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A stylized world map in a vibrant yellow color, centered on the Atlantic Ocean. The map is set against a dark, semi-transparent background that contains faint, repeating text from the ILO's mission statement.

**A just transition for all:
Can the past inform the future?**

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Laura Martín Murillo, Laura Maffei and Juan Carlos Sueiro

Peru is a global fishing power. Its fishing industry exceeds 200,000 jobs nationwide when the entire production chain is taken into account: extraction, processing and distribution, including a booming restaurant industry based on fish. However, the sector as a whole has to undergo major transformations to be sustainable. First, the working conditions in the sector are still for the most part wanting. Second, from an environmental standpoint, the characteristics of the Peruvian coast, the variability of fishing stocks depending on El Niño, and several dramatic fisheries' crises have shown the complexity of managing Peruvian fishing resources, and the absolute priority of doing it in a sustainable manner.

The negative impacts experienced during these fisheries crises have been very strong in the economy, even though the effects on employment have been insufficiently documented and are still not properly assessed by governmental policies. Many of these measures, looking very good on paper, are not the object of proper control and compliance. Accompanying social mitigation measures and active labour market policies are insufficient and their monitoring weak. Trade unions and artisanal fishers' organizations are calling for coherent and sustainable industrial policies for the sector and adequate social protection in the transition towards sustainability.

KEYWORDS fishery development / sustainable development / workers' rights / decent work / role of ILO / Peru

217 **The long and winding road from black to green:
Decades of structural change in the Ruhr region**

Béla Galgóczi

In this paper the author refers to the decades-long transformation of the Ruhr region as one of the exemplary cases for managing change from traditional industry-based, resource- and material-intensive economic activity towards a knowledge-based, resource-efficient economy. The major question this necessary restructuring poses to trade unions is how to manage it in a socially balanced way where the inevitable burdens and costs are shared by all major actors in an equitable manner. The Ruhr experience also offers a lesson from the point of view of “just transition”. The economic diversification of the once mining-dependent Ruhr region was actively managed by the federal and regional governments and restructuring processes were embedded in an industrial relations culture marked by the strong role of worker participation.

The paper follows up on the changes in employment, the applied structural and industrial policies and social plans, and takes a look at the role of the main actors. The case of the Ruhr delivers lessons not just because of its outcome and the difficulties faced during the process, but even more so through the ways it happened, in close coordination and cooperation between the major actors.

KEYWORDS structural change / structural adjustment / industrialization / information industry / occupational change / regional level / Germany

241 **A case for socially sustainable petroleum
product pricing in Ghana**

Mohammed Amin Adam

The growing importance of “Just Transition Frameworks” as espoused in the Conclusions concerning achieving sustainable development, decent work and green jobs of the 102nd Session of the International Labour Conference, reflects the need for development policies to be both socially and environmentally sustainable. With the growing consumption of fossil fuels, which contribute significantly to global emissions levels, many countries, including Ghana, have been on the path of reforms in energy pricing. Ghana’s transition towards a socially sustainable petroleum pricing policy since 2001 therefore favoured market-based policies, including removal of subsidies for some products. However, the transition was also tempered with social interventions to protect the interests of working people and the poor. The policies were successful to some extent, as expressed in lower emissions from vehicular transport, greater provision of affordable mass transport, increased decent jobs in the downstream petroleum industry, improved access to health care and higher enrolment in primary and junior high schools. However, these successes have been eroded over time by changing economic conditions, widening income inequality between the rich and the poor and between the south and the north of the country, political expediency, and changing consumption patterns for petroleum products. The Government should therefore implement a number

of policies including, for example, harmonizing petroleum pricing laws, sustaining social dialogue and tripartism, investing savings from subsidies and proceeds from a proposed climate adaptation levy in clean energy projects to create green jobs, reintroducing the social mitigation fund, and improving transparency in the management of funds.

KEYWORDS sustainable development / fuel / petroleum product / pricing / energy economics / environmental policy / labour market policy / Ghana

269 **The lessons from trade agreements for just transition policies**

Georgios Altintzis and Esther Busser

The authors argue that national governments and international governance institutions and processes need to intervene with the right policy mix and planning in order to achieve a just transition to a low-carbon economy. Similarly to adjustment processes induced by trade liberalization, a just transition needs governments to take policy measures, affirmative economic action, introduce requirements but also restrictions to eliminate carbon emissions and build climate resiliency. The introduction or removal of trade tariffs is similar to the introduction of carbon-pricing measures and emissions trading, feed-in tariffs, and carbon taxes, in that these measures are politically motivated and have asymmetric economic and distributional repercussions. The article examines the existing literature on social and employment impacts of trade opening and identifies accompanying policies or adjustment policies that have been or can be used to address such impacts. The article further examines the effects of trade reform on structural transformation and identifies policies that would facilitate structural transformation and economic development. Similarly, for a just transition to a low-carbon economy it is necessary to implement accompanying policies for those workers affected by changes and to promote coherence among climate, trade and industrial policies, in order to ensure a sustainable or green structural transformation that enables economies to simultaneously move to higher value added and diversified as well as clean production structures. The just transition is a transformation that the world's governments and global governance must accelerate as soon as possible. With imminent threats to climate stability, the authors suggest a policy mix for the just transition to a low-carbon economy.

KEYWORDS sustainable development / trade agreement / environment / climate change / trade liberalization / employment security

295 **Industrial risk management shifting towards a more just transition: The case of Dunkirk (France)**

Antoine Le Blanc and Irénée Zwarterook

Since the AZF accident in 2001, the management of industrial risks in France has undergone a change which lays the foundation for a just transition for local industrial systems. Since 2003, the legislation has included an obligation for at-risk industries to put forward Technological Risk Prevention Plans (PPRT). These are tools for urban planning which must

be realized through consultations within specific structures. The authors' study of the Dunkirk region, a densely populated territory in the north of France, shows that the different actors involved in such consultation exercises must be particularly inventive so as to apply the law and the security perimeters laid out in the PPRT, on a case-by-case basis, without jeopardizing the social and economic development of the region. In the end, paradoxically, this more rigid management framework, centred on risk management, appears to be able to preserve the local industrial system by making it evolve towards more justice and equity, by giving more importance to the security and well-being of the local population and by involving it in the process. The system, which is more open to different actors, is based on information sharing and consultation processes. This trend in the governance system corresponds to a search for territorial resilience. Despite numerous criticisms and genuine limitations, the process thus appears to lay the foundation for a real sustainable transition because it makes the local industrial system evolve not only from an economic point of view, but also from a social and environmental perspective.

KEYWORDS industrial development / dialogue / sustainable development / risk management / just transition / France

Preface

Maria Helena André

Director, Bureau for Workers' Activities (ACTRAV), ILO

Sustainable development and climate change are issues of high importance and 2015 will be a defining year for the global community in regard to both. In September 2015, the United Nations General Assembly is expected to adopt its new global development agenda that will succeed the Millennium Development Goals (MDGs). Contrary to the MDGs, the new goals will be covering all countries, both developed and developing ones, for the next 15 years. It is hoped that by 2030 we can end poverty and transform lives while protecting the planet.¹

As regards climate change, the Conference of the Parties to the UNFCCC that will take place in Paris in December can be considered a “make or break” moment when it comes to defining a common approach to facing the ominous consequences of global warming.

It is worth remembering that this climate challenge is not one that can be deferred until we have addressed other problems such as unemployment, poverty or inequality. Inaction in this area will only exacerbate other problems. Indeed, through its impact on average temperature, precipitations and sea levels, global warming will endanger the livelihoods of hundreds of millions and impose increasing costs on our societies if nothing is done. The economic costs of inaction have been estimated at between 5 and 20 per cent of global GDP by 2050. It is the poorest people from the poorest regions of the world, those who have in effect contributed the least to the problem, that are likely to suffer its worst impacts.

The failure since Copenhagen to generate a significant commitment on the part of governments, despite a relatively broad consensus on the threat itself, illustrates the inherent political difficulty in addressing a danger whose effects are not quite immediate (or at least are still rather diffuse) and which

1. <http://www.un.org/millenniumgoals/beyond2015-overview.shtml>.

affects people unequally. The very policies that have the potential to stem the problem (i.e. keep the rise in temperature below 2 °C) involve an ambitious and costly transition away from a carbon-intensive economy and will themselves impose costs on our societies. It is becoming increasingly clear that the only way to get the sort of commitments needed to effectively deal with the challenge is to create a global consensus that involves all stakeholders. Such a consensus will only arise if there is a seemingly “just” sharing of the burden in this battle to keep the planet hospitable to human beings.

If inaction is not an option, there is however a silver lining to this story. The transition to a greener future, if well-managed, can indeed lead to a massive investment programme into renewable energy and more sustainable production practices. Such a programme, as the International Trade Union Confederation (ITUC) has documented, would not only generate new jobs, but has the potential to bring greater energy access to millions of people that have little at this point. The labour movement needs to be at the forefront of this global debate if it wants to influence it.

The world of work and the ILO have a crucial contribution to make in this area. Already in 2013, the International Labour Conference adopted, at its 102nd Session, the *Conclusions concerning achieving sustainable development, decent work and green jobs*. These conclusions constitute a watershed in that they provided a tripartite consensus on the notion of a “just transition for all”: defining the policy areas needed for a comprehensive approach to deal with sustainable development in general and climate change in particular. Central to the development of “just transition for all” policies is social dialogue because only through it can an acceptable political consensus be developed and maintained. Here again the ILO and its constituents have much experience to share.

If the transition to a sustainable economic path is a novel policy challenge, it is certainly not the first instance of economic restructuring that we have faced. Indeed, the history of the past couple of centuries has been but a constant cycle of nascent and dying industries, caused at times by changes in technology (think Industrial Revolution) and sometimes by changes in policies (think trade liberalization). While the social consequences of these restructurings were initially a non-issue, the labour movement in many countries was successful in having them recognized and addressed by a battery of mitigating economic and social policies. Among the good practices developed one can recall negotiated social plans including regulations of mass lay-offs, training and social protection measures, economic diversification programmes, to name a few. Whether these policy packages have been up to the task is a question that is largely unanswered and the one that is at the heart of this issue of the *International Journal of Labour Research*.

The leitmotiv behind it is precisely to examine actual cases of industrial restructurings through the prism of a “just transition” framework. The goal is to inform the development of an ILO approach to the challenge of a just

transition for all, an approach that will in turn inform that of constituents all over the world. The next milestone in this process will be a Meeting of Experts convened at the request of the ILO Governing Body.

Finally, I would like to take this opportunity to personally thank all the contributors to this issue as well as our colleagues from the Green Jobs Programme and the ITUC who have helped with suggestions and the editing of its content.

Editorial

A just transition for all: Can the past inform the future?

Editorial Committee

At its 102nd Session in 2013, the International Labour Conference (ILC) adopted the Conclusions concerning achieving decent work, green jobs and sustainable development, hereinafter called the Conclusions (ILO, 2013a). These Conclusions set out a common vision: acknowledging both the opportunities for the creation of decent work in the transition to environmentally and socially sustainable economies and the challenges they represent. They underscore the critical role of governments, employers and workers as agents of change – individually and collectively.

In addition, the Conclusions provide guiding principles for the greening of economies, enterprises and jobs, as well as a basic policy framework to address the challenges of ensuring a “just transition for all” including nine key policy areas and institutional arrangements. There are not only particular guidelines for the role of governments and employers’ and workers’ organizations, but also for the International Labour Office in relation to research, engagement at different levels, and capacity building.

Of course, the world has experienced many major restructurings and transitions in the past. This is most true of the past couple of centuries where the process of economic “development” has changed the way people worked and lived many times over. These restructurings have often brought about better living and working conditions, but the transition processes themselves were often wrenching and cruel for the people and communities affected.

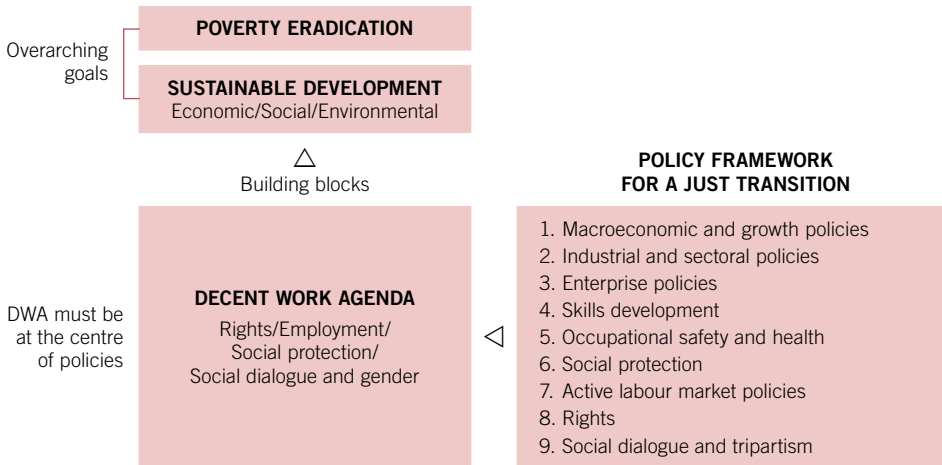
Among the examples that come to mind is the Industrial Revolution that began in Great Britain in the eighteenth century and from there spread to other parts of the world. This was a huge transition from an agrarian, handicraft economy to one dominated by industry and machine manufacture. It implied the creation and elimination of hundreds of crafts, the redeployment of population from the countryside to city suburbs and the reorganization of human life so that it could fit the needs of production lines. The cost paid by the generations who “built” that revolution – in terms of loss

of life and health – still influences today the perceptions working people may have of economy-wide changes.

Recent major structural transformations have been brought about by a globalization largely driven by the liberalization of financial and trade flows. While this globalization process has facilitated technology transfer and contributed to efficiencies in production and greater corporate profitability, its economic and social consequences depend largely on the manner in which countries have integrated into the global economy. In some countries, high-productivity employment opportunities have expanded and structural change has contributed to overall growth; in others, globalization appears not to have fostered the desirable kind of structural change. Labour has moved in the wrong direction, from more productive to less productive activities, including, most notably, informality (Bacchetta and Jansen, 2011).

The transition towards sustainability is already being identified by researchers as challenging for labour markets. In addition to research undertaken through the Green Jobs Initiative (UNEP/ILO/IOE/ITUC, 2008; ILO, 2012), the OECD states that “like any major economic transformation, the transition to Green Growth will have significant employment effects. New jobs will be created, some jobs will be at risk and many others would have to be reallocated from grey to green sectors” (OECD, 2011, p. 19). That said, the current economic model is already a source of major social and environmental challenges, so this transition has the potential to improve the overall social performance of the economy, provided it can guarantee not only a positive outcome for people and the planet, but also a fair process to get

Elements of the Conclusions



PRINCIPLES. Use of social dialogue/Respect for fundamental principles and rights at work/Taking into account of gender dimensions/Provisions for an enabling environment for enterprises, workers, investors and consumers/ Provision of a just transition framework/There is no “one-size-fits-all”/International cooperation among countries

there. Understanding how these processes have worked can help us to avoid past mistakes and consolidate experiences which have been successful.

This is also necessary as the transition to a sustainable economy is to some degree different from previous ones. For one thing, it is largely voluntaristic, that is, led by public policies. Moreover, it is a transition that involves costs in the short term for gains that will be more evident in the future. This creates a quandary for policy-makers. How does one deal with those people who will bear the direct costs of the proposed changes; with the phasing-out of some economic activities? How does one create an economic environment that does not penalize those who take the opportunities (or risks?) to switch to more sustainable economic practices?

The imperatives to respond to both the environmental challenge as well as to “sell” the transition politically create a rather unfamiliar political landscape: one where the necessity to build broad political consensus to transcend political partisanship will be greater than ever. For democratic governments, the way to achieve this will most likely involve reaching out to social partners and civil society to discuss the stakes upfront, anticipate the costs, and help to ensure that the burden of the transition process is shared fairly. This is where the “just transition for all” becomes so important in achieving a sustainable world.

While it is true that each country will face its own specific set of challenges, the components of the “just transition for all” framework can still provide the backbone of a common public policy approach, a methodology to bring stakeholders around the table and prepare the future.

A first task in fleshing out such an approach is clearly to draw the lessons from past transitions: identify good practices where they exist and learn from the mistakes made. This is why the participants at the 2013 International Labour Conference called on the ILO to convene a meeting of experts on sustainable development, decent work and green jobs to provide further guidance on issues related to the greening of economies, green jobs and a just transition for all.

This issue of the *International Journal of Labour Research* is a contribution to this discussion. It is focused on drawing the lessons from a few transition experiences in order to analyse how successfully (or not) these processes were managed in the past and how future transitions might be handled in a just manner. The articles all address one or several of the elements highlighted by the ILC Conclusions as part of the “just transition” framework, and provide a rationale and solid justification for the use of these policies in the transition towards sustainability.

Galgóczi introduces one of the most ambitious territorial transformations of contemporary economic history, in the Ruhr valley. The scope and reach of this transition, and its spread over time, make this experience unique, but also inspiring when we imagine the ways in which other regions in the world could similarly transform themselves. Coordinated national,

regional and local policies, active reskilling and training policies, social protection schemes (including early retirement, compensations for income loss, and wage subsidies for the reintegration of the unemployed and those threatened by unemployment), co-determination with employers and trade unions playing a critical – and responsible – role, and the list goes on: this example shows us the challenges ahead but also makes clear that it is indeed possible to transform a territory and preserve the environment while at the same time developing jobs and the economy.

Altzinzis and Busser explore the experiences drawn from several decades of trade liberalization and the tools that have been (or should have been) used to cushion the employment and other social impacts arising from it. They make clear that the use of employment impact assessments would have prepared countries for a smoother job reallocation and a more appropriate assistance to workers in sectors facing redundancies. The lack of social dialogue and democracy is also mentioned as an element undermining potential positive impacts. The existence of labour clauses in trade agreements is highlighted as a valuable tool – which could be extrapolated to environmental measures – as is the need for social protection and other active labour market policies such as skills development. The authors also show the variety of challenges posed by trade agreements to industrial policy; an element which could be of interest in the context of a transition towards a sustainable economy.

The article by Martín, Maffei and Sueiro brings us to another reality: the differential impact of policies aimed at preserving natural resources (in this case fish stocks) on large as well as smaller-sized enterprises and workers. From it, it is clear that those with sufficient capacity to access modern technologies and capital survive without major difficulties to regulation, but unless proactive policies are taken to support small and medium-sized enterprises (SMEs) and workers in them, the latter are unable to cope with the new rules. The article highlights the importance of some transitional policies that have been put in place, including incentives for retraining and reskilling fishers, support for developing and promoting SMEs, and early retirement. However, the narrow focus on fishers, without stipulating support provisions for other critical parts of the fisheries supply chain, has put hundreds of small companies and thousands of workers in a very precarious situation. The importance of integrating these targeted transition programmes into broader formalization schemes is also highlighted. The article also shows the link between each of the recommendations for a just transition framework in the ILC Conclusions, and their pertinence for a just transition succeeding in the fisheries sector in Peru.

Adam, in his article about fossil fuel subsidy reform in Ghana, introduces another layer of the transition towards sustainability – the need to address distributional impacts, in particular in poor households – and assesses the pertinence of the just transition framework in this context. The Ghanaian example shows that despite the known fact that it is not the poorest that

benefit the most from subsidies to oil-related products, the impacts on their incomes arising from price increases and volatility are substantial and so are the political costs of implementing reforms. Transition policies such as those implemented in Ghana give us evidence on the way forward for other transitions. They included the reallocation of the resources formerly used for subsidies to strengthen Ghanaian social policies such as the elimination of fees for attending primary and junior secondary schools by the introduction of the capitation grant (which led to almost 100 per cent enrolment in primary school and kindergarten); the allocation of extra funds for primary health care in the poorest areas; the full implementation of the National Health Insurance Scheme (NHIS); the expansion of mass transport with price ceilings for travel; an increase in the minimum wage; and finally an increase in funds for rural electrification. The article also highlights the critical role of assessing the social impacts of policy measures in advance. All these policies can be understood as being completely in line with the just transition framework, although Adam makes clear that the process could have led to better social and economic outcomes if the social impacts had been reviewed more regularly and if social dialogue and consultation had been more consistent.

Finally, Le Blanc and Zwarterook bring us to the tools that could potentially be used for the transition at the local level by drawing lessons from participatory mechanisms created in the Dunkerquois – a historically dense industrial region in northern France – as a result of risk reduction plans. The authors detail the means by which responsibilities usually carried by States when it comes to risk reduction have evolved to incorporate other actors, including companies, unions and associations, allowing a better ownership of the strategy as well as a better balance between the different – sometimes conflicting – interests in the community. If the different instances of participation are still to be improved, the quality of the decision-making arising from a more democratic governance of territorial transformation is undoubted. That said, the process must be improved and both governments and companies have to allow a stronger involvement of unions and civil society in decisions.

How can the ILO policy framework make a difference?

There are lessons to be learnt for each individual policy area that makes up the just transition framework, but there is also a need for coherent multi-pronged approaches. The challenge, we believe, is how to address the various areas in a holistic manner. As the report to the 2013 International Labour Conference states: “A greener economy can be mutually reinforcing with good labour market and social development outcomes, but this is not automatic. It will hinge on the right policies and on institutions capable of implementing them” (ILO, 2013b, para. 274).

Together with the ILO's existing mandate and tools, the ILO policy framework on a just transition has huge potential to make a difference in working towards a future where sustainable development is achieved. Three elements are relevant to this. The first is the focus on employment and decent work; the second is the ILO's approach to policy coherence; and the third is its methodology in terms of an intervention model addressing the transition to a green economy.

Employment and decent work

When one looks at the sustainable development frameworks established by the ILO, their focus on employment and decent work is evident – this is part of the mandate of the Organization. Compared to other frameworks, this might be an advantage, as there can be no sustainable development without employment and decent work. Sustaining people's livelihood is a prerequisite to any further development; it is a goal which should be fundamental. The 2013 Conclusions indeed emphasize that decent work must be at the centre of policies.

The work by the ILO and its constituents in promoting and ensuring that environmental negotiations factor in the importance of the world of work, and in particular the need to connect decent work with the achievement of environmental protection, while at the same time bringing into the ILO discussion the importance of transforming all jobs to respond to this challenge, shows the potential for truly coherent action. Since 2010, the recognition by the UN Framework Convention on Climate Change (UNFCCC) of the importance of this linkage, and the prospects for it to be recognized as part of the future Paris climate agreement in 2015, show growing understanding by governments of the need to frame climate change in an inclusive way. This can only be done if the ILO and its constituents give themselves the tools to act to realize this mandate.

At the UNFCCC's Conference of the Parties (COP 19) in Warsaw in December 2013, Parties were invited to initiate or intensify domestic preparations for their intended nationally determined contributions (INDCs) and to communicate them well in advance of COP 21 (by the first quarter of 2015 by those Parties ready to do so), in a manner that facilitates the clarity, transparency and understanding of the INDCs. COP 19 also decided to request developed country Parties, the operating entities of the financial mechanism and any other organizations in a position to do so to provide support for developing country Parties to initiate or intensify domestic preparations of their INDCs.

In response to the request from the COP, the ILO has offered to support interested Parties in improving their understanding and measurement of the labour market implications of their INDCs by making available assessment tools and facilitating tripartite dialogue on INDCs.

Despite repeated calls for a coherent policy framework for sustainable development, arbitration among the conflicting objectives of economic growth, social justice and ecological equilibrium has so far tended to favour the first goal, often reduced to facilitating corporate profitability.

At the international level, many international organizations and fora have been promoting the need for better policy coherence. Both the Millennium Development Goals (MDGs) and the World Summit on Sustainable Development (WSSD) emphasized the importance of taking a “holistic and inter-sector approach” to implement sustainable development. A number of Multilateral Environmental Agreements (MEAs) also involve such references. Article 3 of the United Nations Framework Convention on Climate Change (UNFCCC) stipulates for instance that “policies and measures to protect the climate system against human-induced change should ... be integrated with national development programmes...” (UNEP, 2009, p. 10).

When it comes to social policy integration, the ILO has been at the forefront, particularly in recent times, with its Decent Work Agenda and the Declaration on Social Justice for a Fair Globalization. The ILO has also issued numerous recommendations in this regard, and its tripartite structure and participatory approach can provide many examples of how to better address challenges of policy coherence, both nationally and internationally. As such, the Decent Work Country Programmes (DWCPs) are an important vehicle for delivering on policy coherence at both country and UN level. ILO engagement with other United Nations agencies through the DWCPs contributes to “delivering as one”.

Policy coherence is about both policy substance and adequate governance tools and processes that are required to achieve integrated outcomes, i.e. it is concerned with the “what” and the “how” of policy-making. According to the UN and OECD guidelines, two key purposes of social development strategies are, first, to review existing economic, sectoral and environmental policies, strategies and plans with a long-term policy integration perspective, and, second, to modify and strengthen national institutional structures, capabilities, capacities and political procedures so that they support the integration of social, economic and environmental issues in decision-making (Berger and Steurer, 2009).

The ILO’s just transition for all framework provides guidelines on the institutional arrangements and role of governments and employers’ and workers’ organizations. As paragraph 16(b) of the Conclusions offers: “Governments should foster effective institutional arrangements to ensure coherence across relevant policy portfolios as well as the consultation and participation of all relevant stakeholders for the formulation and implementation of policy at the local, national, regional and international levels”.

The ILO framework also provides a useful “checklist” of policy areas which should be addressed in the transition to a low-carbon economy. Here, relevant ILO standards provide useful points of reference to prepare an adequate policy response.

In addition to the Employment Policy Convention, 1964 (No. 122), such a package should also include Conventions on tripartite consultation, training and education, wages and employment services, to name a few. Standards specific to certain sectors are also of interest (Olsen, 2010). The article on Peruvian fisheries (Martín, Maffei and Sueiro), for instance, mentions the call by fisher unions on the importance of ratifying the ILO’s Work in Fishing Convention, 2007 (No. 188), which could both improve working conditions for workers and help achieve sustainable fishing practices. Altintzis and Busser also raise the issue of the inclusion of labour standard provisions. By ensuring the reinforcement of collective bargaining and organizing rights, these standards offer workers the ability to become full players in the economic transformation that will take place and to ensure that it does not happen at the expense of their working conditions, occupational safety and health, and social benefits.

When it comes to workers’ participation in decision-making related to policies affecting their workplaces or the labour market in general, ILO Conventions provide valuable legal guidelines. The Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87), and the Right to Organise and Collective Bargaining Convention, 1949 (No. 98), are cornerstones for participation in decision-making. Unless their principles are respected in law and practice, there can be no democratic decision-making on just transition policies.

As mentioned above, consultation and participation by all relevant stakeholders for the formulation and implementation of policy at the local, national, regional and international levels is crucial for policy coherence. The importance of social dialogue is highlighted in the following section on the ILO’s intervention model.

The ILO’s intervention model

The ILO framework provides more than a simple checklist of policy areas and useful normative instruments; it is rather a methodology to approach the issue. The ILO Green Jobs Programme supports national strategies aiming to explore the employment potential of the green economy. It does so by enhancing coherence between economic, environmental and social policies through advocacy and capacity-building initiatives, assessments and scoping studies, policy advice, strategic planning and implementation of pilot projects in various economic sectors. All these activities are part of a coherent policy cycle which should guide countries from the initial assessment phase

to the implementation and evaluation of policies, projects and strategies. Government request is a precondition here, and the entire policy planning is conducted through social dialogue with employers' and workers' organizations and other stakeholders.

To promote the creation of green jobs at national, sub-national and local level, the Green Jobs Programme leverages different means of action and proposes a four-step approach (ILO, 2015):

1. *Assessment of green jobs potential*

National and sectoral research of the potential for green jobs creation.

2. *Policy formulation based on social dialogue*

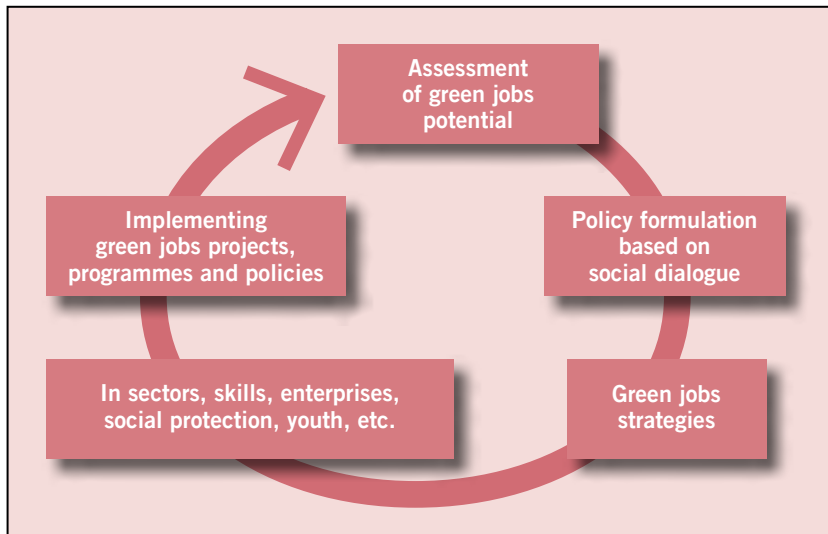
Policy advice, based on the outcomes of the research, to better connect environmental and labour policies.

3. *Capacity building*

Capacity building and coaching for constituents to enable and improve social dialogue and ensure their full engagement in relevant policy debates and national strategies.

4. *Projects*

Pilot projects at sector and local level on green entrepreneurship, green business, vocational training, employment-intensive infrastructure, etc.



Source: ILO, 2015.

Assessments

One of the key ingredients for successful policy-making has been ex-ante assessments of the expected impact of specific greening policy measures. This enables decision-makers to clarify the link between environmental issues and policies on the one hand, and effects on social groups and social objectives on the other – including employment creation and the generation and distribution of income. Ideally, such analysis would be used to prioritize policy options. These changes can be anticipated better than for adjustments arising from other causes, so that the transition can be managed more smoothly and possibly more fairly (ILO, 2013b).

As Altintzis and Busser observe, the ITUC has consistently called for ex-ante employment impact assessments of trade agreements to assess the impacts of proposals for trade liberalization on the quantity and quality of employment in the countries concerned. The aim of such assessments is twofold: on the one hand, to better prepare and advocate for adjustment measures and policies for those workers who will lose their jobs and will need to be reskilled or reallocated; on the other hand, to enable trade negotiators to adjust proposals by including longer implementation periods, exemptions or safeguards for specific sectors, or flexibilities for industrial development needs.

The article on oil price subsidies in Ghana (Adam) also highlights the importance of assessments and refers to the Government of Ghana's conducting of a Poverty and Social Impact Assessment (PSIA) for petroleum products between 2003 and 2004 to establish the potential effects of deregulating petroleum prices. The Government was convinced from the assessment that petroleum price subsidies in the country were not really benefiting the poor; hence it moved to increase the prices of petroleum products so they would reflect international prices. In February 2005, therefore, subsidies were removed from the major products and prices of the products increased by 50 per cent. The Government also introduced measures to cushion the effects on the poor of subsidy removal. This article also highlights the need for review and further assessment when policies do not take the directions intended and new strategies have to be developed.

The need for available data to carry out assessments, follow-up measures and reviews is also highlighted by the article on fisheries in Peru (Martín, Maffei and Sueiro). The article deplores the fact that employment data is completely absent from laws, measures and most research related to the Peruvian fishing sector, making very difficult the analysis of policies and their impacts. Policies also have to be monitored. There is no real follow-up of measures undertaken and no assessments are available. Existing measures cannot be evaluated as yet, due to the lack of systematic information; the dearth of institutional monitoring and research on employment issues precludes assessing the impact of the policies. For example, information on recent social accompanying measures for better environmental resource management policies is

very scarce. The collection and analysing of this information is essential to the design of fair transition measures for the future.

When it comes to data collection and assessments, the ILO has useful tools. Both the Green Jobs Statistics Definition and the Decent Work Indicators are valuable in this regard. The monitoring experience of the MDGs has shown that data will play a central role in advancing the new development agenda. We need sustainable data to support sustainable development (UN, 2014).

Social dialogue

Given that the transition towards a greener economy will entail profound changes in production processes and technologies as well as job reallocations, close cooperation between government and the social partners will be central to the success of this transformation. The need for participation in governance was already recognized in Agenda 21 and has been emphasized even more in the Rio +20 outcome document. Social dialogue aims to promote consensus building among the major stakeholders. Effective dialogue can help resolve crucial socio-economic issues and improve economic performance. Social dialogue informs policy-making by contributing essential information to assessments. The perspectives of the social partners ensure that social outcomes are taken into account and that social and labour market policies can complement environmental and economic measures (ILO, 2013b).

The article on the Ruhr region (Galgozi), on the one hand, shows that with a strong role for the consultation process and particularly the involvement of the social partners in the mining and steel industry, the results were very positive. On the other hand, the article on the process in the Dunkirk region (Le Blanc and Zwarterook) provides a cautionary note about the limitations of citizen-based consultation processes. These processes have had some impact, but are still very dependent on the capacity of those involved. The strong parties are still the enterprises and the public authorities. It seems that the industry and the public authorities have taken the lead, and the “technical” aspect of the issues consulted on hampers the weaker parties. The illusion may have been created that there is agreement/consensus by all parties, when in reality the weakest parties have not been able to participate on an equal footing.

Capacity building and projects

This is why capacity building and coaching for constituents to enable and improve social dialogue and ensure their full engagement in relevant policy debates and national strategies is so important. ILO constituents have expressed strong demand for capacity building, advisory services, and projects on the ground to assist national policy formulation and implementation from

the launch in 2008 of the joint Green Jobs Initiative by the ILO, the United Nations Environment Programme (UNEP), the International Organisation of Employers (IOE) and the International Trade Union Confederation (ITUC), and the inception of the ILO's Green Jobs Programme. The priorities of the Programme have served 27 member States to date and were updated in November 2012, in the light of the outcomes of the Rio+20 Conference to give greater focus to capacity building for social dialogue, employment assessments, linking environmental protection to social protection floors, and research and knowledge management (ILO, 2013b).

In 2012, the ILO created together with UNEP, the United Nations Development Programme (UNDP), the United Nations Industrial Development Organization (UNIDO) and the United Nations Institute for Training and Research (UNITAR), the Partnership for Action on Green Economy (PAGE). This partnership is a response to the outcome document of the Rio+20 Conference, entitled *The future we want*, which recognizes the green economy as a vehicle for sustainable development and poverty eradication. PAGE aims to support 30 countries over seven years to 2020 in building national green economy strategies that will generate new jobs and skills, promote clean technologies, and reduce environmental risks and poverty.

