Green Transformation: Is There a Fast Track?

Hubert Schmitz

Final chapter of Ian Scoones, Melissa Leach and Peter Newell (eds), *The Politics of Green Transformations*, Earthscan/Routledge, 2015, forthcoming

Introduction

The green transformation is different from previous transformations in one critical respect: urgency. This is the first transformation in history to be achieved against a deadline. Hence the question in the title: is there a fast track? This paper seeks answers by addressing five sub-questions: what, why, how, who, and when?¹

Section 2 asks what the problem is. Section 3 asks why this problem needs urgent attention and reflects on how robust the call for urgent action is. Section 4 asks what we know on how transformations occur. Section 5 asks who can be expected to drive the transformation forward. Section 6 asks when the green transformation is most likely to occur. The concluding section then returns to the overall question posed in the title of this paper. Since this is the final chapter of the book it also draws together elements of preceding chapters.

What?

The green agenda encompasses many issues. If asked what the most fundamental problem is, most scientists studying our planet would probably say: climate change. ‘Each of the last three decades has been successively warmer at the Earth’s surface than any preceding decade since 1850’ (IPCC, 2013, p3). A continuation of this trend would make human life very difficult in many parts of our planet. This is the first part of the climate and earth scientists’ message. The second part is that humans – by increasing carbon emissions – have brought about the problem. ‘It is extremely likely that human influence has been the dominant cause of the observed warming since the mid-20th century’ (IPCC, 2013, p12). ‘Extremely likely’ means that these scientists are ‘95-100%’ certain (p2).

However, both parts of the message remain contested. One of the leading climate scientists, Mike Hulme, has provided an in-depth analysis of the reasons in ‘Why we disagree about climate change’ (Hulme, 2009). There are hard and soft disagreements. Hard disagreements come from the powerful vested interests who question the existence and human causes of climate change (Newell and Paterson, 2010; Blasberg and Kohlenberg, 2012). Trying to defend its assets, the fossil fuel lobby has fought hard to discredit the scientific case for connecting climate change with carbon emissions. Soft disagreements arise over concerns that the discourse on green economy and growth depoliticizes the transformational change required (Wanner, 2014). These hard and soft disagreements are discussed in chapter 2 by Melissa Leach and chapter 5 by Peter Newell.

This chapter raises a different concern over the climate change debate: the narrative of the earth and climate scientists does not connect with the experience of ordinary
citizens. The climate change paradigm is a result of research carried out by many groups of scientists in different parts of world, using different approaches, different data sets and often focussed on different parts of the planet. The collective confidence of these scientists in their analyses and predictions comes from the convergence of their findings with regard to some key variables, notably changes in land and ocean surface temperatures. Scientists have focussed in particular on the globally averaged temperatures and shown that small rises in these global *averages* have huge consequences. The discourse of global warming has centred on the need to limit the temperature rise to two degrees (over the 1990 level) and to do this by bringing carbon emissions down. While scientifically robust, it has been politically ineffective.

I would argue that language and discourse have a lot to do with it. Small rises in average temperature are of little concern to ordinary citizens; in countries such as the UK small temperature rises seem even desirable to most people. Shifting the discourse from climate change to *climate chaos* (Sachs, 2007) would help to connect the findings of scientists with the observations of citizens. Climate chaos is precisely what they experience – extreme weather events have become more frequent in most parts of the world.

My main argument in this section is that clarity is needed with regard to what the problem is. While scientific clarity is necessary, it is not sufficient. Shifting the focus from climate change to climate chaos would be more effective politically. This is not to suggest that this in itself would accelerate action. An action oriented approach needs to concentrate on the transformation that is needed to tackle the problem. This is precisely what we do this in this book. We call it the *green transformation*. ‘Transformation’ signals structural change, ‘green’ gives the direction of travel and the two together invite questions about the drivers of change. In this chapter, I suggest a parsimonious definition: the *green transformation* is the process of restructuring which brings the economy within the planetary boundaries.

Previous chapters of this book prefer the plural *green transformations*. I agree that problem constellations and actor constellations can differ over time, between sectors, between places, and ways forward may therefore differ. So as to acknowledge this diversity, this chapter will henceforth also use the plural. Where the singular appears it is not meant to deny diversity. There is a parallel in the term ‘industrial revolution’ which consisted of interdependent transformations in different sectors and places.

