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National strategy of ecological transition towards sustainable development

2015-2020

The National Strategy of Ecological Transition towards Sustainable Development 2015-2020 was adopted by the Council of Ministers on 4 February 2015.

FOREWORD

A new model for society founded on economic, environmental and human progress is within our grasp.

Since the Stockholm Conference forty years ago, calls have been launched, initiatives have been taken and progress has been made, yet always falling short of the action needed. It is a long journey from the foresight of a few to decisive action by many where forces are joined to tackle the environmental challenges we face. These challenges should not be considered as crosses to bear but rather opportunities to seize to ensure the old, worn-out model can be replaced by a new model that can achieve now concrete results to safeguard the future of our planet in the long term.

There has never been a more opportune time for a scale-up and for the mobilization at national, European and international levels of every stakeholder in the ecological and energy transition towards sustainable development. To do so, France has both the legitimacy, through its continuous international commitment to sustainable development, and the responsibility, in view of it hosting the Paris Climate Change Conference in December 2015. And, moreover, France has the necessary resources, skills and talents.

The energy transition law for green growth is creating a strong momentum of positive ecology that removes barriers, boosts initiatives and is already producing tangible benefits for each stakeholder. This momentum will be maintained, fuelled and increased to set all of us on the path to a green growth that will drive innovation, generate economic activity, which will be beneficial to climate, jobs and public health. Saving energy, combating waste, increasing renewable energies, shrinking environmental and territorial inequality, developing clean transport, making our cities desirable and our territories attractive, promoting the circular economy, sharing our knowledge, facilitating innovation, simplifying procedures, although not at the expense of our environmental standards, and enabling everyone to act in order to create jobs in the green growth sector by taking more effective action against climate disturbance, those are the priorities that shall bring us together.

The good news is that citizens are ready to get involved, if the information is easily accessible and if appropriate tools are available. Economic sectors and new emerging industrial sectors are already making the choice of green growth, their competitivness being at stake. Territories often give the most promising example of what is possible. The State is also starting to lead by example.

To ensure we are in the best position to fully engage in this transition through a policy-by-example approach, the mobilisation of the country's vital forces is crucial for success – and has already started. It is all of our responsibility to speed it up. What I hope and expect from this strategy, is that it enables each of us to transform this historic moment into an ecological and peaceful revolution that will benefit our people and our planet.

SEGOLENE ROYAL

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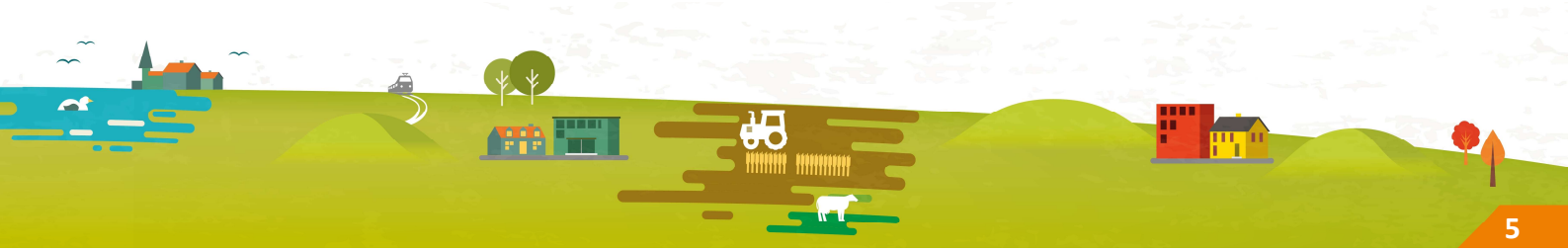


INTRODUCTION

The ecological transition towards sustainable development, an opportunity for the economy and society

From the Rio Earth Summit in 1992 to the Rio+20 Conference in 2012, the international community has woken up to the necessity of sustainable development and the urgency to respond to the key environmental challenges of the 21st century.

In this context, the resources employed to create new lifestyles that are more respectful of ecosystems, natural resources and humankind, with equivalent or improved quality of life, are an important lever for sustainable development. A multitude of actions and policies have been launched since the Rio Earth Summit that have produced the first inflections at the multilateral and European level as much as at the national and territorial level

In recent years these policies have paved the way for the emergence of new practices, the formation of new economic and industrial sectors and the development of new markets, in France and worldwide. The rise in the number of eco-neighbourhoods is one example of the transformations actively taking place on the urban landscape in France, a country that is also positioning itself at the forefront of the sustainable city as an export product market. Between 2004 and 2012, the number of jobs in eco-activities rose in France by nearly 36%, an annual average increase of 3.9% and far greater than the growth of the overall economy (0.3%). Today these jobs account for 1.8% of total domestic employment in France[1]. These examples demonstrate the virtuous cycle set in motion, but also show that it needs to be accelerated and increased.

The environmental challenges we face are more prevalent than ever and their ramifications are even growing, as regularly underscored in reports published by organisations such as the Intergovernmental Panel on Climate Change (IPCC) and the World Health Organization (WHO). Tackling climate change, protecting biodiversity, moderating our use of natural resources and reducing environmental health risks are the challenges we face that shape our social cohesion and the vitality of our economies (see inset). The report on the state of the environment published by France in December 2014 shored up this observation by presenting a detailed picture of the situation and the pressures being exerted on the environment and our territory. France is not only directly impacted by these challenges, its diplomatic influence also gives it a particular responsibility to urge all the other countries to act together.

The environmental crisis is mixing with the economic and social crisis affecting France as it has been in other countries for several years now. It is a wake-up call that not only are our modes of consumption and development not sustainable for future generations, but they are also inequitable for today's generations.
In light of this, France must now turn a new corner by gradually moving towards an "ecological transition", which requires scaling-up, moving from a phase of awareness, pioneering initiatives and first sectoral measures towards coordinated action by every stakeholder in our society and every sector of the economy

Transforming the economy and society on this scale will require supporting and strengthening the positive initiatives already

1 Eco-activities and environmental jobs in 2012: first results, General Commission for Sustainable Development, *Chiffres and Statistiques* no. 523, May 2014

underway and correct the wrong directions already taken. These major changes will provide a response to the environmental challenges we have to overcome and also open up opportunities for employment, competition and social cohesion.

Four key environmental challenges

Climate change

Anthropic emissions of greenhouse gases (GHG) have risen almost without interruption since the start of the industrial age, at a pace that has drastically accelerated since the second half of the 20th century when widespread dependence on fossil fuels began. The multiple effects of climate change can already be seen and are expected to increase over time, as shown in the findings of the fifth report published by the Intergovernmental Panel on Climate Change (IPCC) 2013-2014: increase of extreme events, rising sea levels, species extinction, water shortages .... Territories will have to adapt to socio-economic consequences caused by these kinds of disturbance on populations and economic activities, such as the displacement of coastal populations, greater risks to public health and impacts on productivity levels in agricultural and forestry industries.

Yet, commitments undertaken by many countries remain largely incommensurate with limiting global warming to no more than 2°C, the target set by the international community. To achieve this target, global greenhouse gas emissions will have to be cut by half of 1990 levels by 2050. The UN Climate Conference that France is hosting in 2015 (COP21) will be crucial in this respect to reach a universal consensus on the scale of the challenges.

In France, as in the rest of the European Union, emissions have taken a downturn (down 12% between 1990 and 2012 in France), but meeting the medium and long term objectives (e.g. Factor 4 in France consisting of slashing emissions generated between 1990 and 2050 by four) will require all economic sectors to undergo a rapid and profound change..

The accelerated loss of biodiversity

In the period 2000-2050, annual biodiversity losses are globally valued at between 2,000 and 4,500 billion dollars, which equates to around between 3.3% and 7.5% of world GDP, according to the "Economics of Ecosystems and Biodiversity" study conducted in 2010. This represents a primary concern for France, a country extremely rich in biodiversity, in particular overseas.

Despite growing awareness and the deployment of various actions (dissemination of practices to promote biodiversity, demarcation of protected areas on land and at sea, formulation of action plans to protect threatened species and strategies to combat invasive species, awareness campaigns, policies to establish green and blue corridors, etc.), the anthropic threats to and pressures on biodiversity, especially marine and coastal areas and wetlands, particularly vulnerable, are mostly on the rise.

Land fragmentation and artificialization are continuing at a significant pace in France (nearly 80,000 hectares converted to artificial land each year, equivalent to one French Department every seven years), is threatening habitats and species. Anthropic pollution is another major concern, in particular nitrates and pesticides. Overfishing and deterioration of marine ecosystems by various maritime activities don't only cause the reduction and imbalance of marine flora and fauna diversity, but if not controlled in the long term, the economic decline of

fisheries themselves. Policies undertaken in recent years, and in particular the Common Fisheries Policy, have nonetheless helped protect European fish stocks.

Resource scarcity

Economic growth and global demographic change have led to a significant increase in the demand on natural resources. The poorly-managed exploitation and increased use of natural resources generate the emission of pollutants, waste and collateral effects (climate change, pollution of groundwater and soil, loss of biodiversity, etc.), at the risk of jeopardising important environmental balances and rendering more vulnerable the supply of certain resources.

Despite the high consumption of resources, a significant proportion of the world population remains deprived of basic services such as access to sufficient food, water and energy. Over the next twenty years, the number of " middle class consumers" is expected to rise by nearly three billion, the effects of which will be increased pressure on demand for energy, food, water and minerals. Natural resources are therefore likely to be subject to a strong competition on markets, resulting not only in drastic price increases but also greater volatility. Economies that are highly reliant on imports of natural resources risk being particularly vulnerable. These economic tensions are compounded by political and social tensions in respect of the unequal distribution of resources. This is an issue that directly concerns France, a country that imports all metals required to meet its economic needs and nearly all of its fossil fuels, which has a considerable impact on its trade balance. Indeed, in 2012 France's energy bill reached an all-time high at nearly 69 billion euros, chiefly due to the almost general increase to the price of energy imports, before slightly dipping in 2013 to 66 billion euros.

Increased health risks

Environmental quality is one of the decisive factors in determining the state of a population’s health. The World Health Organization (WHO) has estimated that 19% of cancer cases are likely due to our deteriorating environment. The WHO has recognised environmental health impacts as a priority for the past several years. THE OECD estimates, for example, that atmospheric pollution produced by road traffic accounts for around 18,500 premature deaths each year in France, at a cost of 40 billion euros.

Despite the many actions taken by France over the past ten years, certain illnesses or diseases (asthma, cancer, diabetes, etc.) continue to rise, in France as in all other developed nations. Each individual reacts differently depending on their age, health condition, genetic predisposition or environment. Exposure also varies according to geographic location and lifestyle. Low-income urban populations are therefore more exposed since they live in territories where risks and pollution that qualify as "environmental black spots" accumulate. These environmental inequalities are still not being properly addressed.

New risks are also emerging related to profound changes occurring in technological innovation and lifestyles. These "emerging" risks (non-ionising radiation, nanomaterials, endocrine disruptors, biological agents, etc.) are sources of uncertainty, and even debate, with respect to the objective difficulties of identifying and gauging their effects, especially the combined effects of different substances ("cocktail effect") on health. Limiting exposure to the public and vulnerable citizens in particular to these risks is an important public health issue.

The ecological transition entails shifting towards a new economic and social model, a model that updates the ways in which we consume, produce, work and live together. The ecological transitions goes beyond a greening of our current model of society. It is underpinned by two essential and inseparable components:

- **Social and societal innovation** accompanied by a reform of our ways of thinking and our cultural foundations: the ecological transition implies introducing new modes of governance, action, new and more sober ways of production and consumption that are designed and shared by all actors in order to gradually build new cultural collective references.
- **Technological innovation** and research and development in the area of organisation and industrial processes : it is important to explore all the possible opportunities for saving natural resources and reducing environmental impacts. This is the case in particular for sectors that traditionally renew infrastructure and equipment at a slower pace (energy production, construction, transport, etc.), for which the decisions made over the next few years will be decisive for setting the long-term trajectory.

By combining social and societal innovation with technological innovation, it will be possible to harness progress in the interests of renewed prosperity and a new model of society based on "consuming better" and "living together better", establishing a way out from the binary choice between growth model and degrowth model and instead focussing on the qualitative aspect of development.
The flow of public and private funding will be an important factor in achieving a transformation on this scale, for the ecological transition requires significant investment in the years to come. The objective here is not to provide additional funding to cover the short or medium-term extra-costs incurred by the ecological transition, but rather to send the right signals to redirect existing savings.

Resistance to change is one of the barriers hindering general support for the ecological transition and the deployment of these new directions. Reluctance to change in behaviour and practices is all the more apparent in the current economic crisis, and it runs the risks of drastically delaying the much needed transformation of our economy and our society. The social, economic and environmental cost of inaction will be particularly high for our children and future generations.

The ecologocal transition, however, represents a potential solution to the crisis, by being a lever for economic growth, one that respects environment, creates jobs, increases household spending power and gives businesses a competitive advantage. The ecological transition can and must also be a driving force for social progress, helping to reduce social inequality in all its forms through the implementation of appropriate support policies to remove barriers, encourage collective support and create opportunities for all with short, medium and long term benefits.

Moving beyond sectoral policies and isolated, short-term actions is the whole purpose of the national strategy for the ecological transition towards sustainable development which presents an integrated (environmental, economic and social) and shared vision for 2020. It hopes to tread a path towards a more moderate and more exemplary society.

The SNTEDD 2015-2020, nine goals to make the environmental transition a reality

In line with the mobilization of stakeholders initiated by the National Sustainable Development Strategy 2010-2013, which preceded it, the SNTEDD 2015-2020 sets France on a new path to sustainable development by establishing a cross-cutting and long-term vision which meets the interdependent challenges of the ecological transition and their economic and social implications.

The purpose of the SNTEDD, established for the period 2015-2020, is to reconcile long-term and short-term interests and encourage the gradual and long-lasting ownership of the ecological transition by all stakeholders. This consists of identifying today the priority directions that will initiate a process whose results might not be fully seen for several decades to come, owing to the time necessary to change our lifestyles and update infrastructures. However, the ecological transition should not be seen as making a sacrifice today for a brighter future tomorrow. For example, 75% of housing units to be inhabited in 2050 have already been built. That means there are 25 million primary residencies ready and waiting to be renovated, the fruits of which will be reaped further down the line. Myriad solutions must be implemented right now if we want to see the benefits in the years ahead. The 2020 target coincides with numerous other objectives and deadlines decided at the national, European and international levels.

Multiple thematic or sectoral strategies already exist (National Biodiversity Strategy 2011-2020, National Adaptation to Climate Change Plan 2011-2015, National Strategy for Flood Risk Management, the third National Environmental Health Plan, the Agriculture and Environment Plan, etc.) or are in the process of being drafted (Low-Carbon Strategy, National Strategy for the Sea and Coasts, etc.) in relation to the ecological transition. The SNTEDD is the latest of these strategies and provides a coherent framework for the others. It draws on earlier strategies, highlighting the key factors that will help meet the specific challenges and needs of the ecological transition, and provides a framework into which future strategies will be integrated.

More generally, since the ecological transition touches on all public policies, the SNTEDD must also irrigate the various strategies dealing with industry, research, education, health and so forth.

The 9 goals of the SNTEDD 2015-2020

a more moderate society by 2020	levers to accelerate and guide a changing society	educational tools and governance to promote appropriation and action by all
Goal 1: Developing sustainable and resilient territories	Goal 4: Inventing new economic and financial models	Goal 7: Educating, training and raising awareness for the ecological transition and sustainable development
Goal 2: Engaging in a circular and low-carbon economy	Goal 5: Accompanying the ecological transformation of economic activities	Goal 8: Mobilizing stakeholders at all level
Goal 3: Preventing and reducing environmental, social and territorial inequalities	Goal 6: Guiding knowledge production, research and innovation towards the ecological transition	Goal 9: Promoting sustainable development at European and international levels

Through these 9 cross-cutting goals, which have been subdivided into priorities, the SNTEDD 2015-2020 identifies the paths it invites all public and private actors to take and forge to make this ambition a reality. The SNTEDD presents a common vision to promote a shift towards a more resource-efficient society by 2020 (goals 1 to 3), recommending appropriate levers to accelerate and guide the transformation of the economic and social model (goals 4 to 6) and strengthening education and governance to foster appropriation and action by all (goals 7 to 9).

These nine goals are inextricably linked aspects of the change to be initiated and are mutually reinforcing. The ecological transition is not a miracle cure or a breakthrough technology. It is through concerted action by all actors on all available levers that the ecological transition will become a reality, making use of regulatory tools, incentive-led measures and voluntary approaches as well, as short, medium and long term policies.

A strategy that works for an ecological transition which is everybody's business

Enshrined in the principles of the Rio Declaration of 1992, established within the framework of the European Sustainable Development Strategy (2006-2011) and in line with the previous National Sustainable Development Strategy, the SNTEDD 2015-2020 provides a unifying framework for making the ecological transition a shared and structuring objective for strategies and actions undertaken by public and private actors. It represents a collective point of reference for the contribution of everyone to the response to national and global challenges.

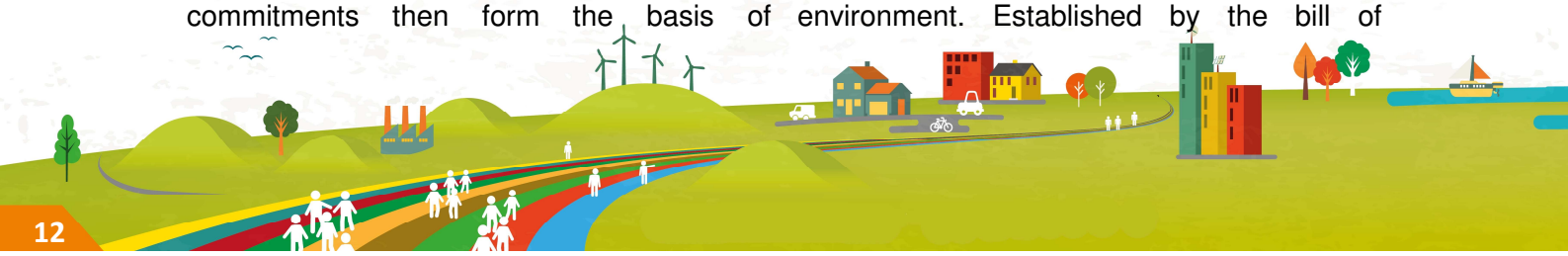
The SNTEDD ensures that a coherent framework is established for public action undertaken in favour of the ecological transition. It provides objectives that are transposed and applied in the directions set forth in framework documents for public action in territories (State-Region Plan Contracts, etc.).

The French State is redirecting its public policies by mobilising the entire government. In 2012, President François Hollande decided an environmental conference would be held every year bringing together society's stakeholders and leading to the adoption of a governmental roadmap with tangible commitments in favour of the ecological transition in several key areas. These commitments then form the basis of guidelines that the Prime Minister sent out to each minister.

The annual cycle of the ecological transition, which translates the government's continued engagement underpinned by a reformed environmental governance, is today extended by the SNTEDD 2015-2020 through its tangible objectives. Year after year, the environmental conferences and associated follow-up initiatives contribute to the effective long-term implementation of the environmental transition by taking stock of the progress of the projects underway, aligning resources with targeted objectives and formulating a new work agenda for the following year.

The SNTEDD underlines the need for synergy between public and private actors. These include all stakeholders from civil society, territorial authorities, associations, businesses and citizens who or which through their initiatives will gradually formulate a new development model. The SNTEDD will facilitate for as many actors as possible appropriation of the challenges triggered by the ecological transition and the solutions to come up with, supported by shared objectives and priorities.

France's National Council for the Environmental Transition (CNTE) is a body that serves as a forum with civil society presided over by the minister for the environment. Established by the bill of

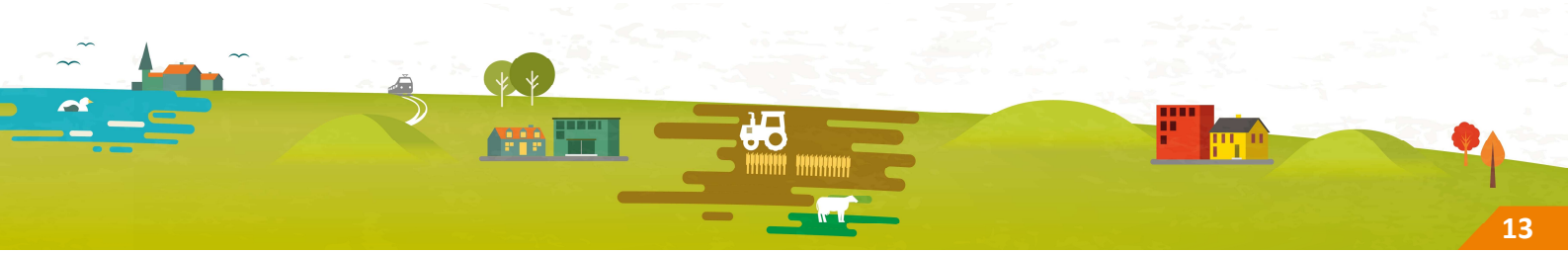


27 December 2012 on the implementation of the principle of public participation set out in article 7 of the Environmental Charter, the CNTE is associated with bills and projects working in favour of the ecological transition, among most important of which is the SNTEDD. Its purpose is also to oversee its deployment.

Pursuant to article 1 of act no. 2009-967 of 3 August 2009, the SNTEDD was formulated in consultation with all stakeholders from civil society, representatives of local authorities, employers, trade unions, citizens and members of Parliament. It was also submitted to the CNTE for consultation, which delivered its opinion on 26 January 2015, and to public consultation via the Internet. Inputs from philosophers, sociologists, economists and other academics have also enriched the SNTEDD in terms of content and its conditions for implementation to support the change of culture and behaviour prompted by the directions of this strategy. The SNTEDD was adopted by the Council of Ministers on 4 February 2015.

To support the SNTEDD's long-term ambitions, this document may be adapted and updated during the period 2015-2020 in accordance with major national, European and international developments, notably with regard to the future European sustainable development strategy and sustainable development goals (SDGs) being formulated at the international level. Any adaptation to the SNTEDD may also be inspired by best international practices, in particular from Member States of the European Union, in respect of public policies.

An annual report providing a progress report on the implementation of the SNTEDD 2015-2020 will be submitted to Parliament and also to the CNTE for approval. The Interministerial Delegate for Sustainable Development will be tasked with coordinating the drafting of this report. This report will be based above all on the monitoring indicators defined for this strategy.



SNTEDD 2015-2020 implementation and monitoring

Implementation within public authorities

At the national level:

Each ministry, notably through contributions from the Committee of Senior Officials for Sustainable Development, is involved in the formulation, implementation and monitoring of the SNTEDD 2015-2020. This network is overseen by the Interministerial Delegate for Sustainable Development which presides over the committee meetings (art. D134-11 of the Environmental Code).

- The ministries are invited to compare public policies they are responsible for with the objectives and priorities of the SNTEDD in order to identify directions to take.
- The Senior Officials for Sustainable Development within each ministry are appointed to set up a broad internal governance structure whose role will be to prepare a joint contribution of their administration with the SNTEDD, coordinate the elaboration of strategies and related action plans, and monitor their application. For this purpose, they can seek support from the departments within the General Commission for Sustainable Development and from training organisations (help building internal networks, training up "SNTEDD ambassadors", methodology, etc.).
- Each year, the ministries, through their Senior Official for Sustainable Development and steered by internal facilitation bodies, will provide a progress report on the implementation of the SNTEDD to the Interministerial Delegate for Sustainable Development in charge of drafting the annual report for parliament and overseeing the ministerial guidelines. To this end, the Senior Official for Sustainable Development will produce a report for the end of May of each year outlining the actions and policies contributing to the ecological transition towards sustainable development for their ministerial remit and including contributions from decentralised services. The methods for implementing monitoring processes are specified within the framework of the Committee of Senior Officials for Sustainable Development.

The ministries will also oversee that the operators and public bodies under their authority factor in the objectives identified by the SNTEDD, in particular when the time comes to renew agreements on objectives or performance. As organisations, the State's central and decentralised departments and its public bodies are concerned by the principles of social responsibility. The circular relating to the "Exemplary Administration" action plan stipulates in this respect that by 31 December 2016 all State-owned public establishments and operators with more than 250 staff will incorporate environmental criteria into their internal operations. The ministries may also encourage this same procedure for smaller entities under their authority. Other national public entities can volunteer to adopt the same procedure by contacting the Interministerial Delegate for Sustainable Development.

At the territorial level:

The territorial level, at which public policies are implemented, allows for greater ownership of the ecological transition and sustainable development challenges by stakeholders that share a same territory. Due to its scope and the objectives it sets out, the SNTEDD requires change of all public policies to achieve the ecological transition towards sustainable development and involves all of the State's services. It is an essential tool for fostering a coherent cross-cutting approach to State action across the territory, promoting behaviour change among

public and private stakeholders and contributing to the emergence of new practices for businesses and citizens. Regional prefects, chief justices at the Ministry of Justice and school commissioners are in charge of incorporating the objectives of the ecological transition towards sustainable development into the deployment of public policies, programmes and actions under their responsibility. In particular, State-Region Projects Contracts (CPER) 2015-2020 have established a framework that promotes implementation of the SNTEDD at the regional level by including the ecological transition in their objectives. In this respect, the DREALs (Regional Directorates for the Environment, Development and Housing) are essential mechanisms which Prefects can work with to define and lead the SNTEDD at the territorial level.

To facilitate the mobilization of numerous local actors with regard to the ecological transition, the formation of regional ecological transition committees (CRTE) bringing stakeholders together will be encouraged, in conjunction with regional councils and regional economic, social and environmental councils (CESER). These platforms for discussion, analysis and evaluation could provide an efficient open forum to promote the emergence of a common culture for all stakeholders and in consequence the behaviour changes that are vital for the implementation of the ecological transition towards sustainable development.

Formulated in consultation with stakeholders within the CNTE and based on objectives defined collectively, the SNTEDD 2015-2020 is designed to be used by local partners and in particular local authorities whose new competencies and new organisation reinforce the role.

At the crossroads of local challenges, the national objectives of the SNTEDD and the five targets of sustainable development (Art. L.110.1 of the Environmental Code: fight against climate change; preservation of biodiversity, natural environments and resources ; social cohesion and solidarity between territories and generations ; well-being for all of humankind ; a development model based on responsible modes of production and consumption), local authorities will pursue the formulation and deployment of regional sustainable development projects and local Agenda 21 projects with support from State services. In addition, special regional conventions could be agreed between the State and either individual or groups of regional authorities (Art. 254 of the bill of 12 July 2010 concerning the national commitment to the environment) in order to support the actions in favour of achieving the objectives of the SNTEDD.

Ownership by civil society and synergy of action: The voluntary commitments

Deploying the SNTEDD requires the engagement of all actors if it is to strengthen individual and collective capacity to take action. Accordingly, public and private moral persons are invited to support, through a process of voluntary participation, the vision, ambition, governance principles, directions and objectives set forth by the strategy. This process will make it possible to provide a framework for and extend their actions in favour of the ecological transition towards sustainable development.

Voluntary commitment is required for all or several of the nine goals set by the SNTEDD. In addition to the cross-cutting approach adopted in order to combine environmental, economic and social dimensions, voluntary commitment translates into a set of concrete actions to implement and measurable objectives (quantifiable targets and indicators). Voluntary commitment must be integrated into a shared system of governance and/or a participative system which engages the various partners externally and contributes to promoting ownership of the challenges internally. Ambitious participation is essential, since the process goes beyond legal and regulatory obligations and commitment is signed at the highest level. Lastly, voluntary participation respects the principle of continuous improvement, i.e. the objectives and actions of the project will evolve and integrate into a progressive ambition, in order to constantly raise the organisation's level of environmental performance.

Following the annual call for participation, voluntary actors will submit a participation dossier including a description of the project, its partners, its scope of action and its objectives accompanied by outcome indicators. This dossier will be examined by the Office of the Commissioner General for Sustainable Development (CGDD) then validated by a special commission within the National Council for the Ecological Transition (CNTE). Once approved, the term of voluntary participation is three years. The volunteer will be asked to present a progress report midway during the term and then, at the end of their participation, a more in-depth report will be submitted and assessed by the CGDD and the CNTE's special commission. Following the assessment, the participation may be extended for a further two years. Participation is possible through the entire period of the SNTEDD. Voluntary participation by stakeholders will notably be highlighted in the annual progress report of the SNTEDD.

SNTEDD monitoring indicators

Monitoring indicators have been defined to measure the impact of actions and public policies established within the framework of the SNTEDD.

A special commission was set up at the National Council for the Ecological Transition (CNTE) by the decree of 16 August 2013. This commission is tasked with defining national indicators to gauge the progress of the ecological transition and the green economy. Presided over by the head of the Statistics and Observation Department at the French Ministry for the Environment, Sustainable Development and Energy (MEDDE), the commission is composed by members of the CNTE, representatives from State statistics departments and qualified individuals.

The indicators were chosen based on the following main criteria : relevance to the subject; clarity; supported by a robust methodology; continuity over time and geography, and the availability of data for quantification.
Many of the chosen indicators allow for international comparisons to be made, particularly at the European level, and translate territorial concerns to local objectives.

As much as possible the commission has relied on the efforts carried out by observatories specialising in specific topics, such as France's National Observatory for Biodiversity or the working group dedicated to indicators for the circular economy.

A dashboard made up of 39 key indicators was established, composed of:

- on the one hand, 22 monitoring indicators for the four major challenges identified in the strategy (climate change, accelerated loss of biodiversity, resource scarcity, increase of environmental health risks);
- and on the other hand, 17 top-level indicators designed to monitor the nine strategic objectives.

To complement this dashboard, second-level indicators have also been defined to track the nine objectives.

The special commission will regularly report back to the CNTE on the progress of these indicators. An annual summary, presenting the evolution of the dashboard and based on the results of the top-level indicators, will be included in the annual strategy implementation report submitted to parliament after approval by the CNTE. A detailed report, retracing the evolution of all the indicators (second-level ones included) will be examined by the special commission and then published on line.

The work carried out by the commission has also brought to light recommendations for further indicators to be explored in view of monitoring certain priorities defined in the SNTEDD more closely. A number of new indicators may be introduced to complete and refine how the SNTEDD is monitored through the course of its implementation.

