
Paradigm shift: social justice as a prerequisite for sustainable development

Christophe Degryse and
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europaan trade union institute

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Introduction¹

The enhanced knowledge of climate disruption gained from the IPCC (Intergovernmental Panel on Climate Change) reports, especially in 2007, has helped to forge a broad international consensus on the human causes and future impacts of climate change (IPCC, 2007). According to the IPCC, unless serious steps are taken to reduce CO₂ emissions, global temperatures will increase by between 1.1°C and 6.4°C by 2100, depending on the scenario. Average sea levels will rise by between 18 and 59 cm (as a result of ice melt and expansion of the oceans). Precipitation patterns will likewise be affected (more droughts and heavier rainfall).

There may well be a broad consensus about the causes, but it is much less evident concerning who is responsible and what should be done to combat global warming, as well as the price to be paid. The problem of global warming is linked in particular to the accumulation and long-term 'storage' of CO₂ in the atmosphere (van Ypersele 2008). This implies that the industrialised countries bear a historical responsibility for the phenomenon, as is recognised in the United Nations Framework Convention².

The goal is to limit the temperature rise to 2 degrees, and the targets for the post-2012 negotiations have been set on this basis. As for attaining them, the Stern Report (2007) was the first wide-ranging report to quantify the cost of remaining within that limit (approximately 1% of GDP per annum) compared with the cost of inaction (5% of GDP per annum).

The European Union has announced its intention to take the lead in this area (European Council 2007) and implement an ambitious policy to reduce CO₂ emissions by 20% by the year 2020, or by 30% in the event of an international agreement. Some governments, such as that of the UK, have put this issue at the very heart of their political agenda, whereas other countries, such as Italy, are lagging behind. Climate chaos is just one aspect of a more general ecological crisis affecting water (Gauthier and Fellous 2008), forests, fish stocks, biodiversity and so on (Brown 2007).

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1. We are grateful to Sophie Dupressoir, Maria Jepsen and Anne Panneels for their comments and suggestions.
 2. United Nations Framework Convention on Climate Change.

At the same time we are seeing divergent demographic trends from one country to another (compare, for example, China where the population will peak at 1.5 billion and India which could reach 2 billion inhabitants by 2100, both of which have roughly 1.3 billion inhabitants at present). This transition will affect the different IPCC scenarios on climate change, all six of which have a demographic dimension. The earth will have 3 billion more inhabitants by 2050.

The financial crisis, and the ensuing economic crisis, has made plain the options open to us as concerns economic models and policy orientations. Certain people believe that the crisis is temporary and should not seriously affect the dominant liberal paradigm (some even call for it to be reinforced). Others think that a degree of *ad hoc* regulation and faster technological progress/change should be enough to help us through this period (this is what, in the following paragraphs, we shall call ‘Gaia capitalism’). Lastly there are those who believe that the system is in deep crisis and affords an opportunity to advocate a paradigm shift combining sustainable development and social justice³. We belong to the last group: our thesis is that the behavioural changes made necessary by the ecological crisis will be untenable without concern for social justice.

We shall begin this Working Paper by explaining our proposed analytical framework. Next we shall examine the EU’s current Sustainable Development Strategy (SDS) and its energy and climate proposals. We shall try to demonstrate that the implementation and enforcement of these goals require more than mere adjustments to Community and national policies: a paradigm shift is needed. Finally we shall highlight the main issues arising in seven specific sectors. In conclusion, we shall suggest some ways forward by outlining avenues for further reflection. The Paper does not aspire to cover all aspects of this highly complex debate exhaustively, or even partially, but to provide some structured food for thought so as to prompt a genuine debate about the links between the social and environmental dimensions.

3. It is interesting to note that a series of influential and successful authors have addressed themselves to this topic, for example the acclaimed *New York Times* columnist Thomas L. Friedman (Hot, Flat, and Crowded: Why We Need a Green Revolution - And How it Can Renew America, 2008) or, on the topic of water, Erik Orsenna (*L’Avenir de l’eau. Petit précis de mondialisation II*, 2008).

1. Analytical framework

Global warming cannot be combated merely by making a few technical adjustments to our modes of production and consumption, for example by designing lower-carbon cars. We need to profoundly rethink our model of growth, e.g. means of transport, and hence the whole range of policies currently being implemented in pursuit of development. What must therefore be envisaged as of now is societal change. Whereas technology can and will play an important part in reducing CO₂ emissions (for the state of current and almost mature technologies in different sectors, see Annex 1, IPCC 2007), it would be illusory to believe that technology alone can save the environment. This is especially true since we have only just begun to think about the property rights associated with environmental innovations and about how the poorest countries/groups can be given the widest possible access to these innovations which, if they are to be effective, should be regarded as public goods and not solely as a source of private profit.

In its latest report, the IPCC looked into instruments and policies to mitigate climate change. Eight are identified:

1. regulatory measures and standards;
2. taxes and charges;
3. tradable permits;
4. financial incentives;
5. voluntary agreements between governments and private parties;
6. information instruments;
7. research and development (see Annex 2);
8. possibilities linked to non-climate national policies.

As the report points out (IPCC 2007: 765), *'there are a number of non climate national policies that can have an important influence on GHG emissions. These include policies focussing on poverty, land use and land use change, energy supply and security, international trade, air pollution, structural reforms and population policies'*.

Our own line of reasoning is underpinned by this direct and indirect all-round approach. The challenges are not merely sectoral (energy supply, transport, buildings, industry, agriculture, forestry and waste management, to list the categories used by the IPCC); nor should they be seen merely in terms of instruments, as enumerated above. Global policies and overall coherence are essential. By the same token, the ETUC and the social and environmental

NGOs have structured their joint reflections for the next European Commission (2009-2014) around several major themes⁴.

From this perspective, one cannot fail to note the absence – or at the very least the weakness – of systemic thinking which combines the social and environmental dimensions of sustainable development. One might mention in particular the effects that a break with our present modes of production and consumption will have on jobs, social policies and social protection. There has been some fragmentary exploration of aspects of the relationship between the environment and employment policy (European Commission 2005c; Syndex/Wuppertal Institute/ISTAS on climate change and employment 2007), social protection (Mira D’Ercole and Salvini 2003; Gough 2008) and social policy (OECD 2006; Pye *et al.* 2008).

Climate change can be regarded as a new social risk which will affect regions and social groups differently (Gough 2008). It is well known that, according to current projections, Africa – the continent which has contributed least to global warming – will be the hardest hit. Anti-poverty measures in general have often been highlighted in this context, linking action against climate change with an increase in development aid, especially for education (Mira D’Ercole and Salvini 2003; Brown 2007). This aspect is not covered in any detail in our Paper. Attitudes are much vaguer when it comes to the social implications in developed and transition countries, which are the main focus of our reflections here.

There will be no consensus on altering behaviour without intra- and intergenerational solidarity. Yet such a consensus cannot be taken for granted; it has to be constructed. Behaviour *can* however be altered with regard to the relative equivalence between the short and the long term. As Fitoussi and Laurent (2008: 66) put it, *‘relations between the generations are not so simple that one can posit the hypothesis of generalised altruism. There is however one area where the well-being of present generations and that of future generations can be regarded as more complementary than substitutable, and it is that of social justice. Although social justice is not a sufficient condition, it would seem at the very least to be a necessary condition for intergenerational altruism’*.