Conclusion

This issue of the *International Journal of Labour Research* offers a first attempt to draw lessons from past transitions for the work that governments, employers and trade unions will have to do to ensure positive economic and social outcomes to a transition towards sustainability. Although the need to identify the gaps in policy guidance remains, it is now up to ILO constituents to build upon these and other experiences, so that governments and social partners have all the necessary tools to ensure that just transitions happen on the ground, where those transformations will take place.

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Peruvian fisheries

*A transition towards labour
and environmental sustainability?*

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Peru is a global fishing power. The industry provides over 200,000 jobs nationwide when taking into account the entire chain: extraction, processing and distribution, including a flourishing restaurant industry based on fish. The particular characteristics of the Peruvian coast, the variability of fishing stocks depending on El Niño, and several dramatic fisheries crises, have shown the complexity of managing the country's fishing resources and the absolute priority of doing so in a sustainable manner. The impacts suffered during previous fisheries crises have been very strong, although the impact on employment has been insufficiently documented and is still not properly taken into account in government policies.

This article presents some of the challenges, the lessons we can learn from previous transitions and restructuring processes, and the proposals that workers can contribute to sustainability in the sector and a just transition towards it. The state of fishing resources and the legal framework are described in the first two sections, while the next two address the contribution of the sector to the economy and job creation, and deficits in working conditions. The fifth and sixth sections focus on current transitions, social impacts and accompanying measures, and the final section discusses the transition in the light of the Conclusions of the International Labour Conference in 2013, to identify achievements and areas for improvement.

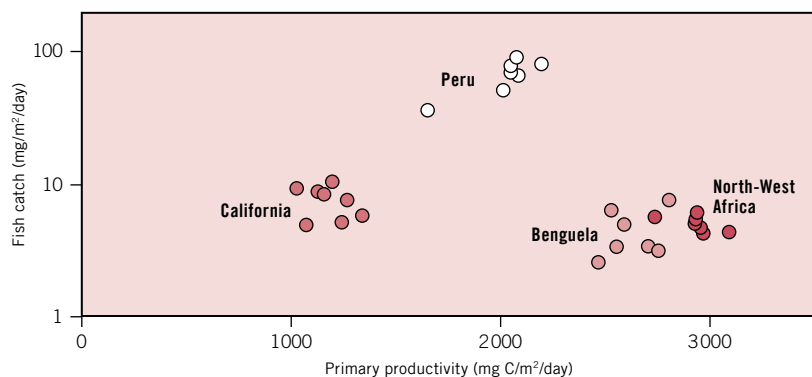
Peru's rich fishing resources

The world has several coastal upwelling systems on the western sides of certain continents, where northern winds cause cold water from the bottom of the sea to be carried up to the surface. The upwelled water is enriched with sediments and nutrients that result in high primary productivity (Chávez and Messié, 2009; Ayón et al., 2008). Although the Peruvian coast is not home to the most intense upwelling ecosystem in the world, the area is the most important in terms of the quantity of fish caught (see figure 1); catches are several times higher than those in other upwelling systems (Brochier et al., 2010).

This complex system is made up of flows between water bodies and has seasonal variability due to the south-east trade winds, which are weak in summer and strong in winter. Additionally, anomalous aperiodic variations occur. The unusually warm periods known as "El Niño" cause many species (particularly Peruvian anchoveta, *Engraulis ringens*, the basis of Peru's fishery production) to migrate to other latitudes where the upper layers of the sea are not so warm. These diverging warm and cold ocean currents make the Peruvian sea one of the most biodiverse and productive in the world.

Industrial fishing (mainly anchoveta and sardine) began in the mid-twentieth century, so this industry is more than 50 years old (World Bank, 2007). According to the Food and Agriculture Organization (FAO), 6.3 per cent of global catches in 2012 came from Peruvian waters. This places the

Figure 1. Fishing and primary productivity in upwelling systems, 1998–2005



Source: Chávez and Messié, 2009.

country as the fourth largest producer after China, Indonesia and the United States (FAO, 2014). Peru is also the top producer of fishmeal.

Despite this enormous wealth, growing domestic and foreign demand for fish is putting this resource, the entire marine ecosystem and the livelihoods of coastal community small-scale fishers under increasing pressure. Additionally, deficiencies in regulation and control of both industrial and non-industrial fisheries are increasing the strain on marine ecosystems.

Fishing sustainability is not only a Peruvian problem, it is a global problem. According to the most recent FAO report (2014), 61 per cent of global fish stocks are at the limits of exploitation, while 29 per cent are over-exploited; the global catch rate (from both marine and inland waters) has tripled in the last 60 years. In addition, mismanagement is leading to serious economic consequences, as illustrated by a study by the World Bank and FAO (2009) which estimated that inadequate fisheries management causes a global loss of earnings of approximately US\$50 billion annually.

There are about a hundred different marine species caught for commercial purposes, but there is one of particular importance: the Peruvian anchoveta. This fish plays a key role in the Peruvian fishery sector, accounting for between 87 and 97 per cent of Peru's total pelagic catches. Consequently, Peru's fishing industry has become the largest to be based around one single species: anchoveta catches between 1950 and 2006 were estimated to total 285 million tonnes. However, it is noteworthy that the catch ratio, close to 90 per cent, is not reflected proportionally in economic contribution or employment. Recent studies indicate that this species contributes 31 per cent of the fisheries GDP but only 23 per cent of its employment (Christensen et al., 2014).

Other important species are chub mackerel (*Scomber Japonicus*), which makes up 1.5 per cent of the total catch, and Chilean jack mackerel (*Trachurus murphyi*), also known as the Inca scad, at 1.3 per cent. In recent years other resources have also increased, such as the common dolphin fish

(*Coryphaena hippurus*) and the giant Humboldt squid (*Dosidicus gigas*) (Hatzioolos and de Haan, 2007).

Peruvian coastal waters are also home to major demersal, or seabed-inhabiting species of fish such as the Peruvian hake (*Merluccius gayi peruanus*). Additionally, there are many inland fisheries, mainly located on rivers and *cochas*, or lagoons, in the Amazon. Aquaculture focuses especially on trout (inland), oysters and shrimp (at sea) (FAO, 2010).

Greater knowledge is available of the species fished industrially such as anchoveta, Chilean jack mackerel, chub mackerel and hake, on which global catch quotas are set. Other species are not subject to extraction quotas, as their biomass is unknown.

Resource management: Exploitation and current regulation

Over the last 60 years, industrial fishing has gone through several stock crises. This highlights the need to develop a sustainable approach to fishing. Between 1972 and 1973 anchoveta stocks collapsed through a combination of overfishing in previous decades and the impact of the weather phenomenon El Niño. These two factors again triggered stock collapses in 1983 and 1998.

Fishing industry policy in Peru is run by the Ministry of Production (PRODUCE), established by Act No. 27779 to formulate, approve and monitor nationwide policies for extractive and productive activities in the industrial and fisheries sectors. There are also bodies such as the National Fisheries Development Fund (*Fondo Nacional de Desarrollo Pesquero* – FONDEPES), the Peruvian Sea Institute (*Instituto del Mar del Perú* – IMARPE) and the Peruvian Fisheries Technology Institute (*Instituto Tecnológico Pesquero del Perú* – ITP).

The Peruvian Government has a General Fisheries and Regulations Act which governs fishing activities. There are also the Fisheries Legislation Regulations (*Reglamentos de Ordenamiento Pesquero* – ROP) applicable for certain species. However, this legislation tends to view species in isolation from their environment and other species. There are seven ROPs for marine species (giant Humboldt squid, Patagonian toothfish (*Dissostichus eleginoides*), Peruvian hake, tuna, Chilean jack mackerel and chub mackerel, including one for Lake Titicaca and another for the Amazon region.

The Peruvian anchoveta is covered by two different fishing regimes: one for direct human consumption (DHC) for small-scale (artisanal) fishing, and one for indirect human consumption (IHC) for industrial fishing. The most notable difference is that small-scale fisheries are not limited by a total catch quota.

With regard to industrial fishing, in recent years the Government has been adopting quotas for the Peruvian anchoveta industrial catch. They were

introduced in 2008 through Legislative Decree No. 1084. These quotas were assigned to vessels already operating in this type of fishing (quotas depended on fishing records and hull storage capacity).

Recently, in 2013 and 2014, the Government tried to pass new regulations to improve the zoning of activities; these aimed at controlling access for both industrial and small-scale activities. Decrees Nos 005-2012 and 007-2012 sought to limit the activity of the industrial fleet for fishmeal (PRODUCE, 2013), but resistance from the eight largest companies was so forceful that both Decrees were declared unconstitutional and the Minister had to resign (*El Comercio*, 2013a, 2013b, 2013c and 2014).

Minimum sizes have also been set for 41 species of fish and 15 invertebrates in the marine environment (otherwise subject to little compliance); in general, little or nothing is known about their size and biomass composition, or their biological cycles in the tropical environment. Regulations target almost exclusively industrial activities; this is especially true for anchoveta, where quotas do not include contributions from small-scale fisheries which operate along the whole coast of Peru.

Another important problem is the increase in illegal practices such as redirecting anchoveta intended for human consumption to fishmeal production, or retaining and selling large amounts of juvenile fish from various species. Unreported capture could surpass 4 per cent and could be as high as 13.5 per cent for the eight largest companies (Paredes, 2012). In addition, several academic studies, reports and current IMARPE authorities have noted that owners of larger vessels and even small-scale ones prefer to throw their catch of juvenile or disallowed species into the sea to avoid the penalties. This practice of returning unwanted catches to the sea, dead or alive, either because they are too small or the fisherman has no quota, is called “discarding” and is threatening the sustainability of several species (Paredes and Pereyra, 2013).

In general, the sector faces an important transparency deficit, due to the lack of formal mechanisms for consultation and public participation. Social dialogue is very limited (where it exists at all), which harms the capacity for influence of both small-scale and industrial workers and has very negative repercussions.

Weight and evolution of fisheries in the Peruvian economy

Although Peru’s catch is 6–7 per cent of the global total (FAO, 2014), its value is only 2 per cent. The multiplier of the value of the Peruvian fishing industry is 2.9, slightly less than the Latin American average calculated by Sumaila and Hannesson (Sueiro, 2013).

The last 10–15 years have been marked by the Peruvian economy’s greatest historical growth in both gross domestic product (GDP) and exports.

Between 2003 and 2013, Peru's GDP notched up cumulative growth of 195 per cent (World Bank, 2014). The Peruvian Central Bank estimates that during this economic growth phase the fishing sector has lost ground relative to total exports (from 17 per cent in the early 1990s to about 5 per cent in the last three years; see figure 2) (BCRP, 2014). This decline is also reflected in share of GDP, which stood at 0.71 per cent in 1990 and fell to 0.34 per cent in 2012 (INEI, 2014). This decrease in relative importance is due both to the constraints imposed by the biological carrying capacity of the ocean and the rapid growth of other sectors.

However, in absolute terms the sector has shown strong growth (figure 3). While fishmeal and fish oil have benefited from rising prices (Paredes, 2012), activities related to direct human consumption have mainly focused on increasing export volumes of certain products (Humboldt squid, common dolphin fish, etc.).

This growth is expected to continue, as global trends are showing increases in food and fish prices. However, the latter seems to be less volatile

Figure 2. Total exports vs fishing exports, 1970–2012 (US\$ millions)

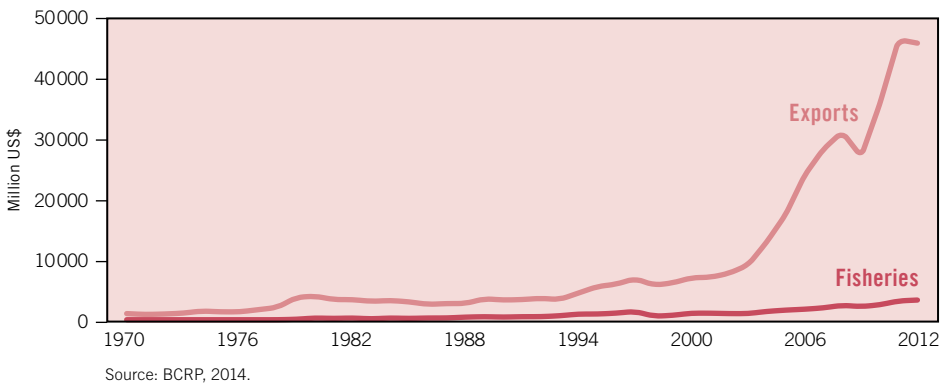


Figure 3. Fish exports for direct and indirect human consumption, 1980–2012 (US\$ millions)

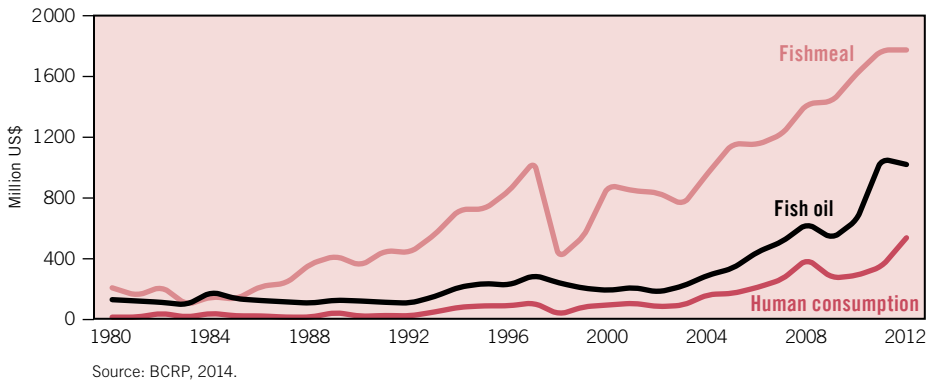
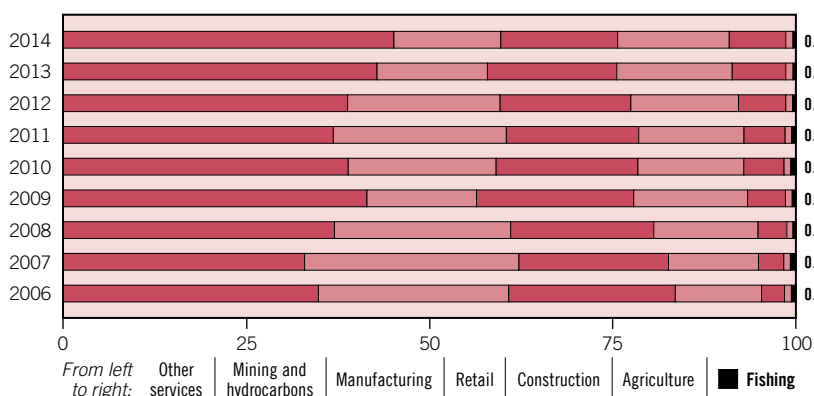


Figure 4. Tax revenues collected by SUNAT, by economic activity, 2006–14 (percentages)



Source: SUNAT, 2014.

than the former. This relative greater stability may be due to the fact that, according to Tveteras et al. (2012), fish prices appear less subject to significant price increases such as the peaks in prices for cereals, dairy and oils reached in 2008 and again in 2011.

Tax contributions from fisheries have been insignificant over the past decade (figure 4); they represent between 0.4 and 0.8 per cent of total tax revenue collected. This share is proportional to the GDP contribution but not to the share of exports.

Employment and labour conditions in fishing

Employment data for Peru’s fisheries are generally incomplete and contradictory, highlighting the lack of government attention to employment issues in the sector. According to the employers’ association, the National Fisheries Society (*Sociedad Nacional de Pesca – SNP*), the industrial fishery sector accounts for 223,000 salaried jobs in industrial fishing vessels and processing plants. This figure, however, looks inflated when compared with sources coming directly from fishing trade unions, which suggest that the number is much lower. These sources state that during 2013 the total number of positions reached 60,406, of these 23,754 being professional fishers who logged fishing trips in 2013; 36,652 workers in canneries, curators, freezing, fishmeal and fish oil plants; and 45,000 small-scale fishers. It is worth mentioning that unions such as Chimbote Fishers Union have performed a very important task regarding data collection and monitoring under extremely precarious conditions.

A study for the International Labour Organization (ILO) estimated the total number of direct and indirect jobs in the Peruvian fishing sector

at 142,232 in 2008. This is just under 1 per cent of total employment in the country. This figure breaks down as follows: 58 per cent in extraction; 19.3 per cent in processing; 6.15 per cent in aquaculture; and 16.5 per cent related indirect jobs (carriers, stevedores) (Alvarado Pereda, 2008).

A more recent study on value chains in fisheries for roughly the same period (2009) put the total number of jobs at 232,000, but this study includes informal sector employment and a wider value chain, such as point of sale (Christensen et al., 2014). This study breaks down the total as 32 per cent in extraction, 23 per cent in processing and 45 per cent in sales. Sales include food markets and restaurants specializing in seafood, and these specifically account for 35 per cent of employment. It is important to highlight that 80 per cent of total employment is created by the direct human consumption (DHC) fisheries.

Women work less frequently in extraction but more frequently in processing activities, such as the canning and curing industry, where they are hired seasonally. For small-scale fishing, women are usually in charge of distribution (FAO, 2012). For some subsectors disaggregated data can be found: the first census of small-scale fisheries registers 1,822 women among the fishers, and 2,051 boat owners (INEI, 2012).

Employment trends in the sector are complex. On the one hand, the FAO shows an increase in employment from 1990 to 2010 (table 1). But employment in industrial fishing has recently declined, along with the formal sector in general, especially after 2008 when Legislative Decree No. 1084 introduced quotas for the industrial anchoveta catch. Unfortunately there are no official figures, as the Ministry of Production (PRODUCE) usually reports on the number of vessels but not the number of workers. Estimates from SPCHA (*Sindicato de Pescadores de Chimbote y Anexos*) based on official statistics and data from Chimbote Fishers Union show a decrease of more than 40 per cent in employment by the eight largest employers (table 2). This is further discussed below.

However, small-scale fishing has been increasing. Figure 5 compiles data from IMARPE structural surveys for 1996 and 2005, and census data from 2012. Although different methodologies were followed to gather the data sets, they are useful to illustrate the trend. According to the first census of small-scale fisheries in the marine environment (CENPAR, see INEI, 2012),

Table 1. Number of fishers and fish farmers in Peru, 1990–2010

Fishery		1990	1995	2000	2005	2010
Fishers and fish farmers	Number	43 750	62 930	93 789	95 426	99 000
	Index	47	67	100	102	106
Fishers	Number	43 750	60 030	87 524	86 755	90 000
	Index	50	69	100	99	103
Fish farmers	Number	–	2 900	6 265	8 671	9 000
	Index	–	46	100	138	144

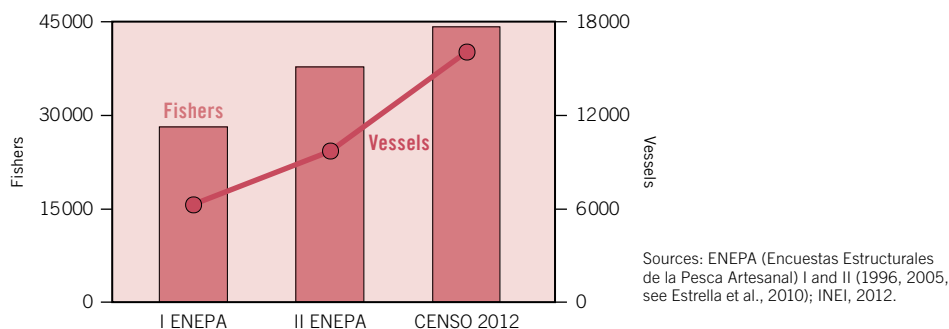
Source: FAO, 2012.

Table 2. Labour impact of Decree No. 1084 on industrial fishing, 2008–13

	2008		2013	
	Fleet	Fishers	Fleet	Fishers
8 largest fishery groups	397	7543	228	4332 (-3211)

Sources: 2008: Ministerial resolution 843-2008-PRODUCE, Estimated Provisions, SPCHA. 2013: Report on Production for the allotted fleet according to Digsecovi-Produce, Extranet-Ministry of Production, Chimbote Fishers Union.

Figure 5. Small-scale fishers and vessels, 1996–2012



there were over 44,000 small-scale fishers (38 per cent in Piura and Tumbes in northern Peru) and 16,045 vessels.

The large percentage of informality that characterizes the fishing industry, primarily the small-scale fishers, is the cause of irregular working conditions. The absence of labour contracts, regular wages and ignorance of the pension and health systems require a unique legal system that integrates these rights (Alvarado Pereda, 2010).

But formality does not guarantee a decent job. It is estimated that only 5 per cent of workers in the industrial sector enjoy good working conditions (a pension, a contract, a collective bargaining agreement, health insurance) (Peralta Bouroncle, 2014). Over the past 20 years, the vast majority of workers in the sector have not received health coverage, a pension, or complementary insurance for high-risk work, even though this has been obligatory for years. Eighty-six fishers out of 100 have annual incomes inferior to the legal minimum wage, as do 91 workers out of 100 in processing industries (ibid.).

Even those who were supposed to be entitled to a pension are at risk of losing it. The Benefits and Social Security Fund for Fishers (*Caja de Beneficios y Seguridad Social del Pescador* – CBSSP), which was to have ensured collective pensions, has suffered from various structural, financial and economic problems that ended in bankruptcy. In order to reform this system, a Special Pension Scheme for Fishery Workers was approved in 2013 (Law No. 30003 and its Regulations). To access a pension, a worker has to reach the age of 55; be registered as a fishing worker at PRODUCE; and be accredited for 25 years

of work in fisheries. A contributory year is considered to be 15 weeks' work per year (MTyPE, 2013a).

However, the vast majority of fishers do not meet this last criterion (Peralta Bouroncle, 2014). The Chimbote Fishers Union, which is promoting a citizens' initiative to reform Law No. 30003 with technical support from the ILO, has calculated that around 60 per cent of active fishing workers will not receive a pension (CUT, 2014).

Unionization rates are also low. According to the Ministry of Labour and Employment Promotion (*Ministerio de Trabajo y Promoción del Empleo* – MTyPE), the unionization rate is about 3 per cent (MTyPE, 2013b). Trade union data indicate a union membership rate that varies from 14.46 per cent for formal salaried fishers to 2.27 per cent among plant workers in the canning, fishmeal and freezing factories (Peralta Bouroncle, 2014). Small-scale fishing work is highly fragmented, with over 900 workers registered by PRODUCE.

Moreover, a study by the ILO on the conditions of women workers in the industry shows that the majority do not know their rights: 70.6 per cent are unaware of their labour rights, while only 21.2 per cent know that a working day is eight hours long (ILO, 2010).

The Peruvian fishing industry transition during recent decades

Over the last 60 years, industrial fishing has gone through several stock crises. As we have seen, between 1972 and 1973 anchoveta stocks collapsed through a combination of overfishing in previous decades and the impact of the weather phenomenon *El Niño* (FAO, 2010). The figures are eloquent: from 12 million tonnes just before the industry collapse in the late 1960s to 4 million tonnes in 2013 (FAO, 2010; PRODUCE, 2013). The effects of this crisis lasted for more than 15 years.

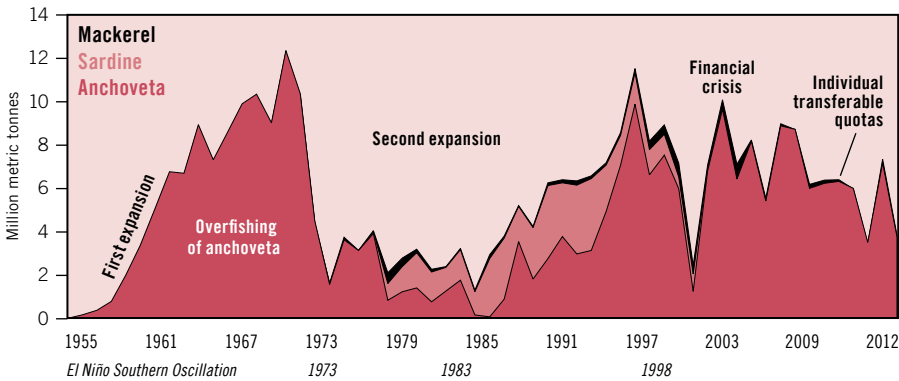
The same type of crisis occurred again in 1983 and in 1997–98. In the latter case, it was a very severe *El Niño* and a high level of financial leverage in the industry that led to the collapse (figure 6).

The first great collapse in fishing stocks in 1972 preceded the nationalization of the industry. In May 1973, the Public Production Company for Fishmeal and Fish Oil (PESCAPERU) was formed. As a centralized entity with over 1,500 vessels unloading to over 106 factories and 27,000 workers, PESCAPERU had greater flexibility to consolidate holdings and restructure fishing activities, which became more efficient. PESCAPERU assets were progressively privatized starting in 1976. In 1983–84, opposition from workers and their unions succeeded in freezing further privatization, but the Fujimori government completed the privatization of the company in 1992. This privatization was considered a severe mistake by a later parliamentary

commission on financial crimes; it created an oversized private sector and a new period of resource overexploitation (Congreso de la República, 2002). Overexploitation and sector debt overhang led to a new crisis in 1998.

Within this context, some regulatory changes have been applied in recent years to the fishing sector with the aim of improving resource management. The following sections highlight the main objectives of the debate on both the sector and institutional reforms. However, and as will be shown, implementation has had varying degrees of success.

Figure 6. Crises in industrial fishing, 1955–2010



Source: Adapted and updated from Macroconsult, 2005, p. 9.

Avoiding overexploitation

Some normative improvements were progressively introduced: establishment of global catch quotas (or annual maximum fishing allowances), closed fishing during reproductive seasons, reserved and banned zones and specification of extraction methods.

In 2008, the largest sector reorganization in Peru in the last 35 years was triggered when Legislative Decree No. 1084 was adopted. This regulation introduced and assigned individual anchoveta fishing quotas to vessels already in operation. Quotas were based on fishing logs and hull size. This important regulatory step has produced a number of benefits. On the one hand, industry bloat and its associated cost overruns decreased, and this then led to greater profits for the remaining fisheries. On the other hand, the “race for fish” diminished. This led to improvements in the quality of the Peruvian anchoveta catch and this improvement has been passed along the chain to better quality fishmeal and improvements in associated activities (Paredes, 2012).

But the introduction of individual fishing quotas created incentives to underreport catches, as the reform was not accompanied by measures to strengthen monitoring mechanisms or by a significant increase in fines for engaging in this type of activity. Trade unionists interviewed consider the

lack of surveillance mechanisms to be the main cause of increasing volumes of illegal fish in the black market. Unreported fishing is likely to be significant. An audit made for PRODUCE in 2009 found that 31 per cent of measurement scales had been manipulated (Salazar, 2012).

The combination of underreporting by large companies and the lack of controls for small-scale fishers maintains the risk of overexploitation despite the quotas legislation.

Promoting fishing of other species

Some of the species harvested are not being efficiently exploited at present, so that promoting fishing of species with lower exploitation levels is a key policy for the sector.

The giant squid is one example. According to the report *The state of the giant squid in 2011, and fishing prospects for 2012* by IMARPE (2012, cited in Paredes, 2012), fishing intensity is lower than sustainable limits and there is a predisposition to encourage high catches because of its short life, post-reproductive death and voracity.

Giant squid is the main species caught (approximately 50 per cent by volume) by small-scale fisheries and each catch is checked. Fishing this species is a manual activity and hence there is a high level of selectivity (i.e. no accidental catch or bycatch). They are mainly fished and processed in Piura. The activity began near the coast, but over time fishing has moved further out to sea. Biomass estimates for this species are much less reliable. However, the industry is becoming more interested in accessing this species and is calling for the existing ROP to be modified. Meanwhile, small-scale fisheries working in this area are calling for exclusive access to this resource.

There has been a significant increase in the population of the Peruvian scallop (*Argopecten purpuratus*). Large volumes were previously associated with occurrences of El Niño in 1983 and 1998 and were mainly found around the natural banks of the Independence Bay in Pisco.

Harvesting and drying of seaweed (microalgae, also known as brown algae) is also on the increase. This activity is mostly carried out from Pisco to the south. Large volumes are exported once they have been dried on the beaches and on the ground, mainly in Mollendo.

There are many other species with significant market potential, such as myctophids (lantern fish), red squat lobster (*Pleuroncodes monodon*) and vinguerria (from the bristlemouth family), among others. Despite their profusion, they are not exploited due to lack of research and development; in addition, the current fleet is not adapted to catch them. Aquaculture can therefore be an important source of potential growth for some species such as the Peruvian scallop or even algae, as successfully demonstrated by the private sector.

Promoting aquaculture

Aquaculture has grown steadily over the past 15 years, and growth was particularly strong between 2002 and 2007. Peru's stability (which attracts investment) and domestic economic growth has gone hand in hand with other factors to contribute to the expansion of the industry: for instance, better access to external markets (however, some produce is also destined for local markets); the existence and implementation of aquaculture production technologies; and the availability of expansion areas along with needed inputs.

Moderate growth projections for this industry from 2013 suggest that production volume is actually double current official figures. Using these figures and assuming sustained growth, places the Peruvian aquaculture in the order of 100,000–120,000 tonnes by 2018. However, the most optimistic growth projections put production at 150,000 tonnes by 2018 (FAO, 2010).

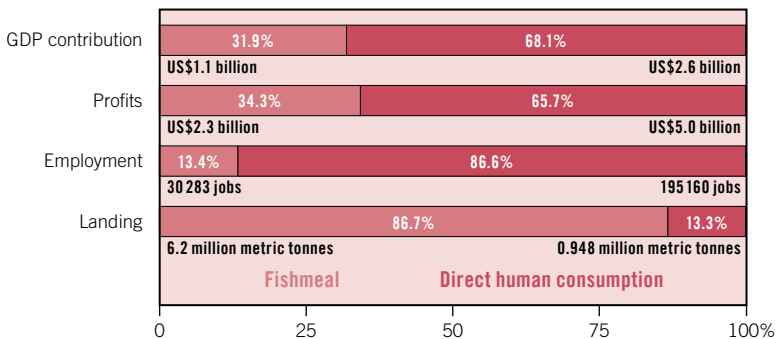
Promoting direct human consumption

Increasing DHC fisheries seems to make economic and social sense, as shown in figure 7.

Per capita consumption has remained stable in recent years at an average of 22 kilograms. Fresh fish is the most consumed, followed by frozen and canned products. Cured fish still represents only a small proportion of fish consumption (Paredes, 2012).

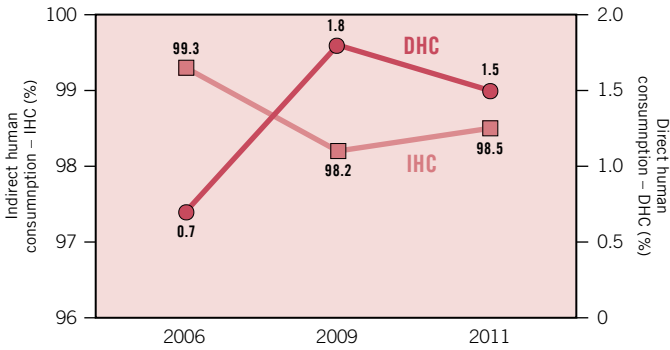
Over a period of many years, various governments have attempted to raise direct domestic consumption of fish, in particular anchoveta, but this goal has proved elusive. Still, the current government plans to increase consumption by up to 40 kilograms per capita by 2016. The middle of the last decade saw some progress in using anchoveta for products for direct human

Figure 7. Comparison of economic benefits of direct human consumption vs fishmeal



Source: Sueiro and De la Puente, 2013.

Figure 8. Anchoveta catch by target use, 2006–11



Source: PRODUCE.

consumption (figure 8). However, lack of state attention allowed the number of vessels fishing this species to grow rapidly. Measures long overdue were adopted in 2009 but did not give rise to the intended results, and soon hundreds of vessels were involved in this activity.

In 2006, the law on treating solid waste promoted by the National Environmental Council (*Concejo Nacional del Ambiente* – CONAM) was used by the Ministry of the Environment (*Ministerio del Ambiente* – MINAM) to justify the approval of small-scale fishmeal facilities. These were authorized to “treat” waste generated in markets and roadside food stalls. Hence, 2010 and 2011 are notable for high volumes of fishmeal when products from these small-scale fishmeal facilities are included in the main fishmeal produce estimates. In fact, for every 10 tonnes caught, 8 tonnes are illegally diverted into fishmeal. This is close to 400,000 tonnes of fishing that is not recorded in fishery statistics.

In addition, the recent policies attempting to promote direct human consumption and small-scale fishing, for example through Legislative Decrees Nos 005-2012 and 011-2013, have been legally challenged by industrial anchoveta companies and finally declared unconstitutional (*El Comercio*, 2013a, 2013b and 2013c).

Socio-labour impacts and instruments to support the transition

Every transition has winners and losers. In discussing the impact of Legislative Decree No. 1084, Paredes (2012) writes that boat owners with large adaptable fleets were among the winners: they were better able to plan fishing trips, and also gained much more negotiating leverage with anchoveta factories and processing plants. The main losers under the new regulations were the workers and shareholders of processing plants that did not

have a large enough fleet to be self-sufficient, so that their activity suddenly became economically unworkable. Although the losers took their challenges to court, they lost the fight and many of them had to stop their activity and change sector. Among the losers were also the 3,000 workers who lost their jobs in the eight largest enterprises, which reduced total employment in this subsector by 40 per cent. In addition, workers report increased precarization as their work becomes subject to rotation.

The Compensation Fund for Fisheries Management (FONCOPE) has been created in order to support these workers through the transition to a new regime. It is an independent entity, in charge of administering funds which come from mandatory contributions. Compulsory contributions from companies are around US\$1.95 per tonne of anchoveta processed for ten years. But, as explained previously, the Benefits and Social Security Fund for Fishers (CBSSP) suffered financial problems for a long time and compulsory contributions were frozen for years before the Fund was liquidated.

FONCOPE directs three support programmes available to workers (Alvarado Pereda, 2010):

1. Retraining Incentives Programme. With the aim of facilitating workers' reintegration into other dependent activities, the scheme covers the following:

- a compensation package for voluntary redundancy;
- training in technical courses to allow reintegration into other productive sectors (the training does not establish formal labour relations);
- temporary economic subsidies during the training period; and
- specialized advice on reintegration into the market.

2. Development and Promotion of SMEs Programme. To support the creation of micro- and small enterprises, the scheme covers the following:

- a compensation package for voluntary redundancy;
- training in technical courses related to business management to assist in starting or developing a micro- or small enterprise (the training does not establish formal labour relations);
- temporary economic subsidies during the training period;
- specialized advice on either setting up micro- and small enterprises or strengthening existing businesses.

