UNOSD
UNITED NATIONS OFFICE FOR SUSTAINABLE DEVELOPMENT

2019 Sustainable Development Transformation Forum :

From Incremental Progress to Transformation – Achieving the SDGs and Securing our Planet

United Nations | Department of Economic and Social Affairs

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Table of Contents

Figures

Chapter 1. Building Sustainable and Just Economies

Chapter 2. Food Systems and Nutrition Patterns

Chapter 3. Energy Decarbonisation and Universal Access to Energy

Chapter 4. New Trends in Governance for Transformation

Chapter 5. Changing Values, Preferences, and Behaviours

Chapter 6. Building Coalitions for Transformative Change

The Global Sustainable Development Report (GSDR)

Foreword

This publication is based on the 2019 Sustainable Development Transformation Forum (SDTF) and reflects many of the discussion that took place during and around the Forum. It is not to be considered as a verbatim report on the Forum and it is important to note that the book and the individual chapters are not intended to meet "academic" standards, but to be presented in a more accessible and narrative style. There are, therefore, very few notes and references and there is no list of works cited. Our intention is to produce an outcome from the Forum that is as accessible and widely read as possible by policy makers and those who advise them, as well as the general public. The challenge of reaching the Sustainable Development Goals (SDGs) is possibly the greatest for life on this planet since the cataclysmic event that destroyed the dinosaurs and it is vital that the discussions from the 2019 SDTF be shared as widely as possible. We have, however, included the official agreed output from the Forum, the *Incheon Communiqué*, in an Annex ii.

The SDTF is the flagship event of the United Nations Office for Sustainable Development, which operates under the aegis of the UN Department of Economic and Social Affairs (UN DESA) through its Division of Sustainable Development Goals, and is hosted and supported by the Government of Korea. I would like to thank the Ministry of Environment of the Republic of Korea, the Incheon Metropolitan City, and Yonsei University for their continuous support to our Office, and to our partners in organizing this event, the Asia-Europe Foundation (ASEF), Arirang TV, and the Incheon Tourism Organization.

Four years have passed since the adoption of the 2030 Agenda for Sustainable Development and 2019 marked the completion of the first cycle of the follow-up and review mechanism of the 2030 Agenda and its 17 Sustainable Development Goals (SDGs). Governments have begun integrating the SDGs into their national plans and strategies, and efforts are being made to strengthen implementation mechanisms. The private sector is getting interested in doing business differently, where sustainability is becoming more than just a buzzword. Civil society, NGOs, youth groups, and other actors are stepping in and taking action. Advances have been made in some areas, for instance regarding ending poverty, and providing basic education and health care to the most vulnerable.

However, we are far from where we need to be; there is not much time left to shift gear and take rapidly transformative action before reaching the point of no-return for our survival on this planet. The 2019 SDTF was structured around the Global Sustainable Development Report (GSDR) (see Annex i), which was prepared by an independent group of 15 experts from various regions, representing a variety of scientific disciplines and institutions. Three of these distinguished scientists, Dr. Eun Mee Kim, Dr. David Smith, and Dr. Parfait Eloundou-Enyegue were able to join the Forum for the launch of the Asia-Pacific Region of the GSDR and took part in the working sessions. In the pages that follow, the details of these discussions are highlighted, especially the urgency with which we need to confront the task of implementing the SDGs.

We were blessed that three of the authors of the GSDR participated fully in the Forum and that they were willing to go beyond delivering a simple discourse to present the report at a

conventional launching event. They accepted to go through a BBC *Hard-Talk*-like interview, where they were challenged on their position by a very strong and seasoned journalist but also by the participants, and even throughout the whole forum. They also offered a critical view on their own work.

As we were told by the authors, the intention of the report was to sound the alarm and make a strong call to action while providing us with six entry points for transformations to leverage interlinkages and accelerate progress across the 17 SDGs.

In only two and half days, it was not possible for us to look at all of those six entry points for transformation. In some cases, we may not have even gone deep enough when we looked at them throughout the different sessions. Indeed, one of the purposes of this small publication is to try to extend some of those discussions in the light of further commentary and more recent events.

Was it the urgent call for action of the GSDR, *The Future Is Now* or Nik Gowing's greatly disrupting presentation *Thinking the Unthinkable* (See Chapter 8) that signalled more the too-slow pace of transformation towards the SDGs? In fact, it was both. The Forum and this publication based upon it demonstrate the need to continue to cultivate that level of impatience and broadcast it to individuals and institutions where systemic changes may even "teach the silos to dance" (Chapter 4).

Both the Forum and this publication call for policy makers and, indeed, everyone who can make a difference to be bold, to be mavericks, to shine a light on innovative and workable solutions in every sphere in order to change the mindset and attitudes to speed up the transformations needed to achieve the 2030 Agenda and the SDGS. There are only ten years left to 2030.

Jean D'Aragon

Officer-in-Charge of the United Nations Office for Sustainable Development

Incheon, Republic of Korea

May 2030

Executive Summary

The chapters in this publication are based upon and reflect the discussions and the deliberations at the October 2019 Sustainable Development Transition Forum (SDTF) organised in Incheon, Republic of Korea, by the United Nations Office for Sustainable Development (UNOSD). The official, *Incheon Communiqué* is included as an Annex to this book. The Forum is the flagship event of UNOSD, which is the office set up under the United Nations Department of Economic and Social Affairs to support governments and stakeholders, including NGOs and private actors, in finding their transformative and sustainable pathways to achieve the UN Sustainable Development Goals (SDGs). By bringing together as many stakeholders as possible from as many parts of the planet as possible, the Forum creates a canvas upon which strategies and tactics for reaching the SDGs are drawn while, at the same time, illustrating the obstacles to be overcome and the challenges to be faced.

Simple recording of the presentations or distilling the discussions into a two-page communiqué cannot possibly convey the depth of the discussions around and reacting to the presentations, nor communicate the sense of both hope and urgency that pervaded the Forum. Hence, this volume whose objective is to provide a global impression of the event. In pursuit of that goal, the book is loosely structured on the programme of the Forum.