We are touching on a key aspect of social cohesion here, since environmental and social inequities are mutually reinforcing. A study funded by the Commission points out three interrelated aspects. Firstly, the wealthiest deciles contribute more to CO₂ emissions in absolute terms; secondly, the least well-off deciles are affected more by environmental degradation; and

4. There are ten such themes: 1. Climate, energy and natural resource use; 2. Public procurement and investment; 3. New indicators beyond GDP; 4. Sustainable consumption and quality of life; 5. Green and decent jobs; 6. Mobility and housing; 7. Trade and development; 8. Major EU budgets and programmes; 9. Territorial cohesion, rural development, agriculture and biodiversity; 10. Participatory democracy.

thirdly, taxation schemes are generally regressive, placing more of a burden on the poorest households or individuals (Pye *et al.* 2008).

But we must broaden our thinking to ponder on the social acceptability of change. More than 72 million EU citizens are currently living in poverty, and the gulf between rich and poor is steadily widening. 15% of European workers, i.e. roughly one in seven, earn a monthly wage amounting to less than 60% of the national median wage: in other words, they belong to the working poor⁵. The pay gap between directors of large companies and average employees has widened considerably in all EU Member States (Krugman 2008). What is more, the gap has been growing at a time when wages account for a decreasing share of GDP in most EU countries, and when wage rises are struggling to keep pace with inflation and are not keeping up with economic growth in several of the new Member States. The issues of social justice and sustainable development are therefore intimately connected.

Combining these two dimensions means rewriting policies. A new approach to policy-making could help open up some interesting new prospects from a progressive point of view. As Meadowcroft (2008) states: *‘By responding to problems related to climate change, social policy may be able to advance other objectives related to welfare and equity. Just as some analysts talk of the policy response to climate change representing an “economic opportunity agenda” (rather than just an economic cost agenda), so it can also be considered a “social opportunity agenda”. [...] Rather than seeing climate change policy as a distraction from urgent social issues (ageing, growing income inequities, immigration, and so on) those in the social policy area should see it as an emerging reality which opens up possibilities for change in places which have proven resistant’*. Thus the climate change debate also constitutes a window of opportunity in the social policy arena.

Global warming alters the medium- and long-term policy agenda. Even if current emissions are radically scaled down, the consequences of climate inertia will persist in coming decades (IPCC 2007). Structural changes must therefore be brought about at a pace unprecedented in the history of human evolution, and within a relatively short period of time; this poses problems for the switch-over to both new technologies and new patterns of behaviour. As always happens during periods of uncertainty and agenda-setting, ideas take on a more prominent role. How should the transition to a low-carbon economy be handled?

Our thinking focuses primarily on the EU level, where two strategies are competing to point the way forward: the Lisbon Strategy (currently being renewed) and the Sustainable Development Strategy (SDS, see below) (Begg 2008). The current SDS timidly embraces social objectives such as public

5. <http://www.eurofound.europa.eu/eiro/2002/08/study/tno208103s.htm>.

health and measures to combat social exclusion and global poverty. The EU must go further in this direction, in our opinion, viewing the social agenda not as an adjunct of the Lisbon Strategy, but as the founding element of a renewed Sustainable Development Strategy. In line with this new policy integration, the economic paradigm must be adapted in two respects:

- from now on we should rely on a policy of cooperation, and no longer exclusively on one of competition, to meet the challenges facing the EU. The Lisbon agenda is currently based on a programme of deregulation and competition between economies and legal systems, in an approach geared to bolstering the overall efficiency of the economic system (see the special edition of *Transfer*, 2009/1). Cooperative and sustainable economies, not competitive and competing economies, will enable us to meet the challenges of climate disruption and its social implications;
- whereas Lisbon is a short-term (three-year) or medium-term (ten-year) strategy, the Sustainable Development Strategy extends over the medium and long term. A change of time-scale is therefore required. In recent years the scientific community has gained fairly precise knowledge of what lies in store for us in terms of climate change and its long-term effects on human activity. There is still time to control these changes, the scientists tell us. But in order to do so, economic policies must look beyond the short and medium term⁶.

In order to achieve this paradigm shift we need stakeholders and new alliances. There are currently two groups – ‘social’ and ‘green’ – operating separately (Cornut *et al.* 2007) and sometimes pooling their efforts (see for example the joint statement by the ETUC, the European Environment Bureau and the NGO Platform for the European Council of March 2004, or the combined attempts to influence the European Commission’s agenda for 2009-2014)⁷. Often, however, these two groups still ignore one another. Numerous non-governmental organisations, associations and miscellaneous groups have long been campaigning on environmental issues. Similarly, as far as European social dialogue is concerned, the theme of climate change is on the agenda for the next joint action programme of the ETUC, BusinessEurope and CEEP. Increased consideration is also being given to ‘green jobs’ (the Employment Committee has in fact set about defining the agenda and possible content – see also below).

Common ground can be found, but it is also vital to identify points and topics of conflict, particularly between the goals of reducing CO₂ emissions and industrial restructuring. To deny potential and real conflict would be to stand

6. The time factor also means reflecting on the financialisation of the economy and corporate governance. This requires, for example, a review of accounting and financial standards (which favour short-term valuation to the detriment of medium-term strategies).

7. www.etuc.org/a/985; www.springalliance.eu

in the way of the planned reductions. Such conflict, and above all the search for solutions, demonstrates that climate change has become a genuine political and strategic concern, and is no longer just a general and falsely consensual talking-point.

The risk, then, is that social development and environmental development will continue to be regarded as separate concerns. If that is the case, the SDS might only contribute at best to an adaptation of capitalism ('green capitalism' or 'Gaia capitalism'), whereby the ultimate goal is merely to win market share thanks to green technological innovations, as is already apparent from reading some of the major financial newspapers. This is the approach backed by the McKinsey firm of consultants in its detailed analysis of technical solutions for reducing CO₂ emissions: its basic premise is not to change lifestyles (McKinsey 2009). Similarly, some major banking groups are already attempting to 'seize this opportunity': the Deutsche Bank Group has issued a publication entitled 'Investing in Climate Change 2009, necessity and opportunity in turbulent times'⁸. Here we find ourselves caught between two opposing kinds of sustainability: weak and strong. The contrast is summarised by François Mancebo (2008: 57): *'In strong sustainability, progress is expressed by the deployment of human potential rather than by material growth. In weak sustainability, it is conveyed by the idea that technological innovation will create the conditions for a perfect substitution between natural and built capital'*.

8. The same applies to the Commission's recovery plan (European Commission 2008d), which place the climate at the centre of planned action. A careful reading of the proposals, however, reveals that this objective is still regarded as an add-on to other proposals deemed more essential (balanced budgets, competitiveness, compliance with ECB rules, etc.). Nevertheless, despite its hard-line initial statements, the ECB is proving more flexible in its actions.

2. The European Sustainable Development Strategy

The following paragraphs will briefly outline the Sustainable Development Strategy put in place by the EU. It is by renewing this Strategy and the Lisbon Strategy that the key overall objective of a low-carbon, sustainable economy at European level can be set for 2020 and the decades beyond. We shall then summarise the main elements of the recently adopted energy/climate agreement.

Since the Brundtland Report of 1987, the environment debate has moved on both internationally (the 1992 Rio Summit, Agenda 21) and at European level. The Amsterdam Treaty of 1997 refers to sustainable development as a cross-cutting EU policy. But it was not until the Göteborg European Council of June 2001 that the Heads of State and Government adopted the first Sustainable Development Strategy (SDS) for the EU (European Council 2001). The decision to do so started from the premise that, unless the trends threatening future quality of life are reversed, the cost to society will increase substantially and/or the changes will become irreversible. The basic principle behind the Strategy is to examine the economic, social and environmental consequences of all policies in a coordinated manner, and to factor them into decision-making.