3. Early Retirement Programme. This is aimed at workers aged between 50 and 55. Workers need to have contributed to the Fund up to age 55 and will then receive a pension (as set out in the regulations). One advantage of this scheme is that workers receive a temporary financial subsidy for the period running from the date of entry into the programme until they reach 55 years of age.

Since the launch of these programmes in September 2014, 1,347 workers have participated in the Retraining Incentives Programme, while 315 workers have taken part in the Development and Promotion of SMEs Programme (mainly boat owners and captains, who had better salaries and higher compensation packages) (FONCOPEPES, 2014). A total of 2,283 workers were contacted by FONCOPEPES. Unfortunately there is no assessment so far on results (SMEs created, workers who finished the training courses and found employment), as there has been no comprehensive research on the actual impacts of Decree No. 1084 on employment.

One of the deficiencies of FONCOPEPES is the fact that it targeted only fishers; it has not taken into account the fishmeal industry where jobs were also lost but workers did not have access to the transition programmes. If the sector has to be further restructured, transition measures should be based on an in-depth assessment of FONCOPEPES' current programmes and their extension to the processing industry.

In addition to these initiatives, the Peruvian Government set up a Fisheries Training Centre in Paita (*Centro de Entrenamiento Pesquero de Paita* – CEP Paita), whose mission is to provide knowledge to human resources involved in fishing and aquaculture activities; improve skills through training and capacity building; provide training and technology transfer to improve competitiveness and labour welfare; promote rational fishing by providing quality services and through all this contribute to the sector's development. CEP Paita has developed modules, training programmes and certification which it offers to workers by travelling to ports and along the shore.

Furthermore, and due to the large informal sector, numerous programmes exist aimed at formalizing fishing sector workers. Formalization of workers is essential for several reasons: so that fishing stocks can be appropriately managed, allowing reliable catch figures to be obtained for both the State and the industry; and of course, to improve working conditions in the sector. In recent years, the National Fisheries Development Fund (FONDEPES) has carried out numerous activities. Its reach could be greater if the regional governments could improve logistical back-up.

Workers' proposals, 2014

Between April and July 2014, the International Labour Foundation for Sustainable Development (Sustainlabour), together with the Peruvian trade unions Autonomous Confederation of Peruvian Workers (CATP), General Confederation of Workers of Peru (CGTP) and Single Confederation of Workers (CUT), held a series of seminars entitled "Transition to social and environmentally sustainable economies". Participants included over 200 delegates and union representatives from across the country and from a variety

of sectors – mining, water, energy, fishing, agriculture, education, health, employment inspectorates and others, in addition to NGO representatives, experts and, in some cases, employers who contributed to the discussions.

Fishing was one of the areas studied. In addition to industrial and small-scale fishers, workers from canning and fishmeal plants, employers and public authorities also took part. A number of proposals were presented to advance the transformation of the industry (Castro, 2014; CUT, 2014) in the context of a mild-to-moderate El Niño that reduced available stocks significantly.

The fishing workers demonstrated a clear awareness of the social and environmental challenges facing the industry in order to ensure its sustainability, regarding both over-exploitation and increasing environmental degradation, and the projected impact of climate change. In this respect, they recognized the urgent need to agree on an organized and dialogued transition to fishing that is respectful of environmental limits, so that it may continue to be viable in the future.

However, fishers know that the benefits of this transition will not be automatic; mechanisms must be guaranteed to ensure safety and protection in this process for the most vulnerable, so that opportunities for transformation really benefit everyone and do not provide yet another advantage for the business groups that control the industry.

The conclusions of the workers' groups were as follows (Maffei, Murillo and Alejo, 2014):

- (a) Better sea zoning: establishing areas according to the type of operation: artisanal fishing, industrial fishing, industrial aquaculture and small-scale aquaculture. This would reduce the current conflicts, e.g. aquaculture facilities that impede access to the sea for small-scale fishers.
- (b) Reinforce small-scale fishing through: (1) training; (2) facilitating access to financial resources (PRODUCE-FONCOPEs loans) and technical resources for the improvement of gear and equipment; and (3) zoning of exclusive small-scale fishing areas, with use of selective equipment. Small-scale fishing is a very important resource and fundamental to the food safety of coastal and riverine communities.
- (c) Provide facilities for the installation of refrigeration systems on vessels, which do not exist in most of the small-scale fishing fleet. This causes a significant amount of discards that, besides wasting a valuable food resource, results in contamination.
- (d) Promote “mini-aquaculture” projects responsible for encouraging local development of coastal and riverine communities.
- (e) In the immediate future, recover “surplus” fish from species such as squid for the production of fishmeal, thereby avoiding discards and contamination.

- (f) Transition of the industry towards more direct human consumption of the Pacific anchoveta, Peru's main fishing resource, which is mostly destined for processing into fishmeal.
- (g) Transition of the fishmeal industry to the production of special meals; this would reduce the volume but give higher added value to production. It would reduce the number of catches and the environmental impact. From the point of view of employment, this restructuring of the industry would involve job losses, so that it should be done with the full participation of workers in the industry to ensure the necessary protection mechanisms. This is especially important in the area of Chimbote, since plants elsewhere in the country do produce high-quality meals.
- (h) Restructure the canning industry by adapting it to existing fishing and optimizing its potential. High-value and small-sized species are often used for canning.
- (i) Implement awareness campaigns (fishers and consumers) to consume fish in a way that respects sizes and reduces pressure on more fragile species. In this initiative, consider the role played by the various species for ecosystem sustainability, not just reducing the analysis to availability. For example, the Pacific anchoveta, as the filter feeder, is the basis of the marine food chain.
- (j) Working conditions in the industry are lacking in many ways. It is imperative to introduce measures to improve social protection and support. This includes a revision of Law No. 30003.
- (k) In order to obtain species sustainability, special protection measures will be taken for low production years (e.g. moderate and severe El Niño years).
 - For pensions: The current requirement of 15 weeks' work per year is going to leave many fishers uncovered and has to be adjusted above all for low production years, where working weeks are fewer. The 2014 and 2015 seasons (moderate El Niño years) should be valid contribution years for retirement pensions.
 - For active labour market policies that create other jobs: For example, through the implementation of social programmes, creating temporary work within the framework of Law No. 30191 – a law for prevention, mitigation and adequate preparation for a disaster situation response – for workers in the canning and process industry in low production years.

Applying the ILO Conclusions on sustainable development, decent work and green jobs

To assess where and how the transition in Peruvian fishing is unfolding, this section draws on elements of the Conclusions concerning achieving decent work, green jobs and sustainable development adopted by the International Labour Conference at its 102nd Session (ILO, 2013). The Conclusions state:

Managed well, transitions to environmentally and socially sustainable economies can become a strong driver of job creation, job upgrading, social justice and poverty eradication. Greening all enterprises and jobs by introducing more energy and resource efficient practices, avoiding pollution and managing natural resources sustainably leads to innovation, enhances resilience and generates savings which drives new investment and employment (para. 8).

Is this the case in the Peruvian fishing industry? What do Peruvian fishers think?

Macroeconomic and growth policies

According to the Conclusions, macroeconomic and growth policies should “promote sustainable production and consumption patterns and place full and productive employment and decent work for all at the centre of economic and social policies” (ibid., para. 14.3a). However, during 2014 the Peruvian Government adopted a series of measures with the aim of encouraging economic recovery that have caused great concern, as they constitute a loss of acquired rights and the lowering of employment and environmental standards. These measures, included in the economic stimulus package (*paquete de reactivación económica*, Decree No. 02-2014), have trimmed the functions and powers of employment inspection bodies as well as the powers of the Ministry of the Environment (MINAM) and the environmental oversight agency (OEFA), halving the fines for environmental offences and reducing approval times for environmental impact studies to 45 days (Maffei, Murillo and Alejo, 2014).

Moreover, while the ILO Conclusions indicate the importance of tax policies in the transition process, through this same reform the State is forgoing significant revenues that could be important for the implementation of sustainable projects to stimulate the economy. The economic stimulus package grants comprehensive tax relief, including to 150 large taxpayers who owe between 50 and 100 million Peruvian soles (PEN), and nine who owe more than PEN 500 million.

Peruvian trade union organizations have strongly opposed these measures, opting for better environmental and employment regulation.

Industrial and sectoral policies for greening the industry and the creation of decent work throughout the value chain

Some industrial measures aimed at environmental streamlining of Peruvian fishing, with better protection of resources regarding sustainability, have been mentioned above: individual anchoveta fishing quotas, minimum sizes for various species, etc. But most experts and workers' organizations consulted believe there is no coherent industrial policy that would permit progress in this direction. The regulatory framework of the fishing industry is widely dispersed and there is a lack of predictability (non-compliance with blueprints, or lack of participation of specialists and scientists in design standards). An industrial policy anchored in a coherent regulatory framework seems to be one of the major challenges of the current situation.

Environmental sector policies need to be more efficient. Although we have seen bans on the catching of juveniles, these policies cause an increased amount of discards that are extremely dangerous to the sustainability of the species. Faced with diminishing resources, diversification has to be much stronger. Workers demand facilities to develop new fisheries; policies promoting direct human consumption that are defined from an assessment of the possibilities for improvement; industrial diversification of higher quality fishmeal industries; improvements in the freezing and canning industry; and greater investment in technologies that improve the environmental and social results. Investments are also needed to improve the supply chain and storage facilities, for instance, subsidies for investments in refrigeration systems for the small-scale fleet.

Resources that are very seasonal and temporary, due to the impact of El Niño and the expected impact of climate change, require complex industrial policies that quickly adapt to the social consequences, as well as disaster management for severe but also for moderate El Niño years.

Unfortunately, employment data are altogether absent from laws, measures and most research related to the Peruvian fishing sector, making very difficult the analysis of policies and their impacts. Most reliable information comes from modest organizations such as the Chimbote Fishers Union, SPA UPCH or CENDOPES.

One of the demands of the unions is for better zoning of the various activities: small-scale fishing and industrial and scaled-down aquaculture. There are numerous conflicts today, and even well-intentioned measures have multiple adverse effects on other branches of activity. As we have seen above, governmental efforts such as Legislative Decrees Nos 005-2012 and 011-2013 have been overturned by the large industries (*El Comercio*, 2013a, 2013b and 2013c).

Policy in this area is complex. We have seen that workers' organizations want to strengthen the industry, although it is also true that the proliferation

of small-scale fishers may create sustainability issues. Keeping the industry optimally dimensioned from an environmental standpoint must be accompanied by measures to formalize it, to improve working conditions and ensure better control by the authorities.

There are many taxation problems in the industry. Both workers' organizations and experts believe that its contribution to the state treasury is insufficient and should be improved.

Although catches have to be reduced to achieve maximum levels for species, fish prices are tending to rise. It will also be necessary to design policies so that rising prices do not have an impact on the poorest consumers.

Finally, the implementation of these industrial policies requires major reforms in government, including transparency and combating corruption, and stakeholder involvement is essential. Experts believe that governance in the industry is very weak and illegal fishing is increasing, even given adequate fishing policies. There must be greater resources for inspection.

While it is true that industrial policy has made progress in recent years, further efforts are needed to include all the elements described above. The consultations with workers have revealed that they have many proposals to make, and social dialogue is the best mechanism for developing an effective industrial policy.

Social dialogue

The lack of social dialogue is evidenced by the results of many of the measures taken. The pension reform is a particularly clear case in which the ultimate beneficiaries of the measures were not properly consulted and, as a result, the impact might prove to be perverse.

It is clear that it will be difficult to gather universal support of all the stakeholders for new measures; for example, exclusive fishing rights for the small-scale fleet in the first 10 miles were one of the measures discussed with numerous organizations of small-scale fishers, as stated on the PRODUCE website, but this was opposed by the large industrial fishing companies, which managed to overturn the reform. The State will have to look for solutions that protect the sustainability of stocks and offer better outcomes from a social, labour and economic point of view.

The workers' organizations – both industrial and small-scale – appear to have informed proposals based on more reliable employment data than are available from other sources, as well as the knowledge necessary to ensure the sustainability of the stocks measures. Strengthening social dialogue is necessary to achieve a fairer and better informed transition. A consultative committee for fisheries could be an important step in this direction.

Rights

Employment in fishing must be supported by social and labour rights for workers; among the most important are employment contracts, remuneration, good living conditions on board, a healthy and balanced diet, inclusion in health and pension schemes, education and training in systems related to safety of life at sea, working hours and rest hours (ILO, 2010). At present, it is estimated that only 5 per cent of workers enjoy such rights, including a contract, a pension, health coverage and the right to collective bargaining. A transformation from this base would be a real revolution.

Union data indicate a membership rate of 14.46 per cent in the group of formal salaried workers, and 2.27 per cent among workers at canning, fishmeal and freezing plants. To make the transition fair, it will be necessary to stop hindering the organization of workers; campaigns must start with industries where trade union rights are particularly widely violated.

The fishing unions consider it particularly important to work towards the ratification of the ILO's Work in Fishing Convention, 2007 (No. 188), which could improve working conditions coherently for 70,000 workers (Rel-UITA, 2010).

Although unions have improved their strength and presence in Peru in the last decade after the dark ages of neoliberal governments, unfortunately there does not seem to be any strong government commitment to improve collective bargaining. More robust employment laws and greater government oversight would avoid anti-union practices by companies, enhance employment rights and improve the organization of workers.

Social protection

Although the available statistics are inconsistent, they coincide in indicating that between 50 and 70 per cent of Peruvians work in the informal economy (MTyPE, 2013b; ILO, 2012a). Furthermore, only 56 per cent of workers have health insurance, and only 32.6 per cent are entitled to a pension (Requena, 2013). Peru has one of the lowest levels of public social spending in the region, barely reaching 10 per cent of GDP (ECLAC, 2014), and the margin for improvement is vast.

Pensions are one of the key concerns among workers in the fishing industry. If current pensions are in danger for 60 per cent of workers, how can early retirement schemes be implemented in support of restructuring efforts? For fishing industry workers to be protected, formalization has to be the norm. An evaluation of current schemes is required in this respect, since there is little information available.

Occupational safety and health (OSH)

One of the cornerstones for ensuring decent work is health and safety at work. Peru has not yet ratified the ILO's Occupational Safety and Health Convention, 1981 (No. 155). Ratification of Conventions Nos 155 and 188 could be important steps towards the improvement of OSH in the sector.

Given the great challenges facing the country, a law on Safety and Health at Work was adopted in 2012 (Law No. 29783), and received the support of the unions. But in 2014, the new law was weakened in the framework of the economic stimulus package. The reform eliminates criminal liability for accidents at work; it approves outsourcing of management services in OSH; and it reverses the burden of proof so that it is the worker who must prove that he/she had no fault in an accident. These changes clearly constitute a step backward in OSH matters and will inevitably have negative repercussions in the fishing industry, where working conditions are particularly difficult (Maffei, Murillo and Alejo, 2014).

Skills development and active labour market policies

The restructuring of the anchoveta fleet since the entry into force of the quota system includes incentive schemes for industrial restructuring and development of SMEs, with allowances, training, grants and advice. These schemes were applicable to the fleet, but not to those working in the processing industry. Workers demand protection not only for those involved in the extractive phase but also in the processing phase.

One of the key demands of the unions is better access to vocational training in the industry in order to improve the skills of fishers (particularly small-scale fishers), and to ensure the sustainability of their jobs and of the resource. The fishing training centre (CEP) in Paita needs further investment in new technologies and updating its curricula. In-centre activities could be combined with outreach training in order to allow more people to benefit.

Policies must be monitored. There has been no real follow-up of measures undertaken and no assessments are yet available. Existing measures cannot be evaluated as yet due to a lack of systematic information.

Conclusion: A just transition for all?

In recent decades, policies have been proposed to prevent the collapse of Peruvian fisheries due to overfishing and the variability of stocks induced by El Niño. Unfortunately, the lack of institutional monitoring and research on employment issues preclude a reliable assessment of the impact of these policies. For example, information on recent social mitigation measures for

better environmental resource management policies is very scarce. Collecting and analysing this information is now essential to design fair transition measures for the future.

In the context of the ILO Conclusions and the key policy areas for a just transition for all, current developments in Peruvian fisheries have the following main shortcomings: the lack of labour rights in the sector; the inadequate level of social protection for fishers and workers in the processing industry; and the lack of institutionalization of social dialogue in the sector. Neither the unions nor the small-scale fishers' organizations seem to be able to find a space to present and discuss their views, despite the fact that important deficiencies in the implementation of the policies could have been avoided had there been better consultation. If these elements are not decisively improved, it will be difficult to implement sustainable sectoral policies.

Finally, and sadly, the latest measures taken by the Peruvian Government, such as Decree No. 02-2014 on the economic stimulus package, hark back to obsolete assumptions on the link between low environmental and social standards and economic development and, accordingly, have missed an opportunity to promote an economic plan that is truly sustainable and just.

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The long and winding road from black to green

*Decades of structural change
in the Ruhr region*

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The Ruhr region in Western Germany used to be one of the most important industrial regions in Europe. Centre of coal mining and steel works, it was the major supplier of the German war machine in the twentieth century's two world wars. One of the aims of setting up the predecessor of the European Union, the European Coal and Steel Community (ECSC) in 1951, was to make another European war "not only unthinkable but materially impossible", as Robert Schuman, the French foreign minister, said in his famous Declaration on 9 May 1950. The Treaty of Paris the following year created a common market for coal and steel among the six Member States, aimed at removing the need for competition between European nations over natural resources, especially in the Ruhr region.

Since that time, the Ruhr's iconic industrial landscape has seen major deindustrialization and economic diversification; while it has kept its industrial backbone, the region's main strength now lies in a knowledge-based service economy.

In this article, we refer to the decades-long transformation of the Ruhr region as an exemplary case of managing the change from traditional industry-based, resource- and material-intensive economic activity towards a knowledge-based, resource-efficient economy. The geographical characteristics of the region are briefly described in box 1.

In the twenty-first century, Europe (like the rest of the world) faces the major challenge of turning an economy that is still energy-, material- and resource-intensive into a sustainable, green and low-carbon one. This process requires a fully fledged restructuring of the entire economy. The main question this necessary restructuring poses to trade unions is how to manage it in a socially balanced way whereby the inevitable burdens and costs are fairly shared by all major actors. A "just transition" is one of the key demands of trade unions and has also been taken up by the United Nations Framework Convention on Climate Change (UNFCCC).¹ The Ruhr experience delivers several lessons in bringing about a just transition: the economic diversification of the once mining-dependent region was actively managed by the federal and regional governments, and restructuring processes were embedded in an industrial relations culture in which workers' participation plays a major role. *Montanmitbestimmung* (Peters, 1979), a stronger version of the German co-determination practices, was based in the mining and steel industry. The case of the Ruhr is instructive not only because of its outcome, but also through the ways it was achieved: industrial and regional development policies and the roles played by the major actors.

The first section of this article describes the challenge of transformation towards a low-carbon and resource-efficient economy, a challenge that many European regions face today and that will increase in the next decades.

1. The UNFCCC is based on annual intergovernmental conferences of the parties (COP).

Box 1. Main characteristics of the Ruhr region

The Ruhr region is the largest urban agglomeration in Germany, with a population of some 8.5 million (2010). It consists of several large industrial cities bordered by the river Ruhr to the south, the Rhine to the west, and the Lippe to the north. In the southwest it borders the Bergisches Land. The Ruhr region is part of the larger Rhine-Ruhr metropolitan area of more than 12 million people. The region includes the cities of Duisburg, Oberhausen, Bottrop, Mülheim an der Ruhr, Essen, Gelsenkirchen, Bochum, Herne, Hagen, Dortmund and Hamm, as well as parts of the more rural districts of Wesel, Recklinghausen and Unna. The most populous cities are Dortmund (approx. 572,000), Essen (approx. 566,000) and Duisburg (approx. 486,000). The Ruhr area does not have an administrative centre; each city in the area has its own administration, although there exists the supra-communal *Regionalverband Ruhr* institution with its centre in Essen. Historically, the western Ruhr towns such as Duisburg and Essen belonged to the historic region of Rhineland, whereas the eastern part of the Ruhr, including Gelsenkirchen, Bochum, Dortmund and Hamm, was part of the region of Westphalia. Since the nineteenth century, these districts have grown together into a large complex with a vast industrial landscape, inhabited by some 7.3 million people including Düsseldorf and Wuppertal. This agglomeration is the third largest urban area in the European Union after London and Paris.

Source: Regionalverband Ruhr (RVR).

Section two provides an overview of the long process of structural change in the Ruhr region, including its economic and employment structure. Section three focuses on the policies of the public institutions at various levels, while section four looks at how a just transition works in practice. The fifth section discusses the role of the main actors, with special emphasis on trade unions and co-determination. Finally, we draw conclusions on how these practices in the Ruhr region in managing a broad restructuring process can provide useful lessons for other European regions facing similar challenges.

The challenge of the green transformation

Combating the irreversible process of climate change is clearly a major long-term challenge of our century. Although the revision of the growth model in the wake of the deepest crisis since the Second World War focuses narrowly on financial and economic sustainability, the pre-crisis growth model that was based on an abundance of liquidity and material and environmental resources cannot be restored. Any lasting recovery of the real economy will necessarily take the shape of a more resource-efficient production model. This is a declared objective of long-term political strategies such as Europe 2020, while featuring also in the broader, global-level context in the UNFCCC round of negotiations. Although hard-core policy tools to underpin these targets are still lacking, the process is thus irreversibly under way. Key

issues, however, include how the objective of a resource-efficient low-carbon economy will be reached and how the transition is being managed.

Is the scenario compatible with keeping a strong industrial base in Europe? While we argue that only a more ambitious and comprehensive European climate policy framework would have a chance to deliver the 2050 climate targets, this does not mean that Europe needs to give up its industrial base and its related competences. In order to manage this, a targeted industrial policy is needed.

The future restructuring process will be unique in the sense that it will be directly induced and shaped by explicit policy targets to mitigate climate change, implemented by means of a policy mix. This is genuinely different from restructuring processes that were driven by market forces (e.g. globalization) and where the role of policy-making was more indirect, in the form of liberalization and deregulation practices without explicit policy targets, and only later involved attempts to shape policy in terms of industrial and regional policy interventions and subsequently address their impact through labour market and welfare policies. The green transformation climate policy targets and accompanying policy framework are at the centre of launching a long-term and comprehensive restructuring process. The green transformation takes place and proceeds by design. Anticipation of change – already crucial in market-driven restructuring – can now be more straightforward and explicit through policy-triggered restructuring. Responses to its challenges can be planned and integrated into the policy framework from the outset. Above all, this would include the design of targeted labour market policies to ease necessary transitions, together with matching education and training measures. The most urgent step would be a proper assessment of the effects that actual, planned climate-mitigation policy measures would have on employment. How to manage this process in a socially sustainable way, what role trade unions would have and what strategies they should follow are all vitally important questions.

As is always the case with major restructuring processes, managing transformation through appropriate policy instruments with the involvement of the social partners will be a decisive factor in its final success. How the costs of the transition will be distributed among the various actors and within society is a crucial question. Trade unions have a key role in managing a successful green transformation, but also face huge challenges and contradictions between short-term and long-term opportunities.

A decoupling of energy and resource use from economic growth can theoretically be made in two main ways: through a broad restructuring of a national or regional economy where energy- and resource-intensive activities are downscaled or abandoned and other activities for value generation are developed (e.g. services, finance, etc.). Luxembourg and the United Kingdom are examples of this in Europe, as demonstrated by their high resource efficiency and their economic structure. What works however for national economies would not work at the level of the 500 million-strong

population of the EU27. Deindustrialization is not the way for Europe as a whole to meet climate targets, and not just because the magnitude of that restructuring would have a high price in terms of employment and human resources. Industry is a major component of Europe's competitiveness, and without industrial competences neither business-related services nor an eco-industry can function. If industrial goods were imported from other parts of the world where lower climate standards apply, global emissions and resource use would not benefit either.

The only way ahead is through eco-innovation and higher resource and energy efficiency of an industrial base that is maintained and continuously upgraded in Europe. In this regard, industrial policy is a key element of a climate policy framework.

From post-war reconstruction to deindustrialization: A broad overview of restructuring processes in the Ruhr Valley

Post-war reconstruction of the Ruhr Valley industrial infrastructure in mining and steel had just been completed by the end of the 1950s, when the first coal mines were closed down. Although most analysts – such as the Rheinisch Westfälisches Institut für Wirtschaftsforschung (RWI, 2006) – put the date of the first coal crisis at 1960, this was not perceived by the policy-makers and main actors of that time. The 1960s were still dominated by the myth of unlimited growth, and “guest workers” were being massively hired. It was only in 1968 that the government of North Rhine-Westphalia first addressed the issue and launched a policy package to support structural change.

Even if deindustrialization is a process that European and national policies at present justifiably try to avoid and even reverse (EC, 2014), this is what happened in the Ruhr region from the late 1950s. Reindustrialization – as we will show – followed several decades later and proceeded in several waves.

It should be noted that the downscaling of the coal and steel industries between the 1960s and 1990s did not take place due to policy choice and environmental concerns, but as a result of market forces. More and more coal mines had become exploited and in order to maintain extraction volumes one had to go deeper and deeper underground. At the same time, trade liberalization was opening the way to large-scale imports of cheap coal from elsewhere in Europe and the rest of the world.

Between 1960 and 2001, the number of mining industry workers was reduced to 10 per cent (39,000) of the 1960 level (390,000), while output fell to almost one-sixth, from 115.4 million tonnes in 1960 to 20 million tonnes in 2001. By the early 2000s, the share of miners in the total employment of the Ruhr region was only about 2.5 per cent of the workforce – approximately equivalent to employment in car repairs.

In the iron and steel industry, employment in the same period fell to one-fifth (52,600) of the 1960 level, while output in 2001 was 80 per cent of that achieved in 1960, including an interim peak of 140 per cent in 1973. The main employment trends spanning almost 80 years are shown in table 1. These data also indicate a substantial increase of labour productivity in both sectors over the same period.

The downscaling process of mining in the Ruhr region is a much older phenomenon, however: in 1922, mining employment was 545,000, as table 1 indicates. This degradation had been partially absorbed by the expanding iron and steel industries in the 1960s and 1970s, and then later by the electrical (plants such as Grundig, Nokia, Blaupunkt), chemical (Evonik) and automobile sectors (Opel).

For comparison, table 2 shows the development of employment in coal mining for the entire Federal Republic of Germany. Although coal mining was concentrated to a large extent (at approximately 80 per cent in terms of employment) in the Ruhr region, the trend was the same at the national level. Employment in coal mining shrank from 607,300 in 1957 to 14,500 by the end of 2013.

In 2007, the Federal Government and the state governments of North Rhine-Westphalia and Saarland agreed to phase out the annual coal subsidies

Table 1. Number of employees in mining and steel in the Ruhr region, 1922–2001 (in thousands)

	1922	1957	1960	1980	1994	2001
Mining	545.0	473.6	390.0	140.0	77.6	39.0
Steel	84.0	333.8	263.0	184.0	89.5	52.6

Source: RVR Databank.

Table 2. Number of employees in coal mining in Germany, 1957–2013 (in thousands)

1957	1965	1970	1980	1990	1995	2000	2005	2010	2012	2013
607.3	377.0	252.7	186.8	130.3	92.6	56.1	38.5	24.2	17.6	14.5

Source: German Coal Association, 2014.

Table 3. Mines in operation in the Ruhr Valley: Scheduled closures and employment, 2008–14

Mine	Location	Closure	No. of employees
West	Kamp-Lintfort	31 December 2012	3460
Walsum	Duisburg	1 July 2008	1936
Prosper Haniel	Boitrop	Phase-out until 2018	4265
Lippe	Herten	1 January 2009	1998
Auguste Victoria	Marl	Phase-out until 2018	3791
Ost	Hamm	30 September 2010	2452
DSK Anthrazit	Ibbenbüren	Phase-out until 2018	2466
Total as at June 2008			20368
Total as at January 2014			11448

Sources: Weingarten, 2010; German Coal Association, 2014.

of €3.5 billion by 2018 and close the remaining eight mines (seven in the Ruhr Valley and one in Saarland) by that time. Table 3 shows the stages of the coal phase-out by mine and follows the development of employment. In 2008 in the Ruhr area, 20,368 persons were employed in the seven mines still in operation. By January 2014, two mines were still in operation, with a total of 11,448 persons employed.

Table 4 compares the development of employment of the Ruhr with the average in West Germany and shows structural and dynamic deficits in the region (Helmstädter, Lehner and Nordhause Janz, 2000). Employment in the primary sector, dominated by mining, was radically reduced in the 40 years up to 2000 and had been halved by 2010. The Ruhr was also on a downward trend in its share of manufacturing over the period, although from an extremely high level in the early 1960s (over 60 per cent). By 2000, the share of manufacturing in the Ruhr area had fallen to around 33 per cent, which

Table 4. Employment structure in the Ruhr Valley and the Federal Republic of Germany (FRG), 1961–2000 (percentages)

Sector	Primary (agriculture, mining)		Secondary (industry)		Tertiary (services)		Unemployment rate (%)	
	Ruhr	FRG	Ruhr	FRG	Ruhr	FRG	Ruhr	FRG
Year								
1961	13.6	2.4	61.3	46.6	36.3	36.8	n.a.	0.5
1970	9.1	1.5	58.4	49.4	40.0	41.5	0.6	0.5
1980	5.3	1.4	51.7	45.3	47.0	49.4	5.3	3.5
1990	3.6	1.2	44.4	40.6	54.4	55.8	10.8	6.6
2000	2.5	1.2	33.3	33.5	65.4	64.0	12.2	8.1

Source: RVR Databank, 2014.

Table 5. Main stages of structural change in the Ruhr, 1840–2000

Period	Phase	Characteristics
Up to 1840	Pre-industrialization	<ul style="list-style-type: none"> • Small coal mines, iron and textile factories • Agricultural areas with low population density
1840–1914	Industrialization	<ul style="list-style-type: none"> • Large-scale coal mining and development of coal chemistry
1894–1914	Industrial peak with highest growth rates	<ul style="list-style-type: none"> • Mass production of iron and steel • Foundation of large enterprises • Strong immigration
1914–1945	First signs of the crisis	<ul style="list-style-type: none"> • First and Second World Wars, economic depression, dismantling of product lines after the Second World War • End of product cycle in coal mining
1945–1957	Rapid growth	<ul style="list-style-type: none"> • Temporary demand pull due to post-war reconstruction and the effects of the Cold War
1957–1990s	Restructuring and transition with lock-in	<ul style="list-style-type: none"> • Crisis in coal mining and closure of pits: international competition and location disadvantages due to changed technology • Absorption of workers into other sectors (1960s) • Steel crisis in 1974 with overall decline of the region • Still locked into steel- and coal-based industries until the mid-1980s
From the 1990s on	Diversification, reindustrialization	<ul style="list-style-type: none"> • New frontiers in knowledge-based economy, renewable energy, eco-industry • Industrial heritage

Sources: Bross and Walter, 2000; Hoppers, 2004.

was average for Western Germany but still high compared to other European countries. Although this trend can be called deindustrialization, it would be more appropriate to call it putting an end to over-industrialization.

There were also trends in structural change, with significant differences within the Ruhr region. While the share of employment in mining and steel fell below 5 per cent in Oberhausen, at the steel stronghold Duisburg as well as in Gelsenkirchen, Hagen and Hamm, the share of the sector remained above 15 per cent. The services sector, on the other hand, dominated in the centres of Essen and Dortmund (each about 78 per cent, comparable to Cologne and Düsseldorf). The main periods of structural change in the Ruhr over the long term (1840–2000) are presented in table 5.

Policy responses and outcomes

Hartmann (2008) argues that while the most visible external events affecting the coal and steel complex were the coal crisis in 1957 and the steel crisis in 1974, the decline of the region has to be understood as a process going back to the first half of the last century (see also Dege and Kerkemeyer, 1993).

While the coal and steel industries were already approaching the end of their lifecycles during the first half of the twentieth century, the structural problem remained hidden behind short-term changes in demand, and for a long period the regional ruling elite failed to acknowledge the need for a dramatic reorientation of the Ruhr economy (Bross and Walter, 2000). Active change by means of diversification in the industrial structure was pursued only relatively late, and the initial steps started in the 1970s did not prove to be sustainable in the long run (Butzin, 1993).

Muddling through and lock-in

Up to the early 2000s, the phases of the process of structural change can be split into two periods. Hospers (2004) calls the period from 1960 to the mid-1980s the period of “reindustrialization and lock-in”. “Reindustrialization” may sound promising, but what is meant by most authors was actually preservation of old structures around coal and steel.

- Until the 1970s, planning initiatives at the federal and state level all supported the existence of the traditional industries in the region. Initial attempts to attract extra-regional capital were made, but these did not have a sustained effect, partly due to internal blockades. The most future-oriented decisions were to foster the creation of universities in the Ruhr area.
- The period from the late 1970s to 1989 was marked by the consequences of the 1974 steel crisis. The Hoesch group nearly went bankrupt in 1981,

resulting in severe employment losses (from 24,000 jobs in 1957 to 13,000 in 1987), while closures of steel plants in Hattingen and Rheinhausen in 1986 and 1987 shook social stability in the region.

Hospers (2004) and Grabher (1993) identified this lock-in position along three dimensions: economic, institutional and cognitive. The Ruhr monostructure resulted in economic lock-in, also referred to as a “specialization trap”, because most firms were directly linked with a few large companies that dominated the regional economy, paralysing entrepreneurship, innovation and flexibility. The institutional lock-in meant that a self-sustaining coalition of local businessmen, politicians and trade unions had one shared interest: the preservation of existing structures. The cognitive lock-in appeared as seeing the crisis to be cyclical instead of structural. From the point of view of outsiders, the cognitive lock-in meant that the region was seen as an unattractive, polluted industrial region not worth investing in.

Two examples demonstrate the cognitive and institutional lock-in. Gustav Krupp commented on the establishment of the Ruhr University: “What we need in the Ruhr are muscles, not brains.” And large concerns often refused to sell their unused land which could have attracted outside investment projects (see box 2).

Box 2. Obstacles to structural change

Factors that impeded and delayed restructuring in the Ruhr:

- **Blocking of property development:** For fear of new competitors in the labour market, regional companies retained their large properties or sold them at excessive prices. New investors were thus kept away.
- **Blocking of educational opportunities:** Up to 1964, there was no university in an area with 5.4 million inhabitants. Since Bismarck’s time in the nineteenth century, universities and university students have been regarded as sources of unrest, unwanted in Germany’s economic heartlands. Not until the 1970s and 1980s were a series of universities founded, establishing a knowledge base urgently needed for the rebuilding of the region.
- **Lost ability of innovation:** The monostructure of the coal and steel industry required highly specialized suppliers. The quantities and qualities of materials, machines and services to be delivered were precisely planned. Consequently, as these suppliers were little inclined to improve and innovate, the ability to innovate could not be sufficiently developed in the small and medium-sized firms that otherwise could have become the engines of structural change.
- The problem of **the regional image:** Up to the turn of the millennium, the Ruhr was plagued by a persistent negative image concerning wages, housing conditions and leisure potential, so that both outside investment and an in-migration of highly qualified human capital remained rare exceptions.
- The **missing impulses for growth** increased competitive pressure on stagnating or shrinking local communities. The struggle for jobs, local taxes and inhabitants led to entrenched local egoism. Inter-communal or even regional forms of cooperation were only exceptions to the rule.