**Why?**

Earth and climate scientists tell us that the transformations required for sustainability need to be achieved *quickly*. A key feature of their message is *urgency*. Continuing on the current path would mean soon reaching tipping points beyond which life on earth would suffer *irreversible damage*. Such ideas on the depth and speed of the required transformations are increasingly influenced by the concept of ‘*planetary boundaries*’ (Rockström et al, 2009). These boundaries define ‘a safe operating space for humanity’. A breach of these ‘planetary guard rails’ (WBGU, 2011) would give rise to intolerable consequences so significant that even major advances in other fields could not compensate for the damage.
Rockström et al (2009) identify nine planetary boundaries that human-induced changes threaten to break: climate change, ocean acidification, stratospheric ozone depletion, global phosphorus and nitrogen cycles, biodiversity loss, global freshwater scarcity, land-system change, atmospheric aerosol loading, and chemical pollution. Seven of the nine boundaries are quantified, but these seven cannot therefore be considered firm thresholds. The indicators of change and their exact values chosen by Rockström et al are for the most part arbitrary. Moreover, boundaries do not always apply globally. Local circumstances can ultimately determine how soon water shortages or biodiversity loss reach a critical threshold (Editorial of Nature, 2009). In short, the claimed urgency does not apply equally to all planetary boundaries and locations.

Melissa Leach in this book (chapter 2) goes a step further and expresses concern that the planetary boundaries discourse invites top-down approaches and technocratic fixes. I agree, there is a danger that the search for solutions is depoliticized, but there is also the danger of undermining a collective scientific undertaking and playing into the hands of those who deny the underlying problem. While uncertainties remain, the concept of planetary boundaries seems a constructive attempt to define the limits to economic growth. And for some boundaries the evidence is fairly robust, notably the one concerning climate change due to increasing carbon emissions. The scientific and policy debate on mitigating climate change has exploded partly because there is a deadline for achieving the transformation from a high to low carbon economy. Climate scientists have produced a timetable for reducing these carbon emissions (IPCC, 2007; IPCC, 2013): the most common reference point is that global emissions must fall by an average of 50 per cent below 1990 levels by 2050 – in order to avoid more than two degrees of global warming. Intermediate carbon reduction targets have been set for 2020 and 2030. While the precise dates and figures can be questioned, there is increasing scientific consensus that with each passing year of continued high emissions, the prospect of avoiding climate chaos sinks and the cost of dealing with the consequences rises (Stern, 2007).

The problem is that this has not led to international joint action and that global carbon emissions keep rising (Latin, 2012; Helm, 2012). A participant at the Oslo conference ‘Transformations in a changing climate’ (June 2012) put it very succinctly: ‘Hell does not sell’.2 This prompts the questions for the next two sections: what do we know about how the green transformation can be brought about and who can accelerate the process?

How?

There is no established transformation theory, but there are various lines of work that can provide useful insights on how transformations occur.

The most fundamental point is that there is no single line of causation: transformation results from a concurrence of multiple changes. This is the conclusion of Osterhammel’s (2014) history of the nineteenth century, Leggewie and Messner’s (2012) review of theory and history of transformations, and of Geels and Schot’s (2007) analysis of big ‘Technological Transitions’. This emphasis on the concurrence and interaction of multiple changes immediately raises the question of how to deal with complexity.
This is where the Multi-Level Perspective (Geels, 2002, 2011) is relevant as a way of categorizing these changes. It distinguishes three analytical levels: niches which are the locus of radical innovations, socio-technical regimes, and landscapes which are exogenous. Transformations are regime shifts brought about through interactions between these levels. Radical innovations taking place in niches can destabilize existing regimes and break through more widely if changes in the external landscape (for example the global financial crisis or the Fukushima disaster) create pressures on the regime that lead to cracks and windows of opportunity. As a result, the existing regime might be replaced – or it might be strengthened if it can adapt. This is very useful but it is not (yet) clear what it tells us on our central question: whether and how transformations can be managed and accelerated in a purposeful way.