The SDS was intended to complement the Lisbon Strategy, of which it constitutes one of three main elements, along with economic reforms and employment (European Commission 2001). Initially the SDS comprised four main strands: ecologically sustainable transport, public health, management of natural resources and climate change. An external dimension was added at the Barcelona European Council, with a view to the World Summit on Sustainable Development held in Johannesburg in 2002. Indicators were devised so that Member States and the European institutions could refer to common benchmarks when implementing their actions and pursuing their goals, but none of these indicators linked environmental aspects with social ones (Pye *et al.* 2008).

Things have moved on considerably since 2001: better knowledge of climate disruption; EU enlargement to take in the central and eastern European countries, Cyprus and Malta. This led the Commission to re-examine the content of the SDS in February 2005 (European Commission 2005). As a result of that review, the Heads of State and Government laid down some key objectives and guiding principles for European policy-making (Presidency 2005). The key objectives are:

- Environmental protection: safeguard the earth's capacity to support life in all its diversity, respect the limits of the planet's natural resources and ensure a high level of protection and improvement of the quality of the environment. Prevent and reduce environmental pollution and promote sustainable production and consumption to break the link between economic growth and environmental degradation.
- Social equity and cohesion: promote a democratic, socially inclusive, cohesive, healthy, safe and just society with respect for fundamental rights and cultural diversity that creates equal opportunities and combats discrimination in all its forms.
- Economic prosperity: promote a prosperous, innovative, knowledge-rich, competitive and eco-efficient economy which provides high living standards and full and high-quality employment throughout the European Union.
- Meeting our international responsibilities: encourage the establishment and defend the stability of democratic institutions across the world, based on peace, security and freedom. Actively promote sustainable development worldwide and ensure that the European Union's internal and external policies are consistent with global sustainable development and its international commitments.

Following on from this update of the SDS, the Commission adopted on 13 December 2005 a 'Platform of Actions' setting out the main areas to be promoted in the EU and the Member States (European Commission 2005). This led to the European Council's adoption of the second SDS, for 2005-2010, in June 2006.

In their introduction to this document, the Heads of State and Government acknowledge that *'the main challenge is to gradually change our current unsustainable consumption and production patterns and the nonintegrated approach to policy-making'* (European Council 2006).

The Renewed EU Sustainable Development Strategy for 2005-2010 revolves around seven major objectives. Two are general (climate change and conservation of natural resources) but essentially have to do with energy, agriculture and fishery policies. Two others are related to specific initiatives: transport; consumption and production. The three others are 'social': public health, social inclusion and combating global poverty. These objectives are to be pursued through an array of instruments, ranging from legislation to international diplomacy, via taxation and research/development, yet it is not clear precisely what strategy will be implemented to achieve which objective (e.g. in respect of 'decoupling economic growth and the demand for transport'). These are the seven objectives for 2005-2010:

1. Climate change and clean energy: to limit climate change and its costs and negative effects to society and the environment (cutting greenhouse gas emissions, preparing the post-Kyoto scenario, etc.)

2. Sustainable transport: to ensure that our transport systems meet society's economic, social and environmental needs whilst minimising their undesirable impacts on the economy, society and the environment (energy consumption, decoupling economic growth and the demand for transport, a balanced shift of transport modes, public passenger transport services, infrastructure charging, etc.)

3. Sustainable consumption and production: to promote sustainable consumption and production patterns (environmental and social performance for products and processes, Green Public Procurement, environmental technologies and eco-innovations, etc.)

4. Conservation and management of natural resources: to improve management and avoid overexploitation of natural resources, recognising the value of ecosystem services (biodiversity, reuse and recycling, Common Agricultural Policy, Common Fisheries Policy, etc.)

5. Public health: to promote good public health on equal conditions and improve protection against health threats (chronic diseases, chemicals, legislation on human and animal health, etc.)

6. Social inclusion, demography and migration: to create a socially inclusive society by taking into account solidarity between and within generations and to secure and increase the quality of life of citizens as a precondition for lasting individual well-being (reduce poverty, modernise social protection, employment of young people, reduce early school leaving, social services, immigration policy, etc.)

7. Global poverty and sustainable development challenges: to actively promote sustainable development worldwide and ensure that the European Union's internal and external policies are consistent with global sustainable development and its international commitments (public development aid, promote sustainable development at the WTO negotiations, etc.).

The SDS goes on to define education and training, as well as research and development, as 'cross-cutting policies contributing to the knowledge society'. Lastly, it emphasises the role of 'financing and economic instruments' as a means of achieving its objectives.

As for implementation, monitoring and follow-up, the SDS envisages that the Commission will submit a progress report on implementation every two years as from September 2007. Provision is also made for improvements to the sustainable development indicators, and the European Council will decide – at the latest by 2011 – when a comprehensive review of the Strategy needs to be launched.

An initial review of the renewed SDS was carried out in February 2008 by a firm of external consultants (ECORYS 2008). They found that, whereas all seven of the SDS themes may be regarded as equally important, in actual fact they compete with one another. The goal of ‘social equity and cohesion’, for instance, already appears to be losing out. Similarly, it seems to be taking longer for issues such as sustainable consumption and production, as well as public health, to rise up the agenda. Other priorities, such as conservation and management of natural resources, or sustainable transport, remain essential but do not seem to be the subject of many large-scale policy initiatives. Moreover, sustainable development has not yet been mainstreamed across all Community policies. And this is without doubt the core problem with the SDS as it stands.

2.1. The energy/climate package

Although the sustainable development policy constitutes the general framework for action, aspects directly related to climate change are mainly to be found in what is known, in European jargon, as the energy/climate package.

We shall not go into technical detail here, and nor do we intend to discuss the implementation of Kyoto. We would merely recall that the European countries favoured the market, and emissions trading permits, as the least costly solution, whereby the market would provide the cheapest solutions in terms of adaptation and emissions cuts⁹. This also means that costs could begin to rise once the most straightforward adaptations have been carried out.

The energy/climate package, unveiled by the European Commission on 23 January 2008 (European Commission 2008a), is one of the most indicative documents of Europe’s attitude to sustainable development. It expresses an undeniable resolve to be seen as world leader in the fight against global warming, while keeping heavy industry competitive and avoiding structural change (concerning *modes* of transport, *modes* of agricultural production, *modes* of energy consumption, etc.). The European Council approved the energy/climate package on 11-12 December 2008, whereupon the European Parliament gave the green light, with unaccustomed speed, on 17 December 2008. There follows a summary of the content of this package, which is a complex one since it results from numerous compromises between Member States and between sectors of industry. We shall then attempt to make a preliminary general assessment of it.

One major difficulty in reaching a compromise on the package derived from the diversity of interests at stake from one type of industry to another: major

9. The collapse in prices for tons of carbon equivalent demonstrates that, here too, the market has its flaws.

energy companies, manufacturing industry, small industrial installations, agriculture, sectors which are/are not subject to international competition, sectors which do/do not lend themselves to relocation, road transport, shipping, construction, services, and so the list goes on. Thus each Member State did its calculations according to the overall nature of its own manufacturing base (e.g. the importance of heavy industry to Germany, coal-fired power stations to Poland, agriculture to France, etc.). Individual sectors of industry, for their part, organised themselves at European level so as to assert their specific interests (iron and steel, car production, power generation, etc.). It was ultimately a matter of striking a delicate balance in order to share the 'burden' equitably among Member States. This complex bargaining process is not specific to the energy/climate package, but is an inherent feature of European negotiations. The complexity was lessened in that the package covers European economic activity in its entirety.

