

## THE ROLE OF THE VISIBLE HAND OF PUBLIC INSTITUTIONS IN CREATING A SUSTAINABLE FUTURE

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### SUMMARY

A key challenge at the beginning of the 21st century is to de-carbonize and de-materialize the global economy in time to avoid irreversible changes to the global and local environment while generating enough social and economic development opportunities to reduce poverty and inequity. Four main ‘development paradigms’ dominate the contemporary public discourse on how to best meet this challenge and achieve the social, economic and environment pillars of sustainable development: (i) a growth-focused development paradigm; (ii) a pro-poor growth development paradigm; (iii) a green-growth development paradigm; and (iv) a resilient growth development paradigm. Although these four development paradigms are usually perceived as mutually exclusive, the paper argues that they should be regarded as complementary, with each providing a necessary but in itself insufficient response to the challenge of sustainability. The new sustainable development paradigm will require a substantial transformation of the present economic development model analogous to what transition economies underwent during the industrial revolution. The paper discusses the political, managerial and social implementation challenges for this societal shift and finds that its success will depend on whether public administrations are adequately prepared to translate government policies into action at the different levels, negotiate conflicts and build trust among stakeholders. The paper concludes by summarizing some of the solutions advocated in the individual contributions to this Special Edition of PAD to strengthen the capacity of public administrations in creating a sustainable future. Copyright © 2012 John Wiley & Sons, Ltd.

### INTRODUCTION

The term ‘Sustainable Development’ became popular in the beginning of the 1990s, particularly after the 1992 Rio Conference (United Nations Conference on Environment and Development) and the release of the Brundtland Report. The term definitively broke the competition between environmental protection, economic and social development objectives, offering the possibility that all three could come together without a trade-off, at least in theory. However, this has not always held true in practice. Even though social and environmental awareness have increased and there are many good examples of sustainable development at the small scale, the world has become dangerously more unsustainable over the past two decades.

The challenge of sustainable development cannot be underestimated. It will require a substantial transformation of the present economic development model, analogous to the transition economies underwent with the industrial revolution. Like all transformative processes, this shift may change the comparative advantages of nations, industries and communities. The changes will require a distinct way of making decisions at the different levels to bring together economic, social and environmental objectives in a long-term common interest. Changes may generate intense political and social opposition from affected groups and dramatically increase planning complexity.

Markets can play a unique role in allocating scarce resources efficiently. However, markets on their own are unlikely to drive the transformative changes we need to create a greener and more equitable economy. A common driver behind the accelerating degradation of ecosystems is the inability of markets to sustainably manage open-access resources such as the atmosphere and the ocean. Ecosystems are victims of massive market and governance

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failures, and the true worth of their services and costs of their degradation are persistently ignored by economic and development strategies. The negative impact of these failures is felt hardest by the most vulnerable groups. The role of public administrations will be fundamental to supplementing the *invisible* hand of markets with a *visible* hand, aimed at fostering long-term common interests. Public institutions will need to provide the legitimate rules and organizational capacity required to promote societal transformations at all levels for a greener and more equitable economy.

Many governments and public administrations still operate in an old development paradigm and do not have the capacity to mobilize the full range of stakeholders and introduce the wide spectrum of policies involved in bringing the three pillars of sustainable development together in an effective manner. In addition to the challenge of implementing cross-sectoral policies, they are struggling to translate global concerns into local action and local concerns into global actions. The mismatch between the international governance system and national and sub-national administrations leads to ineffective agreements and regimes with regards to implementation (Pinto and Puppim de Oliveira, 2008). Our capacity to accelerate the transition to a greener economy rests necessarily on how public administrations can effectively incorporate the concept of sustainable development into their objectives and translate these objectives into results in practice. The history of sustainable development is littered with well-intended but ill-designed or ill-executed policy initiatives.

The past 20 years has witnessed a number of institutional innovations at the local, national and global levels to facilitate the integration of the three pillars of sustainable development and better align global, national and local actions. Developing countries have an opportunity to introduce these policies, managerial and technological innovations in the early stages of economic development and to avoid the costs associated with some of the unsustainable paths taken by today's developed countries. The objective of this Special Issue of Public Administration and Development (PAD) is to examine some of these innovations and to discuss options to scale them up to produce wide-reaching governance and economic change. A broader policy dialogue on public administration reforms is needed if we are to steer a course towards a new 'industrial' revolution towards sustainability.

As an introduction to this publication, the present chapter discusses the political, managerial and social challenges of translating the concept of sustainable development into action. It reviews the two-century-old debate surrounding the existence of limits to growth and the different economic development paradigms rooted in this debate. It then summarizes the implementation barriers to achieve an inclusive, resilient and green economy and highlights some of the challenges and solutions advocated in the individual contributions to this Special Edition of PAD.

### PAST TRENDS AND FUTURE SCENARIOS

In 1972, three scientists from MIT (Massachusetts Institute of Technology) (Donella H. Meadows, Jorgen Randers and Dennis Meadows) created a computer model called World3 to analyse the sustainability of global resource consumption and production. The results of their study, commissioned by the Club of Rome, entitled *The Limits to Growth* (LTG) was shocking: 'if present growth trends in world population, food production, and resource depletion continue unchanged, the limits to growth on this planet will be reached sometime within the next 100 years'. LTG subsequently sold more than 12 million copies and became very influential in the early 1970s (Meadows *et al.*, 2005).

The study was a modern twist on a two-century-old debate surrounding the existence of limits to growth. Historically, this debate pitted the ideas of Reverend Thomas R. Malthus (1766–1834) against those of one of the most influential thinkers of the Enlightenment era, Marquis de Condorcet (1744–1794). For Malthus (1798), it was crucial to limit population growth because we live in a finite world (*the increase of population is necessarily limited by the means of subsistence*). For Condorcet, there was no such thing as limits to growth. He believed that the progress of the human race would inevitably continue throughout the course of its existence and that human ingenuity would create resources faster than people use them, as technological progress compensates for shortages in arable land and raw materials (de Condorcet, 1795).