Source: Butzin, 2013.

It still bears mentioning that initiatives to diversify the economic structure of the region did take place in this period. The state government took initiatives to attract outside investment into industries such as electronics, automobile and chemicals.

A more aggressive approach to structural change followed from the mid-1980s. Structural policies in the Ruhr area took on a more dynamic and future-oriented character, referred to in the literature as “neo-industrialization”. This can be interpreted as genuine reindustrialization, in contrast with previous reindustrialization attempts to restore and preserve already existing structures.

Interim diversification attempts

From the mid-1980s large enterprises started to diversify, although initially outside the region. A new industrial and technology policy started to emerge and the planning focus shifted towards regionalization. Active structural change in contrast to passive accommodation of declining industries was promoted, most notably by strengthening the role of SMEs and by promoting technology transfer and the diversification of industry. During this period, initial signs of economic recovery could be observed, mostly due to growth in the service sector. Not all initiatives were successful, as shown in box 3.

From 1990 until the middle of that decade, the Ruhr experienced a short boom and then a crisis in the wake of German unification. The steel industry went through a phase of consolidation, with strong rationalization and takeovers or mergers between the major players, such as the takeover of Hoesch by Krupp in 1993 and the merger between Krupp and Thyssen in 1997. The economic crisis of 1992–93 hit the North Rhine-Westphalian economy especially hard, with the loss of almost half a million jobs, partly due to the high dependence on exports of the steel and manufacturing sectors.

In the 1990s, the Federal Government pursued an active modernization policy and this was matched with bottom-up initiatives. The foundations of a new Ruhr had been laid down, and after 30 years of restructuring efforts (see box 4) the breakthrough finally came.

Towards a breakthrough in restructuring: “Aktionsprogramm Ruhr”

The change in orientation came first from the large coal and steel concerns themselves: they recognized that staying in their traditional business was a dead-end strategy and realized that industrial decline was not a cyclical but a structural trend. Firms such as RAG, Thyssen and Krupp diversified beyond coal and steel, and invested in related growth branches such as plant

Box 3. The case of Nokia Bochum

An interim reindustrialization and diversification strategy for the Ruhr region that proved unsustainable in the long run was to attract foreign investors into the electronics sector. In 1988, Nokia, then the largest mobile phone manufacturer in the world, established a production facility to assemble mobile phones in Bochum and received approximately €60 million in subsidies from North Rhine-Westphalia between 1995 and 1999. Between 1998 and 2007, the company received a further €28 million in research funds from the federal German Government.

In January 2008, Nokia announced the closing of its factory in Bochum, resulting in a total job loss of 4,300 in the Ruhr. In addition to the 2,300 workers employed directly by Nokia, another 1,000 temporary workers were affected, together with a further 1,000 working in firms supplying the Nokia factory and 200 employed by the German Post Office subsidiary DHL, responsible for the shipment of the finished mobile phones.

The North Rhine-Westphalia state government made a claim for Nokia to repay some €17 million in state aid received by the company in 1999, on the basis that it had guaranteed that at least 2,856 jobs would remain in Bochum until September 2006. Although the employment guarantee had expired in 2006, the dispute focused on the temporary workers. Nokia's 1,000 temporary workers were employed under particularly poor conditions. Although registered as employed full time, temporary workers were only given contracts for 110 or 60 hours a month. Instead of the already low €1,120 monthly salary, they received only €442. The IG Metall union and the works council spoke about a "disaster for Bochum", and tried to negotiate the best possible social plan for the workers. A social plan and a transitional company were set up, but a reversal of Nokia's decision was not possible.

Ultimately, low value added assembly work that was not embedded in the region could not provide a long-term perspective in a high-wage region like the Ruhr in a competitive global environment.

Box 4. Regional structural policy programmes in North Rhine-Westphalia, 1968–2000

Time period	Programme	Budget (DM billions)
1968–1973	Ruhr Development Programme	17.00
1970–1975	North Rhine-Westphalia Programme	31.00
1974–1984	Technology Programme Mining	0.60
1974–1984	Technology Programme Energy	1.60
1979–1989	Technology Programme Steel	0.50
1980–1984	Aktionsprogramm Ruhr	7.00
1987	Future Initiative for Steel and Coal Regions	1.07
1992–1995	Action Framework Coal Regions	1.00
1994–1997	Community Action for the Industry Location North Rhine-Westphalia	2.00

Source: Heinze et al., 1998.

engineering, environmental technology and control services. It is estimated that today these new activities make up about two-thirds of the turnover of the former coal and steel giants.

In parallel, the local authorities played an important part in bringing about a “break-out” from the Ruhr’s lock-in situation. In 1984, the state of North Rhine-Westphalia changed its industrial policy into a technology policy and developed a programme aimed at “sunrise technologies” with a focus on environmental technology. It was decided to concentrate on innovation and to set up local technology transfer centres that provided advice and services to starters. Within a decade, the Ruhr boasted 29 such centres. Dortmund Technology Centre generated 3,700 jobs over ten years.

The most prominent example of genuine reindustrialization (“neo-industrialization”) has been the diversification strategy into environmental technology. Competence in this field has its roots in the local coal and steel industry, which was constantly in search of innovative ways to keep pollution levels as low as possible. Due to the strict environmental rules and the high demand for clean technologies on the part of local firms, the Ruhr was able to accumulate much expertise in how to counter environmental damage and has grown into the centre of environmental technology research in Germany. The cluster has created new employment in the region as well: about 100,000 people were working in this branch by the mid-2000s. Local firms, universities and research institutes (e.g. the Soil Protection Centre and the Environmental and Packaging R&D Centre) were involved.

The Ruhr has developed a comparative advantage in energy supplies and waste disposal. Due to the massive amounts of energy resources needed and waste produced by the coal and steel plants, R&D in renewable resources, recycling and waste combustion was encouraged from a relatively early period.

The manner in which structural change was organized also differed from the past. To stimulate the region’s endogenous potential, a bottom-up approach was chosen rather than a top-down strategy. The Emscher Park International Building Exhibition (IBA) initiative, which lasted from 1989 to 1999, was a focal point for this shift towards decentralizing responsibilities in matters of structural change in the Ruhr. This public–private project was aimed at the economic, ecological and social reconstruction of a densely populated area of 800 square kilometres near the river Emscher that had suffered considerably from industrial exploitation (see box 5).

Inspired by the experiences of the IBA, public and private actors in the Ruhr have launched several new projects on the way to “neo-industrializing the region”. Representative examples of such projects are the cases of E-City Dortmund and Solar City Gelsenkirchen. The E-City Dortmund project was set up in 2000 as an answer to the decision of Thyssen-Krupp to close the local steelworks.

The Zollverein industrial complex, also initiated within the framework of the Aktionsprogramm Ruhr, was formerly the largest and most modern

Box 5. The Emscher Park (IBA) initiative

Core functions

- renovation of the Emscher Landscape Park
- ecological improvement of the Emscher River
- new utilization of industrial buildings
- development of new working locations
- development of new housing and municipal districts

As an initiative conducted by the state government, the IBA Emscher Park implemented a strategic approach to link urban development and landscape, and to combine private investment and architectural quality implementing systematic cross-border planning of 17 municipalities in the northern part of the Ruhr region. Over 120 projects were completed, with a total investment value of €2.5 billion. Since the year 2000, the cities and municipalities in the area have continued to work on IBA themes such as the regional Emscher Landscape Park and the changing of the Emscher System. New master plans have been made to link IBA principles with the new demands of the 21st century. In December 2007, 35 cities and three municipalities presented “Concept Ruhr”, the first initiative for the sustainable urban and regional development of the whole Ruhr area. Concept Ruhr focuses on the “Ruhr-basics” – five guidelines for the development in the next decade – and includes 274 projects with a total investment of €6 billion.

The German Government has pumped billions of euros into the Park, in part to recruit new businesses to the region; as a result 5,000 jobs have been created and 7,500 new homes constructed. Much of the new employment creation is in IT, logistics and nanotechnology.

coal mining site in the world and has become the flagship initiative. It is listed as a World Heritage Site as a testament to modern industrial architecture; it was the central location of the Ruhr 2010 Cultural Capital of Europe events and is now a tourist destination. Former coal miners have found new opportunities in the site’s “restoration economy”; they are renovating the buildings, lining the roof with solar panels, and helping to create a series of green spaces spanning 800 square kilometres of the northern Ruhr Valley.

Many of the components of renewable energy technologies originate from mining technology. Some of the world’s leading producers of wind turbine parts, Voith Turbo, BHS Getriebe and IBC Wälzlager GmbH, were originally producers of coal mining machinery. Siemens once produced conventional coal-fired power plants for the Ruhr area, and now the company is developing biomass generators. Instead of helping companies dig for coal, mining suppliers such as Teramex are providing drilling machinery for geothermal energy. In addition to components for renewables, Ruhr engineers are exploring whether hydrogen can replace the fossil fuels that now power steel production. New employment opportunities are also arising from development that combines renewable energy and other efforts to green the Ruhr

Valley. As part of Emscher Park's 2010 master plan, the city of Dinslaken is negotiating with the coal company MGG to convert a former mine site into a forest plantation. As much as 10,000 hectares of willows and poplars could be grown for biomass feedstock to provide heating. According to the International Economic Platform for Renewable Energies, a German research institute, 3,100 renewable energy companies already exist in North Rhine-Westphalia, with one-third of them located in the Ruhr Valley.

Policy responses by the state and federal governments with the involvement of European funds, 2000–06

The programme strategy 2000–06 for North Rhine-Westphalia built on the successful change of course in the development of the region that took place in the 1990s. It can be seen as an integrative strategy that continues the efforts of the preceding decade to complete the turnaround of an old industrial area into a modern, diversified industry and service location. As specific path dependencies have been shaping the agenda of regional policy for decades, several dimensions of structural change are dealt with. The programming strategy is thus closely interlinked with and adjusted to other regional policy programmes.

The programme strategy 2000–06 made use of complementarities between the European Regional Development Fund (ERDF) and the European Social Fund (ESF) in all four priority areas:

- wage subsidies for the reintegration of the unemployed and those threatened by unemployment;
- labour market policy support for enterprise development;
- combined promotion of employment and infrastructure; and
- integrated development of urban problem areas.

The comparative advantages of the Ruhr area were concentrated in traditional energy production: in 2001 about 28 per cent of the electricity produced in Germany originated from North Rhine-Westphalia, with coal accounting for 87 per cent of the fuel input for production (Rheinisch-Westfälisches Institut für Wirtschaftsforschung, 2006). The regional base of enterprises in technology fields is strongly associated with renewable energy production. Renewable energy generation in North Rhine-Westphalia developed rapidly in the period 2000–06: employment in the sector doubled and output rose by 196.1 per cent. Subsectors of particular importance in terms of employment were those involved in the production of wind energy (31.4 per cent), bio-energy technologies (19.3 per cent), and photovoltaics (14.4 per cent). Employment at firms involved in the development of fuel cells grew by nearly 50 per cent in just the two years 2003–05. These trends demonstrate that the demand for technological knowledge in the renewable

energy sector in the regional innovation system grew considerably during the period and became the main driver of development in the region.

Just transition in practice

In this section we address two major pillars of the just transition framework that had a particular significance for the mining industry, and then also devote attention to gender-related policies during the transformation process.

Socially responsible downsizing practices

As shown above in tables 1 and 3, mining employment in the Ruhr area has been radically downsized in recent decades, from 473,000 in 1957 to 11,448 by the end of 2013. Nevertheless, it was not until 1993 that the bargaining parties first signed an agreement guaranteeing a socially responsible approach to the manpower restructuring programme. At the beginning of 1993, as a result of developments in the steel industry, coal sales in general – and coking coal in particular – suffered a significant decline. Plans for capacity adjustments had to be brought forward and this in turn created a manpower surplus. The workforce agreed to forgo a wage increase and, in order to avoid compulsory redundancies, a work redistribution programme was introduced in the form of additional non-working days – referred to as “free shifts”.

Meeting the challenges posed by a personnel restructuring process of such a magnitude requires a targeted and coordinated set of statutory, collective bargaining and contractual regulations and initiatives. Early retirement has been and will be an important instrument for the socially responsible downsizing process. The legal framework for this is based on the transition payments system (APG) for coal industry employees introduced by state legislation in 1972. These payments take the form of financial bridging support, paid monthly, that is made available for a maximum period of five years to workers after early termination of employment and until they first qualify for the pension insurance scheme. All employees who lose their jobs before 31 December 2022 are entitled to receive such benefits as soon as they reach the specified age threshold and period of service.

Even if the early retirement potential is exploited to full capacity, the degree of downsizing required between now and the final closure of the industry cannot be achieved without the use of additional instruments. Of the 18,000 employees still on the industry’s books at the beginning of 2012, some 1,700 are not entitled to APG benefits. About 500 of this group can, of course, be kept in employment in order to enable the industry to meet its long-term operational commitments after 2018. However, about 1,200 staff will have to leave the industry by 2018 at the latest. The nature of

this challenge is such that even the collective bargaining and contractual instruments that have supported the restructuring process for so long will be unable to guarantee that coal production and manpower downsizing targets can be met in the run-up to 2018. As in the past, the bargaining parties have therefore faced up to their socio-political responsibilities and created a new unified concept that is geared towards achieving these objectives.

The agreement on the closure of the German coal industry by 31 December 2018 that was negotiated between the German Coal Association (GVSt) and the trade union for mining, chemical and energy industries (IG BCE) came into force on 1 April 2012. The agreement provides a framework for the balance of interests, building on a social compensation plan and various work agreements. The provisions apply to all permanent employees of the Rhine-Westphalia and Ibbenbueren coal mining industries. On the one hand, these rules guarantee the highest possible level of protection in respect of working conditions and a high degree of social security for both APG and non-APG employees.² On the other hand, employees are called upon to show a high level of flexibility. This means that in the event of their job ceasing to exist, they accept that they may have to take up another free post in another part of the country, either in the coal industry or at an RAG subsidiary company. Any post that the employee is able to fill after a maximum three-month introduction period, or at the most a nine-month training period, can be considered as eligible under this arrangement.

The rights and obligations of both employee groups are tailored to their specific situation and are well-balanced in terms of labour law. The collective bargaining regulations for the two groups of employees are shown in table 6.

The primary aim of these measures is to ensure that employees have been transferred to new jobs by 2018 or special Personnel Development Centres (PDC). PDCs are to be established in the Ruhr coalfield and at Ibbenbueren mine and will remain in operation until the end of 2018. Non-APG employees may be moved to the PDC, where training will be provided with a view to alternative employment both within the RAG group as well as in the wider job market.

Table 6. Social plan for APG and non-APG employees

APG employees	Non-APG employees
Company redundancy protection until APG requirements are met	Company redundancy protection until 30 June 2018
Wage safeguards	Wage safeguards
Group-wide posting	Personal Development Centre
Temporary transfer	Reasonable posting
Qualifications	Qualifications
Duty to cooperate	Duty to cooperate

Source: German Coal Association, 2014.

2. Criteria of eligibility for APG are based on age and the number of years in service.

As trade unions were involved in the elaboration of the socially responsible dismissals framework, the IG BCE union sees it as a success guaranteeing job protection for all miners in the coal phase-out process. Debates were focused on the terms and conditions of the flexibilization measures, i.e. under what circumstances and how many times workers can be moved between different and often geographically distant plants, but ultimately the conditions were found to be a fair compromise. Trade unions and works councils are also actively involved in designing individual measures.

Health and safety provisions

The German coal industry also fulfils all international norms when it comes to occupational health and safety and environment protection. Health and safety results have maintained a positive trend, reflected by a continuous drop in notifiable accidents. The high priority of workplace safety is to be sustained right down to the finishing line. RAG has laid down a strategy for “Staying safe until 2018”. The commitment of the industry’s management and workforce to health and safety matters is not only limited to Germany, for their expertise is also being applied at the international level – including involvement in the International Social Security Association (ISSA).

The total number of accidents recorded per million hours worked (the accident rate) is now at a low level and continues to fall. The accident rate at RAG has for several years been below the average for the German trade and industry sector as a whole, despite the special operating conditions that still prevail in the coal industry, particularly as regards work under ground. In the business and commercial sector as a whole, the accident rate for 2010 rose as the economy started to recover and the figure of 16.22 accidents per million hours worked nearly reached previous year’s level. The coal industry, by comparison, was able to keep its accident rate on a downward trend. The accident rate for all those parts of the company under mining authority supervision fell by 7 per cent to 4.22, while for underground workers alone the rate was 6.29 accidents per million hours worked (down by 8.3 per cent).

Since 2001, the accident figures for the business sector overall have fallen by 28.1 per cent, while the corresponding decrease for the coal industry as a whole is 82.6 per cent, with the underground sector recording a drop of 82 per cent. Because of the special working conditions that exist in the coal mining industry, occupational medical checks have been a statutory requirement for many years. To this effect, RAG has established a number of well-equipped and professionally manned occupational health centres (OHCs). In 2011, some 26,000 people received medical checks at the company’s three OHCs.

With regard to air quality, the various measures already stipulated by the European Union have resulted in a significant reduction in the concentration of pollutants such as dust particles, sulphur dioxide, lead, nitrous

oxides, carbon monoxide and benzene. Europe also practises a flow management system whose objective is to achieve a closed materials cycle that prevents the discharge of large amounts of waste. By comparison, coal-fired power stations in the United States present quite a different picture; the technology they use requires large amounts of residue material to be disposed of at landfill sites. The same applies to mercury separation, a process that has been agreed and decided but is still a long way from being implemented. It should be noted in this context that Germany is one of the few countries to have introduced any kind of limit for mercury emissions. German coal-fired power stations not only comply with these limits but in fact operate well within the threshold. The German approach also delivers high separation rates for sulphur and NO_x compounds in conjunction with a material flow management system.

Gender equality

Given the nature of the coal and steel industries and the different waves of restructuring, it is overwhelmingly the male workforce that has been affected. As a diversification strategy has always been a central element of regional development and industrial policies, job creation for female employees has been an important priority since the 1970s. The North Rhine-Westphalia Programme (1970–75) had a specific target for creating female jobs and attracting investments that primarily employ a female workforce. In the case of state subsidies for the settlement of new businesses, equal pay conditions for men and women were a key condition.

Overcoming the hurdles: The role of the main actors and institutions during the four decades of restructuring

The role of the social partners

The Ruhr is a special place, not least because of its central position in Europe's industrial landscape, the role its industrial giants played in two world wars of the twentieth century and because it inspired European integration. In addition, due to this history there was close interaction throughout the post-war decades among the main actors – the regional government, municipalities, employers and trade unions – in managing the economy and its transformation. Germany and Rhineland capitalism is famous for its cooperative industrial culture where co-determination by employees is a core value.

Co-determination in the German coal and steel industries has a specific version: *Montanmitbestimmung* (Peters, 1979) grants stronger rights for employee participation and co-determination. At enterprises in the coal and steel

industry with more than 1,000 employees, there is full parity at the supervisory board: 50 per cent employer and 50 per cent employee delegates, one external person on the employee side and a representative member of the employees on the board of directors (*Arbeitsdirektor*). These strong co-determination rights mean that any major decision in these large enterprises is subject to negotiation and thorough coordination between employers and employees. In a crisis situation such as times of mass dismissal or company closure, this process is crucial in finding compromise solutions and, in the worst case, managing the unavoidable exit in a socially balanced way, as was done – largely thanks to the trade unions that were well organized – during the factory and mine closures such as the Hattingen steel plant and the Nokia plant.

Active labour market policy

Measures were also taken to facilitate the labour market transitions of dismissed workers. In larger cases this was done via targeted agencies that specialized in employment promotion and training (*Beschäftigung und Qualifizierungsgesellschaft*). The model developed in the Ruhr region was widely used during the transformation of the East German economy after German reunification. Box 6 provides an illustration of this policy, using the example of the Ruhr Coal Vocational Training Society (*Ruhr Kohle Bildungsgesellschaft*).

This high degree of cooperative culture offers a great potential for managing change, but it is not the guarantee for success in itself.

Institutional cooperation in managing restructuring

Coercive institutional cooperation may lead to blockades and a lock-in situation, as in the case of the Ruhr for almost two decades from the mid-1960s to the mid-1980s. Although a thorough analysis of the reasons for the obstacle that held up structural policies until the mid-1980s would require a separate study, a few factors still need to be mentioned here. High concentration of capital and industrial power in a few large enterprises may have played a role, especially when these were refusing to sell their unused land to outside investors. A high concentration of supplier SMEs massively reliant on the large enterprises and their old production model meant that any innovation or enterprise development was blocked. The state government could certainly have had a more proactive strategy for industry renewal from an earlier stage. Finally, it took a while to recognize that top-down strategies work less well than bottom-up initiatives.

A further feature of the Ruhr was its highly decentralized settlement structure. Cities and municipalities had a high degree of autonomy and identity, whereas the Ruhr region as a whole did not. Organizational changes

Box 6. The Ruhr Coal Vocational Training Society (RKB)

The Ruhr Coal Vocational Training Society (RKB), a 100 per cent subsidiary of Ruhr Coal AG, was in charge of addressing the structural change in the Ruhr by managing labour market transitions in the mining industry. The context for the operation was high unemployment as a result of the decline of the steel and mining industries, and vague perspectives on the future development of industrial structure and the labour market. The basic approach of this institution was to develop a solution in the absence of clear lines of development on the labour market. This made it necessary to work together with the regional government, companies and other institutions on a strategy to be developed, in the first instance to determine a basis for expected or already-existing demand for skills objectives, as well as content, duration and type of measures in the form of a problem-specific solution.

The thorough preparation of staff employed as teachers or in education management was essential for success. Qualification measures also created jobs directly, as far as possible by employing locally based or regional staff in the training. The staff of the RKB took a leading role in defining model projects according to the expected skills demand in the region: mechanical, electrical and computer engineering (mainly for the transfer of knowledge and skills from the new technologies); training for trades in carpentry and plumbing; and a training programme for business and technology.

The following steps were necessary in advance of the training programmes:

- coordination with the employment office on the qualification goals, depending on local conditions and the potential / current labour market needs in viable areas; and
- provision of educational infrastructure in order to obtain reasonably priced training facilities, supported by the regional government.

At company level, information was provided through the following initiatives in consultation with the Executive Board, the works council and workers likely to be affected by reorganization or dismissal:

- organization of a training exchange with the participation of 20–25 further education providers to create transparency of the retraining and training opportunities. The objective was to find a balance between individual ideas and their feasibility in the context of a training measure;
- training staff for operations and training consultants who perceive an interface between the company and training programmes. With the establishment of trust, individually designed training and counselling is possible that is matched to company demand;
- a series of lectures on everyday problems (taxes, insurance) for the integration of employees whose commitment to the company is interrupted by short-time work.

The decisive criterion for success was a placement rate of 80 per cent and this was reached through the RKB initiative.

such as the creation of the Regionalverband Ruhr for increased cooperation and coordination within the region certainly helped. The shock of the steel crisis in the mid-1980s may also have given the final kick to the key players – beginning with the decision of the state government and the major enterprises to embark on a more dynamic development model.

The Aktionsprogramm Ruhr (APR) launched in 1979 and implemented in 1980 (see box 4), was built on systematic coordination between the largest interest groups and the state authorities, including the practice of inter-ministerial working groups. The main target of APR was the settlement, facilitation and development of small and medium enterprises.

In the next stage of structural policy, the Future Initiative for Steel and Coal Regions (*Zukunftsinitiative Montanregionen*, ZIM) transferred the formulation, implementation and execution to local actors with the aim of overcoming horizontal and vertical coordination problems of the APR programme. With the more pronounced local focus, economic development policy had been brought down to the level of urban development policy; this also included urban planning, environmental policy and the cultural sector. Within the framework of this programme, 290 structural policy-relevant projects with a budget of DM 1.07 billion were carried out (KVR, 2000).

From 1988, the ZIM approach was refined and extended to the whole Ruhr region in the form of the Future Initiative for Regions in North Rhine-Westphalia (ZIN) and was linked to the EU Structural Funds (KVR, 2000). The ZIN initiative can be regarded as a first approach toward a cooperative regionalized structural policy, in accordance with the principles of long-range planning. The regions involved in the programme were no longer defined by the regional government, but were formed autonomously. Fifteen such regions were formed and “brought about the most ambitious approach so far of a regionalized structural policy under way” (Kremer, 1992). Each had set up a regional conference to plan joint development concepts. Programme coordination among the different regional actors functioned as follows:

- organization of municipal neighbours into specified ZIN regions;
- regional conferences with all relevant actors;
- joint planning of development concepts;
- examination and authorization of the development concepts by the regional government; and
- project financing and implementation.

On this new and dynamic path, all the institutional strength and coordination was mobilized to turn the region into what it is today, a knowledge-based industrialized service economy with key competences in renewable energy generation and eco-industry while also preserving its industrial heritage.

Conclusions: Can the Ruhr experience be seen as a model?

To what extent can the restructuring and industrial diversification of the Ruhr area – from an economic model dependent on a natural resource, monostructural and depleting its materials and resources, towards a knowledge-based green economy stronghold – be seen as a model case? Can this development be seen as an example for other regions in Europe, and more importantly, is the pattern reproducible? Given the specific situation of the Ruhr addressed in this paper, and also the time dimension of the process of change – it took four to five decades – this is certainly not the case. Nevertheless, a number of valuable lessons can be drawn and other regions facing similar challenges can certainly benefit from them.

What are these main lessons?

First of all, a change of this magnitude takes time. It does not necessarily require 40 or 50 years, but in the Ruhr example even the breakthrough phase took some 15 years (from the mid-1980s to the early 2000s). A cooperative industrial structure with active roles for the government, the municipalities, the employers and the trade unions is a prerequisite for a successful and just transformation. In the Ruhr, this was the case even in times of crisis when tens of thousands of jobs were lost. Workers were not left alone, social plans and, even more importantly, support for labour market transition in terms of training programmes and assistance in finding new jobs were provided. As we have seen, however, a cooperative culture, although necessary, is not sufficient for success. Strategies, concepts and a clear vision of the future are also essential. It is important to evaluate the potential and the core competences of the regional economy. In the Ruhr, this also took some time.

Reindustrialization attempts that did not adequately take account of the key competences in the region proved to be short-lived. In this high-wage region, the Nokia investment dependent on semi-skilled assembly work and without proper regional embeddedness proved to be a bridging solution without a long-term perspective. On the other hand, the establishment of higher education institutions and the creation of technology centres laid the foundations of a knowledge-based economy at a time when the economy was still locked in coal- and steel-centred activities.

One element of the Ruhr's success is due to a policy practice that might provide important lessons for other regions trapped in a resource- and energy-intensive industrial structure. Even in the heyday of coal and steel, North Rhine-Westphalia had adopted strict environmental standards and put much emphasis on environmental protection. Given the higher costs of implementing stricter environmental norms, such a policy might have been seen as hampering competitiveness or placing unnecessary burdens on an

industry that already had problems, but on the contrary, it proved to be one of the key elements of future success. From early on, energy-intensive industries in the Ruhr had to cope with high environmental standards and develop respective competences. The steel industry in the Ruhr region is a champion of recycling technologies; it specializes in high-quality steel and provides important inputs for the eco-industry. These environmental and eco-industry competences proved to be the future engine of growth: there are more jobs in eco-industry nowadays than in coal and steel.

As a general conclusion, the Ruhr experience also shows that a complex process of restructuring from a resource-intensive industrial base towards a green, energy-efficient economy requires a comprehensive policy framework. Structural and regional policies in the Ruhr included not only industrial regional development and urban recreation policies, but also education and labour market policies, which were equally important. Moreover, in what proved to be a decisive moment, land use and building regulation were also of key importance. A new concept for the utilization of land in the form of industrial and landscape parks gave new impetus to regional development, whereas in previous decades large firms had prevented the establishment of new projects by jealously holding on to the vast land surfaces they were not using.

The new concepts introduced by the Zollverein and Emscher Park projects were also a turning point for the Ruhr's external image: it was no longer seen as a stagnant, polluted area of sunset industries, but as a place for innovation.

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A case for socially sustainable petroleum product pricing in Ghana

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The growing relevance of “just transitions” in both developed and developing countries reflects the importance the world attaches to issues of sustainable development – development that meets the needs of the current generation without jeopardizing those of the future. Human consumption of carbon-based fuels, a primary factor behind the increase of greenhouse gases, is now widely seen as a threat to the livelihood of those future generations. Over the past 20 years, the imposition of a carbon tax has gained in credibility as a policy option to reduce fuel consumption. However, any government tempted to tinker with fuel prices has learned at its own expense the sensitivity of the public to such measures. A fuel price increase has an immediate impact on any household’s bottom line, and that impact is likely to be felt disproportionately by the poorest segment of society. To be socially sustainable and effective, a just transition policy has to take full account of these economic and distributional impacts of policies to tax carbon emissions. In this endeavour, much can be learned from the actual experience of countries that have had to reduce subsidies to petroleum products.

This article examines Ghana’s transition policies towards socially sustainable pricing of petroleum products following the introduction of the deregulation policy in 2005. It provides an analysis of measures including macroeconomic, industrial, sectoral and labour policies, investment mobilization, social dialogue, social protection, and active labour market policies that were taken to address the transitional needs linked to the implementation of the socially sustainable petroleum pricing case. The article also provides an analysis of eventual transition towards cleaner energies.

The analyses further reflect the just transition framework proposed by the Conclusions concerning achieving sustainable development, decent work and green jobs adopted by the 102nd Session (2013) of the International Labour Conference. The conclusions set out a common vision and underscore the critical role of governments, employers and workers as agents of change – both individually and collectively.

Ghana’s experience with just transition policies began during the period of the Structural Adjustment Programme, which was dominated by prescriptions for removing subsidies from petroleum products. However, it was not until 2005 that the Government demonstrated its strongest commitment to implementing policies that reduced subsidies as well as promoting the development of clean energy sources to protect the environment. This was due to the rising cost of subsidies on major petroleum products.

The National Petroleum Authority estimates that the cost of petroleum consumption subsidies between 2009 and 2012 was over 1.5 billion Ghanaian cedi (GHS) (about US\$500 million). This implies that the Government was not only intervening in petroleum prices but was also committing substantial public funds to finance these subsidies. This had negative implications for macroeconomic indicators and overall national development, as

petroleum subsidies competed with other urgent development projects for the Government's limited resources.

The deregulation policy in the downstream petroleum sector¹ started in 2001 with the introduction of the automatic adjustment pricing mechanism, which was expected to adjust petroleum product prices to international crude oil prices, exchange rates and other market conditions including profit margins for dealers and marketers; and to remove subsidies from some petroleum products. The formula was applied in an ad hoc manner, however, as it was not fully followed until 2005.

The implications of removing subsidies for the poor in Ghana and elsewhere are well-documented. There are empirical studies by Kpodar (2006) on the way international oil prices were transferred to household expenditures in Mali; by Coady and Newhouse (2006) on the distributional impact of an increase in the price of oil in Mozambique and Ghana, respectively; and by Coady et al. (2006) on the magnitude and distribution of fuel subsidies in developing countries, including in Ghana and Mali; all found both positive and negative effects associated with the removal of subsidies from petroleum products, with the poor suffering the most adverse effects. These studies have examined transition policies in different countries that include social safety nets to mitigate the effects on the poor of removing subsidies. In some cases, subsidies have been introduced on some products to encourage their consumption (e.g. liquefied petroleum gas (LPG) and kerosene), to provide a clean source of energy and to prevent deforestation. These policies are aimed at making petroleum product pricing socially sustainable.

Subsidies are intended to support the poor and most vulnerable segments of the population who suffer the effects of market pricing, especially for essential commodities. However, there is abundant evidence that subsidies often do not achieve the intended objective (Kpodar and Djiofack, 2009). In particular, universal subsidies have been proven to benefit the rich more than the poor due to their regressive nature. Further, subsidies are associated with fiscal burden on government, leading to poor and inefficient allocation of resources.

This article shows that Ghana's transition policies were successful at the time they were introduced. However, analyses of the transition effects in relation to the "just transition for all" framework show that gains from the early interventions have been eroded over the years as a result of some challenges, namely: inconsistency in the application of the automatic adjustment mechanism; unintended objectives for the subsidies on kerosene and LPG; irregular review of social impacts of the safety nets; transparency challenges; and the political costs of removing subsidies in times of economic difficulty.

1. The downstream petroleum sector refers to refining and processing of crude oil into petroleum products, as well as the marketing and distribution of petroleum products.

Historical background

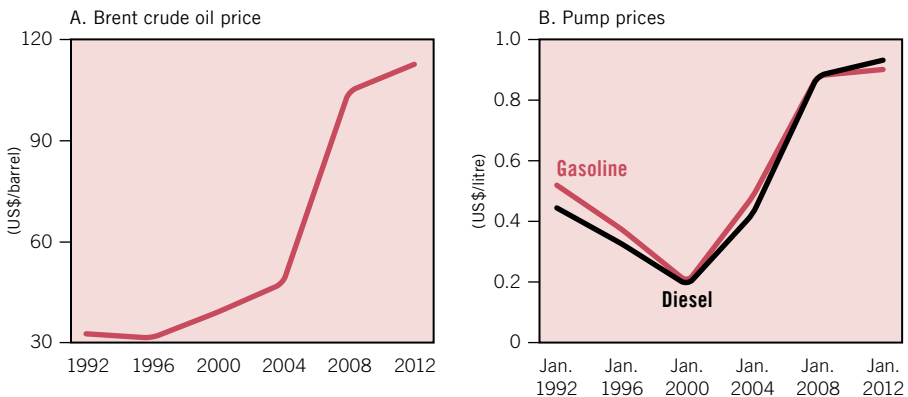
Petroleum product pricing in Ghana has gone through several regimes, from government-administered to automatic adjustment. This has defined the type and structure of subsidies in the petroleum sector over the past decade. However, it was the petroleum deregulation policy, introduced in 2005, which brought to the fore the sustainability issues associated with financing petroleum price subsidies, as the Government committed substantial resources to it due to rising crude oil prices and the depreciation of the local currency.

In 2001, the Government introduced the automatic adjustment pricing mechanism to enhance transparency in the pricing of petroleum products. The removal of subsidies was gradual whilst aligning domestic prices of petroleum products to international crude oil prices and the exchange rate. Figure 1 shows that domestic prices of petroleum products rose as crude oil prices increased. Thus, the rises in international crude oil prices were passed on to consumers, indicating the removal of subsidies from domestic prices.