The aim of the energy/climate package is for the EU to achieve the target of '3 x 20' by the year 2020, i.e. a 20% cut in greenhouse gas emissions from industry as compared with 1990 levels (10% in non-industrial sectors such as housing, transport and agriculture); a 20% improvement in energy efficiency; and increasing the share of renewables in energy use to 20%. At the end of the day, however, no binding measures were laid down for the 20% improvement in energy efficiency. The package also incorporates new sectors: aluminium, heavy chemicals, aviation and others.

The package contains the following elements aimed at achieving these targets:

a directive amending the European greenhouse gas emission allowance trading system for the energy and manufacturing sectors. This system sets a ceiling for the overall level of emissions authorised and allows industry, within that limit, to buy and sell quotas according to need. The target is a 21% reduction, and the plan is to move from national systems, which have varied considerably in some cases, to a unified European system. This constitutes a radical break with previous practice;

- a directive whereby Member States will pool their efforts to cut CO₂ emissions in other sectors (road transport, buildings, services, agriculture, waste and small industrial installations). Each Member State must attain its own emissions reduction target by 2020, the aim being to cut emissions by 10% overall;
- a directive on carbon capture and storage, geared to equipping power stations to capture CO₂ and store it below ground (this relates mainly to coal). The Member States will invest in these new technologies which are still only at the design stage;
- a directive on the promotion of renewable energy sources (hydroelectric, solar, wind, biomass and geothermal), in order to increase their share in energy use to 20% by 2020;

- a directive on the promotion of biofuels, so as to obtain fuels producing fewer greenhouse gases (-6% over the production cycle).

We should point out that many issues related to implementation of the package have been devolved to committees, and that various legislative acts have yet to be adopted.

Another point worth making is that the package has been adopted one year ahead of the United Nations Climate Change Conference, to be held in Copenhagen on 7-18 December 2009, aimed at getting the 187 signatory countries to the Climate Change Convention to agree on what follows on from Kyoto (which expires in 2012). Thus the energy/climate package is at the same time a political tool that will enable the EU to claim leadership of these negotiations. The EU has moreover declared itself ready to raise to 30% its target of a 20% cut in greenhouse gas emissions by 2020, provided that the other signatories to the Convention step up their own reduction efforts.

As far as the power generation and manufacturing industries are concerned, the package stipulates that the vast majority of greenhouse gas and CO₂ emissions rights will be allocated free of charge until 2013. After 2013 a global auctioning system will be applied, albeit with numerous exceptions. Free emissions rights will be allocated to energy-hungry industries at risk of relocation, until such time as a satisfactory international agreement has been reached. Just 20% of the quotas created¹⁰ will be auctioned (the rest being free of charge) to other industries from 2013 onwards, then 70% in 2020, and 100% in 2027. In addition, a financial solidarity mechanism has been set up for the benefit of the least wealthy EU countries, whereby 12% of the total volume of quotas will be distributed free of charge among European countries for which this system will prove particularly costly (most of the CEECs will benefit, but so will Belgium for example). The remaining 88% will be distributed to the EU 27 according to their 2005 emissions.

Our initial assessment of the package is that it constitutes quite a technical and political feat. Progress has unquestionably been made on two fronts: from 2013 onwards, the majority of power generating companies will be obliged to pay for the pollution they emit; in addition, the EU will have to satisfy 20% of its energy needs from renewable sources by 2020. The package nevertheless suffers from two interrelated shortcomings: firstly, a lack of ambition in view of the concessions made to certain sectors of industry, which, secondly, appear unwilling to envisage alternative models of development. In other words: what are we producing, how are we producing it and – above all – why are we producing it?

10. A 'quota' is the right to emit one tonne of carbon dioxide or any other greenhouse gas with equivalent effect over a specified period of time.

All in all, it seems likely from a preliminary analysis of the SDS that we may witness the emergence of green capitalism, that is, the maximum possible adaptation of capitalism to the new environmental and climate-related requirements. Issues such as inter- and intra-generational solidarity, social and territorial cohesion in vulnerable communities, decent work and integration feature only peripherally in such a scenario.

3. A change of approach

If sustainable development concerns and the major challenges facing us today are to be addressed, attention must in our opinion focus on three main issues:

- establishing regulatory (legal, fiscal and incentive) mechanisms to govern the conduct of economic and financial operators;
- reflecting on modes of production, distribution and consumption which will foster structural solutions;
- reflecting globally (and not locally) on how to develop a model of cooperation with third countries concerning not only diplomacy but also trade, technology transfer, cooperation and migration flows (for coverage of these matters, see Social Developments in the EU 2007).

These three issues pose long-term structural challenges and call for a fresh response from the European Union. What is needed is a strategy whereby sustainable development becomes a yardstick for all EU initiatives and policies.

While the 2005-2010 SDS might give the impression that it takes account of this need, it nonetheless remains at odds with the goals of a Lisbon Strategy whose top priority is competitiveness (Begg 2008). Admittedly, the key objectives of the SDS were supposed to complement Lisbon (European Council 2001). But that has never been the case, and the balance inherent in the founding compromise of Lisbon was shattered not least by the Kok Report (2004), which advocated that the Strategy should be redirected towards the goal of economic growth. Competitiveness had become – and still is, for some – the sole yardstick, from which social and environmental benefits were expected to flow: ‘we need a dynamic economy to fuel our wider social and environmental ambitions’ (European Commission 2005a: 4).

No such virtuous circle exists, however. It is wrong to believe that economic growth will spontaneously fuel social ambitions and improve the environment (see Reich 2007, Stiglitz, Aglietta and Reberieux 2004, Peyrelevade 2005, etc.). Economic growth - predicated on productivity gains, competition between and within businesses, between regions, countries and continents, deregulation, flexible low-cost labour, financial engineering and fiscal tourism - is no basis for setting our sights on sustainable, low-carbon development.

That is why the EU must embark on a new paradigm: it is no longer growth which creates environmental and social gains; it is environmental protection in a broad sense and the promotion of social cohesion which will create a sustainable society.

A different paradigm also implies different indicators, reflecting a different way of thinking. GDP is not an appropriate indicator of sustainable development. If a country clears the trees from its entire land mass or puts children to work rather than sending them to school, its GDP will rise. The European Commission, European Parliament, Club of Rome, OECD and WWF deliberated on such matters at a conference in November 2007 entitled 'Beyond GDP' (IP/07/1718, 19/11/07). Measuring the progress, wealth and well-being of nations should henceforth take into account factors such as cutting carbon emissions, preserving biodiversity, a rational use of resources and social cohesion. Alternative indicators have been devised in the past few years, incorporating aspects such as long-term wealth accumulation (natural wealth, economic wealth and social wealth), life expectancy, literacy rates, levels of educational attainment and the negative incidence of pollution and resource degradation. These indicators are not uniform, however, and are not widely used. The EU is seeking to devise an indicator for the purpose of gauging progress in environmental protection, which would moreover use an integrated accounting system and other sub-indicators to improve policy-making. An initial version is expected to be operational before the end of 2009. In similar vein, the French government has asked two Nobel prize winners for economics, A. Sen and J. Stiglitz, along with J.-P. Fitoussi, to lead a research project in this area (for a review of the literature, visit <http://www.stiglitz-sen-fitoussi.fr/fr/documents.htm>). Another global approach is the one based on ecological footprinting (calculating how much of the earth's available resources we consume) (on this aspect, see Boutaud and Gondron 2009).