Financing the SDGs

The size of the transformations needed to attain the SDGs necessarily has a cost. It is a cost that will be highest where financing is at its lowest, at least in the early years of the decade leading up to 2030. This is a very high challenge for those countries and institutions traditionally associated with "development funding" and official development assistance (ODA). The Organisation for Economic Co-operation and Development (OECD) has long been associated both with ODA from its members through the Development Assistance Committee (DAC) and with the collection of data and its rigorous measurement. The OECD SDG Financing Lab has been set up to anticipate and identify sources of finance for the SDGs in developing countries and small island states (SIDS). The Lab has calculated that some USD 35 trillion in *public* spending will be needed by 2030 as transfers from the high- to middle-income countries to the low-income countries. The Lab also calculates that by 2025 the financing gap will already of the order of USD 1 trillion.

Part of the financing problem is generated by the fact that developing economies already rely heavily on ODA and external concessional financing. This dependency leaves them unready to cope with the demands of implementing the SDGs, much less able effectively to target external resources to where they are most needed to proceed towards the SDGs. A disturbing trend is towards private funding for "traditional" private destinations, such as industrial and infrastructure

development, while public funding continues to flow to SDGs 1 (No Poverty) and 5 (Gender Equality). Most surprising of all is that the SDG associated with the most visible and "popular" issue of climate change (SDG 13) is receiving only 5% of the overall available funding for the SDGs.

This rigidity can only be overcome by systemic change in the mindsets of those providing the funding and of those receiving it, as well as in the systems and institutions that are involved in governance at all levels and in all spheres of society. Societies will have to grapple with new ways of doing things and with the disruption that will inevitably follow innovation and radical change. There will be "winners" from the SDGs – in the long run that will be everyone on the planet – but there will also be "losers". Policy makers need to accept that and to react appropriately but there is little evidence that they are doing so on a global scale although, in its *Green Deal*, the European Union appears to be going ion the right direction.

Food and Nutrition

The planetary human population is increasing, and this means that there will be rising demands on the agricultural sector to feed, clothe and house them. However, agriculture is one the greatest contributors to the lowering of biodiversity (80% of deforestation is agriculture-driven), causes 29% of greenhouse gas emissions and is responsible for 70% of freshwater use. If it is part of the solution, it is also a very big part of the problem. Yet, the situation is dire and urgent in both directions: environmental impact and inability to prevent hunger. Indeed, while hunger constantly decreased throughout the final years of the last millennium and first few of this one, it began to increase again from 2014, according to the World Food Programme (WFP). The impact of hunger on societies is not only measured in the misery of those affected, it also causes health and intellectual problems in the future, effectively depriving needy societies of the skilled workers and professional that they desperately need.

There is a need completely to recalibrate the food system. This means examining both the input and the output chains, reducing waste throughout the system and raising efficiency while maintaining quality and distribution. At the base, the vulnerability to the food system from natural disaster, market distortion and political expediency has to be reduced, putting the supply of food to global populations on a more sustainable path. At the same time skills levels need to be raised in farming communities and agro-industries need to be installed in rural areas to provide stable rural populations to continue the production of food in the future. This requires technological progress in the production of food and in utilising what waste cannot be eliminated otherwise. Such ideas as "smart farming", as evidenced in the Republic of Korea, "precision agriculture" and "climate-smart agriculture" offer new hope for a way forward that neither destroys the planet, nor leaves its human population hungry.

These technologies, strategies and ideas need to be standardised and adapted to local conditions if they are to have the impact that is needed both to increase food production and to reduce the harm agriculture is currently inflicting on the planet. The Green Climate Fund, the Food and Agriculture Organization and bodies like the ASEM Eco-innovation Centre are contributing to understanding and resolving the trade-offs.

Decarbonisation and Energy Access

The publicity surrounding the degradation of the atmosphere and the visible effects of climate change have moved the topics of energy supply and universal access to electricity to near the top of the environmental agenda. It is increasingly being recognised that continuing to rely on carbon-based sources of electricity generation is unsustainable and moving to non-carbon sources is imperative. At the same time, economic and social development – even consistent and rational management of the environment – require wide access to clean energy, particularly electrical energy, hence the objectives of SDG 7, which include access to clean cooking fuels. The reality is that clean electricity generation is barely keeping pace with increased consumption, at 18%, and almost 850 million people still have no access to reliable supplies, while a third of the Earth's human population continues to rely on fossil fuels and charcoal for cooking.

While financing for SDG 7 projects has increased, it is still insufficient. Compounding the problem is that the investment is generally going to improving existing, mostly urban infrastructure, whereas the greatest need is in remote and rural areas. The failure to extend access to the poorest regions and people means that other SDGs – for example SDGs 1, 2, 3, 4, 5, and 10 – are imperilled because, in a clear demonstration of the interlinkages between the SDGs, they depend on the generalisation of access to energy. One conclusion from the evidence is that the energy sector cannot rely on private-sector initiatives to solve its problems, which means that the public authorities need to step in and find innovative ways of funding both electricity access to "uneconomic" consumers and clean-energy options for cooking fuels.

Initiatives are underway. India, for example, has committed to decreasing reliance on fossil fuels across the board, while the ASEAN countries – both individually and collectively – are seeking to replace dependence on fossil fuels with cleaner options. The European Union and its member states are also already reducing their reliance on fossil fuels. However, the current pace of change is far too slow and will be insufficient to come even close to SDG 7 by 2030.

Governance for Transformation

Pursuing the SDGs is a task for all sectors of society at all levels. It must involve the state and the non-state sectors (private enterprise, non-governmental organisations [NGOs], cultural and religious groups, political parties). How the different actors behave and perform in the face of the challenges raised by the SDGs will determine the outcome; if they adapt to confront the new challenges, they will add to the probability that the SDGs can be achieved. If they fail, the outcome could be catastrophic.