Therefore it seems worth asking what we can learn from the work on Transition Management (Rotmans et al, 2001). Central to Transition Management is involving stakeholders in developing shared visions, conducting experiments to explore concrete ways forward as well as putting the existing regime under pressure. As stressed by Kern (2013, p21), ‘its long term sustainability orientation, its focus on learning and innovation, its elaborate process architecture, its theoretical underpinnings in a sophisticated understanding of processes of socio-technical change all contributed to the appeal of the Transition Management model’. However, the implementation experience in the Netherlands and Belgium revealed that it was too technocratic, focused too much on the early stage of the policy cycle (design and formulation), shied away from conflict and therefore failed to change structures (Kern and Smith, 2008; Paredis, 2013). It lacked what this book is centrally concerned with: an understanding of the politics of transformation.

Recognizing the enormity of the ambition of managing the transition, innovation scholars have put energies into a more focused agenda: finding ways of piercing through the prevailing socio-technical regime by promoting specific niches (Schot and Geels, 2008; Smith and Raven, 2012). The niche concept presumes that green technologies are often disadvantaged and require strategic support to protect them against premature rejection by investors and users. In evolutionary terms, novel environmentally friendly varieties struggle to develop under unfavourable selection pressures (Nill and Kemp, 2009).

Smith and Raven (2012) suggest a framework conceptualizing the construction of protective space as consisting of three processes: shielding, nurturing and empowering. Screening the literature they find that innovation scholars have a lot to say on shielding and nurturing but little on empowering. Of particular relevance for this book is their notion of ‘stretch-and-transform empowerment’ which seeks to reframe the rules of the game and reform institutions that influence prevailing performance criteria. In their most recent work (Raven et al, 2014), they highlight ‘the importance of narratives as key devices in undertaking this socio-political work’ (p26). ‘To successfully secure resources for niche development, advocates need to link socio-technical narratives to socio-political agendas, and enrol powerful actors into their networks’ (p8). Significantly, their conclusion stresses the need for ‘analysis of the wider political economy beyond those directly involved in and targeted by sustainable technology advocacy, i.e. to fully include analysis of the political economy of fossil fuel energy systems as well’ (p27). This is also the conclusion of
Geels (forthcoming, 2014) who suggests that the destabilization of existing regimes requires equal attention. Referring to Schumpeter’s notion of ‘creative destruction’ he stresses the need to better understand the ‘destruction’ part. To conclude, innovation scholars are making big contributions to the ‘How?’ debate. What is missing are insights on accelerating the pace of the transformation – given the central question of this chapter: is there a fast track?

Perhaps a more promising way of throwing new light onto the speed question is to ask what can be learnt from experiences where rapid transformations occurred. Both China and Vietnam have undergone transformations which were managed and very rapid – involving major economic reforms, big sectoral shifts, build up of new production capabilities, and massive job creation. The speed and depth of changes were unprecedented in economic history. Assessments and explanations of this experience are contested, not least because the environmental consequences are horrendous. However, for our concern – is there a fast track? – there are useful insights. Both China and Vietnam progressed by using transitional institutions and transitional arrangements (Qian, 2003). Note that ‘transitional’ here means temporary, appropriate for the next stage in a longer process. Experimentation was also a key feature, sometimes organized purposefully from above, sometimes pushed on the agenda from below – called ‘fence breaking’ in Vietnam (Malesky, 2008; Heilmann, 2008).

Such insights seem highly relevant for this book and are therefore worth elaborating. The key feature of China’s development strategy and that of other East Asian countries is that they did not follow models from elsewhere. Mike Hobday (2003), in a review of the rapid Asian industrial development, concludes that it is diversity rather than uniformity in the institutional arrangements and development policy that characterizes the innovation experience of the Asian Tigers. In ‘Institutions and Economic Growth’, Stephan Haggard (2004) emphasized how East Asia succeeded through a process that was highly experimental in nature.

The importance of step-by-step experimentation comes out most strongly in the Chinese experience. Qian shows this convincingly in his article ‘How Reform Worked in China’ (2003). ‘Transitional institutions’ rather than ‘best practice institutions’ were the key. He stresses that the adopted institutions need to take account of the conditions at each stage of the reform process. For example, a market was created through a dual-track approach to liberalization, enterprises were created through the non-conventional ownership of township-village enterprises, and government was reformed through a particular type of fiscal federalism. These institutional innovations worked for a while and then had to be replaced. Not all of them succeeded but there was a common thread to those that did: ‘pragmatic innovation’ and aligning the interests of the newly enabled decentralized actors with those of the reformers in central government.

