

GREECO

Territorial Potentials for a Greener Economy

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Executive Summary

1. “Green economy”: Sustainability principles made operational

The “green economy” is a political rather than a scientific concept. It is defined by the Rio+20 conference 2012 in its final document “The future we want”: The green economy – “in the context of poverty eradication and sustainable development” – “should contribute to eradicating poverty as well as sustained economic growth, enhancing social inclusion, improving human welfare and creating opportunities for employment and decent work for all, while maintaining the healthy functioning of the Earth’s ecosystems” (United Nations (UN), 2012, p. 9). Other international organisations have contributed with similar definitions of the green economy. They all stress that a green economy is able to deliver progress in the social, ecological and economic dimensions simultaneously (Division for Sustainable Development (UNDESA), 2012, p. 60).

This does not in any important respect differ from the principles of sustainable development agreed upon in the documents of the Rio Summit in 1992. On the contrary, the concept of the *green economy* reflects the *operationalization of the sustainability principles*. These principles include balances between the present and the future generations, between social, ecological and economic concerns and between global interests and national self-interest. In other words, the green economy is inclusive and able to prosper without over-consuming the sink, resource and space budgets provided by nature.

As argued within the Interim Report of GREECO project (ESPON & TecNALIA, 2013), the traditional three spheres mentioned above (environment, economy and society) can be enlarged to include yet one additional sphere where the intrinsic sustainability of the socio-economic system may be tested against the spatial dimension. This additional sphere of sustainability is the territory. This perspective rests on the idea that not only environmental sustainability but also territorial equilibrium and cohesion are a requisite for a *genuine* socio-economic development to take place. Accordingly, the green economy, as the operationalization of sustainability, should contribute to strengthen the territorial balance too.

The 2014-2020 legislative proposals for the new EU Cohesion Policy 2014-2020 adopted by the European Commission (EC) on 6 October 2011 also seem to share this multi-dimensional goal. According to the new Regulation Member States are requested to “give particular attention to prioritising growth-friendly expenditure, including spending on education, research, innovation and energy efficiency and expenditure to facilitate the access of SMEs to finance and to ensure environmental sustainability, the management of natural resources and climate action, and to ensuring the effectiveness of such spending” (EC, 2013, Annex 1).

Against this background, regional and local government bodies are increasingly taking responsibility for the progress towards a green economy on the territories under their jurisdiction. The Covenant of Mayors, for instance, initiated by the EU, has now more

than 4000 signatories – regions, cities, towns and municipalities taking responsibility for the transformation to a low carbon economy on their territory. Many of them set a green economy as their vision for the future of their economy or even the backbone of their economic development strategy.

The implications of these prospects for a green economy for the regional economies are at the centre of the research interests of the GREECO project. The focus has been on the nexus between the territorial, ecological and economic dimensions with only peripheral reference to the social dimension. This is not because the social dimension is unimportant, but to avoid spreading the resources in too thin layers.

The project has explored what the green economy and the transformations to it looks like from the perspective of 10 different case study regions and from the perspective of 8 economic sectors. The green economy has also been studied from the top-down perspective using the available statistical information with acceptable coverage to identify regional disparities and geographical patterns.

Regretfully, for most of the processes the collection and processing of primary data does not allow for comparative analysis at a regional level. Even at the national level the data availability is limited. In particular, the primary data collected and processed on the formation and stock of fixed capital is insufficient to generate statistics at the national level, let alone the regional level where only scattered statistical information is available. Similarly, a harmonised regional energy database has not been developed so far in Europe.

The GREECO project has, however, attempted to develop datasets for regional comparative analysis. These include indicators of very different types such as:

- ecological pressure vs budgets, e.g. of emissions;
- the catch-up potentials of the regional economy with respect to resource efficiency;
- the delinking of fossil energy use from economic growth;
- the natural resource potential for substituting fossil (and in some regions nuclear) energy by renewable energy sources (RES);
- the use of the innovative potential to develop green solutions;
- the use of the productive potential to produce green solutions;
- the territorial dimension of green research and innovation, and;
- the role played by local stakeholders within international initiatives oriented towards the establishment of more ambitious environmental targets.

In particular, the GREECO project has attempted to regionalise the national level energy statistics with data obtained from the national statistical institutes and the scattered and not totally consistent regional energy data from EUROSTAT. This is essential if it is considered that monitoring the transformation towards an economy in ecological balance involves assessing three types of changes of the econosphere, in particular:

- substitution of unsustainable with sustainable flows;
- more efficient use of materials and energy, and;
- development of circular supply chains. All the three types of changes have been assessed as far as possible within GREECO sector assessments and case studies.

