

## Executive summary

Green growth means fostering economic growth and development while ensuring that natural assets continue to provide the resources and environmental services on which our well-being relies. To do this it must catalyse investment and innovation which will underpin sustained growth and give rise to new economic opportunities.

A return to “business as usual” would be unwise and ultimately unsustainable, involving risks that could impose human costs and constraints on economic growth and development. It could result in increased water scarcity, resource bottlenecks, air and water pollution, climate change and biodiversity loss which would be irreversible; thus the need for strategies to achieve greener growth.

### *Sources of green growth*

Green growth has the potential to address economic and environmental challenges and open up new sources of growth through the following channels:

- **Productivity.** Incentives for greater efficiency in the use of resources and natural assets: enhancing productivity, reducing waste and energy consumption and making resources available to highest value use.
- **Innovation.** Opportunities for innovation, spurred by policies and framework conditions that allow for new ways of addressing environmental problems.
- **New markets.** Creation of new markets by stimulating demand for green technologies, goods, and services; creating potential for new job opportunities.
- **Confidence.** Boosting investor confidence through greater predictability and stability around how governments are going to deal with major environmental issues.
- **Stability.** More balanced macroeconomic conditions, reduced resource price volatility and supporting fiscal consolidation through, for instance, reviewing the composition and efficiency of public spending and increasing revenues through the pricing of pollution.

It can also reduce risks of negative shocks to growth from:

- **Resource bottlenecks** which make investment more costly, such as the need for capital-intensive infrastructure when water supplies become scarce or their quality decreases (*e.g.* desalination equipment). In this regard, the loss of natural capital can exceed the gains generated by economic activity, undermining the ability to sustain future growth.
- **Imbalances** in natural systems which raise the risk of more profound, abrupt, highly damaging, and potentially irreversible, effects – as has happened to some fish stocks and as could happen with damage to biodiversity under unabated climate change. Attempts to identify potential thresholds suggest that in some cases – climate change, global nitrogen cycles and biodiversity loss – these have already been exceeded.

### *A framework for green growth*

There is no “one-size-fits-all” prescription for implementing strategies for green growth. Greening the growth path of an economy depends on policy and institutional settings, level of development, resource endowments and particular environmental pressure points. Advanced, emerging, and developing countries will face different challenges and opportunities, as will countries with differing economic and political circumstances.

There are, on the other hand, common considerations that need to be addressed in all settings. Most importantly, good economic policy lies at the heart of any strategy for green growth. A flexible, dynamic economy is likely to be best for growth and to enable the transition to a greener growth path. Greening growth will require much more efficient use of resources to minimise environmental pressures. Efficient resource use and management is a core goal of economic policy and many fiscal and regulatory interventions that are not normally associated with a “green” agenda will be involved. And in every case, policy action requires looking across a very wide range of policies, not just traditionally “green” policies.

A green growth strategy is centred on mutually reinforcing aspects of economic and environmental policy. It takes into account the full value of natural capital as a factor of production and its role in growth. It focuses on cost-effective ways of attenuating environmental pressures to effect a transition towards new patterns of growth that will avoid crossing critical local, regional and global environmental thresholds.

Innovation will play a key role. Existing production technology and consumer behaviour can only be expected to produce positive outcomes up to a point; a frontier, beyond which depleting natural capital has negative consequences for overall growth. We do not know precisely where this frontier lies in all cases but we do know that the ability of reproducible capital to substitute for (depleted) natural capital is limited in the absence of innovation. By pushing the frontier outward, innovation can help to decouple growth from natural capital depletion.

A green growth strategy also recognises that focusing on GDP as a measure of economic progress overlooks the contribution of natural assets to wealth, health and well-being. It therefore targets a range of measures of progress, encompassing the quality and composition of growth, and how this affects people’s wealth and welfare. In this and many other respects, green growth is an essential component of sustainable development (Box 0.1).

The economic costs arising from the emission of some pollutants and the over-exploitation of some resources are relatively well-known. Clear benefits will arise once the right policies are implemented. In some cases, the size and timing of payoffs from maintaining ecosystem services – the benefits humans derive from nature – are subject to uncertainty because interactions between ecosystem services, climate change and biodiversity are complex. Nonetheless, action taken now to insure against unfavourable, irreversible or even catastrophic outcomes can avoid significant economic costs in the future.