Dashboard of essential monitoring indicators for the SNTEDD 2015-2020

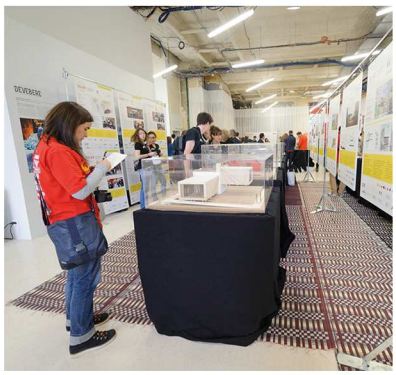
MONITORING INDICATORS FOR ENVIRONMENTAL CHALLENGES			
CLIMATE CHANGE	ACCELERATED LOSS OF BIODIVERSITY	RESOURCE SCARCITY	ENVIRONMENTAL HEALTH RISKS
Greenhouse gas emissions across the national territory: since 1990, total and by economic sector	soil sealing	Domestic consumption of materials and material intensity	Air Pollution Index in urban environments
Carbon footprint of final domestic demand	Common/specialist bird populations	Fossil fuel consumption	Pollution index for waterways (nitrates, phosphates) and groundwater (nitrates)
Temperature in mainland France since 1901	Consumption of plant protection products	Price of raw materials: oil and gas	
Concentration of carbon in the atmosphere (world level)	State of conservation of natural habitats	Proportion of the territory occupied by sealed land, farmland and natural and forest spaces	
Displacement of species caused by climate change	Proportion of extinct or threatened species in the Red List	Quality of waterways and groundwater tables (water framework directive)	
Number of very serious natural disasters	State of health of coral reefs	Population at risk of energy vulnerability	
Population and housing in low-elevation coastal zones exposed to risk of sea flooding			
Amount of compensation paid by insurers following natural disasters			

MONITORING INDICATORS FOR STRATEGIC OBJECTIVES (TOP-LEVEL)	
OBJECTIVES	INDICATORS
1. Developing sustainable and resilient territories	Level of qualification of young people by employment area
	Population exposed to risk of flooding by waterway
2. Engaging in a circular and low carbon economy	Material production and domestic material consumption per capita
	Final energy consumption, energy intensity, and by sector
	Rate of municipal waste recycling
3. Preventing and reducing environmental, social and territorial inequalities	Life expectancy: disparities by socioprofessional category, region and gender
4. Inventing new economic and financial models	Environmental tax revenues as a proportion of total tax burden and GDP
	Proportion of investment in the energy economy in the industrial sector
	Socially responsible investment (SRI) bonds
	Green bonds
5. Supporting the ecological transformation of economic activities	Added value of eco-activities
6. Guiding knowledge production , research and innovation towards the ecological transition	Public and private R&D expenditure including that earmarked for the environment
7. Educating, training and raising awareness of the ecological transition and sustainable development	Number of students in final year of initial environmental studies
	Number of education projects on sustainable development in primary, middle and secondary schools
8. Mobilizing stakeholders at every level	Number of local Agenda 21 projects and proportion of the population concerned
9. Promoting sustainable development at the European and international levels	Official development assistance as a proportion of gross national income
	Amount of official development assistance invested in biodiversity and the climate

Indicators in the exploratory phase shown in italics

The 9 transverse goals of the National Strategy of Ecological Transition towards Sustainable Development







Defining a 2020 vision

GOAL 1 — Developing sustainable and resilient territories

GOAL 2 — Engaging in a circular and low-carbon economy

GOAL 3 — Preventing and reducing environmental, social and territorial inequalities

Transforming the economic and social model for green growth

GOAL 4 — Inventing new economic and financial models

GOAL 5 — Supporting the ecological transforamtion of economic activities

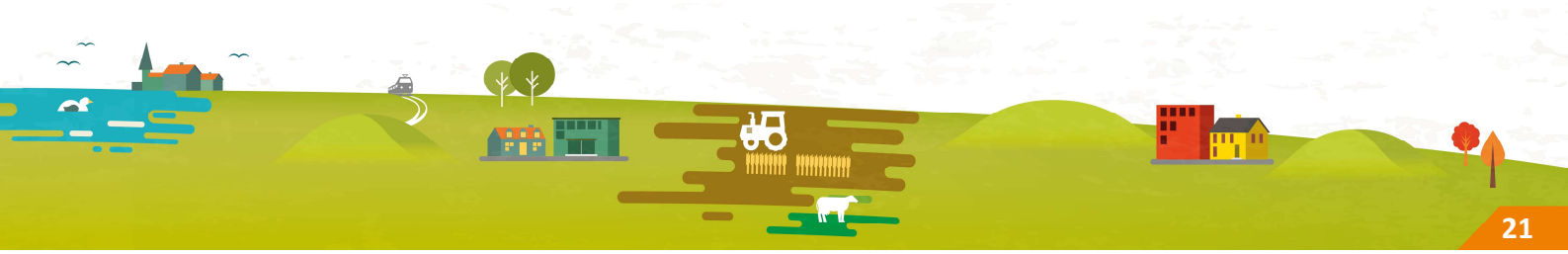
GOAL 6 — Guiding knowledge production, research and innovation towards the ecological transition

Creating ownership of the ecological transition

GOAL 7 — Educating, training and raising awareness of the the ecological transition and sustainable development

GOAL 8 — Mobilizing stakeholders at all levels

GOAL 9 — Promoting sustainable development at European and international levels



GOAL 1 Developing sustainable and resilient territories






PRIORITY 1

Maintaining capacity of territories to provide and benefit from ecosystem services

PRIORITY 2

Ensuring resilience of territories

PRIORITY 3

Developing sustainable urban models

PRIORITY 4

Co-constructing territorial sustainable development initiatives

MONITORING INDICATORS FOR GOAL 1
Level of qualification of young people by employment area
Population exposed to risk of flooding by waterway
Farmland and natural and forest spaces consumed by soil sealing
Surface of wooded areas
Use of public transport for home-work journeys
Travel time to work by car in urban areas
Number of local Agenda 21 projects and proportion of the population concerned
Proportion of national territory covered by Coherent Territorial Planning Schemes (SCoT) including objectives for preserving biodiversity and limiting land consumption

Top-level indicators in bold (same in the essential indicators dashboard)

The territory, in its definition as a physical area, is the place where interactions between human activities and ecosystems are formed and expressed. Such interactions between natural, social and cultural factors are multiple, complex, interwoven and occasionally contradictory. Levers of action at the territorial level share a common goal: to establish a dynamic balance to maintain a territory's capacity for adaptation and forward planning, an essential requirement in the context of global change. Furthermore, the aim is to reclaim the territories, restore the landscapes and living spaces, recreate a sense of belonging to a territory and maintain or create economic, cultural and social appeal.

Human activities depend either directly or indirectly on ecosystems and the services they provide. Natural renewable resources represent environmental capital that we need to preserve: agriculture, forestry and fishing are, for example, activities directly dependent on nature. Biodiversity is a source of innovation (biomimicry, active substances, etc.) and holds significant potential value. But other activities also directly depend on the ecological capital, such as research and the green economy.

Ecosystems also have a regulatory effect in the wake of natural events or pollution: the regulation of rain and floods; the self-purification of soil and water or particular types of waste; the storage of carbon and so forth. A sustainable and resilient territory can fully benefit from these regulatory services putting it in a position to continually adapt to change, whether it be at the local or wider level. The restoration of biodiversity must therefore be envisaged not merely for its own sake (for ethical reasons, linked to the intrinsic value ascribed to nature) but also for the services it provides.

Conversely, human activities, which by their nature are carried out in territories, have an impact on ecosystems and how they function. This impact can be positive : in mainland France, all ecosystems have in one way or another been moulded by humankind, by farmers in particular. Agricultural and forestry activities, which occupy over three-quarters of the territory, therefore play an essential role. This is the main concern driving the shift of our agricultural practices to agro-ecology and ensuring forestry remains sustainable as well as associating all users of our natural resources with a balanced management of the different spaces, and "ordinary nature" in particular.

Due to the transformation of modes of production that occurred in the 20th century, accompanied by significant urbanisation, the growth of metropolises at the expense of rural areas, and evolving mobility needs, human activities have generally exerted increasing pressure on our natural resources and environments : soil sealing, habitat fragmentation (urban sprawl), pollution, overexploitation of natural resources and species, climate change and so forth. The process initiated by the Environmental Conferences, which dedicated round tables to biodiversity and water policy, must in this respect be pursued further so as to reduce this kind of pressure.

France contains a wide variety of territories within its borders, be they urban, rural or intermediate, each with its own individual characteristics. Rural areas, which cover two-thirds of French national territory, hold considerable environmental capital that must be protected. At the same time, it is important to maintain the balanced development of the local economic fabric. Coastal territories are particularly rich or remarkable from an ecological perspective. This limited space, particularly attractive and exposed to natural risks, is under increasing land pressure. The need for a sustainable development approach in these territories is all the more justifiable. Urban territories, which are home to 80% of the French population, constitute ecosystems in their own right where friction

between human activities, actions to preserve our natural environments and natural risks are expressed with growing intensity. Overseas territories are rich reservoirs of biodiversity. These insular areas are especially rich and fragile, which makes them ideal for ongoing experimentation.

Interactions between human activities and ecosystems also change dynamically over time : climate change and its consequences on managing natural risks alter the nature or scale of the pressure exerted on a given territory.

The successive steps in the decentralisation process have given and will continue to give territories and territorial authorities an even greater role. Positive interactions between humankind and its environment can be encouraged through territorial sustainable development projects that can unite actors and identify and promote a territory's assets, in particular all its vital forces, through a process that fosters progress and networking, while integrating fully within its environment.

PRIORITY 1

Maintaining capacity of territories to provide and benefit from ecosystem services

Each territory has its own resources, its own potential of services provided by nature, which differ from one territory to another. The goal therefore is to identify and preserve this potential but also share it with other territories. Some territories are bigger consumers of resources (urban areas), while others produce more resources (rural areas). Some are remote regions (overseas territories, mountain areas) while others are highly dependent on neighbouring lands (sea and coastal territories). The relationship between these territories needs to be re-examined from the fresh perspective of the needs and objectives of the environmental transition, reinforcing the principle of

LAND DEVELOPMENT

For 20 years, **natural spaces have been in decline** to the benefit of ground that has been built on, covered or stabilised (roads, car parks, etc.)

environmental solidarity : the purpose of the bill on biodiversity will be to enshrine this principle in the everyday reality of our territories. These interdependent relations will be takeb into account by offering an alternative approach to managing space to combat the fragmentation of both natural and urbanised land. The National Biodiversity Strategy 2011-2020 already provides a coherent framework uniting all the stakeholders around a common goal to preserve, restore, strengthen and promote biodiversity. It will be reinvigorated to improve the link between the voluntary participation of different actors and the approaches of each territory, in conjunction with the regional biodiversity strategies rendered compulsory by the bill on biodiversity.

The introduction of a **protection scheme for natural spaces and landscapes,** whether they be considered remarkable or ordinary, will now be considered as both an opportunity to prevent the destruction of our environmental and cultural capital as well as a social and economic opportunity. The natural marine park in Arcachon and the regional nature parks in Marais Poitevin and the Gulf of Morbihan, which have either been created or redeveloped, fit perfectly into this approach, as does the national forest planned for the Champagne and Burgundy region. Furthermore, if we are to create a coherent and continuous environmental infrastructure that provides places where animals and plants can live, feed, reproduce and sleep, it is important to **accelerate the creation of green and blue corridors** and to develop the concept of the **"navy blue" corridors** and the **implementation of regional environmental coherence schemes,** in conjunction with the other regional schemes to ensure a greater impact. The fight against habitat fragmentation also requires prioritising the preservation of waterways and wetlands and the development of agro-ecological infrastructures (hedges, copses, lawns, grasslands, ponds and so forth), by extending the wetlands programme launched in May 2014.

To streamline local resource management and ensure the preservation of rare resources such as land, **a fresh approach is needed to limit soil sealing and the consumption of farmland**. The law for the future of agriculture, food and forestry of 13 October 2014 contributes to the reduction of soil sealing, just like the Housing Access and Reformed Urban Planning Act of 24 March 2014, which defines the legal framework for a city that is denser but consumes less space and encourages densification,. These legislative changes will allow the formation of local territories where the uncontrolled urban sprawl of cities into the suburbs (business parks, residential suburbs and the like) will no longer be the norm.

The phenomenon of soil sealing is continuing: between 1992 and 2003 land was sealed at a rate of 610 sq.km a year. Between 2006 and 2012, this rate increased to 680 sq.km a year, although this figure has fallen since 2008 (source: Teruti-Lucas Survey, 2012). The increase in soil sealing is more prevalent in coastal municipalities than in other types of territory. The land in two-thirds of coastal areas has not been sealed but no protection is in place to limit soil sealing. One-third of coastal municipalities are characterised by high demographic pressure, low rate of soil sealing and a low level of protection: these areas are particularly under threat from coastal soil sealing. To combat this phenomenon, one third of France's coastline will be protected by 2050. Special efforts will be made to protect overseas coastal ecosystems, notably mangroves in light of their vulnerability and their particular ecological interest.

Maintaining the capacity for resilience of territories and their related ecosystems needs to be complemented by measures to

limit environmental pressures on regions (air, water, land) and restore ecosystems.

Priority must be given to preventive actions, to help limit and reduce pollution at its source, rather than corrective actions, carried out after the pollution has been identified and which are generally costly and technically difficult to implement. Best practices already in place at the territorial level should be encouraged and, accordingly, the action in favour of "clean land without pesticides" needs to become universal in order to eliminate plant protection products from use in public spaces. With regard to current technology and knowledge, the mining of shale gas will nonetheless be excluded. The "avoid, reduce, compensate" doctrine that applies to planning projects is also conducive to help France meet its community and international commitments in terms of preserving natural environments.

At the territorial level, the ecological transition and the development of regional industrial ecological practices need to be encouraged in order to **foster a more sustainable process to maximise local resources (cf. goal 2). The State will support and guide actors setting up territorial industrial ecology projects:** reuse and re-employment, reprocessing and recycling (water, manure from livestock, substances, waste, etc.); pooling of resources; co-production or joint production on a same site; decentralised energy production; cogeneration projects capable of maximising local resources, supplying renewable energy and supporting rural industrial activity; developing short supply chains (food and non food) to set up local economic sectors when the environmental footprint is positive. This process need to harness the support of the local economic fabric, in particular local businesses, and voluntary initiatives set up by businesses. Public-private partnerships, such as the LEADER[2] community initiatives funded by the EU and introduced to support pilot local development projects in rural areas, have a contribution to make.

By virtue of its interactions with and interdependence on the environment, special attention will be given to developing the agricultural model. In this respect, **agro-ecological practices, the preservation of territorial diversity and the fight against soil sealing** require further exploration. The Ecophyto plan will be revised to ensure it effectively meets its target to reduce usage of plant protection products by 50%. The Law for the future agriculture, food and forests will provide new tools for developing collective voluntary initiatives at the territorial level in order to render existing production systems more economically and environmentally efficient. The new Common Agricultural Policy (CAP) offers opportunities to help support the shift of French agriculture to an agro-ecological approach and promote agricultural systems that incorporate how ecosystems function into production systems. Deployment of the CAP in France should contribute to the development of a more efficient and environmentally friendly agricultural system. It will dovetail with the water policy to help meet the target to restore the country's bodies of water. In application of the principles defined in the communication of July 2014 from the Council of Ministries, the new Water Planning and Management Programmes (SDAGE) 2016-2021 will prioritise efforts to combat diffuse agricultural pollution and ensure actions on hydrographic basins are implemented as effectively as possible at the territorial level.

2 A French acronym meaning "Linking development actions in the rural economy"

Agro-ecology is a programme designed to encourage shared agriculture between all actors in the sector: State, industries, farmers. etc. Its aim is to combine the environmental dimension with health, economic, human and social dimensions and identify potential ways to create and mobilise resources and jobs. These dimensions must first be approached in a comprehensive and coherent manner, integrating the systemic nature of farming and how it interacts with its environment. In particular this will entail the sparing use of inputs (fertilisers, plant protection products) and water and energy resources; the diversification of successive crops; greater autonomy for animal production sites and the development of collective action. This concerns both production as well as training, awareness and assistance for actors.

The **development of organic farming**, particularly in the most vulnerable areas (extraction of drinking water, fragile environments) will also be encouraged as part of the Ambition Bio 2017 programme, one target of which is to double the area of organic farmland compared to 2012. The moratorium on genetically modified crops will be maintained. Special attention will be given to France's woodlands in order to **implement a sustainable forest management programme** that will cover the preservation of France's biodiversity, the production capacity of France's forests and the attractiveness of woodlands for all uses.

Sea and coastal areas are a concentration of many uses and activities and also offer a wealth of resources in terms of biodiversity and ecosystems. Most pollution of sea and coastal water can be traced back to the mainland. This type of pollution not only affects natural environments and biodiversity, it can also compromise the safety of certain activities (fish farming, fishing, swimming, etc.). Reducing this pollution at source is therefore a priority. **The strategy framework directive for the marine environment** aims to preserve and restore marine and coastal ecosystems by reconciling the different uses and fully integrating the land-sea interface. Fishing activities will also have to adopt practices that are more respectful of ecosystems.

PRIORITY 2

Ensuring resilience of territories

Territories are increasingly vulnerable in the face of natural, technological and health risks in a context of major economic, social and environmental change. Territorial resilience is a crucial means to overcome crisis situations and commit territories to a longer-term strategy that integrates risks and draws on local strengths and potentialities as well as the development of relations and partnerships established between urban, peri-urban and rural areas.

Resilience implies a combination of robustness (resistance to sudden events and changes) and capacity for adaptation (capacity to accept any changes). It can come into play following an unexpected occurrence (environmental or natural disaster) or in the event of a gradual change such as the effects of climate change or a sharp economic downturn.

Reinforcing resilience is a positive and dynamic initiative that must be embedded in

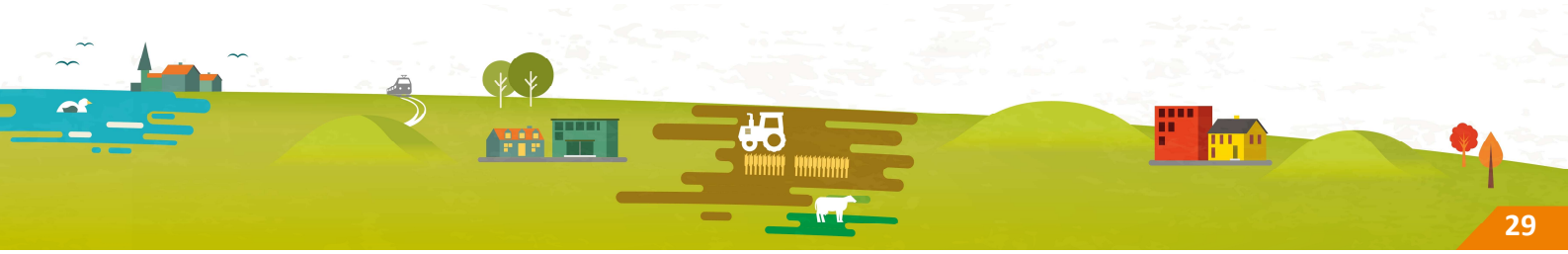
the diversified territorial fabric and underpinned by the territory's capacities. **Identifying and promoting the potentialities of a territory** (population, amenities and natural resources, heritage, landscape, accessibility to urban and rural jobs and services) **and local strengths** on which they can find support should constitute a preliminary stage to the implementation of any territorial resilience strategy. Demarcating the territory concerned will be based on identifying the causal links, synergies and solidarity that pre-existed between local actors. The role of local biodiversity with respect to resilience, through the services it provides and the diversity of its constituent species, will also be developed, notably in the face of climate change.

A shared and equitable governance system for all stakeholders (local politicians and technicians, economic and social actors, citizens) must be established for any period of crisis management as well as the ensuing period of reconstruction and return to normalcy in order to formulate and implement integrated strategies to support unifying projects. This governance must be established not merely in periods of crisis, but also within a more general framework for joint discussion between territories. It will be underpinned by **greater civic responsibility from citizens who will be better forewarned and forearmed in terms of risk.** The planned reform of the national insurance programme in the event of natural disasters demands greater accountability from stakeholders, but this must not be achieved at the expense of the primary principle of national solidarity.

Risk management must combine actions concerning land use, resource management, risk prevention, forecasts and alerts, construction, local economic development, risk culture, and social accessibility. Certain attractive territories, in particular those on riversides, in coastal areas and overseas that are subject to different types of vulnerability (risk of submersion, eroding coastline, industrial risks, sea pollution, risk of earthquakes in the West Indies) or mountain areas subject to multiple risks (floods or mudslides, landslides, avalanches, ice sheets. etc.) need to be dealt with specifically. The greatest natural risk to which France is exposed is flooding. The national flood management strategy provides a framework and tools to enable each actor to play its own role in protecting people, reducing the cost of any damage and accelerating the end of crisis and the return to normal operations.

Foreseeable effects of climate change must be factored in as early as possible, notably through no-regret solutions (cf. objective 3). Furthermore, economic changes in a population catchment area also need to be anticipated and supported in order to create new territorial opportunities for growth and development (cf. objective 5).

Territorial resilience, as a long-term goal, **should benefit from territorial prospective studies to shed light on and anticipate future trends:** effects of climate change, consumption of natural spaces and farmland, urban-rural linkage in population catchment areas, social cohesion, economic hazards, demographic pressure and soil sealing in coastal areas, mountain tourism, mass urbanisation along the coastal fringe, particularly in France's overseas territories.



PRIORITY 3

Developing sustainable urban models

A predominant share of human and economic activities are concentrated in cities. These are also creative hubs in terms of culture, innovation and new practices and uses that contribute to the ecological transition. However, cities are also places where the majority of GHG emissions are produced and energy is consumed, places which increase pressure on the use of natural resources and are especially vulnerable to risks. At the intersection of innovation and pressure on resources, cities crystallise the challenges of the ecological transition and prompt us to re-examine their development model.

The transition to sustainable urban models will not be possible without **first defining a shared vision of the future of the city, by as many stakeholders as possible,** one that factors in the different economic, social, cultural, environmental and sports dimensions of urban territories and has contributions from all the stakeholders concerned: the State, territorial authorities, economic and social actors, and citizens. Indeed, the objective of the programming law for the city and urban cohesion is to recommend a new method to co-construct the city policy with citizens.

Developing sustainable urban models requires a **more moderate use of resources at all levels** (agglomerations, neighbourhoods, buildings). Particular attention must be given to planning of urban territories to manage the phenomenon of urban sprawl and its economic, social and environmental impacts on the organisation and functioning of cities and surrounding rural areas: increased energy consumption and greenhouse gas emissions, sound and light pollution, direct impact on the environment (loss of biodiversity; increased surface runoff and urban flooding; homogenisation of landscapes, etc.), disappearance of local agricultural areas and loss of agricultural potential; greater social inequality including phenomena such as spatial segregation and so forth. It is therefore essential to focus on the concept of proximity by promoting functional diversity, including how trade and crafts contribute to the dynamics and attractiveness of an urban territory. More compact urban forms also need to be prioritised, but they also need to be liveable, places where biodiversity and spaces to breathe are given due worth, strengthening interconnections between the city centre and its suburbs, in particular through short food supply chains. The regeneration of disused land is a real opportunity for developing new urban models and reviving the appeal of cities. A more efficient system for managing resources must be put in place, promoting recycling of resources, use of renewable energies and energy savings, in relation to buildings in particular (life-cycle analysis for buildings). The aspect of biodiversity needs to be factored in at the earliest stages of any project, in the design of buildings and urban forms and integrated into the infrastructures themselves. High standards in terms of sustainable development will be set in the urban renewal programme. New approaches to rebuilding cities within its existing limits will be developed. Urban agriculture, through communal gardens for families and other citizens, will also provide spaces for biodiversity as well as offering social and economic benefits.

Quality of life as well as the architectural quality of buildings, which increase a city's desirability, form an additional component of urban development that is more sustainable and more integrated. Cities develop, by virtue of their heritage and identity (which is more than their historic centres, but also encompasses the diversity of the urban landscape), a sense of

belonging, a factor of social cohesion. Projects aiming to **reclaim water or restore a city's natural landscape** improve quality of life and contribute to adapting a city to climate change, reduce pollution, protect biodiversity and save energy. Similarly, **action in favour of more sustainable mobility**, whether this be promoting private and public modes of carbon-free transport, new transport practices (carpooling, carsharing, etc.) or active mobility (bicycles, walking), contributes to improving a population's well-being and enhancing a city's attractiveness. To complement this, urban logistics have to be approached from the perspective of optimising delivery rounds and adopting carbon-free modes of transport for the final mile.

The development of new urban development models that are more sustainable and more favourable to public health, which intrinsically offer added-value in terms of services and quality of life, must benefit every citizen. We need to be vigilant and **put in place support measures to prevent all forms of insecurity and exclusion** engendered by the rising costs of transport and housing, the development of pay-for goods and services and growing technologisation prompted by the development of information and communication technologies.

Lastly, more efficient urban management practices should provide the means to produce better services at controlled costs (economic, social and environmental) by limiting negative impacts on the environment (improving air quality, saving water, energy, etc.). The objective is to **foster synergies between transport, urban planning, energy, water, housing and economic activities** to boost a city's overall performance greater than the sum of its parts. The development of information and communication technologies can foster these synergies and help establish more efficient cities by regulating the way in which utility networks function, optimising travel, streamlining logistics, encouraging the modal shift to more sustainable modes of transport (carsharing, active mobility) and so forth.

France is home to businesses that are at the cutting-edge in many sectors, including water, air, waste, transport, energy efficiency, environmental engineering and in every professional field, from architecture to industry and from engineering to services. **These assets**, which have an important contribution to make in respect of these changes in France, **must also be promoted at the international level**. This was the reasoning for creating the Vivapolis trademark and initiatives to export the sustainable city, the coordination of which needs to be stepped up.

The **smart city** is now a very promising area of innovation for cities but also for industrial stakeholders in the sectors concerned. Thanks notably to the Investment Programme for the Future (PIA), several French cities have signed up to participate in projects that promote the integration of infrastructures (transport, water, energy) or pooling of data. The European Commission also seized on the issue and made it one of its 12 priorities within the framework of the Horizon 2020 programme. A number of calls for projects will be launched during the period 2015-2020 to promote the implementation and deployment of innovation projects, which represent real opportunities for French cities.

PRIORITY 4

Co-constructing territorial sustainable development initiatives

The development of sustainable and resilient territories will be achievable only with the support of comprehensive and coherent territorial projects. Indeed, this type of project creates synergies between the actors, tools and sectoral policies to mobilise. It is the responsibility of local authorities to develop these projects, in close partnership with the stakeholders. These projects form the foundation of a strategy which aims at providing a coherent framework for public sectoral policies by integrating local challenges that dovetail with international, European and national challenges, hence the importance of ensuring the efficient coordination of levers of action.

Constructing a territorial project requires formulating a shared vision, a project to foster "living together", a common desire to shape a territory into becoming more resilient and more attractive, one that offers better quality of life. This project can only be devised by mobilising all a territory's constituent stakeholders, with particular attention given to forming associations of citizens.
Producing an initial join assessment, one that is precise, relies on spatial data and draws on existing documentation, **is essential in order to initiate dialogue between multiple stakeholders** and identify any changes and developments to implement. Such an assessment can be supported by numerous tools (environmental profiles, urban planning documents, sustainable development reports, inventories of local resources and inequalities, territorial forest charters, vulnerability to natural risks (notably flood plains), public health and habitat policies, city policies, culture, biodiversity atlas, etc.) to formulate a clearer vision of the situation and development trends (strengths, weaknesses, opportunities, risks).

A territorial project can only be adapted to the specific characteristics of the territory identified in the initial assessment. This assessment relies on parameters highly dependent on the local context to produce a territory-specific response. It must also dovetail with priority actions at the national level (employment, access to housing, professional integration of young people, reducing consumption of resources and land, access to essential goods and services, equal opportunities), as well as at the European and international levels (climate, etc.), notably by aligning with the framework set by the 1992 Rio Declaration and sustainable development objectives.

The ecological transition needs to be adapted to the different territorial levels in accordance with different sets of parameters : physical, geomorphological, landscape, economic (employment areas) and social (population catchment area). Regarding project implementation, the local level is increasingly proving to be the most beneficial for planning and coordinating policies, in close relation with other territorial levels (departments, metropolises, inter-municipalities, municipalities, hydrographic basins, coastlines, etc.).

Strengthened by decentralisation laws, territorial authorities have a major role to play in the project development process, notably in terms of driving innovation and bringing local initiatives together. To formulate, implement and monitor these projects, **territorial authorities will need to adopt an overall strategy for their entire territory, and an ambitious, multi-stakeholder governance system** to facilitate the sharing of information, the collective ownership of local and global challenges, a common vision of the transformation of the territory, and bear

the project management responsibilities demanded by territorial projects of this kind.

Public authorities must encourage them and assist them along this path: **the State should regularly oversee networks established between territorial** projects in order to foster interconnections, exchange best practices, increase their collective capacity and encourage continuous improvement. These objectives formed the basis of the reference framework and document for the strategic evaluation of regional sustainable development projects, local Agenda 21 initiatives and a system for recording these projects. These tools have helped boost the number of Agenda 21 initiatives undertaken by territorial authorities. Redefining the purpose of Agenda 21 initiatives as a strategic and political one marks a new phase, one that integrates the fresh identified challenges (territorial resilience, the ecological transition towards green growth, territorial industrial ecology, etc.). In this same vein, the national "Atelier des Territoires" (territories' workshop) run by the State helps local politicians by providing a multidisciplinary and external project team.

Territorial foresight

Identifying the challenges faced by a territory and setting objectives as part of a strategy form the basis of any Agenda 21 initiative and territorial sustainable development project. Territorial foresight is a useful tool for approaching such initiatives and promotes a collective approach to determining the future vision for a territory. It helps steer the direction of public policies by linking them to this future vision.

Furthermore, it is important to **ensure coherence between territorial projects**, either because they involve territories that are physically connected or because the territories are interconnected as part of a changing institutional landscape, notably owing to the rise of inter-municipalities.

For any project, it is necessary to **adopt tools for measuring and monitoring the shared impact of implementing projects,** notably working with local stakeholders and citizens. The objective, in response to the initial strategy, is to evaluate the transformation of a territory from a continuous improvement perspective (regional development indicators, drawing on national and regional observatories and regional networks, encouraging project evaluation practices).

GOAL 2 Engaging in a circular and low carbon economy

PRIORITY 1

Reorienting production, trade and consumption patterns

PRIORITY 2

Making our economy less dependent on non-renewable resources

PRIORITY 3

Developing a more resource efficient and innovation-based new industrial and agricultural policy

PRIORITY 4

Engaging territories and spurring local initiatives

MONITORING INDICATORS FOR GOAL2
Material productivity and domestic material consumption per capita
Final energy consumption, energy intensity, and by sector
Rate of municipal waste recycling
Volume of non-mineral waste taken to disposal facilities
Modal share of public transport (excluding flights) in the domestic passenger land network
Modal share of non-road transport for goods in the domestic goods land network
Number of bikes in the public hire scheme
Primary consumption of fossil fuels and volume of fossil fuels consumed as a proportion of primary energy consumption
Renewable energies as a proportion of gross final energy consumption
Nuclear power as a proportion of total electricity production
Electricity from renewable sources as a proportion of national electricity consumption and by region
Public and private R&D expenditure including spending on the environment
Investment in pollution abatement in the industrial and agrifood sectors
CO_2 emissions produced by the total car fleet
Total area of organic crops
Consumption of plant protection products

Top-level indicators shown in bold

The traditional linear "produce, consume, throw away" economic model has reached its limits. In thirty years from now, the world population will have risen by two billion individuals and in fifteen years time the middle classes will have grown by three billion people. Rich countries consume on average four times more resources per capita than poor countries. Continuing to consume resources at the current rhythm to meet our needs is not sustainable in the long term and the associated greenhouse gas emissions produced would cause irreversible climate change, while the biodiversity loss would have major consequences on our living conditions. The time has come to change this paradigm by accelerating the transition towards a more circular, resource-efficient, low-carbon and nature-friendly economic model. The World Business Council for Sustainable Development (WBCSD) estimates that we would need to increase resource efficiency by a factor of between 4 and 10 by 2050 to manage the[3] limited resources on earth.

This new circular, low-carbon and resource efficient economic model can be defined as an economic system of production, exchange and consumption designed and organised to minimise net extraction of resources (fossil fuels, raw materials, water, land, natural environments) and emissions of pollutants, sources of negative environmental and health impacts, at both a local and global scale.