It was argued that the use of market prices removed distortions in the product markets. For instance, before the year 2000 there existed an indirect relationship between international crude oil prices and domestic product prices to the extent that despite the Government's claim that it subsidized product prices, domestic prices increased with lower international crude oil prices. This has been attributed to price distortions introduced by the claim of subsidies.

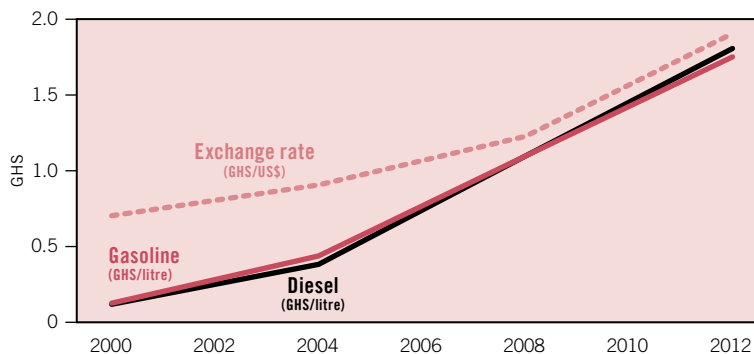
Also, exchange rate fluctuations contributed significantly to changes in prices of domestic products. The exchange rate is an important factor in the price adjustment formula because both crude oil and refined products are imported and priced in US dollars, with the exception of products refined by

Figure 1. Prices of crude oil and domestic petroleum products, 1992–2012



Sources: World Bank Indicators (pump prices); BP Statistical Review (crude oil prices).

Figure 2. Domestic petroleum product prices and exchange rate, 2000–12



Sources: National Petroleum Authority (NPA); Ghana Statistical Service.

the Tema Oil Refinery (TOR),² which at present constitute about 20 per cent of all products consumed in the country. However, petroleum products are sold to domestic consumers in Ghanaian cedi (GHS). Thus, depreciation in the value of the cedi relative to the US dollar would translate into higher domestic pump prices in GHS terms (see figure 2).

The trend observed in figure 2 illustrates that from 2000 to 2008, the full effect of the depreciation of the cedi was not passed on to consumers. This implies that product prices were still being subsidized until 2012, when consumers were subject to the full effect.

The policy on full-cost recovery faced considerable challenges. In January 2003, prices were increased by 90 per cent in an attempt to link domestic prices to world prices, which sparked widespread domestic opposition. Facing an election in December 2004, the Government delinked domestic and international prices, and the total cost of subsidies increased sharply.

With the subsidy programme proven to be unsustainable, the Government of Ghana conducted a Poverty and Social Impact Assessment (PSIA) for petroleum products between 2003 and 2004 to establish the potential effects of deregulating petroleum prices. The Government was convinced from the assessment that petroleum price subsidies in the country were hardly benefiting the poor; hence an increase in the prices of petroleum products was inevitable. Therefore, in February 2005 subsidies were removed from the major products and prices of these products increased by 50 per cent. The Government also introduced measures to cushion the effects on the poor of subsidy removal.

2. The Tema Oil Refinery is the only petroleum refining company in Ghana. It is owned by the State and has the capacity to refine 45,000 barrels of crude oil. Due to accumulated debts from subsidies and inefficiency, it has faced capitalization challenges which disrupted its operations for most of the period between 2001 and 2014. The company suspended operations from 2009, due to its inability to raise letters of credit, until the end of 2014 when operations resumed, refining only 10,000 barrels of crude oil.

This policy of deregulation continued until crude oil prices rose to US\$145 per barrel between 2007 and 2008, which forced the Government to freeze the policy (IMF, 2013). A number of countries that had been making progress with subsidy reform reversed and postponed their reforms (Kojima, 2009). Developing countries, especially of the oil-exporting variety, were less likely to pass through the full rise in world fuel prices in comparison with industrialized countries (*ibid.*).

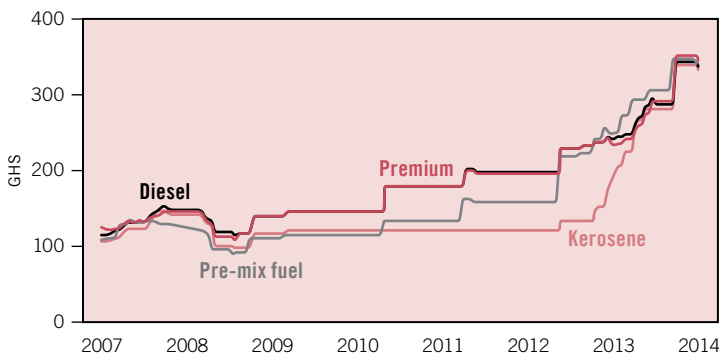
However, the global economic meltdown of late 2008 saw crude prices tumbling, prompting a call for a reduction in domestic product prices. The National Democratic Party, then in opposition, promised that it would decrease product prices drastically if it won the forthcoming election.

Petroleum product price trends in Ghana show however that in 2007 there had been sharp price increases due to subsidy removal. For this reason, the Government suspended the automatic tariff adjustments when crude oil prices reached their all-time high in 2008 and early 2009, which led to a decrease in domestic product prices.

In fulfilment of its election promise, the new Government of Professor Atta Mills in February 2009 not only maintained the subsidies but also marginally reduced excise taxes on petroleum products. This was described as “tokenist” and did not affect prices much. The slight downward adjustment did not last long before crude oil prices rose again. According to *IHS Global Insight* (2009), the new government resorted to an effectively ad hoc pricing approach, with increases coming in April, June and November 2009. Thus, the decision to maintain subsidies was not sustainable and subsidy spending soon rose to levels the Government complained it could not finance. In 2011, it spent US\$270 million (0.4 per cent of GDP) on petroleum product subsidies. This led to accumulated debt.

In December 2011, subsidies on petroleum products were cut following increases in crude oil prices and the depreciation of the cedi. The cuts came as Ghana faced increasing pressure from the International Monetary Fund (IMF) to remove the subsidies, which the IMF contended were not effective in

Figure 3. Petroleum product price trends in Ghana, 2007–14



Source: National Petroleum Authority.

directly aiding the poor and that promoted corruption and smuggling. This resulted in petroleum product prices increasing by 20 per cent on 1 January 2012.

Civil society groups including the Ghana Trade Union Congress promised indefinite nationwide strikes; realizing the impact such strikes could have on the economy, in early February 2012 the Government proposed to effectively reverse the policy and to cut prices by 20 per cent.

The trend in petroleum product prices (see figure 3) demonstrates inconsistencies in the application of the automatic adjustment pricing and therefore the extent to which the Government's deregulation policy has been successful remains questionable.

It must be stated, however, that between 2013 and 2014 the Government's determination to restore the integrity of the adjustment mechanism was reflected in consistently sharp increases in petroleum product prices, including prices for the most heavily subsidized products – kerosene and pre-mix fuel.

Transition policies

Baig et al. (2007) identified practical criteria for a transition to socially sustainable pricing for petroleum products. These include, among others (p. 11):

- i. Liberalizing domestic petroleum product prices through an automatic adjustment formula;
- ii. Combining domestic price increases with a well-publicized package of targeted measures to mitigate the impact on the poor, with at least some measures having immediate impact;
- iii. Making transparent and publicizing the costs and beneficiaries of the present system of subsidies.

These options apply to Ghana, which adopted an enhanced deregulation policy for the downstream petroleum policy in 2005. Socially sustainable transition policies in Ghana are expressed in terms of just transition measures that accompany the removal of subsidy in order to mitigate its impacts on the society and the environment.

Ghana's transition policies in petroleum product pricing

The Government introduced a transition plan aimed at making petroleum product pricing competitive without compromising social and environmental sustainability. In line with the prescriptions of Baig et al. (2007), the plan included the introduction of an automatic price adjustment mechanism, a communication strategy, identification of the poor and introduction of measures to mitigate the impact of price reforms on the poor.

Automatic adjustment pricing formula

The three main objectives given for the automatic price adjustment formula are to:

- gear prices to levels based on the principle of full-cost recovery of all investments made to procure, transport and market the fuel;
- use the price to generate revenue for the Government; and
- ensure that the ex-pump prices are the same throughout the country.

Petroleum product prices were therefore expected to respond to changes in international crude oil prices and exchange rate fluctuations.

The most pronounced factor in the early adjustment period was international crude oil prices. The Government passed crude oil prices on to consumers through pump prices. This was aimed at saving revenues formerly committed to subsidizing the domestic pump prices. However, since 2009 the main reasons behind the increasing subsidies have been the rapid depreciation of the local currency and accumulated debts owed to the bulk distribution companies who now import 80 per cent of all refined petroleum products.

Poverty and Social Impact Assessment

The success of a transition policy depends to a large extent on identifying the segments of society that will be more adversely affected. To identify the poor as a prelude to implementing the deregulation policy, the Government conducted a Poverty and Social Impact Assessment (PSIA) for petroleum products between 2003 and 2004 to establish the potential effects of deregulating petroleum prices. As we have seen above, the assessment showed that petroleum price subsidies in the country were not really benefiting the poor. This enabled the Government to design and introduce social interventions aimed at mitigating the impact of price reforms on the poor.

Social interventions

The Government announced a number of social interventions to cushion the poor against the effects of subsidy removal. The measures were to be financed in part from budgetary savings from the cuts in subsidy. Some of the interventions were also in line with the Ghana National Social Protection Strategy, which aimed at consolidating all national programmes and projects into one comprehensive framework for addressing extreme poverty and vulnerability. These measures included:

- Elimination of fees for attendance of primary and junior secondary schools through the introduction of a capitation grant. The grant was introduced in the 2004/05 academic year and covered extra educational costs to parents such as fees for examinations, facilities management, security, and

games and sports in public schools. It was aimed at eliminating household need to pay fees for basic education, especially for the poor who were shown to have difficulties accessing education because of the costs, as well as enabling schools to use the funds to improve the quality of education.

- Allocating extra funds for primary health care in the poorest areas by investing in Community-based Health Planning and Services (CHPS) through Community Health Improvement Compounds. The concept looked at doorstep service delivery points, with local level partnership where community leaders, among others, contribute to making decisions on their health and its related issues. Between 2000 and 2008, there were 345 functioning CHPS centres nationwide.³ This increased to 724 CHPS zones which became functional in 2014.
- Full implementation of the National Health Insurance Scheme (NHIS) in 2005 to provide affordable health care for the population. Based on District Mutual Health Insurance Schemes (DMHIS), the scheme operates in 170 districts and covers both formal and informal economy workers. It is financed from a national health insurance levy of 2.5 per cent on certain goods and services, a 2.5 per cent monthly payroll deduction for formal economy workers, contributions through premium payments by informal economy members, government budgetary allocations, and donor funding.
- Expanding the provision of mass urban transport by introducing the Metro Mass transport system and placing a price ceiling on fares for public transport. By 2008, the fleet of buses operated by the Metro Mass Transit Company, which is state-managed, increased to 781 from the initial eight donated by the Italian Government in 2005. The Government has procured 200 luxury buses for Metro Mass Transit to enhance public transport.⁴
- Raising the minimum wage from US\$1.24 to US\$1.50.
- Increasing funds for a rural electrification scheme.

Public consultations and transparency

The Government embarked on public consultations with citizen groups including trade unions, market traders, educational institutions and faith-based organizations. The communication package adopted a combination of strategies including for instance the use of the mass media, publication of relevant questions and answers in the press, public events, and the use of information

3. An in-depth review of the CHPS programme was made for the Ministry of Health's Health Summit in 2009.

4. For further information, see: <http://graphic.com.gh/news/general-news/28033-metro-mass-transit-to-get-new-buses.html#sthash.RMRQ9Es.dpuf>.

vans. The messages were well-packaged, highlighting the advantages of deregulation, the disadvantages of subsidies – such as the opportunity cost to social services, and the objective of using subsidy savings to expand social services. Government communicators argued that subsidies were regressive and benefited the rich more than others. Therefore, the removal of subsidies was aimed at saving public funds to support the poor.

However, the views of Labour Unions were varied. The Ghana Trades Union Congress (GTUC) maintained that there had not been any established consultation mechanism for the removal of subsidies on petroleum products.⁵ They rejected any policy that supported the removal of subsidies from petroleum products due to its negative implications for the interests and rights of working people, such as increased cost of living.⁶

Notwithstanding its stated position against the removal of subsidies, the GTUC agreed to the use of the automatic adjustment pricing formula, an important feature of the petroleum deregulation policy, despite not being satisfied with the level of transparency and accountability in the use of the formula.⁷ Allum (2009) explained that although there was opposition to the price hikes from trade unions, the policy was generally accepted and there were no large-scale demonstrations against price increases.

Also, contrary to the concerns expressed by Labour on the level of transparency in the pricing formula, the government demonstrated a high level of transparency by publishing the various components of the petroleum pricing formula (Amoatey, 2006).

Differential taxes and levies on petroleum products

The pricing formula for petroleum products comprises taxes, levies and margins, for which parliamentary approval is required. Formerly, however, such levies and taxes did not apply uniformly to all products. The objective of this policy was to identify products whose prices had significant impact on the poor, and to discriminate in favour of their prices through lower taxes, exemption from certain levies or cross-subsidies.

The above classifications led to petroleum product pricing guided by three main principles:

- passing on the full amount of increases in prices of petroleum in international markets and the exchange rate to ensure full cost recovery in petroleum consumption, thereby shielding TOR from accumulating debts;
- cross-subsidization of socially sensitive products to ensure that subsidies were self-financing; and

5. Interview with Dr Yaw Baah, GTUC Deputy General Secretary, 7 January 2015.

6. Ibid.

7. Interview with Mr Kingsley Offei Nkansah, General Secretary of the General Agricultural Workers Union (GAWU), 12 January 2015.

- differential taxes and levies for socially sensitive products to provide implicit subsidies and reduce the cost to consumers resulting from such taxes and levies.

The choice of products for taxes and levies was based on achieving social and environmental sustainability. The Centre for Policy Analysis (2009) states that the consumption of premium accounted for a higher share of household expenditure in the top quintile of households and that premium therefore did not require subsidies. This was not the case for kerosene, diesel and LPG: for instance, kerosene consumption was heavily concentrated in the lower income segment of the population; diesel was the most widely consumed product, particularly for commercial activities including public transportation; and the Government had an LPG promotion programme for cooking to ensure environmental sustainability.

Although subsidies induced by international crude oil prices and the exchange rate have largely been removed from petroleum prices, pump prices of petroleum products are either inflated or otherwise by the number and size of taxes, levies and margins imposed on them. Some of the products attract more taxes and levies than others, reflecting implicit subsidies.

Table 1 shows that domestic kerosene is not subject to the TOR Debt Recovery levy, Road Fund levy and Cross-subsidy levy. Similarly, LPG does not attract Road Fund, Energy Fund, Exploration and Cross-subsidy levies. The Cross-subsidy levy is imposed on premium and distributed as subsidies among other products at different levels. Further, the Unified Petroleum Price Fund (UPPF) provides cross-regional subsidies, which ensures that products are sold at the same price throughout the country.

Table 1. Differential taxes, levies and subsidies in the petroleum sector

Taxes, levies and margins	Premium	Kerosene (domestic)	Gasoil	LPG	Pre-mix
Excise duty	✓	✓	✓	✓	
TOR Debt Recovery levy	✓		✓	✓	
Road Fund	✓		✓		
Energy Fund	✓	✓	✓		
Exploration	✓	✓	✓		✓
Cross-subsidy levy	✓				
Primary distribution margin	✓	✓	✓		
Bulk Oil Storage and Transportation (BOST) margin	✓	✓	✓		
Fuel marking margin	✓	✓	✓		✓
UPPF	✓	✓	✓	✓	✓
Marketers margin	✓	✓	✓	✓	✓
Dealers (retailers/operators) margin	✓	✓	✓	✓	✓
LPG filling plant/pre-mix/marine gas oil (MGO)/local administrative costs				✓	✓
Distribution compensation margin				✓	
Promotion margin		✓			

Source: National Petroleum Authority website [consulted 14 November 2014].

Transition towards cleaner energy sources

Of the total energy currently consumed in Ghana, 63 per cent is from biomass (fuel wood and charcoal), 27 per cent from petroleum and 9 per cent from electricity (Ghana Energy Commission, 2014). Although the country abounds in renewable energy resources, their exploitation has been low.

The Government's energy policy has aimed, among other objectives, at increasing the use of clean energy rather than fossil fuels, in line with the conclusions on "just transition". Thus, in addition to the removal of subsidies from petroleum products, the move towards a socially sustainable pricing policy for these products also covered the promotion of electricity generation from renewable energy sources such as solar and wind power; and the use of LPG and other innovative cooking stoves in place of firewood. A varied number of policies and programmes were introduced to achieve these objectives.

Renewable energy

The policy goals of the renewable energy subsector are to increase the proportion of renewable energy in the total national energy mix by 10 per cent by 2020 and ensure its efficient production and use. The Government has passed the Renewable Energy Act 832 of 2011, which provides incentives for promoting the use of renewable energy. The incentives include provisions for Feed-in-Tariff for producers of renewable energy, an obligatory clause to provide purchase guarantee and the establishment of the Renewable Energy Fund to support renewable energy technologies.

Over the years, several governments have made interventions aimed at promoting the deployment of renewable energy technology. These include:

- the construction and commission of a 2.5 MW solar plant at Navorongo in the Upper East Region;
- installation of about 2,000 solar systems nationwide;
- installation of 275 solar streetlights in cantonments;
- installation of 14,000 solar PV systems installed in remote rural communities; and
- distribution of 50,000 solar lanterns nationwide.

LPG promotion

The programme for the promotion of LPG in Ghana was introduced in 1989 with a short-term aim of eliminating flaring of LPG at TOR and a long-term goal of ensuring that households that used charcoal and firewood for cooking shifted to the use of LPG (Quaye-Foli, 2002).

The promotion programme involved the establishment of a local cylinder manufacturing plant, which led to an increase in cylinder circulation

Table 2. Energy for household cooking, 2000 and 2010 (percentages)

Source	2000			2010		
	National	Urban	Rural	National	Urban	Rural
LPG	6.2	11.8	1.1	18.2	41.5	4.8
Charcoal	30.0	54.3	8.2	33.7	74.6	15.9
Firewood	55.8	22.9	85.2	40.2	26.7	73.4
Kerosene	2.0	2.6	1.4	0.5	1.1	0.3
Electricity	1.1	2.0	0.4	0.5	1.1	0.3

Source: Ghana Energy Commission, 2014.

from 80,000 in 1989 to 600,000 in 1997; overall LPG consumption rose from 43,502,800 kg in 1999 to 251,759,054 kg in 2013.⁸ The period 2005–13 witnessed a significant jump in LPG consumption, attesting to the success of the promotional programme. The number of LPG filling stations also doubled, from 169 in 2007 to 331 in 2011 (NPA, 2012), making the product more accessible to consumers.

Despite the progress achieved in the LPG promotion, available data show that household consumption of fuel wood and charcoal is still very high (see table 2).

The increase in LPG consumption can therefore be attributed to the commercial use of the product rather than for household use in cooking. For instance, the average rate of growth of LPG consumption by commercial users over the period 2003–07 was 32.37 per cent per year, whilst average growth in vehicular consumption of LPG was about 54.73 per cent per year over the same period (Ghana Energy Commission, 2010). The implication of this phenomenon is that the forest cover is still under threat since deforestation continues to pose danger to the environment (Derkyi et al., 2011).

As a result of these challenges, in 2010 the Government developed a new strategy aimed at increasing household consumption of LPG as the main fuel for cooking to 50 per cent of national consumption by 2015. The Government also has a policy of reducing the demand on wood fuels from 72 to 50 per cent by 2020. These twin policy objectives are based on its commitment to promote clean energy development in the country at affordable prices. This is why LPG consumption has enjoyed long-term subsidies.

Recent interventions by the Government to enhance clean energy development include:

- continuous subsidization of LPG and kerosene;
- the distribution of a least 100,000 improved firewood and charcoal stoves nationwide through the Ghana Alliance for Clean Cookstoves; and

8. See http://npa.gov.gh/npa_new/Downloads.php.

- launching of the Rural LPG promotion programme, which seeks to distribute for free over 20,000 6-kg cylinders for rural uses in ten districts in the ten regions on a pilot basis in 2014, with the aim of distributing 200,000 to 350,000 cylinders and cooking stoves in all low-access rural districts over three years.

Effects of the transition policies

Higher petroleum product prices have significant impacts on the economies of developing countries, particularly oil-importing countries. They have fiscal implications for those governments that have traditionally relied on price subsidies as a policy to protect the poor. However, universal application of petroleum price subsidies has had further adverse effects, such as price distortion and over-consumption, whilst providing a regressive regime for distributing benefits between high-income and low-income groups.

Price subsidies can be costly without achieving the social protection objective. In the light of just transition frameworks, the transition policies adopted by Ghana for petroleum product pricing have had both positive and negative effects.

Effects on household consumption

The effects of the removal of petroleum product subsidies on household well-being are more pronounced among low-income groups (Baig et al., 2007). On the one hand, higher petroleum product prices reduce household consumption of products for transportation, cooking and lighting. On the other, through increases in production costs, higher product prices also increase the cost of goods consumed by households. The cost of food production, for instance, rises through increases in input costs such as fertilizer, seeds, farm equipment, etc.

Cooke et al. (2014) explain that subsidy removal increases the prices consumers pay for products, which then affects household well-being. In most cases, the bulk of petroleum is consumed indirectly through other commodities that depend on petroleum products as inputs. These indirect effects on the household cost of living can be as important as the direct effects, as demonstrated by Andriamihaja and Vecchi (2007) in an empirical work on Madagascar.

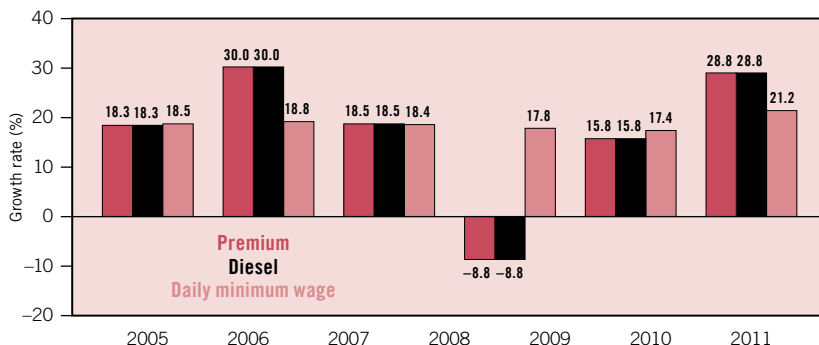
The effects of higher petroleum prices on costs vary by sector, depending on both their direct use of energy (e.g. fuel products) and indirect use (e.g. the higher costs of intermediate inputs that use fuel) (Gupta, 1983; Dick et al., 1984). Higher petroleum product prices, for example, can lead to higher electricity prices, which in turn affect costs and output in manufacturing (Clements, Jung and Gupta, 2007).

In the case of Ghana, continuous increases in product prices without a scaling up of social interventions or the introduction of new interventions could hamper the success of the transition programme (Cooke et al., 2014; Coady et al., 2006).

These conclusions are also worrying because petroleum product price increases contribute to widening inequality among the population. Whilst poverty levels in general have decreased, inequality has worsened, with the Gini coefficient moving from 37 per cent in 1992 to 42 per cent in 2006 (Ghana Statistical Service, 2007). With petroleum subsidies in Ghana considered regressive (Coady et al., 2006), evidence shows that the removal of subsidies adversely affects the poorest population more than the rich. Arze del Granado et al. (2010), for instance, argue that the top income quintile in Ghana receives six times more subsidies than the lowest quintile. Petroleum price subsidies are therefore ineffective in protecting the income of poor households compared with a targeted subsidy since, regardless of the petroleum product considered, high-income households benefit disproportionately from these subsidies (Kpodar and Djiofack, 2009).

Household incomes in Ghana have not risen in line with increases in petroleum product prices, as there has been a consistent divergence between these prices and the average daily minimum wage in the formal economy. Workers who rely on the minimum wage are mostly in the low-wage category of the formal economy in both public and private organizations. In 2008, an election year during which crude oil prices were very low, the divergence was in favour of the minimum wage. However, for the most part, the growth in the daily minimum wage was not proportional to the growth in petroleum product prices (see figure 4). For example, in 2006 and 2010 average growth in petroleum product prices for premium and diesel was about 30 per cent, but average growth in the minimum wage was about 20 per cent. This means that the adjustment in the minimum wage of workers was not sufficient to cushion the effects of increases in petroleum product prices, leaving consumers worse off.

Figure 4. Divergence between petroleum product prices and minimum wage in the formal economy, 2005–10 (percentages)



Sources: NPA; Ghana Statistical Service.

Macroeconomic effects

The macroeconomic effects of petroleum product price increases are well-documented: inflation, rising input costs and reduced investment in oil-importing countries. Tax revenues fall, leading to widening fiscal deficits arising from the rigidities in government spending, which in turn increases interest rates.

Some of these common macroeconomic effects of petroleum product price rises have greater implications for the success of transition policies. Inflation in Ghana has been associated with rising energy prices, as existing petroleum price subsidy schemes became too costly for the Government (World Bank, 2013). In Ghana, key inflationary risks come from the removal of the subsidy on petroleum prices and upward adjustments of water and electricity tariffs (Okudzeto et al., 2014).

Inflationary effects have a significant impact on the well-being of consumers, especially those in the lower middle-income category (Palenzuela et al., 2003). Added to the direct effects of product price increases on the consumption of lower-income groups, these effects show that we cannot discount the overall impact of product price increases on the poor and most vulnerable sections of society.

The relationship between petroleum product pricing and economic growth in Ghana shows that growth in demand for petroleum products has a positive impact on GDP growth (Ghana Energy Commission, 2014). Thus, a drop in demand for products resulting from increasing costs due to the removal of subsidies could have a decelerating effect on the economy. Such effects are often short-term, however; long-term growth recovers because resources become efficiently reallocated as a result of subsidy removal. For instance, firms will reallocate resources in response to the higher prices by directing some resources to their best possible use under the new set of prices. Firms will also substitute the uses to which they put their resources in order to pay for the more expensive petroleum products they use.

Subsidies have fiscal effects as well that drain government revenues and undermine the efficient allocation of resources to productive spending. In 2008, they led to high fiscal deficits for the Government (Allum, 2009). The removal of subsidies and the temporary decelerating effects on economic growth together ensure that the Government puts appropriate policy measures in place that allocate resources to sectors which facilitate growth recovery.

Effects on decent jobs

The effects of petroleum product pricing on demand trends illustrate how lowering demand pressures could reduce job prospects in the economy. Demand trends show that since 2005, when the deregulation policy in the petroleum sector took effect, both premium and diesel have seen a doubling of demand, with implications for job creation. Demand growth for petroleum

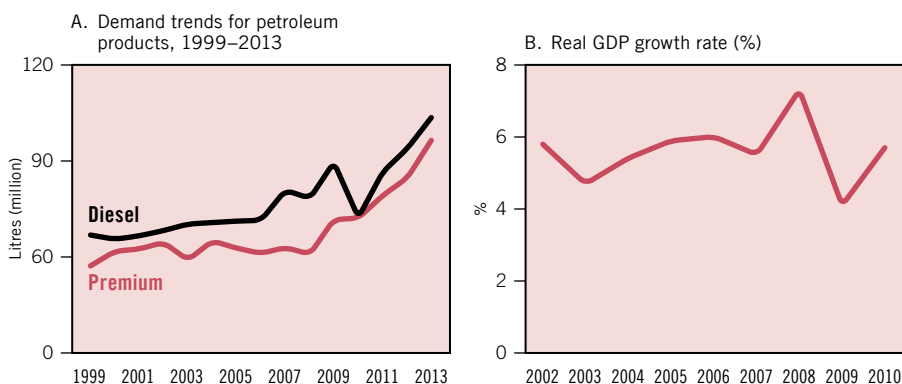
products in Ghana has had a positive effect on job creation through GDP growth (Ghana Energy Commission, 2014).

Figure 5 shows a common trend between the growth in demand for premium and diesel on one hand and real economic growth on the other. In particular, in 2010 a decline in demand for diesel was consistent with a significant decline in real economic growth. This shows the economic significance of diesel for commercial and industrial use and its potential to affect job creation. An increase in the price of diesel affects large numbers and particularly the poor, rather than the rich who consume gasoline more. Moreover, as most factories in Ghana also use diesel, a decrease in demand could have negative impacts on employment, income levels and cost of living. This has influenced the Government’s subsidy policy over the years, as a result of which gasoline now cross-subsidizes diesel in order to reduce the adverse impact of a higher diesel price on the economy and household well-being.

However, it is important to note that the deregulation policy had some advantages. It introduced new job opportunities into the economy: as at the end of 2013, a total of 195 companies were operating in the downstream petroleum sector, an increase from 11 retail companies in 2005 (NPA, 2014). In addition, the NPA estimates that there were over 3,000 petroleum retail outlets and 545 transporters with more than 2,500 bulk road vehicles (BRVs) by the end of 2014.⁹

These developments show that market-based policies have significant job creation potential, as well as reducing the financial burden of the Government and ensuring the efficient allocation of savings from subsidies. They also save the Government the money used to import petroleum products and help to direct the money to other productive economic sectors.

Figure 5. Common trends between demand for petroleum products and the growth rate



Sources: NPA; IMF, Ghana Article IV Consultations.

9. For further information, see: <http://graphic.com.gh/business/business-news/32907-ghaians-own-50-of-downstream-petroleum-businesses.html#sthash.NRs3WIKq.dpuf>.

But despite the increase in the number of oil marketing companies (OMCs) and bulk distribution companies (BDCs) operating in Ghana and the accompanying jobs created, the ad hoc implementation of the price adjustments regime has adversely affected their operations in many ways. The regime has produced significant losses arising from under-recoveries,¹⁰ which in turn weakened the cash flows and liquidity to the companies. As of July 2013, the Government of Ghana owed BDCs about 700 million cedi – approximately US\$230 million (Ghana Oil Watch, 2013). The associated financial burden on the importers and their inability to pay their debts to their banks has recently caused a shortage of petroleum products in Ghana, leading to lower productivity as many workers could not go to work for a number of days and factories had to close temporarily. Such shortages thus lower the level of productivity of both capital and labour and could have risk implications for sustaining the newly created jobs.

Effects on social protection

Social interventions introduced by the Government have provided social protection for the poor. These include the capitation grant in basic schools and the commitment of more funds to the building of Community Health Improvement Compounds. The Government later introduced the National Health Insurance Scheme (NHIS) and a cash transfer programme, Livelihood Empowerment Against Poverty (LEAP), aimed at reducing the impact of market-based policies such as the transition to market prices for petroleum products.

These social interventions have had positive impacts on poverty reduction. The capitation grant led to increased enrolment in basic schools: enrolment in primary schools increased from 83 per cent in the 2004/05 academic year to 97 per cent in 2012, whilst kindergarten enrolment jumped from 57 per cent to almost 100 per cent over the same period. Table 3 shows enrolment levels in basic schools over the period 2004–12.

LEAP, which started a trial phase in March 2008, also grew very fast. By July 2013 the programme covered 73,000 households with an annual

Table 3. Enrolment levels in Ghana's basic schools, 2004–12 (percentages)

Level	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12
Kindergarten	56.5	75.2	80.8	89.7	92.9	97.3	98.4	99.4
Primary	83.3	86.4	90.8	95.0	94.9	94.9	96.4	96.5
Junior high school	70.2	70.4	74.8	78.8	80.6	79.5	79.6	80.6

Source: Republic of Ghana, Ministry of Education, 2012.

10. Under-recoveries are a notional measure representing the difference between the trade-parity cost of refined products paid by OMCs and their realized sale price. It is the gap between the local price of fuel and what would have been the price if the fuel were imported.

expenditure of US\$20 million (Handa et al., 2014), and provided benefits to 177,500 individuals across the country's ten regions, with plans to increase the numbers to 150,000 households by 2015.¹¹

The NHIS provided affordable health care, mainly to the poor. By December 2012, it had a total active membership of 8.8 million representing 35 per cent of the population. A total of 3,575 health-care facilities have been accredited to provide services to those insured. Outpatient utilization of health-care services under the scheme increased from 0.6 million in 2005 to 25.5 million in 2011, whilst inpatient utilization increased from 28,906 in 2005 to 1,451,596 in 2011.

Effects on the environment

The removal of subsidies from petroleum products has been seen to have effects on environmental sustainability, one of the objectives of just transition frameworks. Spence (2009) shows that there are benefits to individual economies of removing energy subsidies in improving growth prospects, which also contribute to a reduction in energy use and hence a reduction in greenhouse gas (GHG) emissions. In contrast, energy use in Ghana following the removal of subsidies did not decline. However, despite the increasing demand for petroleum products over the period 1999–2013, GHG emissions fell in some areas of the transportation sector, as shown in table 4 for 2009–11. The increasing cost of petroleum products following the removal of subsidies has therefore led to efficient use of the products.

The increase in emissions from air travel can be attributed to the increasing number of airlines operating in Ghana following the boom in the country's aviation industry. According to the Ghana Civil Aviation Authority (GCAA), there were 15 airlines operating in 2000, but this had increased to 40 airlines by the beginning of 2015. Similarly, 1.8 million passengers used the Kotoka International Airport in 2011, rising to 6 million in 2015. The increase in emissions from public transport, one of the transition programmes, was due to the expanding fleet of Metro Transit buses. As mentioned earlier,

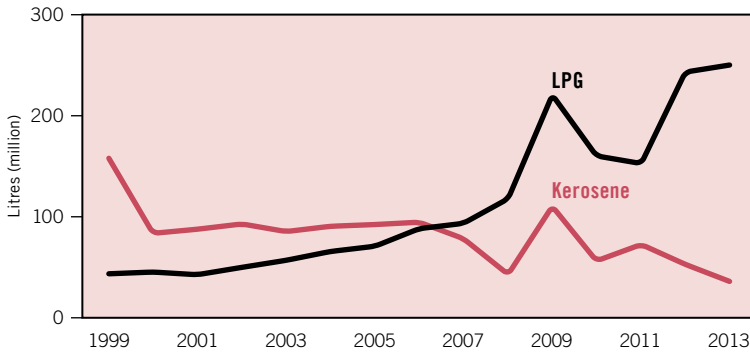
Table 4. Greenhouse gas (GHG) emissions (tonnes CO₂ equivalent) in Ghana, 2009–11

Source of GHG emission	2009	2010	2011
Air travel	25,8	13,1	42,96
Vehicle fleet	112,2	104,1	79,3
Public transport	0	0,2	0,6
Electricity	82,9	82,9	83,9

Source: UNDP Ghana GHG Inventory.