The Communist Party failed to give this transformation a green direction but it was a transformation that was deep and fast. Attributing this depth and speed to a big push from the Centre along a predetermined path would be misleading. Distributed entrepreneurship, trial and error, diversity and transitional arrangements are key features of the Chinese, and indeed East Asian, fast track. The picture that emerges is one of making progress by swinging from one branch to another (in spite of the
occasional fall) rather than sticking to one strategy. Each stage brings new obstacles… and new opportunities. If this is a useful way of thinking about the dynamics we still need to figure out who moves the process forward – or holds it back.

**Who?**

In order to discuss who can drive green transformations forward, it helps to start with a distinction between *transformation from above* and *from below* and then unpack the different actors and approaches – see Table 11.1.

Over the last decade, most attention has been given to the left side of the table. The ambition was to bring economic development within the planetary boundaries by pursuing an approach which was *top-down*, had a *global* scale, was (supposed to be) led by the *North*, and driven forward by *public actors* that recognized the need to mitigate *climate change*. This global governance approach has failed as shown by successive climate conferences (COPs) and the sustainability conferences in Rio de Janeiro (Latin, 2012). In the meantime however, progress was made on the right side of the table: using *bottom-up* approaches and relying on *local* initiatives in which *civic actors* play a major role. Chapter 7 by Smith and Ely and chapter 8 by Leach and Scoones discuss the significance of civil society organizations and movements in these bottom-up approaches. Local government also plays an important role in many cases – as shown by case material from both West and East (OECD, 2010; Harrison and Kostka, 2012).

Similarly, at the *national* level, substantial progress was made in some countries, with governments implementing green industrial policies and the private sector making big investments in renewable energy and other low carbon technologies. Such progress made at the national level risks however running out of steam in the countries expected to lead the green transformation: most of Western Europe and North America is politically paralysed and financially constrained. The *rising powers* have become the default movers and shakers in the green transformation – in both the negative and positive sense. While responsible for the continuing growth of carbon emissions they are also the biggest investors in mitigation. Seen globally, China is No. 1 investor in renewable energy and India has recorded high recent growth rates in 2011 (BNEF, 2012).

To elaborate on the *national* level, the two Western countries with the biggest progress are Denmark (wind energy) and Germany (solar and wind energy). In the German case, renewable energy accounts for 24 per cent of electricity (2013 level) and 206,000 jobs were created in wind and solar power (2012 level), but investment is slowing down (Luetkenhorst and Pegels, 2014). While most of the investment comes from the private sector, public subsidies are essential in this early stage of the low carbon transformation. This public support has come under attack with arguments that – in times of austerity – the public sector cannot prioritize investments in energy infrastructure and consumers cannot afford increases in energy bills needed to pay for these subsidies. Arguments that fostering new green industries helps to promote growth, jobs and public revenue are drowned out by opposing forces in much of Europe and the US.
In contrast, China continues to storm ahead with big investments in renewable energy (BNEF, 2013). Its government is not encumbered by national or foreign debt; it has the ability to act fast. A good example of its ‘entrepreneurial state’ (see Mazzucato, chapter 9) is the support for the solar energy industry. When European demand for Chinese photovoltaic panels declined in 2009, the Chinese government launched a programme to speed up the deployment of such panels within the country (Fischer, 2012) in order to ensure that the build-up of this new industry could continue.

Table 11.1: Accelerating the green transformations

<table>
<thead>
<tr>
<th>Approach</th>
<th>Top-Down</th>
<th>Bottom-Up</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level</td>
<td>Global</td>
<td>National</td>
</tr>
<tr>
<td>Location</td>
<td>North</td>
<td>Rising Powers</td>
</tr>
<tr>
<td>Actor</td>
<td>Public</td>
<td>Private</td>
</tr>
<tr>
<td>Motive</td>
<td>Climate Change</td>
<td>Energy Security</td>
</tr>
</tbody>
</table>

Table 11.1 helps to categorize existing approaches and actors. On their own none of them will achieve the green transformation. Most observers would agree that the bottom-up and top-down approaches need to be combined and that multi-level governance is needed (Bulkeley and Newell, 2010, p3). But which force can bring this about? Recall that this is the first transformation in history that has to be achieved purposefully and against a deadline. In other words, the task of accelerating the process takes centre stage.

