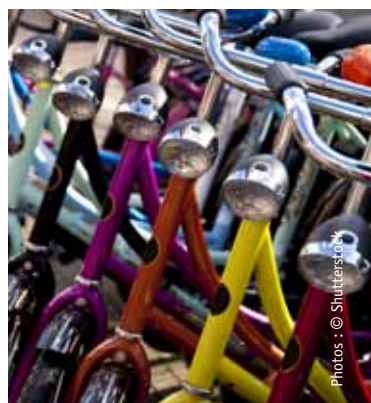


Towards resilient territories in 2030



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What will Europe be like in 2030? Volatile oil prices, climate change, economic recessions, geopolitical crises and revolutions are some of the unforeseeable factors that undermine credible long-term forecasting. However, there is general agreement that over the short, medium and long term we will face major shocks and changes: reduced access to drinking water, energy constraints, an end to economic growth, massive increase in public debt, climate change, reduced food production and major loss of biodiversity. Such disturbances will have far-reaching impacts across Europe's territories.



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In this study, we focus on the future of territories in terms of their resilience. In the area of technical systems and networks, the term 'resilience' refers to their capacity to provide the same level of service despite major disturbances. For socio-ecological systems¹ such as European territories, resilience implies adaptation or reorganisation in order to preserve their identity and principal functions. Moreover, we know an increase in the efficiency of a system is inversely proportional to its resilience. Our economic, social and political systems have tilted the balance dangerously towards extreme efficiency, which has certainly led to improved performance, but by the same token increased their vulnerability to the slightest shock. In this study, we propose to tilt the balance back towards resilience, using criteria such as redundancy, diversity, modularity and good environmental integration.

In our view, the *bioregion* is the most appropriate scale for deployment of an ambitious policy of resilience, as it covers a local area with sufficiently uniform cultural, geological, environmental and climatic conditions to allow for convergence of political choices.

The study has three main themes: energy, transport and food. Each of these will be approached in three ways. Firstly, in the form of a fictional account by a European citizen living in 2030 in a territory where changes were prepared for. This future witness will describe the changes that took place after 2014. Secondly, we will set out a chronology of events that might occur over the period from 2014 to 2030. Thirdly, we will present territorial studies, which will be a necessary preliminary measure for any concerted effort. This will provide useful information for stakeholders in drawing up action plans.

Energy

Following a discussion of preconceived ideas frequently invoked in debates over energy (ERoEI, nuclear energy, energy creation, wood energy, etc.), we put forward a strong and proactive scenario for energy transition. It is vital that modern societies anticipate a reduction in the availability of energy and concentrate on defining collective goals for reduced energy use in line with the anticipated decrease.

It is clear that efforts made up to now have not produced adequate results. With regard to reductions in greenhouse gases, according to European Union figures, there was no decrease in total emissions between 1990 and 2003 despite a marked reduction (-27 %) in the carbon intensity of the economy.² The reasons for this situation are simply population growth (9 %) and higher GDP (18 %). It is highly unlikely that it will be possible to cut greenhouse gas emissions in the European Union by three quarters between now and 2050. It is also important to set binding targets based on the actual availability of energy and aimed at equitable distribution of resources. In the future, we shall have to take concrete measures to counter the rebound effect, and **reduce by half or two thirds** the energy consumption per European inhabitant, which is a considerable challenge.

At territorial level, cooperation and the involvement of citizens in energy projects and in decision-making are essential. Local energy companies should be set up to encourage such joint efforts, with a view to providing the impetus for larger-scale activities such as building renewal, energy production and distribution, and the introduction of incentive pricing etc. These organisations will also make it possible to evaluate the feasibility of supplying energy through local micro-networks on

1 System comprising both human societies and the natural world.

2 Amount of greenhouse gas emitted in producing one Euro of GNP.

an “islanding” basis in the event of problems with the national or European energy grid. However, such networks are more expensive in terms of investment and infrastructure at local level, and cannot be implemented on a large scale unless accompanied by major measures to reduce energy consumption.