The economic paradigm must be adapted to the elements highlighted in our introduction (medium/long-term cooperation *versus* short-term competition). Europe wishes to pioneer this approach, or so it claims, and is keen to build a long-term development model. Its resolve should be heeded and acted upon, beginning with a systematic reappraisal of all European policies and their compatibility with sustainable development goals. This entails anticipating and managing change, which will not happen without political and social tension, nor without transfers of production. Such change could potentially have a whole range of consequences (restructuring, vocational training, employment policy, competition policy, etc.). It would of course be misguided to build a consensus about the long term without coherent management of the short-term effects.

We shall outline some of these issues below and attempt to suggest some solutions.

3.1. The Stability and Growth Pact

A 'zero deficit' target for the Stability and Growth Pact no longer makes any sense – if it ever did – since the current and future challenges are such that they require substantial public and private investment. A new 'stability and sustainable development pact' should be envisaged, along the lines of the bail-out of the European banking sector in autumn 2008, in keeping with the need to invest in public transport, the energy efficiency of Europe's housing stock and other buildings, renewable energy, town and country planning, research and development. According to the IPCC (and confirmed by the Stern Report of 2007), the impact of climate change is highly likely to lead to escalating net annual costs over time, as global temperatures rise. It is therefore even more logical to inject immediately the investment now needed, given the lead time between deciding to invest and carrying out that decision. It is worth pointing out that under the reform of the Pact, adopted by the Council on 27 June 2005 (Council of the European Union 2005a), budgetary supervision can take into account any 'major' structural reforms with a verifiably positive impact on the long-term viability of public finances. This is already the case with pensions reform in particular. A new stability and sustainable development pact must seek to interpret the 'relevant factors' which the Commission is already obliged to bear in mind, when assessing deficits (Council of the European Union 2005b), with a view to actively combating climate change. This is not so much a revolution as a matter of bringing the Pact into line with declared political intentions regarding sustainable development.

3.2. Taxation

With respect to 'green' or environmental taxation, the conduct of producers, distributors and consumers needs to be guided towards environmentally friendly practices (see for example European Commission 2007a and b; Fitoussi and Laurent 2008). There are three instruments available: green taxes which, according to a recent OECD study (OECD 2006), already account on average for 2.5% of GDP and 5.5% of government revenue; subsidies and other incentives to reduce the relative cost of certain 'green' products; emission permits, and the trade in them, which are introducing a new form of taxation (on CO₂ and other greenhouse gases). Emission permits have considerable potential, in that they are to be put up for auction (on a time-scale varying from sector to sector) and should therefore yield additional resources – and should do so for a long time to come, since the reduction is scheduled to reach 90% in the developed countries by 2050 (for a description of the scheme, see Faucheux and Joumi 2005). It is estimated that the sums generated by the energy/climate plan mechanism should be in the region of €30 billion per year between 2013 and 2020¹¹.

11. See in particular: <http://www.touteurope.fr/fr/actions/energie-environnement/l-europe-et-l-environnement/presentation/le-paquet-energie-climat.html>

We must avoid a situation where each Member State decides to go it alone on the introduction of green taxes¹². There is an opportunity here to establish European-level tax incentives. What is more, the various taxation directives must make the goal of sustainable development a priority from now on: the directive on the taxation of energy products (2003/96/EC) is expected to contribute to more efficient energy consumption and to garner resources for the use of clean energy and for technological innovation. Fuels must be taxed in accordance with their energy content, and distinctions must be drawn in terms of the way pollutants are released into the environment. The Commission should put forward a proposal for a directive making CO₂ emissions a factor in the taxation of private cars. Other measures worth considering at European level include water pricing, sustainable waste management and reducing local pollution (on the different types of market-related instruments, see for example European Commission 2007a).

We should not, however, be thinking solely about the environment in a narrow sense. The burden of taxation on low-paid labour should be shifted to green taxation. There should be European-level discussion of a shift in the tax burden from labour to capital and consumption, in combination with the need to maintain social security and pensions funding (the double dividend principle). Also, taxation has distributive effects which must be borne in mind, since they are slightly regressive (European Commission 2007a) and hence weigh more heavily on the budgets of poorer people, who generally lack the resources to make the investments deemed necessary and desirable under incentive schemes. Flanking measures are therefore required to help such people; otherwise there is a risk of increased polarisation, with disadvantaged households having less access to the energy required to cover their basic energy needs (heating, lighting and mobility).

3.3. Transport policy

Transport is one of the sectors having experienced the fastest rise in greenhouse gas emissions in recent years. Road transport is responsible for 22% of total CO₂ emissions, while aviation and shipping account for 3 to 4% of greenhouse gas emissions (aviation emissions rose by more than 85% between 1990 and 2004) (European Commission 2007b). Even though Europe has introduced stricter rules than anywhere else in the world, the delay in bringing less polluting models into circulation, together with the increase in the car and lorry fleet, has more than offset the slight cut in emissions (for an overview of the relevant issues in this sector, see Loire and Paris 2009). A regulation on reducing CO₂ emissions from new cars – to 130g CO₂/km, compared with 160 at present, with fines imposed on non-compliant manufacturers – was at last adopted in December 2008.

¹² For example road pricing, which sometimes varies from one city to another even in the same country, is reminiscent of the Middle Ages.

This is one of the areas where short-term tensions connected with the financial crisis and its impact on the real economy are most obvious. Similarly, there is a need here for a dynamic approach going beyond sterile comparisons between jobs today and redeployment tomorrow. In parallel, cuts in greenhouse gas emissions will lessen air pollution and the associated health costs¹³.

But this issue is above all a global concern entailing difficult decision-making. As stated in the European Environment Agency report, *'because transport ties most physical elements of society together, fundamental changes to the transport system require and foster fundamental changes to all or most of these elements. Therefore, the changes take time and require a major debate on the aim and direction'* (European Environment Agency 2007: 11). 40% of the world's population will live in cities of more than a million inhabitants by 2015, and this trend will only gather pace (Wyman 2007, quoted by Loire and Paris 2009). Thus a response based solely on more energy-efficient cars is inadequate. What is needed is a new transport policy.

A White Paper adopted by the Commission in September 2001 put forward 60 or so measures aimed at establishing a new balance between modes of transport by 2010, returning rail freight to its 1998 level (European Commission 2001b). The policy aims were to revive rail transport, promote sea and river transport, curb the growth in aviation and develop intermodality. But the Commission changed its tune at the time of the mid-term review of that White Paper in 2006, advocating a 'balanced approach' centred on the contribution made by different transport modes, including road transport (European Commission 2006). The modal shift gave way to 'co-modality' which, in terms of sustainable development, constitutes a backward step.