The responsibility of the public authorities in working towards the SDGs is special and specific. While they can be influenced by other actors, it will ultimately be the policy makers of the public sector that will design and enact the policies that will support the drive towards the implementation of the United Nations' 2030 Agenda. This call for radical reform, not only of

institutions, but of the mindsets that grow within them. The traditional "siloisation" of public structures – ministries, departments and divisions – has its purposes, and some of them are positive, even essential, but this division of government at all levels into individual fiefdoms also has a cost in terms of communication and, when it comes to something as wide-ranging as the SDGs, of multidisciplinarity in the approach to implementation. Strides have been made in encouraging reform in, for example, the *Principles for Effective Governance for Sustainable Development* elaborated by UN DESA. Other international institutions – ASEAN and the European Union, for example – have produced strategies for governance reforms, as well, and the United Nations Development Program (UNDP) Seoul Centre is an example of co-operation through its "Development Solution Partnerships" that provide advice and consultation services to developing countries.

The bottom line is that reform of governance institutions is an absolute necessity, but it has not yet taken place on the scale or to the extent necessary. Breaking down the silos is not the solution – neither in government nor in non-state structures. Rather, the silos need to co-operate and move with each other – they need to learn how to "dance" – together.

Changing Values

The SDGs will be made possible only with "transformation", rather than merely with change. The former implies an irreversible process that produces results adapted to a new situation that is permanent, whereas the latter refers to an adaptation that may be temporary and that can be reversed. Most political systems allow for change through elections and other forms of power transfer, but few are ready for transformation.

Almost all the SDGs imply at least some measure of transfer of privilege and power from one dominant group to another part of society that may have been traditionally disadvantaged. Ending poverty (SDG 1) will require transfers from the wealthy to the poor, ending hunger and gender inequality (SDGs 2 and 5) will also require permanent modifications to societies, while SDG 10, of course, explicitly demands a reduction in inequalities. Such profound transformations will be resisted by those who stand to "lose", even if their status remains vastly superior to the lowest levels of society. Hence, attitudes will differ, depending on the "cost" to sections of society of different SDGs. It is easier to "sell" SDG 4 requiring quality education because the identifiable cost to the most privileged is more obscure. Yet, *all* the SDGs need to be achieved, not just some of them, because they are interlinked.

There will be other costs, as well. Sustainability is about using as little as possible of hard-to-replace resources and turning to more sustainable lifestyles. At the bottom of society are people who have difficulty satisfying their needs but, as societies progress up the development scale, they also generate wants, which are optional but also desirable. While no-one can deny the absolute right of people to satisfy their needs, in a situation of impending doom due to unsustainable practices, there is every right to reduce consumption of corrosive "wants". There are some answers in the circular economy – the idea that the end-of-life situation of products can be incorporated into their conception, thus reducing waste and potentially improving the efficiency of consumption –

but a re-conception of what constitutes "success" is also necessary. This must occur at the individual level but, perhaps more importantly, also at the political level. As long as countries continue to assess their "success" or "failure" using the metric of GDP growth, the necessary transformation to sustainable development will be impossible.

Coalitions for Transformative Change

Governments cannot bring about transformation alone; they need allies or, at least, the absence of resistance. In the same vein, individuals or groups seeking transformative change also need allies. This elementary fact is recognised in the last of the SDGs – SDG 17, which calls for "Partnerships for the Goals".

These partnerships can take many forms, but they fall into three categories: professional networks, private-sector networks and international organisations. Professional networks are made up of like-minded individuals and institutions with a specific interest that has an impact on or will feel and impact from an issue like the SDGs. An example is the involvement of the scientific community in the Sustainable Development Solutions Network (SDSN) or "Future Earth". Private companies are linked through the UN's "Global Compact" or the World Business Council for Sustainable Development, while countries are brought together in international organisations like the UN, itself, the OECD or the G20. What all these associations have in common is a shared interest in pursuing the SDGs, even if they may have other purposes, as well.

The nature of the SDGs means that their effects and benefits – as well as their costs – will be felt throughout society and internationally, "leaving no-one behind". Networks come together because they recognise that they have a shared interest in maximising the benefits, even if they cannot minimise the costs, although they can seek together ways of avoiding costs where possible. Private enterprises, perfectly legitimately, hope that, by supporting the SDGs' implementation, they can discover innovative ways to continue to operate in a profitable manner. Other coalitions for transformative change share objectives but may have other interests that are not in conflict with the ideals of the SDGs. International organisations are designed to represent national interests at the same time as pursuing international objectives such as the SDGs. Shared objectives cannot conflict with perceived interests; otherwise, coalitions will fail.

"Creative Destruction"

In history, transformative change has come about with "creative destruction". That is, whatever may have stood in the way of transformation was removed, to be replaced by a new societal creation. The industrial revolution removed the old order and replaced it with capitalism; the Soviet and Chinese revolutions swept way feudalistic societies and replaced them with something new. There was no tinkering around the edges, the transformations were radical and all-embracing.

There has been a tendency to imagine that economies can continue to grow and develop without profoundly impacting the ecology of the planet. This is the theory of "green growth", as it is

sometimes articulated. Unfortunately, this is not the case. The same pace of economic development cannot continue under a "green" umbrella, which is not to say that "green" options are not available, simply that they are not the overall "solution". Nor is it likely that mere persuasion will make people in the advanced economies modify their consumption behaviours to protect the Earth. There is no evidence to support this contention. Finally, science will not save the day. As with the other two proposals, technology and science can help by providing attenuations but they are not solutions.

The only real solution to the challenge of reaching the SDGs is to rethink the whole purpose of the economy and, on that basis, restructure the way we think about economic growth. There are already movements to replace the concept of "GDP" with something more attuned to human wellbeing and satisfaction. What has been seen as a "cost" may eventually be perceived as a "benefit". For example, moving away from petroleum products and gasoline engines will have a cost in terms of jobs and profits for the industry but will make everybody a beneficiary by resulting in a cleaner atmosphere, as well as the ability – by turning to renewable energy sources – to continue offering mobility, heat and light to the population.

The trade-offs brought about by progress towards the SDGs are complex and some are time-sensitive, while others will be felt in the future. The transformations that are necessary to reach the SDGs will be at times disturbing and unsettling, but they are inevitable. Policy makers and those who advise them will need to embark on a vast programme of education and information at all levels of society if wide-scale resistance is to be avoided.