2. The sectoral dimension of the green economy

In the GREECO project a series of sector investigations of the green economy have 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, as well as the most important linkages and interdependencies between the sectors studied.

The five sectors under analysis in GREECO are: Bio-economy (Agriculture, Forestry and Fishery), Manufacturing, Renewable Energy, Tourism and Transport. Four additional sectors, which cross-cut the above sectors and possess clear territorial dimensions have also been considered. These include: water and waste management, building/construction and green research activities including the implementation of clean technologies such as carbon capture technologies.

The sector analysis produced in GREECO showed that all sectors studied are moving in a greener direction and that positive transformations have already occurred in a number of sectors. For example, the renewable energy production today takes place in all Member States to some extent.

The current greening performance, however, differs significantly across the EU Member States. Besides geographical preconditions, differences in prosperity levels among the countries and regions have a strong impact on penetration of the green solutions. It is highly influenced by the environmental, economic, cultural and other factors. Poorer countries are struggling with fundamental shortcomings and tend to focus on more urgent development problems. In general, the old Member States tend to have a better performance of the green economy sectors, in comparison to the new Member States.

The development of the economic sectors has to adapt to the global challenges, such as depletion of resources and climate change, by choosing a development direction that is not as resource-intensive and is thus more sustainable. Having in mind that the sectors studied are likely to remain a backbone of the EU economies, a greening process seems largely inevitable. At the same time, it is difficult to estimate whether greening is occurring fast enough to be able to effectively address such current and future challenges.

In a situation with rising energy prices the dependency on fossil fuels has been resulting in a situation where countries with economies based on exploitation of substantial national resources of fossil fuels such as coal, oil and gas tend to be more hesitant to shift their energy supply to renewable resources. Therefore it is highly important to highlight and promote green initiatives as development opportunities for such countries/regions for their potential to make the traditional sectors more competitive; and by doing so, changing the overall perception that greener practices are affordable only for the rich and highly developed countries. The analysis revealed that there are considerably more opportunities rather than threats in relation to greening the sectors in the long run.

Job creation is an important argument in favour of the green economy development, especially in the peripheral regions which are struggling with demographic challenges and outmigration. Looking at the sectors studied, the EU's bioeconomy sector is projected to have the highest potential in terms of green jobs creation. Today the sector accounts for more than 22 million jobs and approximately 9% of the workforce. Significant growth is expected to arise from sustainable primary production, food processing and industrial biotechnology, as well as new bio-based industries. Other sectors studied are also expected to generate an increasing number of green jobs in

future, which would require new skills development and training to meet labour demands.

Overall, the support and commitment from the EU over the last decades has been quite high to a green economy development in the sectors studied. The analysis also showed the importance of involvement of actors and stakeholders at all levels – from the decision-makers to businesses and individuals. Only through joint efforts of all groups of the society the green transition is possible.

Another finding from the sector analysis was that technology is far ahead the implementation of the green initiatives in practice, which is a common challenge for all sectors. In most cases the technology is in place but it's often unaffordable.

2.1. Territorial aspects and main conceptual elements in the greening of the sectors

The sectors chosen have explicit territorial bounds either on their own or in terms of linkages to each other. GREECO views the sectors in a 'hierarchy' of territorial-bound 'building blocks'.

The bioeconomy and energy sectors have the strongest ties to the territory, as both sectors are making direct use of natural resources and are highly dependent on the available land resources, climatic conditions and territorial characteristics. The territorial bounds and land use characteristics also have an influence on how greening of the sectors is conceptualized for each sector. For these sectors the main aspects of the greening relate to maintaining and developing of a green territorial base. These sectors are the largest users of land, which often results in land use competition. Therefore for a greener development of these sectors addressing the land use multifunctionality, taking into account interconnections between economic and ecological values and incorporating multifunctionality in producing food, renewable energy and recreation is essential. Furthermore, greening of the sectors also addresses management inputs that have a relation to the land and resource base but may be alien to the environment.

Waste, water and building sectors are crucial for ensuring and developing a green livable environment. These sectors are also bound to a territory and require a significant amount of land but they are less dependent on the landscape features (e.g. soil fertility and availability of natural resources) in comparison to the bioeconomy and renewable energy development. The key aspects with regard to greening of these sectors are prevention and minimisation (waste) through improving resource efficiency (water, energy) and the re-use of resources. An important issue in this context is cradle-to-grave management but furthermore promoting the cradle-to-cradle idea by making sure that the waste is considered as something valuable to re-generate and eventually extract energy or resources from. These issues are obviously closely linked to eco-innovation.