Shortly after the publication of LTG, the Malthus versus Condorcet argument was re-captured in a vivid manner in the famous Simon–Ehrlich wager. Paul Ehrlich, a population ecologist, argued that mankind was facing a demographic catastrophe, with the rate of population growth quickly outstripping growth in the supply of food and resources. Julian L. Simon, an economist, was highly sceptical of such claims and proposed a wager, which they entered into in 1980. They bet on a mutually agreed-upon measure of resource scarcity over the decade

leading up to 1990. Simon had Ehrlich choose five commodity metals (he chose copper, chromium, nickel, tin and tungsten), and Simon bet that their prices would decrease. Ehrlich bet they would increase. Ehrlich lost the bet. Although the world's population grew by more than 800 million during the 1980s, the price of each of Ehrlich's selected metals had fallen by September 1990. Simon's victory was widely seen as a vindication of the Condorcet/Enlightenment theory and evidence that there were no physical limits to growth. If raging population and economic growth would not cause the depletion of important resources, what will? In December 1998, *The Economist* confidently claimed that

The notion of a growing number of people fighting over a fixed resource pie is a Malthusian bosh, as this newspaper has argued in the past. Human ingenuity, energized by sensible policies, creates resources faster than people use them; people learn to substitute sand (in the form of microchips) for sweat, and fuel cells for petrol engines.

Today, more than two decades after the bet was concluded, the outcome of the Simon/Ehrlich wager is still widely cited, and there is a persistent belief that the kind of predicted collapse foreseen in LTG has been disproved. As the theory goes, high commodity prices will usually lead to lower prices over the long term, because higher commodity prices encourage the generation of new supply, the development of substitutes and changed behaviour. In 2012, we can transfer more information with a kilogramme of sand (fibre optics) than with three tonnes of copper, the amount needed at the start of the Simon/Ehrlich wager in the 1980s. However, an examination of the more recent evolution of commodity prices shines a very different light on the wager. Simon won in 8 of the 10 years in the 1980s. But, things dramatically changed during the 1990s. Ehrlich would have won 6 out of 10 years during that decade. In the 2000s, Ehrlich would have won every single year. The past decade has reversed a 100-year decline in resource prices as demand for these commodities has surged (McKinsey Global Institute, 2011). Pressure on resource prices could further increase as up to 3 billion more middle-class consumers emerge in the next 20 years.

This increased demand for commodities is happening at a time when the deterioration of life-support ecosystem services such as climate stabilization, water purification and species diversity is overtaking resource shortages as the foremost environmental concern. Close to 60 per cent of the ecosystem services examined in the Millennium Ecosystem Assessment (2005) were found to be degraded or used in ways that cannot be sustained. There is growing evidence that many ecosystems could reach a *tipping point* in the coming future, resulting in sudden and irreversible changes that have grave implications for human well-being (Alley, 2002; Calvin, 2002; Macdougall, 2004; WBGU, 2007; Rockström *et al.*, 2009).

According to the International Energy Agency (IEA, 2012), energy-related CO<sub>2</sub> emissions are at historic highs and, under current policies, they will almost double by 2050. This could increase global average temperature by as much as 6 °C within this century—a level that would wipe out agriculture in many areas and render swathes of the globe uninhabitable. A 2010 research article on climate change and large-scale human population collapses in the pre-industrial era found that global demographic catastrophes occurred in periods with great climate change, owing to overpopulation caused by diminished carrying capacity of the land and the resultant outbreak of Malthusian checks (Zhang *et al.*, 2011).

## DEFINING SUSTAINABILITY AND RETHINKING DEVELOPMENT PARADIGMS

Two centuries after the original Condorcet and Malthus debate, we are once again in the midst of a dispute on whether or not limits to growth exist. We face today a dazzling range of potential future scenarios for our world by 2050, stemming from this open and active debate. At one extreme, some foresee our planet being inhabited by a cybernetic humanity that would have transcended its biological roots and moved towards the next step of its evolutionary journey.<sup>1</sup> For their part, mainstream economic models anticipate rapid economic growth and

<sup>1</sup>Ray Kurzweil (2005), who received the US National Medal of Technology in 1999, claims that technological progress will follow a pattern of exponential growth and predicts technological change so rapid and profound that it 'will allow us to transcend these limitations of our biological bodies and brains. . . There will be no distinction, post-Singularity, between human and machine'. He believes that the event, which he calls The Singularity, will occur by 2045. As for economic growth, he asserts that 'the exponential trends underlying productivity growth are just beginning their explosive phase'.

convergence among nations.<sup>2</sup> Earth scientists are increasingly cautioning that the continued functioning of the Earth system as it has supported the well-being of human civilization in recent centuries is at risk.<sup>3</sup> The most radical anticipate a collapse of our economic systems and a regression of human civilizations in the absence of a committed effort to address exponentially growing populations, environmental degradation and systemic complexities.

A fundamental factor underlying these widely divergent scenarios is the role of innovation, especially technological innovation. Although most analysts agree that socio-economic and technological innovations can play a crucial role in meeting sustainability challenges, they differ on whether socio-economic and technological solutions can be developed and implemented fast enough to resolve social and environmental problems associated with the exponential and inequitable growth in utilization of natural resources and sinks. Thus, a key question at the beginning of the 21st century is whether the global economy can be de-carbonized and de-materialized on time to avoid the destruction of the global environment, while generating enough social and economic development opportunities to reduce poverty and inequity. And the logical follow-up question is, what would be the best development paradigm to ensure that human kind wins this race between stress and innovation?

In this context, four main schools of thought or 'development paradigms' dominate the contemporary public discourse: (i) a growth-focused development paradigm; (ii) a pro-poor growth development paradigm; (iii) a green-growth development paradigm; and (iv) a resilient growth development paradigm.