Where can this acceleration come from? Here we turn again to Table 11.1, in particular the last two lines which focus on the range of relevant actors and the motives of these actors. Analysis of these actors and motives then needs to take four critical steps: first, recognize that no single actor has the resources to bring about the green transformation; second, recognize that within government, civil society and business there are actors seeking to block or slow down the green transformation. Third, attention needs to focus on supportive alliances across these categories. Fourth, including actors with different motives helps to understand and accelerate the green transformation. The transformative alliance becomes the central concept. Let us elaborate.

Bringing about green transformations requires resources of different types: expertise, money, organizational capacity, legitimacy and leadership. These resources tend to be distributed over a range of public, private and civic actors. It is therefore useful to concentrate on alliances between actors in government and business and civil society.

Who then can be considered a member of such an alliance? Is the deciding criterion motivation or action? While it is tempting to let motivation count and opt for an alliance of the like-minded, this is a limiting step to take. There is a range of actors that can support the green transformation through their action (such as investing, providing expertise, lobbying) but their motive need not be to mitigate climate
change; the main motive might be to secure energy, to build competitive green industries, or to foster green jobs – with climate change mitigation at best a ‘co-benefit’. In other words, there is a potential for alliances that include actors whose priority is not environmental sustainability. This can be a ‘game changer’ in the dynamics of the transformation. It is supported by historical research which shows actor groups with differing intentions advancing the change in a specific direction (WBGU, 2011, p85 drawing on research by Osterhammel, 2014).

Such alliances seem to have been important in both China and Europe. In Denmark, for example, the experimentation with wind energy received substantial support from politicians and business leaders concerned with energy security – in the wake of various oil crises. Actors with environmental motivations played a role at the start and increased in importance over time but they were never sufficient. Actors motivated by the chance to build a globally competitive hub (for providing wind energy solutions and creating highly paid jobs) have played a big role. In China, such alliances were equally if not more relevant. China’s massive investment in renewable energy was not driven primarily by concerns with global climate change but by concerns to secure energy and ambitions to build new competitive sectors. These were major concerns in both Chinese government and industry. Add to this the more recent concern in urban society to reduce pollution – now openly acknowledged in the Chinese media.

Recent research in China (Dai, 2014) shows that such alignments of interest matter in both policy formulation and implementation. In China, policy formulation tends to take place at central level and implementation at local level. Dai (2014) stresses that the local take up of centrally designed policies varies enormously within China. ‘Dynamic’ localities which implement central policies for solar and wind energy are driven forward by local government and business joining forces, motivated not by concerns with the climate but by ambitions to promote local economic development, create jobs, increase tax revenue (local government) and generate profit (business).

The relevance of alliances is confirmed by the research of Harrison and Kostka (2012) on the local politics of climate change in China and India:

In both countries the ability to build and sustain coalitions is central to the effectiveness and sustainability of climate change policy. For various reasons, state strategies in China and India have focused on the need to bring different parties with otherwise divergent interests on board to build a coalition in favour of climate mitigation measures (Harrison and Kostka, 2012, p5).

Recent research in India (Chaudhary et al, 2014) shows that such coalitions have played a critical role also at the national level, but that the combinations of interests varied between sectors. The solar industry was supported for reasons of both securing energy and building competitive low carbon industries. The ‘National Solar Mission’ is the most visible symbol of an industrial policy for this sector. The most vigorous implementation of this policy occurred in the state of Gujarat where Chief Minister Narendra Modi (now Prime Minister of India) spearheaded an alliance of government and business interests determined to accelerate economic development. There is no equivalent ‘national wind mission’ in India indicating that concerns with building a competitive wind turbine industry played less of a role in policies supporting this
sector (Chaudhary et al, 2014). Energy security was the main driver – on the part of government. Climate change mitigation was only a ‘co-benefit’ (Dubash et al, 2013).

To summarize, the composition of transformational alliances varies, depending on the specific policy or project or sector in question. Actors in these alliances might see climate change mitigation as a co-benefit but tend to have other priorities, such as securing energy, building new competitive industries, creating new jobs in their region, raising public revenue or generating private profit. While not surprising in itself, it questions the discourse which pitches economic growth against environmental sustainability – so popular in many parts of the world. Policies which foster structural transformation promote rather than hinder economic growth.