The pursuit of sustainable economic growth and the preservation of our quality of life can only be possible if GDP growth can be decoupled from the consumption of resources and the associated environmental impacts. The goal of a decoupled economy, which France has enshrined in the bill on the energy transition for green growth also provides a framework for the European Commission's roadmap for a resource-efficient Europe and is an integral part of the EU growth strategy for the period 2010-2020. It is also the main objective of the EU's circular economy and waste package.

For decoupling to work, a cultural shift towards a more moderate and quality-based consumption needs to be promoted. Increasing resource productivity and reducing the environmental impacts also need to be made a central concern for economic actors who are having to start preparing for sweeping changes from today. In an increasingly globalised and interdependent world, these engagements will have to be shared by every country to avoid international transfer of environmental impacts and prevent distortion of competition. The development of international methodologies and standards (e.g. sustainability criteria for raw materials) will be fundamental in this respect.

In addition to the response it can bring to environmental challenges, this approach is also beneficial in terms of creating value and competitiveness for businesses, securing access to raw materials, reducing household dependency on resources and their fluctuating prices, and creating business and jobs, a proportion of which are non-relocatable. The potential annual savings to be made in Europe on raw materials alone are estimated at between 520 and 630 billion dollars, which represents 3.9% of GDP (based on 2010 figures – Source: Towards Circular Economy, Ellen MacArthur Foundation, 2013). It will require, however, significant financial investment and profound changes in certain sectors that will demand assistance from the State. These challenges are particularly prevalent in France's overseas territories due to their remote location. These places could become demonstrators of circular economy and low-carbon economy.

The forthcoming changes call for a strategic framework,

- one that promotes new modes of production and consumption;

3 Vision 2050, The new agenda for business, WBCSD, 2010

- offers economic opportunities and increases security of supply through a new approach to product design, the promotion of re-use, recycling and substitution of materials, the reduced consumption of resources and the development of renewable energies;
- rewards innovation and resource efficiently;
- and encourages territories to develop local initiatives.

These directions will help pursue the momentum set in motion by the Environmental Conference held in September 2013, which organised a round table on the subject of circular economy.

They also promote the shift from a society founded on the abundant consumption of fossil fuels to one that uses energy and carbon in greater moderation, in accordance with the trajectory and directions prescribed by the bill on the energy transition for green growth.

PRIORITY 1

Reorienting production, trade and consumption patterns

Food, housing, clothes, mobility and entertainment are needs and activities that use resources and generate environmental impacts. The total consumption of raw materials in France rose to 24 tonnes by inhabitant in 2011. New approaches are paramount. They must be adapted to:

- goods and services by maximising the use of resources through their entire life cycle, and associated transport services (flow optimisation, reverse logistics 4 , short supply chains, etc.) through actions undertaken on businesses and the behaviour of consumers;
- public policies that the State and territorial authorities will have to open up to avoid purely sectoral approaches, just like the regional circular economy strategies formulated and implemented by regional councils;
- the geographic level, as our imports produce environmental impacts overseas. Certification of materials sustainability, for example, will allow us to take action outside our own borders.

Cooperation between the various actors is crucial. In the absence of incentives or obligations, a goods manufacturer is still not sufficiently concerned by the sustainability of the resources they use or the ease at which a product brought to market can be recycled. The State can foster such cooperation by setting up voluntary agreements (such as the work currently being carried out by strategic committees for specific sectors at France's national industrial council) or extending the responsibilities of producers.

The composition of goods, their life cycle, the ease at which they can be re-used or recycled and their energy performance are determined in the design phase. Extending the life-cycle approach of products and ecodesign and developing low-carbon **energy solutions** will be decisive in this respect.

Combating planned obsolescence will be a lever to mobilise consumers and

4 Reverse logistics refers to managing the flow of goods from the consumer back to the producer

manufacturers in view of fostering a new production and consumption model. The bill on consumption is a first step in improving the supply of information and strengthening consumer rights in respect of questions regarding product life cycles, and extends the statutory period of warranty for products.

Businesses need to be made more aware of the economic interest in pursuing this initiative, and receive a greater supply of **information. Also consumers need to be made more accountable** (environmental labels printed on products, banning non-recyclable plastic bags, etc.). The State will also take action to ensure **the potential benefits of the European directive on ecodesign** (extension of product scope, the gradual introduction of criteria other than energy and other stages in the chain than use) are exploited further. Similarly, **the integration of environmental and social criteria in public procurement** can be leveraged by the State and regional authorities to improve the sustainability credentials of products.

It is also crucial that **moderation and efficiency, above all in respect of energy, are integrated into our modes of consumption.** This objective, set forth in the bill on the energy transition for green growth, is essential if we hope to halve final energy consumption by 2050.

Many products are still being under-used: **pooling the use of these goods** through commercial (rental, communal purchases such as cooperatives for using farming equipment, etc.) or non-commercial (toy libraries, etc.) channels creates new activities and allows consumers to access a broad range of goods that are of better quality and thus improve their purchasing power.

Products that are damaged or simply used and discarded as waste could be reused if appropriate facilities were in place (for repair, remanufacturing, recycling, etc.). In this context, **the emergence of new economic models and new consumer behaviour**, such as the product-service system whereby the use of a service rather than a product is sold (carsharing or the hire/mending of textile items, for example) should be promoted, notably by taking advantage of the digital revolution that makes it easier for consumers to communicate between themselves within a sharing economy model, and by supporting businesses.

All these activities would be further encouraged if the price of resources reflected more closely their scarcity and the environmental impacts associated with their use,thus incentivising economic stakeholders to use them more sparingly. Taxes on emissions, on land consumption, proportional billing (such as pricing incentives for waste) and the suppression of environmentally harmful subsidies are instruments likely to **send a price signal to manufacturers and consumers and promote more efficient use of resources. Adapted funding could also change the behaviour of businesses and individuals**, such as the energy renovation initiatives put in place: tax breaks, interest-free eco-loans or the introduction of third party financing for individuals to cover the cost of renovation works.

Furthermore, **new performance-linked service payment models** need to be explored. Initiatives of the kind have already been established by drinking water services (public utility delegation contracts whereby payment of the contract party is partly linked to performance).

PRIORITY 2

Making our economy less dependent on non-renewable resources

Reducing the use of non-renewable resources (fossil fuels, metals, aggregates, soil, etc.) and French economic dependence on these resources is a strategic direction that must shape public policy, in particular through the use of more recycled raw materials, the development of renewable energies on a larger scale, the increased and optimised use of biomass and the reduction of soil sealing. We must be careful when making these changes not to transfer the burden from one solution to another or our dependency from one resource to another. All of the activities presented in this section can also be used as opportunities for French businesses to develop specific areas of know-how and create jobs with strong links in the local community.

The substitution of non-renewable resources by renewable sustainable resources

For a low-carbon economy to emerge, we need to restructure our energy system, the benefits of which will also be to strengthen our energy security, redress the trade balance, safeguard competitiveness for businesses and tackle energy poverty.

Based on the key principles set forth in the bill on the energy transition for green growth, the energy transition must **have a complementary role to play on demand-side management (energy moderation and efficiency) and** on **energy supply, by rebalancing the energy mix,** notably by reducing the share of nuclear power as a proportion of electricity production to 50% by 2025 and developing alternatives to fossil fuels (and a more general shift to renewable energies: solar, wind, hydraulic, geothermal, marine, and biomass) to produce heat and electricity and replace oil and gas. A change of this scale is necessary to meet the target to reduce fossil fuel consumption by 30% by 2030.

The bill on the energy transition for green growth will also pave the way for a low-carbon strategy to help meet these key objectives, and will place territories at the heart of this transition and provide practical and tangible means for actors to get on board and cooperate with each other.

To shift towards a low-carbon future and complement the accelerated development of renewable energies, diversification of the energy mix will be supported by policy and voluntary actions to promote energy moderation and efficiency in every sector of activity (construction, transport, industry, agriculture, etc.) and among all stakeholders.

Support schemes for renewable energies will also have to be adapted to foster the development of these forms of energy into the long term by establishing a stable incentive-based financial framework and maximise the return on these investments in terms of jobs. They will also ensure renewable energies are more widely integrated in European energy systems (electricity, gas, heat, etc.) and greater complementarity of electricity and heat production.

These new modes of energy production, which are driving up demand of certain resources (steel, wood, metal, land) need to fit in with a sustainable approach to managing natural resources. **The bio-economy, green chemistry and dynamic, multi-functional and sustainable forest management need to be developed**.

These sectors extract raw materials and as such we need to properly ascertain the environmental and social impact of our imports through **the introduction of**

environmental and/or social criteria at the global and European levels, similar to what the European Union put in place for biofuels (criteria related to GHG emissions and land use).

The substitution of virgin natural resources with secondary resources

Using recycled raw materials is one way to drastically reduce the environmental pressure caused by the extraction of virgin natural resources and limit the dependance of the French industry on imports. The **growing trend of reuse of recycled raw materials**, in particular those of high added value, will be made possible through the withdrawal of toxic or hazardous substances and the anticipation and organisation of cascading uses. This will entail concerted efforts to reduce the flow of waste going into landfill.

Directing waste to the most efficient recycling channels is also a lever for reducing the volumes of materials lost, which can only be done by **combating illegal traffic and installations** through tighter controls by the State and development of recycling infrastructures in France. These directions, outlined in some detail in the waste reduction and recovery plan 2014-2020, must be complemented by technical and financial support in this area to developing countries.

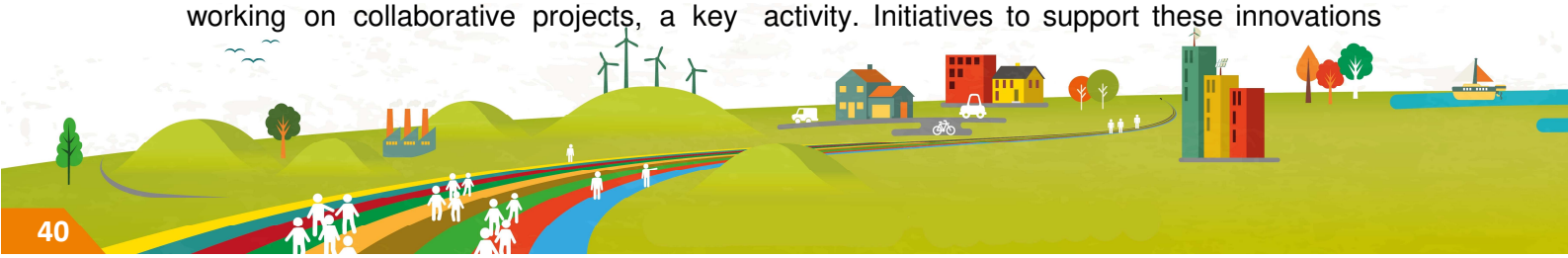
To mobilise the various components of our urban mine (mass of waste from which we can extract the raw materials contained therein), public authorities, working in collaboration with economic actors, will endeavour to **improve information regarding flows and deposits,** in particular concerning waste produced by economic activities and the materials that offer the most potential in terms of creating added value.
Special attention is to be given to certain critical raw materials (including rare earth elements) that are crucial to French businesses that want to be competitive in the provision of solutions related to the energy transition.

The reuse of treated waste water needs to be pushed further, in particular in agriculture. Existing initiatives (such as those in place for water used to wash cars) also need to be supported. **Fertilisers made from livestock manure** to substitute mineral nitrogen must also be developed insofar as the balance between soil fertilisers and the regulation of nitrates will allow.
The reuse of water treated in water treatment plants has also been included in one of the priorities fixed by the "water quality and water scarcity management" plan established within the framework of the New Industrial France programme.

PRIORITY 3

Developing a more resource efficient and innovation-based new industrial and agricultural policy

Innovation has already helped improve the environmental performance of industrial and agricultural processes. But while progress has been made, it is still not enough. Breakthrough technologies and innovations need to be shared between the different actors in the value chain working on collaborative projects, a key objective of the policy intended to support innovation and strengthen competitiveness for businesses. Important inspiration for such innovation include the functioning of living organisms and biomimicry which can help devise more sustainable goods and services. This concerns every industrial and agricultural activity. Initiatives to support these innovations



will be put in place to fund operations from fundamental research through to operational implementation, notably as part of the 34 industrial revitalization plans, a large section of which has a crucial bearing on the environmental transition.
Regarding industrial processes, energy-intensive industries (steel, chemicals) have already made great strides that will be extended to sectors that are not subject to the European carbon market and the SME fabric, notably through the **progressive deployment of the most efficient available technologies and through suitable technological and financial support**. In addition to reducing energy, the emergence of new 3D printing modelling and manufacturing technologies should make savings in terms of materials used.

In the waste sector, productivity gains (adapted frequency, optimised rounds) and breakthrough innovations (underground collection systems, reverse logistics) are coming to light in the area of collection. At the sort and recovery stage, access to materials can be a complex process, even after a product has passed through the ecodesign phase, and requires the **development of new technologies** in the fields of mechanics, robotics, optics and metrology. The growing use of recycled raw materials in the manufacturing process hopes to **increase the traceability of flow and characterisation of materials.**

In agriculture, efforts to reduce the use of chemical inputs, energy and water as well as to use these resources more efficiently, protect and restore biodiversity, increase the capacity of ecosystems to sequester carbon and improve soil functionality need to be stepped up. **These constituent developments in agro-ecology**, that promotes both economic and environmental performance, **must also be supported by the development of sustainable food systems**, including the campaign to combat food waste. This will contribute to establishing a safer and more diversified food supply that employs more environmentally friendly modes of production.

With regard to construction and building renovations, policies in favour of energy efficiency and renewable energies must be integrated into **general building design**, and be reinforced and complemented by the **more efficient use of resources throughout the life cycle of buildings and infrastructure**s. The use of wood and biosourced materials in general, the recycling of more waste from the building and public works industry, more efficient design drawing on architectural approaches adapted to different contexts and regulatory changes would inject growth into this sector.

While **transport systems** meet our mobility needs, they are consumers of energy and negatively impact the environment. To resolve these problems and meet the objectives identified by the Mobility 21 Commission (service and access to national and European regions; everyday transport needs; environmental and energy objectives and financial sustainability), four key areas of innovation must be pursued:

- **clean and more efficient vehicles** which include electric vehicles and vehicles powered by all engine types and sources of energy producing low GHG emissions and atmospheric pollutants. The use of electric cars on the roads is supported by a network of charging points that is expanding at a faster pace thanks to the Investments in the Future Programme (PIA). The purpose of the "vehicle of the future" programme launched by ADEME is to speed up the development of low-CO_2 emitting road vehicles and for mobility solutions for rail (trains of the future) and transport by sea and by waterway (ships of the future, to be complemented by a call for projects to attract investment for the deployment of clean ferries);

- **Innovative and energy-saving road infrastructures,** through the use of energy-efficient technologies and materials, recycled materials, the energy efficiency of road equipment, the capacity for road surfaces to sequester and produce energy, the integration of electric production and modular design, to improve how roads are maintained or replaced, and the depolluting capacity of road surfaces. The engagement of economic actors together with the State and local authorities is essential if we are to be able to implement these kinds of infrastructures. Demonstrations of such innovations will showcase French know-how at the international level;
- **logistics and flow management**, to be improved by clean vehicles, the modal shift, an innovative approach to the organisation of logistics chains and smart transport systems. The objective of the national logistics conference to be held in 2015 will be to improve the economic performance of the logistics industry in France. Article 41 of the law of 28 May 2013 containing various transport measures provides for its organisation and the evaluation of the opportunity to implement a national development scheme for logistics. Urban logistics in particular opens up opportunities to combine solutions integrating carbon-free vehicles as well as silent large vehicles delivering goods at staggered hours. Local initiatives are being ramped up in this direction. The State must encourage the dissemination of innovative practices, in conjunction with local authorities, those responsible for land use rights and regulations concerning traffic and parking, important points of contact for transport and urban logistics businesses.
- **Smart transport services and systems,** systems making use of information and communications technologies, which form the basis for the development of new data-driven forms of mobility. The national strategy on intelligent transport "Mobility 2.0" initiated in 2014 aims to promote smart transport through the development of multi-modal door-to-door route planning; the launch of the national debate on opening transport data; the launch of the national pilot project on cooperative systems (connected vehicles); the pooling of the needs of authorities in charge of organising and managing transport networks; the facilitation of in situ experiments, notably for autonomous vehicles and through skills development. To support this strategy, it is important that the French smart transport systems sector pulls together, in particular to develop its capacity for collective innovation and for export.

Operating heat networks at very low temperatures would provide opportunities to increase the heat sources spread across the urban territory and the capacity for storing heat, particularly underground. Deploying such networks will call for the development of smart networks, which relay information in real time from the consumer to the producer and vice versa, similar to the **Linky smart meters** used in the electricital grid.

Transport and electricity, gas and heat distribution networks are central to the energy transition, the New Industrial France programme and the Investments Programmes for the Future (PIA). Electricity networks are increasingly being demanded, at the local, national and European levels, to integrate decentralised and intermittent sources of electricity production.
Three areas for development will explore solutions to these challenges, supported by the experiences of non-interconnected zones such as France's overseas territories and Corsica:

- **the development of smart grids** that support the exchange of information between consumers, producers and grid

management companies (communicating meters);
- **increasing storage capacities for electricity**, whether this be done by tried-and-trusted (water transfer pumping stations) or emerging (in particular hydrogen and fuel cells) solutions;
- The development or optimisation of inter-network conversion technologies (hybrid technologies, Power to Gas, etc.), notably thanks to joint peak management between networks.

Conflicts concerning **water** usage in a context of climate change prompt us to examine both its availability and its quality. **Improving the quality of water** in natural environments will help reduce the treatment process for drinking water and the associated costs. **The instrumentation of networks** and monitoring of data collected in real time will facilitate early leak detection. **Water purification stations** can be made carbon neutral (heat recovery from waste water networks; energy recovery from sludge) and sludge can produce useful by-products, in particular phosphorus, through processes that need to be industrialised.

Extractive and primary transformation industries have already achieved significant progress to reduce the environmental impact of their activities. However, more progress is possible, for example by way of **industrial symbiosis, ecodesign** and **the development of the concept of responsible mining** and its effective implementation. These efforts will contribute to fostering better social acceptability of these activities, which are crucial to France's new industrial programme. They will also help ensure that the goods produced meet environmental, health and social quality criteria. The concept of responsible mining and its applications will be taken up by European and global organisations in order to also reduce the impact associated with our imports of raw materials and goods. The French mining model will be modernised even further by the planned reform of the French Mining Code which will improve the safety conditions of extractive and post-mine management activities in line with standards concerning the environment, transparency and resource scarcity.

Responsible mining is part of a territorial project. It aims to reduce the environmental and health impacts and all other disturbances (destruction of the landscape, noise pollution, etc.) at each stage of a mine's life cycle: deep underground mining to cause less disturbance to the surface and the first top 100 metres where living areas coexist (water, landscape, organisms, etc.); recovery of all minerals and metals; integration of the management of underground space (recycling of water, storage of extraction waste in abandoned mining cavities). By fostering close partnerships between the stakeholders, as early in the project as possible, responsible mining also aims to strengthen and stabilise the social fabric. In this way, it pre-empts the post-mining social management (preparing land for remediation).

PRIORITY 4

Engaging territories and spurring local initiatives

Territories are at the heart of economic, social and environmental challenges. Industrial ecology projects at the territorial level are a means to tackle these issues and ensure territories are made more desirable and resilient.

We need to reconsider economic activities in every sector at the territorial level as if they were a special ecosystem. This needs to be done in consultation with all local stakeholders, both public and private. In tangible terms, an industrial ecology approach at the territorial level will take shape by implementing several types of synergy in a territory or industrial area: the exchange and recovery of resources (heat, industrial water, waste, etc.), sharing of facilities (car parks, meeting rooms, heat networks, etc.), the pooling of services (inter-enterprise catering, collective waste management, etc.) and the creation of activities and the development of local resource recovery industries (decentralised recycling of waste or energy, for example). Industrial ecology projects at the territorial level concern every sector (industry, services, agriculture) and all types of business (from the biggest corporations to small businesses and local traders). They also play an essential role in cities – territories where today a large proportion of economic, human and environmental challenges are concentrated. Dovetailing the principles of industrial ecology with the objectives of sustainable cities also aims to foster the development of showcases of industry, promoting competition between French businesses in France and internationally.

A further goal is to **facilitate the development of exemplary local industries and sites**, strengthen education on the local benefits of recycling (jobs created, use of energy recovered from certain waste processes: methanation on farms, cogeneration at sawmills, smart application of the proximity principle, etc.), and **promote short supply chains**. At the national and even European level, it will be important to clarify the potential actions in favour of local recycling and the legal leeway while remaining internationally competitive. Changes are expected to the public contracts code and the public procurement system more generally. There are high expectations of the building and public works (construction) sector: urban renovation and densification around transport nodes with better public transport will be the source of countless opportunities for using excavated earth and rubble.

Furthermore, it is essential to **promote and safeguard recovery, reuse and recycling** activities, since they generate many non-relocatable jobs in particular in the social economy.

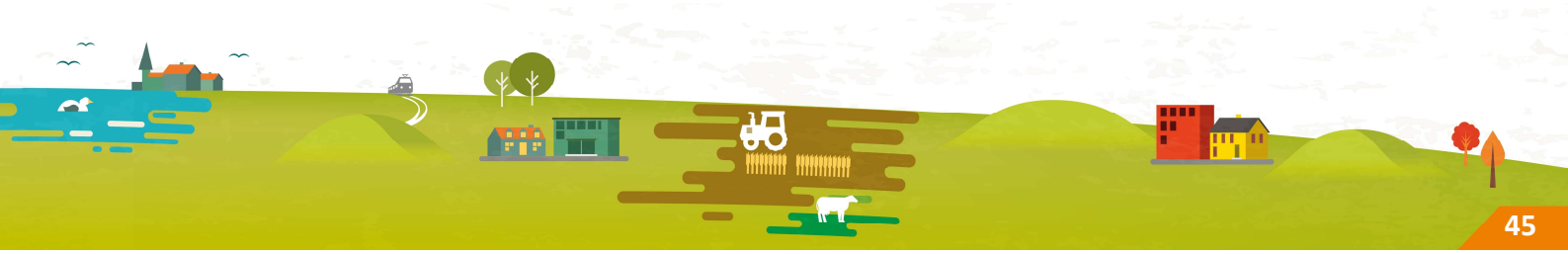
In France and internationally, several initiatives have been launched in favour of territorial industrial ecology, with the mobilisation of multiple actors (in industry, services, politics and higher education) and growing public support (experiments launched, calls for territorial "zero waste" projects, funding of industrial symbiosis programmes, etc.). Local authorities are central to this initiative, in particular regions as they are responsible for economic growth policy in their territory and are engaged to **devise and implement regional circular economy strategies**. They could also be

supported by consular chambers which can develop circular economy initiatives among businesses.

Local authorities have important levers at their disposal: public procurement (e.g. industrial projects or planning projects for industrial areas being subject to an eco-conditionality criterion); professional training (e.g. training of a territorial ecology project coordinator); local planning (promoting the efficient use of resources in the different local plans and schemes) and funding (e.g. European funds).

The State and its decentralised departments also have a key role to play by **creating a national framework to foster the implementation of such initiatives** (integration in strategic directions, funding of territorial industrial ecology projects, training and education, R&D, multi-stakeholder consultation, encouragement of voluntary initiatives, regulations, etc.) and providing assistance to local authorities (e.g. by providing methodological guides) and businesses.

To stimulate local initiatives and accelerate the energy transition at the territorial level, calls for projects will be launched, such as those regarding positive energy territories (TEPOS) and methanation to produce energy from agricultural waste.



GOAL 3

Preventing and reducing environmental, social and territorial inequalities

PRIORITY 1

Reducing and preventing energy vulnerability in housing and transport

PRIORITY 2

Preventing and adapting to climate change impacts

PRIORITY 3

Preventing and addressing health-environment inequalities

MONITORING INDICATORS FOR GOAL 3
Life expectancy : with regional, socio-professional and gender break-outd
Evolution of standard of living inequialitiesat national and territorial levels
Share of household income dedicated to energy (housing and transport)
Amount of compensation paid by insurers following natural disasters
Population exposed to climate risk
Dwelling and population exposure to marine submersion risks in low-elevation coastal zones
Population exposed to risk of flooding by waterway
Proportion of agglomerations having exceeded the PM10 particulate daily human health protection limit
Number of closed drinking water catchment areas
Proportion of catchment areas for supply of drinking water or share of volume of water abstracted whose nitrate concentration is greater than 50 mg/l
Inequalities in time it takes to access local healthcare

Top-level indicators shown in bold Indicators in the exploratory phase shown in italics.

Our societies are confronted with new sources of fragility engendered by increasing energy prices that aggravates the problem of energy poverty, the rise in the frequency and intensity of natural risks, in particular those related to climate change, but also the growing prevalence of health risks linked to the environment. These sources of fragility already affect vulnerable populations more severely and territories are not equal in the face of environmental risks. Indeed, French overseas territories and coastal areas will be more affected by climate change than other parts of the national territory. Consequently, protection against the impacts of different environmental problems and equality for all citizens regarding access to nature will be a constant objective of public policies, in view of fostering social and territorial cohesion, economic competition and environmental justice.

The need to foster social cohesion, defined by the Council of Europe as "the capacity of a society to ensure the welfare of all its members, including equitable access to available resources, minimising disparities and avoiding polarisation" must be an essential component in the context of the ecological transition. In fact, the transition will only happen if it helps minimise disparities and not widen them: many international and national studies have linked the reduction of social disparities, notably in terms of income, with the ecological transition. Furthermore, the rising cost of natural resources is weakening businesses, in particular small and medium enterprises, already affected by the economic crisis.

The standards of environmental justice were reinforced in 2005 by the Charter for the Environment, which prioritised equality by stating in the charter's very first article that every individual has the right to "live in a balanced environment that shows due respect to health". Making environmental justice a key priority of public policy in the areas of housing, agriculture, water, biodiversity, energy and labour will be a constant concern.

PRIORITY 1

Reducing and preventing energy vulnerability in housing and transport

Around eight million people in France are affected by energy poverty. To ensure more effective action, the scale of the phenomenon, which has engaged support, in France as it has in most developed countries, of stakeholders in the social, housing and energy sectors, calls for an approach focusing on the overall energy vulnerability of households. In fact, the inevitable long-term hike in energy prices will affect both expenditures of heating (or air conditioning in France's overseas territories) and of business and leisure transport.

Under the terms of the law of 12 July 2010, "a person is considered to be in a **situation of energy poverty** if they experience any problem at home in having access to the energy required to satisfy their basic needs due to inadequate resources or housing conditions. "

Energy vulnerability is a problem that affects every social class. Working families in low and middle income households living in remote peri-urban areas, with little or no access to public transport, are identified as

being particularly vulnerable [5]. Peri-urban sprawl increases their dependence on individual vehicles for commuting, meaning households often require more than one car and the number of miles travelled increases. Households may be obliged to curtail their heating expenses. Isolated elderly people and single parent families, more likely to be women, are especially vulnerable. Rising energy costs also affect small artisanal and industrial businesses. The rising obligatory costs related to mobility adds to the cost of housing and the cost of renovation work. High outgoings can hinder the search for employment, creating a vicious circle. The usual definition of energy poverty, i.e. paying more than 10% of income on household energy bills, is therefore incomplete. Utility bills can force households close to the poverty threshold below the line, but not every "poor" household is necessarily poor from an energy perspective. Energy poverty is also a big problem in isolated rural areas, most commonly due to the lack of an individual transport system other than the car, and overseas, where housing is poorly served by public transport networks.

The bill on the energy transition for green growth will contribute to the fight against energy poverty by reducing energy consumption and introducing "energy vouchers".

Energy price signals play a strategic role in distributing medium and long term sources of vulnerability, steering innovation and the choice of location and consumption, whether or not they promote urban sprawl. **Energy price signals need to be reinforced by suitable taxation**, **complemented by targeted instruments for vulnerable citizens** such as energy vouchers.

To understand and measure energy vulnerability more effectively, **vulnerability indicators will be defined** in conjunction with the Observatoire de la précarité énergétique (energy poverty observatory). They will target the public concerned and the associated triggers, shedding light on the multiple dimensions and factoring in social and regional disparities. **France will also push forward a more harmonised and cooperative approach to energy poverty at the European level**.

Energy poverty will be accurately identified by working more closely with citizens and regions.

The Housing Energy Renovation Plan is the response to President Hollande's pledge to carry out the energy renovation on 500,000 homes by 2017 (120,000 social housing units and 380,000 in the private stock), which will contribute to reducing energy consumption in the building sector by 38% by 2020. The housing energy renovation plan, whose "J'éco-rénove, j'économise" ("I renovate, I save") programme has been in operation since September 2013, is just one of the initiatives launched in this area.

Actions targeting low-income households, either in the social or private stock, **will be continued**, notably via the National Housing Agency's "Habiter Mieux" (Living Better) programme.

The support mechanism for individuals, essentially consisting of PRIS (Renovation Information and Service Centres) located all around the national territory, **will be further developed**, with support from local authorities and various networks such as Espaces Info Energie (Energy Information Points) set up by the ADEME (France's Environment and Energy Management Agency); ADIL (Departmental Housing Information Agencies, and the ANAH (the national housing agency). Lastly, **the skills of industry professionals will be developed**, in order to improve quality of service and increase energy savings. The convention on training on energy savings for businesses and trade professionals in the building sector (FEEBAT), signed in 2014

5 Observatoire de la précarité énergétique (Energy Poverty Observatory), May 2013

between the State and industry professionals, will have a large hand in this, as will the implementation of benefits if these certified businesses are employed (eco-conditionality criterion).

A global energy shield to replace or supplement social tariffs to help all vulnerable households, including those who are presently excluded from social tariffs, and to avoid situations where households have no access to energy, could be explored.
To implement an effective programme to fight energy poverty in housing, grants need to be coordinated and access to benefits improved.

Equitable access to mobility needs to be dovetailed with the ecological transition, engaging all actors in the process. Campaigns to raise awareness on mobility costs hope to encourage people to change their practices, notably by highlighting the full costs of owning a car (purchase, maintenance, running), which studies show most households tend to underestimate. **The period 2015-2020 will focus on mobility in peri-urban areas and non-interconnected zones such as rural territories** and encouragement given to mobility systems incorporating new modes of transport, intermodal travel and cooperation between transport authorities.

Access to efficient equipment for all will be improved. It is often more expensive to buy but more cost-effective to run. Smart meters, preventing losses at source, ecodesign, education and home automation are all promising avenues to explore further. Training for industry professionals will also be developed.

In France, local or community projects involving citizens while on the rise are still in the minority. It is essential that each stakeholder has the capacity to be an agent of the energy transition.
Consumers will receive far more transparent information on their energy bills, with the fixed costs of electricity and gas utilities indicated more clearly. **Prevention, subsidy and support instruments from associations and local authorities will be strengthened**. The **support for individual housing self-renovation initiative will be promoted** by developing project management assistance which incorporates a comprehensive project approach, prevention and well-managed and sustainable use of energy as well as adaptation to the current and future climate.