#### *Growth-focused development paradigm*

This paradigm views economic growth as the key variable to determine the sustainability of development paths. Like Condorcet, proponents of a growth-focused development paradigm tend to give limited credence to the new sustainability fears associated with ecosystem degradation and the risks of exceeding planetary boundaries. They point out that time and again, cultural, technological and operational breakthroughs have transformed insurmountable development challenges into solvable problems. For many proponents of growth-focused development strategies, economic liberalization is ultimately the best policy to achieve sustainability. Economic liberalization enables markets to best allocate scarce resources and foster economic growth in the long term. In turn, economic growth is the driver of cultural, technological and operational innovation. Resource shortages will increase the profitability of substitutes and provide incentives to entrepreneurs to provide the technology and know-how needed to make changes that will protect ecosystems and human well-being. Limitless human ingenuity can push back planetary boundaries as it will avoid resource shortages.

Similarly, growth-focused economists put their faith in economic growth and technological advances to eradicate poverty and inequity. The aphorism *a rising tide lifts all boats* is associated with the idea that improvements in the general economy will benefit all participants in that economy.

#### *Pro-poor development paradigm*

Proponents of pro-poor development paradigm challenge the belief in unfettered markets to reduce inequity and argue that the quality of growth is as important as the rate of growth for sustainable development. Ortiz and Cummins (2011) found, using market exchange rates, that the wealthiest population quintile receives 83 per cent of global income with just a single percentage point for those in the poorest quintile. The study estimates that it would take more than 800 years for the bottom billion to achieve 10 per cent of global income under the current rate of change. Also disturbing is the review of longer time series by Milanovic (2009), which concludes that income

<sup>2</sup>On the basis of a three-factor production function of labour, capital and energy, plus technological progress arising from a combination of education and catch-up, a recent study from Fouré, Bénassy-Quéré and Fontagné (2012) published by CEPII (2012) estimates that the world gross domestic product could exceed \$270 trillion by 2050. Taking account of relative price variations, China would overtake the USA as the largest economy in approximately 2020 and would represent 33 per cent of the world economy in 2050. From 2040, sub-Saharan Africa would become the geographical area with the most dynamic economies, with an annual average growth rate of more than 5 per cent.

<sup>3</sup>The final Statement of Planet Under Pressure 2012, the largest gathering of Earth scientists leading up to Rio +20, stated that 'the continued functioning of the Earth system as it has supported the well-being of human civilization in recent centuries is at risk. Without urgent action, we could face threats to water, food, biodiversity and other critical resources: these threats risk intensifying economic, ecological and social crises, creating the potential for a humanitarian emergency on a global scale' (Brito and Smith, 2012).

inequality has been constantly increasing from 1820 to 2002, with a significant increase from 1980 onwards. At the same time, differences between the richest and poorest nations have never been larger, and, outside of Asia, limited progress has been made in terms of economic convergence. Of the countries classified as middle income in 1960, three quarters have remained middle income or fallen back into low-income status, negatively affecting the growth prospects of the global economy as a whole. Even more concerning, there has been next to no change in the size and composition of the 'Least Developed Countries' group over the same period (OECD, 2012).

Pro-poor growth development champions argue that lasting income inequity is not only an issue of fairness; it also threatens the very foundation of our economic system. An inequitable world has fewer markets and customers to offer. If average workers lack enough purchasing power to buy what they produce, the demand for the mass market products that drive our economy will stagnate (Ford, 2009; Reich, 2010). In the USA, the top 10 per cent held a larger share of income in 2007 than at any time since 1928 (Atkinson *et al.*, 2011). During both periods, households entered deep into debt to maintain their purchasing power, ultimately resulting in the economic crisis of 1929 and 2008.

To achieve sustainable development, proponents of pro-poor growth development strategies advocate for public action to promote effective redistribution in favour of the poor. This might require implementing re-distributive social policies (progressive fiscal policies, social insurance schemes, gender empowerment, rights-based development, etc.) and alternative growth strategies (investment in public and social infrastructure, strengthening of agricultural markets, etc.). Proponents of pro-poor development strategies contend that these progressive policies will also lessen the pressure on ecosystems. For example, there is relatively less deforestation in areas with more women's non-governmental organizations and lower power disparities (UNDP, 2011a). For them, targeting the poor and reducing inequalities will inexorably lead to sustainability in the use of resources and continuous opportunities for economic growth.

### *Green-growth development paradigm*

The green-growth development model rests on the conviction that markets can be shaped with appropriate public policies to work for the environment, rather than against it. Like pro-poor development proponents, green-growth strategists advocate for a visible hand of public institutions to supplement the invisible hand of markets. No country has ever developed on the basis of a green-growth model, and the materiality of green markets at large scale remains a subject of debate. However, proponents of green growth believe that several potential green markets are large enough to re-engineer the economic model in favour of greater resource efficiency (Glemarec, 2011). Table 1 summarizes some of these green markets, which have the potential to reshape the global economic system.

Furthermore, champions of green-growth development strategies point out that most studies in the past have underestimated the growth potential of clean technologies. For example, the IEA estimated in 2000 that wind energy capacities would grow from 30 GW in 2000 to 60 GW by 2020. Rather than the projected linear growth, wind power capacities grew exponentially, reaching 60 GW by 2005 and 240 GW in 2011 (DNV, 2011). Thanks to market-making policies such as feed-in tariffs, solar energy is likely to experience an even more explosive growth in the coming decades. Annual photovoltaic (PV) production has grown nearly 100-fold since 2000, when just 277 MW of cells were made (Roney, 2011). Although many commentators continue to note that PV-generated power is prohibitively expensive, factory-gate prices for crystalline-silicon PV modules fell below the \$1.00/W mark recently (Bloomberg, 2012), bringing them closer to grid parity (Bazilian, 2012). Renewable energy technologies could soon become sufficiently reliable and inexpensive to make them globally attractive to help address climate change and energy access in the poorest countries, even in the absence of a global treaty (Lilliestam *et al.*, 2012).