The key function of greener transport is maintaining and developing the territorial connections, which among other things implies more compact land use and energy efficiency improvement. The base of tourism is the natural and cultural environment which forms the attraction qualities that attract the tourist to experience the place. Maintaining the ecological and socio-cultural functions of these areas is among the main aspects in relation to a greener development of the tourism sector.

Manufacturing and eco-innovation have even weaker territorial relevance and the main concepts with regard to greening are linked to improving productivity and resource

efficiency and technological development.

Overall, the conceptual elements of the green economy which are relevant for the sectors studied can be grouped around 6 key topics:

- *Key environmental relation* and the way we consume key natural resources (e.g. supporting biodiversity, re-use of waste, improving water quality, minimising environmental impact).
- *Responsiveness to changes* (e.g. climate change adaptation and mitigation, developing green transport modes, sustainable waste and water management, changes in product design).
- *Energy relations* (e.g., improving energy efficiency, renewable energy use, innovative technologies).
- *Management and planning* (e.g. certification, land use planning, community involvement, demand management).
- *'Green footprint'* or visible impacts and outcomes of changes (e.g. organic agriculture, carbon sequestration, improving water quality, improved productivity).
- *User behaviour* (e.g. food habits and waste, use of wood as construction material, improved health security at a workplace).

3. Deploying a territorial interpretation of the green economy

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. From GREECO perspective, 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 conceptualising territory in the perspective of the green economy. 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 emphasised. 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.

Therefore, the GREECO's territorial concept responds to the essence of the green economy through both an economic (monetary) growth and as the underlying structure of society through 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 resources are consumed) and the distribution of resources (which are used as inputs into socio-economic production).

To facilitate the process a set of eight overarching territorial factors (each with three to four sub-factors), and seven overarching territorial outcomes have been identified and investigated as the main processes or conditions that either influence or result from the pursuit of a greener 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 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.

This made possible to synthesise the findings into a discussion on how the GREECO project interprets the relationship between territory and the green economy:

- It is clear that all sectors have provided relevant findings in terms of settlement structure, particularly in terms of linkage to urban areas and urban-rural interactions. As such, the connections between the results should reveal which sectors complement each other or where opposition is found. 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 also provisionally 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.
- 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 emphasised by the green economy as a transversal sector, both impacting and being impacted by developments in all other sectors.
- All sectors reflected relevance between a greening of the sector and the importance of local and regional markets. Similarly, all sectors were able to identify connections to each of the sub-dimensions under the heading ‘Inter- and intra- territorial relations’.
- 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.
- With that being said, we clearly see differences in terms of the emphasis on policies derived from the regional and local levels, which will be interesting to analyse further.

Some of the sub-dimensions are not identified as being relevant across a wide number of sectors. 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 the 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 which have led to a combined set of qualitative and quantitative messages delivered in the reports.

4. Collecting evidence on the ground: GREECO case studies

The development of case studies within the GREECO project was meant to give a real life dimension to the theoretical concepts and hypothesis developed within the other tasks. The main objectives of the case studies were to identify the role of the regions in driving a green economy development; analyse the regional key drivers and enabling conditions of the transition to the green economy (policies, financial instruments and investments, etc.); and to identify good practices of regional transition to green economy.

GREECO's main goal during the selection of the case studies was to have a mixture of regions which are balanced from a geographic, economic, policy, size, and typology point of view. The case studies have been selected according to criteria such as types of territories (ESPON); geographical and historical contexts; sectors and size of the region.

GREECO selected four decentralised and developed regions: Navarra (Spain), Ruhr (Germany), Jämtland (Sweden) and Burgenland (Austria). Four of them have different economic context with Ruhr being highly industrialised previously and facing the challenge of transition to a modern economy. Navarra and Burgenland have benefited from strong regional leadership and have exploited their natural assets to the maximum especially in the field of renewable energy. Jämtland has predominantly been a leader in greening the agricultural and forestry sector. Two other regions – Cornwall (UK) and Puglia (Italy) - are less developed than the first group of regions but share their strong drive towards the green economy especially in the energy sector. The GDP per capita of Zealand (Denmark) is lower than the EU-27 average except for the north-eastern part which is closely linked to the Capital Region. Green economy is seen as a possibility to catch up with the rest of the country. South Transdanubia (Hungary) is an example of a less developed region that has some ambition in green economy development but still has a long way to travel. Malta is an interesting case of a small island territory with abundant natural assets (wind and sun) and a big shortage of water and raw materials.