11. See the State of the Nation Address by H.E. John Dramani Mahama, 25 February 2014. Available at: presidency.gov.gh/node/472.

Figure 6. Demand trend for kerosene and LPG, 1999–2013



Source: NPA.

by 2008 the number of buses operated by the Metro Mass Transit Company had increased from eight to 781.

The decision to cross-subsidize alternative fuels such as LPG ensured that deforestation was to a certain extent checked in such a way as to protect Ghana's forest cover. Estimates of the impact of biomass consumption in Ghana have shown that more than 90 per cent of the original 8.22 million hectares of natural forest in Ghana is gone, due to logging and fuel wood (EPC, 1991).

Commercial production of wood fuel and charcoal, as well as other biomass fuels such as cow dung for urban and rural consumption, is one of the hidden causes of environmental degradation. Such production is partly due to the lack of reliable and affordable access to clean energy sources such as LPG and electricity. It is well known that ruminants, especially cattle, produce methane, a gas that is known to contribute substantially to global warming.

As can be seen from figure 6, demand for LPG has risen relative to demand for kerosene, although the rise in LPG consumption could also be attributed to the increasing commercial use of the product in transport. The Government's LPG promotion programme has been intensified, with a new strategy developed in 2010 to accelerate the consumption of LPG as the main source of energy for household cooking.

Social dialogue and tripartism

Social dialogue is used to facilitate consensus-building and the democratic involvement of the main stakeholders in the world of work (Rosemberg, 2010). Social dialogue structures and processes can be used to resolve major issues that have economic and social implications, to promote good governance, and to ensure social and industrial peace and stability for economic development (UNEP and Sustainlabour, 2008). Despite the potential importance of social dialogue, energy-pricing issues are rarely on the table for consultations

between government and labour. This has led to condemnations of and protests against petroleum price increases by labour. For example, a 30 per cent increase in the price of premium and diesel in January 2011 sparked street protests in Accra by unions and other social groupings.

Similarly, employers are concerned about the consequences of the increasing cost of energy. This brings to the fore the role of tripartism in which government, labour and employers participate effectively and equitably in the decision-making process around the setting of petroleum pricing in Ghana.

The National Tripartite Committee (NTC), which discusses economic and social issues, has touched on the petroleum price increases. Representatives of both workers and employers state that fuel price increases have often come up in considering the social and economic agenda.¹² They note that these increases have not been discussed as a stand-alone item at the NTC, and rightly so, as the key issue has been how such increases affect the sustainability of enterprises, employment creation and employment security, wages and the overall cost of living and living standards.

Challenges for a successful transition

Ghana's transition policies for petroleum pricing have no doubt had both positive and negative aspects. Although the policies may have been successfully implemented when they were first introduced – due to effective communication, the rolling out of important social programmes and the lack of serious social protest – sustaining the gains has been challenged by several factors.

Inconsistency in the application of the automatic adjustment pricing mechanism

The inconsistency stemmed from internal and external economic and political factors. For instance, at a particular period the Government suspended application of the automatic pricing adjustment formula. It later reintroduced it but without following it strictly. The IMF (2013) explains that the Government suspended the mechanism when crude oil prices rose to US\$145 per barrel between 2007 and 2008. This continued intervention in petroleum prices led to a huge accumulation of debt by the Tema Oil Refinery (TOR). By October 2009, TOR's debts had reached US\$660 million, which put a severe strain on the Ghana Commercial Bank, TOR's major creditor (Reuters, 2009a), and which compelled it to close operations (idem, 2009b).

12. Interviews with Dr Yaw Baah, GTUC Deputy General Secretary, 7 January 2015, and Mr Alex Frimpong, Chief Executive Officer of the Ghana Employers Association, 12 January 2015.

Inconsistencies in pricing legislation

The pricing regime for petroleum products in Ghana is rooted in various pieces of legislation/instruments. Although there is a legal instrument backing the automatic price adjustment formula, the other pricing components are governed by different laws. For example, different laws regulate the Road Fund levy and Excise duty. Other levies such as Cross-subsidy levy and TOR Debt Recovery levy are administrative and require only parliamentary approval. This creates room for inconsistency in the application of the transition policies, especially those that are under the control of the Government.

Subsidies on kerosene did not achieve the intended objective

Whilst subsidies on kerosene were aimed at providing fuel for rural populations for lighting and cooking, a proportion of the kerosene was smuggled out to neighbouring countries where the price of kerosene was higher (Kojima, 2013). Others used kerosene to adulterate premium in order to make more profit on gasoline sales. This led to a number of consequences: one was poor fiscal targeting, as the Government was subsidizing the consumption of other countries. This did not apply to LPG because kerosene, unlike LPG, was consumed in rural communities including those that shared boundaries with neighbouring countries where the product could be smuggled easily. Another effect was that the subsidies benefited the rich who were engaged in the smuggling. Also, the adulteration of premium affected its quality and had grave implications for the engines of vehicles that used adulterated products.

Subsidies on LPG did not achieve the intended objective

These subsidies were intended to reduce the wanton cutting down of trees for charcoal production and the consequent damage to the environment, as well as to ensure the consumption of clean energy in the country with the wider objective of reducing carbon emissions. However, the demand for commercial and vehicular uses ensured that the LPG subsidy programme was unsuccessful. Further, commercial vehicle operators avoided taxes imposed on premium and diesel; this led to revenue losses for the Government due to the shift in demand from premium to LPG. Although use of the product increased the consumption of clean energy, it led to frequent shortages of the product and thus a continuing reliance on charcoal by rural and suburban consumers (Ghana Energy Commission, 2014).

Transparency challenges

In failing to publish relevant information that was needed to sustain the confidence of the people in the pricing regime, the Government abandoned the transparency principles that constituted a major component of the transition programme. Relevant data on taxes and levies, intended to support the social dimensions of the transition programme, were not made public. For instance,

several years after the transition phase there was no longer any transparency on the size of the subsidies and how much the Government was spending on them. Nor have the amounts of the proceeds from the TOR Debt Recovery levy, Cross-subsidy levy and the Unified Petroleum Price Fund (UPPF) been made public. This has led to serious doubts among consumers and social commentators, some of whom have challenged the Government's claim of subsidizing petroleum products.

Irregular evaluation of impacts on poverty

Since the Poverty and Social Impact Assessment (PSIA) before the commencement of the deregulation policy in 2005, there has been no evaluation of the impacts of petroleum product prices on the poor and most vulnerable. This has constrained a review or redesign of the social interventions and the extent to which they remain effective as social mitigating measures. For instance, most of the social programmes are no longer financed from savings from removing subsidies, as subsidies continue to be a part of the petroleum pricing regime. Moreover, the removal of the Social Mitigation levy in 2009, which was used to finance early social interventions such as the mass transport system, has compounded the financing challenge. As a result of these factors, most of the social programmes are ill funded, putting into doubt their effectiveness as social mitigating measures.

Political cost of transition

The political cost of removing petroleum price subsidies is very high and this has often constrained the Government from pursuing the transition programme. In the run-up to the 2008 elections, petroleum product prices became a major campaign issue as crude oil prices fell between 2007 and early 2008. However, when the prices of crude oil recovered, it was no longer politically imperative to adjust petroleum product prices. This resulted in fiscal challenges to the Government and the TOR. The implication of Ghana's experience is that apart from fiscal considerations, transition policies involve serious political considerations as well. David Victor (2009) argues that whilst subsidies are abhorrent to economic analysts and can be a particularly pernicious form of public policy, they exist mainly because they are rooted in a political logic that is often difficult to alter.

Inadequate social dialogue and tripartism

There exists much suspicion between the Government and the social partners. Whilst the Government argues that it consults labour and other social partners in the design and implementation of transition policies for petroleum pricing reforms, the social partners insist that there is no formal mechanism for social dialogue apart from the National Tripartite Committee, where issues of petroleum product pricing are not comprehensively addressed. This has accounted for the use of public media and strikes to express their concerns.

Recommendations for future transitions

Ghana's experience in petroleum product pricing provides good lessons for future transitions. A solid foundation has been built with the introduction of the automatic price adjustment formula and the introduction of some safety nets. However, if these measures are to be sustained, the following recommendations will be required.

Transition law

The application of different laws to petroleum pricing creates room for inconsistency in the application of the transition policies, especially those that are under the control of the Government. A consistent application of future transition policies will require that the various legal instruments be harmonized into a comprehensive legislation to provide predictability and credibility for the implementation of the policies. The proposed legislation should outline various social programmes targeting the poor and how savings from subsidy removal will be spent on such programmes.

Transparency and communication

Data on the size of the subsidy, accumulated debts due to under-recoveries, and the balances in the accounts of the various levies must be made public. In this regard, any future legislation on transition frameworks should provide for mandatory reporting on the relevant information related to pricing and subsidies, if any. Greater transparency on petroleum subsidies will help overcome opposition and suspicion, increasing the credibility of the Government and its reform policies. Thus, publishing subsidy data on petroleum prices is essential in overcoming some of the challenges related to reform.

Sustained social dialogue and tripartism

Similarly, a consistent consultation plan should be developed which would allow for citizens' dialogue with the Government and its agencies on a regular basis to assess the costs and benefits associated with transition frameworks. The need to bring together the various social partners to build consensus over transition policies cannot be over-emphasized, as lack of consensus could derail well-intended policies. Particularly, the National Tripartite Committee provides the platform for inclusive social dialogue, in line with the ILO Tripartite Consultation (International Labour Standards) Convention, 1976 (No. 144), ratified by Ghana in 2011.

Creation of decent work and green jobs

The development of a green economy will not only create decent jobs but will also promote environmental sustainability. It is strongly recommended that a Climate Adaptation levy be introduced into the petroleum pricing structure to provide dedicated financing for low-carbon energy sources. This is required

to facilitate energy substitution in favour of low-carbon alternatives to reduce carbon emissions and promote environmental sustainability. Particularly, it was expected that the savings from the removal of subsidies would be channelled into low-carbon energy substitutes; in contrast, the Government invested it in other programmes (Crawford, 2012). Proceeds from the levy should be invested in clean energy development (CED) projects such as the manufacturing and assembling of solar systems and innovative cooking stoves. Also, a key concern is the need for policy coherence during the transition from subsidized fuel, beginning with the centrality of decent work; this sits well with the National Climate Change Policy, Renewable Energy Act, Transport Policy, Industrial Policy and others that are individually or collectively implicated by petroleum sector reforms.

Regular review of social programmes

It is important to monitor in a transparent way the effectiveness of social mitigation programmes. This may involve using a household expenditure survey (HES) to provide information on beneficiaries of existing social programmes and the effects of removing subsidies, as an HES can provide a strong basis for measuring the adequacy of such programmes. It may also highlight the need for redesigning social programmes to become more effective in meeting their intended objectives. This would also ensure that as household use of energy increases, subsidies and other social programmes are redirected to those in the lower income category.

Sustainable financing of social safety nets

Financing social safety nets in Ghana has proved a challenge, as the Government is facing fiscal crises. Savings from the removal of subsidies are no longer sufficient to meet the needs of the increasing number of poor people in the midst of widening inequality in the country. Sustainable financing sources must be explored; this could include reintroducing the Social Mitigation levy, cutting waste in public spending, and donor financing.

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The lessons from trade agreements for just transition policies

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A low-carbon economy is characterized by high energy efficiency, reduction of emissions and all forms of contamination and waste, the generation of renewable energy, and the regeneration of exploited resources. Scientists have repeatedly warned that the time for the transition to such an economy is limited.

This article looks at the experiences of countries with trade liberalization and related adjustment processes so as to draw lessons for a just transition agenda. Like the transition to a low-carbon economy, trade liberalization can have severe impacts on societies. Most notably, it has had impacts on employment levels (both job creation and job destruction), the quality of employment (wages and working conditions, precarious work and subcontracting) and production structures (specialization patterns), and it has also had social impacts (unemployment and reallocation of jobs).

In the first section, we look at how trade liberalization has affected workers and employment. It has variably led to displacement, unemployment, underemployment and reallocation of jobs; and to equally variable results with regard to wages and working conditions. The section further looks at the impact of trade opening on structural transformation in countries and how trade liberalization has promoted certain types of production structures and specialization patterns. The role of trade unions in assessing impacts of trade liberalization and their engagement in the trade debate is also highlighted in this section. Some lessons for the just transition agenda are drawn.

The second section focuses on policies that have been or can be used successfully to address the employment impacts of trade opening, such as policies on skills, social protection and labour standards, while drawing some lessons for the just transition process. It emphasizes the importance of employment impact assessments and social dialogue in the trade debate, as well as the importance of policy space, in particular for industrial policies which are needed for structural transformation. The role that trade unions have played in advocating for such policies will also be highlighted. This section also draws lessons on the need for policy space for the transition to a low-carbon economy. We argue for a sustainable or green structural transformation, and the set of policies needed to achieve this.

In the third section, we look at some specific areas of the trade agenda that might impact on the available policy space for the just transition agenda, such as the protection of intellectual property rights (IPRs), environmental goods negotiations, subsidies and other policy tools. Some general conclusions are drawn at the end.

Impacts of trade liberalization on employment and decent work, and relevance for the just transition agenda

Like trade liberalization, which is often accompanied by significant shifts in employment and adjustment costs, the transition to a low-carbon economy will result in economic restructuring. When concerned with trade liberalization, the conventional discourse assumes that the gains created by open trade far outweigh the costs. Another commonly held belief is that the adjustment periods are short and that the economy rapidly finds its pace again.

Conventional theories of trade arching back to Ricardo assumed that when trade opens between two countries, different sectors benefit from market access and that job creation in those sectors absorbs the labour shed from the sectors that have shrunk. The firm heterogeneity model (or “new new” trade theory) shifted academic attention from what happens to different economic sectors when two economies liberalize trade to how specific firms perform within the sectors after the opening occurs. The firm heterogeneity model accommodates the findings of theoretical models, that trade always has positive long-term employment effects, with the findings of empirical studies that trade opening has often led to job losses overall.

Employment and labour market impacts

Liberalizing trade involves the removal of many quantitative (tariffs) and qualitative (non-tariff) barriers to trade. Competitive firms with a market share in one economy will expand sales to the other economy. In this process, uncompetitive firms are expected to downsize their activities, reduce costs – including labour costs, withdraw into informality, or close down. On the other hand, competitive firms that expand their activity in order to cater to the new markets tend to invest in new capital equipment and supply chain management that creates some jobs for skilled workers but makes many jobs for unskilled workers become obsolete, even in developing countries (Feenstra and Hanson, 1999). Several studies have shown that job destruction can be higher than job creation (Casacuberta and Gandelman, 2010; Laird and de Cordoba, 2006; Reinert, 2008; Muendler, 2010) simply because many firms cannot survive exposure to a more competitive environment.

Undoubtedly globalization has created some high-income jobs in successful firms, usually in developed countries, even if in relatively small numbers; however, middle- and low-income households have generally been under pressure due to stagnant wages as well as job displacement and destruction induced by the liberalization of trade in those countries (Public Citizen, 2014).

Uncompetitive firms that do not close down may have to withdraw to the informal economy in order to save on taxes, labour contracts and

insourcing (Sinha, 2011). Newfarmer and Sztajerowska (2012), in their literature review on the effects of trade opening on the informal economy, observe that competition from imports often leads to closures or downsizing of production, and that increased competition has pushed many firms into informality; conversely, some studies also find that where trade has created opportunities for the formal economy, labour has been drained from the informal economy. Autor, Dorn and Hanson (2011) examined data for the period 1990–2007 and concluded that the trade relations between the United States and China accounted for one-quarter of the aggregate decline in US manufacturing employment, affected the labour force in numerous other sectors, and led to wage decreases. Conversely, China and other Asian countries reduced poverty and maintained overall high growth rates.

But not all the jobs that migrated from the United States and other developed countries reached the developing countries. Obviously, technological change, automatization, programming and advanced management eliminated the demand for some skills. For instance, the ILO points out that even though Chinese manufacturing exports grew at 20 per cent annually from 2000 to 2007, the share of employment in manufacturing in China remained stable during the same period (Jansen, Peters and Salazar-Xirinachs, 2011).

McMillan and Verduzco (2011) further show that trade liberalization has highly differentiated impacts on employment and that the expected job creation in exporting and other competitive sectors is not always realized. Moreover, the effects on wages can also be detrimental because the bargaining power of workers has decreased with trade opening, especially with the shift in manufacturing employment from developed to developing countries. Most recent empirical literature provides a better understanding; applied studies such as those by Meneses-Filho and Muendler (2007) and Ebenstein et al. (2009) found significant negative effects on labour markets in both developed and developing countries.

An econometric framework developed by Harrison and McMillan (2004) analysed data from US multinational companies in the manufacturing sector; the authors found that increased capital mobility may be related to dramatic levels of job displacement in the United States. This was accompanied by an increase on return to capital in these companies, but with real wages falling by over 20 percentage points for both production and non-production workers in their developing country affiliates, thus further increasing capital's power.

It has been estimated that workers who change jobs due to offshoring see their wages decrease by between 4 and 11 per cent (Ebenstein et al., 2009). Liu and Trefler (2011) examined the effect of competition from low-skilled labour in China and India on US services sectors and found that downward occupational switching increased by 17 per cent and that upward occupational switching increased by 4 per cent from 1996 to 2007. They also found that unemployment increased by 0.9 per cent.

Newfarmer and Sztajerowska's (2012) literature review for the International Collaborative Initiative on Trade and Employment (ICITE) finds that the adjustment costs occurring in trade opening are disproportionately borne by low-skilled workers, whereas most gains from trade are enjoyed by capital holders and highly skilled workers, and that new jobs may be created only slowly. Autor, Dorn and Hanson (2011) included the additional cost incurred on the welfare budget (in-kind medical benefits and disability benefits, unemployment benefits) and found increases in almost all the commuting zones (geographic units) they examined for the period 2000–07. In the United States, a US\$1,000 increase in Chinese import exposure leads to a rise in transfer payments of \$58 per capita.

The effects of trade liberalization on employment and wages are thus diverse and can be profound, depending on the level of liberalization, the pace of change and the overall competitiveness of firms. It is also clear that adjustment costs can be substantial and that they are not necessarily borne equally.

Impacts on structural transformation

There have also been significant impacts of liberalization on production structures in developing countries and on the process of structural transformation, which is commonly understood as the shift of capital and labour from low-productivity and low-wage sectors towards high-productivity and high-wage sectors. Structural transformation is important as it enables economies to develop more sophisticated, diversified and higher value added production structures, resulting in higher levels of income, greater stability and higher economic development.

There have been concerns that trade opening in a number of countries has hampered or slowed down this process of structural transformation and that instead it has led to specialization in low value added production, thus effectively keeping countries poor.

In practice, McMillan and Rodrik (2011) find that in Latin America and sub-Saharan Africa trade liberalization was associated with downward occupational switching, including in informality. They also find that participating in globalization made a sizeable negative contribution to overall growth in these regions. On the other hand, in Asia trade opening generated the greatest productivity increases and had a positive contribution to overall growth. Their paper further shows that labour moved from low- to high-productivity sectors in Asia, but in the opposite direction in Latin America and sub-Saharan Africa.

UNCTAD country studies (Laird and de Cordoba, 2006) from Bangladesh, Brazil, Bulgaria, India, Jamaica, Malawi, the Philippines and Zambia examine the impact of trade liberalization:

In particular, the rapid growth of imports of industrial products led to the closure of some local industries and to stagnation or low growth in industrial jobs in these countries. For example in Zambia, tariff reductions led to job losses, due to relocations and closures. Formal employment fell from 23 per cent over the period 1981–1990 to an average of 12 per cent during 1991–2000 and to 8.1 per cent in 2003. Countries like Malawi and Jamaica also showed a decline in the manufacturing sector and employment (Busser, 2007, p. 169).

Buffie (2001) finds that the empirical record, though mixed, shows significant negative employment effects. Examples from studies in sub-Saharan Africa (ibid., pp. 190–191) show that trade liberalization in Africa had serious effects on employment. In Senegal, a liberalization programme that almost halved the tariff levels from 1985–88 resulted in an elimination of one-third of manufacturing jobs in the early 1990s. In Kenya, the beverages, tobacco, textiles, sugar, leather, cement and glass products sectors all contracted after a liberalization programme was implemented in 1993, with a 2.6 per cent decline in output and a 2.2 per cent decline in employment in manufacturing. In Côte d’Ivoire, the chemical, textile, shoe and automobile industry virtually collapsed after a reduction in tariffs by 40 per cent in 1986. Liberalization in Latin America in the 1990s has led to large formal job losses and increased underemployment in Brazil, Ecuador, Nicaragua and Peru. The shift to liberal trade policies also reduced the share of manufacturing in GDP by 6–9 percentage points in Argentina, Brazil, Colombia and Uruguay (ibid., p. 155).

The firm heterogeneity model reinforces the evidence for the usefulness of policy space. It demonstrates that economies that comprise a sum of uncompetitive small enterprises without any strong institutional structures, for instance in sub-Saharan Africa, will suffer damage and will create few, if any, opportunities (Sundaram and von Arnim, 2008). This was probably never demonstrated better than in the case of Mongolia, which lost a century of industry building in the four years – between 1991 and 1995 – after the country suddenly opened up to the world (Reinert, 2008).

Examining the case of Peru, Reinert notes that “the inefficient industrial sector in Peru nonetheless created a wage level that was about twice as high as what today’s globalized economy is able to deliver in Peru” (ibid., p. 163), and, in the case of Mexico, that “Mexican real wages dropped drastically as the NAFTA agreement slowly decimated traditional ‘complete industries’ while increasing the simple assembly (*maquila*) activities. The increasing return industries died out in order to give birth to constant return activities, thus primitivizing the national production system” (ibid., p. 182).

Looking at the experience of Chile, often lauded for its specialization in aluminium smelting, salmon farming and winemaking, there are clear limits to that strategy, which was in line with its natural comparative advantage. The failure to move into higher value added activities has restricted the level

of prosperity that can be attained in the long run; a comparison of Chile and Taiwan (China), which were at similar per capita income levels in the post-war period, shows a great divergence at the end of the century, Chile having a GDP barely half Taiwan's, which had targeted manufacturing growth (Busser, 2011).

The history of trade opening shows that granting market access to other countries needs to happen at the *right moment in time*, and arguably only for those sectors that are ready.

Important to mention here are three elements put forward by Reinert (2008) that are crucial to creating structural transformation and economic development, namely, the importance of increasing returns activities (economic activities that result in increasing returns to investment when increasing the scale of production); technological change; and synergies and cluster effects (through networks and complementary industries). In relation to the trade agenda, it is further important to note the so-called Vanek-Reinert effect: "The most advanced sectors are the ones most subject to increasing returns and consequently the most sensitive to the drop in volume caused by sudden competition from abroad" (ibid., p. 281). It means that countries with advanced industries that are not yet competitive risk losing exactly those increasing-return industries when opening up to foreign competition. Countries in the process of moving up the value chain therefore need to apply care with trade opening, especially towards more competitive trading partners, so as not to destroy any progress made towards structural transformation. Protection of infant industry therefore remains important as part of industrial development strategies, including clean production.

In this respect, it is also important to understand the role of global value chains (GVCs) in the process of structural transformation in developing countries. Although entering these chains has brought some benefits to countries in terms of employment creation and GDP growth, the contribution to structural transformation seems limited. Most of the time, entering into GVCs has reinforced specialization in low value-added production and has kept production in developing countries in the low value segments of the chain. It is clear that profit-maximizing transnational corporations (TNCs) will try to minimize their competitors' market share. Moreover, production as part of GVCs has focused on trade in tasks, which does not by itself allow developing countries to gain the experience, knowledge and capabilities needed for the structural transformation of their economies. It is precisely the three elements mentioned above: technological change, increasing returns and synergies and cluster effects – so crucially important for economic development – that are often absent or limited when relying on GVCs.

The results of studies on China's and other developing countries' share in trade gains show that the labour costs incurred in China for the assembling of products such as Apple's iPhone and iPad account for a miniscule part of the value of the final product (Linden et al., 2009; Xing and Detert, 2010).

The shareholders at the top of global production networks and the profit margins of other companies that provide intermediary inputs sometimes capture as much as three-quarters of the total value. At the bottom, exploitative labour conditions are common in many of Apple's contractors. A ten-country study by Vogt (2013) for the International Trade Union Confederation (ITUC), reports that forms of precarious work are widespread and on the rise, including in the most industrialized Asian countries: Japan, Republic of Korea and Singapore.

Relevance for the just transition agenda

Overall, the lessons learned from the trade liberalization agenda for the just transition agenda can be pictured as being fourfold:

1. Any transition from one form of production to another will result in employment effects that are more or less pronounced depending on the extent of the reforms, and that are more or less prolonged depending on the accompanying policies. It would be illusory to expect adjustment to be instantaneous and without any costs. Therefore, the extent and pace of the reform need to be carefully designed. Similarly, accompanying policies need to be designed such as to smooth the expected adjustments in relation to employment.
2. The relevance of the interface between trade opening and structural transformation for the just transition agenda is obvious. While structural transformation remains an important objective in many developing countries, higher value added production, industrialization and diversification need to be promoted while at the same time ensuring clean production. The two agendas are therefore interlinked and complementary and need to be promoted as such.
3. Trade liberalization and negotiations have often been implemented away from democratic governance and trade union involvement. This has resulted in insufficient attention to the impacts of trade liberalization on employment and decent work, as well as lack of attention to accompanying policies that could make any transition smoother. One of the reasons for this lack of democracy and trade union involvement is the high degree of secrecy around trade negotiations. Another is the lack of policy coherence, where ministries dealing with trade and industry do not, or only insufficiently, interact with ministries of labour. Furthermore, tripartite consultation mechanisms with trade unions and employer organizations on trade issues are often non-existent. For the just transition agenda, such tripartite consultation mechanisms at national level as well as a mechanism to improve policy coherence among the various ministries that have a stake in the just transition debate should be prioritized.

4. Trade liberalization has resulted in an unequal distribution of the gains, with capital having benefited disproportionately. Increased global competition has resulted in the bargaining power of governments and workers being reduced and that of capital increased. Policy responses to redress such inequalities have been insufficient. Like any other reform agenda, the just transition agenda needs to take into account the distributional effects and to design policies and measures to compensate the losers.

Trade union responses

The trade union movement has long pointed to the negative repercussions of trade liberalization for employment and workers. It has strongly advocated for employment impact assessments, accompanying policies and labour provisions as part of trade negotiations, to ensure that impacts on employment and decent work are not unnecessarily devastating and that benefits are distributed more equally.

The ITUC has continuously monitored the negotiations in the World Trade Organization (WTO), participated in WTO ministerial meetings since its inception, prepared international trade union positions on trade negotiations and advocated trade union positions with negotiators. ITUC affiliates have actively campaigned in various bilateral and regional negotiations of trade agreements.

Over the years, the Trade, Investment and Labour Standards (TILS) network of the ITUC has brought together trade experts from across national trade union centres as well as Global Union Federations (GUFs) to discuss trade-related issues and determine trade union positions.

In relation to the Non-Agricultural Market Access (NAMA) negotiations¹ in the WTO, the NAMA 11 trade union group² was set up to coordinate trade union action in a number of developing countries that faced high pressure to severely reduce tariffs on manufacturing products. Such reductions would severely reduce employment in existing industries and hamper future industrial development. The group closely monitored the negotiations,

1. For a more detailed description of trade union activities in relation to the NAMA negotiations see Busser, 2007, pp. 173–178.

2. The ITUC affiliates which have led the trade union response to NAMA are the Congress of South African Trade Unions (COSATU) and the *Central Única dos Trabalhadores* – Unified Workers Confederation (CUT) from Brazil. Other trade union centres subsequently became active in the NAMA negotiations, such as *Hind Mazdoor Sabha* – Trade Union Federation (HMS) in India, *Confederación General del Trabajo de la República Argentina*, General Confederation of Labour of the Republic of Argentina (CGT-RA), the Confederation of Indonesia Prosperous Trade Unions (KSBSI) in Indonesia, the Trade Union Congress of the Philippines (TUCP) and the *Union Générale Tunisienne du Travail* – General Tunisian Trade Union (UGTT) in Tunisia.

analysed proposals, exchanged information, organized joint activities, engaged with NAMA 11 governments and identified research needs. It prepared joint declarations on the various negotiating proposals and prepared alternative proposals that would take into account sectoral employment and developmental needs.

Trade liberalization, impacts on structural transformation and industrial policies

As described earlier, adjustment costs have long been underestimated, ignored or considered as being very small. Trade liberalization has been considered by policy-makers as creating predominantly winners. Recognition of losses and adjustment costs have only recently received more attention and subsequently policies and measures to address these have been promoted.

Employment impact assessments of trade agreements

Before designing appropriate policies that address the employment and decent work impacts of trade liberalization, it is important to undertake ex ante impact assessments of trade agreements in order to prepare in time for job reallocation, by estimating the extent of reallocation and assisting workers who will need alternative employment with training and placement. In practice, impact assessments are rarely conducted, and even when they are commissioned they make use of the computable general equilibrium model which has been criticized for basing its analysis on “strong simplifying assumptions concerning the functioning of the labour market” (Jansen, Peters and Salazar-Xirinachs, 2011, p. 3), mostly assuming full employment. Some more recent studies, such as the ones related to the WTO Doha negotiations (Polaski, 2006; Polaski et al., 2009) undertaken by the Carnegie Endowment, have provided a better picture of employment impacts under different scenarios.

The ITUC has consistently called for ex ante employment impact assessments of trade agreements to gauge the impacts of proposals for trade liberalization on the quantity and quality of employment in the countries concerned. The aim of such assessments is twofold: on the one hand, to be able to better prepare and advocate for adjustment measures and policies for those workers who will lose their jobs and will need to be reskilled or reallocated; and, on the other hand, to enable negotiators to adjust proposals by including longer implementation periods, exemptions or safeguards for specific sectors, or flexibilities for industrial development needs.

As mentioned above, a particular area of the WTO Doha negotiations where the ITUC has coordinated trade union action are the NAMA

negotiations. Research work was done by the ITUC in the form of sectoral tariff simulations for a range of proposals and their potential impacts for manufacturing employment in the NAMA 11 countries (Busser, 2007). COSATU undertook detailed research on the impacts of tariff reductions on employment in industries in South Africa. Similarly, the Instituto Observatório Social (IOS) in Brazil undertook a detailed impact assessment of the NAMA negotiations for the Brazilian manufacturing sector, while also assessing the impacts of previous liberalization on employment in Brazil and other Latin American countries (IOS, 2005). In India, the HMS trade union centre and the Centre for Education and Communication (CEC) undertook research on the impacts of the NAMA proposals in the fisheries, automotive and leather sectors.

Social dialogue

Strong labour institutions such as trade unions, collective bargaining and social dialogue guarantee that the process is participatory, that adverse effects are cushioned, and that benefits and adjustment costs are more equally distributed, while providing necessary democratic legitimization to policy-making. In practice, however, trade negotiations are often undertaken away from democratic decision-making processes. They are conducted in secrecy with little or no public access to negotiating texts, despite recent improvements in transparency at the level of the WTO. This has led to insufficient assessment of impacts, lack of consideration for adjustment costs and a failure to design policies that assist with the adjustment process and ensure a more equal distribution of costs and benefits.

In general, social dialogue on trade remains minimal in most countries, with even fewer instances of institutionalized social dialogue. In contrast, a good example is South Africa, where trade negotiations are debated at the national level. The trade unions are part of NEDLAC, the National Economic Development and Labour Council, which is:

... a tripartite structure including government, labour, business and community, in which trade and trade policies are discussed in the Trade and Industry Chamber, one of the four NEDLAC Chambers. The Trade and Industry Chamber has subcommittees to provide mandates for trade negotiations, including on NAMA, agriculture and services. COSATU and affiliates have worked intensively in these committees, including on an analysis of the impact of current WTO proposals on over a thousand tariff lines (Busser, 2007, p. 174).

In other countries, trade unions have regular meetings with trade negotiators to discuss negotiating proposals. In certain cases, trade union leaders are part

of the official country delegations to major trade gatherings such as WTO Ministerial Conferences. This is the case for several European countries, and countries such as Brazil and South Africa.

The remainder of this section will look at the range of policies that are available to deal with adjustment as a result of trade liberalization. Adjustment costs need to be redressed, including with government intervention, so as to compensate for income losses and enable the “losers” of trade openness to be protected in the short term and to advance their skills while enjoying income and employment security in the medium term. At the same time, the impacts on structural transformation in developing countries need to be addressed through careful trade opening so as to contribute to diversification and higher value added production structures through the implementation of industrial policies.

A brief overview of existing literature on these policies is provided here. The main policies described are: labour provisions in trade agreements, social protection, industrial policies, skills policies and employment services. Examples of trade union advocacy for some of these policies are also provided.

Labour provisions in trade agreements

Given the fact that trade opening has increased the availability of labour to business and allowed business to organize through global supply chains, which rely heavily on the subcontracting of production and labour, the bargaining power of labour has weakened. Mechanisms to increase the transfer of gains from capital to labour and from the top to the bottom, including minimum wages and collective bargaining, must be put in place and be respected in law and in practice if inclusive growth is to be achieved. Bargaining power is decisive for remuneration, including the social benefits and working conditions that a worker can achieve. A worker with uniquely high skills has much greater bargaining power than an unskilled worker, because the former has acquired skills that are scarce and faces low competition, whereas the latter competes with millions of workers who are equally unskilled. Trade unions change the balance of power between capital and labour as they enable workers (whether skilled or unskilled) to negotiate in large numbers.

Trade agreements with labour conditionality have played a limited role in improving adherence to labour standards. The enforceability of labour provisions appears in different forms: some provisions are enforceable by institutions with judicial competences, while others set a standard without providing for legal enforcement but leave space for political action and peer pressure. The labour standards that are most often protected in trade agreements are those set out in the ILO Declaration on Fundamental Principles and Rights at Work (1998), and in some cases they include fundamental ILO Conventions. In certain negotiations, labour law reform or a labour

rights action plan were a prerequisite for the negotiations to conclude, as for example in the cases of free trade agreements (FTAs) between the United States and Oman, the United States and Bahrain and the United States and Colombia.

The WTO is one of the very few international organizations with the ability to enforce sanctions on countries for breaking its rules, and trade sanctions have proved to be an adequate deterrent and efficient as a means of enforcing legislative and behavioural change. However, WTO rules do not include labour standards, except for a nominal ban on products of prison labour. In the context of FTAs, there are different procedural and content issues, for instance different stages of the legal process, eligibility to file a complaint, participation in the investigation team and in the panel of legal experts and arbitrators, the use of sanctions and other issues (Barenberg, 2009). Furthermore, the aggrieved have no recourse to any judicial mechanism themselves; rather it is a foreign government that defends their rights – the party that made a legal submission – and the arbitration or consultation process is driven by political and economic interests (Vogt, 2014).