New Realities

In the face of impending, measurable disaster, the international community adopted the 2030 Agenda and the Sustainable Development Goals. Meanwhile, the world economy was undergoing a shift that saw the growth of Asian economies and the transfer of economic activity from the capitalist economies of Europe and North America to Latin America, South East Asia, China and India. Strains began to emerge that caused the political class and institutions that had been challenged for so long to tremble. Pent-up hostility to political systems that seemed incapable of serving their peoples boiled over with results that were unpredictable but wide-ranging.

The reality now is that almost everywhere popular behaviour – and the response of political and economic institutions to it – is unpredictable. Politicians and the political structures that underpin them are unused to resolving the rifts in society at exactly the moment that they need to bring society together to cope with moving towards the SDGs. In some sort of compensation, people in the advanced capitalist countries and in the formerly centrally planned economies are turning to social media for their information, for their mobilisation and for their "facts". The term "fake news" is now commonplace and the decline in "traditional" forms of communication – newspapers, radio and television – is palpable. Even the "climate debate", which is, perhaps, the most public mobilisation of popular sentiment in recent times, is clouded by misinformation, disinformation and rumour. There is no more "received wisdom". Yet, the need to be moving

towards the SDGs has never been so urgent and it cannot happen unless societies, as a whole, are behind the transformative changes that are necessary.

It has become necessary for people in positions of power and authority – in government at all levels, in the boardrooms of companies and within the non-governmental community – to "think the unthinkable" and learn how to deal with it.

Global Sustainable Development

All of the chapters summarised here are related to the Global Sustainable Development Report (GSDR), launched at the beginning of the Sustainable Development Transformation Forum, on which this publication is based.

The GSDR is the result of the work of a group of scientists brought from all over the world to study progress towards the SDGs and to offer advice on how best to reach them. It proposes six "entry points" for transformation and four levers through which they may be opened. While the report is, by nature, a "scientific" document, it nonetheless sounds the alarm of urgency even on its cover, as the publication's sub-title is, "The Future is Now". Unless policy makers, scientists, influencers and everybody else with a role to play in reaching the SDGs acknowledges the need to act without delay, the SDGs will not be achieved, with very dire implications for the future of life on this planet.

Introduction

David O'Connor

How can the transformations be achieved in our societies and economies that will be necessary in the next few decades to put us on a sustainable path to development, to shared prosperity for all peoples on our small planet?

Since 2015, discussions in the international community including at the SDTF have been informed and guided by the 2030 Agenda for Sustainable Development and its 17 sustainable development goals (SDGs). They provide a vision and a way forward. All of us have, in our respective spheres of work, been grappling with how best to implement this hugely ambitious, indeed transformative, agenda.

The analysis by an independent group of scientists in the Global Sustainable Development Report (GSDR) takes the SDGs and the 2030 Agenda and analyses them into a series of system transformations (or "entry points") and "levers" for action to advance transformations in these systems. The analyses and the structure of this publication, following the 2019 SDTF, are based on these entry points andtransformations.

The 2030 Agenda and the SDGs come against a backdrop of progress in some dimensions and areas of sustainable development – notably poverty reduction, the extension of basic education and health care for the poor and vulnerable, and robust economic growth in a growing number of countries. Despite these positive outcomes, the absolute number of poor people globally continues to rise, as does income inequality in some countries. At the same time, many people who have lifted themselves out of extreme poverty remain vulnerable to lapsing back into it if fragile economic development stalls or inverses.

Meanwhile, in the environmental dimension of sustainable development, there has been little to no progress and, in some cases, even reversals. Efforts to stabilise the climate system and protect the natural life support systems on which our continued wellbeing as a species depends have largely failed.

When the SDGs were negotiated, the emphasis was on irreversibly ending poverty – not just making short-term progress but confronting the risk of longer-term setbacks, as well. Unfortunately, an end to poverty is still not irreversible. If the threat of climate change is not overcome – and very soon – it is clear that millions of people will be forced back into poverty and hunger by its impacts, whether they be in crop losses and food insecurity, in new outbreaks of disease (or new diseases, as in the case of Covid-19 and Ebola, for example), or as a result of devastating storms.

Yet, the indicators show that global greenhouse gas emissions continue to rise, human activity continues to wipe out species at an historically unprecedented rate and to deplete

renewable resources including forests, fisheries and water supplies beyond their ability to regenerate. Human consumption and production patterns are far from sustainable.

The big changes – the transformations – needed to our economies and societies to put us on a course to making poverty history and ensuring that history does not repeat itself are simply not happening. Indeed, it is abundantly clear that, with a business-as-usual future, the trade-offs between short-term improvements in consumption and utility, and longer-term sustainability of human well-being will be aggravated. There has to be a change of course. Stop gap measures are no longer enough.

What will it take to move from the current models of development to genuinely sustainable development models? The SDTF is an arena for exchanges of ideas but also – and much more importantly – of the real-life experience of policy makers and policy shapers in their efforts to implement the SDGs and realise the 2030 Agenda. While the GSDR provided the basis and the road map for the Forum, the grist was provided by the participants at every level.

Whole economies and societies have undergone massive transformations in the past – not least in the Republic of Korea, which today is largely unrecognisable when viewed from the year after the Korean War ended in 1953. There are other examples – China since 1978, Ireland since the mid-1980s, Viet Nam since the late 1980s, Bangladesh and India in the past quarter century. The list could go on.

What these examples have in common is a rapid expansion in GDP and a more or less widespread sharing of its benefits, through investments in education and health for the population as a whole and other public policies. What they also have in common with one another and with the earlier developed countries' rapid growth phase is an overwhelming dependence on fossil fuels and on extractive use of natural resources, both non-renewable and renewable.

This is why so much ink has been spent over the years discussing the prospects for 'decoupling' growth from resource use and environmental degradation. Yet, the evidence of actual decoupling is still sparse. Which is why all countries could agree, in adopting the SDGs, that nobody has all the answers to how to achieve *sustainable* development.

The problem, it seems, consists of the laws of physics, which are not negotiable. While many countries have managed to reduce the energy intensity of GDP, very few have managed to reduce energy consumption absolutely at the same time as they continue to support economic growth. More can be done to improve the efficiency of energy use, and every effort must be made to do so. In the end, however, modern economies will still consume an awful lot of energy – and materials. The challenge will be how to provide those without continuing to produce the greenhouse gases that are wrecking our climate. Decarbonisation of energy is one of the crucial transformations we have only begun to get to grips with.