5.A tentative characterisation of regional green economic performance in Europe

The analysis of the regional green economic performance in GREECO aimed to provide a quantitative profile of green economy at the regional level in Europe, i.e. it was attempted to give an answer to the question on how far we have already progressed towards a green economy in different parts of Europe. However, this objective could only be partly achieved due to fragmentation, gaps or non-availability of the necessary data as explained elsewhere in the report.

The analysis of green economy regional performance is based on two different but interrelated strands of research within GREECO, a bottom-up approach and a top-down approach. The bottom-up approach is built on the GREECO analyses of economic sectors. For each of the sectors under study, one key indicator has been selected at the end of the sector analysis task. The top-down approach is more comprehensive across individual sectors. This part of the performance analysis is based on the core dimensions

of the green economy considered in GREECO project (Environmental, Social, Territorial, Economic, and Econosphere). For each of these spheres quantitative profiles of green economic performance are provided. Results are presented in Figure 8 within the Main Report.

The performance in the *environmental sphere* shows Nordic and Alpine regions doing best which is an outcome of high environmental and natural assets combined with low emission levels. Similar good is the situation in several coastal regions, the Baltic states and some regions in south-eastern Europe and Spain. Some urban agglomerations, in particular in the UK, Belgium, northern Italy, Poland and Greece do worst, but there are also some more rural regions in Spain and Germany in those lower classes.

In the *social sphere*, most regions in a broad belt along the Atlantic from Portugal to the Nordic countries are doing fine based on low exposure to air pollution and relatively high life expectancy. Southern European regions suffer from high exposure to air pollution, eastern European regions from very low life expectancy.

The *territorial sphere* sees Nordic and Alpine regions performing best, a combined result of high renewable energies and high land productivity. German and Italian regions do follow next. Low performance in the territorial sphere is mainly to be found in Eastern Europe, in particular in Bulgaria and Romania, and in some central parts of Spain.

The *economic sphere* which is only based on the number of green patents per billion GDP sees the largest differences in Europe. Southern Germany, Denmark and some individual regions in Spain (Navarra), Belgium, the Netherlands, northern Germany, Austria, Sweden and Finland are doing best. In those parts of Europe, the development of green technologies plays a larger role in the regional economy than elsewhere. Then, a large gap exists to most other regions in which the performance is rather low.

In the *econosphere*, Norway, some UK regions, Stockholm, Madrid and Paris and some individual regions in those countries, regions in southern Germany, Switzerland and Austria, Italy and Denmark are doing best, i.e. having a high economic output per energy unit used. Most regions in Eastern Europe, Finland and Sweden, Spain and good parts of the UK, France and Belgium are at the other end of the spectrum.

Combining the performance of the five core features in a single index (see **¡Error! No se encuentra el origen de la referencia.** in the Main Report), it emerges that regions with high and very high performance are mainly located in the Nordic Countries, Iceland, UK and Ireland, the Netherlands, Germany, Austria and Switzerland and Italy, and also Paris and Madrid. On the other hand, most eastern European regions belong to the type of very low green economic performance because the performance in most of the five different spheres is clearly low.

The aggregation shows an even higher degree of relationship with the economic output of regions in Europe. Lagging regions are also low performing in green economic aspects, prosperous regions do display a high degree of green economic performance. This relationship can be seen from two sides. On the one hand, one might argue that it requires a certain degree of economic output to be able to put also an emphasis on green issues. On the other hand, one might consider that investments in greening the regional economy in a broad sense as understood in GREECO will also help in improvements in overall economic performance of those regions.

6. Exploring the territorial potentials for a greener economy

GREECO conceives the territorial potentials for a greener economy as the *combination* of all those *factors* that encourage or prevent territories to successfully start or consolidate a transition to a green economy. Those factors (i.e. green economy drivers and enablers) are the policies, physical and non-physical assets, market conditions and other features that are thought to activate the concepts and improve current and future greening performance across Europe. The evidence collected in GREECO shows that such key factors are:

Good governance: institutions, policies and regulations. The strategic vision of a region is a major driver for greening the regional economy, in particular if the strategic vision has been achieved with the participation of a wide group of regional stakeholders. Along these lines, stability is also one of the characteristics of good governance. In particular, ensuring the continuity of strategic choices such as adopted targets, financial commitments for greening the economy or simply having an overall mindset. These features can be translated into policies, which help to create favourable framework conditions that reduce the cost of investments and increase knowledge development. All governance levels are important and it is difficult to single out one as more important than the other. GREECO case studies showed that while EU and national policies and targets give the initial momentum and create the overall framework of operation, regions and municipalities are instrumental in translating this vision into regional and local realities.