This is not to suggest that there are only winners. Far from it. Some stand to lose from the transformation. In the early stages of green transformations, the losers might even outnumber the winners. Whatever the numbers, they are agents of resistance and they need to be analysed in the same way as the agents of change. The opponents also seek alliances. The opposing forces are not necessarily against decarbonization as such but they are fighting for their jobs and/or protecting their assets which are tied to fossil fuel and related sectors.

To return to our overall argument, focusing on alliances is essential for understanding and fostering green transformations. Such alliances are best seen as vehicles for bundling diverse interests for a particular purpose, such as influencing legislation, policies, or projects. In order to be effective, analytical and political work needs to deal with both agents of change (prospective winners) and agents of resistance (prospective losers).

Putting such alliances centre stage is a critical step for addressing the central question of this chapter: is there a fast track? But it is not sufficient. Two further steps are needed: first, we need to be able to distinguish between alliances of different types. At one end there is the strategic alliance based on joint action. At the other end there is the mere alignment of interest without co-ordination between the parties. Both can be transitional (short-term) or enduring (long-term). All types can be instrumental in bringing about collective action or blocking it.

Second, we need to ask where these alliances come from. They are not given but are in themselves a product of history. Here we go back to the previous section which suggested that we conceive of transformations as a process in which countries swing or scramble forward – and sometimes drop back – but in which each stage provides a political and economic platform for the next stage. As shown in Lockwood’s chapter 6 for this book, the policies adopted in one stage have knock-on effects for subsequent stages and influence the momentum of green transformations. Depending on how these policies are designed and implemented they give rise to new stakeholders such as business and workers who invested their money or careers in the deployment of green technologies – or create a backlash from those who pay for the subsidized investments.
When?

The understanding of these political processes (drivers, policies, knock on effects) remains limited. While the researchers draw boundaries around their analyses so as to not drown in complexity, actors in the real world do not have this privilege; they need to keep an eye on the whole picture. In most countries of Europe and North America, this picture was darkened by the financial crisis. This issue needs to be raised here because it seems to have major repercussions for our central question: is there a fast track? The answer is more likely to be negative when a financial crisis affects public and private investment decisions – at least this is what the contrast between renewable energy investment before and after the financial crisis suggests (BNEF, 2012 and Stephen Spratt, chapter 10).

However, this is not necessarily so – as stressed by Carlota Perez (2013). She sees the current crisis as a recurrent historical event midway along a technological revolution. Historical research (Perez, 2002) leads her to suggest that the capitalist economy has lived through four previous situations equivalent to the current crisis and that these have occurred midway along each of four technological transformations (the early industrial revolution; the age of steam and railways; the age of electricity and heavy engineering; the age of oil, automobile and mass production). The installation period of these technological transformations has led each time to a major bubble, followed by a financial crash and then a ‘golden age’ of prosperity. Currently we are midway through the information and communication technology transformation and – in line with previous experience – we have experienced a major bubble and a financial crash. What is not yet clear is whether this time it is followed by a new golden age. Perez (2013) stresses that there is no automaticity but suggests that the stage is set for a new age of prosperity that could be channelled in a green direction. Grasping this opportunity requires an active state that shifts the balance of power from finance to production and changes the incentives from resource wasting to resource saving. On this point, the views of Perez converge with those of Mazzucato who stresses the key role of the entrepreneurial state in fostering innovation and restructuring – see chapter 9 of this book. Further reinforcement comes from various strands of ‘Green Keynesianism’; they have in common the idea that tackling the economic crisis is helped by tackling the environmental crisis. It requires that the state makes big public investments in green infrastructure and provides strong incentives for private green investment (Zenghelis, 2012; Jacobs, 2013).

The arguments that the financial crisis can be turned into an opportunity for green investment have been examined in a recent article by Geels (2013). In ‘The impact of the financial-economic crisis on sustainability transitions’ he concludes that the early crisis years (2008-2010) created a window of opportunity for positive solutions. But since 2011 this window has shrunk and political support for green policies has weakened. In the UK, Germany and other countries, public debate began to concentrate on the cost of shifting to renewable energy. The effect has been to slow down rather than fast-track the green transformations. Such slow-down has not however occurred in the rising powers of Asia. As a result of the financial crisis the global power shift from West to East accelerated (Jacques, 2012, pp585-636). The transformative capacity of China in particular increased whereas that of Western Europe and North America declined. This is beginning to affect the cost of green transformations in the sense that green technologies from China are cheaper. Whether
this makes their diffusion faster is not yet clear because price is just one of several
determinants (Schmitz, forthcoming 2014).