Economic policy decisions need to incorporate a longer time horizon. Patterns of growth and technological change build on one another creating path dependency and technological and institutional lock in. Environmental impacts are also cumulative and sometimes irreversible. These create strong links between decisions today and economic opportunities in the future.

### **Box 0.1. Green growth and sustainable development**

Sustainable development provides an important context for green growth. The OECD Green Growth Strategy leverages off the substantial body of analysis and policy effort that flowed from the 1992 Rio Earth Summit. It develops a clear and focused agenda for delivering on a number of Rio's key aspirations.

Green growth has not been conceived as not a replacement for sustainable development, but rather should be considered a subset of it. It is narrower in scope, entailing an operational policy agenda that can help achieve concrete, measurable progress at the interface between the economy and the environment. It provides a strong focus on fostering the necessary conditions for innovation, investment and competition that can give rise to new sources of economic growth – consistent with resilient ecosystems.

Green growth strategies need to pay specific attention to many of the social issues and equity concerns that can arise as a direct result of greening the economy – both at the national and international level. This is essential for successful implementation of green growth policies. Strategies should be implemented in parallel with initiatives centering on the broader social pillar of sustainable development.

The Strategy develops an actionable policy framework that is designed to be flexible enough to be tailored to differing national circumstances and stages of development. In partnership with initiatives by other international organisations, including UNEP, UNESCAP and the World Bank, OECD green growth work has been planned to contribute to the objectives of Rio+20.

Matching green growth policies and poverty reduction objectives will be important for adapting this framework to emerging and developing countries. There are important complementarities between green growth and poverty reduction, which can be capitalised to help drive progress towards the Millennium Development Goals. These include, for example, bringing more efficient infrastructure to people (*e.g.* in water and transport), alleviating poor health associated with environmental degradation and introducing efficient technologies that can reduce costs and increase productivity, while easing environmental pressure. Given the centrality of natural assets in low-income countries, green growth policies can reduce vulnerability to environmental risks and increase the livelihood security of the poor.

#### *The essentials of green growth strategies*

Green growth strategies need to encourage greener behaviour by firms and consumers, facilitate smooth and just reallocation of jobs, capital and technology towards greener activities and provide adequate incentives and support to green innovation. Misguided government policies, market constraints and distortions all lead to or arise from market failures, which mean there is often a gap between private returns from economic activity and the overall benefits that accrue to society. Green growth policies aim to close that gap and raise returns to “green” investment and innovation. They also aim to minimise the distributional consequences of change for the least advantaged groups of society and manage any negative economic impacts on firms while retaining incentives for improved economic performance.

Implementing a green growth strategy will involve a mix of instruments which draw from two broad sets of policies. The first set includes framework conditions that mutually reinforce economic growth and the conservation of natural capital. Included in this are core fiscal and regulatory settings, such as tax and competition policy, which, if well designed and executed, maximise the efficient allocation of resources. This is the familiar agenda of economic policy with the added realisation that it can be as good for the environment as for the economy. To these settings should be added innovation policies<sup>1</sup> that place a premium on the inventiveness that is needed if we are to use natural capital much more sparingly and efficiently.

The second set encompasses policies targeted at incentivising efficient use of natural resources and making pollution more expensive. They include a mix of price-based and other policy instruments. The stand-alone annex *Tools for Delivering on Green Growth* details the broad policy toolkit for green growth that these two sets embrace.

While national circumstances will differ, putting a price on pollution or on the over-exploitation of scarce natural resources – through mechanisms such as taxes or tradable permit systems – should be a central element of the policy mix. Pricing mechanisms tend to minimise the costs of achieving a given objective and provide incentives for further efficiency gains and innovation. Importantly, increased use of environmentally related taxes can play a role in growth-oriented tax reform; by helping to shifting (part of) the tax burden away from more distortive corporate and personal income taxes and social contributions. Taxes on energy and CO<sub>2</sub> can also be a natural part of a wider fiscal consolidation package, offering an attractive alternative to higher taxes on labour or business income or deep cuts in public expenditure.

Not every situation lends itself to market instruments. In certain cases, well-designed regulation, active technology-support policies and voluntary approaches may be more appropriate or an important complement to market instruments. In addition, the responsiveness of businesses and consumers to price signals can, in many situations, be strengthened through information-based measures that highlight the consequences of environmental damage caused by specific activities and the availability of cleaner alternatives.