Key economic instruments: access to funding and financial support. Increased availability of finance for governments and businesses in green sectors is crucial for achieving a green growth. Access to the economic capital is essential for R&D and application of new technologies, RES, development of infrastructure for cycling etc., as these developments require high initial capital investments, which normally have a long pay-back period. From the opposite angle, a lack of financial support is seen among the limiting factors for greener growth in virtually all the assessments performed in GREECO. Most regional actors contacted within case studies stressed the importance of financial mechanisms and emphasise the need for increased public support.

Territorial assets and physical conditions. Territorial characteristics and land use issues, the territorial preconditions and the availability of suitable land resources can be considered among the important enablers for a greener development of many sectors studied, especially those with the strongest territorial ties. Still, in-depth analyses within case studies have shown that whereas the importance of natural assets depends on the sector of the green economy, the capacity to capitalise on the natural assets is strongly linked to other factors such as the governance and strategic framework in a specific region.

Access to technology. Development and increased uptake of new technologies and eco-innovation play an important role in fostering the transition to the green economy across all sectors analysed in GREECO. By investing in new technologies firms achieve emission reductions and are becoming more environmentally friendly, but at the same time reduce their costs, attract new customers, reduce risk and vulnerability, and gain first-mover advantages compared to their competitors.

Expected market demand. Market is the ultimate driving force for increasing the demand within all green economy sectors. For example, higher energy prices favour the proliferation of green buildings, as the benefits associated with retrofitting and new building standards outperform the 'business as usual' situation. This is also true in case

of developing the renewable energy and eco-innovation, as with increasing prices on conventional energy the RES and eco-innovation targeting resource efficiency in energy use become more competitive.

Human resources, knowledge and skills. A skilled workforce is a crucial resource for all economic activities. Those included in the green economy are no exception. Needed skills comprise those that are specific for the environmental goods and services sectors, but also those transversal skills needed to support transitions in terms of increased energy and material efficiency, adaptation to climate change, etc. From the labour perspective transitioning to the green economy is much more about changing the way work is performed rather than replacing existing jobs (CEDEFOP & ILO, 2010).

Environmental awareness and voluntary actions. Higher awareness level contributes to fostering sustainable practices and choices of the companies and individuals. Awareness may trigger market change, technology penetration, adoption of new policies etc. Voluntary certification, agreements and such tools as Corporate Social Responsibility (CSR) and eco-labelling play increasingly important role in greening of all economic sectors.

All the empirical evidence collected on green growth factors was combined to produce the Green Economy Theoretical Potentials Index (GEPI). The GEPI was generated as an arithmetic sum of the weighted averages of all the 7 factors considered in the analysis. All factors have been assigned identical weights. However, this option could be discussed, taking also into account the possible trade-offs and links among different drivers as well as the asymmetric implications that such elements might have on the different green economy spheres (i.e. environment, economy, society and territory).

The spatial variation of the GEPI is of course tightly related to the spatial variability of the different components combined in the index (see **¡Error! No se encuentra el origen de la referencia.** within the Main Report). Small variations in the number of variables included and the weights used might lead to totally different outputs. This raises two concerns: first, it implies that this specific typology relies on a too narrow number of indicators to qualify as something more than a preliminary regional classification, and; second, linking to a recurrent critique to synthetic indicators it can also be argued that the GEPI hides factor-specific information relevant for descriptive and normative purposes. This is particularly important, as basing decisions on synthetic indexes might lead to undesired outputs. In order to avoid these drawbacks, the typology should be analysed jointly with the different components included in it.

7. Key findings of GREECO project of particular relevance for policy action

The GREECO project has elaborated a comprehensive policy assessment that delivered a number of key lessons of particular interest for the policy perspective that can be summarised in the following headlines:

- **Cities and regions are key actors in a green economy transition.** Regions and local authorities have the potential and the necessary leverage to make a significant contribution to the achievement of the green economy through the

definition of territorial actions under their competence.