Transport

The transport sector is the number one energy consumer in Europe. As the life-force of the European and global economy, any untoward events that affect this sector, such as volcanic eruptions, exceptional snowfalls, strikes by transport workers or petroleum company employees etc., tend to provoke panic among economic actors, governments and the general population. European transport systems are 96% dependant on petrol, almost all of which is imported. We stress that the first priority should be to reduce the need for transport by making essential goods and services more accessible, for example by supporting local shops and helping to put in place local social and cultural services. The establishment of a *Territorial Relocation Agency* (TRA) would give citizens opportunities to change workplace or type of work by coordinating the actors involved and centralising supply and demand. Infrastructure needs to be redesigned as a matter of urgency to cater for travel within a 2 to 50 kilometre radius which currently relies on petrol-fuelled vehicles. The reintroduction of *Local Railway Services* would be beneficial here, as railway journeys are three times more energy-efficient than road travel. Multimodal solutions bringing together freight, passenger transport and roads have already been set up, and are still in place. Several cities have experimented with free transport, with varying degrees of success, underlining its social, environmental, and economic benefits as well as reduction in energy use. Car pooling and hitchhiking with safe stops allowing users to iden-

tify one another could serve as a step on the road to a post-petrol world. Renewed reflection should be given to the loading of haulage vehicles, the use of vehicles most appropriate for particular purposes and the organisation of deliveries, for example by encouraging cycling in urban and suburban areas. However, none of these steps are feasible unless priority is given to simple and less powerful vehicles that are light and easy to maintain. Seventy years ago, there were rail locomotives that consumed 55 times less energy than high-speed trains (TGV), and motor vehicles that consumed less than 3.5 litres of fuel per 100 km. Finally, we need to diversify from petrol. A range of energy sources should be used to increase self-sufficiency and resilience: biogas, electricity from renewable sources, waste vegetable oil, hydrogen, compressed air, etc. But while there are a number of possibilities, we should not lose sight of their drawbacks, as none is as practical or as cheap as petrol.

Food

The third theme is food supply. Regions with highly-specialised agricultural production have lost their self-sufficiency in food and have become heavily dependent on transport and hence on petrol. This is also true of economic sectors such as fishing with its aging fleets and long and complex distribution chains. While Europe’s current concern is with feeding the world, it is in danger of not being able to feed itself in the years to come. It is essential to strengthen links between local producers and a population largely unconcerned with food issues, which might take the form of Food Policy Councils (FPCs). These organisations, which are already in place, sometimes under different names, make it possible to prioritise local resources under genuine community management, and serve to encourage consumption of local produce and integration with urban areas, provide support for integrated networks, and social and

Abstract

educational measures. Moreover, land management is highly problematic because in Europe, 3% of farmers control 50% of farmlands. There is thus a need to review the fundamentals with the aim of encouraging less centralised and more sustainable management. Encouraging short supply chains and more responsible practices should go hand-in-hand with redistributive policies and with the involvement of local populations in land use. Cities are particularly vulnerable due to both their population density and their reliance on massive daily deliveries of food supplies transported over long distances, 85% of which are distributed by major operators. Major population centres need to anticipate risks by encouraging local traders and equitable relations with producers. In this vein, Community-Supported Agriculture (CSA) networks have been set up in a number of countries, such as Amap in France. They facilitate direct links between producers and citizens, risk sharing, ensure regular incomes for farmers, and involve local people. Other, more flexible, organisations may also help to rationalise the distribution of local produce to improve energy-efficiency. It is also possible, with due precautions, to use available urban spaces to grow crops. Territorial entities can also set up collective meal centres that serve meals on a regular and predictable basis to encourage and strengthen local, suburban and organic supply networks. This requires changes in management practices as well as provision of equipment, training for food-preparation personnel and clear information on local producer

networks. However, none of these measures will be effective without the direct and continued involvement of local citizens and their willingness to limit their own needs, particularly for meat and sugar. With regard to field crops, it is recommended to maximise land use, make full use of complementarity between plants, cultivate the top five metres of the soil rather than just the top 50 centimetres (complementarity between trees and crops), and allow insects and animals to play a greater role. There has been increasing development of bio-intensive market gardening and permaculture schemes based on sound economic models. These farming ventures combine observation and experimentation, working with nature rather than against it, and think globally while making use of natural cycles and interdependencies. It is within the remit of local authorities to draw on these tried and tested experiments, and to encourage links and exchanges between all the relevant stakeholders.

There are already many exemplary projects throughout the world which can inspire the European Union's citizens and political representatives. Drawing on this wide range of initiatives is key to reducing the vulnerability of our territories is precisely. A major paradigm shift is necessary, because uniformity and efficiency at all costs no longer help us to face the now uncertain future with equanimity. Improving the resilience of territories may thus become the new goal for modern societies.

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