener economy. For different sectors, does it imply that a greener economy is a more regional economy, or does a green development mean opening the sector up to a European or global market? Likewise, how does proximity to other actors in a given production or value chain affect competitiveness, and does the formation of clusters promote additional possibilities for the green economy? And not least, it asks if greening activities in one sector help to promoting the greening in other sectors based simply on a physical proximity to each other.

6.7. Consumer relations – Relevant for all sectors

- ii. By exploring the connection between each sector and its target market, this dimension is not territorial per se, but it seeks to establish if, and how, territorial issues are important factors structuring the development of the market for different green products and services.
- o. First, it asks to what extent development in the sector is based on clear, consumer-driven processes.
 - i. In the agricultural industry for instance, we know that the growth of organic and locally-grown food, while perhaps being the result of production-side initiatives, is very much driven by a consumer demand that has gained traction for its health and environmental merits over the past two decades in the most developed countries.
- p. Second, and in contrast to the previous, it also asks to what extent development in a given sector is based on clear, **producer-driven processes**.
 - i. From a territorial perspective, this is important for because it can act as an outlet for explaining and rationalizing variations in terms of regional performance of the green economy in a given sector. For example, in the building and construction sector we know that performance, while being driven by a market demand for greener buildings, also relies on construction firms having the necessary skills to build greener structures. However, these skills are not universally distributed throughout Europe and understanding both why and how this can be changed could be important questions for place-based policy supporting the green economy.

- ii. The example illustrates the process of diffusion of innovations which – as described by Torsten Hägerstrand in his spatial innovation model⁵ - explores the way that the diffusion of ideas across a social network might produce specific patterns in relation to chronologic and geographic patterns. In this connection, public involvement through various policy provisions during the diffusion process of green economy actions (i.e. subsidies, taxes, information or regulations) is therefore critical.
- q. Third, it also asks if **development and innovation are based on well-defined territorial conditions or on open access**. This issue relates closely to the previously mentioned question of diffusion opportunities and options. A few examples illustrate how inherited territorial, market or firm structures that have evolved based on the development of previous technologies may impact the greening of certain sectors:
- i. If energy transmission infrastructure is privately owned - probably by large power companies - the costs of establishing a parallel network would be a preventive factor for newcomers in the energy sector, thereby giving the owner of the network a monopoly over development of alternative energy sources within a specific territory. However, alternative ownership forms or legal constraints might provide the distribution of energy as an open access opportunity and thereby enabling innovative producers to compete.
 - ii. A major challenge for new green means of road transport is the present dense network of petrol stations that are able of ensuring easy and quick access for private cars to refill. This network has been developed and expanded during the last

⁵ Hägerstrand, Torsten (1965) 'A Monte Carlo Approach to Diffusion', Archives Européennes de Sociologie, 6(1), pp. 43-67.

decade, and as long as similar options are not accessible for alternatives to hydrocarbons as fuel source the option of open access for the consumer to choose which system to base their future transport on is more or less non-existing, or at least territorial limited.

6.8. Accessibility and mobility

- r. Issues of transport and accessibility have always been placed right at the centre of the territorial discourse of European development.
 - i. One reason for this is its crucial importance in promoting regional development, for instance by providing accessibility to markets for consumer products, as well as access to labour. This operates across a number of territorial spheres, ranging from intra-urban roads and local public transit, connecting rural peripheries to urban centres of trade and commerce and connecting urban metropolises via rail and air networks.
 - ii. It also operates across a number of territorial development issues (including ones characterized here as territorial factors of the green economy) and its importance is also reflected in the fact it is considered as an important economic sector (both overall and in terms of its resource consumption and greening potential). But it has also been an important target of EU-driven investment because of its physicality – as investments that can be clearly observed and used in space. Generally speaking, this has also meant that transport infrastructure investments are considered rather fail-safe investments, perhaps leading to over-investment in certain cases. As a result, its

territorial importance also rests in the fact that transport infrastructure has consistently been a focal point of EU policy investment for regional development – C.F. TEN-T discourse.

- iii. Considering that it continues to be such an important priority for investment via regional policy funds (in particular for newer Member States where Cohesion Funds are directed) it is therefore important to reflect on the implications it has for achieving a greener economy. This is distinguished among the following three sub-dimensions:

s. **Transport connections** (transport of materials; transport of labour, etc.) –*Important for all sectors*

- i. This encompasses physical infrastructure of all forms that connecting people, materials, goods and services across space. As such, it is about how mobility across space affects the development of the green economy within and among the GREECO sectors. The fact that it is considered as having an irreplaceable importance in terms of supporting socio-economic development shall be reflected in the sector responses; but so shall its potentially harmful effects for achieving a greener economy. As one of the main consumers of resources (i.e. land, gravel, cement, asphalt, steel, etc.) the sector is not only highly material intensive, but it also has secondary impacts that implicate resource efficiency across many sectors. For instance, while transport infrastructure provision is typically seen as a response to settlement development, its ability to generate settlements along transport corridors has simultaneously acted as the biggest driver of continued urban sprawl. As such, the negative consequences in terms of building and transport resource overconsumption can in part be attributed to where road networks have been established.

- t. **Regional Accessibility** (access to markets; access to supply of materials; access to public services) – *Potentially important for all sectors*
 - i. While the previous sub-dimension discusses the idea of accessibility concretely through the notion of transport and mobility, this one reflects the importance of access to markets, input materials, goods and services that are generally fixed in space. It therefore asks the authors of the sector reports to comment on how territorial differences in accessibility to key sector interests may affect its green development.

- u. **Information connections** (use of communication and information services; need of interaction; questions of consumer and producer cultures– *Potentially important for all sectors*)
 - i. The continued advancement of mobile communications technology has fundamentally impacted the way we go about living our lives. By making place irrelevant for conducting certain socio-economic interests, some have said that the information technology era has resulted in the “death of distance”. Undoubtedly, it has also served to blend the distinctions between work and recreation, where many of us are almost constantly connected to the World Wide Web, where some of us are able to complete many of our professional responsibilities remotely, and where we can bring people together in virtual meetings through technologies such as Skype.
 - ii. At the same time, very few economic activities are entirely remote and almost all jobs require physical presence, even if only periodically. Likewise, many other jobs require constant presence in a given location in order to conduct work. Therefore, the intention of this dimension is to identify the impact that information connections have on how we arrange and conduct our various

socio-economic activities in space. This allows us to determine which sectors an advancing IT sector can support a greener economy, or ones that could be constrained by such development.

6.9. Policy and governance by territorial level

v. This section lies very much at the heart of what is being investigated by the GREECO project. It understands that green economy is first and foremost a policy-driven development perspective for Europe, where the rollout of new technologies, regulations, products and services are transitioned into social, cultural, economic and institutional norms through policy. But this requires comprehensive sets of policies that are both arranged across various sectors and integrated among the collective competencies of different scales (levels) of government. As such, the territorial dimension is on one hand underlying – where policy provisions will come from different administrative scales depending on key sector-specific or territorial specific requirements. Here for instance, the subsidiary principle advises that policy and governance should be predominantly organized at the most local level possible in order to cater to territorial specificity. At the same time, territory is explicitly emphasized by also considering the relevance of EU territorial policy across the GREECO sectors.

w. **Scale of sector-based policy support** – *important for all sectors*

i. This acknowledges each sector's will have a unique division of labour in terms of policy vision as a key part of its territorial dimension. For a given sector this likely means that multiple administrative scales are responsible for devising and/or implementing policy, which reflects the

reality that many territorial dimensions are operating at the same time in all sectors.

- ii. In the energy sector for example, the policy goal to develop a common, tradable European energy market necessarily implies that the EU territorial sphere is crucial. However, one of the rationales for a common market is actually to eliminate the barrier of distance to the production and sale of low carbon energy source, but the development of these energy sources also requires that local and regional initiatives are in place to identify and develop renewable energy potentials.
 - iii. At the same time, this section also seeks to determine if one or another administrative scales has a predominant importance for governing green development in a given sector, and why. To achieve this, the sector reports are asked to identify the key policies that promote green development in their sector according to four main scales: the EU, national, regional and local/municipal.
- x. **Role of other EU policies** with territorial dimension – *potentially important for all sectors*
- i. While policies in the above section will generally cover thematic strategies, regulations, financial mechanisms, etc., this sub-dimension highlights the role of EU regional policy initiatives and regional funding, which is used to support resource efficient growth. In particular, this relates to the manner in which key EU funding schemes (ERDF and the Cohesion Fund) are used to support place-based, regionally-oriented development initiatives among the GREECO sectors.
- y. **Private versus public sector – led development** – *potentially important for all sectors.*

- i. Keeping in mind that governance is much more than management by public administrations, this sub-dimension seeks to know what types of producer, consumer, citizen, non-profit or other types of consumer organizations are important for developing the green economy in a given sector, and what administrative scale these are located at. Due to the fact that the sector reports are designed to have a European relevance, this may include the identification of specific association or, more likely, those that are often found within Member States or their regions and cities.