- **Cities and regions hold significant assets** that are key building blocks in green economy development. The realisation of the potential of the territorial capital depends on a number of policy, institutional, political and financial factors.
- **Local networks and local initiatives can support a transition** of both the supply and demand side of the green economy by supplying information, education support to SME's and concrete practical tools for engaging in greening initiatives.
- **The regulatory framework is a key driver for green growth.** The differences and potentials of territories should be reflected by policy-makers across Europe and across territorial levels in the implementation of policies contributing to green economy.
- **The lack of data at the regional and local levels is a real challenge.** The lack of data is a major limitation creating comparable information for holding regions accountable to greening their build stock.
- **A clear political orientation and guidance through policy is needed**, and the EU and its member states and regions could lead the way and set a positive example.

It is worth stressing that, in any case, a single region cannot achieve the needed changes on its own, but Europe as a whole, with its experience, track-record and economic power has a realistic chance to lead this transition towards a greener, more resource-efficient economy and future, tackling current sustainability.

7.1. Key policy messages emerged from GREECO research

The evidence-based findings achieved in GREECO originated the following general key policy messages that should be considered in the future process of developing green economy policy in European regions:

Increase policy ambition would speed up transition to a green economy

- **More transformative policies.** In order to speed up the green economy transition, more policies need to have a transformative character to support a complete shift in the paradigm on which current patterns of production, consumption, working and living are based.
- **Increasing the targets.** Policy targets and objectives are a major driver of green growth. Regions and cities have the potential to lead the green economy transition by setting more ambitious goals than the EU.
- ***Bigger stakeholder involvement and awareness are key for the success of policies***
- Strategic policy development at all levels must engage local actors: Important strategic shifts in the regional economy need to be consulted with relevant local actors in order to ensure their buy-in.
- **Raise public awareness** to stimulate behavioural change. Measures improving the access to knowledge and facilitating knowledge spill-over should be promoted.
- **Involve consumers and promote demand for greener consumption.** The labelling of products according to environmental, economic, and social standards is an important tool in ensuring the consumer partnership in the process towards

greening economic sectors. It is important to harmonise the plethora of labelling schemes in certain sectors as it can cause confusion among consumers.

Further investments in public infrastructure provide the basis for greening sectors such as water, waste, biodiversity, transport, etc.

- **Improve public infrastructure.** The infrastructures needed range from modernised transport systems, to energy networks that unleash tacit RES potentials as well as wastewater treatment plants, waste handling and recycling systems. The process of designing and constructing this infrastructure is an integral part of greening of the economic sectors.
- **Further support resource efficiency** and invest into ecosystems in order to maintain a profound environmental foundation to green economy development. Decoupling resource use from economic activity should become a key factor in policy making at all levels and across sectors.
- **Avoid the ‘silver-bullet approach’:** Emblematic large-scale projects are not a strategy for change in itself, unless they are integrated into a larger, more holistic approach to build the region’s or city’s future. Transition strategies should be based on multiple, incremental activities to create a positive climate in which change can flourish.

Better pricing of resources is a powerful driver of change

- **More realistic pricing of natural resources:** The price of natural resources does not reflect the true value. Therefore, policy support is needed to adjust the economic and fiscal framework to provide incentives to become more resource efficient (i.e. greener).
- **Charge for external costs** to create a higher share of consumption on organic and resource efficient products. Products that have high negative external costs should be considered for taxes or charges or other cost efficient measures.

Strengthen financial support for regional actors in implementing green economy

- **Make better use of available investment support schemes.** The development and spreading of green investment support schemes would support green economy development in many sectors; e.g. tourism, agriculture, construction. In particular, it is crucial to incorporate environmental, eco-innovation and resource-efficiency elements in available EU, national and regional funds and improve regions’ access to finance and funding by increase absorption capacity of regional institutions.
- **Strengthen market based instruments**, such as environmental taxes and tradable rights, which create incentives for environmental efficiency. An adequate fiscal policy and a full-fledged environmental fiscal reform could also generate incentives to stimulate innovation and create revenue for further investments into sustainable resource use.

Progress towards the adoption of an integrated territorial approach

- **Towards a resilient urban and regional planning:** Promote in particular densities of scale that reduce energy demand in buildings, and non-car forms of mobility through cities and peri-urban regions of functional distances.
- **Further promote the mutually profitable synergies between business and municipalities** where underutilised and undervalued resources from one (materials, energy, waste, water and waste water) are recovered and reused elsewhere in the industrial and municipal networks creating Circular Economy.
- Similarly, **consider links and trade-offs of green economy sectors:** For

instance, benefits of water and waste management systems are actually greater when planned and developed in an integrated manner than the summed technical potentials of the individual components alone.

- Implement a **multi-level and collaborative territorial governance** approach, in order to define the right governance level for placing different functional decisions.