PRIORITY 2

Preventing and adapting to climate change impacts

Assessing the environmental impacts of climate change highlights the diversity of the territories in terms of risks exposure (floods, forest fires, drought, marine submersion, ground movements, salination) and consequences on the local populations. Climate change can have an impact on public health, in particular cold spells and heat waves that can prove to be fatal. High temperatures can also cause the proliferation of disease vectors, changing how they are spread and their prevalence. Climate change will have a significant impact on the quantity and nature of food production.

This assessment underlines the **necessity to anticipate risks so that socially equitable, innovative and adapted solutions** could be provided to all populations concerned, including permanent and occasional residents, professionals, businesses and employees.

Increasing our understanding climate change impacts on the population, on production facilities and resources and our heritage

We need to understand the economic, environmental, social and health impacts of climate change more clearly.

Risk analysis carried out by territorial authorities will be further developed. Climate change will be incorporated into natural risks prevention and urban planning policy, through local urban planning programmes and natural risk prevention plans, including the requalification of areas in accordance with changes to the immediate environment (coastal erosion, floods, surface runoff). Local flood risk management strategies will also contribute to it.

Informing and raising awareness among citizens is essential. **Awareness around risk needs to be raised in schools, in businesses, and at recreational sites**. The process requires the participation of local authorities, competent in the area of natural risks, and to be adapted to the specific characteristics of the territory. It calls for the adoption of a risk culture that above all incorporates risk prevention and management and the implementation and use of alert signals.

Tools will also be developed to asses the efficiency of any adaptation measures undertaken. These adaptation measures will also need to be promoted and disseminated. Businesses will have to pursue actions that some have already initiated.

The glaciers are melting.
In 100 years
(between 1911 and 2011), the
Ossoue glacier
(Pyrénées - Massif du Vignemale)
has lost 59%
of its **surface**

The website www.drias-climat.fr, which has attracted many hits since going on line in July 2012, supplies **climate forecasts by region**, produced by French climate modelling laboratories, to research centres, local authorities and citizens. Information on climate is supplied in different graphic or numeric formats in three different areas of the site: Education, Discover and Data & Products.

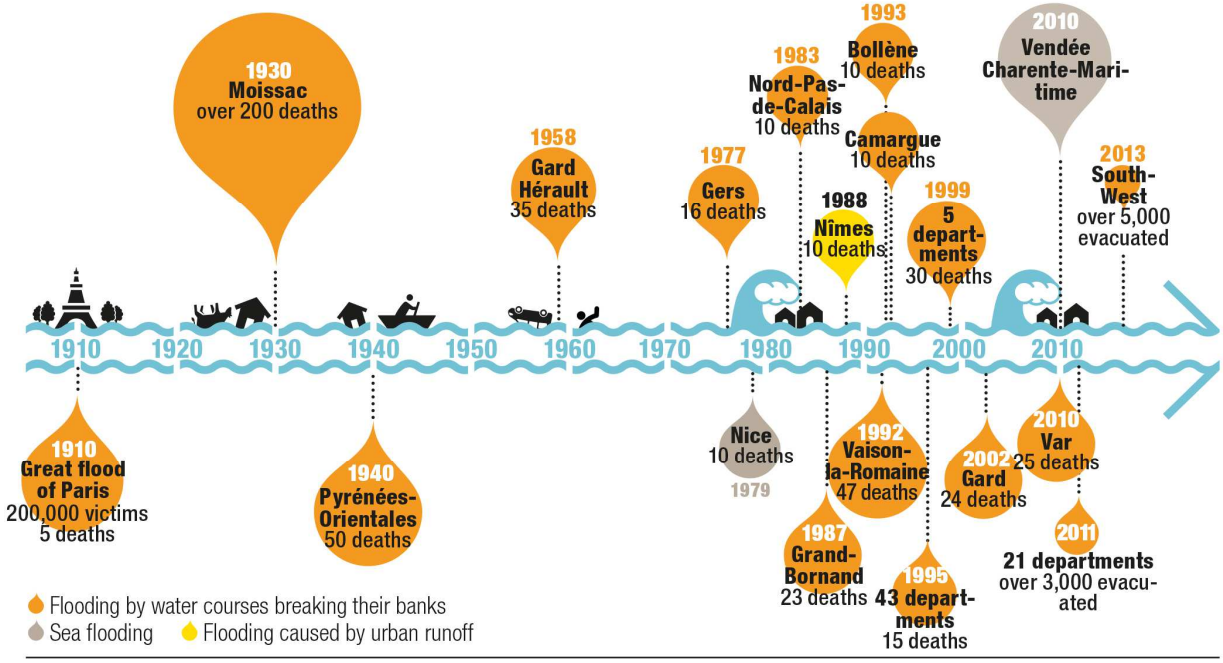
Promoting the adaptation of economic activities to climate change

The objective is to adapt territorial development models and align them with the realities of climate change. Adaptation to climate change must be a subject of social dialogue, at both national and sectorial levels. This will entail **conducting research with professionals** in the sectors concerned (construction, insurance, tourism, agriculture, forestry, fishing, energy, industry and, in the long term, other services) into **long-term adaptation and potential relocation scenarios** for economic activities : development of farming, livestock, aquaculture practices; creation of new agrifood and agroforestry industries, choice of tree species for replanting; adaptation of transport and port infrastructures; stimulation of forestry industries and local and national wood transformation industries, in particular into timber for construction purposes; the modification of the green and blue corridors, and adaptation of tourism and leisure infrastructures due to the rise in average temperatures. In order to guarantee a safe and diversified food supply in a context of climate change, it will be necessary to act in synergy to ensure the moderate use of water as a natural resource and the development of crop types and water storage capacities.

Protecting the population by strengthening the capacities for action in the face of climate disasters and promoting social and territorial cohesion

In the long term, anti-flood measures will have to be adapted according to climate change impact on extreme natural phenomena (rainfall, storms, etc.). Assessing

CHANGE IN FLOODING AND SEA FLOODING FROM 1910 TO 2013



Since the 1980s, very severe floods have become more frequent

this impact is a priority. Adaptation methods for protective structures in coastal areas and at estuaries are already being developed to be prepared for rising sea levels. Other models will be researched and implemented, such as strategic retreat. Special attention will be given to French overseas territories.

The new responsibility for managing aquatic environments and flood prevention entrusted to the EPCIs (intermunicipal cooperation bodies) will provide a resource to tackle these challenges more effectively.

In terms of public health, the protection of vulnerable communities in society from the risks associated with soaring temperatures during heat waves must be prioritised, notably the elderly, by raising awareness and providing information, improving the early warning system, promoting intergenerational solidarity, and identifying and treating urban heat islands. The health bill provides for the reorganisation of monitoring schemes and the implementation of an instrument for organising the healthcare system in the event of an exceptional health incident.

All public sites or buildings in all territories will be encouraged to **adopt and implement plans for immediate adaptation to climate alerts**, following the example of countries such as Canada: shifting to teleworking and staggered working hours, service operations adapted to the population.

Earmark funding to manage the economic and social impacts of risks associated with climate change

Climate change causes health, economic and social risks: material losses; lost jobs and production facilities; greater fluctuations in stocks of biological marine resources (on which fishing and aquafarming depend); short-term economic restrictions linked to the reduction in carbon emissions, and higher risks of morbidity and death. It is important therefore to **incorporate any potential social costs into projects and investments** by conducting studies on sensitivity to present climate risks and vulnerability to future climate change. Following up on the measures set down by the PNACC (National plan for adaptation to climate change) with regard to funding and insurance, **reinforcing insurance coverage will be more effectively linked to the prevention policy**. Innovative insurance products; relocation premiums; bonus-malus systems; interest-free renovation loans to make homes more energy efficient and resilient to climate change; support for housing self-renovation; inclusion of this risk in socially responsible investment, and risk-sharing fund systems will all be encouraged (cf. goal 4).

Preventing and combating health-environment inequalities

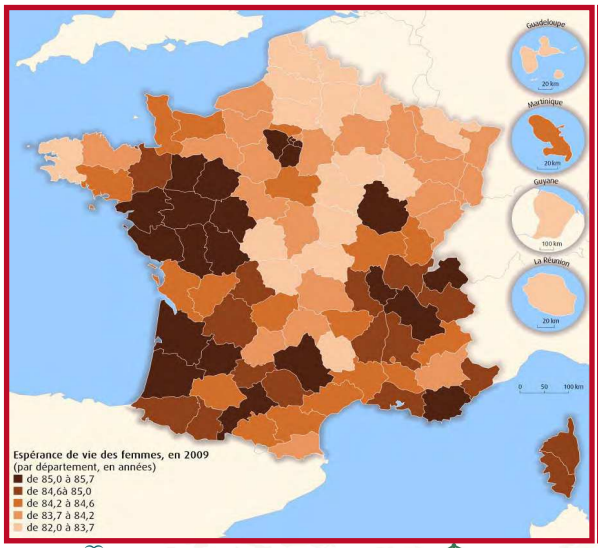
The link between environment, lifestyle and health requires advancing on several fronts to fight against environmental, social and health inequalities at the territorial level.

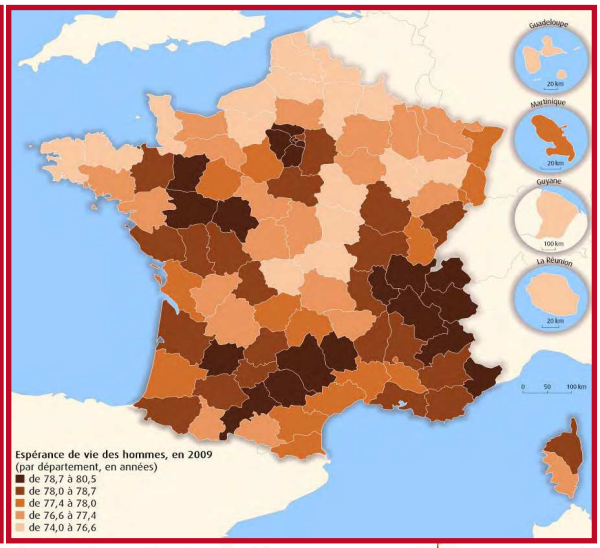
Inequalities in environmental health manifest in different ways depending on the territory in the face of problems associated with urban expansion, industrial and natural risks, new technologies and the degradation of ecosystems. Certain illnesses and diseases are on the rise which affects some populations more than others due to an accumulation of inequalities in terms of class, wages, employment or access to health. Furthermore, living and working conditions and the quality of the environment have a significant impact on the frequency of at-risk behaviour.
France's health situation thus presents a paradox, as highlighted by the World Health Organization (WHO). The country has one of the highest life expectancies in Europe, but some of the greatest health inequalities.

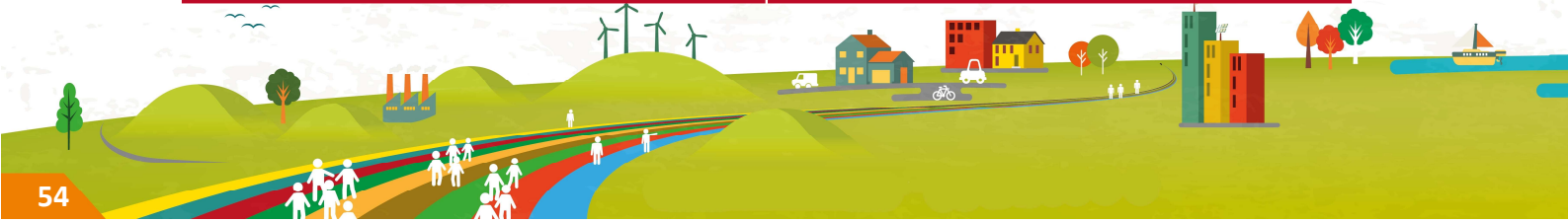
Prioritising environmental and social health inequalities in territorial public policy

Despite the work carried out in this area under the previous National Environmental Health Plan (PNSE 2), there has not been sufficient efforts made by the public authorities to evaluate and therefore resolve environmental inequalities. In fact, to date there is still no spatial data pertaining to all risks nor any operational methodology to combine them. Furthermore, the evaluation of risks affecting a territory given by the populations exposed to environmental pressures (pollution and harmful substances in the air, water, ground and noise and airwaves), is not approached in the same way by the different actors due to the lack of a common assessment framework.

The PNSE 3 2015-2019 furthers **the identifies and addresses environmental black spots** through targeted action. It recommends actions to improve and centralise the collection of environmental and health data, its availability, how it is processed, with the objective being to establish links between exposure and effects on health. It is coordinated with the other strategies and plans concerning health, water management, climate and energy.







The PNSE 3 is also a testament of government's aims to reduce by as much and as efficiently as possible the impacts of environmental factors on health in the hope that everyone can live in a healthy environment.

Up to 2020, the focus will be on two key objectives: on the one hand **factoring in more effectively the real risks to which the population is exposed in the different spheres of their life,** at school, home and/or work; and on the other hand, **understanding more clearly and assessing contexts of multiple exposure**, whether this be due to the cocktail effect of chemicals or interactions between chemical pollutants and physical agents such as airwaves and noise.

Knowledge is action: developing our knowledge and tools for assessing inequalities in environmental health

The cumulative effects between environmental and social inequalities which accentuate spatial segregation, must be highlighted. Integrating social and environmental sciences is vital. Research into the development of spatial tools in order to characterise inequalities more effectively should be encouraged. A common platform of reference methodologies for characterising environmental health inequalities will be developed. Analysis and tools must integrate environmental, behavioural, demographic, societal and geographic dimensions to determine the health impacts in each territory. The collection of environmental, social and health data at the IRIS level (most detailed geographic statistics) must be improved. Observation must specifically include incidents that occur in France's overseas territories.

Forward planning and acting on what we know

Taking a preventive approach means taking early action on everything which influences public health, taking health factors into account and exploring the potential consequences of a deteriorating environment on the rise of a number of chronic conditions. A preventive approach also contributes to reducing the budget deficit by cutting healthcare costs.
Actions undertaken as part of the National Environmental Health Plan (PNSE) in view of reducing pollutant emissions in the air and water **are reinforced and updated in the PNSE 3**, in particular by tackling the question of soil. How they are implemented will be overseen by the regional environmental health plans.

Many situations are covered by the preventive approach. **The fight against unfit housing is a national priority**. In oversea territories, actions need to factor in the needs to reduce the stock of unfit housing and exposure to natural risks (cyclones, earthquakes, etc.).

Training in the field of environmental health must also be developed. The training of health professionals will include awareness on the environmental origins of certain illnesses and diseases. Architects, town planners and most engineering bodies will also have to be trained up.

The most recent spatial data tools, which cross exposure models with biosurveillance, epidemiological, social and health data, such as the "Plaine" and "Equit'area" tools will be distributed and appropriation at the local level encouraged. The development of synergies between territorial stakeholders will be promoted, notably by adapting the PNSE 3 to the territorial level. The health bill also provides for the improvement of territorial healthcare services in less densely-populated areas, regarding both the treatment pathway and access to first responders.

Low doses and their effects
Chronic and diffuse risks are linked to exposure to low doses over long periods of time. This challenges the current status regarding the evaluation of risks associated with chemical products, namely that: "*The dose makes the poison".* Very often, hazard studies are carried out in situations where exposure is significantly high. Epidemiological studies are carried out following accidental exposure or among specific groups which have been subject to high exposure, at the workplace for example. To understand risks at low doses, it is necessary to extrapolate the risks obtained for higher doses and study the relationship between dose and effect. Reference toxicological values can be established from studying these relations. The effects can differ over time, be cumulative (cocktail effects or interactions) and even transgenerational. The low dose theory does not apply to all chemical substances. The substances that present low-dose effects are primarily "endocrine active substances".

Furthering the reduction of exposure responsible for high-impact pathologies on health within all communities by targeting vulnerable populations

For several years we have seen a rise in the incidence of conditions or diseases such as asthma, cancer, thyroid problems, allergies, diabetes and obesity. Pregnant women, children and other populations, vulnerable due to their age or personal, social, professional or geographic situation are more exposed.

The PNSE 3 programme initiatives on pollutants more specifically involved in specific pathologies in order to recommend actions to reduce exposure and theories supporting the associations between pollutants and diseases and explain the existence of particularly vulnerable sections of society. The relationships between habitat and health, urban pollution and health, plus the quality of ecosystems and health will also be explored. Increasing physical activity and improving eating habits are two further important factors with regard to preventing chronic illnesses.

The proportion of occupational cancers is estimated at around 4-8.5%, which in France represents between 14,000 and 30,000 new cases ever year (out of the estimated 355,000 new cases of cancer in 2012), a large proportion of these caused by asbestos. Some 82 carcinogenic, mutagenic and reprotoxic substances were identified between 2006 and 2008 to be prioritised for substitution. The transformation of workplace organisation requires a closer inspection of the responsibilities of businesses with regard to the subcontracting chain. We need to **develop approaches to health at the workplace so they are more cross-functional in order to establish links and closer coordination with public health and environmental health policies.**

Measures in favour of improving air quality need to be made more effective, sustainable and socially just. The annual costs of the health impacts of air pollution are estimated at between 20 and 30 billion euros annually by the Commission for Accounts and Environmental Economics in 2012 for mainland France. Taking into consideration the significant impact atmospheric pollution has on health (cardiorespiratory, cardiovascular and brain conditions, cancer) and the regulatory context (ongoing legal proceedings with Europe), ambitious and effective measures in favour of improving air quality must be implemented to significantly reduce, by 2020, the proportion of the population exposed to levels of pollutants such as particulate matter and nitrogen oxides (NOx) that exceed regulatory limits. Quality targets published by the WHO in 2013 set the benchmark.

This entails **significantly reducing atmospheric polluting emissions in every**

sectors. In transport, by giving territorial authorities, for instance, the ability to set up traffic restriction measures in all or part of their territory, restricted traffic areas (ZRC), a system for identifying vehicles based on their polluting emissions (planned for 2015); in agriculture, through actions on manuring and covering manure pits ; or in industry.

This will be the subject of the PREPA (atmospheric pollutant emissions reduction plan), which pursues the objective of respecting emissions ceilings (NEC Directive) and European limit values (air quality directive). This plan will act at the national programme of air quality actions. It will be supported by other tools (regional climate-air-energy schemes, atmosphere protection plans, communication) to promote the effective implementation of an integrated "climate-air-energy" policy. It will include prioritised actions and measures assessed technically, economically and socially. Publication is planned for 31 December 2015 at the latest.

The trajectory set in terms of reducing the use of pesticides is far from being met. The monitoring indicator in place for the Ecophyto 2018 plan, adopted in view of reducing national usage of pesticides to half of 2008 levels by 2018, has not fallen for the period 2008-2012. However, meanwhile, sales of carcinogenic, mutagenic and reprotoxic substances have fallen. The roadmaps for the ecological transition for 2012 and for 2013 have set new objectives, such as, for example, developing biological pest control and the banning the aerial spraying of pesticides.

The concentrations of pesticides in the air, monitored notably by the AASQA (certified air quality monitoring associations) have for many years raised health questions in certain parts of France.

At the third Environmental Conference, in November 2014, the decision was made to accelerate actions undertaken by the ministries for the environment, agriculture and health to control and **reduce the use of pesticides.** A monitoring campaign to gauge pesticide levels in outdoor air will be launched. Use of pesticides by non-professionals will also be documented. Bans will be placed on the most dangerous substances. Phytopharmaceutical products containing substances of concern will be withdrawn. Aerial spraying of pesticides will be completely prohibited by late 2015.

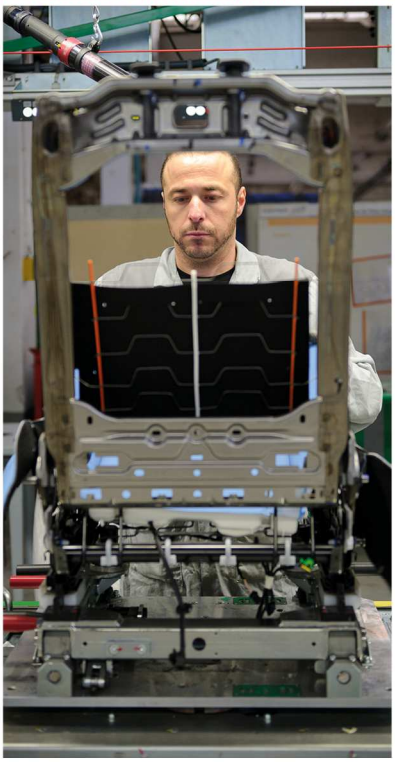
Better managing highly uncertain risks (precaution)

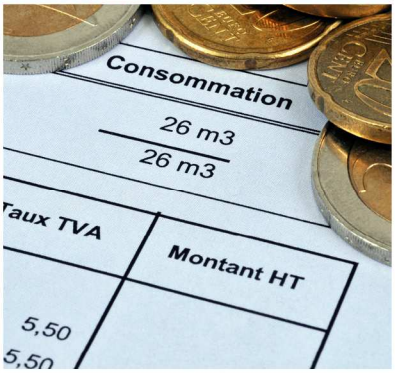
In order to take greater caution with regard to problems related to emerging risks, we need to prioritise **regulatory definitions for nanotechnologies and endocrine disruptors, harmonised at the European** level and promote the concerns around endocrine disruptors across Europe. The seventh Environment Action Programme (EAP), the Environment section of the new Research and Development Framework Programme (2014-2020) and the national strategy for endocrine disruptors adopted in May 2014 all set down directions to steer us in this respect.

Legislation must also be updated and voluntary initiatives encouraged to reduce exposure to substances that are harmful to public health and the environment, such as Bisphenol A, the ban of which from use in sales receipts and food containers will come into effect in 2015.

Care given to patients presenting conditions linked with environmental exposure needs to be improved. Greater cooperation between occupational health clinics and other specialities will be encouraged.

GOAL 4 Inventing new economic and financial models





PRIORITY 1

Elaborating a new investment practices framework to guide funding towards ecological transition initiatives

PRIORITY 2

Changing stakeholders behaviour by transforming incentive and remuneration models of economic performance

PRIORITY 3

Involving stakeholders in the adaptation of economic models

MONITORING INDICATORS FOR GOAL 4
Share of Environment tax revenues in compulsory levies and GDP
Share of investments dedicated to energy savings in industry
Evolution of the stock of socially responsible investment (SRI)
Evolution of the stock of sustainable bonds
Employement trends in social and solidarity economy

Top-level indicators shown in bold

The ecological transition involves a variety of challenges, technological trajectories and needs. To respond to this diversity, promoting multiple purchasing, funding and investment practices to support innovative, sustainable and socially equitable growth becomes a priority. In tangible terms, we need to both adapt existing instruments to ensure they are compatible with the ecological transition and promote the development of new economic and financial models (such as social economy, crowdfunding, collaborative economy the service economy).

Financial, economic, environmental and social crises have deeply marked France since 2008. They have sharply pointed up the limitations and failures of the financial and economic models predominantly used since the second half of the 20th century as regards consumption, production, finance and investment decisions and the definition of public policies .

Any model is underpinned by theories and decision-making rules, explicit and implicit, some of which are so complex as to be opaque. While, at the global level, these theories and decision-making rules were designed to simulate collective behavior through the development of supply, demand and investment, general price levels and so forth, they require, however, the behavior of actors in terms of their choice of modes of consumption, investment and saving or business models be considered individually. They are based on a simplified and even mistaken representation of reality and how it operates[6], with major impacts on growth and employment. Consequently, the impacts on environment considered in its broadest sense (environmental, social and societal challenges) are factored in little or not at all into economic, financial and business models, even though initiatives in this direction have increased in recent years. Indeed, theoretical representations (market efficiency, capital-asset-pricing models, business evaluations, performance assessment criteria, and manager and employee compensation systems, etc.) do not factor in climate or energy matters, services provided by ecosystems, declining levels of natural resources, etc., not to mention the diversity of approaches taken by different actors.

The primary growth measurement indicator of a country, the gross domestic product, presents the same kind of limitations with regard to factoring in welfare and its evolution over time. As recommended by the Sen-Stiglitz-Fitoussi Commission, different supplementary indicators are now published without any consideration given to key economic performance and social progress indicators.

Investing in the ecological transition, in particular in the environmental capital, a common[7] asset, requires us to anticipate environmental incidents and their economic and social consequences. Once this is done, the challenge, discussed in the white paper on funding the ecological transition, is to point and direct capital to the right investment opportunities, which meets the need for economic rationality and is beneficial for society. For example, to engage France in the energy transition, funding needs will highly depend on changing technology costs and market conditions. Annual investment was estimated during the national debate on the energy transition at 37 billion euros, a figure that is likely to double by 2050.

6 In May 2008, the ratings company Standard & Poor committed an error in its automated valuation model for leveraged debt products, which led to their over valuation. In January 2013, the International Monetary Fund acknowledged that the mathematical modelling used for its growth forecasts based on budget spending cuts was mistaken - and the impact from the austerity measures recommended was self-defeating.

7 Commitment C of the National Biodiversity Strategy

Supporting the bill on the energy transition for green growth, the initiatives undertaken as part of the Banking and Finance Conference for the energy transition will contribute to meeting this challenge.

To guarantee the environmental efficiency of policies and public and private projects[8], it is essential to clarify and direct any economic decisions made by all public and private actors (regarding the purchase or sale of a product, service, business; investment in a project or enterprise; allocation of assets in an investment portfolio; implementation of a regulation, etc.) towards choices compatible with the ecological transition of our economies. To this end, new economic and financial mechanisms and new business models need to be designed in order to steer available capital (including savings) towards investment to fund the ecological transition. This will entail reviewing investment practices and transforming individual incentive mechanisms, while maintaining fair and equitable international competition conditions. Accordingly, public environmentally harmful subsidies will be withdrawn by 2020, in compliance with the engagements made by France in Rio in 1992 and in Johannesburg in 2002. As with any change of model, this is likely to lead to problems, which need to be managed carefully, above all those that risk impacting the most vulnerable in society.

"The global cost of the ecological transition is collective anticipation" [10]
Several studies have focused on the cost of inaction, whether this concern climate change or the erosion of biodiversity. For instance, in 2006 Nicholas Stern estimated that **the cost of action taken to avoid the worst effects of climate change is** 1% of global gross domestic product (GDP) each year, while the consequences of inaction would be equivalent to losing at least 5% of global GDP. In 2009 he re-evaluated these figures to **2% of GDP and 5-20% of GDP**[11] respectively. **Erosion of biodiversity, however, is likely to reduce global GDP by 7% by 2050**[12]. THE OECD estimates, for example, that atmospheric pollution produced by road traffic accounts for around 18,500 premature deaths each year in France, at a cost of 40 billion euros. The cost of the ecological transition could thus be viewed as an insurance premium. For example, the development of wind and photovoltaic energies is an insurance against the rising prices of fossil fuels[13]. Environmental engineering used to restore our ecosystems is another form of insurance, one that contributes to greater resilience of our territories notably in the face of climate change.

8 Objective 15 of the National Biodiversity Strategy

10 Opinion of the French CESE on the financing of ecological and energetical transition, 10 septembre 2013

11 *A Blueprint for a Safer Planet,* Nicholas Stern, London Vintage books, 2009.

12 The Cost of Policy Inaction: The case of not meeting the 2010 biodiversity target – Alterra & iEEP, Braat, ten Brink et al. European study

13 Evaluation socio-économique du programme de production d'électricité éolienne et photovoltaïque - Coûts et bénéfices du "Grenelle de l'environnement" pour les énergies renouvelables - Koleda G., Didier M. - COE-REXECOdE - No.12, October 2009

Elborating a new investment practices framework to guide funding towards ecological transition initiatives

Barriers to funding for most projects related to the ecological transition concern both long-term funding as well as the particular case of production facilities with a strong environmental dimension as they are characterised by a high level of risk (uncertainties concerning the period of return on investment, the benefits of innovative technological strategies, etc.).

To remove these barriers, therefore, we need to transform the "investment norm". The plan is to set up innovative economic instruments and strengthen existing mechanisms to take action on the supply of public and private capital managed by investors.

Introduce the ecological transition and long term sustainability challenges into funding and investment decisions made by all actors

Once policies, legislative and regulatory measures and investment programmes are in place, public decision-makers will have to map out a long-term trajectory that **incorporates environmental and social effects more fully in their decision-making criteria**. Choices made will make measures undertaken by public authorities in favour of the ecological transition clearer and more credible and will enable businesses to choose technology based on the environmental transformation France is undergoing and household and local authorities to make investment that will contribute to reducing pressure, in particular on the environment. This is notably the case of the European Commission's investment plan (the "Juncker fund") which plans to earmark 21 billion euros of public funds for a total investment of 315 billions euros, the two priorities for which are energy and transport.

Prioritising future needs in public investment decisions (in particular this implies furthering discussion on discounted cash flow used, the choice of which, for a given project, has to meet strategic as opposed to technological concerns), within a pluri-annual programme for the implementation of public policies, notably those contributing to the ecological transition, is also essential for integrating the welfare of future generations in addition to environmental considerations.

The (para-)public sector, with regard to its clout on financial markets (particularly State participation in businesses) and in funding the economy and territories, **needs to emulate other investors by applying funding rules that fully integrate the objectives of the** ecological **transition**. For example, support from public funding actors to local authorities engaged in the energy transition needs to be encouraged, such as the five billions euros in loans allocated by the Caisse des Dépôts et Consignations (CDC) to accelerate investment for local authorities.

To complement the obligations of businesses, **corporate social responsibility,** extending their fiduciary responsibility to include the objectives set for the ecological transition**, must be defined for private and public corporate investors.**

By calling for collective investment fund managers and management companies to supply information on the way **social, environmental and governance (ESG) criteria are factored in to** their investment

and voting policies, article 224 of the law of 12 July 2010 achieved an important first step. One essential link in the chain that is missing, however, is the contractor responsibility (i.e. "investor") who, through management mandates, delegates all or part of their asset management needs without obligation to specify any requirements in terms of factoring in ESG or ecological transition criteria. **Extending this mechanism to institutional investors** would also encompass the management of funds for their own account.

Set up measures to make investments traceable and transparent to encourage long term saving

A certification system for the contribution made by investments to funding the ecological transition must be prioritised. This certification system would authorise the gradual establishment of eco-conditionality criteria for tax relief associated with long-term saving products (e.g. employee savings plans, life insurance, pension plans, general securities), thus guiding the decisions of savers. To avoid creating an additional certification unnecessarily, **one avenue to explore is enhancing existing CSR (socially responsible investment) certification systems** , as exists in social finance with the Finansol label, by aligning them with a framework consisting of four inseparable and complementary criteria:

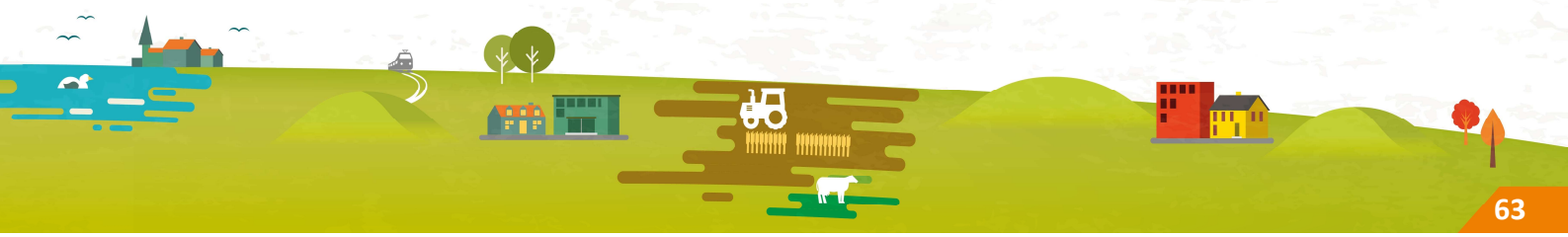
- factoring in ESG criteria more implicitly in the capital investment process;
- encouraging closer dialogue with investors and a systematic voting policy on ESG objectives;
- fostering greater transparency on financial capital management practices;
- demonstrating the positive impact of funds on the development of an economy that is carbon free, resource efficient, resilient and inclusive and strives to preserve natural regulations and ecosystems.