7.Synthesis of the territorial dimensions from the sector reports

The following table provides a general overview of how the territorial dimensions were elaborated by the sector reports. This keeps in mind that the task of the reports was to identify territorial factors and outcomes using the dimensions listed above as inspiration; thereby determining which of the dimensions are relevant for each sector. The results show that many relevant factors and outcomes have been identified according to each of the proposed dimensions and sub-dimensions. For instance, 3 sub-dimensions are explained as relevant in all sectors, while an additional 3 sectors are indicating that all but up till 5 dimensions are relevant. As a result, out of the 30 territorial sub-dimensions, between 21 and 30 of them are identified as having a clear relevance to each sector. It is, however, notable that even though many of the sectors have responded with factors or outcomes based on each and every sub-dimension it does not necessarily imply linkages between the sectors in this respect. Only by analysing each response individually it is possible to determine synergies and

oppositions. The table, however, identifies some additional points which are useful and can help structure a more in depth sector-by-sector analysis of the results, which will be discussed further below.

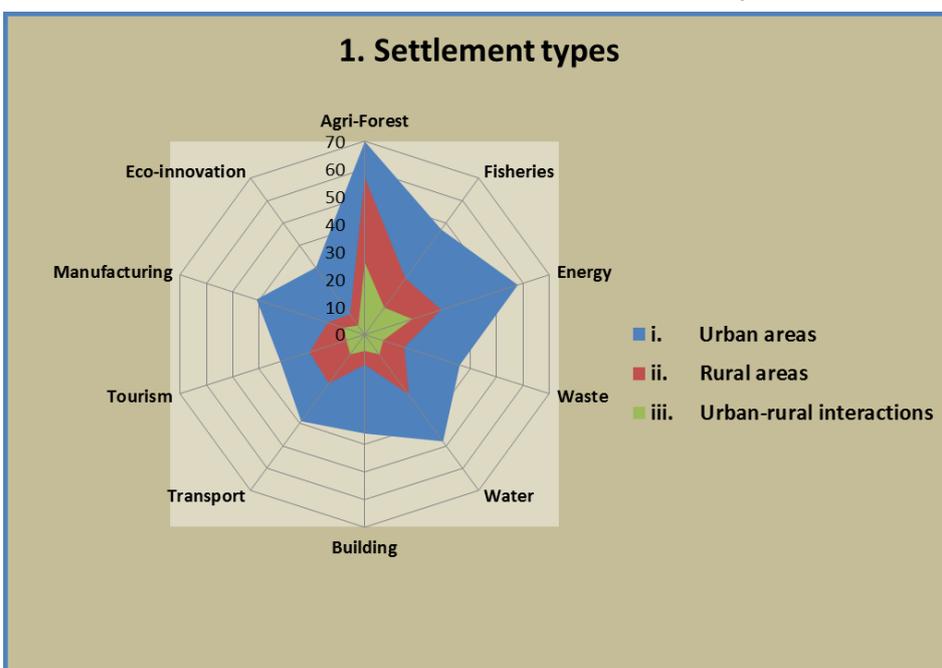
Territorial Factors		Sectors											TOTAL
		Agriculture	Forestry	Fisheries	Energy	Waste	Water	Buildings	Transport	Tourism	Manufacturing	Eco-innovations	
1	Settlement types	3	2	3	3	3	3	2	3	3	3	0	28
i	Urban Areas	1	1	1	1	1	1	1	1	1	1	0	9
ii	Rural areas	1	1	1	1	1	1	1	1	1	1	0	9
iii	Urban-rural interactons	1	1	1	1	1	1	1	1	1	1	0	10
2	Land and land based resources	4	4	4	4	4	3	4	4	4	3	0	38
i	Land consumption or dependence (or water)	1	1	1	1	1	1	1	1	1	0	0	8
ii	Material consumption or dependence	1	1	1	1	1	1	1	1	1	1	0	10
iii	Energy consumption or dependence on specific energy types or systems	1	1	1	1	1	1	1	1	1	1	0	10
iv	Management of ecosystem services	1	1	1	1	1	1	1	1	1	1	0	10
3	Market relatons (Producton, consumption, export, import) and innovation	4	4	4	4	2	2	1	4	4	4	0	33
i	Local/regional markets	1	1	1	1	1	1	1	1	1	1	0	10
ii	National markets	1	1	1	1	1	1	1	1	1	1	0	9
	EU markets	1	1	1	1	1	1	1	1	1	1	0	7
iv	Global markets	1	1	1	1	1	1	1	1	1	1	0	7
4	Inter- and intra-territorial relations	0	0	3	3	3	3	3	3	3	3	0	24
i	Within territories (place based, local cultures, territoriapolicies	0	0	1	1	1	1	1	1	1	1	0	8
ii	Between territories (networks, competition)	0	0	1	1	1	1	1	1	1	1	0	8
iii	Across territories (cross-border supply and demand)	0	0	1	1	1	1	1	1	1	1	0	8
5	Place-based factors	4	4	4	4	3	1	3	4	4	3	0	34
i	Competitiveness through strong local economies	1	1	1	1	1	1	1	1	1	1	0	9
ii	Multi-functionality	1	1	1	1	1	1	1	1	1	1	0	8
iii	Tacit/experimental knowledge	1	1	1	1	1	1	1	1	1	1	0	8
iv	Proximity	1	1	1	1	1	1	1	1	1	1	0	9
6	Consumer relations	2	3	3	3	0	0	2	3	3	2	0	21
i	Are development and innovation consumer-demand driven?	1	1	1	1	0	0	1	1	1	1	0	8
ii	Are development and innovation producer driven?	1	1	1	1	0	0	1	1	1	1	0	8
iii	Development and innovation based on territorial constraints	0	1	1	1	0	0	0	1	1	0	0	5
7	Accessibility and mobility	3	3	2	3	3	2	0	3	3	2	0	24
i	Transport connections of materials, of labour	1	1	1	1	1	1	0	1	1	1	0	8
ii	Regional accessibility to: markets, supply of materials, public services	1	1	1	1	1	1	0	1	1	1	0	8
iii	Information: communication and information services, needs of interaction, consumer and producer cultures	1	1	1	1	1	1	0	1	1	0	0	8
8	Policy and governance by territorial level	1	6	2	6	3	6	5	6	6	4	0	45
i	Scale of sector-based policy support subdivided into:	0	0	0	0	0	0	0	0	0	0	0	0
	>From the EU level	1	1	1	1	1	1	1	1	1	1	0	10
	>From the national level	0	1	1	1	1	1	1	1	1	1	0	9
	>From the regional level	0	1	1	1	1	1	0	1	1	0	0	6
	>From the local/municipal level	0	1	1	1	1	1	1	1	1	0	0	6
ii	Role of other EU policies with territorial dimension	0	1	1	1	1	1	1	1	1	1	0	7
iii	Private versus public sector-led development.	0	1	1	1	1	1	1	1	1	1	0	7
	Total number of factors identified:	21	26	25	30	21	20	20	30	30	24	0	247
Territorial outcomes		21	26	25	30	21	20	20	30	30	24	0	247
1	Settlement types	3	2	3	3	3	3	2	3	3	3	0	28
2	Land and land-based resources	4	4	4	4	4	3	4	4	4	3	0	38
3	Market relations (Production, consumption, export, import) and innovation	4	4	4	4	2	2	1	4	4	4	0	33
4	Inter- and intra-territorial relations	0	0	3	3	3	3	3	3	3	3	0	24
5	Place-based factors	4	4	4	4	3	1	3	4	4	3	0	34
6	Consumer relations	2	3	3	3	0	0	2	3	3	2	0	21
7	Accessibility and mobility	3	3	2	3	3	2	0	3	3	2	0	24
8	Policy and governance by territorial level	1	6	2	6	3	6	5	6	6	4	0	45

Figure 2: Overview of incorporated territorial factors and outcomes.

The role of the individual components

Going through each of the sector reports, and especially focussing on the reflections which have been made in relation to the territorial characteristics of the sectors, an option for further investigations has been provided. The reporting has been scrutinized by means of the NVIVO⁶ software, and each reflection on the territorial characteristics tied to the sector has been marked and registered according to the indications of the level of connection both positively and negatively. The scale which has been used in identifying each sub-sector of the territorial factors goes in six steps from *Very High* relevance through *High*, *Medium*, *Low*, *Limited* or *None*, to *Negative*, the latter as a separate category.