Better monitoring and enforcement increase the credibility of policies and contribute to their constant improvement

- **Improve regional monitoring:** The formulation of operational programmes including a framework of indicators capable of assessing progress towards a green economy can be very helpful, as it allows the formulation of ends and means in specific targets and instruments.
- **Improve regional indicators:** It is strongly recommended to develop a statistical framework with collection of primary data that allows for monitoring the green transformation of the fixed capital stock and the related consumption of resources, sinks and space.

It is worth mentioning that many of these principles are already implicit in the 2014-2020 legislative proposals for the new EU Cohesion Policy 2014-2020. In particular, the Common Strategic Framework set out coordination mechanisms with other relevant Union policies and instruments for more coordination and less overlap, whereas the principle of partnership with regional and local authorities, economic and social partners and bodies representing civil society is also key element in the new policy. A strong emphasis on results and accountability is also placed in the new EU Cohesion Policy.

7.2. Key policy messages for specific types of regions

General policy messages to all types of pre-transition regions

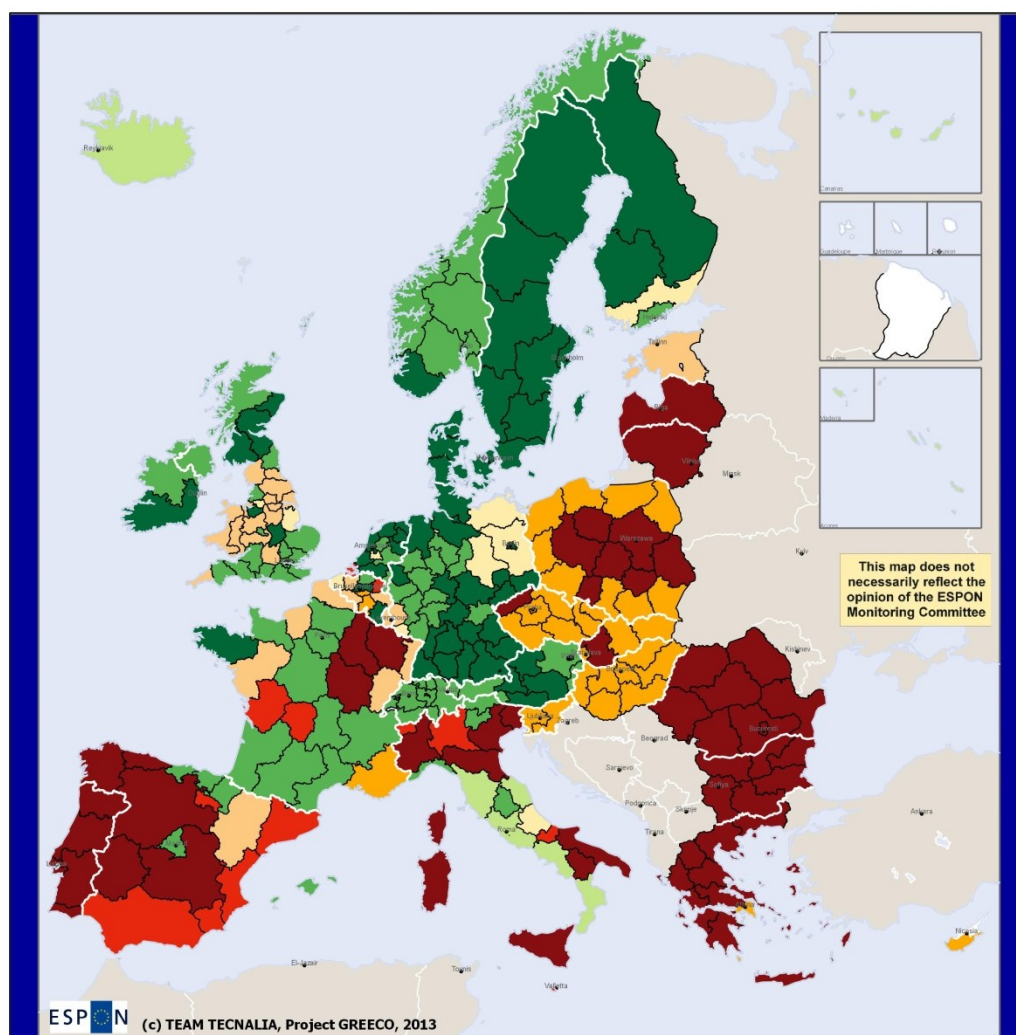
- The policy messages to such regions would be to capitalise on a full, high-quality transposition of EU legislation and integrate it in regional strategic frameworks and legal systems where relevant.
- Policy ambitions need to be matched with sufficient financial support be it from national, regional or EU sources. Main regional actors should be mobilised in defining a vision for greening of the regional economy and the level of ambition.
- Getting the right level of prices is of extreme importance for defining individual and business behaviour. Removing Environmental Harmful Subsidies and strengthening enforcement is primordial.