What are we to do with these observations? They do not provide clear answers to the
‘When?’ question which drives this section. They do however highlight the
importance of keeping an eye on the political windows needed to accelerate green
transformations.

Conclusion: Riding the green tiger

Is there a fast track? This is the question driving this paper. Posing it is somewhat
cheeky without asking the prior question: is the green transformation possible? The
German Advisory Council for Global Change and its research staff has addressed this
very question in some depth and gives a categorical answer: ‘the technological
potential for comprehensive decarbonisation is available… and the policy instruments
needed for a climate-friendly transformation are widely known. Now it is foremost a
political task to overcome the barriers of such a transformation, and to accelerate the
change’ (WBGU, 2011, p1; emphasis added). This is precisely the starting point for
this concluding chapter and indeed the entire book.

In this chapter I have tried to decompose the fast track question and distil some of the
insights that can be derived from the literature and experiences on the ground. What I
have not done is ask what it means to investigate the politics of acceleration and at
what level of abstraction? One approach would be to test the reality of those insights
for those countries that have made the biggest progress. Take the case of Germany.
There is a transformative alliance but who has the convening power? Is Angela
Merkel riding the green tiger? This is very relevant for the fast track issue and a
cartoonist’s dream but how real is it?

The answer is that Angela Merkel is far too clever to pose as the queen of low carbon
prosperity. As a former research scientist (physics and chemistry) she understands and
accepts the arguments of climate and earth scientists. But as a politician she knows
that accelerating the pace may require working – at particular moments – with those
who do not accept that case. (Recall transitional arrangements). And it requires taking
advantage of opportunities when they arise. Within days of the Fukushima disaster
she put her foot on the accelerator. (Recall Geels’ windows of opportunity due to
change in the landscape). And acceleration happened because the legislation was in
place and because thousands of small investors and hundreds of municipalities
responded to a policy designed for them. (Recall Lockwood’s argument on the knock
on effects of policies – chapter 6). More recently Merkel found that she had to put the
break on because too much renewable energy is being generated and the cost to
consumer and taxpayer is very transparent – while the cost of fossil fuel energy is not
(Luetkenhorst and Pegels, 2014). Her new economics and energy minister (leader of
the Social Democratic party) is now in charge of administering the slow-down. The
green tiger is in a cage. For now. The battle is on for when it will be let out again and
in what shape. Leaner and meaner? The key point is that this battle is now taking
place on an economic and political platform which is more advanced and very
different from five or even three years ago. (Recall the earlier point which emphasizes
trial and error and uses the metaphor of climbing a tree by swinging upwards from
branch to branch – with the occasional fall).
Is this what is needed to understand the politics of green transformations? In a way, yes. Of course the above is at best a condensed sketch, and a more detailed account is needed. My key point is that testing our insights more systematically for those countries which have made the greatest strides forward (Denmark, Germany, and China) is essential for answering the fast track question. If this question has a clear answer one would expect to find it here.

In the meantime we need to continue at a more abstract level. And this is what the German Council for Global Change does when it stresses that the transformation is above all a political task. Central to this political task – according to the Council – is the forging of ‘A Social Contract for Sustainability’ (title of WBGU, 2011). What is meant here is a contract between the state and the citizens. ‘The contract has to bring two important new protagonists into the equation: the self-organized civil society and the community of scientific experts’ (WBGU, 2011, p8). I agree with this political turn of the Council but suggest that the state-civic nexus is not sufficient. Business needs to be included explicitly, thus turning attention to the role of state-business-civic alliances. The earlier ‘Who?’ section of this chapter stressed the role of such alliances. Since it is central to the fast track issue, it deserves further elaboration.

Focusing on alliances and including business in such alliances is critical according to recent political science analysis which shows that alliances (or coalitions) can be effective in overcoming complex collective action problems (Leftwich, 2009; Peiffer, 2012). Including business in the analysis and formation of alliances makes a significant difference. Maxfield (1991, p421) stressed long ago the critical role of policy coalitions which cut across state and society and include business. More recently, Abdel-Latif and Schmitz (2010) have shown why and how state-business alliances matter for overcoming bottlenecks in industrial development. When it comes to green transformations, the inclusion of business seems particularly important. As stressed by Newell and Paterson ‘many capitalists and state elites, for a range of different reasons, now have a political and financial stake in the project of decarbonisation’ (2011, p41) … ‘short or medium term transitions to a low carbon economy will have to be supported (financially and politically) by powerful fractions of capital with a stake in the success of such a project’ (p23).