In each of the spider-diagrams on the next pages details in relation to the territorial characteristics are shown, and with the results



normalized for each territorial factor. The sectors are showed as dimensions in the diagrams.

Figure 3: The role of the settlement types and the related territorial factors in characterising and positioning the sectors. For each sector the relative weight of the territorial factors (the spikes) subdivided in sub-factors (the color coding) are shown. The levels of values make the spikes relatively comparable between the sectors shown in each diagram, but do not permit absolute comparisons between the 8 diagrams.

⁶ NVivo is a qualitative data analysis (QDA) software package which has been designed for qualitative researchers working with text-based and/or multimedia information. It is useful in organising and analysing non-numerical or unstructured data by providing tools for classifying, sorting and arranging information, examine relationships in the data, and identify trends and cross-examine information in a multitude of ways, as well as making observations and build a body of evidence to support specific cases and projects.

It is clear that all sectors have provided relevant findings in terms of settlement structure, particularly in terms of linkage to urban and rural areas but clearly for several of them to the urban-rural interactions. As such, the connections between the results reveal which sectors complement each other (for instance, where urbanization facilitates green development in certain sectors compared to others) or where opposition is found (for instance where urbanization reduces the growth potential in certain sectors).

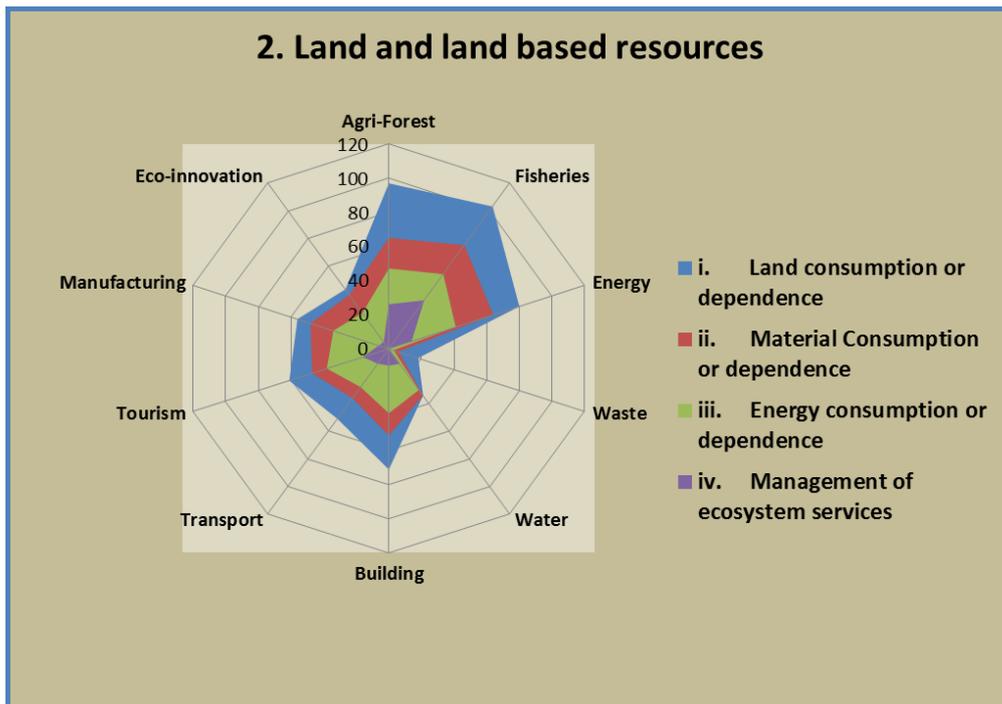


Figure 4: The role of the land and land based resources and the related territorial factors in characterising and positioning the sectors. For each sector the relative weight of the territorial factors (the spikes) subdivided in sub-factors (the color coding) are shown. The levels of values make the spikes relatively comparable between the

This territorial perspective should help to reiterate that socio-economic development, when seen from a territorial perspective, consists of balancing between positive and negative effects of development across a broad range of sectors.

It is notable (although not surprising) that it is the natural resource production sectors that reflect relevance in terms of 'rural areas'. From a territorial perspective, this should help to show what types of activities must be considered for promoting a balanced, multifunctional green economy in rural regions. It is, however, also noticeable how all sectors show an importance toward both 'material consumption or dependence' and 'energy consumption or

dependence'. For the latter, this reflects that the energy sector, while being an economic activity in its own right is emphasized by the green economy as a transversal sector, both impacting and being impacted by developments in all other sectors.

In this context it is important to emphasize the distinction between *proximate* and *underlying* drivers connected to the green development. As emphasized by Geist et al. (2006) the proximate drivers involve a direct physical action on the resources, for instance through land cover development and changes being a recurrent set of activities exercised in for instance agriculture, but also reflected in infrastructure such as building etc.

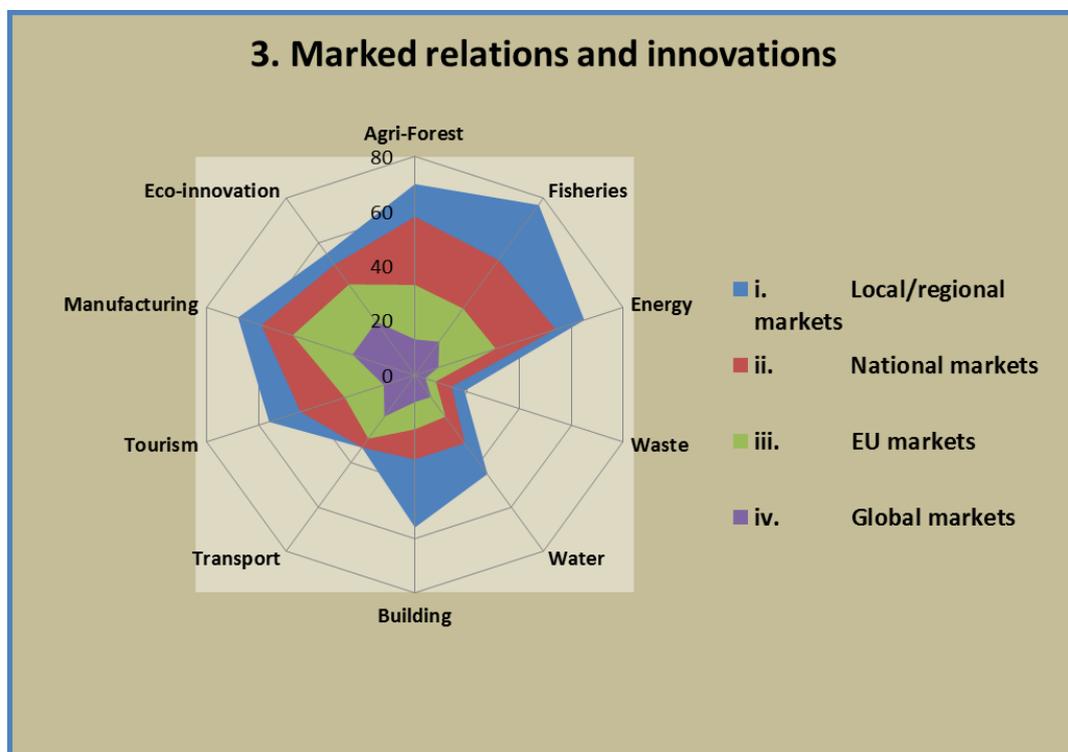


Figure 5: The role of the marked relations and innovations and the related territorial factors in characterising and positioning the sectors. For each sector the relative weight of the territorial factors (the spikes) subdivided in sub-factors (the color coding) are shown. The levels of values make the spikes relatively comparable between the sectors shown in each

The underlying drivers are formed by the general social, cultural, technical, demographic, economic, political and biophysical variables that constitute the structural condition in the human-environmental system. Such more indirect forces are often exogenously induced, and usually out of control by the local communities. Because of the more indirect nature of underlying

drivers the identification of such links are generally easier with proximate drivers which are more direct and locally grounded.

Among the consequences of these differences impacts and some processes of change can occur as a delayed response to the underlying drivers, and it may consequently be difficult to establish causal linkages between land use changes and drivers in human-environmental systems Blaikie & Brookfield (1987).