The demand for both goods and passenger transport, especially in intra-Community traffic, has seen almost uninterrupted growth over the past twenty years. The elimination of internal EU borders and, in particular, the completion of the single market in 1993 led to an upsurge in the carriage of all manner of goods around Europe, in growing quantities and at speeds never previously experienced. Similarly, the reduction in the carriage of heavy goods in bulk form (e.g. by river), along with the sharp rise in 'door-to-door' services and 'just-in-time' forms of production, has led to strong and sustained transport growth, especially road haulage. Nowadays, for profit reasons, shrimps caught in Europe are shelled in Morocco and then sent back to their country of origin, mostly by lorry; meanwhile 'highly competitive' Chinese strawberries on sale in France require twenty times more oil

13. A study reported by the *Financial Times* (27 May 2008) demonstrated that the change-over to electric cars in California alone would save at least €1.4 billion per year in healthcare costs deriving from the population's exposure to the fine particulates currently emitted by conventional cars. 300 premature deaths could be avoided every year, as could 260 cases of chronic bronchitis and more than 7,000 asthma attacks.

equivalent than strawberries from the Périgord region¹⁴. Such examples abound. Although the EU is cautiously beginning to look into the question of transport modes, it is keeping silent about the absurdities of distribution systems like those referred to above, made possible by the failure to internalise the real external costs of transport. It should however be noted that aviation will be part of the emissions trading system (Directive 2008/101, 19/11/2008). As for shipping, the European Union is waiting to see whether an international agreement can be reached in 2009 before enacting legislation. Within a few years from now, therefore, certain environmental costs are likely to be incorporated in these sectors¹⁵.

3.4. Sustainable production, distribution and consumption

What modes of production, distribution and consumption should we be promoting? On 16 July 2008 the Commission put forward a Sustainable Consumption and Production and Sustainable Industrial Policy Action Plan (European Commission 2008c). Its stated aims are to promote environmentally friendly products and technologies, to improve products' environmental performance and more specifically their energy efficiency, and to encourage the market penetration of such products. The Plan is geared to both industry and producers (eco-design of products), distribution and retailers (eco-labels), management (EMAS), SMEs, public authorities (green public procurement), consumers (labelling) and international trade. Some elements of this Plan appear quite promising, in particular the indicative target of 50% of green public procurement within each Member State in ten priority areas: construction, food and restaurant services, transport and transport services, energy, office equipment and computers, clothing, uniforms and other textiles, paper and printing services, furniture, cleaning products and services, and equipment used in the health sector.

These are worthwhile initiatives. But why is the target only indicative? Why, when it purports to be about sustainability, does the target not cover social aspects, and why is it limited to 50%? Moreover, some other promising elements have been abandoned, notably the introduction of a carbon tax on imports (see also the section on competition policy)¹⁶. Many of the measures proposed by the Commission are voluntary, even though it is well known that one of the main obstacles to the 'greening' of production is the persistence of commercial practices which are unsustainable but more profitable.

14. *Le Monde*, 11 June 2006.

15. It remains to be seen whether the internalisation of these costs will radically curb transport and globalised forms of production.

16. This was to have been an adjustment mechanism at the EU's borders to combat environmental dumping of products manufactured in countries not committed to the fight against global warming.

Companies switching to green technologies and commercial practices come under pressure from financial markets demanding quick profits; they have to compete with firms which attract customers with low prices but do so by externalising environmental and social costs. Transport and nonsensical distribution circuits (see the section on transport) are a case in point. Another example is the length of decentralised production chains manufacturing ‘*made in monde*’ goods (Berger 2006).

Putting production, distribution and consumption on a sustainable development footing means rethinking profitability criteria which fail to factor in the external costs of that production, distribution and consumption.

A European directive adopted on 20 October 2008 encourages re-use and recycling. It sets new targets to be attained by 2020: 50% for glass, paper, plastics and metals; 70% for construction and demolition waste, but no target at all for manufacturing and industrial waste.

Furthermore, there has so far been no impact analysis of sectoral liberalisation (telecommunications, transport, electricity, postal services, etc.) in terms of the consumption of resources and energy, as well as in terms of job quality and sustainability (including social sustainability): action is required to rectify this shortcoming. Liberalisation has until now been justified exclusively on grounds of (general) consumer interest. Consumers must also be seen in two other guises: as citizens and as workers.

3.5. Restructuring and industrial policy

Adapting Europe’s economy to sustainable development requirements is of particular relevance in certain economic sectors, such as energy supply and renewable energy sources, buildings and construction, transport, iron and steel, cement, aluminium, chemicals, agriculture and forestry. Some sectors have drawn attention, on occasion in cooperation with the sectoral trade unions, to the risks in terms of jobs and competitiveness. In many instances they have obtained postponements or derogations under the climate/energy package (see above). There is a real risk that measures to cut greenhouse gas emissions in the EU will significantly accelerate the relocation of jobs in energy-intensive sectors of industry which are already largely globalised, such as iron and steel (see point 3.7). The ETUC has proposed an adjustment mechanism at the EU’s borders to avert relocation (see below).

Other sectors (e.g. trade, tourism, fisheries), but also innumerable subcontracting firms, downstream are directly or indirectly affected by these adaptations. That is why the ETUC has proposed the introduction of a ‘European low-carbon economy adjustment fund’, to be ‘financed notably by a proportion of the income from the auctioning of emission permits, the object being to help workers affected by the transformations associated with the transition to a very low carbon emission society, to assist them with their re-training and job search efforts’ (European Trade Union Confederation

2007: 2). But this aspect is ignored in the climate/energy package. The Commission does nevertheless acknowledge the problem and is to hold a Forum on restructuring and climate change in June 2009.

Some major economic sectors (e.g. car producers) are calling for huge bail-outs to enable them to withstand the crisis (Loire and Paris 2009). In this sense, provided that short-term considerations can be combined with key medium- and long-term concerns, the credit crunch can serve as a lever to transform industrial policy. Thus the response must not be confined to this undoubtedly important aspect of restructuring: a new industrial policy must be devised.

Technological innovation is an essential (but not sufficient) component of an environmentally friendly, sustainable industrial policy. It is a matter, on the one hand, of creating a highly energy-efficient economy with low greenhouse gas emissions and, on the other, of promoting eco-innovation. Green technologies are currently enjoying a boom, and it is forecast that the global market in these technologies will double in size between 2005 and 2020 (UNEP *et al.* 2008). This is both a challenge and an opportunity, particularly as far as jobs are concerned. It is also a source of massive investment. Europe can develop a green industrial policy, most notably via a new generation of environmental standards and green public procurement policies at regional and local level to promote innovation.

What is more, mitigation policies will substantially alter the supply of, and demand for, jobs and skills within and between economic sectors. The impact on employment at sectoral level must therefore be gauged in terms of opportunities and risks, rather than in terms of 'winning sectors' and 'losing sectors'. This new context will moreover lend itself to exploring issues such as quality of employment, social dialogue and worker participation, but also the new training and skills made necessary by the adaptation of the economy to sustainable development, as well as by workers' involvement in innovation and in assessing its social implications. Similarly, there is a fairly direct link between health & safety and environmental issues, or in other words between health within the workplace and outside of it. Extending the remit of employee health & safety representatives to environmental matters, as is already being done on an experimental basis in the United Kingdom for example, and worker consultation/participation are certainly avenues worth exploring. There is a huge amount to be done in this area.

3.6. Employment and social policy

Turning to the social policy field (employment, coping with restructuring, vocational training, action under the Structural Funds, etc.), what needs to be addressed here is the transition to new, sustainable models of production and consumption. As indicated above, this transition will lead to major changes in our industrial structure with respect to job types and skill profiles. An active labour market policy and good social protection schemes will be essential to make a success of the transition. Green jobs are just one part of the solution

and only go to show that this transition must be conceived of as embodying fresh potential.