Commit businesses and investors to report on their contributions to the ecological transition

Concerned businesses are those targeted by the ceilings defined by the national commitment to the environment draft law of 12 July 2010 (articles 225 and 226). One potential solution to prioritise is making integrated financial and non-financial reporting mandatory.

It is important to better **incorporate sustainable development and ecological transition policies in development and competition strategies adopted by businesses by developing adapted performance indicators.** This entails translating the contribution of these policies to the economic and financial viability of businesses by also responding to what society has the right to demand of its stakeholders from a social and environmental perspective. These indicators will provide a practical means to appraise investment decisions made with regard to environmental, social and societal objectives (including human rights, equality between women and men, and cultural diversity) and good governance when appraising businesses and, in consequence, investment portfolios. Transposing the extent to which the objectives of the ecological transition are factored into the allocation strategies of investment portfolios, still in their infancy, becomes crucial in the decision-making process of certain committed investors, notably concerning their climate-energy responsibilities. An indicator to promote coherence among investment with the objective to limit climate warming to below 2°C would help in this respect.

The convergence of numerous European and global initiatives aiming to align the status of non-financial information with financial information, in respect of business models followed by businesses and investors, **must be encouraged**. France, a pioneer in this field, will endeavour to



promote this convergence within the framework of its presidency of the Group of Friends of Paragraph 47 described in the Outcome Document of Rio +20 (cf. objective 9 inset).

Promote and make secure innovative investment practices

The scope of the ecological transition covers the full economic cycle, from procurement to consumption, passing through research and development and production. Its geographic scale is global, continental, national and local. This diversity of locations is matched by various economic balances and multiple horizons and financial and social-economic rates of return, which are inevitably reflected in the diversity of types of funding and types of stakeholder, from households to various institutional financiers and investors.

There is no longer the assumption that one model fits for all. The **diversity of funding practices** ("green" or "project" bonds, long-term funds as are in place at the European level or even financial instruments offered by micro-finance or crowdfunding, the growing interest savers are showing in ethical financial products, socially responsible investment, etc.) **needs to be promoted and made more secure through the redesign of our investment models**. The banking and financial conference for the energy transition initiated actions in this direction.

Crowdfunding is one potential lever for the ecological transition. The diversity of funding practices combined with the public's increasing interest in investment is the source of this growing trend. The amounts invested through crowdfunding are showing a sharp rise, increasing from 25 million euros in 2012 to 33 million in 2013 (source: (Finance Participative France, Baromètre du Crowdfunding en France, 2013). It is supported by on-line platforms, each specialising in a specific type of investment (capital investment, bonds, donations, etc.) or a particular sector (renewable energies, infrastructure, etc.). The aim is to foster the emergence of a new investment model which contributes, in part, to the ecological transition, by facilitating access to these platforms and guarantees the security of investments made by citizens.

PRIORITY 2

Changing stakeholders behaviour by transforming incentive and remuneration models of economic performance

While most individual actors are aware of environmental challenges, their consumption or saving practices do not necessarily take into consideration the cost of any damage caused to the environment and even less the risks exhausting biological resources or destroying the world's natural regulation systems pose to future generations. To steer them towards more sustainable practices, three levers need to be strengthened.

Provide unquestionable and clear information to enrich decision-making criteria applied by stakeholders

Environmental information concerning emissions or the consumption of natural resources (carbon footprint, biodiversity, life expectancy indicator) is conveyed through labels attached to consumer products, labelling of products being tested and carbon

assessments of businesses and local authorities. **All of this information needs to be made clearer, more structures and more credible for consumers and savers**. In this respect, the nationwide trial of environmental labelling for fast moving consumer goods is innovative in that it involves industrial sectors early on in the process to establish a reliable and common system, one that is evolving and voluntary, and which fits into a more global approach within a European framework. **These approaches should be adopted for investment and saving products,** above all financial ones, in order to steer household saving towards investment in the ecological transition**.**

The obligations enforced by carbon audits could be extended to other areas taking their specific characteristics into account (water, raw materials, etc.). In more general terms, the integration of externalities, including loss of biodiversity, in accounting regulations will be further explored. Social information, in so far as it relates to the effects of the ecological transition, will be gradually included within the scope of these experiments.

Prioritise the most efficient ecological transition choices by integrating the cost of environmental impacts in prices

At the 2012 Environmental Conference, President Hollande set the target to raise French ecological taxation to the European Union average (4.16% of mandatory deductions in France compared to the European average of 6.19%)[12].

Establishing a tax on emissions that are polluting and consume natural resources, similar to the introduction of a carbon component to fossil fuel[13] taxation in 2014 and the increase to taxes on diesel fuel in 2015, will encourage stakeholders to think about their behavior and decide whether to pay the tax and produce pollution or reduce their pollution in order to pay less tax.

With regard to water, several taxes are designed to reduce the pressure on this resource. Income from these taxes is used locally to fund actions that encourage stakeholders to modify their behaviour.

Ecological taxation aims to steer the behavior of actors. It incorporates, in the cost borne by economic actors, social and environmental costs they cause others to incur ("externalities"). It organises a transfer of costs between different factors of production, while making sure the most vulnerable actors are protected.

To ensure coherence with the overall system**, ecological taxation needs to be part of a broader reform of taxation in France.** We need to find a balance between the implementation of ecological taxation and the lowering of mandatory deductions, and **make sure that the entire tax system promotes the ecological transition.** One of the priorities, therefore, is to reform environmentally harmful subsidies.

In parallel, other tools can also be improved to encourage individual stakeholders to adopt more sustainable practices:

- **A change to the invoicing terms and conditions of goods and services** through proportional pricing based on volumes consumed, notably by encouraging the widespread use of individual waste and water meters;
- **Encouraging eco-conditionality for aid**, regardless of the nature and beneficiary (public or private), and public procurement policies. This will also foster the development of green industries and innovative services across the national territory.

Incorporate environmental, social and societal objectives into economic and financial performance compensation systems

The reform of the compensation framework for directors in both the private and public sector and market players, notably that of managers and

12 Source: EuroStat 2013

13 Component proportional to CO2 emissions, integrated into the domestic consumption tax on energy products

management companies, must be pursued in order to factor in more implicitly the objectives of the ecological transition and long-term challenges.

Compensation paid by some businesses to their directors, in particular the variable portion, is dependent on meeting social and environmental targets. Twenty-nine percent of companies listed on the FTSE Eurofirst 300 link director bonuses to the attainment of ESG criteria (source: Eurosif). **This kind of experiment will be actively supported**. Public companies and those in which the State holds a share will lead by example in this respect.

The business governance code for companies listed on the stock exchange (AFEP/MEDEF) includes a number of principles to promote the efficient running and transparency conducive to improving the management, steering and control of listed companies. New principles introduced in the June 2013 version: the introduction of an advisory vote on compensation paid to executive directors; limiting the number of terms for executive directors; transparency with regard to multi-annual variable compensation, etc. This compensation is contingent on effectively meeting a level of performance determined by quantitative and qualitative criteria.

PRIORITY 3

Involving stakeholders in the adaptation of economic models

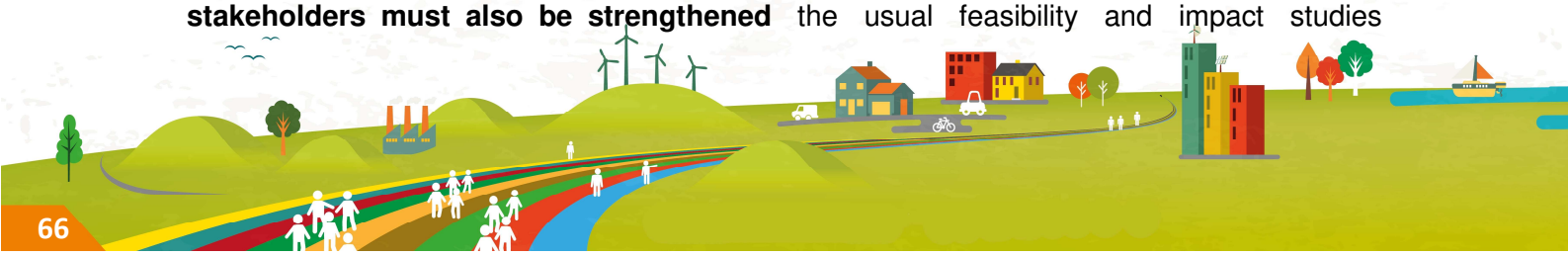
The ecological transition should lead to a fairer distribution of wealth, assessed in the broadest sense (i.e. between different categories of stakeholders, within a same category or between current and future generations). However, any change of model requires adherence to the directions prescribed. The successful implementation of new economic and financial models therefore relies on the effective organisation of their governance and the targeted support of the different categories of stakeholder concerned.

Improve dialogue between stakeholders in the reform of economic and financial models by harmonising existing instruments and developing comparative expertise

France already has in place a certain number of formalised systems in place to associate stakeholders with public debate or policy implementation. In addition to harmonising these systems, **the concrete terms and conditions for implementing dialogue with stakeholders must also be strengthened** (cf. objective 8) to identify, when designing new models, the barriers and reluctance to change perceived by different stakeholder groups.

The quality and results of evaluations and impact studies will play a major role in ensuring the availability of knowledge and prepare the dialogue. Stakeholders must be invited to take part in pre- and post-evaluations. It will also be necessary to educate stakeholders on the new measures using a targeted approach and **co-produce the requisite support measures** in a context of transparency, above all with the most exposed stakeholders. Lastly, the actions must be overseen by the most appropriate level in the stakeholder chain.

Furthermore, **comparative expertise, given by civil society, academics, etc., should be developed**, in particular when the themes in question demand a certain degree of technical knowledge, which is the case in the financial sphere. This expertise will round out the usual feasibility and impact studies



conducted prior to the implementation of these new measures.

Considerable financial support was given by the European Commission in setting up the association **Finance Watch**, backed by over 200 MEPs. The purpose of this association is to provide comparative expertise to assist the development of successive reforms of financial markets.

In addition to updating, even completely reforming, certain instruments, it is also necessary to support the development of practices and mentalities to adapt them to this nascent context. The challenges posed by the ecological transition should be the subject of **permanent dialogue to engage with public and private financial stakeholders**, but with comparative support from civil society.
The results of such dialogue should be recommendations and concrete actions undertaken by these stakeholders to contribute to the ecological transition. As an example from the State, a **club of public investors for the ecological transition could be created to participate in this dialogue**, as recommended in the white paper on funding the ecological transition. Ownership at the national level could also stimulate a broader movement at the European level.

Help stakeholders remove barriers to change, notably through economic and social compensatory measures for businesses and the most vulnerable households

Research in behavioral science could be conducted to help identify and promote favourable behaviour in support of the ecological transition, and promote the voluntary uptake of new measures whose social interest is recognised.

Providing medium-term visibility, notably by defining **a programme of planned measures**, enables economic actors to anticipate any ensuing changes. Not all actors have the same capacity to change their individual situations: **compensatory measures** for both microbusinesses and SMEs and low income households **could be implemented** to help with the modernisation process, in the interests of competition for businesses and social justice.

Support from actors with the economic and financial models for the ecological transition must be translated by an **adapted representation of professions.** The role of professional training will be essential, notably to support the transformation of certain employment areas (cf. objective 5).

GOAL 5 Accompanying the ecological transformation of economic activities







PRIORITY 1

Anticipating economic mutations related to the ecological transition and their social effects

PRIORITY 2

Accompanying professional transitions

PRIORITY 3

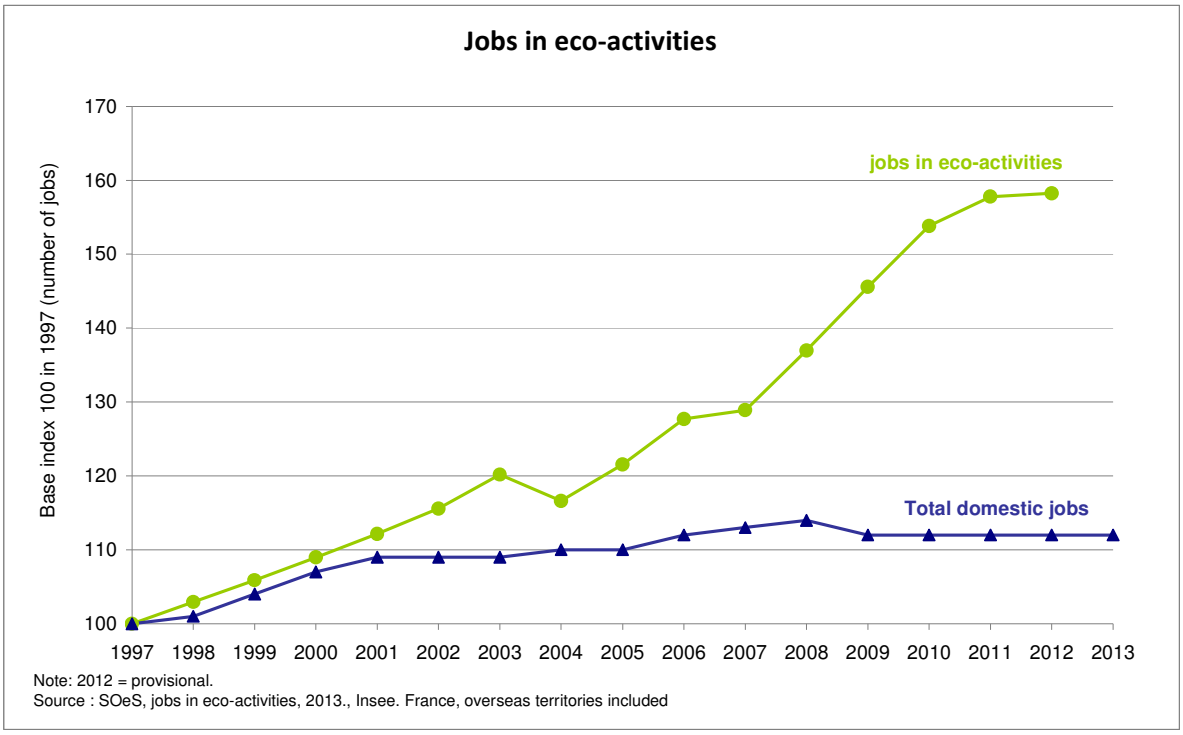
informing, encouraging and advising all economic players, especially SMEs and VSEs,

PRIORITY 4

Making corporate social responsibility a lever to support social and professional mutations

MONITORING INDICATORS FOR GOAL 5
The added value of eco-activities in relation to GDP
Number of students in final year of initial environmental studies
Job opportunities and offers in green or greening sectors
Professional integration of young people graduating in environmental training by field

Top-level indicators shown in bold



In 2012, there were 447,500 jobs in environmental activities (an average annual rise of 3.9% since 2004), nearly one million in "green economy activities" and between three and four million in greening sectors (source: the ONEMEV –national observatory of green jobs).

The ecological transition must be an opportunity for economic growth, a source of new jobs promoting social and territorial cohesion, and a set of human, social and environmental rights. A framework for corporate social responsibility should help actors to better meet these targets. Eco-industries already symbolise this development: they are growing and creating more and more jobs. The trade balance of eco-industries in the water, waste, energy efficiency and renewable energy sectors, supported above all by the COSEI (strategic committee for eco-industries) was positive (three billion euros in 2012) and has grown continually for the past 10 years.

In fact not just eco-activities but every sector of activity and industry can benefit from the ecological transition if they anticipate and factor in more implicitly the quantitative and qualitative changes on all jobs. Whatever their size and sector of activity, businesses must question their governance system, their work organization or their needs in terms of new skills. While the ecological mutation has already begun in some economic activities, the change of culture need to be engaged everywhere.

These transformations entail approaching differently two fundamental economic functions:

- **Conduct business alternatively:** we need to pursue transforming the governance system of businesses and organisations to include sustainable development challenges and the ecologiczl transition when defining global performance strategies. The maximisation of profit alone, ignoring social and environmental effects, can no longer be considered sustainable in a world where corporate social responsibility (CSR) initiatives have, for

the most part, become a stand-alone assessment criterion for all organisations. The social and solidarity economy, a lever of sustainable development and a source of innovation, has to be acknowledged and supported. This is the very purpose of the law of 31 July 2014 regarding the social and solidarity economy and directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups.

- **Produce alternatively**: the goal is to transform activities and modes of production and, this way, labour and employment. Changes brought about by the ecological transition affect all professions and the way they are exercised from two perspectives: they bring growth and the development of skills and responsibilities in certain sectors, while other sectors are experiencing profound needs in terms of skills and work organisation processes that can lead in the short term to the destruction of jobs and even the disappearance of certain types of work or professions that needs to be specifically addressed. These drastic changes in terms of training, skills and qualifications, and ultimately retraining/redeployment, in fact make the ecological transition an opportunity in terms of employment.

To prepare for these changes in the best possible way and meet the target to create 100,000 jobs by 2016, four actions are to prioritiseb:

- Anticipating economic changes linked to the environmental transition and their social effects; this entails being in a position to identify the needs (regarding jobs and skills) of employees and businesses;
- Supporting occupational transitions linked to the environmental transition by deploying an initial and continuous training policy designed to protect employment opportunities; the training "tool" being considered as an investment rather than a cost;
- Providing economic players with information, incentives and advice so they can make their own and share the ecological transition challenges in terms of social and occupational change (the objective here is to spur all public and private stakeholders into action);
- Making corporate social responsibility a lever to support social and occupational change.

PRIORITY 1

Anticipating economic mutations related to the ecological transition and their social effects

The quality of the analysis and understanding of the phenomena of change related to the ecological transition will have a bearing on our capacity to anticipate needs in terms of qualifications, skills, training and plan for retraining.

Sector-specific policies are defined in the form of public incentive policies. Within this framework, the most buoyant sectors in terms of territorial economic growth and jobs must be particularly targeted. At the same time, a coordinated effort must be undertaken to implement measures to support the restructuring of sectors undergoing redeployment and/or profound transformation.

2013 Environmental Conference - roadmap for "jobs, training and the environmental transition"
Measure 3*: "The emerging sectors are supported by the National Industrial Council/Strategic Committee for Eco-industries and the National Services Commission. Extra support shall be provided to four sectors (construction, active energy efficiency, biodiversity and ecological engineering, and timber) which will allow them to fully achieve their employment potential and rise to the skills development challenges that they will face."*

The economic sectors most concerned by the ecological and energy transition will be reviewed, based on earlier analysis, in the wake of the Social Conference, conducted by France Stratégie, the CNI (National Industrial Council), the CESE (Economic, Social and Environmental Council) and administrative authorities in charge of environment (national observatory for jobs and industries in the green economy), labour and economy, as well as by local actors, authorities and associations.

Developing sectors and activities and related technologies, which, tomorrow, could be put to work for the green economy, will thus be identified, as will any opportunities, barriers and threats.

A system for updating analysis and information collected as well as identifying outlooks of the different sectors will be established, in the wake of the Social Conference and the Environmental Conference. These foresight studies will explore the changes required to build the economy of tomorrow. Foresight observatories in different sectors will be highly involved with the aim of **strengthening and generalising intersectoral initiatives** for industries at the juncture of several sectors[14].

Training bodies, universities, *grandes écoles*, and apprenticeship and vocational training centres could then use these efforts to develop their own training programmes. This concerns educational practices and the disciplines taught, but also how the education system operates in the territories. This foresight and support process must be planned to act as a lever for competition, growth and jobs.

These efforts will be shared with bodies specialised in training-employment relations under the responsibility of the ministers in charge of national education and higher education, in conjunction with all ministries with accrediting powers.

14 Cf. for example the energy transition programming bill

These different initiatives will also be presented systematically to the national consultation or consensus-building bodies in the area of employment and training (law no. 2014-288 of 5 March 2014 regarding vocational training, employment and social democracy) in order to shed light on the decisions made.

An "employment, training and ecological transition" working group was set up within the CNEFOP (national council for employment, vocational training and guidance). Its purpose is to initiate dialogue with other actors, notably the National Council for the Ecological Transition.

At the territorial level, these initiatives must be developed and adapted within existing bodies (regions, departments, employment areas depending on the specific case) for piloting regional "employment-training" and "regional jobs and skills management (GTEC)" strategies.

Regions which have yet to implement sectoral policies incorporating the environmental transition will be encouraged to do so, facilitated by the State-Region Projects Contracts (CPER) and with the support of territorial economic cooperation clusters that draw on forms of social and solidarity economics for the development of regionalised sectors, and regional economic, social and environmental councils (CESER).

As regards both foresighting and supporting actions at the regional level, **European instruments such as the structural funds** (ESF initially) **will have to be requested/activated more and more effectively**, to support and extend national public policies.

PRIORITY 2

Accompanying professional transitions

Following up on the 2013 Environmental Conference (round table on jobs, training and the ecologcial transition), one experiment by *" three regional demonstrators of support given to occupational retraining in employment areas particularly concerned by the ecologcial and energy transition, aiming to protect the career prospects of employees or job seekers moving over from a vulnerable profession to a developing profession linked to the ecological transition" was conducted in Alsace (Molsheim area), Haute-Normandie (Le Havre-Fécamp) and PACA (Etang de Berre). The outcome of these works and follow-up activities shall be disseminated across the territorial jobs and skills foresighting initiatives supported by the public authorities."*

Based on joint assessments, public action structuring industrial sectors for green growth could be reoriented and relaunched to formulate a global strategy for developing greening jobs and sectors. **A public policy for training and the acquisition of skills related to or impelled by the ecological transition must be implemented**[15]; not only in the aim of developing the green economy, but also of restructuring and redeploying struggling traditional sectors and employment areas. Such a policy targeting initial, continuous and vocational training (through

15 Cf. the "jobs, training and environmental transition" roadmap for the 2013 Environmental Conference. "Une mobilisation de long terme en faveur des métiers de l'emploi et des métiers dans un contexte de transition écologique doit viser à adapter aux réalités et perspectives de cette transition le marché de l'emploi et les services de la formation et de l'orientation. "

which regions have seen a general upturn of skills) should be used to:

- direct or redirect credits to more appropriate training programmes[16];
- identify typologies of territories, regions, employment areas in the "green economy" and formulate a global strategy for greening sectors and jobs within the framework of the environmental transition;
- regulate the effects of retraining and restructuring on the environmental transition, notably in struggling sectors, such as traditional car industry, refining and chemicals, whose workers are more likely to face the need for retraining;
- help advance the transition to the green economy and the social responsibility of businesses and improve competition in the economy.

The public policy regarding the acquisition of skills to support the ecological transition and retraining for territories and employees must be adapted **on a binding and contractual basis to the CPRDFOP (regional training and career guidance development plan contracts)**, notably with regard to training, in the sectoral contracts (industrial and non-industrial) and through agreements between social partners, at the sectoral and business level.

A further necessity is to **steer vocational training more towards sectors, skills and professional development related to the green economy**. **The offering of continuous learning will be updated** in consultation with accredited collection organisations for training fund contributions and social partners. **Regional schemes for initial vocational training (apprenticeship, work/study programmes) and continuous learning will be established** in order to adapt training to future needs of each regional economy, whether this entails adapting to jobs or supporting professional development in specific job sectors.

Jobs and skills foresightinh (GPEC) will focus more on identifying and qualifying professional development opportunities in green or greening sectors, both within sectors and within territories and employment areas (territorial jobs and skills management).
Regarding collective negociations, professional sectors will be invited, when they implement prospective study contracts, **to set a strategic priority for the ecological transition**. Professional mobility will be facilitated by **improving the guarantees attached to individuals and by protecting professional carrers**, which should give effect to employee rights.

At the local level (i.e. region), **public employment services will be mobilised to pursue** these same objectives and increase initiatives for supporting individual and collective retraining in sectors and industries in the green economy and green and greening skills.

Lastly, **an evolving directory of industries in the green economy will be created and regularly updated.**

16 The consequences of redirecting credits must, of course, be assessed.

PRIORITY 3

Informing, encouraging and advising all economic players, especially SMEs and VSEs

Today, new markets related to green economy are being developed, in construction, in transportations means alternative to individual cars and in energy, but also services and other sectors. Customers and users, increasingly aware sustainable development challenges, expect solutions and products that are environment friendly and socially responsible. By incorporating sustainable development principles into a business is run, a business can anticipate regulatory changes and understand the levers for growth afforded by the green economy and the social and solidarity economy, engage employees and improve brand image.

In general terms, the ecological transition and sustainable development principles need to continue to spread through the economy and among all its stakeholders, in particular SMEs and microbusinesses. Public authorities have a duty to inform, educate and encourage stakeholders through any means at their disposal and provide technical assistance and advice adapted to every economic actor, beyond their official responsibilities. Support for social and vocational change must be deployed as close to the field as possible to provide the most effective help to actors in need of such assistance. This is why local politicians and managers are the primary targets of training and awareness actions.

In this context, the aim is to:

- **factor in the consequences of environmental regulation on economic stakeholders and jobs**;
- **educate public and private decision-makers on the challenges of sustainable development** – national and local politicians, State representatives, company directors, professional unions, trade unions;
- **guide business leaders** by educating and training them on the ecological transition challenges and setting up advice and support services in priority to SMEs/microbusinesses, but also by updating, in collective labour agreements and public statutes, the criteria applied to recognise new skills demanded by the ecological transition in classification charts. These objectives will be carried out above all with the support of professional and/or interprofessional organisations in the sectors concerned;
- **help and encourage public and private organisations to educate and train up all their employees** on the challenges and processes associated with the environmental transition, prioritising existing resources before creating new ones.

The development of especially buoyant sectors and industries (waste, water, etc.) and **the implementation of an equal opportunities approach for men and women regarding new job opportunities in green sectors** will also help take effective action in this area. One specific objective to **explore is the professional integration of young people graduating in environmental disciplines** in order to facilitate their integration.

Lastly, it might be useful to **provide training to professional unions and employee representatives on methods for calculating environmental impacts** (carbon, biodiversity, pollution, footprints, life-cycle analysis, etc.).

Making corporate social responsibility a lever to support social and professional mutations

The ecological mutation of economic activities falls outside the scope of a company's business of creating wealth. A business must also factor in the potentially adverse and positive effects it can produce on environment and society, by improving its decision-making, management and professional conduct.

Corporate Social Responsibility (CSR) needs to be approached as defined by the European Commission (communication of 25 June 2011) which described it as "the responsibility of enterprises for their impacts on society". In order to fully meet its social responsibility outside its obligations to respect its social, legal and conventional responsibilities, "enterprises should have put in place a process to integrate social, environmental, ethical, human rights and consumer concerns into their business operations and core strategy in close collaboration with their stakeholders".

This process aims to:

- maximise the creation of shared value for their owners/shareholders and for other stakeholders and society at large;
- identify, prevent and mitigate the possible adverse impacts of businesses.

It is this definition of CSR which is today encouraged through the implementation of the national CSR platform, under the authority of the Prime Minister, which sets an ambitious goal for developing CSR in France. The first working themes – "CSR as a tool for competition", "transparency", "responsibility in the business value chain (parent companies, subsidiaries, subcontractors, suppliers)" and "socially responsible investment" (SRI) – illustrate this goal to **consider CSR as an asset to the social performance of the ecological transition** and for directing the economy towards sustainable development, underpinned by three traditional pillars:

- respect for the environment as a basic principle of any strategic project undertaken by an business;

According to the INSEE study on businesses with staff of more than 10 employees and sustainable development in 2011, 52% of businesses said they were involved in CSR initiatives.
As regards businesses with over 500 employees, 84% of them said they were conducting CSR actions, a figure that dropped to 23% for companies with under 50 employees.

- strengthening relations with stakeholders (partners, subcontractors, local authorities, NGOs, etc.) following collaborative plans;
- building legitimate and beneficial social relations beyond the traditional scope of labour relations within a business.

To this end, **the training of instructors,** (making a distinction between training teachers and training instructors) **must be encouraged.**

Furthermore, the support of other institutions such as the INRS (national research and security institute) must be engaged to **factor in the impacts of the environmental transition in the area of risk management.**
In general terms, all global and European initiatives must be harnessed to promote CSR.
Lastly, it seems relevant to **increase efforts on issues relating to security** specific risks) **and quality of employment** (from a social responsibility of organisations perspective) regarding sectors in the green economy in every link in the business value chain
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GOAL 6 Guiding knowledge production, research and innovation towards the ecological transition

PRIORITY 1

Associating stakeholders in research choices

PRIORITY 2

Facilitating innovation initiatives with all players

PRIORITY 3

Associating stakeholders in efficient knowledge and data production

PRIORITY 4

Facilitating and encouraging access to data and to scientific results

MONITORING INDICATORS FOR GOAL 6
Public and private R&D expenditure (including environmental)
“Investissements for the future” run by the ADEME : leverage of public intervention on private investment
Number of people involved in participatory science in the field of biodiversity
Increase in amount of documentary data input on the portal "Tout sur l'environnement"
Increase in amount of documentary data input in the nature and landscapes information system

Top-level indicators shown in bold

To achieve the objectives, the ecological transition will have to forge new paths for individual and collective action, in environmental, economic and social spheres, that take into account uncertainties, both in terms of understanding current phenomena and how they might evolve. It therefore needs to rely on data and knowledge (regarding physical, biological, technological and behavioural factors), some of which is already available or needs validations although there are gaps that need to be filled, as well as on technological, social and organisational innovation.

The research and innovation needed to promote the ecological transition has to dovetail with observed trends and current institutional initiatives, in France and in Europe. For example, French scientific communities are coordinated within the framework of five alliances, concerning the environment (Allenvi), energy (Ancre), health (Aviesan), digital technology (Allistène) and human and social sciences (Athena). These alliances have the capacity to easily identify the R&D strengths in place and ready to be mobilised in the different themes. COMER (the specialised committee for marine, maritime and coastal research) run by France's national sea and coastline council, will also contribute in its specific areas of competence.

The National Research Strategy (SNR) initiated by the bill on higher education and research of July 2013, has been formulated around social objectives shared with the European Horizon 2020 strategy and which takes into account the ecological transition. Research and innovation actors and ministries have been involved in these efforts that will help the government promote priorities that factor in economic, social and environmental obligations while maintaining the essential foundation for all disciplines, fundamental research in particular. The bill on the energy transition for green growth highlights the importance of research and defines how the national energy research strategy is coordinated both with the SNR, the low-carbon strategy and the multi-year energy progamming. Specific directions in the area of research are being formulated by other sectoral initiatives, such as for example the third PNSE (National Environmental Health Plan) or the National Strategy for the Sea and Coasts, in preparation.
In this context, the SNTEDD seeks to identify key factors that will help direct and lead research efforts and promote them as a response to the ecological transition challenges and specific needs

The strong focus given to innovation led to the recent implementation, in France, of different strands of public policies and universal collective initiatives, like the "New order for innovation" undertaken by the government, in light of the directions recommended by different public reports. A part of the 34 plans for the "New Industrial France" and associated roadmaps concern essential industries or products for the environmental transition (transport, energy, resources), as do a portion of the priorities identified by the Innovation Commission (for example, energy storage or materials recycling), priorities for which solutions are also being sought through an international innovations competition. In this perspective, it is necessary to identify and underscore the crucial questions regarding innovation working for the ecological transition.