Changing the payoffs in the economy is only part of the solution. Societies become dependent on institutions and technologies with which they are familiar. Social and economic inertia can be so strong that even quite large changes in pay-offs will not change behaviour. A strong capability to innovate is essential to establish the capacity for breakthroughs and new patterns of production and consumption. Innovation can generate new sources of growth that better reflect the full value of natural capital to society and reduce the cost of addressing environmental risks. Green growth strategies need to address the following challenges for green innovation:

- Many environmental externalities are under-priced or not priced at all. The consequences of such externalities may not be well understood. For example, a carbon price can help to incentivise innovation to tackle climate change, but current levels of carbon prices are low, leaving a considerable gap.
- Path dependency and dominance of existing technologies and systems can make it very difficult for some new technologies to compete, establish a place in the market and scale up, which is why temporary support may be needed in certain cases. Innovation support instruments must be carefully designed to foster the emergence and uptake of efficient technologies while minimising the risk of technology lock-in, lack of competition or crowding out of private investment.
- Barriers to trade and investment can place a serious break on the development and diffusion of green technologies globally. Reducing these barriers while providing effective protection and enforcement of intellectual property rights (IPRs) are essential to encourage the development and diffusion of technologies and the facilitation of foreign direct investment and licensing.

Greening growth will also require policies to establish network infrastructure which is suitable for next generation technologies, especially in areas such as energy, water, transport and communications networks. Green infrastructure investments can help avoid costly lock-in of inefficient patterns of growth. They can lift economic growth and bring social and health benefits. In developing economies, there will be opportunities for leap-frogging to new forms of infrastructure development. Leveraging public and private financing – *e.g.* through public-private partnerships, a mixture of tariffs and taxes, facilitating investment by major institutional partners through reforming regulatory barriers and sound

long-term policy signals, and development assistance – will be necessary given the large-scale investments required in most countries.

Ultimately, what matters for the success of a green growth strategy is a well-defined framework for action and a consistent set of economic and environmental policy criteria. It will need to build on a high degree of co-ordination among ministries and levels of government as well as stakeholders outside government, to identify a policy mix suitable to local conditions. In many cases, developing appropriate institutional capacity will be an essential condition for integrating green growth into core economic strategies and other government policies, and for ensuring a leading role for finance, economic and environment agencies.

### *Ensuring a smooth labour market transition*

Greener growth will see new jobs created, including skilled jobs in emerging green innovative activities. But some jobs will be at risk so there is a need to facilitate the re-allocation of workers from contracting to expanding sectors, such as those that replace polluting activities with cleaner alternatives or provide environmental services.

Labour market policies should focus on preserving employment, not jobs. They need to ensure that workers and firms are able to adjust quickly to changes brought about by the greening of the economy, including by seizing new opportunities. By helping workers to move from jobs in contracting sectors to jobs in expanding sectors, they can also help to assure a just sharing of adjustment costs occasioned by the transition.<sup>2</sup> New skills will be needed and this will require appropriate education policies. While many existing skills will remain appropriate, skill mismatches and gaps may emerge. Training and re-training programmes will be a key component of labour market policies.

The scale of adjustment should not be overstated. For example, significant reductions of greenhouse gas emissions can be achieved with only limited effects on the pace of employment growth. Indeed labour market performance can improve if revenues from carbon pricing are used to promote labour demand. Furthermore, this does not take into account the positive impact on employment as a result of strategies fostering sources of green growth.

### *Addressing distributional aspects*

Accounting for the distributional impacts of greening growth will be crucial for its public acceptability. There is a widespread perception that the distributional effects of some policy instruments will inevitably be regressive. This is not necessarily the case, but unless these concerns are addressed the acceptability of some key policies may be called into question.

For example, the phasing out of fossil fuel subsidies will have positive impacts on the environment and the economy in the aggregate but may entail adverse consequences for some nations or population groups in the short-term. The loss caused by higher fuel prices will be immediately obvious and significant for some, but the economic, social and environmental gains will take longer to materialise and be more diffuse. Targeted compensatory measures will need to be introduced, particularly in emerging markets where some populations are most vulnerable to transitional costs associated with greening growth.