For instance, employment in the power generation sector is sensitive to energy-saving policies. Yet the net effect of energy saving on employment ought to be positive: more than 2.3 million green jobs have been created in this sector in recent years, according to a study carried out for the ETUC by Syndex, the Wuppertal Institute and ISTAS (Syndex *et al.* 2007). But these are merely projections and are very difficult to validate, since they depend on so many variables. Growth in the renewable energy sector in Europe has been significant but is still below expectations owing to numerous problems (red-tape, network access difficulties and legal uncertainty).

In the transport sector, there is huge potential for job creation in the railways and public transport. On the other hand, employment in road transport and car production would fall as compared with a 'business as usual' scenario.

There is considerable potential for job creation in the area of energy efficiency, especially in buildings and the construction industry. Buildings account for almost 40% of energy consumption in Europe, yet the hoped-for increase in energy performance in this sector – estimated at 28% by 2020 – is failing to materialise to any significant extent. The European Commission launched a public consultation on 28 April 2008 about the recasting of Directive 2002/91/EC on the energy performance of buildings. The buildings and construction sector therefore constitutes a substantial source of employment connected with the energy efficiency of buildings, but it will have to meet the challenges of innovation and training in sustainable building practices. What matters here is not so much new buildings as the energy efficiency of existing ones. As the Syndex study points out, the net impact on economic activity and jobs will largely depend on the introduction of ambitious, effective economic and social policies.

Recycling is another fast-expanding industry. However, green jobs in this sector are not necessarily quality jobs, especially elsewhere in the world. For instance, Torres (2009: 279) cites the example of electronic waste recycling in China. 70% of total waste is currently recycled in China by casual workers enduring insecure working conditions with adverse effects on their health and safety.

The forestry sector, last of all, could provide a large number of green jobs. Yet the sectoral social partners are worried about an increase in timber prices (as a renewable resource, timber will be more sought-after and hence more expensive). This could ultimately have negative consequences for other users.

The notion of a 'green job' sits at the interface between economic, social and environmental considerations (UNEP *et al.* 2008). Green jobs help to preserve or repair the quality of the environment, be it in agriculture, industry, services or administration. They aim to reduce consumption of energy, raw materials and water, thanks to performance enhancement strategies. They likewise aim to cut carbon emissions in the economy; to

minimise or totally eliminate all forms of waste and pollution; and to protect or restore ecosystems and biodiversity. Reducing our collective carbon footprint is a gradual process, and every job contributes in a different way. Moreover, what is regarded as high energy performance today will not necessarily be so ten years from now (Degryse 2009).

In theory, therefore, it is possible to create viable green jobs at all skill levels of the working population: manual labourers, skilled workers, artisans, businessmen/women, engineers and administrators alike. Certain sectors hold out good, or even very good, prospects for industrial conversion and green jobs, but numerically the results to date have been quite scant. This is because the greening of industry calls for a transformation of job content, with new performance and skill requirements.

The debate is only just beginning at European level. It concerns various dimensions: restructuring, social cohesion and (green) employment. On this last point, the Employment Committee (EMCO) has been tasked with conducting a survey on green jobs in the Member States. EMCO has also set out three guidelines to shape Community action over the coming months: *'develop appropriate skills and improve labour market matching; secure transitions and prevent appearance of structural unemployment; ensure efficient social dialogue'* (EMCO/42/271108/EN 2008). It remains to be seen how this programme, and in particular social dialogue, will develop around these themes.

3.7. External aspects

Above and beyond the effects on internal EU policies, the present circumstances call for close interaction with the external dimension. This new paradigm means not pitting economies against one another but looking to see where they are complementary, since CO₂ reductions in one country can be wiped out by increases in another. Both internally and externally, therefore, Europe must drive forward bilateral and multilateral international cooperation aimed at cutting CO₂ emissions globally. This also entails making massive transfers to the South. The funding of projects in developing countries has until now been more a matter of rhetoric than of reality. However, some progress has been made recently with the setting-up of the adjustment fund first envisaged in Marrakech back in 2001 and then resuscitated in Bali in 2008 (Ganter 2009). The Commission's position paper for Copenhagen reasserts its commitment to helping the most disadvantaged countries – albeit without setting a budget (European Commission 2009).

Most of the EU's efforts will be in vain without such a complementary approach. This is what is meant by the expression 'carbon leakage': a reduction in one country/geographical area occurs at the cost of an increase in other countries/areas. Let us give an example to illustrate the links between such cooperation and the fight against climate change. Europe's cement manufacturers have threatened to stop investing in Europe, on account of the

price they will be obliged to pay for their greenhouse gas emissions¹⁷. They might decide to shut down their plants in Europe, transfer their investments to another continent and import cement from countries which are exempt from the tax, thereby exacerbating their greenhouse gas emissions by transporting the product over longer distances and manufacturing it in countries where carbon emissions are not restricted. Thus the best solution for Europe is to negotiate a global agreement among industrialists in the cement sector, urging them to cut their emissions voluntarily in all countries. Conversely, the ongoing debate – including within the Commission – around the ‘carbon tax’ to be applied at the borders of countries enforcing ambitious emission-cutting measures will become ever more pressing.

In order to move forward, then, a classic problem of global public goods needs to be solved. In this instance, however, ‘free riders’ (those who benefit without participating) stand to gain nothing from their non-participation, unless they are very marginal players, since they contribute to a global problem which can only be solved if everyone pulls their weight equally. Transparency is vital to this end.

17. See (among others) *Le Monde*, 15 February 2008.

Suggested ways forward

What Europe needs in order to achieve its goal of a low-carbon economy¹⁸ is therefore an overall strategy of social and territorial cohesion. It also needs to create a new international institutional architecture, since sustainable development is a global concern. This will not happen without conflict but cannot succeed, we believe, unless the social dimension becomes an integral part of the action taken, a *sine qua non* condition. According to the ETUC, ‘this calls for an ‘equitable transition’ which a) improves quality of life for all and especially the poorest people on earth; b) improves access to affordable energy for all; c) guarantees incomes and creates decent work (the ILO’s decent work agenda covers jobs, social protection, labour standards and rights and social dialogue)’.

Priority must be given to cooperation, cohesion and equity, as well as to long-term industrial planning and also education: these are the fundamental principles deriving from sustainable development. Nowadays, however, the guiding principles still remain competition, mounting social inequity, a squandering of resources and short-term thinking. Changing these fundamental principles means a change of economic paradigm. To pursue sustainable development without changing this paradigm is to invite inconsistency, contradiction, conflict, misguided trade-offs and, ultimately, failure.

We must therefore reflect on the notion of governance. Just as for other dossiers (REACH, asbestos, tobacco, etc.), political decision-making is lagging a very long way behind the challenges of the day, as a result of inertia, resistance to change, and lobbying. We have seen how reluctant some Commission staff are to hold proper consultations with the social partners, especially the trade unions (e.g. the foot-dragging before creating an advisory committee). Compared with the state of knowledge about climate disruption, politicians have already accumulated a fifteen-year delay. How can European governance be reformed in order to end such tardiness? Effective pursuit of a

18. Here too, the Lisbon Strategy is a let-down. The Joint Employment Report states: ‘Despite a favourable economic environment, most countries have not recorded any reduction in relative poverty and the increase in employment rates among the most vulnerable groups has been lower than for the workforce as a whole. The percentage of adults and children in the EU living in jobless households, i.e. almost 10%, has remained unchanged since the year 2000’ (European Commission 2007: 7).

sustainable model of development calls for public action to be transparent and democratic but impermeable to the specific interests of industry. The responsibilities of public authorities – national, regional and European – must be stepped up. Just as we have been seeing a return of the state since the financial and economic crisis of 2008, a return of the state is needed not merely to bail out the economy but to guide it in a new direction.