Claims that renewable energy could meet 100 per cent of our needs by 2050 with the right policy support would have seemed far-fetched as little as 10 years ago but are now a distinct possibility (WWF, 2011). Although population, industrial output and economic activity may continue to rise as predicted, green-growth strategists believe that ambitious energy-saving measures and the switch to renewable energy will enable people to do more



Table 1. Pro-poor green markets

Pro-poor green markets	Market description	Potential multiple wins
Inclusive, resilient green infrastructure	Roughly \$6 trillion (about 10% of global GDP) is spent every year on infrastructure, which shapes future resource use patterns for decades*. Infrastructure investment could reach \$10 trillion by 2015. <sup>†</sup>	Sound infrastructure can promote job creation, efficient use of resources and increase resilience to climate change. <sup>‡</sup>
Clean energy	The global energy bill for oil, electricity and natural gas amounts to about \$5 trillion per year. Investment in clean energy amounted to \$230 billion in 2011 and could reach \$500 billion by 2020. <sup>§</sup>	1.3 billion people worldwide lack modern energy access, whereas 2.7 billion do not have clean and safe cooking facilities. <sup>¶</sup> Clean energy could improve energy security, reduce energy bills, reduce local air pollution and associated health costs, provide affordable energy access for the poor, generate local employment and economic development, de-carbonize energy systems and reduce global climate change risks.
Waste management	An estimated 11.2 billion tonnes of solid wastes are collected worldwide each year, and decay of the organic portion is contributing to about 5 per cent of global greenhouse gas emissions. The global waste market, from collection to recycling, is conservatively estimated at \$410 billion per year.**	Sustainable waste management and sustainable materials management could reduce local and global health hazards, increase energy and resource efficiency, generate local employment and reduce global climate change risks.
Green commodities	Agricultural commodities account for 10 per cent of developing countries' GDP. Food production will need to double by 2050. The present market for biodiversity-friendly commodities (e.g. certified coffee) is estimated at \$60 billion/year <sup>††</sup> and could exceed \$200 billion/year by 2020.	Agricultural commodity production expansion is the largest driver of deforestation, with an estimated annual loss of 13 million hectares of forest cover. <sup>‡‡</sup> Benefits generated by green commodities include reduced natural habitat conversion to farmland, increased biodiversity within agricultural landscapes, enhanced access to markets and income for poor farmers, greater resilience to climate change and increased food security and reduced net greenhouse gas emissions by commodity supply chains.
Tourism	The tourism industry represents about 5 per cent of global GDP (\$3 trillion). Global spending on ecotourism is increasing by 20 per cent a year, about six times the industry-wide rate of growth, <sup>§§</sup> and could be as high as \$240 billion in developing countries.	The greening of the tourist industry can lead to efficiency improvement in energy, water and waste systems, more positive poverty-reducing effects through involvement of communities in the value chain and investment in conservation of natural and cultural assets.

\*UNEP, 2011.

<sup>†</sup>IMF, 2011.

<sup>‡</sup>UNDP, 2011a.

<sup>§</sup>IEA - International Energy Agency, 2009.

<sup>¶</sup>OECD, 2012.

\*\*UNEP, 2011, 2010.

<sup>††</sup>UNCTAD/UNDP (2010).

<sup>‡‡</sup>UN FAO – UN Food and Agriculture Organization, 2006.

<sup>§§</sup>TEEB – The Economics of Ecosystems and Biodiversity, 2009.

with less and generate new livelihoods. Furthermore, clean technology solutions could become a major source of local economic development and jobs (UNDP, 2011a).

Critics of this paradigm, however, contend that it underestimates the political economy of technological changes, as interest groups affected by this transition will resist it. The energy industry is littered with technologies that

successfully resisted the adoption of superior alternatives (light water reactor, internal combustion engine; etc.) because of entrenched political and industrial interests (Cowan, 1988; UNDESA, 2011). They are also concerned by the equity implications of technological solutions, as the efficiency gains are most often not shared equally among different groups.

### *Resilient growth development paradigm*

The last of the development strategies, resilient development, does not challenge the materiality of green markets but does question the feasibility of rolling them out in time to avoid a physical or economic collapse in the absence of pro-active risk reduction measures. In our lifetime, societies have become highly interconnected and interdependent. Highly interconnected systems breed remarkable innovations but are susceptible to sudden changes and crises, such as global financial meltdowns or the volatility of commodity prices. As noted by Giddens (1999), risk is closely connected to innovation. Innovation, notably scientific innovation, is a pre-condition to address abrupt environmental change risks but has also contributed to creating them in the first place.

Furthermore, institutions, policies, professional practices and systems tend to change at a pace different from those required to meet rapidly evolving social and environmental challenges at all levels. For example, historical hydrological records are still widely used to design infrastructure to withstand decadal, centennial or millennial events despite the fact that some formerly once-in-a-millennium-occurring weather events are now a more frequent occurrence as a result of the global temperature increases of the past century. Assessments of current efforts to govern global environmental change show that existing international arrangements are not dealing quickly enough with current global challenges such as climate change and biodiversity loss (IEA, 2011; UNEP, 2011).

The nature of problems faced by our society is becoming ever more complex, creating non-linear results and overcoming our ability to implement timely solutions. This will lead to an 'ingenuity gap': the critical gap between our need for new ideas to solve complex problems and our actual supply of those ideas. A society with a serious and chronic ingenuity gap can face declining social well-being and perhaps civil turmoil (Homer-Dixon, 2000). Proponents of resilient growth development strategies aim deliberately to address the drivers of environmental degradation and inequity and to enhance the capacity of individuals, communities and systems to cope with, and to recover from, unavoidable shocks and disturbances. Human kind is to win the ingenuity race not only by accelerating innovation but also by reducing social and environmental stressors and increasing resilience to shocks.