The agricultural and food system is another realm in need of transformation. Agriculture is the main driver of the loss of forests and the decline in biodiversity. It is also a major contributor to greenhouse-gas emissions, not only from forest conversion, but from the use of chemical inputs and poorly regulated production methods in, for example, rice cultivation and livestock raising.

As the world population rises by mid-century to over 9.5 billion people, and diets in the developing world become more environmentally demanding, land and soil productivity are declining in many parts of the world, while water resources are declining in both quantity and quality. Climate change is already placing heavy stresses on agriculture in many places but, rather than decrease, these pressures will only grow with temperature rise, shifting and unpredictable precipitation patterns, declining biodiversity, and new pest outbreaks. In short, business-as-usual agricultural models need to be abandoned and new ones need to move from pilot to scale without threatening the world's food supplies. A tall order indeed …

Income inequality has been on the rise over the past generation in some large countries, notably China, India, Indonesia and the United States, which together account for almost half of the world's population. China is the most striking case, where in 1990 the Gini coefficient stood at .35 and by 2015 it had risen to almost 0.50. On the other hand, some countries actually saw income inequality decline, in Algeria, Brazil, Russia, and Thailand, for example. Different societies' tolerance for inequalities differ greatly, but discontent is evident in situations where almost all income gains of recent decades have gone to the richest sliver of the population.

The effects of globalisation and technological change are being felt by people at work, causing growing economic insecurity in many countries Hence, another major challenge for the next decade and beyond will be to ensure that prosperity is more widely shared and that there are no large segments of society who are being left behind. This is one of the drivers of populism and protectionism in recent years. The effects of technology in the face of the fourth industrial revolution are particularly unsettling. One Democratic Presidential candidate in the United States, Andrew Yang, has called for a universal basic income to address the likelihood of large-scale worker redundancies with the diffusion of artificial intelligence and automation. This strategy, though innovative and daring, has already been considered or adopted in other countries, Finland, Iran and Canada.

The question boils down to how to ensure that a strengthened global multilateral economic system will work for all peoples, and be reinforced by national policies that provide broad access to opportunity and that protect the vulnerable, those who otherwise might be losers from the profound changes underway. What will the inclusive and sustainable economies of the future look like?

These are all challenges laid out in the 2019 GSDR, which also looks at ways of working the different levers – of finance, technology, capacity building, governance, and societal and individual behavioural change – to bring about transformation in a very short timeframe. Even the most impressive transformations of the past have been generational events – China began opening in 1979, with per capita GDP in 1980 standing at only $184; by 2000 – 20 years later – it was only $1,000; in the next 18 years, it increased tenfold to almost $10,000. How, then, can the large-scale transformations needed in energy, food, transport, industrial and economic systems possibly be compressed into a decade or two?

Directed finance, and directed technical change, will be an important part of the story; but how do such things happen? How can private finance be persuaded to flow in the right directions and on the right scale? Governance changes will also be paramount, as some of the challenges the international community and individual and groups of nations will face in the coming decade or two

defy any historical precedent and call for bold new forms of cooperation and collective problem solving – on the order of the imperative which led to the creation of the United Nations itself almost 75 years ago. Can the sacrosanct principle of national sovereignty be compatible with the levels and kinds of cooperation needed to tackle management of the global commons in the future?

Finally, and perhaps most problematically, just as nation states bridle at efforts by the international community to coax them towards actions that, while in the supranational interest, are perceived as infringements on their sovereignty, so in our modern economies consumers assert sovereignty in their right to choose, even when those choices may be collectively imposing heavy external costs on the planet and, by implication, on the wellbeing of the human species and other living things. What will be needed to bring about the changes in societies' values, preferences and behaviour consistent with veering away from the precipice and stabilising the climate and other life-support systems for future generations?

We need to be thinking a bit differently about the challenges we face and what we need to do to tackle them both individually and collectively. It would be nice to think that, by the time the SDTF reconvenes in 2020, we can honestly say that we are confident that our societies, our governments, and our international community are moving in the right direction, taking the tough decisions, making the big commitments of political capital and human, financial and technical resources to put us firmly on a path to sustainable development and a world of shared prosperity on a healthy planet in the coming decade. The inescapable reality is that 2030 is just around the corner.

"The future is now".

Chapter 1. Building Sustainable and Just Economies[1]

With the adoption of the 2030 Agenda by the United Nations in September 2015, the international community committed itself to the Sustainable Development Goals (SDGs) as a successor to the Millennium Development Goals (MDGs), but with a very different character. The 17 SDGs reach beyond support for international development and the poorer countries to embrace the developmental needs of all countries because all countries and regions are under threat from unsustainable practices in every field. The SDGs are, thus, universal, but they are also integrated and interrelated.

The Goals cover all walks of life and every sector of the economy. They are environmental, but they are also social and economic. By interlinking all of the Goals, the international community has sent a message that the approach to further human and economic development needs to be comprehensive and inclusive. As a result, the SDGs include requirements for improved education for all, gender equality and commitments to peace and justice through improved governance. These are in addition to the SDGs that seek to make industrial and agricultural practices sustainable, while reorienting consumption patterns to eliminate unsustainability. In the midst of all this and on which it all depends is a change in behaviours and habits on the part of consumers and corporations.

For the SDGs to be attained, there will necessarily be a cost before the benefits begin to flow, and that cost will be borne disproportionately by those countries and regions that will be most affected by unsustainability and climate change. These are also among the poorest countries and regions.

The OECD has housed the Development Assistance Committee (DAC) since its creation in 1961 and provides the means by which the Committee conducts its business, including the bi-annual High-Level Meeting, which is usually held in Paris at the OECD's Headquarters to consider official development assistance (ODA) flows and trends, as well as peer reviews of ODA policies and practices of the 30 Member Countries every two years. The DAC includes all providers of ODA who are deemed to meet the criteria of: the existence of appropriate strategies, policies and institutional frameworks that ensure capacity to deliver a development co-operation programme; an accepted measure of effort; and the existence of a system of performance monitoring and evaluation.