Policy messages to regions without large territorial assets

- All of the above policy messages are valid to these regions as well. Additionally, such regions should concentrate on these green economy sectors that are not directly dependent on natural endowments and other drivers and enabling conditions that cannot be acted upon.
- The importance of strong institutions and human resource capacity is even higher. It is also possible to turn a disadvantageous position into a commercial advantage.

General policy messages to all types of transition regions

- Target-setting for transition regions should be more ambitious and should not be constrained by easily achievable EU targets. Most probably, very high targets will have to be associated with adoption of a bigger number of transformative policies calling for different individual and company behaviours but also different system-wide innovations such as industrial ecology.
- There is a possibility for even newer cooperation and synergies between sectors – public, private, non-governmental, academia – which capitalise on different expertise, knowledge and energies. Strengthening the links between research and business is a factor for higher commercialisation of eco-innovations.
- The relatively high level of awareness in such regions should be consolidated and utilised for behavioural break-throughs – both on individual and business levels.
- Green Public Procurement (GPP) has a huge potential leverage effect and its full-fledged introduction is a key to market transformation and development of new products and services.
- EU funds could be used for funding demonstration projects with high potential for replication.
- Successful regions need to secure political continuity for green, low-carbon development which is translated in stable strategic framework, stable financial support and prices and maintaining or strengthening of relevant institutions.



EUROPEAN UNION
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INVESTING IN YOUR FUTURE

Regional level: NUTS 2, version 2010

Source: GREECO project, 2013

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Types of green economy performance and potentials

- Pre-transition regions with low green economy development potentials
- Pre-transition regions with medium green economy potentials based on low- to medium territorial assets and excellent level of policy and finance-related factors
- Pre-transition regions with medium green economy potentials based on excellent territorial assets and low- to medium level of policy and finance-related factors
- Other types of pre-transition regions with medium green economy development potentials
- Pre-transition regions with high green economy development potentials
- Transition regions with low green economy development potentials
- Transition regions with medium green economy development potentials
- Transition regions with high green economy development potentials
- Data not available

The map above presents a typology of regions based on the overlap between regional green economy performance and potentials. The thresholds used to build the typology are introduced below:

1. "Pre-transition regions with low green economy development potentials" are those regions with combined regional green economy performance under the ESPON average and combined green economy development potentials below Quartile 1 (0.25)

"Pre-transition regions with medium green economy development potentials" are those regions with combined regional green economy performance under the ESPON average and combined green economy development potentials ranging between Quartiles 1 and 3 (0.25 to 0.75)

The latter have been divided into three sub categories:

2. "Pre-transition regions with medium green economy potentials based on excellent territorial assets and low- to medium level of policy and finance-related factors" are those regions where combined territorial assets (share of Natura 2000 area, RES potentials, expected market demand and human resources) are above ESPON average, whereas combined governance and finance factors (quality of government, voluntary actions and funding) are under ESPON average.
3. "Pre-transition regions with medium green economy potentials based on low- to medium territorial assets and excellent level of policy and finance-related factors" are those regions where combined governance and finance factors (quality of government, voluntary actions and funding) are above ESPON average, whereas combined territorial assets (share of Natura 2000 area, RES potentials, expected market demand and human resources) are under ESPON average.
4. "Other types of pre-transition regions with medium green economy development potentials" are all the remaining regions with low green economy performance and medium green development potentials
5. "Pre-transition regions with high green economy development potentials" are those regions with combined regional green economy performance under the ESPON average and combined green economy development potentials over Quartile 3 (0.75)
6. "Transition regions with low green economy development potentials" are those regions with combined regional green economy performance over the ESPON average and combined green economy development potentials under Quartile 1 (0.25)
7. "Transition regions with medium green economy development potentials" are those regions with combined regional green economy performance over the ESPON average and combined green economy development potentials ranging between Quartiles 1 and 3 (0.25 to 0.75)
8. "Transition regions with high green economy development potentials" are those regions with combined regional green economy performance over the ESPON average and combined green economy development potentials over Quartile 3 (0.75)

Map 1 Regional typology based on green economy performance and potentials

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