Furthermore, aid for investment and research needs to be more or better targeted at sectors contributing to the green economy, notably by directing investment from BPI France (public investment bank) to provide greater support to economic activities incorporating the objectives of the environmental transition and emerging sectors in every industry, and in particular SMEs and microbusinesses.

At European, national and regional levels, green and energy technology demand

particular attention in terms of innovation: moderate and sustainable technologies are a source of competitiveness for the industry that implements them and for businesses that design and disseminate them.

To make decisions in situations of uncertainty or debate, to implement collective or individual behaviour change, it is essential that scientific method, exploited data , resulting knowledge and any related uncertainties are understood and shared. Consensus-building and collective decision-making and action need a solid and joint foundation of data and knowledge, whose access needs to be facilitated.
It is with this objective in mind that many initiatives have been undertaken to facilitate access to environmental data on the one hand and public data on the other, to provide a more effective framework for expert appraisals and legal protection for whistleblowers in the field of environment and environmental health. Furthermore, in addition to the principle established regarding access to environmental knowledge to as many people as possible, protocols and formats are currently being set out to enable interoperability of this data.

To make the shift from innovation, whether it be technological or institutional, to change, it is essential this innovation is understood, accepted and appropriated better by each actor. Depending on the fields or questions tackled, this ownership can be facilitated through stakeholders association in innovation processes or in the definition and construction of research questions. This is one of the conditions to ensure that any future innovation does lead to effective collective progress.

The transformations required to effectively lead the ecological transition will be expressed in complex and ever-evolving local and global contexts: occupation of land and territories, environments, climate, economic activities, institutions and governance... To lead and direct the environmental transition, it is essential we are able to analyse and anticipate changes at work and evaluate public policies and collective action. Managing the transition must therefore rely on research, in particular on interdisciplinary research that combines life and earth sciences, engineering and architecture sciences and human and social sciences.

PRIORITY 1

Associating stakeholders in research choices

To successfully complete the ecological transition and anticipate and adapt to future global or local changes, at different time horizons, currently available scientific knowledge and outcomes is not sufficient. Research efforts must factor in challenges and priority needs of the transition, which concerns collective actions or the activity of economic actors, at the "national" or "local" level, in calendars adapted to the different parties. It is also crucial that research has the capacity to develop long-term projects, to anticipate change and warn actors, and to provide an independent critical perspective.

The question of potential coordination between public research and private research (positioning, complementarity, collaboration, etc.) is posed field by field, and is contingent on challenges, skills and resources in place and under construction and development processes specific to each of these fields.

To ensure stakeholders have the capacity to support the transfer and implementation of results, it is important that **certain research questions be formulated by scientists and stakeholders working together, the latter of which must play a proactive role,** and also be consulted to define programmes in full legitimacy incorporating the specific time constraints of the research. Different scientific projects can require very different time frames.

Even if programmes and priorities, defined for example within the framework of Horizon 2020 or the National Research Strategy, factor in the challenges posed by the ecological transition, they can open up questions that are unrelated to anything else or poorly developed. It therefore seems important that **the project leaders of challenges and policies can directly create and support scientific projects,** ones that complement generic research funders.

A co-construction approach to research, when it targets well-defined social challenges, is also a factor that effectively promotes multidisciplinary and interdisciplinary scientific partnerships that are vital in many themed areas considered by this strategy.

Drawing on and adapting the extended governance system put in place in environment-related fields, it is important to **involve diverse representatives of civil society in policy work** undertaken by establishments developing research and assessment activities in specific areas of the ecological transition. It is also a matter of identifying, in each of these fields, how to **facilitate and improve the transfer and use of results produced by research.** In this regard, the Horizon 2020 strategy has drawn attention to this question by involving SMEs in research projects.

Scientific support that can be given to decision-makers and leaders is not intended to replace their responsibilities nor simplify complex situations, but it does constitute a useful aid for decision-making and lends support in factoring in any complexities. This process of interaction requires **the development of practices and the sharing of successful experiences**, complementing and in coordination with technological, cultural, artistic and managerial support. These questions can be tackled through collective action within associations or multi-actor platforms on the one hand and events and training for decision-makers and their departments on the other.

The **Commission d'orientation de la recherche et de l'expertise** (Orientation Committee on Research and Expert Assessment) at the INERIS (National Institute of the Industrial Environment and Risk) identifies and submits questions to tackle in priority, and can give an opinion on the aims of research and support programmes planned by the institute. It is consulted regarding the methods employed to disseminate scientific projects in such a way as to give access to the general public and regarding the content of certain study reports. It is composed of qualified experts from higher education or research and bodies representing diverse stakeholders: industrial leaders, associations, trade unions, politicians, the State.
Another example is the Conseil d'Orientation Stratégique de la Fondation pour la Recherche sur la Biodiversité (Strategic Orientation Council of the Foundation for Biodiversity Research, which brings together the project leaders of biodiversity challenges (over 110 organisations within 40 groups). The latter, by bringing their expertise to the field and formulating research questions, are actively involved in certain foundation activities.

As part of the ecological transition, **various issues must be supported, in a fully interdisciplinary approach,** such as, for example, the vulnerability and capacity for adaptation of territories, natural environments

and human activities in the face of climate change, the development of environmental health risks, the development and restoration of services provided by nature, changes to the mobility of people and goods.

Existing methods and tools providing a clear and transparent means to tackle emerging risks linked to new technologies are still insufficient. To resolve this, we need on the one hand to **develop research activities that contribute to producing knowledge and methods** and, on the other, **support, in quantitative and qualitative terms, an operational sector** that is capable of co-developing, with research, innovative tests which should be implemented for evaluation purposes. Efficient frameworks for interaction should be put in place between public research and this sector so that it can be propelled to the cutting-edge of knowledge.

It seems useful to **analyse, understand and assess the contribution of applied research to the ecological transition** such as, for example, within the framework of French, European or international research programmes, Investments for the Future programmes, activities conducted by competition clusters, or large research infrastructures, etc. To do this, a methodological approach should be taken to mobilise stakeholders directly concerned by the environmental transition and representatives from the research world.

The environmental conferences have underscored needs in terms of strengthening scientific fields (preventive toxicology and ecotoxicology, systemic research into biodiversity and the services they provide) and more targeted objectives (knowledge of marine species and ecosystems in various regions and notably overseas, potential recycling technologies and systemic analyses integrating economic and sociological dimensions, vehicles consuming 3,2 litres of petrol for every 100 miles, etc.).

PRIORITY 2

Facilitating innovation initiatives with all players

Innovation, i.e. developing or introducing a new or significantly improved service, product or process, is borne and driven by a large number of actors, in partnership or collaboration between businesses, national or local authorities, citizens, etc. Innovation for the ecological transition cannot be simply reduced to its technological dimension and must also incorporate developments in respect of methods and governance. It only makes sense if deployed to promote more sustainable lifestyles and modes of production. Innovation does not constitute progress by itself: it can lead or contribute to progress provided that it meets the needs of actors, respects the main collective interests and integrates into an operational management system that will ensure its sustainability.
Under these conditions, innovation is a lever for sustainable economic growth.

PATENT APPLICATIONS IN THE FIELD OF ECO-INNOVATION PUBLISHED BY THE FRENCH PATENT OFFICE In 2011 per field

Patents in the field of renewable energies represent **over a quarter** of all patents.

Source: INPI, 2011 data - Processing: SOeS, 2014

Nevertheless, while this entails increasing the competitive edge of the economic fabric, it also means we need to be creative and up to date, particularly in respect of public policies, to be capable of accomplishing the ecological transition and adapting to the complex changes society is undergoing or we want to set in motion. To achieve this, 50% of all innovation funds of the Investments for the Future programme (PIA) will be allocated directly or indirectly to the ecological transition. By way of example, one of the actions of the second PIA focused on demonstrators of the ecological and energy transition.

The strategic State will seek to strengthen its capacity for foresight analysis and anticipation, in particular by conducting global analyses by sector in order to identify priority actions in respect of the challenges (resources, energy, impacts on climate, lifestyles), where necessary adapted to local specifications or future innovations. Similarly, at the European level, it is important to implement the discussions on European Innovation Partnerships, which mobilise the public and private actors concerned, and whose objective is to stimulate innovation through an approach that incorporates policies and sectoral procedures. **Public action must focus on the comprehensive and integrated analysis of barriers to innovation**, incorporating questions related to safety and security as well as financial risk. These analyses will be carried out factoring in a broader range of subjects, i.e. changes in society twenty years from now, changes in lifestyles and practices that are already taking shape.

Innovations need to be developed and assessed in urban or territorial services and the corresponding infrastructures in the building, environmental engineering, territorial development and environmental sectors. To this end, it may be necessary to **carry out full-scale trials** (for example, decentralised water management initiatives, incorporating only partial treatment and new, individual and collective, re-uses of waste water). Some of these experiments are still restricted or even prohibited under regulations and norms in force defined within broader frameworks (safety, health, public procurement, etc.).

Biomimicry is an approach to innovation that seeks sustainable solutions to human challenges by emulating nature's strategies to synthesise and degrade materials, settle or move about, store or distribute energy, process information, arrange networks and exchanges and many other processes. In addition to the other challenges of biodiversity, this area offers fantastic wellsprings of innovation for businesses, infrastructure networks, territorial planning and agriculture. In France, networks for research, knowledge dissemination and even support for international standards developments are provided a framework by competitive clusters, skills clusters and specialised associations and a dedicated French standards commission to help businesses and territories in this new field of innovation, through an interdisciplinary approach.

To achieve this, in respect of the precautionary principle that is also a principle of innovation, regulations and norms must be able to support experimentation within a well-defined framework, when serious scientific, technical and/or social evaluations have been undertaken beforehand and used to provide the necessary guarantees (explanation and characterisation of risks and uncertainties, potential irreversibilities, validated and/or pluralist diagnosis, transparency or managed confidentiality, etc.). Similarly, since innovation in the technologies adopted by a local authority always constitutes a major financial and social risk, solutions to support the collective sharing of these risks will be explored, requiring, for example, the implementation of insurance schemes.

To complement and dovetail with French research and innovation strategies, in the interests of simplification, **access of SMEs**, true pillars of innovation, **to aid will be made easier.**
Each actor can be a leader or co-leader of innovation. This will entail **facilitating the expression and experimentation of innovations borne by civil society** and intermediary actors (notably design offices and architects), and **strengthening the role and involvement of territorial authorities and other contracting authorities.** These will be the key actors involved in the deployment of innovations and their implementation at the territorial level. Master's and PhD programmes can also be used as levers to disseminate new technologies and research findings.

To disseminate and adapt innovations more effectively, it will be important to develop exchanges and collaborations between organisations which can, depending on the particular circumstance, be working in the same or complementary fields.

Intelligent transport consists of innovative systems applying NICT to transport. It covers information supplied to users and help with dynamic network management. These systems are being increasingly extended to new mobility services. These systems are designed to promote safety, comfort and accessibility for all, notably passengers with disabilities and even reduce environmental impacts. Recent technological progress and experiments now make it possible to move to the pre-deployment phase, in particular with regard to the connected vehicle. Indeed, the State has been involved in February 2014 in defining strategic directions to establish priority services and their functional and technological specifications.

PRIORITY 3

Associating stakeholders in efficient knowledge and data production

To understand and assess, an access is needed to clearly-defined and relevant data collected over long periods of time and within geographic limits pertinent to the issues raised. This is especially the case for the objectives presented in this strategy. It is important to **maintain, and in certain instances develop, long-term observation systems in scientific or operational fields**.

Regarding knowledge and data production , the actors are extremely diverse and consequently often difficult to engage in the process. However, for many years, a number

of volunteer actors, have created information networks, that have helped drive knowledge in a wide variety of fields, for example in meteorology or ecology. It is necessary to **acknowledge and support this approach to collective action that stems from participatory sciences** while making sure the results and protocols in place are reliable. The 2013 Environmental Conference underlined the importance of mobilising this group by implementing priority actions concerning the acquisition, dissemination and promotion of scientific and technical knowledge on marine ecosystems.

In the business area, data is seldom made public spontaneously. Some of this data would, however, be very valuable in terms of its contribution to collective intelligence. **Explorations and opportunities must be pursued in this direction** provided industrial secrets are protected and ensuring that the progress of the scientific community in very competitive fields is never compromised. Chambers of Commerce and Industry (CCI) could be key actors to support action and exploration in this area.

In particular thanks to new technologies, exchanges are not restricted by geography and knowledge is, in fact, proliferated. The Internet boom has promoted the exchange, dissemination and pooling of all kinds of information. The issue now is putting the conditions in place for producing and using this knowledge effectively. **The objective is to organise and even request this information**, because often it can only be valuable as reference data when it is characterised and coherent and in sufficient volume as to be representative.

To pool and accelerate knowledge production , future objectives include: **integrating data from third parties in the most efficient way** following recognised and formalised protocols; **adapting information systems to the feeding in of data from multiple producers; encouraging platforms** for sending out information generated by scientific observation systems and operational observations systems, and **pursuing the creation of protocols to promote interoperability** in relevant sectors.

PRIORITY 4

Facilitating and encouraging access to data and to scientific results

Guaranteeing information and knowledge access to citizens, consumers and users, as well as innovation and economic activities leaders, is a very significant issue. As specified by the governmental policy regarding Opendata and access to public data, access to data is a democratic issue entitling citizens to consulting, interpreting and using data. The 2012 Environmental Conference concluded that the main findings and existing results, produced by public bodies, in the area of environmental health risks, and emerging risks in particular, should be made available to the public.

However, a citizen might find it quite difficult to qualify the data and results, understand their significance and limitations and gauge their scope. Access to scientific information also has a particular role as regards clarifying and facilitating debates, action and decision-making on subjects concerned by uncertainties, forecasting and debates, of which there are many in the fields of health, energy, risks, climate change, etc. The proliferation of information sources can inhibit rather than facilitate the appropriation of available data and reinforces the need to

structure how scientific data is made available.

Developing a culture of access to high-quality, pluralist information, beyond the culture of forming a joint vision of the information available, between stakeholders, is a means to gauge the effectiveness of the sweeping change our society will have to go through in the face of global and local factors of change.

Administrative authorities produce data with a growing obligation to make it available. In a context of reduced public spending, it is important to **ensure these actions are effective and correctly prioritised.**

Access to environmental data is an established principle today and the corresponding operational frameworks continue to be put in place. Notably they must **ensure that exported data is accompanied by information on its significance, limitations and scope**, in formats accessible to stakeholders. One conclusion reached at the round table on the water policy, held at the 2013 Environmental Conference, concerned the guarantee and reliability of access for citizens to easy-to-understand data on water.

The provision and communication of scientific results is prescribed in the legislation. The legislature's intention that the evaluation practices and frameworks and their activities be perfectly integrated into all these missions takes on particular importance in each area of the environmental transition. Notwithstanding ongoing discussion on access to scientific publications, it is important **to produce non-technical documents, make them available and link them as much as necessary with databases produced from research work.**

The widespread implementation of transparent monitoring and information mechanisms for all stakeholders (subject to the principles of protection of private life and industrial property), is a lever for supporting and facilitating the full-scale trialling of innovations, in particular if they are exempt from general regulations for the purposes of experimentation, after prior evaluation, similar to the regulations that exist for certain installations presenting risks.

In order to progressively improve the conditions for accessing knowledge and data, it is needed to **promote research and studies into the sharing and perception of data in social groups**, in accordance with the themed area of this strategy, and create an open database fed with the results from the work in this area.

GOAL 7

Educating, training and raising awareness for the ecological transition and sustainable development







PRIORITY 1

Generalizing education on the environment and sustainable development from nurseries to higher education

PRIORITY 2

Promoting initiatives, experimentations and citizen innovations

PRIORITY 3

Fostering information sharing on the environment

PRIORITY 4

Encouraging change of lifestyle within society

MONITORING INDICATORS FOR GOAL 7
Number of students in their last year of environmental studies
Number of initiatives related to sustainable development education at primary and secondary levels
Number of people involved in participatory science in the field of biodiversity
Evolution in the use of the portal "Tout sur l'environnement"
Declared consumption of ecolabelled products

Top-level indicators shown in bold

The ecological transition towards sustainable development implies updating our representation of the world, our living environment and lifestyles and new time constraints.

Its success is contingent on ensuring that the various components of society are able to make challenges their own and to adopt new points of references and new individual and collective behaviours to tackle them. The continued rise of the general level of training of the population, observed in France, offers a favourable context for moving full steam ahead in this direction.

Investing in the future, by making the ecological transition a positive initiative shared by as many as possible, will rely on raising awareness and providing information, education and training to all.

By helping to formally set down a joint vision shared by the different target groups, education for environment and sustainable development (EESD) gives each actor the keys and resources to understand our changing world and the ecological transition challenges

To this end, it is important to act in a simultaneous, convergent manner in all fields and stages of education and training, the effects of which are shown in different points in time, in order to ensure the continuum required to increase individual and collective capacities in support of the ecological transition.

This will entail, complementary to life-long training at the service of employment and activities, as prescribed in objective 5, to pursue and reinforce the integration of strategic objectives into the school, out-of-school and extra-curricular education and higher education systems, and beyond that to mobilise and be supported by the full diversity of educational facilities (youth clubs and centres, cultural artistic and sports activities; citizen initiatives, raising awareness among consumers, etc.).

Education for environment and sustainable development (ESDD) must set new ambitious sights. This policy will be supported by voluntary action undertaken by public authorities and the concerted efforts of multi-partner projects involving the diversity of public actors and those from civil society, at every territorial level.

As highlighted at the 2013 Environmental Conference, mobilising the different groups of actors will require coordinating the different policies and initiatives in these areas by:

- including the environment and sustainable development in the education curriculum, from nursery schools through to higher education establishments;
- promoting the development of initiatives, experiments and innovations led by citizens;
- accelerating access to and sharing of information;
- helping individuals and organisations change their choices and behaviour.

In 2015, France is the official host of the 21st United Nations Climate Change Conference (COP21), an event that will mobilise young people and French society more widely in support of this ambitious education objective.

PRIORITY 1

Generalizing education on the environment and sustainable development from nurseries to higher education

To enshrine the principles of sustainable development and the ecological transition in a long-term approach, the associated objectives must be incorporated into the general curricula of initial education and training, primary and general, technological and vocational secondary education and higher education.

Pursuant to the reform bill of French schools, education for environment and sustainable development is prescribed in the Education Code. The directions defined by the Higher Council for Programmes aim to incorporate education on sustainable development more fully into the curriculum by **integrating the issues specific to these cross-cutting objectives in all teaching programmes in France.** This process has already been implemented in the education and diploma programmes of general, technological and vocational department in schools and technical agricultural colleges, including in the approach to the industries for which they prepare students.

The reform bill for French schools also provides a framework for **training future teachers on the major challenges ahead, notably climate change, biodiversity, the energy transition, health, risks, and international solidarity at ESPE (teacher training and education institutions) and graduate schools by promoting interdisciplinary approaches.**

More broadly, this entails **making educational establishments, from primary and secondary schools through to higher education and technical agricultural colleges, places for learning and experimentation.**

Updating the content of frameworks and training of teaching staff, redefining the role of agricultural facilities at establishments and strengthening regional governance are the objectives of the **"Teach alternative ways to produce" action plan** to prepare tomorrow's farmers to be agents of the agro-ecological transition initiated by the future law for agriculture, food and forests of 11 September 2014. In this framework, innovation projects will be undertaken by **agricultural training** establishments to develop more efficient forms of agriculture from an economic, social and environmental perspective that respect agro-ecological principles. Changes observed in the field are evaluated, described and then integrated into education programmes in which students are actively involved.

To achieve this, **schools and educational establishments can develop projects related to global sustainable development** issues, while increasing **cross-cutting educational actions** (including school trips, discovery classes, participatory sciences, territorial education projects, academic initiatives) and **forging multiple partnerships** with territorial actors, notably related to the subjects taught.

Tools for sharing experiences and resources on sustainable development educational projects will be formulated to support education teams at the academic and local levels. Special attention will be given to staff training on global initiatives, in order to support their long-term professional development, in line with the target to produce 10,000 projects from schools and establishments implementing these initiatives by 2017 as outlined in the 2013 roadmap for the environmental transition.

In this respect, it is also important to **strenghen the integration of environment and sustainable development into high education courses,** for example by formulating, in association with stakeholders, **a universal skills and knowledge framework** in the area of sustainable development, promoting the skills acquired by students, including any voluntary work undertaken.

The increased promotion of "exemplarity" and social responsibility programmes at universities and *grandes écoles*, notably through certification and **the integration of sustainable development criteria in the accreditation mechanisms for high education programmes** or for regulated professions such as architecture through the skills required by the European directive, will be implemented from 2015 to make these establishments integral places for education at the service of the environmental transition.

Steering the new direction of this field of education also consists of **mobilising voluntary research and study actions regarding education for environment and sustainable development** (EESD) notably based on research into education sciences as well as human, social, economic and other sciences. It is needed to explore, notably through action research, educational strategies and learning methods that can provide more meaning to the objectives presented and the changes expected from citizens, so resistance or uncertainties can be taken into account in order to remove such barriers.

Developing a field of research of this kind in France is essential to help **enrich and extend appropriate training** programmes on environment and sustainable development challenges aimed at educators, instructors and professionals working in the field of formal education, instruction and sport, and training.

PRIORITY 2

Promoting initiatives, experimentationss and citizen innovations

The ecological transition must be thought out and implemented at the same time as it is formulated. The objectives will be all the more easily understood that initiatives and projects will be tangible and directly adopted by people and organisations.

The solutions to be found must fit into a dynamic framework that promotes innovation in all its guises, including in new forms of participation and self learning. Moreover, the country strongly needs to rely on a new culture of entrepreneurship, strengthening the capacity for adaptation of each actor to the necessary transformation of activities and modes of production and consumption.

This momentum and process of "learning" is already in action, particularly in the context of local experiments, territorial projects and social innovations, as well as within families, essential actors in processes involving education, socialisation and the construction of lifestyles.

They rely on **consensus-building, participation and educational processes** accompanied notably by associations or **new collective forms of organisation of citizens** (collaborative consumption, knowledge exchange networks, consensus-building spaces for EESD, self-training for individual building renovation projects, etc.).

The action and support frameworks for citizenship through popular education, economic, social and solidarity practices and risk prevention education also contribute to this process. All these opportunities will be encouraged and exemplarity promoted. This will require, for example, greater development of civic service, volunteer associations, international volunteering, municipal civil protection reserves, accompanying projects to support a sustainable and ethical society.

A regional initiative in Nord-Pas-de-Calais, aimed at all members of the community (children, families and individuals) offers **participatory workshops** on environmental practices that you can do at home. You can learn about your surrounding environment (walks and fruit picking), learn alternative ways to consume by reusing materials (bike repair workshop) and saving energy. but also how to reduce waste (make a worm composting bin, preserve your own fruit and vegetables) and make more environmentally-friendly choices every day (household cleaning products).

These workshops are a great opportunity to adopt knowledge and techniques but also to exchange ideas and share information.

Similarly, **local authorities have initiated new forms of involving citizens** through cross-cutting and systemic policies, such as the Agenda 21 initiatives that are based on collaborative learning and the extension of territorial sustainable development projects. In this respect, local politicians have a vital role to play when it comes to educational and participatory initiatives.

Also contributing to this process are all artistic and cultural forms and media that **serve as interfaces between objectives and citizens through a fun and sensorial approach** (including film, theatre, music, urban art, animation, literature, festivals, etc.). These are supplementary vehicles for projecting ourselves into a positive "future of potential".

These pioneering processes have an essential unifying role that facilitates participation, voluntary participation and peer-to-peer learning (between citizens, employees, students, business people, politicians and consumers, etc.). They stimulate informal individual and collective learning and can evolve the way of thinking in this area. These processes should be promoted to advertize more broadly the shareable aspects and elements of innovation**.**

Regarding concerted initiatives carried out between public and private actors in favour of a more participatory society, **greater visibility will be given to the various co-assessed systems of voluntary participation and recognition, as well as co-produced labels**.

These initiatives contribute to the development of alliances, synergies and cooperation strategies such as those underscored in objective 8.

PRIORITY 3

Fostering information sharing on the environment

To understand their environment and take appropriate action, every citizen must have access to quality information in order to understand the challenges posed by the findings of research and be able to interact, as a stakeholder, with politicians, industrial actors, researchers and public services. It is important to open up dialogue between the different areas of knowledge, but equally important to include all participatory forms of debate. This helps advance the capacities of collective assessment.

All this knowledge must be made available to as many people as possible, for example through on-line courses offered to the public. In a democratic society, facts and assessments need to be shared by as many people as possible. If not, politicians who take inspiration from them may struggle getting others on board. Any information disseminated, notably environmental, must be clear and reliable.

In this respect, **strengthening and adapting information on environmental challenges aimed at different groups of actors in society** (decision makers, general public, professionals, citizens, consumers, economic actors, administrative authorities, etc.) is of utmost importance. At the same time, **improved media coverage of results** from observation, monitoring and assessment activities on the state of the environment based on the "collective assessment of service" is essential for encouraging a positive image of social representations, cultural references and schools of thought to evolve.

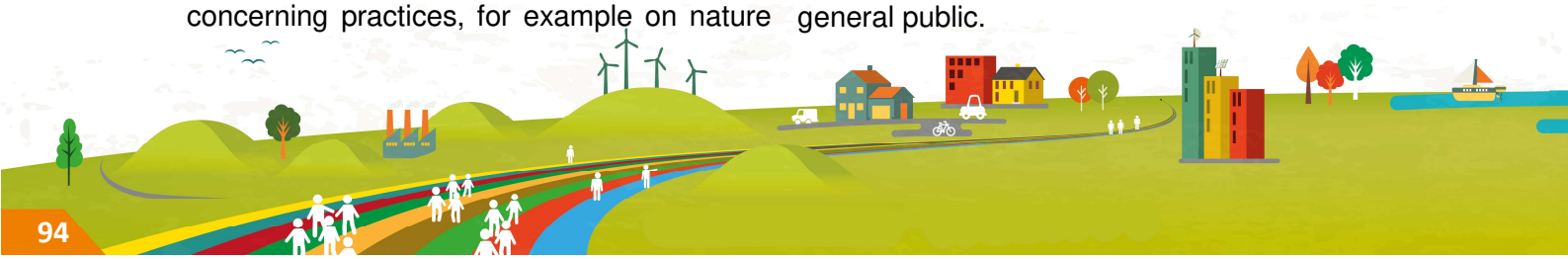
Improving public access to information regarding opinions and studies on emerging health risks (airwaves, nanotechnologies, etc.), updating public opinion on information concerning practices, for example on nature and biodiversity (meteorological events, seasonality of home-grown fruit and veg, etc.), on the memory of natural risks (flood forecasting, information documents on major natural risks, earthquakes) or even the changing landscapes encourage the sharing of knowledge, know-how and behaviour which is important for promoting intragenerational and intergenerational exchanges.

Better informed public

85,000

PUBLIC BIBLIOGRAPHICAL resources referenced on the portal **Toutsurlenvironnement.fr**

The **various places where knowledge is constructed and disseminated** (high education establishments, popular education networks and scientific resource centres, trade and professional unions, associations and foundations, public agencies) **need to come together to promote the dissemination of up-to-date and popularised information, adapted to as many citizens as possible.** Major national events, such as “Fête de la Science”, “Université de Tous les Savoirs” and “Fête de la Nature”, national fairs and meetings, exhibitions and events at cultural, arts and sporting venues and major film documentaries all make a useful contribution to disseminating information among the general public.



In these areas, **media professionals** (in the audiovisual and digital sectors) also **have a responsibility to better understand complex concepts** concerning major challenges faced by society. **Initial and continuous training in this professional sector needs to be adapted** to integrate the ecological transition. challenges

Digital communication is a large part of how society communicates and an essential vehicle for amplifying and multiplying information to as many people as possible by **making more and more information tools, with an operational dimension, available to citizens**.

Foresighting studies and research on the lifestyles related to new information and communication technologies could make a useful contribution to identify favourable practices for these new "sociability" and knowledge sharing tools while also integrating their limitations.

PRIORITY 4

Encouraging change of lifestyle within society

Encouraging and supporting changing practices and the shift from awareness to action are crucial in order to clearly engage in the ecological transition. Evolving the choices and behaviour of citizens is a priority; citizens must become "co-actors" and "consumactors" of the progress made in respect of the ecological transition towards sustainable development. In fact, while these groups feel that they hold only a small part of these advances and solutions in their hands, their questions and doubts can be powerful barriers. In the area of sustainable development, there is not one single solution, but rather a set of solutions adapted to the environmental, territorial, budget and social constraints of each individual.

Alternative and soft modes of mobility and transport, responsible consumption, sustainable food, reducing and recycling waste, repairing and recycling household objects, eco-gardening, green and ethical growth, civic engagement by citizens are subjects on which each person would like advice and to test out easily replicated practices and understand the impact of their behaviour to take more personal investment in their development.

Appropriate modes of support need to be co-constructed by involving citizens in the process, so that they might be adapted to the challenges of their territories and to citizens' expectations.

Mobilisation campaigns on the priority themes of the ecological transition will be implemented by public authorities, relying on traditional and innovative communication channels. The use of digital tools will be essential to help raise awareness among consumers. Social networks, mobile phones as well as interactive TV and intelligent objects, supported by digital applications, provide further communication channels that need to be integrated into practical modes of communication.

Other modes of support and forms of incentive need to be explored and tested, notably the formalisation of the corpus of consensual messages on the benefits of eco-socio-responsible behaviour, or else employing practices studied in the field of behavioural economics such as "nudges".

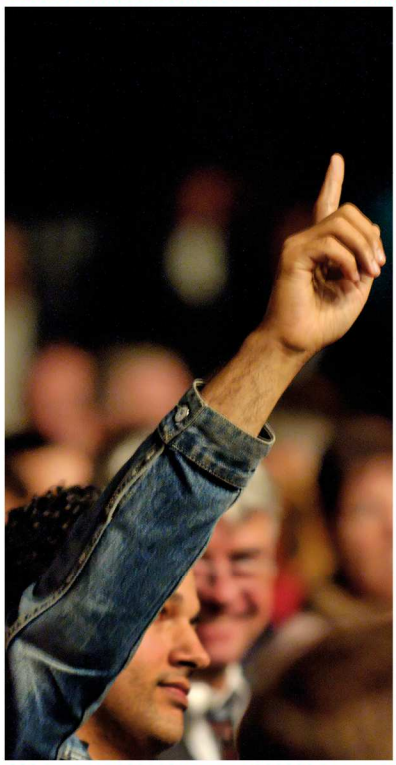
A **nudge** is a positive incentive given, without being prescriptive or inducing guilt, to an individual to encourage the person to take action. Used in public health policies, nudges are now being trialled in other countries to promote energy savings or combat pollution. Studies are being conducted in France to assess their relevance but also their limitations.

This also entails **accompanying businesses communication regarding some of their information duty towards customers** (e.g. businesses that transport people and goods are obliged to share information on the CO2 emissions released by the services they provides) and promoting existing information tools for sharing environmental regulations.

Developing the voluntary initiative concerning environmental labelling for products and services, allowing consumers to include environmental criteria in their purchasing decisions, is another objective to pursue in this area.