Antony Giddens, the initiator of the Third Way and promoter of the ‘enabling state’, has recently suggested moving on to an ‘ensuring state’: *‘The ensuring state is an enabling state, but one that is expected or obligated to make sure such processes achieve certain defined outcomes – in the case of climate change the bottom line is meeting set targets for emissions reductions’* (Giddens 2008: 9). The point is that measures must be planned over the medium and long term, and their implementation must be verified. This is the return of the state as guarantor and regulator, tasked with a good deal more than equipping us all with the capacity to confront market risk.

The role of the state could have three additional dimensions. Firstly, binding regulations to lay down rules and objectives, but also to provide all public educational activities. Secondly, taxation to alter relative prices and help change behaviour (be it through emission permits or through green taxation; on this point see Fitoussi *et al.* 2008). And thirdly, investment in research, infrastructure, the promotion of clean technologies and technology transfers (DB Advisors 2008).

Most national and multinational companies, jealous of their competitive positions, will not spontaneously switch over to sustainable development – except in their public relations campaigns (‘greenwashing’). Rather, they will be tempted to exert considerable pressure to ensure that political decision-making serves their own interests. We have seen this in Europe with the fierce lobbying conducted in the run-up to the introduction of the REACH regulation, and more recently over the European climate package. In other words, sustainable development is not automatically compatible with the modes of production, distribution and consumption adopted in industrialised countries fifty or so years ago. Certain aspects of the transition will inevitably lead to tension or even conflict. Indeed, this is an indication that the matter is being taken seriously, because divergent interests begin to surface once one goes beyond the stage of superficial consensus (Begg 2007).

As Perret points out, *‘The behaviour which needs to be modified has been shaped by a mindset forged by centuries of uninterrupted progress. It forms part of a coherent whole not yet undermined by environmental concerns. In order to provoke sufficiently large-scale changes of behaviour, there must first be a change in the rational framework within which people think and act’* (Perret 2008: 198-199). It would be erroneous to believe that technology is a miracle solution, or to underestimate the challenges in terms of ideas and of projecting a different rational framework based on different indicators and a different representation of the relationship between humans and nature than the one forged by the industrial and technological revolutions. None of

this can be imposed from above but must be the subject of debate, consultation and participation. Coherent action is equally essential.

If it is to be credible, Europe's discourse on sustainable development must foster genuine overall coherence, reflected in policies of all kinds: economic, budgetary, fiscal, social, transport, energy, agricultural, development cooperation, training, employment, research, and so on. Each and every policy must henceforth be judged according to its sustainability. This coherence must encompass all the interactions at work. Nevertheless, as we have attempted to demonstrate in this paper, it will not be achieved without an in-depth debate about the social justice underpinning this change of paradigm.

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Annex 1

Sector	Key mitigation technologies and practices currently commercially available	Key mitigation technologies and practices projected to be commercialized before 2030
Energy supply	Improved supply and distribution efficiency: fuel switching from coal to gas; nuclear power; renewable heat and power (hydropower, solar, wind, geothermal and bioenergy); combined heat and power; early applications of Carbon capture and Storage (CCS, e.g. storage of removed CO ₂ from natural gas).	CCS for gas, biomass and coal-fired electricity generating facilities; advanced nuclear power; advanced renewable energy, including tidal and waves energy, concentrating solar and solar PV.
Transport	More fuel efficient vehicles; hybrid vehicles; cleaner diesel vehicles; biofuels; modal shifts from road transport (cycling, walking); land-use and transport planning.	Second generation biofuels; higher efficiency aircraft; advanced electric and hybrid vehicles with more powerful and reliable batteries.
Housing	Efficient lighting and day lighting; more efficient electrical appliances and heating and cooling devices; improved cook stoves, improved insulation; passive and active solar design for heating and cooling; alternative refrigeration fluids, recovery and recycle of fluorinated gases.	Integrated design of commercial buildings including technologies, such as intelligent meters that provide feedback and control; solar PV integrated in buildings.
Industry	More efficient end-use electrical equipment; heat and power recovery; material recycling and substitution; control of non-CO ₂ gas emissions; and a wide array of process-specific technologies.	Advanced energy efficiency; CCS for cement, ammonia, and iron manufacture; inert electrodes for aluminium manufacture.

Agriculture	Improved crop and grazing land management to increase soil carbon storage; restoration of cultivated peaty soils and degraded lands; improved rice cultivation techniques and livestock and manure management to reduce CH ₄ emissions; improved nitrogen fertilizer application techniques to reduce N ₂ O emissions; dedicated energy crops to replace fossil fuel use; improved energy efficiency.	Improvements of crops yields.
Forestry	Afforestation; reforestation; forest management; reduced deforestation; harvested wood product management; use of forestry products for bioenergy to replace fossil fuel use.	Tree species improvement to increase biomass productivity and carbon sequestration. Improved remote sensing technologies for analysis of vegetation/soil carbon sequestration potential and mapping land use change.
Waste	Landfill methane recovery; waste incineration with energy recovery; composting of organic waste; controlled waste water treatment; recycling and waste minimization.	Biocovers and biofilters to optimize CH ₄ oxidation.

Source: IPCC, 2007

Annex 2

Instrument	Criteria			
	Environmental effectiveness	Cost-effectiveness	Meets distributional considerations	Institutional feasibility
Regulations and standards	Emissions level set directly, though subject to exceptions. Depends on deferrals and compliance.	Depends on design; uniform application often leads to higher overall compliance costs.	Depends on level playing field. Small/new actors may be disadvantaged.	Depends on technical capacity; popular with regulators in countries with weakly functioning markets.
Taxes and charges	Depends on ability to set tax at a level that induces behavioural change.	Better with broad application; higher administrative costs where institutions are weak.	Regressive; can be ameliorated with revenue recycling.	Often politically unpopular; may be difficult to enforce with underdeveloped institutions.
Tradable permits	Depends on emissions cap, participation and compliance.	Decreases with limited participation and fewer sectors.	Depends on initial permit allocation. May pose difficulties for small emitters.	Requires well functioning markets and complementary institutions.
Voluntary agreements	Depends on programme design, including clear targets, a baseline scenario, third party involvement in design and review and monitoring provisions.	Depends on flexibility and extent of government incentives, rewards and penalties.	Benefits accrue only to participants.	Often politically popular; requires significant number of administrative staff.
Subsidies and other incentives	Depends on programme design; less certain than regulations/standards.	Depends on level and programme design; can be market distorting.	Benefits selected participants, possibly some that do not need it.	Popular with recipients; potential resistance from vested interests. Can be difficult to phase out.

Research and development	Depends on consistent funding; when technologies are developed and policies for diffusion. May have high benefits in the long term.	Depends on programme design and the degree of risk.	Benefits initially selected participants; potentially easy for funds to be misallocated.	Requires many separate decisions. Depends on research capacity and long-term funding.
Information policies	Depends on how consumers use the information; most effective in combination with other policies.	Potentially low cost, but depends on programme design.	May be less effective for groups (e.g. low-income) that lack access to information.	Depends on cooperation from special interest groups.

Source: IPCC, 2007

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