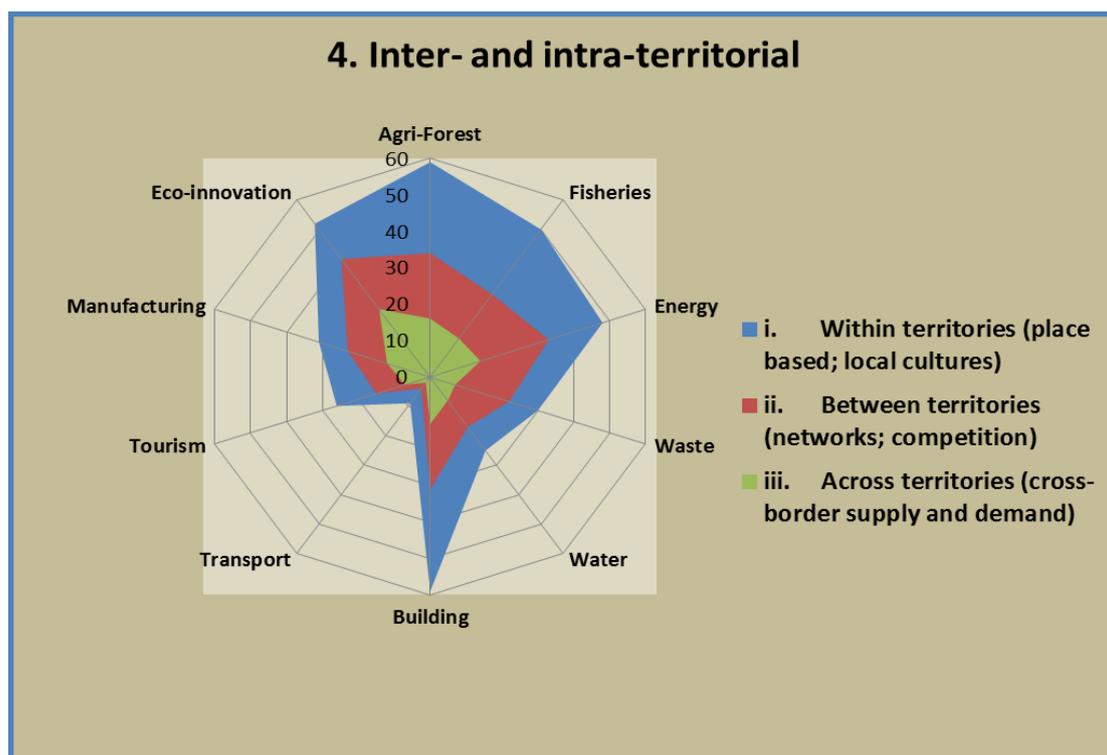


Figure 6: The role of the inter- and intra-territorial relations and the related territorial factors in characterising and positioning the sectors. For each sector the relative weight of the territorial factors (the spikes) subdivided in sub-factors (the color coding) are shown. The levels of values make the spikes relatively comparable between the sectors shown in each diagram, but do not permit absolute comparisons between the 8 diagrams.

Almost all sectors reflected relevance between a greening of the sector and the importance of local and regional markets. Consequently all sectors were able to identify connections to each of the sub-dimensions under the heading 'Inter- and intra- territorial relations'. It is, however, also becoming very clear how local policy driven issues in relation to such sectors as waste management and the transport sector activities are marked deviators in this respect. Not by showing no effect or connection, but deviating due to the fact that especially local/regional conditions expressed through policies related to these issues are very much *scale dependent*!

Scale is a vital element in all aspects of human-territorial systems related to livelihood analyses. Scale is first and foremost important in understanding levels of decision making; different scales provide different levels of a phenomenon, gives an understanding of the time-lags often associated with physical and social processes (Blaikie and Brookfield, 1987). And in this connection Cash et al (2006) emphasizes how three main scales can be determined: the spatial, the temporal, and the jurisdictional scales. While the spatial scale is tied to the geography the temporal scale represents timeframes such as rates, durations and frequencies which are applicable to long and short term processes and developments.

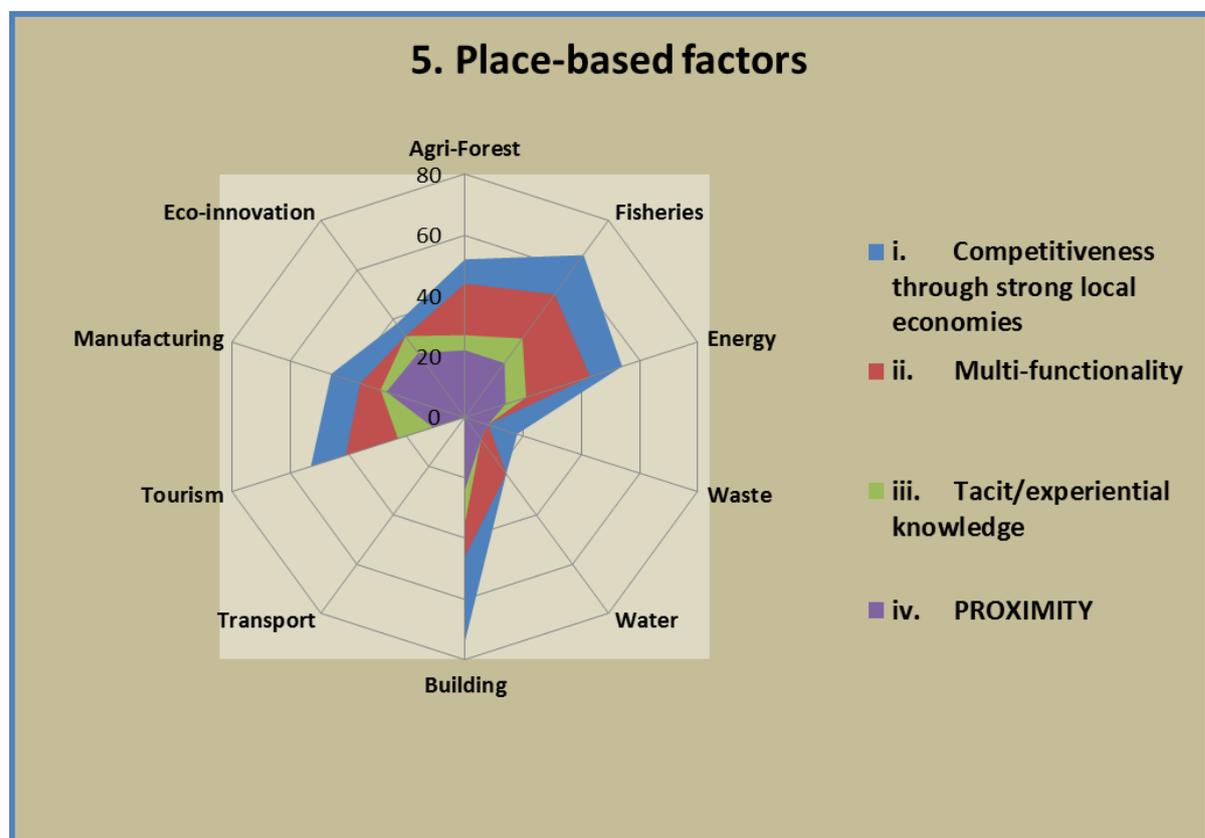


Figure 7: The role of the place based related territorial factors in characterising and positioning the sectors. For each sector the relative weight of the territorial factors (the spikes) subdivided in sub-factors (the color coding) are shown. The levels of values make the spikes relatively comparable between the sectors shown in each diagram, but do not permit absolute comparisons between the 8 diagrams.

Most important in this context, however, is the jurisdictional scale represented by the political units of nations, regions, districts, towns or villages, and with the local levels being the arena for many of the policy driven factors. As shown above there are many

notable differences in terms of the relationship between green development and policies coming from different territorial scales. For instance, greening of the agricultural sector promoted overwhelmingly by policies (CAP) coming from the European level. Likewise, all sectors show that EU level policy provision is an important component of the policy mix. This is likely reflecting the emphasis that sectors place on, for example, providing common standards to facilitate a balanced, fair development of the economy. With that being said, we clearly see differences in terms of the emphasis on policies derived from the regional and local levels.

It is generally recognized that every territory has its own distinct set of potentials for further development, as well as resources available to make use of its assets and offset deficiencies (project TIPTAP 2006). In this connection the concept of Liveability is referenced to as being "Quality of life and competitive places" (p. 79). In this connection there are references to "cultural landscapes" and "cultural heritage" (p 21, 80). But it is at the same time emphasized how Attractiveness and liveability of an area do not only depend on the hard and tangible factors such as infrastructure, human capital and risk of hazards.

The concept of "Soft location factors" is introduced in this connection, and it is stressed how this has become a factor of increasing importance for an area to attract both investments and also skilled labour. Furthermore it is also stressed how natural and technological hazards and climate change might put the attractiveness and liveability of a region at risk in the longer term (p 7, vol III).