Providing information tools enabling public and private actors to communicate their responsible practices will be largely promoted, such as "carbon" barometers installed at major public events and large-scale cultural and sporting events, but also guides compiling information on labels and databases giving guidance to consumers and users on the life cycle of consumer products.
Communication from the public authorities will be based more on partnerships in order to pool communication media and multiply the messages addressed to proactive targets: from the citizen to businesses and associations.

GOAL 8 Mobilizing skateholders at all levels



PRIORITY 1

Encouraging every stakeholder to be responsible

PRIORITY 2

Developing alliances, synergies and win-win strategies, especially through a reinforced public participation

MONITORING INDICATORS FOR GOAL 8
Number of local Agenda 21 projects and share of the population which is impacted
Population covered by incentive pricing on waste management
Part of national territory covered by SCoT (Territorial Coherent Planning Schemes) including biodiversity conservation and limiting the use of space

Top-level indicators shown in bold

The success of the ecological transition towards sustainable development, because it implies a veritable change of our model of society, requires the mobilisation of everybody, at their own level as well as in interaction and in synergy with the other actors of a territory, a project or a sector. A preliminary step involves education, training and awareness actions (cf. objective 7). Each actor, given the capacity to act, will contribute to the objectives (sustainable economy, social cohesion, preservation of biodiversity and resources) by the way of a cross-cutting approach. The construction of a culture of education through action will allow to adapt to changes and transformations inherent to the ecological transition.

The number of initiatives in favour of the ecological transition has multiplied in recent years, borne by pioneering actors which include territorial authorities, businesses, intermediary bodies, trade unions, associations and citizens, which has seen new ways of producing, exchanging, funding, moving about and being housed emerge. They contribute to creating a momentum and dynamic approach that is essential to transpose the ecological transition into tangible facts.

The missions of the State have evolved in parallel, notably in relation to decentralisation policies. In addition to its Republican missions, the State has developed a supportive role for actors, strengthening governance in the area of the environment and sustainable development at both national and local levels. Dialogue on environment has been increased, with the creation of the National Council for the Ecological Transition (CNTE) and the annual Environmental Conferences. These initiatives pursue and safeguard the process of consensus-building with stakeholders regarding the defining and implemention of the ecological transition policies. In territories, the Agenda 21 initiative has given local actors and citizens a way to discuss together the future of their territory and formulate a joint strategy and action plan. To date, over a thousand Agenda 21 initiatives have been launched.
The process of mobilising all the actors is based on an international (the Rio Declaration on environment and development adopted in 1992 and the Aarhus Convention adopted in 1998) and European[17] framework that is being gradually strengthened.

Created by the law of 27 December 2012 concerning the implementation of the principle of public participation, **the National Council on the Ecological Transition** (CNTE) is the new consultation body in regard of the ecological transition and sustainable development. It was created with the aim of **strengthening dialogue on environment**.

Set up in September 2013, the CNTE is consulted on draft bills concerning, primarily, the environment and energy, as well as national strategies on sustainable development, biodiversity and the development of corporate social and environmental responsibility.

In France, article 7 of the Charter for the Environment adopted in 2005 stipulated participation of the public for all decisions, at the local and national level, that affect the environment. The law of 27 December 2012 extends this participation to the drafting of legal texts.

The proliferation of sustainable initiatives still remains limited to too small a number of actors. The gap between awareness on the one hand and action on the other persists[18]. Increasing innovative initiatives and encouraging and facilitating action by everybody and at all levels is necessary in order to reach a new milestone bringing all of society together into a framework of

17 Directives 2003/4/CE and 2003/35

18 See for example the study in "Chiffres et Statistiques no. 505" of March 2014 carried out the Ministry of Sustainable Development, concerning the environmental opinions and practices of French citizens in 2013.

coordinated action, creating a collective ripple effect.

This process will be supported by two pillars:

- each actor (State, citizens, consumers, businesses, territorial authorities, unions, associations, consular networks) exercising responsibility in their own area, and the possibility for action they have at their own level; in this respect the State has a particular role to play in instigating, catalysing and uniting these actions through the implementation of an appropriate framework, which implies it must be exemplary with regard to its internal operations;
- "win-win" alliances, synergies and strategies to encourage cooperation between actors, to bring sense to and steer the actions of each actor in a common direction, will above all require the involvement and participation of individuals and organisations in public debate.

PRIORITY 1

Encouraging every stakeholder to be responsible

Each actor, at their own level, has a share of responsibility for the ecological transition towards sustainable development: their decisions, activities and behaviours have an impact on society and on the environment. Everyone therefore has a responsibility to take action.

At State level

The State will be all the more successful in instigating, persuading others and supporting the ecological transition towards sustainable development if it takes practical action, innovates and sets an example as a driving force in its own practices. This means ensuring that the ecological transition and sustainable development principles are more effectively embedded in the design and implementation of public policies and in its internal operations at every level. It will also require systematic implementation of coordinated action between administrative authorities.

Integrate the transition towards sustainable development fully in all State activities

The State undertakes to assess and review legislation regularly as part of its role of establishing and implementing standards. In order to make life easier for people, businesses and local authorities whilst ensuring a high level of environmental protection, **the State must prioritise the project to simplify the law** that the government has embarked on, and in particular its plans to **modernise environmental law.** In so doing, it will ensure the law is readable, clear, understandable and effective and that existing regulations are properly applied. The bill on the energy transition for green growth, for example, provides for a simplification of administrative procedures applicable to renewable energies and to methanation.

As part of its responsibilities in assessing and providing expertise, the State undertakes to consolidate its role as a point of reference in thinking through the social, cultural and economic changes associated with the ecological transition. **It will offer all actors a methodological and evaluation framework for the transition** by making it a tool for collective progress rather than control. **It will develop forward thinking**, by taking the risk of innovating to try out new paths and facilitating other actors' progress with a focus

on the longer term. **It will reorganise its expertise and engineering capabilities** to respond more effectively to the needs of actors, in particular local authorities and territories notably through the creation of the French Biodiversity Agency. **It will call on its network of researchers and experts,** primarily through its scientific and technical network and in particular, the Centre of Research and Expertise on Risk, Environment, Mobility and Planning (CEREMA).

In its role as a principal in plans, programmes and projects, the **State undertakes to adapt its design methodology to the requirements of the ecological transition**, to innovate as necessary and help all actors in society to benefit from its experience.

As a promoter of sustainable development and as a partner, the **State undertakes to drive progress by providing insights and supporting dialogue and knowledge capitalisation between actors.** It will encourage the development of fora such as the "Sustainable Development Club for businesses and public institutions" and will maintain its role as a facilitator at the national and regional level.

Integrate the transition towards sustainable development fully in the operation of the State

The State must set an example and encourage other actors to act in the same way, however given its influence on the economy it also acts as a lever in stimulating new markets and new sectors (for example, through the State's vehicle fleet).

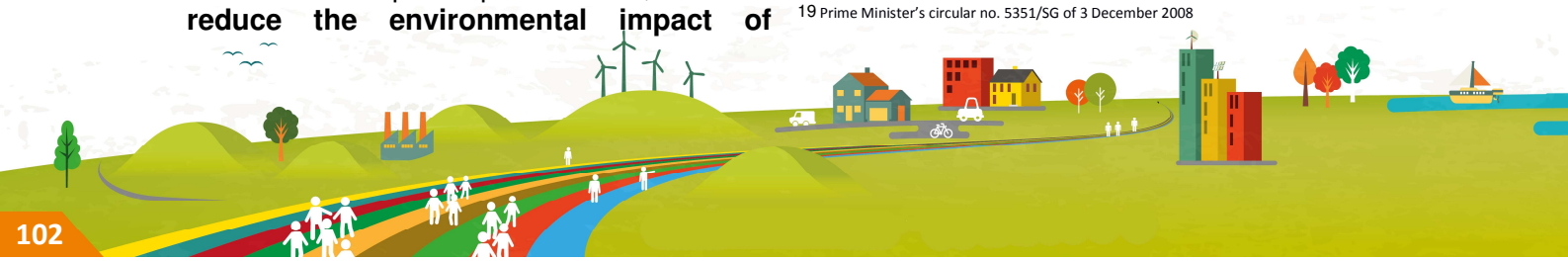
It will strengthen dialogue with partners, suppliers and users to move towards more moderate operations. **It will implement an ambitious, sustainable public procurement policy**, supporting the purchase of goods and services based on fair trade principles, committing its partners under the terms of the National Action Plan for sustainable public procurement, and **will reduce the environmental impact of administrative authority operations. The circular**[19] **on the exemplary role of the State** in respect of sustainable development in providing services and running public-sector institutions **will be revised** to set targets for State services for 2020. It will take more account of the State's social responsibility as an employer and enable each ministry to define its plan as an exemplary part of the administration in accordance with its priority issues in respect of sustainable development, whilst continuing to aim for exemplarity in the State as a whole. The increased professionalisation of public-sector purchasers networks (the State, local authorities and hospitals) and the provision of tools demonstrating the economic benefits of sustainable procurement should contribute to acceptance of the notion of life cycle costs.

As the country's largest employer, **the State will implement a social responsibility policy in its own departments and public institutions, develop responsible management** to support change and systematically **provide training for staff,** particularly decision makers, on issues associated with sustainable development and the ecological transition. The State's human resources management, recruitment and skills management must also be adapted to align more closely with its future roles.

At local authority level

In the context of decentralisation legislation, the increasing responsibility of local authorities, which manage most public-sector plans, projects and investments, gives them the opportunity to play a central role in the effective implementation of the ecological transition and sustainable development at a territorial level. As key local actors that are also engaged at the European and international level, they act as relays for information and coordinated activities, and create or support unifying local initiatives.

19 Prime Minister's circular no. 5351/SG of 3 December 2008



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local authorities and regions
recognised as
France local agenda 21
since 2006

Actions by local authorities must be supported and encouraged by twofold efforts to strengthen existing processes – such as local Agenda 21 initiatives, designed to move away from single-sector, silo-based approaches, support forward planning for their territory and create consultation schemes and ways of involving residents and **new processes and tools.** In this respect, their activities will be usefully based on **developing methodological and evaluation frameworks,** they will be backed by **methodological support for reporting processes** (local authority sustainable development reports) and be able to take advantage of joint initiatives with the State to respond to European calls for projects for funding for the ecological transition and sustainable development.

For citizens

Citizens in a society in transition to a sustainable model have a role in managing and taking joint responsibility for common goods (natural and cultural resources), both individually and in a community context. By making everyone aware of their responsibilities, individual action can have an influence on collective behaviours, gradually moving society and the economy towards a new development model.

Common goods cover three kinds of resources: nature (air, water, soil, animals, plants, etc.), culture (language, philosophy, music, etc.) and c ommunity (streets, amenities, institutions, rules, etc.). These are goods we have inherited, which may seem abundant and are sometimes invisible.

According to Elinor Ostrom, political scientist and winner of the Nobel Prize for Economics in 2009, **protecting common goods implies "acting together"** in three blocks: resources, people, rules and standards, which are used to tie the other elements together.

This move is already underway and is set to accelerate in the context of local experiments and territorial projects, citizens' initiatives, social innovations, urban dynamics and community volunteering, particularly in the areas of sports, civic services, arts festivals, participatory science, knowledge-sharing networks, individual building renovation projects, etc. **These pioneering processes would benefit from widespread media coverage** to help them increase in number and produce a more significant level of similar initiatives.

Citizens will be able to exercise their responsibility all the more effectively if consultation spaces of various kinds are provided, particularly at a territorial level, and if civil society, in particular through community associations is supported in actions that contribute to the implementation of public policies.

At a business level

Businesses, defined in terms of all their components (managers, employees, trade union organisations) must "take responsibility for their impacts on society" (the definition of CSR given by the European Commission in 2011). Corporate Social Responsibility (CSR) is a tool for evaluating overall performance in relation to sustainable development (assessing the impacts of decisions and activities on society and the environment). It is also a tool for negotiating between businesses and society and a lever for their competitiveness and efficiency. **Developing it requires, among other things, the extension to all public and private-sector organisations** – particularly SMEs – of a policy to encourage accountability to stakeholders of the social, societal and environmental impacts of their activities. Continuing and strengthening the National CSR Action Plan and the National CSR Forum as a place for ongoing discussions and a point of reference for in relation to responsibility will contribute to its development.

In this respect, **businesses will increase their commitment to environmental certification, strengthen efforts to combat discrimination and promote diversity and equality between women and men** in the context of their new legislative and regulatory obligations. **Further investigation of labelling schemes for responsible businesses is an avenue to be explored for micro-businesses and SMEs.**

As major actors in their territory, **businesses** must, with the support of the networks of chambers of commerce, **become active and committed partners in joint, voluntary approaches** in conjunction with stakeholders at a territorial, business park, professional or inter-professional level.

PRIORITY 2

Developing alliances, synergies and "win-win" strategies, especially through a reinforced public participation

Given the scale of complexity of ecological challenges and the sharing of responsibilities, research into synergies and strategies for cooperation and alliances must be encouraged at all levels to ensure that the ecological transition is implemented efficiently and that it acts as a source of new opportunities.

The capacity for territories to develop strategic agreements between them, between territorial levels, with the State and the European Union will now be one of the keys to their economic attractiveness and their contribution to the ecological transition. The success of such strategies relies on the possibility of **open, dynamic contractual arrangements on a variable scale between territories** that come together to address the issues associated with the transition and on the **repositioning of State support in favour of cooperation between territories.** Indeed, territorial agreements can be made between the State and local authorities[20].

20 Article 254 of the National Environmental Commitment Act

European funds, in the context of the partnership agreement between France and the European Union, which have sustainable development as a cross-cutting priority and whose objective is to "pursue the ecological and energy transition and the sustainable development of natural resources" and agreements under the State-Region Plan (CPER) can also support partnerships of this kind.

Driving the recovery in growth and employment may be supported by the **development of the social and solidarity economy**, thanks primarily to the Social and Solidarity Economy Act of 31 July 2014, which will enable citizens to make socially responsible investments and identify the most responsible practices through labelling schemes. It will also help to encourage principals, consumers and citizens to take more account of this sector in their activities and gear more demand towards it, insofar as its operating methods are consistent with the issues of the ecological transition.

The challenges posed by the ecological transition mean updating the relationship between the public and private sectors so that they share the issues, bring together the skills required to analyse complex problems and define and implement action frameworks that enable everyone to play an effective part in the ecological transition. This will mean **encouraging the development of appropriate forms that go beyond the traditional kinds of public-private partnership and pooling engineering and expertise** to tackle the complex problems associated with the transition.

Promoting voluntary commitments in each sector/industry will also be pursued, by supporting them with monitoring, evaluation and experience capitalisation schemes and increasing their visibility, as illustrated by the interest shown in this approach in the area of the circular economy in the context of the 2013 Environmental Conference. The National Industrial Council is mobilising all its sections to define areas for development in terms of the circular economy, notably in order to develop new markets in the spirit of the Dutch Green Deals, where businesses can commit to innovative approaches from the point of view of environmental protection whilst developing new economic models with the support of the Ministry of the Economy and the Ministry of Ecology.

The National Biodiversity Strategy (NBS) 2011-2020 implements a coherent framework that enables all public- and private-sector actors at various territorial levels and in all sectors of activity to contribute to preserving biodiversity on a voluntary basis.

The strategy's mobilisation mechanism consists of two steps:

- First of all, the stakeholders that wish to become involved (legal persons) sign to adhere to the NBS in order to express their interest and promote the strategy[Erreur ! Signet non défini.],
- each member is then invited to take action in practical terms by outlining a "voluntary commitment" (a project based on a set of coherent, significant actions that form part of the organisation's core activity, which go beyond simply complying with legislation and are proportionate to the capabilities of the project leader).

Eighty stakeholders filed a voluntary commitment project for the first two calls for recognition under the NBS in 2012 and 2013. Fifty-five projects mainly from businesses, but also the community sector, local authorities and trade unions have been acknowledged.

Support for environmental sponsorship, which can be used to create links between

21 As of 23 April 2014, 394 organisations have joined the Strategy. 154 associations, 145 businesses/professional organisations, 47 public bodies, 46 local and regional authorities and 2 workers' unions.

project sponsors and businesses, will be **increased**. Environmental sponsorship is an opportunity for partners, which can – depending on the type of project supported – stimulate job creation and social integration (work sites staffed by volunteers, nature task forces, environmental advisers, operators in the urban environment, etc.) and support stronger ties with local authorities.

These cooperation strategies must also be **based on strengthening public participation,** as called for by President Hollande at the launch of the participatory democracy project to mark the opening of the 2014 Environmental Conference. Public participation helps people to develop their capacity for debating and action, by recognising the intrinsic expertise of each stakeholder and residents more particularly, and by associating them with decision-making and public-management bodies to create collective intelligence within the territory (including panels for deciding on tenders, local sustainable urban management, etc.). Developing capacity for debating and action in this way can also be helped by **trialling territories of coresponsibility** to implement collective action plans at a neighbourhood , institutional or territorial (urban or rural) level.

Public participation also helps improve decisions or projects. **Participatory schemes rely on certain principles that should be stated more explicitly** (equality of treatment, transparency, argument and accountability) for the credibility of the process. **There will be systematic communication on the impacts and consequences of the projects under discussion.**

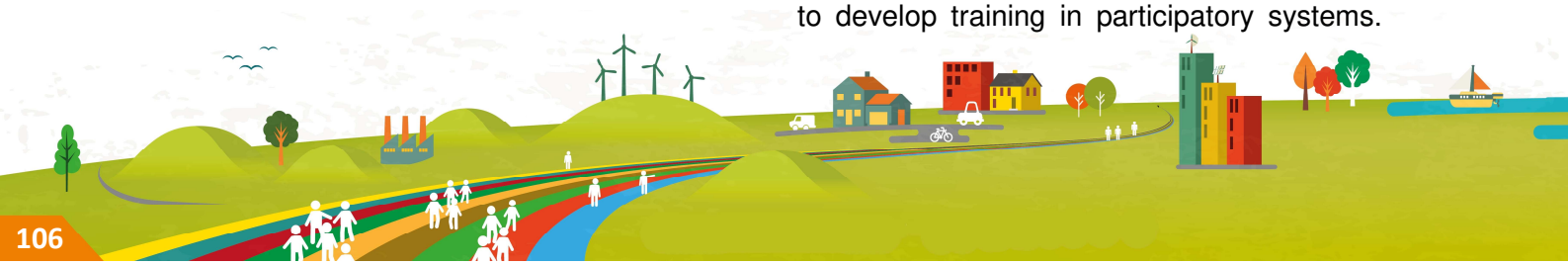
A **territory of coresponsibility** is a territory (neighbourhood, municipality, intermunicipal area, etc.) in which a consultation process is organised to develop and implement new forms of joint responsibility for community stakeholders (public authorities, organisations, associations etc.), businesses, their representatives and citizens, which aims to take on the changes needed to ensure the well-being of the whole community based on shared ways of working that protect the environment and resources and incorporate the needs of future generations.

Already up and running in a number of municipalities in Europe and elsewhere, the concept has given rise to the creation of an International Network of Territories of Coresponsibility, “Together”, backed by the Council of Europe with some pioneering local authorities including Mulhouse, Braine-L'Alleud (Belgium), the Intermunicipal Platform for Greater Lisbon (Portugal) and Kavala (Greece).

In order to ensure better representativeness, **particular attention will be paid to the diversity of audiences taking part** and especially the involvement of groups facing difficulties. To achieve this, it is important to use knowledge-sharing networks, social integration schemes and community associations. Pooling participation tools within the territory (such as public debates, consultation about the environment, urban development, urban policy, etc.) will help to produce a strategic vision.

Public participation needs to become a method of governance and management that is an integral part of corporate business culture.

Participatory processes result in changes in organisational methods insofar as they require a cross-cutting approach and a change in professional and political culture. Initial and continuing training schemes need to develop training in participatory systems.



Guarantors and enquiry commissioners will be systematically trained to develop a culture of consultation with regard to public enquiries. The role of the stakeholder-relay mediator will be developed (associations and neighbourhood bodies, rural hubs, etc.) to facilitate citizen mobilisation schemes.

New tools will be introduced to embody these changes in governance, such as participation charters, to act as a frame of reference for the introduction of a territorial dialogue between politicians at various territorial levels, associations and stakeholders. Development councils on an intermunicipal scale and in project areas will be made compulsory and given responsibility for monitoring and evaluation and forward planning for the territory.

GOAL 9

Promoting sustainable development at European and international levels

PRIORITY 1

Strengthening environment and sustainable development international governance

PRIORITY 2

Carrying out climate negotiations

PRIORITY 3

Strengthening protection and valorisation of ecosystems and natural environments

PRIORITY 4

Promoting the ecological transition within the economy

PRIORITY 5

Integrating sustainable development into European Union sectorial policies

PRIORITY 6

Adapting development assistance policy

MONITORING INDICATORS FOR GOAL 9
Share of official development aid within the gross national income
Amount of official development aid dedicated to biodiversity and climate
Share of French marine protected areas
Conservation status of natural habitats

Top-level indicators shown in bold

Major ecological challenges go beyond our own borders and cannot be resolved only at the national level : they also require action at a European and international level. Whether they are demographic, geopolitical or environmental, fundamental changes have occurred at a global level in recent years and humanity now finds itself facing numerous closely interlinked challenges, particularly in terms of eradicating poverty and achieving sustainable development in its three dimensions. These challenges are on such a scale and of such complexity that they require stronger and coordinated action by all countries, from south to north, at all territorial levels and in all sectors. They also need strong, international, political commitments at the highest level and based on increased participation by all stakeholders in society. Tackling these challenges also contributes to preventing conflicts based on an increasing scarcity of resources and to climate change.

In June 2012, at the United Nations conference on sustainable development known as “Rio+20”, the international community decided to strengthen its actions both in terms of international governance and developing universal sustainable development goals.

France is closely involved in implementing the Rio+20 commitments and in promoting a single and universal agenda based on the convergence of the Sustainable Development Goals and the Millennium Development Goals from 2015 onwards. As the host country for the international climate conference in 2015, France has high international ambitions in terms of combating climate change. Similarly, the wealth of biodiversity in its territory, particularly overseas, places it as one of the leading countries acting to protect and promote ecosystems and natural environments. It hosted the World Water Forum in 2012 and in supporting consideration for the right to water at a global level via cooperation between catchment areas.

In spite of significant international efforts, there is still a lot of work to do in a context of serious economic and social crisis. The global crisis should also, however, be viewed as an opportunity to transform our economic models and modes of consumption and production. This involves systematic integration of sustainable development in both economic and sectoral policies within each relevant body, particularly within the European Union, which is an essential level for instigating, developing and implementing sustainable development policies and mobilising third countries in the direction of the ecological transition.

Finally, it is in its development aid strategy and all its international aid mechanisms that France will convey its sustainable development message in tangible terms, in close association with all the stakeholders involved.

PRIORITY 1

Strengthening environment and sustainable development international governance

Sustainable development, particularly in its international dimension, is proving difficult to include coherently in international priorities. In the absence of an authority that is capable of setting strategic priorities for the global environmental agenda, the number of multilateral environmental agreements has multiplied in the last 20 years. In terms of sustainable development, there is currently no real global institutional framework able to set major directions and propose recommendations. Moreover, implementing sustainable development is an international objective that cannot be reduced a limited number of countries.
Yet current economic growth models are obsolete. It is impossible for us to guarantee a decent life for nine billion people by 2050 on a planet with limited resources without taking account of its social, economic and environmental dimensions at the same time. The Rio+20 conference in June 2012 marked an important step towards this goal.

For France, stakes are to:
- **work for new and stronger environmental governance,** which is capable of ensuring a coherent approach to all environmental topics (climate, biodiversity , soil degradation, chemical products and waste, deforestation, impoverishment of resources, etc.),
- strengthen the **governance of sustainable development** at a global and regional level and ensure **monitoring of the commitments undertaken**,
- support the **inclusion of sustainable development** in all public policies at a national, regional and international level.

As a follow up on Rio+20, France's objectives therefore are:
- promoting **a single and universal agenda for sustainable development after 2015,** including a balanced mix of the three components of sustainable development and aiming to eradicate poverty;
- transforming the United Nations Environment Programme (UNEP) into **a specialized United Nations Environment Agency** as an authority with stable funding to enable the integration of environmental topics and a stronger interface between science and politics. The creation of the United Nations Environment Assembly is an important step in this direction, but needs to go further;
- consolidation and increased powers for the **High-Level Political Forum on Sustainable Development**. As the guarantor of better coordination, within the United Nations, of monitoring of sustainable development-related activities, it will bring fresh impetus and help integrate sustainable development at the highest level of international priorities;
- increased participation by all stakeholders in society in new forms of governance.

Group of Friends of Paragraph 47
Launched in June 2012 at the instigation of four countries, including France, the Group of Friends of Paragraph 47 of the Rio+20 declaration is an intergovernmental initiative that aims to promote sustainable development reporting by businesses, which is seen as an essential lever for the proper operation of a market economy and the contribution by the private sector to the development of a decarbonated, resilient and socially equitable economy. France views the issue of non-financial reporting as central to promoting a sustainable economy and currently chairs the group through the Ministry of Ecology, with the support of the Ministry of Foreign Affairs.

PRIORITY 2

Carrying out climate negotiations

As the signs of climate disruption increase and current commitments from various countries are incompatible with the objective of limiting the increase in the average global temperature to 2°C, concerted international action to match the scale of the challenges we face is more necessary than ever.

At the conference in Durban in late 2011, states embarked on a new round of negotiations, agreeing to develop an agreement by 2015 that would be binding on them all and would come into effect by 2020.

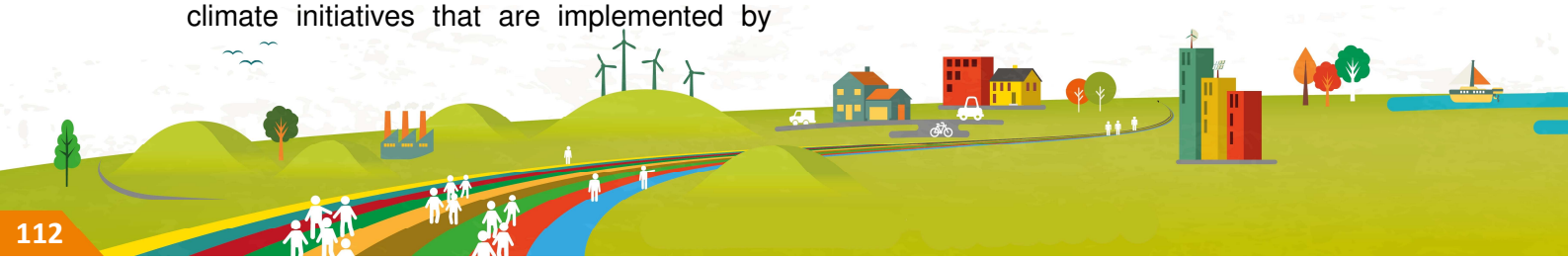
The new round must define a framework for countries' commitments from now to after 2020. It must tackle three challenges:

- how can every country be successfully held to account, in line with their responsibilities and capabilities, in a legally binding framework from 2020 onwards?
- how can this framework be made scalable and act as an incentive, and how can our individual and collective ambitions be strengthened over time?
- how can we strengthen actions to mitigate and adapt to climate change now and between now and 2020?

As the host country for the 2015 conference, France must set an example as a unifying force, take account of all countries' interests and promote initiatives taken by governments, local authorities and civil society to reduce emissions and adapt to climate change. The success of COP21 will be based on four pillars, whose diplomatic action must aim for the introduction in 2015 of: **(i) a long-term agreement** including measures for mitigating and adapting to climate change; **(ii) national contributions from countries to the future agreement, i.e. their possible future commitments; (iii) a "solutions agenda"**, which must highlight the results and opportunities of climate initiatives that are implemented by 2020, in addition to stronger actions by countries; **(iv) long-term climate funding** by countries (the capitalisation of over $10 billion in the Green Fund is one example) but above all by investors, as well as **developing and transferring know-how and technologies.** Securing an agreement will involve promoting the opportunities of a low-carbon transition for development and growth. In terms of adaptation, it will be important to make the connection with the 2015 setting of the new, post-Hyogo framework for action to reduce the risks of natural disasters.

The European Union (EU) has a central role to play regarding climate change, whether it involves swift ratification of the second period of the Kyoto Protocol, fulfilling commitments made under the protocol or setting ambitious goals for the period after 2020. Thus President Hollande made a commitment to promote a European target of cutting greenhouse gas emissions compared with 1990, but 40% in 2030 and 60% in 2040.

With the agreement on the 2030 energy-climate framework adopted by the European Council in October 2014, the European Union is at the cutting edge in light of the Paris conference in December 2015. The European framework sets a binding target at a national level for cutting GHG emissions by at least 40%, an indicative energy efficiency target of at least 27% and a binding target at the European level of renewable energies representing a 27% share of energy consumption by 2030. The energy efficiency target will be re-examined by 2020, with a view to increasing it to 30%. To be fully effective, these targets must be swiftly transposed into European legislation on the basis of future proposals from the European Commission



PRIORITY 3

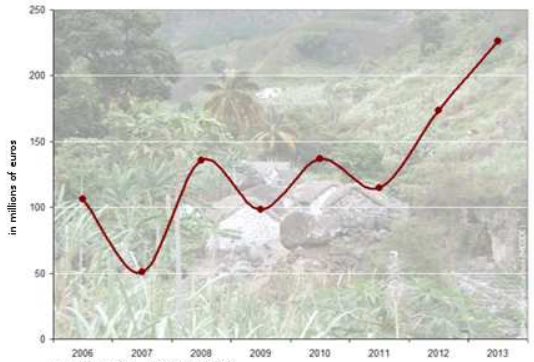
Strengthening protection and valorisation of ecosystems and natural environments

France has a high level of responsibility in terms of preserving terrestrial and marine biodiversity, both in French mainland and overseas, where its territories are home to biodiversity of global importance but which is nonetheless deteriorating. It also bears a high ambition at an international level in this area, and is in a position to emphasise its scientific expertise and know-how in terms of protection and promotion.

The growing demand for space, resources and services provided by ecosystems is leading to a global impoverishment of biodiversity and natural environments and is undermining economies. Global commitments made in Nagoya in 2010, which are broken down into 20 targets (the "Aichi Targets") have established a cross-cutting framework for action to protect biodiversity. These will be supported by EU instruments such as the Natura 2000 network, the Marine Strategy Framework Directive and the Biodiversity Strategy for 2020. France incorporates these commitments into its national policies. The picture across the world, however, remains patchy.

In the open sea, **France and the EU support the introduction of a global legal framework on biodiversity**, the absence of which is hindering the establishment of protected areas. **Scientific identification of marine areas of ecological or biological interest** by the Convention on Biological Diversity **will make it easier to designate networks of protected areas in regional waters.** Initiatives such as the Ajaccio Ministerial Conference for Ocean Conservation have helped to redynamise the political impetus but financial resources, already mobilised or envisaged, remain below what is needed. For example, a trust fund for marine areas marine areas in the Mediterranean is currently being set up by France and Monaco. A higher level of priority will be given to the effective implementation of commitments, to involving civil society and economic actors in particular, to mobilising targeted funding and to applying new instruments in full, in particular the Nagoya Protocol on genetic resources and the International Platform on Biodiversity and Ecosystem Services (IPBES).