Critics of this approach point out that, even though the concept of resilience is well established and relatively well understood for some natural systems, it is still at a very early conceptual stage for social, cultural and political systems. They also note that risk is a core element of an innovative society and that the concept of resilient growth should not be at the expense of economic dynamism. Economic growth is a pre-requisite for our societies to cope with the population growth and the increase in global average temperatures to which we are already committed in the 21st century. Even with a zero population growth and a complete phase out of fossil fuel emissions, human kind will rapidly meet limits to growth in the absence of accelerating commercial exchanges and their associated innovations (Riddley, 2010).

### *Unifying the four paradigms*

In line with the two-century Condorcet/Malthus debate on limits to growth, these four development paradigms are often perceived as mutually exclusive. An alternative view is to regard them as complementary, with each development strategy providing a necessary but insufficient response to the challenge of sustainability.

None of these four development paradigms has a monopoly on innovation, social justice, resource efficiency or pro-active risk management. Champions of the pro-growth paradigm are not anti-poor, and proponents of the pro-poor development paradigm are not anti-growth. The four schools of thought contend that their prescribed policy packages can simultaneously address interlinked economic, environmental and social objectives. Each of these four strategies predominantly targets one or two pillars and expects the other pillar(s) to be achieved through some 'trickle down' effect. Figure 1 visualizes the spillover effects assumed by these four competing schools of thought to achieve sustainable development.

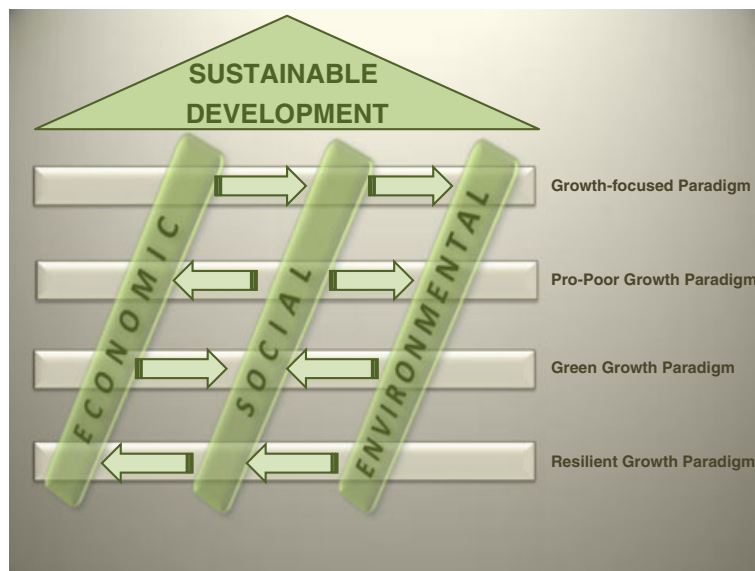


Figure 1. Principal development paradigms to achieve sustainable development (Glemarec, 2012, in this special issue).

Trade-offs and barriers to synergies among these different objectives make it unlikely that this spillover from one pillar of sustainable development to another would mechanically materialize. Although the experience of past decades confirms scepticism towards the belief that unfettered markets will *lift all boats* and *substitute ingenuity to natural resources* in a pro-growth strategy, it is also likely that an exclusively green-growth strategy or pro-poor growth strategy will similarly fail to achieve sustainable development. Although green energy jobs are touted as a triple-win result of clean energy investment, experience shows that clean energy initiatives can actually destroy jobs if employment creation activities are not deliberately built into the proposed energy intervention. As discussed earlier, even win-win interventions may face tremendous opposition from powerful political actors.

However, it is hardly disputable that each of these four development paradigms addresses concerns and promotes solutions that are essential attributes of sustainability. The overwhelming conclusion from this review is, therefore, the need for a unifying development paradigm: a paradigm that would build on the strengths of the four development strands discussed in this introduction and aim to foster more inclusive, resilient and green development through simultaneously addressing the three pillars of sustainable development. A successful response to the complex and interlinked challenges countries face today demands policy making, which views economic growth, poverty reduction, social development, equity and sustainability not as competing goals to be traded off against each other but as interconnected objectives that are most effectively pursued together. Figure 2 illustrates this concept.

These ideas are hardly new, and there is a growing consensus among the international community that we need a different, more holistic, development paradigm. But a fundamental question remains unanswered: how to bring about such a new development paradigm?

The late economist Kenneth Boulding used to say, 'we make our tools, and then they shape us'. Our economic, social and engineering planning tools rely essentially on fragmented and linear extrapolation of past trends and are ill equipped to deal with an increasingly interconnected and complex world, facing a new range of risks and exposed to abrupt and dramatic changes.

Calls have been made over the past 20 years for the preparation of prospective and integrative strategies to foster this new development paradigm, starting with Agenda 21 at the Earth Summit in Rio de Janeiro in 1992 and National Sustainable Development Strategies at the World Summit on Sustainable Development in Johannesburg in 2002. Some countries have developed more than a dozen national strategies relevant to inclusive, resilient, green