This positioning within the OECD and the wide-ranging membership of the DAC represents a valuable vantage point for surveying the landscape of development financing, not just of ODA,

[1] This Chapter is based on a main presentation by Dr. Arnaud Pincet, OECD SDG Financing Lab, and shorter presentations and comments from Mr. Michael Asquith, Professor Eun Mee Kim, Ms. Jennifer Jasmin and Ms. Gina Gacusan in the 2019 SDTF.

which represents flows from public bodies, but from private providers including philanthropy and foreign direct investment (FDI). The OECD's SDG Financing Lab provides estimates of financing in support of the SDGs based on the OECD Creditor Reporting System. It goes beyond "traditional" methods to use artificial intelligence to classify financial flows including and beyond ODA.

The rich trove of data amassed in the SDG Financing Lab allows consideration of financial flows in support of the SDGs by provider and recipients. It includes data from public sources in DAC Member Countries but goes beyond that to include other institutional providers and flows from non-DAC countries. The data is broken down by individual SDGs and the recipients are classified by country, region and income group. By matching a provider, an individual SDG and an individual recipient, it is possible to see how much assistance is reaching that country to support its attempts to implement the SDGs. Similarly, flows to specific regions or income groups of countries can also be identified, which allows a diagnosis of the likely effect of such flows on the feasibility of achieving the SDGs.

Of course, finance is not the whole challenge. Political and popular will are also very important and, as chapters in this volume demonstrate, changes in attitudes and behaviour are also essential. However, finance, as one of the pillars of support for the SDGs, cannot be ignored.

The Financing Challenge

Public spending towards achieving the SDGs is expected to increase from over USD 20 trillion, most of which will come from the high- and upper middle-income countries to almost USD 35 trillion by 2030 when the SDGs are intended to have been reached. The lion's share will still come from the high-income countries (over half) but a greater burden will be carried by the middle income countries and the lower middle income group, while own spending by the low income countries will actually have reduced. On the way, the gap between SDG needs and spending in the low and lower middle-income countries will have increased, while the overall spending gap in 2025 will be about USD 1 trillion.

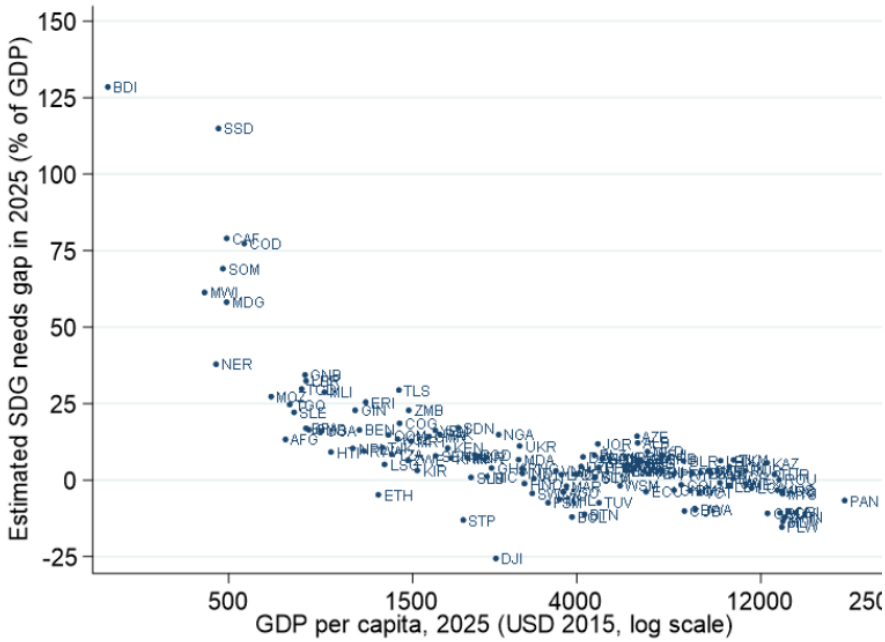


Figure 1.1 SDG financial needs and expected spending in 2025

Source: OECD SDG Financing Lab, www.sdg-financing-lab.oecd.org

Part of the problem is the reliance of developing countries – those in the low and lower middle – categories – to generate revenues from domestic sources, relying, instead on ODA and remittances, as well as some private investment. In the least developed countries, only some 45%-46% of financial resources come from taxes, while almost 40% come from aid of various kinds. The situation in the middle-income countries is hardly better: even less revenue comes from taxes (42%), which means that the country is dependent on external sources for two thirds of their financing. When these figures are compared to the sources of financing for upper middle-income countries the contrast is stark: 80% of financing is raised through taxes and almost all the rest comes from private investment. This dependency on external sources of financing for the poorest countries is deeply worrying because of its precarity.

Moreover, the makeup of external flows to all economies changes according to their situation as low-, lower middle-, upper middle- or high-income countries. At one end of the scale, low-income countries rely on FDI for only 15% of their external inflows and an impressive 20% from remittances. At the other end of the scale, 58% of external sources of finance are made up of FDI, with almost all the rest consisting of other official flows (regional funds etc). The problem is, how can countries (and donors) ensure that these external flows are going towards financing the SDGs and, if they are, how can countries be sure that they are financing the right SDGs for that country in that situation.

The fact is, the trillions of USD in sustainable finance are already there and already flowing but they need to be better targeted to where they are most needed. Countries in all the income categories need to be able to identify and concentrate on the areas that most likely to deliver results in terms of moving towards the SDGs in an appropriate and timely manner. If the money is being spent, is it targeting some SDGs and not others – are there SDG "darlings" and SDG "orphans"? Unfortunately, the Addis Ababa Action Agenda (AAAA), produced by the United Nations' July 2015 Third Financing for Development Conference in the Ethiopian capital, did not produce a dashboard

for monitoring the contributions of actors to the SDGs. Indeed, the final communiqué of that conference had promised, " … to facilitate enhanced tracking of data on all cross-border financing and other economically relevant financial flows that brings together existing databases and to regularly assess and report on the adequacy of international statistics related to implementing the sustainable development agenda." This has not happened, and the absence of such consolidated data severely hampers efforts to track financial flows to support the SDGs. This, in turn, prevents policy makers from managing financial flows and directing them to where they are needed for implementation of the 2030 Agenda.