"The strategic objectives for an efficient and modern regional policy contributing to the renewed Lisbon Strategy and its overall aims can be condensed as follows" (p10, vol III):

- Competitiveness, by building on the existing assets and under-utilised potentials in a region related to its existing economic base;
- Attractiveness, by include building new assets in a region that can stimulate new investment and skills, in particular in support of a knowledge-based economy;

- Liveability, by ensuring cohesion and sustainable communities, with a high level of quality of life and environment now and in the future, for citizens and businesses.

The different dimensions of the place based factors are reflected very differently in relation to the GREECO sectors. What is very clear is the fact that “visibility” of the factors are determining their role as reflected in the literature. That is why the waste, water and transport sectors – all three connected very closely to the public sphere – tend to be largely “invisible” in the open discourses.

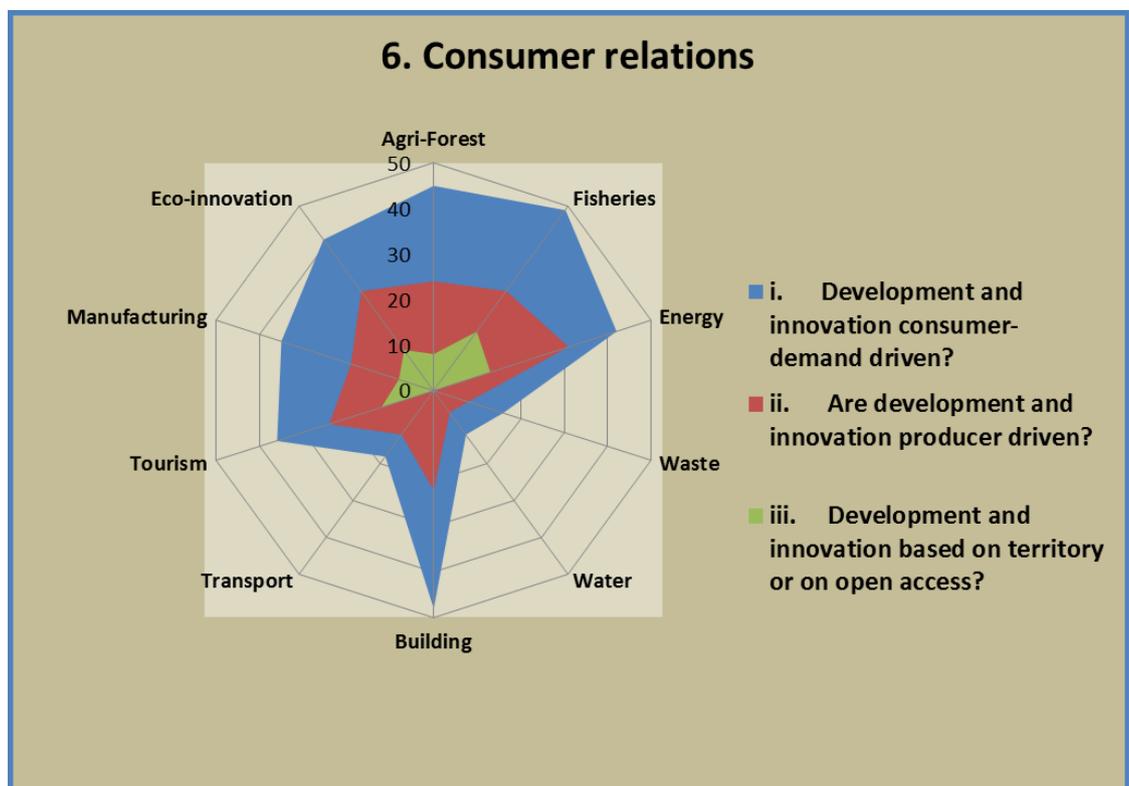


Figure 8: The role of the consumer relations and the related territorial factors in characterising and positioning the sectors. For each sector the relative weight of the territorial factors (the spikes) subdivided in sub-factors (the color coding) are shown. The levels of values make the

The question of “visibility” becomes most clear in relation to consumer relations. Even all sectors in the end are providing consuming goods and services from all the listed sectors, the different dimensions of the place based factors are reflected very differently in relation to the GREECO sectors. As mentioned above it is very clear that “visibility” of the factors are determining their role as reflected in the literature and the discourses. That is why the

waste, water and transport sectors – all three connected very closely to the public sphere – tend to be largely “invisible” in the open discourses. It does not reduce their importance in relation to a greening of the economy!

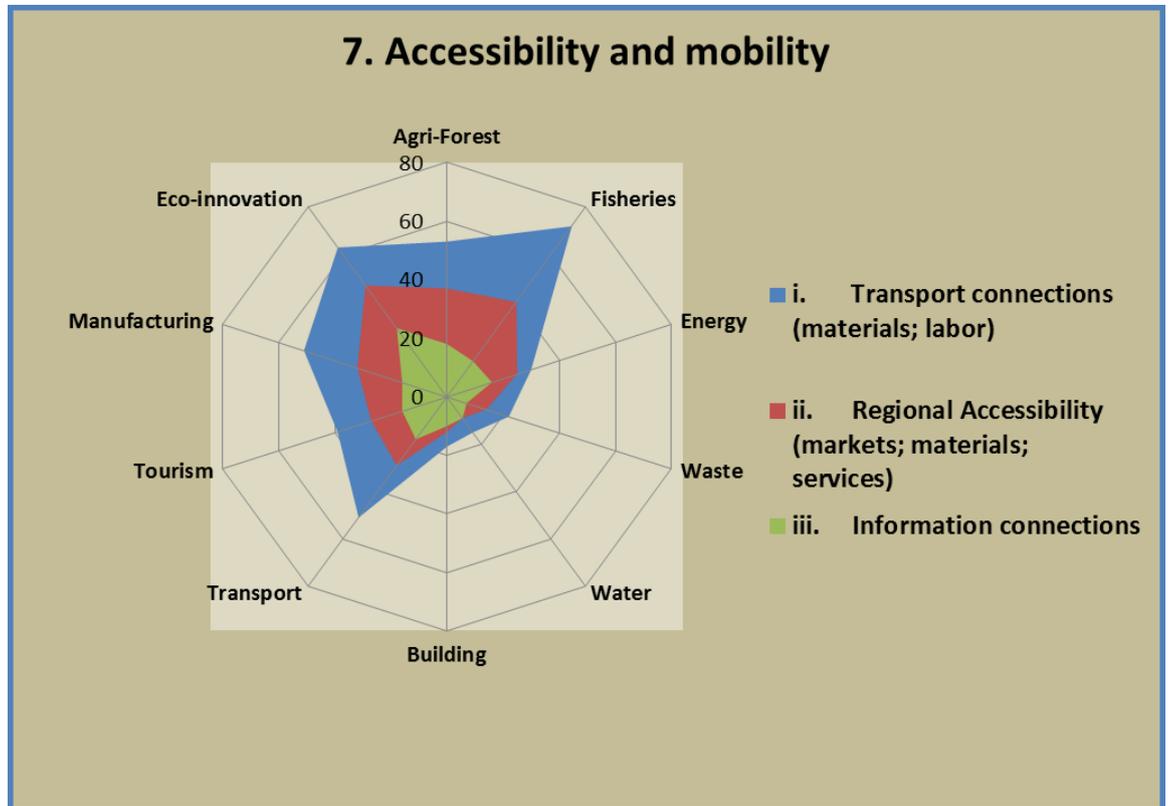


Figure 9: The role of accessibility and mobility and the related territorial factors in characterising and positioning the sectors. For each sector the relative weight of the territorial factors (the spikes) subdivided in sub-factors (the color coding) are shown. The levels of values make the spikes relatively comparable between the sectors shown in each diagram, but do not permit absolute comparisons between the 8 diagrams.

The introduction of the concept of Territorial Cohesion has indicated an important milestone in the EU's internal understanding. Territorial cohesion is about achieving balanced development, focusing on European solidarity, and stressing inclusive growth, fair access to infrastructure and services, and reduction of economic disparities. The key elements here are strengthening the use of development potential outside the main growth poles and ensuring a minimum of welfare provision in all regions.

The 3 main components of the concept of territorial cohesion include:

- Territorial Efficiency: resource-efficiency with respect to energy, land and natural resources; competitiveness and attractiveness of the local territory; internal and external accessibility.
- Territorial Quality: the quality of the living and working environment; comparable living standards across territories; similar access to services of general interest and to knowledge.
- Territorial Identity: presence of “social capital”; landscape and cultural heritage; capability of developing shared visions of the future; creativity; productive “vocations” and competitive advantage of each territory.