### *International co-operation for green growth*

Creating a global architecture that is conducive to green growth will require enhanced international co-operation. Strengthening arrangements for managing global public goods, especially in biodiversity and climate, hold the key to addressing co-ordination and incentive problems. The agreements reached at

Cancun on climate change give reason to be optimistic that progress can be made but ongoing efforts are needed. Financial flows in particular need to become both an engine for growth and development as well as an incentive to maintain the quality of the global commons.

Official Development Assistance (ODA) can continue to play an important role to create enabling conditions for green growth, targeting areas where incentives for private investment are limited and flows are scarce, including essential infrastructure and human and institutional capacity building. Increased co-operation in science and technology will need to be underscored by more concerted approaches to accelerate technology development and diffusion and build research capacity in developing countries.

Increased efforts to boost global trade and investment flows could help underpin sustained growth and diffusion of green technologies. There is also a need to ensure that the development prospects of low-income countries are not undermined through the potential spill-over effects of domestic trade and investment measures. Some countries have expressed concern that trade and investment could be affected if the green growth policy agenda were captured by protectionist interests.

While investment protectionism associated with green growth policies has not been found to be a major problem to date, continued vigilance should be encouraged. The OECD-hosted Freedom of Investment Roundtable will continue to monitor investment measures to ensure that they are not used as disguised protectionism. Its recent communication on “Harnessing Freedom of Investment for Green Growth” aiming at making governments’ environmental and investment policy goals mutually supportive is reproduced in Annex 1.

### *Monitoring progress towards green growth*

Monitoring progress towards green growth should draw on groups of indicators which describe and track changes in: (i) productivity in the use of environmental assets and natural resources; (ii) the natural asset base; (iii) the environmental dimensions of quality of life; (iv) policy responses and economic opportunities. For each of these groups, a list of indicators has been proposed in a companion report *Towards Green Growth - Monitoring Progress: OECD Indicators*. This is work in progress and will be further elaborated as data become available and as concepts evolve.

Work to date suggests that environmental and resource productivity has been rising. While there are significant differences between countries, growth of GDP and other measures of output tend to outstrip growth of environmental inputs into the production system. However, improved environmental productivity has not been accompanied by absolute decreases in environmental pressure or the sustainable use of some natural assets.

Indicators that measure the “green economy” need to be interpreted carefully. Judged simply by the size of industries involved in the production of environmental goods and services, today’s “green economy” is relatively small. However, economic opportunities, entrepreneurship and innovation in conjunction with green growth can arise in all sectors so an assessment based on green industries understates the economic importance of environmentally related activities.

### *Green Growth Strategy: Next steps*

To succeed, national green growth strategies will need to be mainstreamed into government policies. The OECD can contribute to this in a number of ways. The framework and policy insights of this report can be tailored to account for country-specific circumstances, and provide guidance for continued analysis in the form of country reviews. Such work can offer opportunities for an in-depth appraisal of the way in which policies are working together (or not) to drive greener growth. The development and

refinement of the green growth toolkits that will accompany this Strategy can further support policy implementation at the national level.

Experience gained through both country reviews and general policy assessment could lead to the development of an analytical tool that would identify country-specific policy priorities on the basis of a cross-country analysis and understanding of what is good practice. This would benefit from continued work on green growth indicators and measurement issues. Indeed, an important measurement agenda arises from confronting indicators with available and internationally comparable data. The OECD will be advancing the measurement agenda in the years ahead so as to improve the possibilities for tracking the transition to green growth in OECD and other economies.

Further analytical work on the costs and benefits of various policy instruments also needs to be carried out. Moreover, work on issue-specific and sector-specific studies will yield more concrete insights into the implications of greening growth in a number of areas. Early priorities include food and agriculture, the energy sector, water, biodiversity and development co-operation, as well as policies governing cities and rural area development.

Finally, future OECD work on green growth will be based on a deepened collaboration with other international organisations, including UN agencies, the World Bank and the Global Green Growth Institute, as well as a range of stakeholders, to facilitate the exchange of experience and best practices, and to help promote international arrangements that are conducive to greener growth in both developed and developing countries.

## Notes

- <sup>1</sup> These include sound innovation policies elaborated in the *OECD Innovation Strategy*.
- <sup>2</sup> Lessons from the *OECD Reassessed Job Strategy* can be useful to that effect.





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