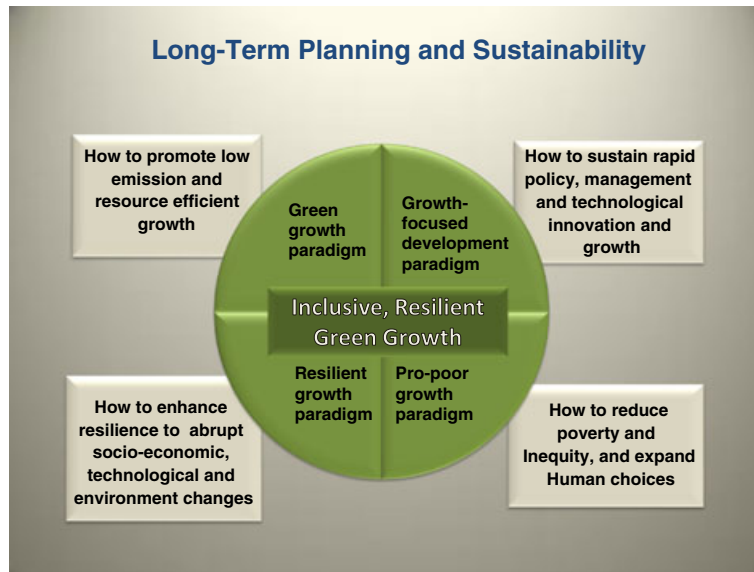


Figure 2. Weaving the four strands of inclusive, resilient green growth (Glemarec, 2012, in this special issue, drawing on a visual concept from Bruggink, 2012).

development. Yet, there are still separate institutional regimes and financial resources to deal with problems of economic development, poverty reduction, ecosystems service management, disaster risk reduction and climate change, with unfortunate consequences for the capacity to promote multiple-win options. In some locations, the paradoxical and net effect of these strategies has been to further entrench separation of tasks and responsibilities (IEPF, 2011).

A key lesson of the past 20 years is that shifting to an inclusive, resilient development process will require not only a fundamental transformation of our present development strategies but also a fundamental reform of public institutions tasked with formulating and implementing this new development paradigm. As mentioned earlier, a transition to a more inclusive, resilient, green development model will impact the comparative advantages of nations, industries and communities. The success of this shift will depend on whether public administrations are prepared to respond properly to these implementation challenges. Public administrations will have to translate government policies into action at the different levels, negotiate conflicts and build trust among stakeholders. The next section reviews some of the key policy implementation challenges that they are faced in fostering this new development paradigm.

#### PUBLIC ADMINISTRATION AND SUSTAINABILITY: IMPLEMENTATION CHALLENGES TO A NEW DEVELOPMENT PARADIGM

Understanding the dynamics of policy implementation is key to creating effective regimes for sustainable development that reinforce the four strands of development paradigms mentioned in the previous section. There is a growing political will among the international organizations, national and sub-national governments and local communities to promote equitable, resilient and greener development. There is little political disagreement on the benefits such development would bring to society, but the practical implementation of such an approach generates significant resistance and disagreements. We need to create the public institutions to bring the parts together, instead of assuming they will come about automatically through certain trickle down mechanisms or that there will be 'silver bullets' to solve our sustainability challenges. There will be a long learning process to build those institutions, as we have experienced in the last 20 years. As institutions are humanly devised, we need to create the social and political processes to start to build these institutions at a faster pace—not only the institutions for decision making but also the organizational capacity and policy processes that can guarantee that decisions are legitimized, decision makers are accountable and decisions are actually implemented.

Many scholars and practitioners in public administration and policy tend to overlook the importance of implementation in their analyses of policy decisions. Many people view policy making as a matter of negotiating and passing laws, carrying out political discourses and creating public agencies and committees that are tasked with supervising the policies. They tend to overlook that this is only part of a longer, often much more complex, process, which also involves implementation and the dynamics of what happens when the policy decisions 'hit the ground'. In most cases, it is assumed that implementation will strictly follow decisions, agreements or regulations laid down by law. A top-down approach still prevails in the views of many policy makers

In reality, implementation does not necessarily follow decisions made at the highest levels. They may fail to be implemented or exert unexpected impacts. Furthermore, change does not only generate from the top. In the area of sustainable development governance, national and sub-national governments are in general ahead of international regimes in tackling international environmental issues. Action coming from local governments may even be ahead of national governments. Current experience shows that such local-level efforts are taking place way before countries commit to them at the national level, such as city policies to tackle climate change in the USA (Puppim de Oliveira, 2009, 2011).

There is a myriad of networks of local actors and a multitude of policy processes at the national and sub-national levels in different sectors (e.g. energy or agriculture) that are relevant to a particular international regime. Many of these processes are not related to a specific international or government regime, but can be influential in determining the effectiveness of its implementation, as well as its replication in other localities. How to create governance mechanisms to match these processes can bridge the gap between what is discussed and decided upon and what is actually done—and definitively determine our future development path.

Negotiators engaged in the negotiations of international environmental agreements often have limited experience about how implementation would take place—or, indeed, is already taking place—in their own countries at the local level. The same holds true for some national legislators. They may decide on legal action that may look good on paper but is not implementable or has little effectiveness to catalyse what is already happening on the ground. This mismatch between the governance system and understanding of national and sub-national actions can create ineffective regimes with regards to implementation (Pinto and Puppim de Oliveira, 2008). There is sometimes a 'decoupling' between the networks operating on the ground and those coming from the top. Effective implementation happens when networks at the top (international or high government level) can complement and/or supplement those at the bottom.

Another key challenge is the integration of diverse social, economic and environmental aspects in different policy contexts and the incorporation of long-term interests in policy decisions and implementation. Indeed, the integration of environmental issues in sectoral policies in developing countries in particular faces several implementation hurdles (Puppim de Oliveira, 2002, 2008). In many parts of the world, environmental issues are not a priority in the domestic political agenda. Even when an environmental issue is identified, it may lack funding or administrative and legal support to be implemented. Governments may not have the ability to allocate resources for actual implementation, or the issue can be a source of heated debate, becoming a 'touchy' issue in the political agenda—such as the climate change debate in the USA. When resources are available, implementation actors may lack the technical or organizational capacity to develop actions. This is particularly common in developing countries. Finally, some of the local actors, such as governments and interest groups in the local population, may not participate in the implementation process or may oppose the implementation as it may go against their interests or values (Puppim de Oliveira, 2005; Pinto and Puppim de Oliveira, 2008).