In this connection it is on one hand important to recognise that every territory has its own distinct set of potentials for further development – its territorial capital or comparative advantages. At the same time, every region and local area also has resources available to make use of its assets and offset deficiencies. The difference between the assets and deficiencies, on the one hand, and the resources available to territories to activate their potentials and respond to deficiencies on the other, results in the strength or fragility of a territory. Supporting equal or fair development opportunities is therefore a key issue, not least expressed in the debate on fair access to infrastructure and services. People and companies in all parts of a territory need to have access to certain standards of services. Their delivery can depend on the territorial context, i.e. the same service can be delivered by different means in different areas. And here the importance of accessibility and mobility has been emphasised by all sectors.

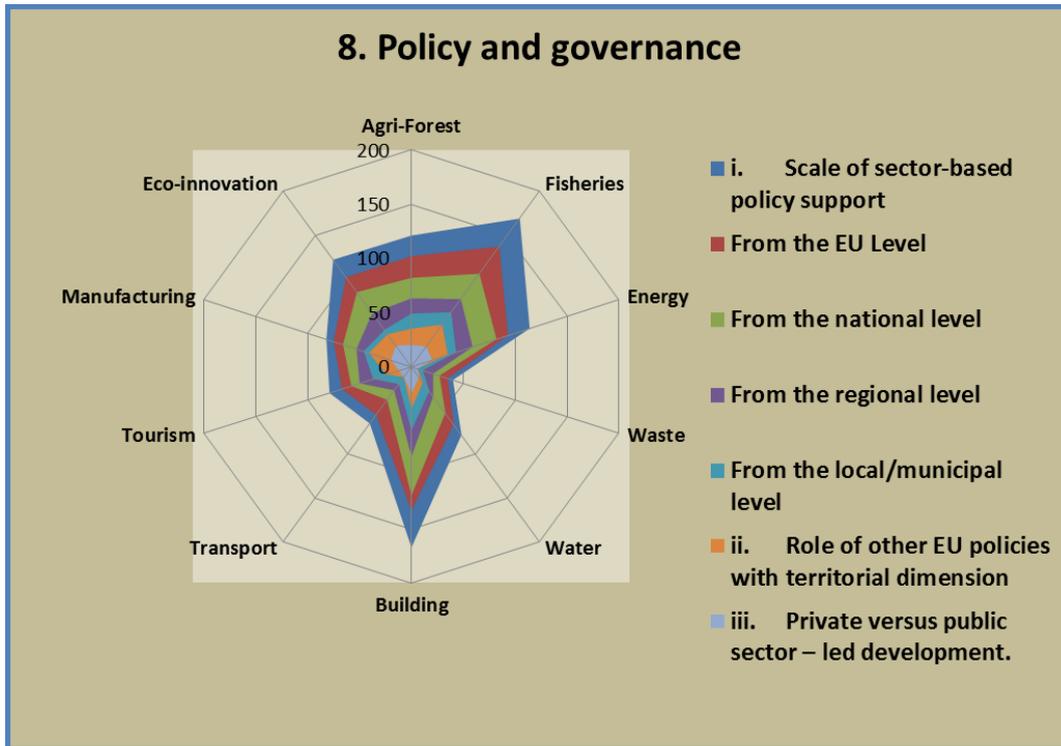


Figure 10: The role of policy and governance and the related territorial factors in characterising and positioning the sectors. For each sector the relative weight of the territorial factors (the spikes) subdivided in sub-factors (the color coding) are shown. The levels of values make the spikes relatively comparable between the sectors shown in each

In the context of policy and governance it is important to emphasize that each of the spider diagrams are normalized internally but the level of scale differs. While most of the other diagrams show variations in the range of 0-50, 0-60, 0-80 the Policy and Governance works within a range from 0 to 180. It indicates that both policy and governance issues are not only present in the sectors, but becoming the dominating factor in most of them. It is not surprising as policy development has been a core element in EU development, but furthermore characterised by focussing on different territorial dimensions. As emphasised in the Espo Liveland draft final report (Liveland), the first decades of planning in the EU were related to the two main issues of economic development and the economic, social and cultural integration of the member states. Since then other issues have appeared on the agenda during the last three decades and resulted in the evolution of planning from land use development by means of economic

incentives, towards a more equal concern with economic development, environmental justice, and social and economic equity.

This has been brought forward with a continued focus on sector development as the determining issue in the development process. The rationale for this has mainly been the belief that Europe as a whole can only compete successfully on a global scale by focusing on the strongest candidates in its largest regions, and without recognition of the potential landscape impacts of such a strategy.

This goes hand in hand with other efforts such as strengthening polycentric development, networking of agglomerations, and supporting the role of important international clusters. Key aspects also encompassed urban drivers, demographic and economic mass and power, comparative advantages of agglomerations, global transport hubs and connectivity between major agglomerations, innovation and the creative class, and occasionally also addressing issues such as quality of life. But it is implied at the same time that these discussions for the most part missed to explicitly addressing the processes themselves and their varying economic and territorial effects.

Along with the recognition of the increased complexity connected to EU decision taking a number of institutions was introduced, and an entity which is relevant in this context was the establishing of The European Environment Agency (EEA). The regulation establishing the EEA was adopted by the European Union in 1990 and came into force in late 1993. The EEA's task has from the start been to provide sound, independent information on the environment, ensuring evidence based information for those involved in developing, adopting, implementing and evaluating environmental policy, as well as the general public; This in order to help make informed decisions about improving the environment, integrating environmental considerations into economic policies and moving towards sustainability.

And to do that the emphasis for many years was on having a better understanding of the potential long-term consequences of human actions, and design policies that stand the test of time. "Forward studies have been developed to scan the future of agriculture, transport and energy, climate change and air pollution. And more

and more governments have started to assess the impacts of their policies in a systematic manner” (Land use scenarios for Europe, 2007, p8). It is interesting how landscapes even in the 2009-2013 strategy document still is considered something other activities may be impacting, but not being an integral part of the development process: “Over the past decade the Agency has analysed conflicts over the use of space and land-based resources in Europe and observed that they will be exacerbated by urbanisation, transport growth, shifts in agricultural priorities, new forms of tourism, evolving societal aspirations around mobility and housing, demography and the continuous changes to the territorial landscape from climate change putting at risk ecological and social resilience” (EEA Strategy 2009-2013, p29).

And the above comment to emphasize that policy development has been the key issue in EU integration and development, and obviously will continue to do that in the next phase of green development.

1) From Territorial Factors to Territorial Outcomes

As discussed above the concept of “Soft location factors” has been emphasized as a factor of increasing importance for attracting both investments and also skilled labour. Furthermore it has also been stressed how natural and technological hazards and climate change might put the attractiveness and liveability of a region at risk in the longer term (p 7, vol III).

“The strategic objectives for an efficient and modern regional policy contributing to the renewed Lisbon Strategy and its overall aims can be condensed as follows” (P10, vol III):

- Competitiveness, by building on the existing assets and under-utilised potentials in a region related to its existing economic base;
- Attractiveness, by include building new assets in a region that can stimulate new investments and skills, in particular in support of a knowledge-based economy;
- Liveability, by ensuring cohesion and sustainable communities, with a high level of quality of life and

environment now and in the future, for citizens and businesses.

What has been further stressed is that the different dimensions of the place based factors are reflected very differently in relation to the GREECO sectors. And in addition that the concept of visibility” becomes important when determining what should (or would) play a role in the open discourse.

That’s why the question of visibility becomes still more important in relation to consumer relations. Even all sectors in the end are consuming goods and services from all the listed sectors, the different dimension of the place based factors are reflected very differently in relation to the GREECO sectors.

But first and foremost: ***it takes an important position when distinguishing between what are Territorial Factors, what are Territorial Outcome, and how do they inter-relate!***

Conceptually they are very similar, and as a starting point the territorial outcome is basically a function of the territorial factors, as illustrated below:

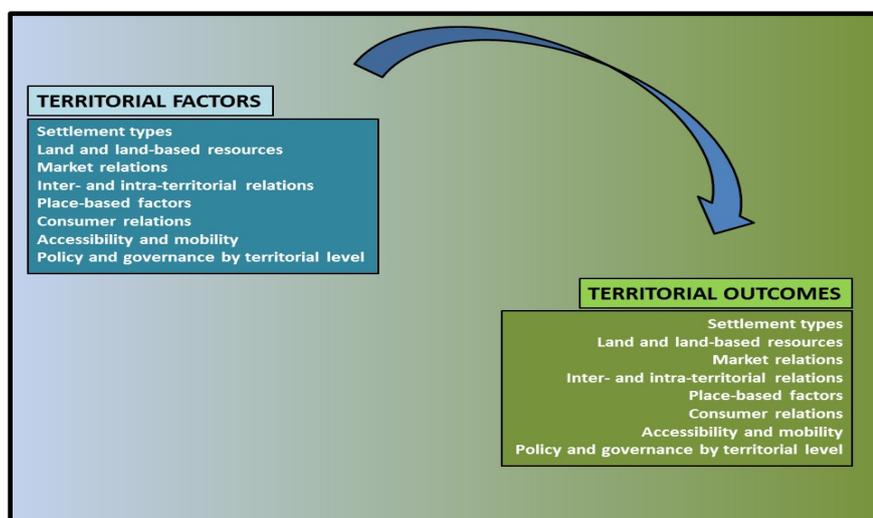


Figure 11: Territorial outcomes perceived as a simple

Process-wise they are at a first glance, however, very different as one being an input and the other the generated output. Territory, in its classic geographical sense, is generally perceived as being the static outcome of a political process. Borders are demarcated, territory is allocated between groups or nations, and cartographers

create the still images of the territorial configuration of the State as a given point⁷. And within this context the territorial factors are considered as being constituting a deterministic frame for decision making, and thereby determinants in generating the territorial outcomes. Territory is in the GREECO project, however, seen as being dynamic as territorial change creates new spatial realities which are fed back into the political and decision making processes as illustrated below:

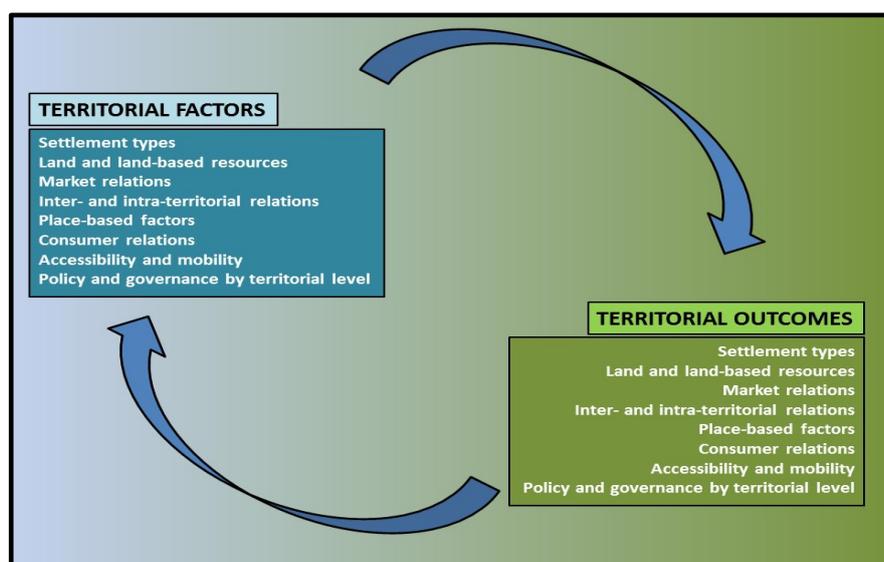


Figure 12: The relationship between the territorial outcome and

To follow the argumentation of Newman and Paasi (1998) outlined above, a confirmed territorial reality is fed into a next round of decision making in an iterative – and eventually a recursive – process⁸.

⁷ Newman David, and Anssi Paasi. 1998. 'Fences and neighbours in the post-modern world: boundary narratives in political geography', *Progress in Human Geography*, 22 (2):186-207

⁸ The approach by especially David Newman (*The Resilience of Territorial Conflict in an Era of Globalization*, <http://www.ibcperu.org/doc/isis/7630.pdf>) is on conflicts in geopolitics and seeks to address the role and functions of territory in contemporary conflicts. It may be considered to be beyond the territorial development within EU, but it is argued that, contrary to the globalization discourse which posits a deterritorialized and borderless world, the territorial factor, even in its most primordial form, still plays a major role in many contemporary conflict situations. "Territory is dynamic in the sense that territorial change creates new spatial realities which are, in turn, fed back into the political and decision making processes. The construction of settlements, the imposition of borders of separation, or – at a

What is even more important is to see the process not as a straightforward deterministic process, but with two of the components taking other positions in the process, as outlined below:

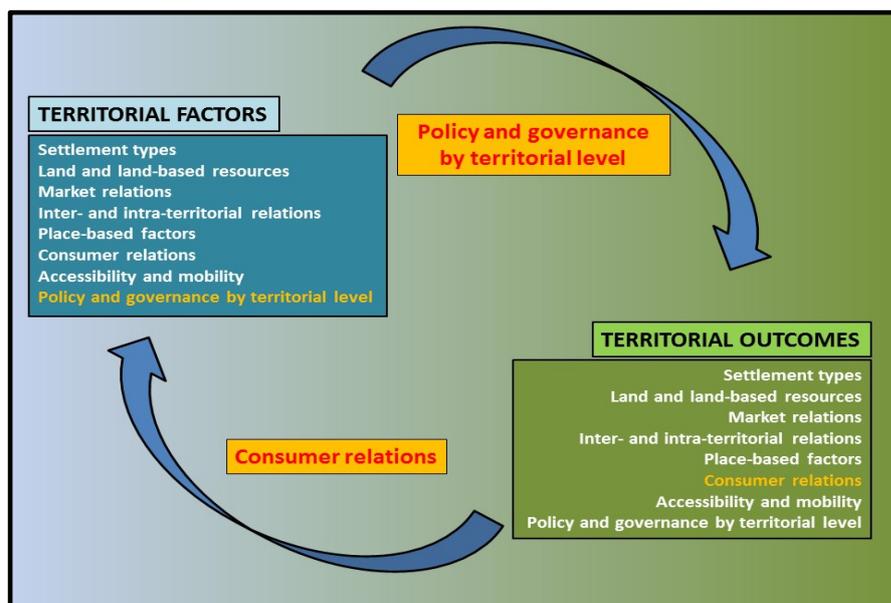


Figure 13: The relationship between the territorial outcome and the territorial factors as an iterative and recursive process emphasizing the “soft” location factors (consumer relations) and more formalized

While the policy and governance approaches at the territorial levels are aiming at formulating and implementation formalised public policies, programmes and projects for the development (improvement in the efficiency, equality and environmental quality of a place/territory in line with the Europe 2020 strategy) of a place/territory⁹ by focusing on

- 2) co-ordinating actions of actors and institutions,

totally different scale – the allocation of development resources to one region at the expense of another, creates new socio-spatial landscapes which become rooted in reality” (p.8)

⁹ ESPON TANGO – Territorial approaches for New Governance, Applied Research 2013/1/21, Draft Executive Summary Version 30/06/2013, p5

- 3) integrating policy sectors,
- 4) mobilising stakeholder participation,
- 5) being adaptive to changing contexts, and
- 6) realising place-based/territorial specificities and impacts,

and thereby formalized drivers of the process, the consumer relations are much more informal – to some extent unpredictable – and closely connected to the previous discussed concept of “Soft location factors” that has increasingly been emphasized as an issue that needs to be included as factor of importance in the development process.

7.1. Overarching role of the identified factors and outcomes

Going through the 10 territorial categories some of the sub-dimensions are not identified as being relevant across a wider number of sectors. This for instance includes ‘Are development and innovation based on well-defined territorial conditions’ (noted in 5 sectors), and ‘the role of other policies with a territorial dimension’ (noted in 7 sectors).

The reason for this is likely related to differences in the interpretation of the terminology. It must be recognized that a method of asking the authors of each sector report to reflect on the proposed territorial dimensions leaves the process open to a certain degree of subjectivity.

This is to some extent – but not fully – compensated for by using the selected method of turning qualitative characteristics into quantities. However, based on the fact there is no established territorial basis of the green economy, coupled with the many sectors under consideration, means that there is no possible way to systematically define territorial perspectives of the green economy.

This in turn places a high degree of emphasis on a sound, comprehensive analysis of key messages in all the sector responses.

The eco-innovation sector has not provided any territorial outcome, which is due to the fact that it is de facto already a green sector and a key tool for promoting the greening of other sectors. Therefore, the authors stipulate that there are no be territorial outcomes of greening this sector. On the contrary, indirect territorial outcomes of promoting eco-innovation are expressed in the territorial outcomes of the greening the sectors in which eco-innovation measures are applied.

Going through the sector reports the use of references throughout the document reveals two important issues in relation to sectors and the territorial factors.