The OECD's SDG Financing Lab has been established to try to fill in some of the gaps in the data to provide reliable estimates of SDG financing for policy makers. The Lab, as noted above, uses innovative techniques made possible by advances in information technology to map and track USD 1.5 trillion in aid. By so doing, the Lab increases the transparency of aid-flow data for policy analysts and provides help in managing the aid portfolio. The tool provided by the Lab allows donors to position themselves in the overall aid portfolio and identify the efficacity of their contributions. Moreover, the tool enables donors to check their own strengths and specialisations against the uses to which their financial assistance is put, which permits them to assess the effectiveness of their aid. Armed with such information, donors can modify or redirect their contributions in order to achieve maximum impact in support of the SDGs.

For example, we have been able to estimate the percentage of financing currently going towards each one of the SDGs. The result is surprising and informative. Leading the pack is SDG 9 (Industry, Innovation and Infrastructure), which is currently receiving 12% of the funding, primarily from private sources. SDG 7 (Affordable and Clean Energy) comes next at 10%, also primarily from private sources. Those SDGs that are mostly the concern of the public authorities in terms of financing are receiving the least funding: SDGs 1 and 5 (No Poverty and Gender Equality), whereas the hot topic of the current decade – SDG 13 (Climate Action) is getting only 5% of the available financing.

Figure 1.2 Distribution of current spending by SDG

Source: OECD SDG Financing Lab, www.sdg-financing-lab.oecd.org

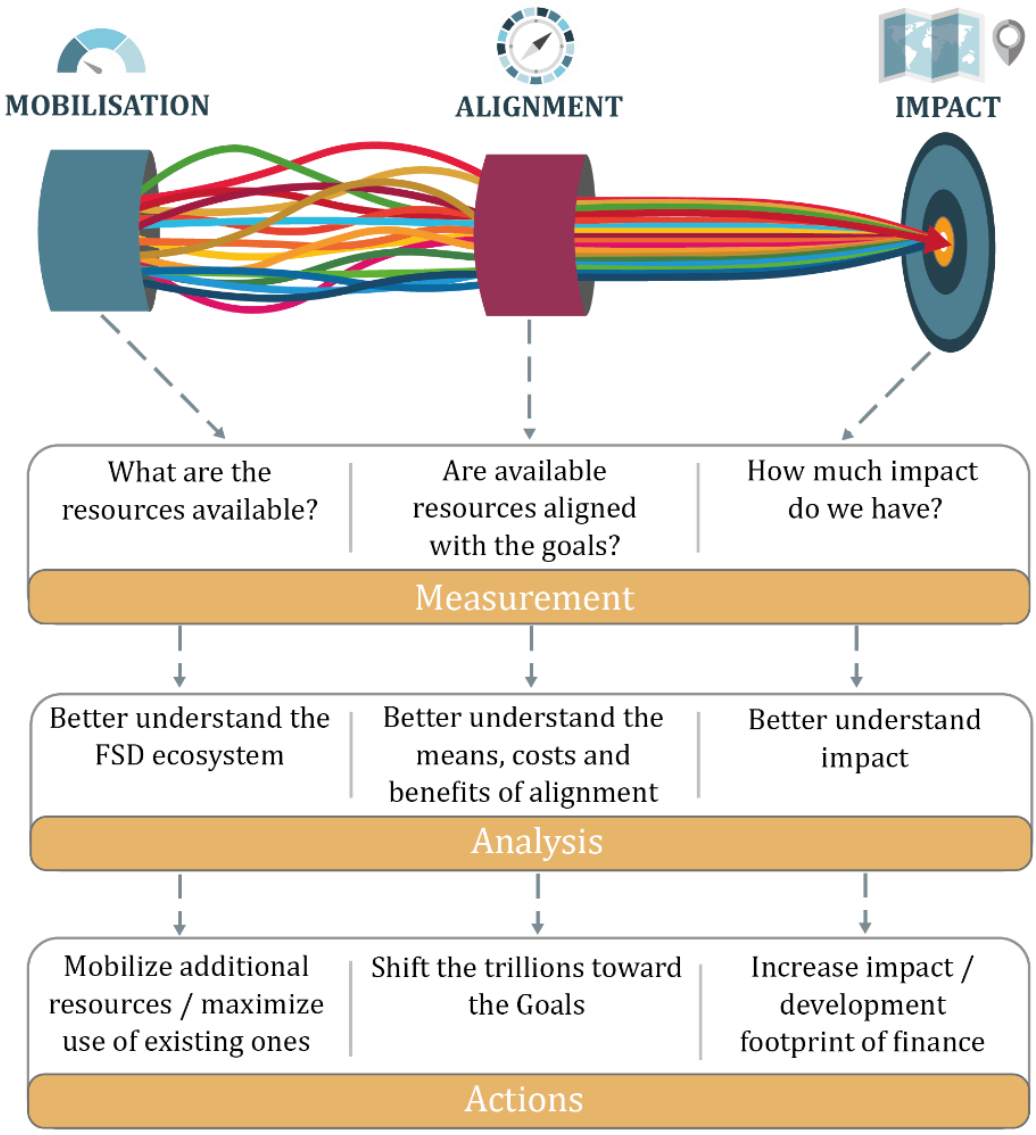
It is not only public, official development flows that are important to support the SDGs; private flows are also important, and both their volume and impact are growing. Indeed, the development community recognises the intrinsic value of sustainable private fiancé for development and has acknowledged its tendency to increase, especially in areas where the private sector sees a natural space within the SDGs. There is already plenty of anecdotal evidence that certain of the SDGs are attracting a considerable amount of private-sector interest. One such area, for example, is in renewable energy, but there are others including agriculture and fisheries, where private investment in sustainable reforms can generate significant returns. Indeed, the July 2019 meeting of the G7 Ministers of Development at the OECD called for the promotion of SDG-compatible finance to make trillions of USD of private investment and savings work better for the achievement of the SDGs.