Thus, some of the toughest challenges of public administration will be to create effective institutions and organizations that can incorporate all development needs, particularly the social and environmental components, and sustain efforts on a long-term basis. Tremendous institutional strengthening efforts are required to enable countries to achieve multiple development wins: boosting economic growth; reducing poverty; enhancing energy access, security and affordability; creating new jobs; improving local environment and health conditions; and mitigating global environmental risks.

The challenges for greening the economy and having good environmental governance in place have several facets and require a series of changes that may not be easy to carry out in the current economic and political

context. It will require time, political, financial and institutional resources, and even if efforts start today, we may not be able to avoid some changes or resolve all outstanding issues. However, the consequences of failing to act can be dramatic and potentially catastrophic. The contributions in this Special Issue of PAD draw lessons from past and ongoing international efforts and identify good practices for strengthening public organizations to achieve better governance and foster inclusive, resilient and green development. We hope the issues raised will contribute to a focussed thinking about the next generation of public administration reforms needed to build a more sustainable future for present and future generations.

### *Challenges ahead*

This Special Issue of PAD discusses sets of challenges that are relevant to make the 'visible hand' of public institutions and organizations more effective in bringing about the required changes. Firstly, there are political and economic barriers to make operational the concept of a greener, resilient economy and the resistance such an economy faces from different groups in society that may be affected in the short or long term. Many policy changes start well but are reverted over time. The second set of challenges is the conceptualization of frameworks and tools to effectively mainstream inclusive, resilient and green development concerns into national, sub-national and sectoral policies and organizations. Finally, the articles also discuss the need for new forms of governance at different levels of society to foster inclusive, resilient and green development, and how multilateral institutions can support these efforts.

### *Unevenly distributed long-term gains and short-term losses*

Reforms for improving governance or greening the economy are often opposed by important stakeholders, both rich and poor, who are negatively affected in the short term. For example, reforms to remove subsidies on agricultural inputs and fossil fuels are not only frequently opposed by multinational oil companies as eating into their profits but also by the poor who rely on the subsidies for their basic needs. Many such reforms are needed to green the economy of developing countries in different sectors, such as energy, forestry or transportation. In theory, they seem progressive and receive laudable public support at the national and international levels, but in practice, they may suffer stiff resistance. The green-growth perspective in Southern Africa (Resnick *et al.*, in this special issue) illustrates the difficulties that the green economy concept faces in different sectors in three countries. For example, agricultural subsidies in Malawi, which were increased despite the opposition of major donors, brought an increase in productivity and a reduction in poverty. These subsidies will now be difficult to remove and would most likely be opposed by fertilizer companies and the poor equally. This opposition from rich and poor poses a double challenge in terms of overcoming the economic power represented by companies and the political power linked to votes represented by the poor.

### *Reforms need to start the greening process and to keep it going*

One of the biggest challenges of political and economic reforms, such as those needed for green governance, is not only to start the process of reform and achieve results in the short term but also to sustain continued impacts over a longer time frame and to avoid counter-reforms that may reverse the successful initial changes. There is a need to spark the process and continue the changes, such as in the case of reforms to achieve economic growth (Rodrik, 2003). The case of one of the most promising programmes to combat Amazon deforestation (see Rajao *et al.*, in this special issue) given in this Special Issue is a good example of how successful initiatives that achieve good results can be overthrown by changes in governments and the interests represented by these changes. Many green policies are not sustained politically or cannot be scaled up to cut across sectors. Thus, how to maintain political support throughout the entire reform process will be a fundamental question and one that policy makers will need to address from the onset of reforms.

### *Mainstreaming sustainable development concerns in sectors and organizations*

Another challenge for greening the economy and governing for sustainable development is to mainstream social and environmental objectives into sectoral policies and organizations, both within and beyond governments.

Mainstreaming has been discussed for a long time in academic literature and practice. The integration of environmental and social issues in sectoral policies has occurred initially through command-and-control instruments, such as environmental impact assessment (EIA), end-of-pipe solutions and labour legislation. As the economic rationale of environmental and social safeguards was better understood and became increasingly recognized over time, a wider range of tools and approaches was adopted to mainstream socio-ecological concerns into core policies and decision-making processes of public and private organizations at different levels were increasingly adopted (Puppim de Oliveira, 2002). The next challenge is to mainstream these socio-environmental concerns into the functioning of the economy as a whole in the different sectors and levels. Two articles in this issue discuss the potentials and limitations of some of these approaches to mainstreaming. Strategic Environmental Assessment (SEA) has been used for a while for policy-level decisions. SEA also has the potential to support sectoral reforms aimed at greening the economy (see Slunge and Loyaza, in this special issue). Creating governance mechanisms is fundamental to incorporating social and environmental aspects into different policy levels. As discussed in a second article (Nunan *et al.*, in this special issue), another challenge to mainstreaming initiatives is to understand the organizational arrangements for introducing and maintaining dialogue on these subjects in governmental decisions and to assess the degree to which they are adopted in organizations and policies.

#### *Greening both the formal and informal sector*

Tools and approaches to green economy and governance tend to rely heavily on formal rule making and processes. They assume that economics and politics take place in a system where the rule of law prevails. However, informality is widespread in many countries, particularly in developing countries where a large part of the economy and political process is run by informal political and economic institutions. The formal economy and the public law have a limited effect on what actually happens on the ground. For example, even in middle-income countries such as Brazil, a large part of the small firms and the labour force are informal (SEBRAE, 2011). Legal informality in environmental and health-and-safety procedures may be even more widespread. This limits the usefulness or effects of tools and approaches designed in an institutional environment that assumes organizations and individuals are directly affected by official rules. EIA, SEA or formal financing mechanisms can help to influence decisions made by large firms and rich or middle-class individuals in developed countries, but they are much less effective in developing countries where important and prevalent sectors, such as mining and energy, are heavily informal. Microfinance schemes (see Merritt and Stubbs, in this special issue) can provide one alternative to influence the greening of small local businesses or community-based initiatives that are mostly informal and have little access to established mechanisms of credit. The changes required for greening the economy, particularly in developing countries, necessitate going beyond the conventional legal and institutional frameworks usually proposed by the international community. Although many of the international mechanisms proposed today accommodate the role of the private sector, they do not yet recognize that large parts of the economy in developing countries remain in the informal sector. As a result, innovative mechanisms such as the Clean Development Mechanism, which was designed to support local and global sustainable development objectives, mostly benefited the richest and largest corporations, although brought some environmental benefits.