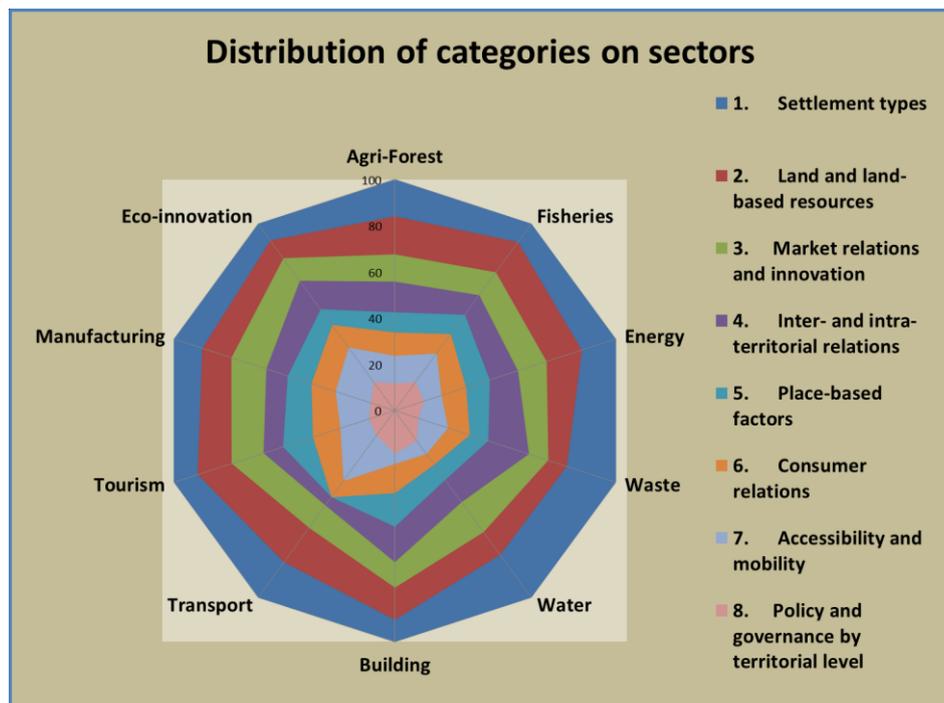
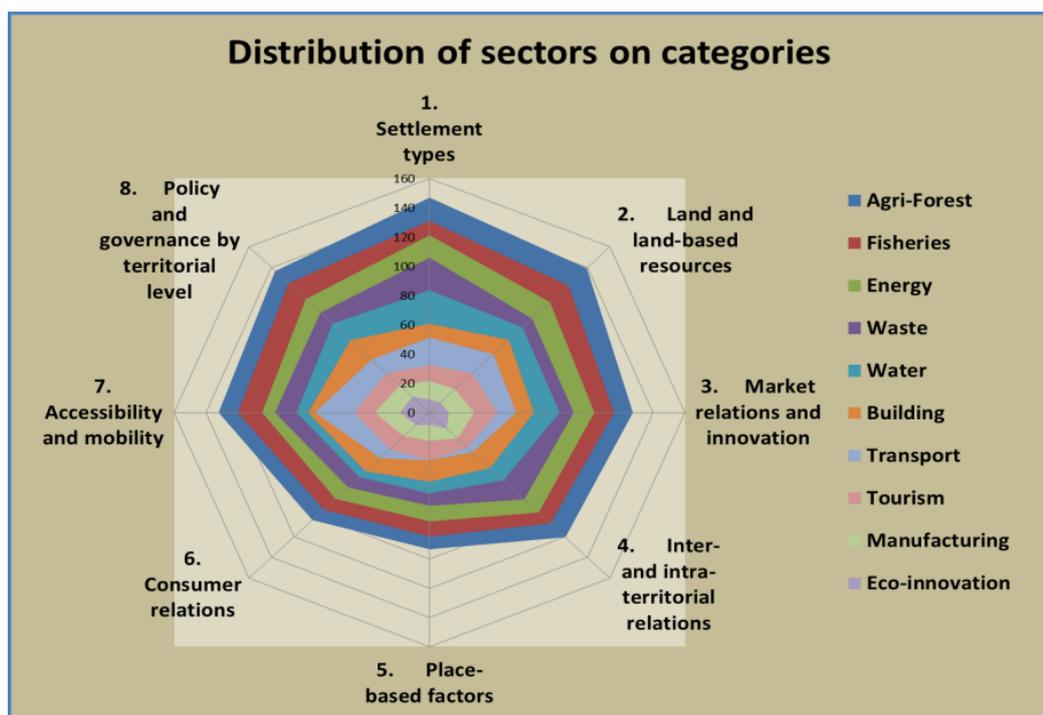


Figure 14: Distribution of references to territorial factors throughout the sector reports. The role of the inter- and intra-territorial relations and the related territorial factors in characterising and positioning the sectors. For each sector the relative weight of the territorial factors (the spikes) subdivided in sub-factors (the color coding) are shown. The levels of values make the spikes relatively comparable between the sectors shown in each diagram, but do not permit absolute comparisons between the 8 diagrams.

The first graph (figure 14 above) is an account of how often the different territorial factors have been emphasized in each sector report, and how the references have been qualified through the way their importance has been stressed. The representation of each factor has been accounted for and the total number of references and their qualifications has then been converted into percentage for each factor.

This graph enables an overview of how the relative relations between the factors are showing sector-wise. Among the categories with the largest variations are for instance the Inter- and Intra-territorial relations and the place based factors. It is important to notice, however, that all factors are contributing to explaining the green aspects for all sectors. But it may be difficult to see the details which are discussed further in the Territorial synthesis report.

The following spider diagram (figure 15) show for each aspect how they are used in the different sectors. And here it is quite obvious how the different factors have been applied differently. Obviously with the factors 4 (Inter- and Intra-territorial relations), 5 (Place based factors) and 6 (Consumer relations) are the ones which have been less used in the sector approaches.



ESPON **Figure 15: Distribution of sectors on the different green aspects. The role of the inter- and intra-territorial relations and the related territorial factors in characterising and positioning the sectors. For each sector the relative weight of the territorial factors (the spikes) subdivided in sub-factors (the color coding) are shown. The levels of values make the spikes relatively comparable between the sectors shown in each diagram, but do not permit absolute comparisons between the 8 diagrams.**

While the more detailed graphs showing for each sector how the territorial factors have been contributing to the process of green growth have been shown in this report, and for each territorial factors how the sectors have contributed to their role in the process of Green growth, the intention of showing the summarized graphs here is to provide a general overview of the interrelations between the territorial and the sectoral approaches.

In the GREECO project a series of sector investigations of the green economy has been carried out with the purpose to understand the green growth process within each sector, the current state and greening performance, and to identify sector-specific drivers and enabling conditions for a green growth. The sector analysis also studied the territorial relations of the sectors, identified the communalities, and the most important linkages and interdependencies between the sectors studied.

For the thematic aspects mentioned above, GREECO will admittedly not have a direct focus on 'services of general economic interest', but they will certainly be considered in relation to their role as comprising that which makes a place liveable. A focus has been on what could be characterised as 'the environmental dimension of sustainable development' where the interaction between regional development and land and land-based resources, including ecosystem services, is emphasized. Likewise, the aspect of territorial analysis as being an important component of territorial cohesion is represented through and through within the sector approaches to the GREECO project. On one hand it is represented in all of the spatial finding presented throughout the project, particularly ones that are able to harness regional differences within Member States. It has not the role of this territorial definition report to provide those finding directly, it is rather the opportunity to provide a series of novel messages or understanding that can be used to interpret territorial evidence.

8. Perspectives

In this context it is first and foremost the notion of 'functional geographies' and moving beyond single sector and single scale governance that really provides an opening for conceptualizing territory in the perspective of the green economy. Certain statements noted in EU policy documents reflect that the place-based perspective that Territorial Cohesion intends to operationalize in EU policy does not really differentiate between the concept of "space" "territory" and "region". For instance, by including the territorial dimension in Cohesion Policy the 5th Cohesion Report states how "Taking a slightly different approach than previous reports, this chapter distinguishes between policies which have an explicit spatial (regional) dimension as such from those which have only a partial spatial dimension and those which are 'spatially blind', i.e., policies which do not distinguish between different parts of the EU" (p. 179). Not only does the sentence make no distinction between that which is "spatial" and that which is "regional" it is quite clearly trying to emphasize the role of regions, as the existing administrative boundaries in the EU.

However, GREECO actually has positioned it as an important distinction that can help to identify a territorial concept to be considered alongside the green economy concept. In this context, we define the space/spatial reflects on the distribution of people, material objects (resources) and activities (processes) in space, in which the spatial scale does NOT relate to anything other than physical distances or areas. While territory/territorial also reflects on the distribution of people, objects (including man-made and natural resources) and activities (including flows and processes) in space, the key difference is that the reflection is structured through a pattern of boundaries imposed by individuals or groups. This mainly relates to the political sphere in terms of institutional or administrative boundaries that are agreed upon in order to manage people, objects (resources) and activities in space. The territorial basis is therefore contingent on the clear recognition of the role that human constructions, including political and administrative jurisdictions, cultural values, etc., have in shaping the understanding of place-based potentials.

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