National expenditure on public development aid at the international level with regard to biodiversity since 2006



Note: Total bilateral aid (AFD+FFEM)
Source: AFD and FFEM, 2014

France will take action in support of incorporating the Nagoya targets in the Rio agreements (on biodiversity, climate and desertification), other global and regional frameworks dealing with biodiversity, water and the open sea, and international sectoral organisations. **It will work to fulfil global financial commitments in favour of biodiversity**, with the AFD making provision, notably, to double funding for cooperation initiatives in the area of biodiversity.

Achieving this objective will support growth that limits the use of natural resources, in line with the resources efficiency target in the EU's growth strategy "Europe 2020". It will support international mobilisation and promotion of expertise, particularly scientific expertise. Furthermore, 55% of jobs in the EU and 84% of those in developing countries have a direct and significant link with ecosystem services[21].

21 Source: report for the European Commission, February 2011

PRIORITY 4

Promoting the ecological transition within the economy

France and the EU, through the 7th Environment Action Programme, have a higher level of environmental requirements than numerous other countries. Further efforts are required, however, to ensure that environmental protection becomes a distinct element in macroeconomic policies and their competitiveness, on the same basis as growth and employment. The EU, United Nations, OECD and G20 all support this transition.

For France, the challenge is threefold:

- **making better use of economic and financial instruments** to achieve its environmental objectives,
- **increasing its competitiveness in sectors in the green economy** through 'innovation, filing patents, setting up new industries, staff training, etc.
- **ensuring that the rules of game, at European and global levels, create a favourable context for more consideration of the environment** in the economy and demand for goods and services in sectors of the green economy..

As a result, France will defend the introduction of rules aimed at better integration of environmental issues in economic activity:

- **within the EU:** work for ambitious regulations on energy taxation by encouraging the European Commission to pursue discussions on this topic; in the long term, remove subsidies for fossil fuels; ensure better integration of sustainable development in public procurement and in the EU's industrial policy; ensure that resources efficiency remains a high priority for the Commission; encourage European research into environmental labelling of products and support its widespread implementation; influence guidance in respect of sustainable consumption and production, including through corporate social responsibility and non-financial reporting by businesses, by introducing product sustainability criteria with the aim of reducing Europe'senvironmental footprint all over the world; strengthen the sustainable development section of free-trade agreements, in particular by improving impact studies about sustainable development and including in them the OECD's guiding principles for multinational companies;

Environmental product labelling
Since the launch of the project, France has actively supported this topic at a European level in the context of a multiplication of similar initiatives in Europe new labels relating to the climate and the environment). These efforts have borne fruit, by helping to encourage the European Commission to launch its own labelling trial in 2013, this time on a European scale. France has played an active role in the pilot phase for the last three years.

- at the **WTO**: lobby for more consideration of environmental protection and social norms in international trade rules; improve the coherence between multilateral environmental agreements and the WTO; encourage the removal of customs duties and non-tariff barriers on environmental goods and services;
- at the **United Nations** : support the implementation of the Rio+20 targets and programmes and play an active part in them. in particular the 10-year framework of programmes on sustainable consumption and production, the promotion of non-financial reporting by businesses (including the financial sector)

and the development of indicators to supplement GDP;
- **at the OECD:** expand the application of green growth principles in different areas (agriculture, health, innovation, urban development, etc.); take action on implementing the recommendations resulting from the examination of France's environmental performance in 2015;
- **at the FAO**: contribute to raising awareness of Member States' agro-environmental practices to ensure global implementation on as wide a scale as possible;
- at the **G20**: implement the commitment in the medium term to gradually eradicating and rationalising ineffective fossil fuel subsidies that encourage excess consumption; ensure environmental costs are integrated more effectively in the price of fossil fuels; encourage research into green growth, sustainable development and climate, and promote French work in this area.

PRIORITY 5

Integrating sustainable development into European Union sectorial policies

One of the challenges of European negotiations lies in incorporating the sustainable development issues into the EU's growth strategy **"Europe2020"**, which prioritises economic aspects and employment, and in **Greening the European Semester**, the budget and macroeconomic review process for Member States. Sectoral policies and major investment programmes, such as the European Investment Plan, must also incorporate these issues to become levers that support the environmental transition.

As regards the **Common Agricultural Policy** (CAP), directions for the period 2014-2020 mark an important step at the European level. Nonetheless, this will not be sufficient to ensure the transition to agro-ecology and will need to be supplemented at the global level: France will express this viewpoint to international bodies (such as the WTO), notably in terms of developing incentives for agro-ecology.

With regard to the **Common Fisheries Policy** (CFP), the issues is to ensure sustainable exploitation of fish resources whilst taking into account the socioeconomic impacts of adaptation, which must be introduced gradually. France is defending a target of achieving the maximum sustainable yield (i.e. a level that does not endanger long-term stocks) by 2015 where possible and by 2020 at the latest.

An **integrated maritime policy** tackles maritime questions in a more coherent manner and strengthens coordination between different policy areas, such as transport, energy, marine research, fishing, tourism or environment (with the Marine Strategy Framework Directive). France is particularly committed to defending this cross-cutting view, which meets the requirements of sustainable development. This holistic policy was recently applied in tangible terms with an initial binding piece of legislation on marine spatial planning.

In the area of **health and environment**, France is defending a high level of protection in international agreements and strategies. The national strategy on endocrine disruptors (such as bisphenol A) adopted in April 2014, will be fed into European discussions. It includes prospects for regulatory supervision and management as well as actions related

to expert assessments, researchand providing information to the public. France will also promote an ambitious European policy on sustainable food.
As regards management of health risks and environmental risks associated with the use of nanomaterials and nanotechnologies, the European regulation on chemical products (REACH) seems to be the best existing regulatory framework. That said, France is keen to continue to develop its understanding of these substances and their markets and is arguing for the development of a European declaration system for nanoparticles. Indeed, a single database would help to harmonize the requirements of the various declaration systems that currently exist or are being developed in Europe, assess risks more effectively and ultimately, feed into discussions on a revised framework for managing nanomaterials.

The **European sustainable development strategy** should be reviewed, particularly in light of the future, post-2015 sustainable development agenda, and its implementation revitalised. Indeed, it is currently the only European strategic framework to complement Europe 2020 on the issues of the environmental transition and sustainable development. Introducing a European sustainable development week from 2015 will also help to encourage initiatives by citizens and all stakeholders in society throughout Europe.

PRIORITY 6

Adapting development assistance policy

Development aid has helped southern countries make significant progress, particularly in terms of implementing the Millennium Development Goals (MDG). France plays a central role as the world's fourth-largest donor and shares its expertise with numerous countries.

The Development and International Solidarity conference led by France and attended by all the key stakeholders concerned, nonetheless highlighted the lack of coherence between national realities and international aid strategies. The conference also underlined the necessity of incorporating sustainable development in aid schemes. A new strategy, to be enshrined in a **framework act on development and international solidarity**, aims to promote sustainable development in developing countries, based on its three pillars of economic, social and environmental development.

Moreover, **France will play a leading role in developing and implementing the post-2015 agenda based on the Sustainable DevelopmentGoals (SDG).**

The 2013 white paper on "Defence and National Security" reaffirms France's commitment to playing its full part in maintaining international stability and strengthening international institutions that work for peace and security in the world Its commitment, in addition to military operations, is reflected in civilian-military actions designed to support the local economic fabric and enable people to benefit from French infrastructure, for example by renovating schools, caring for local people and providing training for nurses.
Moreover, in the event of a natural or technological disaster and major health risks around the world, France mobilises all of its civilian and military resources to play a full part in the actions of the international community.

France also aims to **gradually reduce the support it provides for fossil fuels** in the context of its development and international solidarity policy, and to communicate its position to all multilateral development banks. In light of this, it will publish a strategy based on an evaluation of the environmental and economic impact of its development aid policy by 2016.

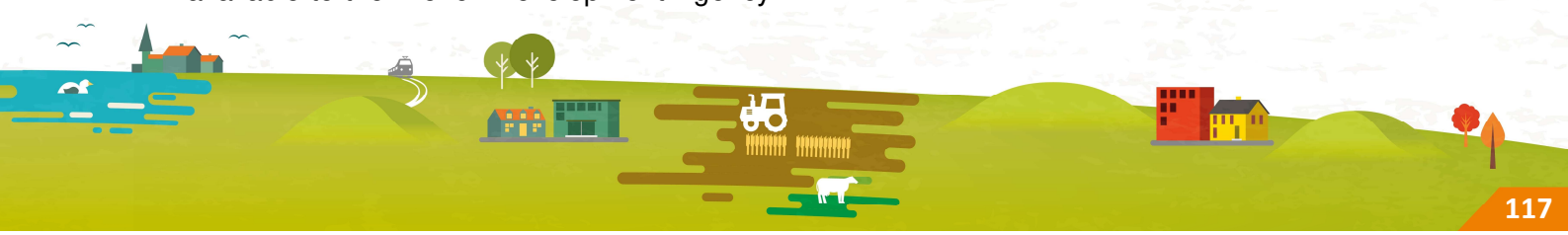
The issues for France also relate to the **coherence between the different multilateral, regional and bilateral aid tools** and on research into **new funding sources** in addition to simple official development assistance (ODA), such as innovative funding or strengthening cooperation between countries in the South. Sources of this kind will be sought in accordance with the commitments of the Busan conference on aid effectiveness. Financial mobilisation of French stakeholders must meet these requirements for coherence, effectiveness and transparency.

As a pioneering country in innovative development funding, France is promoting the **introduction of a global financial transactions tax** (FTT).

Introduced in France on 1 August 2012, the FTT applies primarily to transactions in the shares of French businesseslisted on the stock exchange, with a market capitalisation exceeding €1 billion (0.2%). Eleven European countries (Germany, France, Spain, Italy, Belgium, Portugal, Greece, Austria, Estonia, Slovenia and Slovakia) have increased their level of cooperation to adopt a European FTT. France is working to support the allocation of a significant share of its revenues to development, with two priorities already identified : environment (combating climate change) and health (combating major pandemics).

Incorporating sustainable development into French ODA must continue and accelerate, not only through the instruments available to the French Development Agency (AFD) but also in respect of the French Global Environment Facility (FFEM) and its contribution to global funds such as the Green Climate Fund and the Global Environment Facility (GEF).

Finally, the creation in December 2013 of the **National Council on Development and International Solidarity** (CNDSI) will help to maintain flexible but nonetheless institutional regular consultation between the State and civil society.



List of abbreviations and acronyms

ADEME	Agence de l'environnement et de la maîtrise de l'énergie (Environment and Energy Management Agency)
ADIL	Agence départementale d'information sur le logement (Departmental Housing Information Agency)
AFD	Agence Française de Développement (French Development Agency)
AFEP	Association française des entreprises privées (French Association of Private Businesses)
ALLENVI	Alliance nationale de recherche pour l'Environnement (National Alliance for research on the Environment)
ALLISTENE	Alliance des sciences et technologies du numérique (Alliance of Digital Sciences and Technologies)
ANAH	Agence nationale d'amélioration de l'habitat (National Agency for Housing Improvement)
ANCRE	Alliance nationale de coordination de la recherche pour l'énergie (National Alliance for Coordinated Energy Research)
ATHENA	Alliance nationale des sciences humaines et sociales (National Alliance of Human and Social Sciences)
AVIESAN	Alliance nationale pour les sciences de la vie et de la santé (National Alliance for Life and Health Sciences)
BPI	Banque publique d'investissement (Public Investment Bank)
BTP	Bâtiments et travaux publics (building and public works)
CAP	Common Agricultural Policy
CCI	Chambre de commerce et d'industrie (Chamber of Commerce and Industry)
CEP	Contrat d'études prospectives (prospective studies agreement)
CEREMA	Centre d'étude et d'expertise sur les risques, l'environnement, la mobilité et l'aménagement (Centre of Research and Expertise on Risk, Environment, Mobility and Planning)
CESE	Conseil économique, social et environnemental (Economic, Social and Environmental Council)
CESER	Conseils économiques, sociaux et environnementaux régionaux (Regional Economic, Social and Environmental Councils)
CFP	Common Fisheries Policy
CGDD	Commissariat général au développement durable (Office of the Commissioner General for Sustainable Development)
CNDSI	Conseil national du développement et de la solidarité internationale (National Council on Development and International Solidarity)
CNI	Conseil national de l'industrie (National Industrial Council)

CNEFOP	Conseil national de l'emploi, de la formation et de l'orientation professionnelles (National Council for Employment, Training and Career Guidance)
CNTE	Conseil national de la transition écologique (National Council for Ecological Transition)
COMER	Comité spécialisé pour la recherche marine, maritime et littorale (Specialist Committee for Marine, Maritime and Coastal Research)
CORE	Comité d'orientation de la recherche et de l'expertise (Orientation Committee on Research and Expert Assessment)
COSEI	Comité stratégique de filière des écoindustries (Strategic Orientation Committee for Eco-industries)
CPER	Contrat de plan État Région (State-Region Projects Contract)
CPRDFOP	Contrats de plan régionaux de développement des formations et de l'orientation professionnelles (Regional Development Plan Contracts for Training and Career Guidance)
CSR	Corporate Social Responsibility
EAP	Environment Action Programme
EEDD	Education à l'environnement et au développement durable (Education for Environment and Sustainable Development)
EPCI	Etablissements publics de coopération intercommunale (Intermunicipal Cooperation Bodies)
ESF	European Social Fund
ESG	environnemental, social and governance (criteria)
ESPE	Ecoles supérieures du professorat et de l'éducation (Teacher training and education institutions)
EU	European Union
FEEBAT	Formation aux économies d'énergies des entreprises et artisans du bâtiment (Energy-efficiency training for firms and tradespersons in building)
FFEM	Fonds français pour l'environnement mondial (French Global Environment Facility)
FTSE	Financial Times Stock Exchange
FTT	Financial Transactions Tax
GDP	Gross Domestic Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GIEE	Groupement d'intérêt économique et environnemental (Economic and Environmental Interest Group)
GPEC	Gestion prévisionnelle des emplois et des compétences (Jobs and skills forecasting)

GTEC	Gestion territoriale des emplois et compétences (Territorial management of jobs and skills)
INERIS	Institut national de l'environnement industriel et des risques (National Institute of the Industrial Environment and Risk)
INRS	Institut national de la recherche et de sécurité (National Institute for Research and Security)
INSEE	Institut national de la statistique et des études économiques (National Institute for Statistics and Economic Studies)
IPBES	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
IPCC	Intergovernmental Panel on Climate Change
MEDEF	Mouvement des entreprises de France (Confederation of French Businesses)
MDG	Millennium Development Goals
NGO	Non-Governmental Organisation
NICT	New Information and Communications Technologies
OECD	Organisation for Economic Co-operation and Development
ODA	Official Development Assistance
ONEMEV	Observatoire national des métiers de l'économie verte (National Green Jobs Observatory)
OPCA	Organismes paritaires collecteurs agréés (accredited collection organisations for training fund contributions)
PIA	Programme d'investissements d'avenir (Investment for the Future Programme)
PNACC	Plan national d'adaptation au changement climatique (National Plan for Adaptation to Climate Change)
PNSE	Plan national santé environnement (National Health and Environment Plan)
PREPA	Plan de réduction des émissions polluantes (Polluting Emissions Reduction Plan)
PRIS	Point Rénovation Info-Service (Renovation Information and Service Point)
R&D	Research and Development
REACH	Registration, Evaluation, Authorization and Restriction of Chemicals
SCOT	Schéma de cohérence territoriale (Coherent Territorial Planning Scheme)
SDAGE	Schéma directeur d'aménagement et de gestion des eaux (Water Planning and Management Programme)
SME	Small and medium enterprises
SNB	Stratégie nationale pour la biodiversité (National Biodiversity Strategy)
SNR	Stratégie nationale de recherche (National Research Strategy)
SRI	Socially responsible investment
TPE	Très petites entreprises (micro-businesses)

WBCSD	World Business Council for Sustainable Development
WHO	World Health Organization
WTO	World Trade Organization
ZRC	Zones de restriction de circulation (Restricted traffic areas)

Glossary

Agenda 21: a tool invented at the Earth Summit in Rio in 1992 to implement sustainable development in tangible terms at a territorial level. It consists of a programme of actions developed jointly by inhabitants and other stakeholders. There is a reference framework for Agenda 21 and sustainable development territorial projects.

Agro-ecology: a way of designing production systems based on the functionalities available within ecosystems. They enhance these whilst aiming to reduce pressure on the environment and preserve natural resources.

Amenity:an environmental amenity is any aspect of the environment that can be appreciated and enjoyed by people at a particular location or site. Environmental amenities are by definition, freely offered by nature, unquantifiable, particularly in monetary terms, and therefore incalculable.

Life Cycle Analysis (LCA)**:** LCA is used in order to quantify flows of materials within ecosystems. LCA is a measure of the resources required (flows of materials) to manufacture a product or provide access to a service, followed by quantifying the potential impacts of its production on the environment. By extension, a life cycle analysis can be carried out on any activity. Several methods can be used to calculate flows of this kind, particularly to understand the full repercussions on the environment of using a product, activity or technology.

Sealing (soil): any area that is removed from its natural (wasteland, natural meadow, wetland, etc.), woodland or agricultural state, whether or not it is built on and whether it is covered (e.g. a car park) or not (e.g. the garden of a detached house). Sealed land therefore also includes non-built developed spaces (such as green urban spaces, sports and leisure facilities, etc.) and can be located outside urban areas, on the periphery of smaller towns and even villages, alongside the infrastructure network or out in the countryside (because of the phenomenon of urban sprawl).

Hydrographic basin: a territory drained by groundwater or surface water that flows into a main channel (waterway or lake) and limited by a watershed.

Biological control: all methods of protecting plants using natural mechanisms. The aim is to protect plants by exploiting the mechanisms and interactions that govern the relationships between species in the natural environment. The principle of biological control is therefore based on managing the balance of predator populations rather than eradicating them.

Bio-economy: all economic activities associated with innovating, developing, producing and using biological products and services.

Biomass: organic matter (straw, wood, green waste, etc.) that can provide energy by being burnt to produce heat or electricity. It can also be used to produce biogas (methane) or biofuels for use in vehicles.

Biomimicry: an innovation process that relies on transferring and adapting the principles and strategies developed by living organisms and ecosystems to produce sustainable goods and services and make human societies compatible with the biosphere.

Environmental capital: resources such as minerals, plants, animals and air viewed as resources for the production of goods and ecosystem services, such as oxygen production, natural water purification, preventing erosion, pollinating crops and even providing recreational services.

Ecological capital is one of the five forms of capital used to produce wealth, the other four being human capital, financial capital, social capital and physical capital.

Climate change: variation in the climate as a result of natural or human factors. Where the change in the climate is the result of emissions of GHG caused by human activities, which alter the composition of the atmosphere, the term used is anthropic climate change.

Short supply chains: a means of distributing agricultural products, either by direct selling from the producer to the consumer, or indirect selling on condition there is only one intermediary.

Co-construction: : the process of joint decision-making by all stakeholders, which includes any consultation processes deemed necessary by the stakeholders concerned; the authority retains responsibility for deciding on any points where a consensus cannot be reached.

Consensus-building: a general approach to seeking opinions about a project by consulting the parties concerned by a decision before the decision is taken. An authority that wants to take a decision presents it to the persons concerned and engages in dialogue with them. The authority remains free to make the decision. The consensus-building process can begin long before any decision is made.

Consultation: the process by which decision-makers seek people's opinions to find out what they think and learn about their expectations and needs at any stage of a project. There is no guarantee, however, that their remarks or contributions will be taken into account in the final decision.

Total cost: total cost is a concept that emerged in the late 1990s in relation to the production cost of a building. It reflects awareness of the importance of deferred costs in a construction project. It is an invitation to prioritise investment choices in light of the savings that may be generated subsequently during the life of the building (operations, heating, renovation of materials, etc.).

"Environmental, Social and Governance" criteria (ESG): these are the non-financial criteria taken into consideration in management and in socially responsible investment (SRI). They can be used to assess the extent of the responsibility of a firm in relation to the environment, society and its various stakeholders (value chains, subcontractors, employees, staff, partners, etc.).

Decoupling: a continual reduction in impacts for the same level of wealth production, particularly in relation to the consumption of natural resources.
For example, although French GDP has increased by around 40% in the last 20 years, greenhouse gas emissions have fallen by more than 10%. GDP growth, which until recently appeared to be mechanically linked to GHG emissions, has been decoupled from it as a result of the mitigation measures undertaken.

Sustainable development: the conventional definition of sustainable development was formulated in 1987 by the United Nations World Commission on Environment and Development: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs".

Eco-design: eco-design consists of incorporating environmental protection from the outset in designing goods or services. Its aim is to reduce the environmental impacts of products throughout their life cycle, from the extraction of raw materials to production, distribution, use and end of life.

Industrial ecology: industrial and territorial ecology is inspired by the operation of natural

ecosystems to recreate an organisation characterised by optimal use of resources and a high level of materials and energy recycling on the scale of an industrial system. In tangible terms, it works by encouraging economic actors to develop synergies, such that they reuse production residues locally and pool certain services and facilities.

Circular economy: an economic system of production, exchange and consumption designed and organised to minimise the net extraction of resources (fossil fuels, raw materials, water, land, natural environments) and the polluting emissions with negative impacts on the environmental and health, at both a local and wider level.

Service economy: consists of replacing purchases of goods (such as a television, car or printer) with a service (such as hiring a self-service car or bicycle or using a networked printer to optimise use of the product.

Social and solidarity economy: an umbrella term for businesses organised in the form of cooperatives, mutuals, associations or foundations, whose internal operation and activities are based on a principle of solidarity and social utility. Businesses of this kind are managed using democratic and participatory methods. They set strict conditions on the use of the profits they generate: individual profit is prohibited and surpluses are reinvested. Their financial resources generally come partly from the public sources.

Green economy: an economy that results in improved human well-being and social equity, while significantly reducing environmental risks and ecological scarcities (UNEP definition).

Écosystem: the relationships between a community of living beings and by extension, between the community and its environment. An ecosystem is characterised by relationships of interdependence that support the maintenance and development of life within the system (including concepts such as food chains, cycles, ecological niches, etc.).

Greenhouse effect: originally a natural phenomenon, which helps to maintain the temperature in the lower atmosphere at an average of 15°C. It is linked to the presence in the atmosphere of certain gases (carbon dioxide, methane, etc.), which trap the radiation emitted by the Earth and reflect some of it back down, thus contributing to warming the atmosphere. The average temperature of the Earth is increasing because of human production of additional greenhouse gases.

Ecological efficiency: the capacity of a project to minimise its negative impact on biodiversity and maximise the positive impacts (just as economic efficiency is about seeking maximum profitability from economic capital).

Energy efficiency: the capacity to produce or consume the same quantity of goods and services whilst using less energy than previously.

Externality: the term ‘externalities’ is used when the actions of an economic agent have a positive or negative impact on the well-being and behaviour of other agents and this impact is not taken into account in the calculations of the agent who causes it. The pollution caused by an industrial site is an example of a negative environmental externality because the industrial activity results in negative costs that are not borne by the polluting business but by the whole of the community affected by the negative consequences.

Factor 4: the target France set for itself in 2005 (in the Energy Framework Act), which aims to produce a fourfold reduction in greenhouse gas emissions by 2050 (compared with our 1990 level).

Crowdfunding: a mechanism for financing projects or businesses by raising funds from the public and limiting the use of intermediaries. Crowdfunding currently operates mainly through internet platforms. Amongst other things, it is used to fund local projects or ones that defend certain values.

Environmental taxation: environmental taxation aims to incorporate the costs of the environmental damage caused by their activities in the costs borne by economic actors (business, households, the public sector, etc.). It therefore represents an economically efficient way of modifying stakeholders' behaviour, based on the "polluter pays" principle.

Greenhouse gas: natural or artificial gaseous components in the atmosphere that absorb and re-emit infrared radiation from the Earth. The main greenhouse gases are: water vapour (H_2O), carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), fluorinated gases (HFC, PFC, SF_6), etc.

Governance: a means of regulating social and economic relationships, based on mutual recognition, dialogue and consensus-building at various territorial levels and between different types of stakeholder, with a view to decision-making.

Environmental impact: all changes to the environment, whether they are negative or positive, caused by an organism, a development project or a product. The environmental impact study is used to help developers to reduce the damage caused to the environment by their project.

Ecological infrastructure: a concept based on a willingness to integrate, preserve and restore natural spaces in territorial development and management policies and recognise their importance for society, because of the services they provide in the same way as certain built infrastructure.

Inputs: in agriculture, the term "inputs" refers to the various products applied to the soil and crops, which do not come either from the farm or its local area. Inputs are not naturally present in the soil but added to it to improve crop yields, and include:

- fertilising products such as fertilisers and soil additives,
- plant protection products from the pesticide family: products used to eradicate parasites from crops,
- growth activators or retarders,
- seeds and plants.

More generally, an input is any product needed to run a farm, ranging from agricultural equipment to veterinary fees.

Socially responsible investment: the process used by management companies to select the securities that make up their portfolio, by taking systematic account, in addition to financial criteria, of the environmental, social/societal and governance (ESG) practices of the company.

Irreversibility: the impossibility for a system to return precisely and spontaneously to the state it was in prior to a modification; applies particularly to "critical" (exceptional) natural capital but also to phenomena that occur on a limited scale but cumulatively.

Sprawl: uncontrolled proliferation of building in rural areas or on the periphery of conurbations.

Business model: a representation describing the main aspects of an organisation's activities, from the point of view of its objectives and the resources and means deployed to achieve them. The aim of this process is to identify that added value exists and is shared between stakeholders over a clearly identified period and for a specific area of activity.

Nanotechnologies: a generic term that describes applications in numerous scientific areas, but in a general sense, describes principles and properties that exist at a

nanometric level, i.e. at the level of atoms and molecules. The aim of nanotechnologies is to produce objects or nanomaterials smaller than 100 nanometers.

Nanomaterials: materials characterised by their size or basic structure, within the scale of 1 to 100 billionths of a metre. Nanomaterials can be used in multiple articles designed mainly for consumers, such as sports items, cosmetics, paints, electronics and a wide range of other sectors.

Investment standards: an investment standard sets out the terms defined as acceptable (from a legal or social point of view, for example), in investment practices and includes the products in which funds are invested.

Planned obsolescence: planned or built-in obsolescence is the process by which an item becomes obsolete for a given users, because the item concerned is no longer up to date or no longer usable.

Project bond: based on a joint initiative by the European Commission and the European Investment Bank, a project bond is a security issued by a business to stimulate capital-market funding for major infrastructure projects in the areas of trans-European transport and energy networks.

Green bond: a security issued by a business or public entity (such as a development bank), which is used to fund environmental, renewable energies development or energy-efficiency improvement projects.

Public participation: the principle of public participation set out, for the first time, in the Aarhus Convention, was enshrined in 2004 in article 7 of the French Charter for the Environment as a principle with constitutional value: it allows everyone to participate in public decisions with an impact on the environment by expressing their views on the proposed decision.

Endocrine disruptors: endocrine disruptors are chemical substance of natural or artificial origin, which are foreign to the organism and can interfere with the functioning of the endocrine system. The ones most frequently cited in everyday consumer products, for example, are bisphenol A and phthalates.

Common Agricultural Policy: the Common Agricultural Policy (CAP) is a policy implemented across the European Union in 1962, which focused initially on five major objectives:
- increase agricultural productivity by developing technical advances
- in so doing, ensure a fair standard of living for the agricultural population
- stabilise markets
- guarantee security of supply
- ensure reasonable prices for deliveries to consumers

The CAP has undergone regular reforms since its creation, leading notably to greater consideration of topics associated with the environment, territorial management, quality issues and food safety.

Energy poverty: according to the terms of the Act of 12 July 2010, “a person is in energy poverty if experiencing particular difficulties at home in accessing the energy supply needed to satisfy their basic needs as a result of an inadequate match between their resources and housing conditions. "

Anthropic pressure: the result of the effects and impacts generated by human activities on natural resources and ecosystems.

Precautionary principle: a principle that advocates preventive action in response to dangers. “Where the occurrence of harm, although uncertain in the current state of scientific knowledge, could have a serious and irreversible effect on the environment, the public authorities shall adopt the precautionary principle in their areas of responsibility, in implementing risk evaluation procedures and adopting provisional and

proportionate measures to mitigate the occurrence of the harm concerned".

Kyoto Protocol: adopted in 1997, the Kyoto Protocol specifies the objectives and resources required to implement the United Nations Framework Convention on Climate Change (UNFCCC).

Non-financial reporting: a data-production procedure based on ESG criteria and transparency of a company as well as its environmental, social, and even societal and governance related impact, which is accessible to the public.

Smart grids: physical utilities distribution networks (electricity, water, gas, oil, transport, etc.) and/or information (telecommunications) networks associated with IT systems, sensors, computerised and electromechanical networks that allow bidirectional exchanges to optimise flows.

Resilience: the capacity of a system to resist and survive alterations or disruptions affecting its structure or operations and in time, establish balance again.

Fiduciary responsibility: fiduciary responsibility encompasses all the duties incumbent on a natural person or legal entity (generally a trust), which is responsible for securities placed in trust (for example, share or bonds), and which must ensure all the terms of the trust deed are met.

Corporate social responsibility (CSR) and organisational social responsibility (OSR): the contribution made by businesses or organisations to sustainable development issues. The approach consists of taking account of the social and environmental impacts of their activities to adopt the best possible practices and thus contribute to improving society and protecting the environment. CSR (or OSR) provides a way of combining economic, social and environmental responsibility.

Recycling centres: recycling centres or plants are facilities whose main objective is to encourage reuse of certain materials viewed as waste. They offer removal solutions for waste such as bulky items to local authorities and businesses.

Secondary resources: raw materials (materials, substances or organisms) that have already been processed (e.g. plastic, diesel or oils of animal origin).

Ecosystem services: the tangible or intangible benefit that people derive from ecosystems. Examples include producing oxygen from air, natural water purification, resources that feed domestic or hunting animals, and the activities of crop pollinators.

Moderation: moderation determines a model of consumption that questions the basic needs of human activities from the point of view of a use of resources that does not threaten their availability either now or in the future.

Discount rate: a rate that makes it possible to compare future income or expenditure with immediate income or expenditure. In particular, the discount rate represents a preference for the present (for example, a preference for having €10 today rather than €100 in five years' time). The depreciation can mainly be explained by inflation, which erodes the value of money, but also by the risk associated with the degree of uncertainty around the future profitability of the project or business.

Green and blue corridors: a territorial planning tool that aims to (re)create a coherent ecological network across a national territory, to enable animal and plant species to ensure their survival and enable ecosystems to continue to provide services to humans. It includes a green component, referring to natural and semi-natural land environments, and a blue component, referring to the aquatic and wetland network (rivers, canals, lakes, wetlands etc.).

Environmental transition: a shift towards a new economic and social model based on sustainable development, which is reshaping our ways of consuming, producing and living together to respond to major environmental challenges, namely climate change, resource scarcity, accelerated loss of biodiversity and increased environmental health risks.

Energy transition: the shift from a society based on abundant consumption of fossil fuels to one that is more moderate and more ecological

Energy recovery: recovery of the energy released by burning waste or biogas, particularly that produced at landfill sites.

Energy vulnerability: overall household energy vulnerability can be defined as household exposure to a long-term increase in the costs of energy and energy as a proportion of their budget for everyday living and other activities. For the most vulnerable households, this could result in a situation of permanent or temporary energy poverty. Although they are not considered “poor” as defined by Insee, the French National Statistics Institute, households that combine average income, heavy dependence on a car and a long journey from home to work or other activities may be “vulnerable”.

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