Although such provisions have rarely been used in practice and no case has led to withdrawal of trade benefits so far, trade unions support the establishment of enforceable labour standards in the WTO regional and bilateral trade agreements because they could practically help to reinforce labour institutions and rights, including collective bargaining and organizing rights. Conceptually, the role of trade unions and collective bargaining, which offers to workers the ability to achieve a higher income, social benefits, better working conditions, occupational safety and health, and other rights, is crucial. Trade union members achieved on average a 34 per cent higher wage in sectors that were open to trade (Friedman et al., 2011).

At present, the most significant labour conditionality examples can be found in the trade agreements of the United States and the European Union. The US approach covers national labour laws and obligations set out in the ILO Declaration on Fundamental Principles and Rights at Work, but not the eight fundamental ILO Conventions that realize the Declaration. On the other hand, in its FTAs the European Union establishes obligations to effectively implement all the ratified ILO Conventions and, as it appears for instance in the FTA with the Republic of Korea, to “make continued and sustained efforts towards ratifying the fundamental ILO Conventions as well as the other Conventions that are classified as ‘up-to-date’ by the ILO” (EU, 2011, Art. 13.4 (3)). The EU Chapter on Sustainable Development also reaffirms the Parties’ commitment under the 2006 Ministerial Declaration of the UN Economic and Social Council on Full Employment and Decent Work. Therefore, the EU approach covers all core labour standards and other labour standards in a more comprehensive way than the US model.

On the other hand, the EU lacks a credible enforcement mechanism of these commitments, while the US Labour Chapters stipulate a procedure

that involves consultations, then the intervention of the agreement's commission and, if all efforts have failed, the dispute settlement mechanism of the agreement. The US enforcement mechanism could eventually lead to a suspension of trade benefits in case of a government's sustained failure to uphold labour standards. The EU Chapter on Sustainable Development mandates Domestic Advisory Groups established in each of the Parties to the agreement, and a Civil Society Forum, that comprise representatives of employers' organizations, trade unions and non-governmental organizations, to monitor the implementation of the Chapter on Sustainable Development. The Domestic Advisory Groups and the Civil Society Forum have no powers other than to refer issues to an inter-governmental Committee on Trade and Sustainable Development that discusses the matter (Altintzis, 2013) in a co-operative way. Hence, there is no real enforcement mechanism.

Trade unions have developed labour chapter models and principles for negotiating such chapters. The main stipulations are that trade agreements should establish the obligation for Parties to maintain in national laws and regulations, including those issued by sub-national structures, the ILO Conventions that realize the Declaration on Fundamental Principles and Rights at Work and other up-to-date Conventions that promote acceptable conditions of work with respect to wages, hours of work, occupational safety and health, workers' representatives, termination of employment, compensation in case of occupational injury and illness, and social security. The chapter should include non-derogation provisions to prevent weakening or waiving of labour standards to attract investment or spur trade. Another commitment is to effectively implement and enforce national labour laws. The Parties should also establish a dispute settlement procedure and ensure that the agreement includes forms of cooperation on labour.

Social protection

Social protection measures can assist those adversely affected by trade liberalization to cope with the costs of adjustment, and can facilitate reform by mitigating and reducing societal resistance to restructuring (VanGrasstek, 2011). Similarly, Mitra and Ranjan (2011) argue that globalization, like other processes involving economic restructuring, become more politically palatable when social protection systems are in place because they provide for income security, health insurance and the promise that the affected individual will be able to exploit future employment opportunities with new skills. This is particularly important for a just transition to a low-carbon economy, not only in view of coping with expected adverse effects on workers but also for increasing support for a just transition. In comparison to targeted adjustment assistance programmes, a comprehensive social protection system is preferable as it achieves results horizontally for all categories of individuals

who are adversely affected, including many who are not covered by adjustment assistance programmes (Jansen, Peters and Salazar-Xirinachs, 2011).

In making the case for the financial feasibility of social protection floors, the ILO proved that *basic* social protection is within the reach of all countries. However, not all countries have the institutional capacity or resources to implement an *advanced* social protection system with preventive, protective and promotional characteristics. Therefore, governments should be careful not to take trade liberalization decisions that are inconsistent with the level of national development and economic diversification. Poorer countries may need assistance in designing, implementing and financing social protection systems geared to deal with the adverse economic effects of a just transition. In general, a strong social protection system that aims at preventing risks, protecting from adverse effects and promoting the livelihoods of all citizens is needed in order to build support for restructuring that derives from trade opening, a just transition to a low-carbon economy or other efforts to induce structural transformation.

Industrial policies

Policies for structural transformation include financial, industrial, social, economic and other regulations and measures that aim at inducing the upgrading and diversification of economies, and the creation of new economic sectors while ensuring decent work and social inclusion. Countries that have developed have achieved their status with the use of trade policies, incentives, prohibitions, public action, quality standards, financing and fiscal measures. Trade and investment liberalization have increasingly restricted the use of these tools for industrialization, just transition and other national development goals. Even though many policy-makers and decision-makers in the developed world claim that policy space is not an issue because government-designed policies to spur development failed, the advocates of policies for structural transformation argue that these policies do not present anything new but are the actual way countries industrialized historically (Chang, 2008). Indeed, trade and industrial policies such as those listed below were used for achieving structural transformation. Successful elements of such an industrial policy include:

- the important role of the State in driving the industrialization process;
- a focus on high-quality activities (increasing returns) characterized by dynamic imperfect competition and not on low-quality activities characterized by perfect competition;
- the need for investments in education and innovation (public research centres);
- the importance of technical vocational education and training;

- control mechanisms for selective-targeted policies (such as export targets, local content requirements, performance requirements);
- targeted subsidies;
- experimentation, innovation and risk-taking;
- the creation of comparative advantages;
- access to cheap (domestic) finance for infant industries;
- national ownership of the industrialization strategy;
- tariff policy, a determining element when it comes to protecting a rising sector or industry (infant industry protection);
- requirements for joint ventures to enhance technology transfers;
- foreign ownership ceilings and investment screenings for mergers and acquisitions intended by foreign companies, aimed at protecting domestic capital;
- instrumental use of government procurement to promote development in specific geographic regions or economic sectors;
- relaxation of intellectual property rights in law and enforcement, including industrial patents for local affordability of technology;
- investment in state-owned enterprises for the provision of services and utilities and the creation of scale economy enterprises (“conglomerization”) and clusters;
- promotion of social attitudes in consumption with regard to local and foreign products; quality standards and controls to strengthen brands and the name of the country as a producer; and
- export restrictions and other quotas to incentivize local production and value addition.

The United Nations Conference on Trade and Development (UNCTAD) has recognized eroding policy space for developing countries as an important issue and recommends that governments apply economic policies outside the limitations imposed by trade agreements. It is obvious that the focus on GVCs in trade policy is not coherent with UNCTAD’s (2014) analysis, which shows that developing countries gain little from participating in international production networks, which leave them at the very bottom of the chain with poor-quality jobs while hampering the prospects of inclusive industrialization and social and economic upgrading.

The introduction of the new narrative on trade, based on the promotion of GVCs, has revived older efforts³ to make a tailor-made liberalization agenda, often in close consultation with multinational enterprises that manage the global production networks. Contrary to UNCTAD’s

3. For instance, the effort to include the Singapore Issues in the Doha Development Round.

recommendations, governments engage in negotiations and conclude so-called “21st-century agreements” that cover among other issues investment protection, intellectual property rights, government procurement, regulatory harmonization requirements, and special rules on state-owned enterprises, thereby substantially restricting policy space for industrial development.

Given that the shift to a low-carbon economy will also involve the use of a range of policy instruments that are traditionally linked to industrial policies (particularly subsidies, infant industry protection, technology transfers, among others), the trade liberalization agenda directly affects the just transition process, as it does for the industrial development process. This makes the policy space debate around the structural transformation agenda similarly relevant for the just transition agenda. We therefore argue for the promotion of a sustainable or green structural transformation agenda that enables a move to a higher value added, diversified and at the same time clean production structure. Industrial policies for a sustainable structural transformation thus need to include the promotion and use of new technologies, products and production methods for clean production.

As mentioned in the first section, trade unions have argued for the need to maintain policy space for industrial development and structural transformation as part of trade negotiations, in particular in the context of the NAMA negotiations and the Economic Partnership Agreements (EPAs) between the European Union and the African, Caribbean and Pacific (ACP) countries. Concrete engagement of trade unions in industrial policy has however been limited, as attention to industrial policy has only been recently revived.

The South African Clothing and Textiles Workers Union (SACTWU) has been active in advocating for industrial policy in South Africa, in particular for the clothing and textiles sectors which have faced severe challenges over the past decade. Trade liberalization and an appreciation of the South African rand have led to a rapid increase in textiles and clothing imports. Some 55,000 job losses were registered from January 2003 to September 2005, with the largest decline in the clothing industry.

In order to counter the steep decline in jobs and production, SACTWU has engaged in a range of efforts to enhance the industry’s competitiveness and make it more sustainable. A task team on the Clothing, Textile, Footwear and Leather Industry convened by the Ministry of Trade and Industry, in which SACTWU’s proposals for industry restructuring were presented, led in 2005 to the development of a Customised Sector Programme (CSP). Implementation of key parts of the CSP was slow and only really took off after 2009, although some measures were implemented earlier.

The CSP included 12 programme areas, including temporary safeguard measures on Chinese imports, promotion of local sourcing, improved quality of locally manufactured products, product and design innovation, improved technology, building an integrated value chain, improved investment, human resource development and sustainable employment practices (Vlok, 2006).

In 2008, an Industry Protection Fund was set up with contributions from workers and employers to initiate and support industrial policy and other measures to promote and protect the sector. The following year, the International Trade Administration Commission (ITAC) increased duties on a selected number of clothing products. At the same time, an Industry Rescue Package was developed. Further, in 2010, support measures were announced for the industry in the form of five schemes, namely, the Production Incentive Scheme, Working Capital Loans, the Competitiveness Improvement Programme, the Manufacturing Investment Programme and the Training Layoff Scheme.

In 2009, the clothing and textiles CSP and Rescue Package were integrated into a national South African industry policy, the Industrial Policy Action Plan (IPAP), and have led to greater stabilization of the local manufacturing industry. The IPAP includes new programmes to improve the skills of workers and managers, replace old machinery, reorganize work processes and increase productivity while increasing access to working capital for companies in need and combating customs fraud. The strategy aims at a quicker delivery, production in the higher value added segments, respect for workers' rights, and decent wages (Vlok, 2011). The number of job losses in the industry over the 2010–13 period was almost 18,000, a significant decline in absolute and relative terms compared to the 2004–07 period, although still substantial (SACTWU, 2010 and 2013).

Recently, IndustriALL (2013) has started work on a sustainable industrial policy to address the triple crisis: environmental, economic and social. The IndustriALL Action Plan calls for strong industrial policies that:

- recognize manufacturing as a key engine of growth for national economies;
- encourage investment in research and development, training and skills to assure sustainable industrial production and long-term employment prospects;
- support transfers of skills and technologies to developing countries to accelerate industrialization and the creation of good quality jobs while safeguarding the environment;
- develop a proactive energy policy which establishes security and sustainability as the foundations of industrial production worldwide;
- support a fair, ambitious and binding global treaty on climate change that takes into account social implications, promotes the creation of green jobs and encompasses the principles of just transition, thus ensuring that the transition to low-carbon societies is fair; and
- pursue union participation in all aspects of industrial policy development and implementation.

Skills policies

Skills and education policies can help affected sectors to retrain workers in order to provide new opportunities. Most importantly, as Cadot, Carrère and Strauss-Kahn (2011) found, investment in education and infrastructure has beneficial effects on export diversification which is necessary to achieve transformation into a high value added economy. Investing in education appears to have both short-term and long-term effects on job creation and value added production. Arguably, enterprises have to contribute their share in constantly retraining the workforce so as to meet future skills needs. In this respect, tripartite councils have an important role to play, including in determining skills needs for a transition to a low-carbon economy. The recently developed concept of Quality Apprenticeships, combining on-job and off-job learning with decent remuneration and prospects of long-term employment, introduces a process of continuous skills creation governed by the economic sectors themselves that enjoys high relevance and flexibility in catering to the skills needs of different trades while minimizing future skills mismatch.

The ILO has developed Skills for Trade and Economic Diversification (STED)⁴ specifically designed to assist countries to benefit from trade opening by focusing on skills needs arising from shifts in production. ILO experts conduct analysis on a chosen sector in a beneficiary country, complemented by interviews with key business actors, and invite representatives from employers, trade unions, educational and vocational institutions and the government to submit their comments. The analysis aims at identifying gaps in capabilities that hold back countries from exporting successfully, including gaps in product development and marketing, domestic regulation, and implementation of standards and practices. A final report compiles findings and recommendations for skills development policies that would help the investigated economic sectors to address shortcomings and build up capacity to export. The programme provides, among others, specific advice on the type of skills lacking for the industry; the new skills that would help exports grow; modalities of educating workers, professionals and managers; the establishment and role of centres of expertise, linking university and industry; and promoting social dialogue with skills councils.

In South Africa, SACTWU, as part of the efforts to reinforce the textiles and clothing industry, has been involved in “promoting worker skill development and building a productive workforce”, through the programmes of various Sector Education and Training Authorities (SETAs) in which the union is involved (SACTWU, 2010, p. 3). Since 2011, the union has also, in collaboration with the Friedrich-Ebert-Stiftung (FES), been running

4. See www.ilo.org/sted.

productivity workshops for shop stewards across South Africa in which workers learn about worker-friendly productivity improvement processes, with the intention that they advocate for such measures at their own factories.

Employment services

Another area for public policy is the role of public employment services in assisting with the reallocation of workers from firms shedding jobs to firms that are expanding production. For instance, the US Trade Adjustment Assistance and the EU Globalization Adjustment Fund, among others, offer job search utilities, free counselling, CV writing and job interview workshops, wage subsidies, relocation allowances and other public employment services to workers who have been displaced due to import competition. Boone and van Ours (2004) compared data from 20 OECD countries covering the period 1985–99 and found that public employment services had a measurable impact on reducing unemployment.

The trade agenda and impacts on the transition to a low-carbon economy

This section will examine three areas of the current trade agenda, namely, intellectual property rights, the environmental goods negotiations, and policy tools such as subsidies, local content requirements and procurement, which all have implications for the just transition agenda.

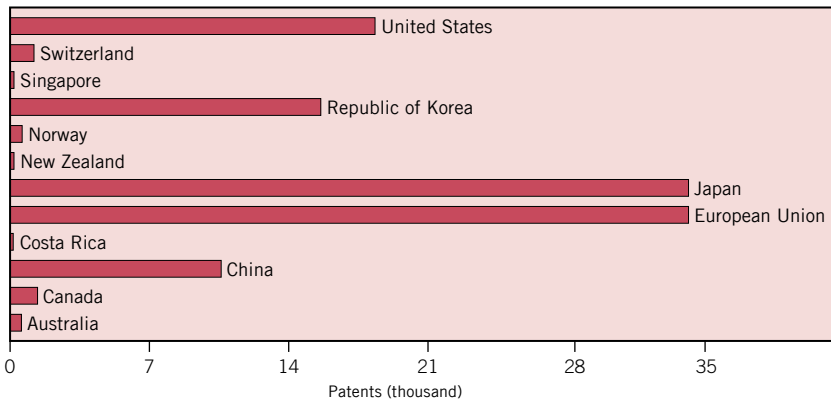
The issue of technological patents protection is of special interest to the just transition agenda. Arguably, because patents protect profits of inventions, they are an incentive for more investment in research and development (R&D) and innovation, but not a necessary requirement. Research in the context of the WTO Trade-Related Aspects of Intellectual Property Rights (TRIPS) finds that strengthening the protection regime for intellectual property rights would not be beneficial to most developing countries, nor to the world economy as a whole (Chang, 2001). In fact, a lax intellectual property rights protection regime and efforts to expropriate foreign technology were characteristic of the industrialization of currently developed countries (UNCTAD, 2014).

Reducing protection levels on green technology would enable developing countries to have cheaper access to such technology and to produce goods that improve energy efficiency, promote the reduction of emissions and all forms of contamination and waste, encourage the generation of renewable energy and resources based on their own capacities, and upgrade their economic structures. Making use of WTO flexibilities in intellectual property rights protection for HIV/AIDS medicine has helped increase access to anti-retroviral medicine, which has saved numerous lives (‘t Hoen et al., 2011).

Similarly, the WTO should exempt or significantly lower the length and level of protection of environmental technology from the TRIPS. More importantly, bilateral and regional agreements need to foresee the same exemption. Figures 1 and 2 show that developing countries, except China, do not own many environmental patents and therefore their protection is not a priority.

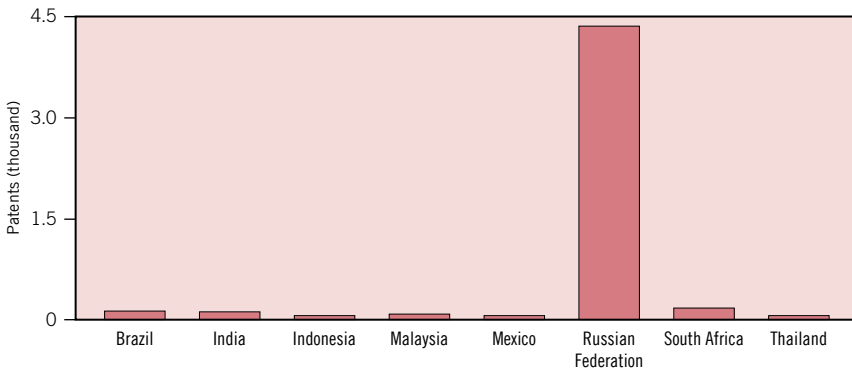
The Environmental Goods Agreement (EGA)⁵ is being negotiated as of January 2015 at the WTO and aims at reducing the market price of environmental goods by eliminating tariffs and by setting harmonized standards.

Figure 1. Number of environmental technology patents, countries and regions participating in the Environmental Goods Agreement (EGA) negotiations



Source: World Intellectual Property Organization (WIPO) statistics database, June 2014.

Figure 2. Number of environmental technology patents, selected countries not participating in EGA negotiations



Source: WIPO statistics database, June 2014.

5. In 2014, Australia, Canada, China, Costa Rica, European Union, Hong Kong (China), Japan, Republic of Korea, New Zealand, Norway, Singapore, Switzerland, Taiwan (China) and United States launched plurilateral negotiations for the liberalization of Environmental Goods based on a list of 54 products that was compiled at the Asia-Pacific Economic Cooperation (APEC) forum.

Although tariff reductions would result in cheaper access to these products, the agreement is also likely to lead to a certain consolidation of the green products market, and increase the market share of existing players that possess a large number of patents and designs. Countries that aim at developing their own clean production would unnecessarily restrict their policy space if they were to participate in the EGA negotiations, as these would eliminate tariff levels on green products and thus their capacity to protect infant industries in this area.

Another area of WTO rules impacting on policies for a just transition relates to local content and procurement rules as well as subsidies, which can be important in the toolbox of governments to provide the right incentives in terms of cleaner production. Their use is however subject to strict rules in the WTO and to bilateral or regional trade agreements. Such restrictions, for example on subsidies, have severely limited their use as part of industrial policy and industrialization processes. Similar constraints would apply for the transition to a low-carbon economy in which targeted subsidies could play an important role to encourage changes in production processes and methods.

Making local sourcing a priority indeed has great potential in reducing emissions. Cristea et al. (2011) find that although international transportation is responsible for only a small fraction of overall emissions, it is the largest share of trade-related emissions. After comparing emission data, their research finds that only one-fourth of possible production reallocations (that would take place due to new trade) would reduce emissions, and that such possibilities are concentrated in agriculture and mined ores trade but not in manufacturing. Furthermore, they conclude that preferential and regional agreements benefit adjustment countries and countries in geographical proximity; however, trade liberalization shifts trade to distant partners, which produces more emissions. Current trends in trade and trade agreements, such as the Transpacific Partnership Agreement (TPP) and the Transatlantic Trade and Investment Partnership Agreement (TTIP), favour international production networks that source from multiple trading partners based on the price of production and delivery time. The international production networks may deliver a cheap end product, but it is one which is more energy-intensive due to emissions in the transportation of the intermediary parts and the final good.

It is therefore important for the just transition agenda to assess the impacts of the various trade agreements under negotiation, as well as provisions adopted in trade agreements that restrict policy space for the agenda.

Conclusions

Just transition cannot be left solely to private initiative and market forces, because implementing climate action is not necessarily a profitable or high-return investment. Reducing the carbon intensity of the global economy will involve new regulations, fiscal incentives and disincentives and, in general, policies for which policy space is a prerequisite. One important conclusion is that trade and industrial policies can help reduce the ecological footprint of economic activity and increase the renewable energy input, in a similar way that, historically, such policies helped private firms and state-owned enterprises develop existing jobs and create new sustainable and decent work with high incomes and productivity. Arguably, a well-designed policy framework for sustainable structural transformation can assist economic actors to make use of the existing technology, for both low-footprint consumption and production, and spur the creation of new technology for the transition to a higher value added and cleaner economy. Maintaining policy space is therefore an indispensable prerequisite for structural transformation policies in the endeavour for economic diversification and upgrading while ensuring environmental sustainability.

Trade-induced restructuring, similarly to the just transition to a low-carbon economy, will create losers and winners, as adjustment costs and benefits are not borne and enjoyed by the same groups. In the case of trade opening, winners tend to be competitive firms and highly skilled workers, whereas uncompetitive firms and unskilled workers are set to bear the costs. In the case of just transition, carbon-intensive sectors need to be replaced by low-carbon sectors; many production patterns need to be overhauled and restructured; and consumption needs to become sustainable. Nonetheless, the emergence of a new economy will create many opportunities.

Contrary to trade liberalization that can be decided when a government deems that the economy is generally competitive, action for a just transition is needed as soon as possible. Governments face the challenge of instituting measures that will enable, facilitate and accelerate the transition. Changing the global economy and the human way of life is an opportunity that cannot be left unexploited. For this, governments and societies need a new framework of action for the transition to be achieved with justice and fairness, including by guaranteeing to those adversely affected by the transition a guaranteed minimum income and vast new opportunities. Besides the need to maintain policy space for a sustainable or green structural transformation, strong labour institutions and social protection – together with public investment in education and infrastructure and research for clean production – have proved to be effective means for building resilience, inclusiveness and new opportunities. Impact assessments are crucial and social dialogue has to be at the basis of the transition.

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Industrial risk management shifting towards a more just transition

The case of Dunkirk (France)

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In places marked by a strong industrial history and identity, such as the Dunkirk area of northern France, it is a considerable challenge to maintain industry as a source of employment and economic development, but also as a culture, in a time of economic crisis and globalization. It cannot be envisaged from the economic angle alone but implies aiming for the sustainability of all aspects of a system – economic, social, political and environmental. Paradoxically, such sustainability has to be adjustable, in order to take account of shifts in the global and local contexts. So it does entail a real transition for the area.

This article looks at a particular approach to this transition, this search for “adjustable sustainability”: the question of risk. The management of industrial risks (nuisances, pollution, accidents, shortages, etc.) has a strong impact not only on the economy but also on neighbouring residents’ health and well-being and more generally on local territorial organization as a whole. This is why traditionally – at least in France – industrial risk management has tended to be left to the industrialists, in agreement with local government. Where the different interests, questions and stakes of new actors are taken into account, risk management procedures are considerably modified. And indeed, a concerted approach to hazardous industrial sites has now become compulsory in France. Today, there is a requirement to involve employees and local residents in decision-making on the subject, and to include them in the flow of information. The hypothesis underlying this article is that a concerted approach to risk management constitutes a crucial means of achieving a more just transition, and is an essential factor in the adjustable sustainability of the area.

This concept of a just transition fits well with the idea of local area resilience.¹ Changes in risk management procedures are symptomatic of a sustained shift in local governance, which is tending to become more open to a broad range of actors, particularly non-institutional actors such as representatives of local residents, employees and associations. This entails greater participation and negotiation among diverse stakeholders. What we understand here by *more just, fairer* governance is determined by the principle underlying this notion, which emphasizes the shifts in responsibilities that take place among state, civil society and market forces when new actors are brought into the decision-making processes (Duran, 1998; Le Galès, 1995). So, in our view, this comes down to government procedures that take account of the non-institutional actors who are now (since the law of 2003) officially part of the risks discussion, and which give them a real place in sharing negotiating and decision-making power. This development is paralleled by the shift away

1. As defined by Comfort, Boin and Demchak (2010): “Resilience is the capacity of a social system (e.g., an organization, city, or society) to proactively adapt to and recover from disturbances that are perceived within the system to fall outside the range of normal and expected disturbances.”

from a risk theory based on top-down, hierarchical, opaque management, towards a more complex resilience strategy calling for more flexibility and coordination among a greater number of actors and levels of management.

This shift is a regional reaction to a globalization that has multiplied the stakes and the actors, and which calls for faster, more flexible local responses. Regions and modes of governance have to adapt to these changes and make the transition while nonetheless preserving an economic system, an identity and people's well-being. In other words, they have to do it in a just way.

Recent developments in legislation and practice on industrial risk management² in France are a particularly interesting angle for analysing shifts in industrial governance modes and the move from a compartmentalized, vulnerable system to a more open one, which in theory is more sustainable and less vulnerable. The actual outcomes of that theory still have to be demonstrated, but the case of Dunkirk is a quite advanced example of them.

New industrial risk management conditions in the Dunkirk area

Overview of the legislation and national context

Following the explosion of the AZF plant in Toulouse on 21 September 2001, French legislation on industrial risks underwent a minor revolution – as did awareness of these risks and, probably, collective memory in this field (Halbwachs, 1976). The Law of 30 July 2003, known as “Loi Bachelot”, enshrined these developments by bringing in a requirement to draw up Technological Risk Prevention Plans (*Plans de prévention des risques technologiques*, PPRT) for Seveso sites³ and to establish concerted action bodies called Local Information and Consultation Committees (*Comités locaux d'information et de concertation*, CLIC). In 2013, these became Site Monitoring Commissions (*Commissions de suivi de sites*, CSS). Despite many technical and political difficulties, the PPRTs and CLICs/CSSs are an important development in industrial risk management procedures and, more generally, in relations between industrialists and neighbouring residents.

In France, industrial sites are classified according to the degree of danger they represent. Each degree has its own legal requirements, all the way through from initial local declaration to authorization after “hazard studies”. According

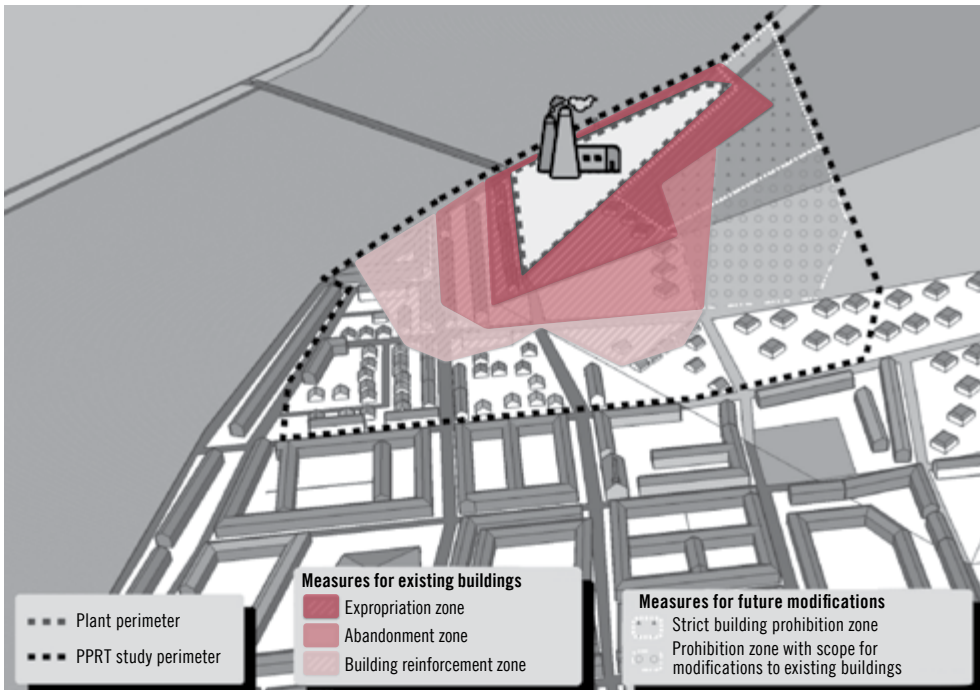
2. By “industrial risk”, we mean all potential accidental (such as overpressure or explosions) and chronic occurrences (such as various types of pollution). The industrial risks in the Dunkirk area, for the most part linked to petrochemicals, are calculated by the industrialists and the competent Regional Directorate for the Environment, Planning and Housing (*Direction régionale de l'environnement, de l'aménagement et du logement*, DREAL).

3. The European Directives on Seveso (dating from 1982 and 1996) set out to draw lessons from the explosion at an Italian plant in Seveso on 10 July 1976.

to how the industrial site is classified, the law establishes both the requirement that industrialists identify all the hazards posed by their enterprises and the principle of oversight by the hazardous activities administration. This makes it compulsory to draw up an Internal Operating Plan (*Plan d'opération interne*, POI), which structures the installation of safety systems inside the enterprise and the organization of emergency measures outside the enterprise by the representatives of the State, and for a Special Intervention Plan (*Plan particulier d'intervention*, PPI) to be triggered if the hazard extends beyond the site perimeter. The regulations also set quantity thresholds per product and per workplace (and per installation since the Law of 1976). Complementing this set of measures is a "right to know" for local inhabitants. This requires industrialists to communicate about the risks caused by their operation. Finally, the law introduces certain constraints with regard to the Land Use Plans (*Plans d'occupation des sols*, POS) or Town Planning Programmes (*Plans locaux d'urbanisme*, PLU) concerned, and calls for risk reduction at source.

These measures are reflected in the objectives assigned to the PPRT, which is first and foremost a town planning document. Its role is to impose, according to the specificities of the area, safe distances enabling high-threshold Seveso industries to exist without risk alongside nearby professional or civil activities.

Figure 1. Imagined sketch of planning measures linked to the PPRT



Source: P. Chagnon, in accordance with the PPRT methodological guide, Ministry of Ecology, Sustainable Development and Energy (MEDAD), 2007.

The PPRT specifies perimeters around an industrial site. These are drawn up on the basis of knowledge of the risks. Depending on the probability, intensity and kinetics of the hazards identified,⁴ a number of zones around the industrial site are delineated, thus mapping the technological hazards. The zones considered to be the most dangerous are subject to three planning measures regarding existing buildings: expropriation, abandonment or reinforcement (see figure 1). The PPRT also aims to prevent risks to future constructions, and may impose either a strict prohibition on building or a prohibition leaving scope for modifications to existing buildings (the prescription principle).

One major innovation is that these measures are not just the outcome of discussions among experts. In fact, the public, and in particular local residents, have been taking part in the debate on industrial risks ever since 2001, thus also enabling it to be extended to the “populations who were absent” (Suraud, 2009); and the establishment of the CLICs/CSSs, with a view to drawing up the PPRTs, will give them real institutional weight. So the “traditional actors” of risk management are now having to share this task with these new entrants – the public (residents and associations) and the employees of the risk sites.⁵ Thus, via the CSSs, risk management is being opened up to mobilize “players beyond the usual boundaries formed by state services, industrialists and local authorities” (Nonjon et al., 2007, p. 13).

These changes modify the operation of risk management and the relations between industrialists and residents.

Prevention plans and consultation structures in the Dunkirk area

Greater Dunkirk, which has some 200,000 inhabitants, is an industrial and port zone that is largely dependent on industrial employment: out of a total of 85,000 jobs,⁶ almost 20,000, or 24 per cent, are directly provided by industry, and to these must be added the many indirectly provided jobs in transport, services and others.

4. The hazards are classified according to their risk level. Seven levels are distinguished: Low, Medium, Medium +, High, High +, Very High, Very High +.

5. In fact, consultation of these actors is provided for in the ILO’s Prevention of Major Industrial Accidents Convention, 1993 (No. 174), available at: http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_INSTRUMENT_ID,P12100_LANG_CODE:312319,en. In force since 1997, this Convention is in the process of ratification by France: see http://www.diplomatie.gouv.fr/fr/IMG/pdf/3eme_rapport_ESC.pdf.

6. Communauté Urbaine de Dunkerque, 2010. The port of Dunkirk directly employs 400 people, see http://www.agur-dunkerque.org/ressources/Lists/Publications/Attachments/250/Cles2013_2014_bdef.pdf. These figures do not include employment in construction (5,600 jobs).

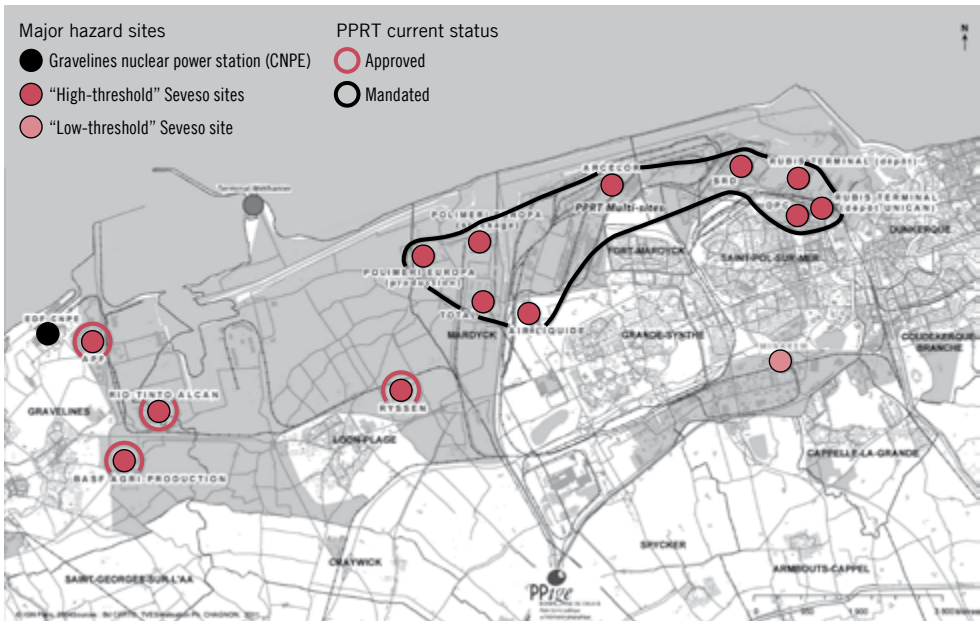
The Dunkirk PPRTs

The Dunkirk Industrial and Port Zone (ZIP) is home to 13 high-threshold Seveso sites (with a 14th under construction – a methane terminal), close to the third-largest nuclear power station in the world (and the largest in the European Union): the Gravelines Nuclear Electricity Production Centre (CNPE). Within this restricted space, five PPRTs are to be implemented: four “simple” PPRTs (BASF Agri-Production, Rio Tinto Alcan, Ryssen Alcools, Total – APF) and one “multi-site” PPRT grouping nine “high-threshold” Seveso II establishments.