#### *A different type of governance is still needed*

Sustainable development cannot be achieved unless decisions are made through effective and legitimate decision-making channels. This requires processes that are inclusive, transparent and accountable but at the same time responsive to local and global challenges. It involves a variety of decision-making processes, encompassing different levels, including a wide range of stakeholders with varying languages, resources, interests and values in both formal and informal sectors, and covering diverse time frames. The mechanics to build such governance institutions and supporting organizations are still not fully understood. We have the opportunity for a new 'Charter' moment (Kanie *et al.*, in this special issue) similar to the formation of the United Nations in the 1940s. Both a sense of urgency and political will are needed to unravel the political and economic interests required to build an effective governance structure, but the discourse of good governance should not be used to move the responsibilities for driving changes

away from the most legitimate political processes and actors. Democratic processes should allow the people to feel ownership of their political decisions, and the politicians/bureaucrats should remain accountable to them as well as the 'state', which is ultimately responsible for supporting the decision-making processes and their effective implementation. In previous decades, the discourse on governance has had a tendency to recommend focusing more on the private sector and civil society (although in many instances, this was needed) and/or to establish parallel structures in response to perceived weaknesses and incapacities in the public domain. This has blurred responsibilities and diverted needed resources away from the state, creating an accountability gap in public decision making and implementation. The idea of metagovernance (see the article by Christopoulos *et al.*, in this special issue) is to bring the state back in—not only with the necessary resources to move the sustainable development agenda but also with a more legitimate political process that makes politicians more responsible and responsive to public needs and goods and, consequently, more accountable. Public organizations would have the role of 'governing governance' to bring together the different nodes of governance.

#### *More information, transparency and accountability*

Economic and political reforms needed for greening the economy and improving governance for sustainable development cannot be sustained without transparent and accountable decision-making systems. Transparency in environmental information can improve accountability through political pressure and increase environmental performance. Access to clear information also helps markets to be more responsive to consumer demands on sustainable development. Transparency leads organizations and individuals to avoid making short-term decisions that may come back and harm them later, both indirectly and directly. It also makes them more accountable for their and others' decisions, reinforcing the political process and stimulating learning. In China, there is a huge potential to boost improvements in environmental quality through transparency of environmental information (see Li, in this special issue). In countries facing increasing environmental pressure, the social infrastructure to push for better social and environmental governance needs to be built to improve the rule of law and the capacity and independence of civil society organizations. Access to information and transparent systems of decision making will be key to build this social infrastructure at different levels.

## CONCLUSION

The two-century-old debate on *Limits to Growth* versus *Limitless Ingenuity* remains as open and as critical as ever. The belief that human ingenuity, through unfettered markets, can provide timely solutions to the social and environmental challenges of the 21st century rests on the expectation that past positive economic trends will continue unchecked for the foreseeable future (high economic growth rates, sustainable supply of human ingenuity to substitute for growing resource constraints, etc.), whereas some negative socio-ecological trends will reverse in the near future (increased deterioration of ecosystem services, increased inequity within and across nations, increased number of jobs lost to automation, etc.). A wide array of voices, going far beyond the traditional neo-Malthusian school of thought, increasingly challenges this double assumption. The world is at risk of crossing multiple ecological limits, and many social problems remain unaddressed.

This Special Edition of PAD asserts that growth in human welfare and equity can take place in a sustainable way throughout the 21st century. However, we need to supplement the invisible hand of the market with the visible hand of public policies to ensure an adequate supply of ingenuity to support an inclusive economic growth within the physical boundaries of our planet. It will require effective, responsible, credible and trustworthy public institutions and organizations.

Green growth is a valuable concept to help policy makers keep ahead in the race between complexity and ingenuity, scarcity and de-materialization, industrialization and de-carbonization, entrepreneurial incentives and inequity. But, to do so will require deliberate and immediate action. Fostering an inclusive and resilient economy means that developed and developing countries alike will need to undergo a transformative process and shift to environmentally sustainable policies integrating greater equity as a pressing concern.



This will require the development of a new generation of prospective and integrative planning tools and processes through public administrations to anticipate and manage exponential changes at all administrative levels. The preparation of low-emission, climate resilient strategies or national sustainable development strategies could be a first step to revitalizing long-term integrative planning efforts, which became marginalized in the late 1980s, and to identify win-win/no-regrets options for equitable, resilient and green development at the national and local levels (Glemarec *et al.*, 2009). These strategies will need to be operationalized through a new generation of sectoral and local public policy instruments.

At the international level, a new generation of macropolicy guidance documents might be called for to reflect the political will and needs of the people who are affected on the ground by the present development models. A set of international reforms are needed to promote more transparent and accountable governance structures for decision making and empower governments to move the decisions forward.

Fair, reliable and accountable governing institutions able to build trust among stakeholders and implement these reforms will hold the key to driving inclusive growth within the finite boundaries of our planet over the long term. New forms of governance will need to be encouraged at all administrative levels, going far beyond the new public management paradigm of the 1990s. A discussion on sustainability cannot be dissociated from a discussion on the role of the state and that of public administration. PAD provides one of the first building stones to discuss these new challenges.

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