This is a key point. There are parts of the business community which are keen to support green transformations but are in fact driven by ambitions in other fields, notably securing energy or building a competitive new industry. Understanding the political dynamics needs to include also those interests which are not green in themselves but support the green cause. Effective cooperation between public and private actors does not require that the players support renewables for the same reasons. On the contrary, the chance of effective cooperation increases dramatically if players with different motivations are brought into the picture.

Accepting this is not easy for those who have argued that capitalism is destroying our planet. It feels like a call to sleep with the enemy. The point made here is not that their analysis is entirely wrong but that it is incomplete. Preventing the destruction of human life on earth requires working with those parts of industry and finance that are willing and keen to make green investments. The division between high and low carbon investors runs right through industry and finance – as stressed in chapter 5 by
Peter Newell. In some cases it runs right through individual corporations in which some departments continue to be tied to the fossil fuel sectors while others are pioneering new low carbon technologies. Investments in the latter can be counted in billions of dollars, euros or pounds. The problem is that investments in fossil fuel and related industries amount to trillions. Changing this balance and achieving it rapidly is – in economic terms – the hard core of the green transformation.\(^5\)

Such emphasis on working with business is also worrisome to those concerned with the distributional consequences of the green transformation. History tells us that big transformations can entail big increases in inequality. But history also tells us that some big transformations happened when the interests of business and large sections of society coincided (Perez, 2002, 2013). So which is it? As always, the answer is: it depends. The determinants are politically constructed.

A comparison of China and Vietnam is illuminating. As mentioned earlier, no two economies have averaged more rapid growth in the nineties and noughties – and have transformed faster – than China and Vietnam. The point to be added here is that the Vietnamese system has generated lower inequality than the Chinese system. Abrami et al (2008) suggest that this is because of the difference in Party organization. Compared with China, Vietnam’s institutions empower a larger group of insiders and place more constraints on party leadership, both through vertical checks and semi-competitive elections. As a result, Vietnam spends a larger proportion of its revenue on transfers and has been able to achieve more equalization between provinces and individuals.

A comparison of Germany and the UK is also illuminating and directly relevant for green transformations. In chapter 6 of this book, Lockwood shows that different designs of green industrial policy have different consequences. The key insights are first, that some policy designs have more inclusive outcomes than others and second, that the more inclusive design in Germany contributed in a decisive way to the greater momentum of the transformation in that country. The proposition emerging from this comparison is that transformation and inclusion reinforce each other. To what extent and how needs further examination.

To conclude, there is no motorway into the green future. Embarking on the fast track is not about the big push from the Centre along a predetermined path. It is about joining forces to dismantle the old and joining forces to achieve the new. But joining forces with whom? Stephen Spratt in chapter 10 of this book distinguishes between the deep and light green. I would add those who are not green at all in conviction but can nevertheless support the green cause through their investments and expertise. Including them in our alliances provides much needed hope that green transformations can be accelerated; and it provides an analytical grip on where, when and why accelerations occur – or not.
References

Leftwich, A. (2009) *Bringing Agency Back In: Politics and Human Agency in Building Institutions and States*, synthesis and overview report of phase one of the leaders, elites and coalitions research programme (Research Paper 06), Department of Politics, University of York, York


Schmitz, H. (forthcoming 2014) ‘How does China’s rise affect the green transformation?’, *Journal of Technology and Globalisation*


Helpful comments on a previous draft were provided by Melissa Leach, Wilfried Lütkenhorst, Anna Pegels, and Carlota Perez.  

Or is it that the hell scenario does not look so hellish? As suggested earlier, shifting the narrative from climate change to climate chaos would make the scientific discourse more real for most citizens. 

For an overview of China’s high carbon legacies and low carbon initiatives, see Slusarska (2013). 

The green burden to consumers is higher than expected partly because the amount of renewable energy produced is higher than expected and partly because there are more exceptions for industry than expected. The burden sharing is lop sided. 

Sovereign wealth funds are likely to play a role in changing this balance. For instance, the Norwegian oil fund, which collects taxes from oil profits and invests the money in stocks, is reassessing its investment portfolio.