The multi-site PPRT (mandated on 20 February 2009) has been subject to considerable delays. In fact, Total’s future site (Raffinerie des Flandres) has been more than uncertain for almost two years (including activity shut-down phases and judicial proceedings), which has long delayed the launch of the procedures. The multi-site PPRT has also been running into difficulties because it groups nine industrial sites and five boroughs. The addition of actors with diverging interests increases the likelihood of disagreements, as does the proximity of urban spaces (mainly residential areas). All of this makes the establishment of this PPRT a truly complex business.

The numerous human, real estate and economic interests in the hazard zones mean that the financial stakes are considerable: prevention measures have to be funded, and the opportunity costs are high if activity in part of a borough is frozen due to the presence of hazard zones. Numerous measures

Figure 2. SEVESO sites in the Dunkirk Industrial and Port Zone



Source: Grembo et al., 2013.

have been put in place to reduce risks at source, but these do raise questions, particularly from the “residents” group, about the ability to reduce hazard zones so rapidly, and sometimes substantially.

Functioning of the Dunkirk CLIC

In Dunkirk, the CLIC was set up on 19 October 2006.⁷ Contrary to the legislation requiring the establishment of a committee for each industrial site, it was agreed among the local actors, with Ministry of Environment approval, that in view of the local context of high industrial density, just one CLIC would be set up to cover all the sites of the Dunkirk Industrial and Port Zone. Initially, this was designed to be a “variable-geometry” CLIC, distinguishing between the western and eastern parts of Dunkirk’s territory in order to comply with the legislation as far as possible and respect the 30-member quota. Rapidly, however, and especially once the PPRTs began to be mandated, all the stakeholders took part in the CLIC meetings. This led to gatherings that were closer to 70 participants than to the 30 required by the national regulation. This situation gave rise to a debate about creating a liaison committee tasked with preparing the CLIC meetings (“finalizing the agendas”), “analysing the work” and “serving as a link to the different groupings”.⁸ The liaison committee was set up at the second meeting of the CLIC on 10 July 2007, its first mission being to draw up an internal rulebook (Frère, 2010). Punctuated as it was by opposition, this manner of proceeding was recognizably the establishment of a transactional process (Rémy et al., 1978), which organizes a form of debate within the public domain (Gibout, 2006) and “localizes” the issues by adapting the national legislation to the local context. And indeed, while the establishment of the committee was aimed at simplifying the debates, it must be emphasized that this structure is not covered by the Law of 30 July 2003.

Difficulties in setting up Dunkirk PPRTs

The reasons for the difficulties in implementing PPRTs in France are many and varied. In Dunkirk, the situation is a special one. Admittedly, some of the obstacles encountered are similar to other French cases – methodological difficulties with the risk studies, financial constraints, economic developments, legislative developments, etc. But the Dunkirk context also poses particular constraints, together with problem-solving approaches that are specific to the region.

7. This consultation structure has been added to the other, older established local structures for consultation: the Permanent Secretariat for the Prevention of Industrial Pollution (SPPPI) and the nuclear power station’s Local Information Commission (CLI).

8. Founding meeting of the CLIC, 21 December 2006; CLIC of 6 April 2007.

Consultation inadequacies

Lack of decision-making power

One important criticism of the consultation structures is that they lack decision-making powers, and this blunts their impact. Indeed, the CLICs/CSSs do have an essentially consultative role, and a minor one among the “associated persons and bodies” (POA). This leads the partners to wonder about the real scope of their participation and their overall involvement in the structures.

Information asymmetries and inequalities among the actors

The process of drawing up a PPRT is guided by the services of the State, which are responsible for producing maps of hazards and issues, ahead of any consultation. This technical phase is thus the exclusive preserve of the “experts”, and its outcome, through the mechanical effect of submission to a doxa (Bourdieu, 1979; Pinto, 1991), is imposed by the elite on the masses with the intention that it should not be subsequently called into question by the various actors. In this way, a gulf is created between the group of “administrations” (and that of the operators, who draw up the first hazard studies) and the rest of the actors.

Moreover, the technical nature of the debates is often put to strategic use, notably by the operators and the state services, in order to avoid confrontation with the other groups, particularly the local residents’ representatives. The latter try to reduce this information asymmetry through methodological demands that would help to redress the balance in the means of action available to the various groups. Thus, associations often call for rotating chairmanships, joint drafting of meeting agendas, the framing of internal rules that specify members’ scope for action, or the provision of a specific budget to the CLIC, enabling it to commission additional studies, reimburse volunteer members’ expenses or promote communication to the public at large (FNE, 2009).

Another asymmetry has to do with the existence of a hierarchical link among certain members of the assembly. The employee representatives are under the additional constraint of finding themselves face to face with their hierarchical superiors in a setting outside the workplace. They then generally tend to hold back and do not always feel competent to state their views within the formal context of the CLICs (although this is less the case for the trade union representatives, who are more used to negotiating and working out compromises). This often results in weak participation by the employees’ representatives, who adopt positions that tend to converge with those of the operators.

These asymmetries encourage certain actors who have more resources and power to exert pressure on others who have less.

Inadequate dialogue and exchange of views

Taking part in and running a body like the CLIC is very time-consuming. One has to be able to prepare meetings properly, turn up on the day concerned and also ensure follow-up (distributing information to those concerned, analysing the discussions, etc.) All the members of the CLIC are affected by these time constraints, particularly the volunteer resident representatives who have paid jobs elsewhere.

Moreover, during the meetings little time is actually spent on discussion. This leads to a certain amount of frustration and, contrary to the original intentions, to a juxtaposition of viewpoints rather than to compromises.

The boundaries set to the discussions, which are limited to the matter of accident risks, are felt as a constraint by many participants (notably elected politicians and local residents). Their centres of interest go way beyond this topic, taking in the broader issues of chronic nuisance, quality of life and local development, among others. Restrictions on the topics up for debate (and the state services' constant reminders about these limits during the discussions) tend to stifle interest and encourage passivity or a "form of asthenia", which crops up rather frequently amongst associations and in local public life (Gibout, 2006; Neveu, 2000), as well as the departure of certain actors despite their willingness and commitment to involve themselves in local democratic life (Bertho and Sintomer, 1996). This restriction on topics implicitly hands control of the meetings to the state services and the operators.

A specific local situation

Local adjustments to the legislation

Several local adjustments were made when drawing up the PPRTs for the Dunkirk Industrial and Port Zone.

The creation of a multi-site PPRT meant that pinpointing the issues and possible solutions became a considerably more complex task. This complexity is one reason why some actors pulled back. At times, they were less concerned than others by the exchanges and the zones under consideration. It also helps to explain why this body moved forward so slowly (leading to weariness among some participants). Opting for a multi-site PPRT, which the law provides for, also made the discussions more cumbersome and increased the number of actors present (from 30 to 70). This greatly alters the quality of participation, as it increases competition for the floor at successive meetings. Contributions from some speakers are obligatory (for instance, from the regional and *département* directorates DREAL and DDTM), so limitations are made first and foremost at the expense of the "smaller" players, namely the representatives of associations and employees, whose right to speak may be rationed or postponed until non-strategic moments during the meetings. Moreover, setting up the multi-site PPRT led to some "patching"

of the law through the establishment of a liaison committee, which left several actors feeling that they had lost ownership and created a suspicion that prior negotiations were taking place elsewhere, behind the backs of the other CLIC members.

This adaptation reveals on the one hand an interesting social plasticity in the face of rules (local ability to take a norm and adapt it) and on the other some possible gamesmanship when choosing the members of the liaison committee, aimed at securing rapid agreement among the participants (by limiting the representation of the “resident” and “employee” groups). Looking beyond the “enrolment trap” which is quite commonly found in consultation and participation procedures (Rudolf, 2003), this also concerns actors who are used to speaking in public and know the “rules”, or at least the “codes”, of adversarial discussion in a consultative situation (trade union representatives and national association representatives). Indeed, it may be observed that this form of regulation stems from the efforts of the representatives of local authorities, operators and devolved state administrations (Bourdin, 2000).

Our analysis of actual spoken contributions by all the members of the Dunkirk CLIC runs counter to the principle of fair consultation. A detailed analysis of the minutes of the meetings, together with observation of those meetings, led us to conclude that, of the 65 people present, only about ten regulars ever take the floor (Frère, 2010; Chambon, Gibout and Zwarterook, 2011). The silence from the others, and their inability to take the floor, whether that incapacity be technical (allocations of time and space that leave them invisible or inaudible in the meeting room) or practical (no mastery of the formal and cultural codes for seeking and taking the floor in collective meetings), reinforces the impression of a truncated consultation and a recurring confiscation of the right to speak by a small number of actors. As one trade union representative put it: “We’ve long been aware that, without the right balance of power, we’re unlikely to be taken into account. And this isn’t the kind of place where you can get power shifted [...]. But at least it gives us access to information and enables us to discuss things anyway.”

Low involvement of residents

Industrial risks are not seen as a priority issue by the inhabitants of Dunkirk (see table 1). In fact, the history and socio-economic context of the area have left the population convinced that they are dependent on the local presence of major steel and petrochemical firms. They are rather open to the idea that the safeguarding of local employment is paid for, in part, by accepting dangerous industrial enterprises as neighbours.

Further, the inhabitants do not identify danger as the main disadvantage of living next door to these sites. As may be seen from the survey conducted among the inhabitants of the village of Mardyck in the spring of 2006 (Flanquart et al., 2007), those living near industrial enterprises, when asked

about disturbances to their environment, focus much more on nuisances than on risks. They discuss more intensively with those around them and are quicker to mobilize when the protests are about falling soot, unpleasant smells, and so on, than when they are invited to reflect upon how to manage the risk of explosions, massive pollutant leaks to the air, etc. Nuisances, as their name implies, make the inhabitants' day-to-day lives less comfortable, whereas risks are seen only in terms of probabilities; they remain an abstraction for those who have had no first-hand experience of an industrial accident.

Table 1. Industries as seen by the inhabitants of Greater Dunkirk (percentages)

Industries in the Dunkirk area...	Placed 1st	Placed 2nd	Placed 3rd	Placed 4th	Placed 5th	Cumulative frequency
... are harmful to health	39	15	10	6	2	72
... are sources of employment	30	16	12	7	4	69
... are harmful to the environment	7	30	18	6	3	64
... pose major accident risks	8	11	13	9	7	48
... are vital to the economy and create wealth	9	15	11	8	3	46
... spoil the landscape	3	7	10	9	6	35
... give the region a bad image	2	2	6	10	6	26
... are part of our heritage	1	2	5	3	2	13

Source: Beaurain et al., 2009.

Intermediate conclusions

Dunkirk's industries are certainly polluting and dangerous, but they have long been subject to a network of consultation structures (the SPPPI and its various committees, the CLI, the CLIC/CSS, etc.), enabling the reduction of industrial risks and nuisances while preserving employment, both direct and indirect:

... because it's part of our culture, here in Dunkirk. We have a consultation process that has always been developed by the various bodies we've put in place, whether the local information committees on the nuclear industry, or the monitoring committees for the other industries that are just ICPEs [Installations Classified for the Protection of the Environment]...

Former local councillor with responsibility for the environment and major hazards in a borough of Greater Dunkirk

The Dunkirk system is working well, even if the associations sometimes say the opposite... we accept industry, on condition that it protects the environment... But in the end, by and large, I'm quite satisfied with the way things are run here. I'm not sure they run that smoothly in other places. Yet we do have a problem – we've got 13 Sevesos, you know!

Deputy Mayor of the City Centre, Vice-Chair of the Urban Community, member of the CLIC

The CLIC/CSS and the creation of the PPRTs are deepening this dynamic. Thus, despite the difficulties, a real transition is taking place in the Dunkirk area in regard to the management of industrial risks and local governance in general. Low-key though it may be, consultation has gained a foothold and is slowly but surely modifying the decision-making culture and hence the system for managing local risks. But are the results convincing? And will the chosen course lead to fairer, more just governance in debates and decision-making?

The transition to fairer risk governance

The new ways of managing risk are running into some real difficulties, but they are gradually being put in place in the Dunkirk area, sometimes with the help of informal approaches, less rigid than the formal framework, and of a local culture of consultation.

Efforts to reconcile aims that are partly contradictory

At the heart of the debates on the evolution of risk governance lie three major types of issue: economic performance, local development, and the well-being and safety of local residents. The move towards fairer governance, bringing new actors into the discussions, reflects a progressive shift in the prioritization of these issues.

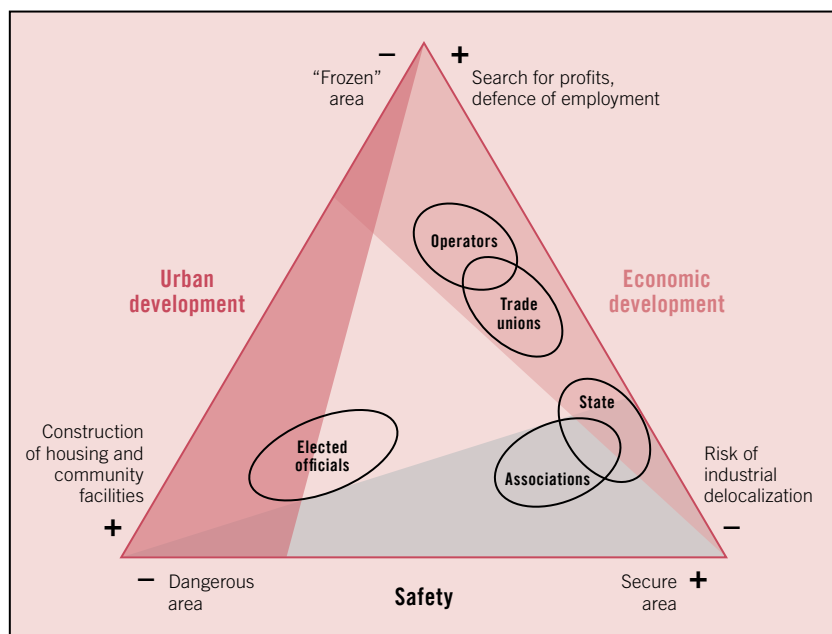
According to our research, the objective given the highest priority in the Dunkirk area is economic development. The reasons stated for this choice include defending jobs, developing the area and keeping non-dangerous operations local. But the argument that carries the most weight with everyone is that it is quite aberrant for local authorities and industrialists to finance the relocation of a plant in the case of expropriation or abandonment. And the law does indeed stipulate that, if an operation is within an expropriation or abandonment zone, the purchase of that activity must take place under a tripartite funding agreement between the industrialist who created the hazard, the local authority and the State. Nevertheless, an operator who has been expropriated, or has made use of the right to abandon, is in no way obliged to relocate within the same area. Hence the term “delocalization”, used by a former chairman of the CLIC. And indeed, the Seveso industries’ representatives themselves readily allude to it when the economic burden placed on them by the PPRT regulations becomes too heavy. A whole game is then played out around the classification of areas as abandonment zones or compulsory improvement zones. As the cost of the improvement work cannot exceed 10 per cent of the market value of the property,

a calculation then takes place among the different funders (the State, the local authority, the representative of the Seveso industries) with the aim of finding the most advantageous solution.

These issues may be observed during consultations, formal and informal negotiations and decision-making, both among the traditional actors and with the representatives of the “employee” or “resident” groups (see figure 3). In the latter case, these issues are sometimes raised both when they take the floor and when they do not: some instances of silence and non-opposition promote socio-economic issues to the detriment of the protection of the population, for example (Grembo et al., 2013). The associations that are part of the “residents” group know that the population looks favourably on industrial activity, which represents many jobs. To avoid creating a split with the inhabitants of the Urban Community of Dunkirk and ending up at odds with them, due to a “very fragile ... activist rank-and-file”, the associations, while defending the environment, also defend industrial jobs (Frère et al., 2012).

However, even though the socio-economic issues and the development of the Dunkirk area are still foremost among local actors’ concerns, the safety and well-being of the inhabitants have also become a real issue, thanks to the practice of consultation.

Figure 3. Ternary plot: The five types of actors and their positions on the three objectives



Source: Frère et al., 2012.

Informality as a decision-making space

Our research shows that the political-administrative actors are wary of working with the public and the employees, and therefore develop strategies for retaining control over risk management. This is particularly noticeable in the treatment of litigious or sensitive matters linked to the drawing up of PPRTs.

Industrialists and the administration dealing with classified installations have, over many years, built up a special relationship that enables joint management of problems linked to industrial risks. Laure Bonnaud (2005) describes the relationship between industrialists and the officials of the DREAL (formerly DRIRE) as one of trust “between technicians”. This finding is supported by Emmanuel Martinais (2010), who emphasizes that these actors work in tandem, notably vis-à-vis the external actors (Le Blanc and Zwarterook, 2013). This relationship forms the basis of the negotiating culture, as the industrialists and DREAL officials have developed a sort of “partnership” (according to the head of the Health, Environment and Safety service for one of the 13 “high-threshold” Seveso sites in the Dunkirk area). So part of the negotiations take a less formal turn and this makes for an imbalance of forces. However, these informal understandings enable the creation of different “talking spaces”, sometimes leading to real advances in the incorporation of the various actors’ wishes. These “talking spaces” are a more flexible conduit to just transition.

From formal collaboration...

At the meetings, consultations are framed, or indeed limited, by two principal actors, namely the CLIC chair and a senior DREAL officer. They oversee the preparation of the meetings: the DREAL representative does so as a contributor (preparation and presentation of the dossiers) but also indirectly via the secretary of the SPPPI, who is a seconded DREAL official; the chair of the CLIC is *ex officio*. During the meetings, control is exercised through the management of opportunities to speak, which they undertake to organize and share out, and this gives them oversight of the discussions, issues and subjects tackled. The DREAL, which brings its technical and regulatory expertise to the table, uses both when presenting the dossiers and when responding to the problems and questions raised by the other members, thus leaving very few openings for a debate.

The chair of the CLIC, meanwhile, at meetings of the CLIC and of the Liaison Committee, grants the floor, takes it back, decides the time allocated to each topic, and determines the choices to be made. His authority remains unquestioned – he conducts the orchestra. The influence of the chair may also be seen at the meetings of the POAs (“associated persons and bodies”), even though they are chaired by a representative of the *sous-préfecture* (intermediate

local authority). Interventions from the chair are important there, and they shape the discussions.

So the consultation is highly supervised. The political-administrative actors, through their experience of risk management and their long-standing joint work, maintain a certain hold on it. This is particularly apparent throughout the process of drawing up the PPRTs, a process they often side-step by means of informal meetings or exchanges.

... to a contested but productive informality

Our research has shown the growing weight of a certain informality around consultations, both through meetings and discussions outside formal structures and within formal but less constraining structures such as the Liaison Committee. The meetings of the POAs and of the Liaison Committee are, in practice, preferred to those of the CLIC when dealing with what are known as complex PPRTs. But in these meetings, equity among colleagues has disappeared, there is no obligation to publish the minutes, and consultation takes place in smaller groups. It should be recalled that the Liaison Committee was set up to prepare the holding of the CLIC meetings, so that they could proceed smoothly – not to replace them. This has become significant, as when, for example, the DREAL proposed, during the drafting phase of the multi-site PPRT, to draw upon the Liaison Committee in order to define a guiding strategy on town planning, industrial and transport issues for the village of Mardyck. Admittedly though, this way of proceeding is constructive, as the drafting of the PPRTs was speeded up once the Liaison Committee meetings got under way, and solutions were found to problems that had been dead-locked at CLIC meetings.

Small steps forward on participation, indicating
movement towards fairer governance

Structural specialization as a mark of effectiveness

Many of those interviewed in the surveys, when asked about the missions assigned to the information and consultation structures, stressed that a division of labour exists among the various consultation structures in the Dunkirk area. Thus, the SPPPI, generally presented as a versatile, informal structure, is regarded as the most appropriate one for responding to residents' local concerns and tackling the issues that arise when industry and housing are in close proximity. The CLIC, a more rigid and formal structure, is seen as more suitable for bringing together a range of different stakeholders and launching a dialogue on industrial risks. Functional specialization is perceived as a mark of effectiveness. To quote a trade union representative who is a member of the employee groups within the CLIC and the SPPPI:

In the CLIC, there's the notion of taking votes, which has never yet been put into effect, but it doesn't exist in the SPPPI. And there's the notion of identically structured constituent groups. There's the notion of a balance of governance, if I may put it in those fashionable terms. And there's the notion of voting rights, isn't there? You don't get all that in the SPPPI, do you?

The force of habit and acquaintance

A sort of consultation habit in the Dunkirk area, and the "routinized" nature of the structures (in the sense that they are founded on rigid operating routines), are perceived as having several more or less beneficial pay-offs.

First notable pay-off: the routinization of the exchanges makes it possible to develop forms of acquaintance that tend to promote the smooth functioning of the information and consultation structures. Thus, several respondents alluded more or less directly to the positive feeling of "togetherness" experienced when taking part in SPPPI, CLI or CLIC meetings. The information and consultation structures thus bring together actors who, to a certain extent, have got to know each other and have built "relationships of trust". This feeling encourages those who are less experienced at speaking in public to nonetheless take the floor.

Second notable pay-off of routinizing the exchanges: the long-standing nature of the structures is quite broadly appreciated. In particular, it helps to overcome discontinuities due to the high turnover among the operators' representatives and to establish a dialogue that will last because it is rooted in time rather than embodied by individuals. The long-standing nature of the structure will therefore help to stabilize what the actors see as a shared impetus – a joint dynamic of action.

Gamesmanship expected by and known to all

The concentration of "permanent tenants" within the consultation bodies creates a sort of "endogamy". This, together with the acquaintances that characterize these bodies, implies a better approach to the area's problems but also clearer insight into the interplay among various actors, making for faster and more effective distribution of speaking rights and lines of argument. At the formal meetings, most of the participants arrive forearmed with a knowledge of the network of local actors and their strategies.

The integration of the public in these consultation structures is certainly a step forward. It makes it possible to bring into the consultation the viewpoints, approaches, needs and interests of the public, or rather of the associations that make up the majority of the "residents" group. And the interface between the "employee" and "operator" groups enables a more thorough approach to industrial establishments classified as "Seveso" and to modes of operation and risk management at these sites.

Trust and acquaintanceship improve the consultation by reducing suspicion and other feelings of distrust which used to be provoked when certain actors' concerns were left out of account. In this way the acceptability of the orientation strategies and of the decisions taken on the PPRTs is enhanced. While full equity in consultation and decision-making is still some way off, the actors do have increasingly similar levels of information and participation at their disposal.

*Informality paves the way for decision-making
but undermines some fundamentals of the debate*

The case studies made during our research show that when a decision that was taken informally is presented to a CLIC or POA, it is accepted without demur or protest. This lack of contestation means that no adversarial debate can be launched among members of the CLIC or the POAs, and so not all aspects and issues of risk management are aired. The members of the consultation structures voluntarily cede ownership to the political-administrative actors. This is why Nonjon et al. (2007) call the CLIC a “support mechanism for industrial risk prevention policy”, in which the consultation element is not as present as the law requires.

While this way of functioning does raise many questions, it nonetheless achieves a certain number of results in terms of effective risk management, as decisions are reached, computed hazards are more or less taken into account in these decisions, the PPRT procedures are moved forward, and the local population are (in theory) kept informed through the dissemination of the CLIC minutes once the decision has been validated.

**Still some failings, but fairer governance
dynamics and greater local resilience:
A just transition gets under way**

These developments in the consultative process and in risk management mark a trend towards a more participatory, less hierarchical, more complex and more flexible system – in other words, towards a risk management strategy based on resilience, as opposed to the more technocratic, top-down management style that used to be practised. Analysing this from the angle of local resilience can provide a better understanding of the keys to these changes, while making it possible to check if the system is evolving towards fairer governance by taking greater account of the diversity of issues, expectations and interests.

Towards fairer governance of industrial risks: A resilience strategy

A concept of systemic risk management linked to participation and collaboration

Resilience means thinking in terms not of preventing disasters but of aiming at the sustainability of a system. This is very different from the conventional vulnerability approach to risk (Turner II et al., 2003; Dauphiné and Provitolo, 2007). Resilience should be envisaged as a type of operational risk management strategy.

This strategy is based on flexibility and a qualitative approach, necessarily implying at least the partial transfer of risk and incident management from the public authorities, and particularly the State, to intermediate actors and/or individuals – which is what happens in the Dunkirk area. A resilience strategy is rooted in well-defined articulation of the different tiers, coordination among actors and groups of actors, knowledge processes concerning the local area, “sensemaking” (increasing understanding of how a system functions, and giving it value), and trust among the various actors within the system (Comfort, Boin and Demchak, 2010). This implies less heavy, massive investment in structures and infrastructure, which are subject to long decision-making processes. Resilience, as it relates to a broader local system than merely taking account of an industrial hazard, involves more actors; the tools of consultation and participation are therefore particularly appropriate. Structures such as the Dunkirk CLICs, despite the difficulties, are part of that trend.

Political developments, too, reflecting profound change

The success of the concept of resilience can be explained in part by its “positive” connotations in comparison with the concept of vulnerability: politically, it is easier to explain to citizens that policies are being put in place to boost resilience, rather than to sell them costly policies aimed at reducing vulnerability to unlikely risks. But this “marketing” of resilience also reflects the political positioning conveyed by this concept (Vale and Campanella, 2005).

In simply raising the question of articulating the different tiers, a political issue is brought to the fore: if responsibility is transferred, is there not a danger that the State will withdraw and that this responsibility will then be diluted? That would produce extremely unequal risk management, depending on the means available to such-and-such a community, such-and-such a local authority, etc. And might it also lead to blaming individual actors or intermediaries, as Sandrine Revet (2011) suggests? To put it differently, by telling individuals that “it’s up to you to be resilient, it’s up to you to coordinate and manage the risk”, are we not also hinting that “if you come to harm, it will be your own fault”?

So the major political question mark over resilience is this: if the State transfers to individuals and local authorities the responsibility for guarding against risks, will this not serve to create multi-speed risk management and accentuate socio-economic inequality? And if it does, what kind of social vision will that be promoting? Many authors have come down strongly against the use of the notion of resilience and its political corollaries (for example Rufat, in Reghezza-Zitt et al., 2012). In our view, resilience should be considered as an approach that complements conventional risk management, and not as a withdrawal of the State. In the case of the Dunkirk area, this questioning has a major implication: even if a decision really is the fruit of consultation, it is still essential that the responsibilities of the various actors should be very precisely clarified.

Resilience corresponds to a social demand and to a policy of democratic participation that has been slow to get off the ground but is nonetheless real, emphasizing as it does a more general development of relations among local actors, as the example of risk management in the Dunkirk area shows.

More efficient and democratic risk management?

A risk governance shared by all actors

Working on the basis of five groups (see figure 3) makes it possible to build into the consultation process various viewpoints, approaches and needs which, without this structure, would perhaps never have been brought together. By allowing certain opinions to confront each other (notably in face-to-face discussions between “employees” and “operators”), divergent positions can be brought to light, but so can others, more complementary views, on how to manage risks. In this way, everyone helps to build up a global approach.

This representation, through the different groups, of different tiers of actors (representatives of the State, of multinational industrial groupings, of residents’ associations, etc.) corresponds to greater resilience for local areas and to the coordination of ever greater numbers of more and more diversified actors. Such an approach to risk appears to be the most democratic, and also the one best suited to a changing world and present-day risks, even though it is considerably more complex and requires a fully appropriate setting.

The crucial role of information and communication to the public at large

Communication by the consultation structures to the general public, and more particularly to those subject to major industrial risks, must be “one of the drivers of acculturation to risks” (Beck, 2006): the more risk managers communicate to the public, the more the public will be likely to acquire a risk culture. A marked improvement in risk prevention can be developed

through the transmission of information and knowledge, making the wider society more receptive to prevention campaigns. It is important and necessary to improve the tools of communication, consultation and information in order, among other things, to facilitate access to information. The legislative will exists to make large amounts of information accessible about industrial plants, their risks, and the CLICs or PPRTs, but experience on the ground shows that, for example, the public is little aware of this information and where to get it, whether from town halls, *préfectures* or other public premises, or from the websites of DREAL, the CLICs and the SPPPIs.

According to Garnier and Rode (2006), information can “enable better management of events (anticipation, behaviour appropriate to a crisis situation, and better material and psychological management of a crisis)”. Thus, whether for risk managers, elected politicians or the population exposed to the risks, the theoretical consequences of knowledge transfer would be, on the one hand, greater responsiveness by all the actors (appropriate decision-making, interventions, behaviour to be adopted, etc.); and, on the other, the firmer establishment of emergency procedures appropriate to each type of accident (explosions, fires, release of toxic substances, etc.) This dynamic (involvement of the various actors, information, communication) therefore has an impact on vulnerability, and thus reducing the potentially harmful effects of the various types of concern, including the “major issues in the area” (D’Ercole and Metzger, 2009). This means that reconstruction of the damaged areas will be faster. In addition, reconstruction of the less material or less immediately perceptible dimensions will also be more rapid: individual psychological reconstruction, the reconstruction of collective identity, reconstruction of the social and economic fabric, and so on (Vale and Campanella, 2005). A better-informed society is a society that shows more resilience in the face of risks. And it is a fairer society.

Decomartmentalized risk management

Developments in approaches to risk management have also included a less visible but no less vital trend: the decompartmentalization of management by taking much broader account than before of the social and economic context. A systemic approach to risk is a key element of a just transition.

Today, the management of risks, particularly industrial risks, can no longer consist in the simple juxtaposition of a hazard and of previously identified issues. This static, rigid vision has revealed its flaws and has gradually given way to greater consideration of local dynamics and complexities. So if risk management is headed towards local resilience and fairer governance, it has to decompartmentalize its traditional approach in order to establish links between the risk components, the actors and the different tiers.

Through a systemic approach and taking account of the complexity of areas and societies, risk managers cannot but increase their knowledge of

the risks and potential effects of an accident for a given area. It becomes possible to better anticipate the consequences of an accident, and to tackle and manage them by adjusting to the spaces or areas affected, using the tools and services available close to the hazard sites. For instance, drawing up an inventory of these, together with the skills and knowledge of each risk management actor, reinforces the idea of anticipation: knowing the different intervention points depending on the risks that are present, knowing the various resource persons, knowing the possibilities for diverting to another network if one of them fails, etc. Here, we are heading towards a form of resilience through increased knowledge of the risks, the stakes and the exposed areas, but also through a greater range of resources that will remain available in case of accident. Such resources may be material (various networks, for instance) or abstract (knowledge of people, competences, etc.). This broadening of resources and their availability is the cornerstone of fairer, better-shared management.

Beginnings of a just transition

The resilience approach puts public information and the roles of consultation and participation back at the centre of things. Concerted, negotiated decision-making, consideration for different perceptions of risk, and dissemination of knowledge about management processes and choices – all of these help to make risk management more effective in the face of uncertainty, and also to make it more democratic. Information is crucial to lively, dynamic participation, especially by the public (Vachon and Coallier, 1993). This reassessment of the issues around better-shared information and joint decision-making can be seen as the beginnings of a just transition.

Information, consultation, cooperation and participation are distinguished by the degree to which decision-making power is shared and by whether or not the information is reciprocal (CERTU, 2000). Resilience not only implies a multilateral sharing of information (which is part of what is meant by “consultation”) but, unlike the more centralized traditional type of risk management, it also entails cooperation among a greater number of more diversified actors, and the sharing of decision-making power, limited though this may be. Thus, consultative bodies are less effective, in risk management terms, than are truly participative approaches – or at the very least a deepened consultation process that is not just window-dressing. To be resilient, a local structure has to move on from perfunctory, tokenist consultations and enter fully into a systematic, effective concerted approach. In this respect, the Dunkirk system has embarked on this new phase, but there is still a long way to go – nevertheless, it can be seen as a just transition, or at least the beginnings of such a transition.

This form of risk management enables more accurate ranking of the risks perceived by the public. For example, industrial risks and job loss risks

can be more readily confronted. Consequently, risk managers can no longer be accused of being blinkered, of focusing solely on industrial risks and of endangering employment or economic development. So well-run consultations and transparency lead to a discourse and policies that are more acceptable to a broader, better informed population.

Conclusion

By improving the quality and fairness of governance through continuously adjusted consultative processes, ensuring greater and, above all, better involvement (a quantitative but preferentially qualitative logic) of the various actors concerned by risk management (managements, employees and trade union representatives in workplaces, representatives of the State and local authorities, local residents of all ages, environmental associations, etc.), it should become possible to limit the risks bound up with the occurrence of unfortunate incidents – and, in the event of an accident, to achieve better management of emergency measures by reducing the immediate consequences to a minimum.

Resilience makes it possible to respond to the challenges of complexity and uncertainty by emphasizing the informational and interpersonal aspects and breaking away from a state-based paradigm of the kind that predominates in France. A study of the prior assumptions and consequences of the resilience approach shows that multilateral sharing of information, but also coordination among the actors, together with some type of delegation of decision-making power, are major factors in adjusting better to risks. Consequently, they are the cornerstone of fairer governance.

These developments in risk management do indeed reflect an underlying trend in the governance of industrial areas. On the great issues identified (economic performance, local development, public safety and well-being), readjustments are now taking place that are linked to new legislation and the demands of local inhabitants, and all of this is pointing towards a just transition. In an area heavily dependent on industry, the traditional risk management actors who were initially reluctant to open up to consultation and participation have started to work with the public, residents' associations and others, the assumption being that a more open, fairer system is not, contrary to what was previously thought, economically harmful but rather a system better suited to a context of globalization, flexibility, complexity and diversity of actors and tiers.

Systemic management and a just transition are indeed the prevailing visions, together with a sustainable industrial system. Thus, despite considerable difficulties at the outset, things seem to be heading towards a system that is both fairer and more effective at managing risks. In the Dunkirk area, certainly, these dynamics have already proved fruitful, among other things by

reducing risks at source – but they do also raise a number of issues, such as the maintenance of the industrial strategy despite certain major developments (closure of the refinery, construction of a methane terminal, lack of development of “clean” energies) or the area’s reorientation towards other resources (particularly tourism). The just transition process that has been put in place could therefore, in the near future, run up against a logic tending to bifurcate the system, and this could place a large question mark over it.

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