Civil society is demanding more engagement with the SDGs, especially on the part of the private sector in terms of investment. There have been movements among shareholders to make their boards more accountable in relation to the SDGs and sustainable development in general. Meanwhile, it has been shown that continuing business as usual in the traditional extractive, manufacturing and agribusiness industries is unsustainable in the short to long run, while investors begin to worry about the value of their holdings in the future. There is, thus, pressure from many quarters to make private investment more responsible, but also more sustainable in the long run.

The OECD, as a group of high-income nations and as a research institution, has a significant stake in ensuring that the SDGs are met, at least as far as possible. The Organisation will, therefore, contribute to the international agenda by mobilising finance and integrate the SDGs and the Paris Agreement as explicit goals within corporate strategies, assessing the availability of resources and verifying their alignment with the SDGs by developing a comprehensive picture of all financial flows and corporate operations contributing to the SDGs. The aim, through better tracking and understanding of the nature of flows and business operations, is to measure the likely impact of resources on the SDGs.

Once a complete composite picture of the size, nature and objectives of financial flows for the SDGs can be drawn, it should be possible to mobilise additional resources where needed, shifting the already available trillions of USD towards the SDGs and increase the impact of development finance on the realisation of the Goals.

Figure 1.3 The OECD Contribution to the international SDG Agenda



Source: OECD SDG Financing Lab, www.sdg-financing-lab.oecd.org

Clearly, there is a mismatch between the priorities of the international community and the framers of the SDGs and the financial flows that are supposed to be supporting them. Where private finance is concerned, it is fairly obvious that the flows will be to where there is the most potential for significant returns on investment or where the private sector can expect spin-off benefits (by reducing the cost of energy, for example). Elsewhere, despite the obvious human need for clean water and sanitation, for example (SDG 6), barely 5% of the total, most of it from public sources, is directed to this Goal.

The endgame is to maximise impact and identify gaps by linking financial inputs to SDG progress. This means we have to consider a series of questions that illustrate some of the hurdles that will need to be overcome to ensure adequate and reliable funding for the SDGs:

- Debt sustainability vs. SDG Financing needs, do we have the capacity to fill the gap?
- What tools do we have to accelerate the information flow and the decision making process?
- How can we involve the private sector in a framework designed by public entities?
- Which mechanisms can we use to finance public goods?
- How can we ensure ownership of the SDGs by national governments, especially in rich economies?

Systemic Change for the SDGs

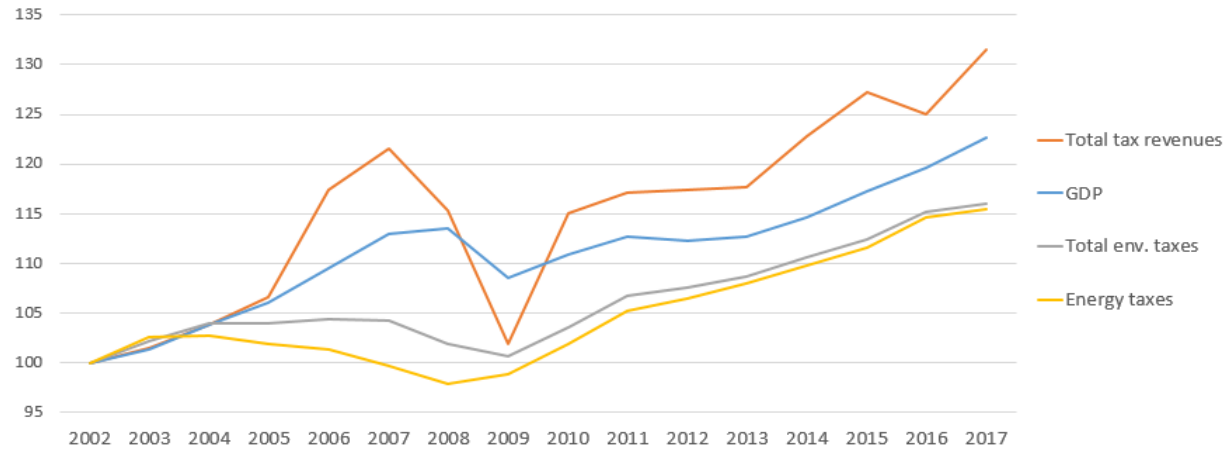
Looking at the "map" of SDG spending, it seems clear that the public sector has an essential role, both as a source of finance and also in creating the incentives to mobilise private investment in less obvious areas, such as maintaining ecosystems. Policy at all scales, from municipal up to international, will be essential to incentivise support for the SDGs.

Establishing clear, time-bound and enforceable policy goals and targets at each of these scales will be important but setting goals will not be sufficient, on its own, to achieve needed change. A case in point is the European Union's 2001 ambition to halt the erosion of biodiversity within the boundaries of the EU by 2010. That failed to happen. So, the Union set itself a new target of halting biodiversity degradation by 2020 but by the half-way point in 2015, there had been, according to the *Mid-term review of the EU biodiversity strategy to 2020*, "No significant progress."

What explains this dire state of affairs? The simple answer is that the continuing degradation of European ecosystems is systemic in nature: it is tied in complex ways to Europe's established consumption patterns and production methods, its ways of living and thinking. Tackling the core drivers of biodiversity loss means transforming key societal systems, such as those meeting society's demand for food, energy and mobility. This is often very difficult, since these systems are also connected to diverse human interests and values, including jobs, investments, values and cultural norms. This means that there are often strong economic and social incentives for preserving existing modes of producing and consuming, even if they are fundamentally unsustainable. As a result, governments are often unwilling or unable to introduce sufficiently stringent policies to achieve long-term targets.

For example, it is widely agreed that achieving the 1.5°C target will require very steep increases in carbon prices but there is very little evidence in the EU or elsewhere of serious environmental fiscal reform in recent decades. Indeed, in some countries, resistance to carbon pricing has actually halted the necessary fiscal reforms needed to incentivise decarbonisation. In the EU, as a whole, environmental tax revenues have declined as a proportion of total tax revenues and economic output since 2002 (Figure 1.4).

Figure 1.4 Trends in EU-28 tax revenues and GDP (2010 constant prices, 2002 = 100)



Source: M. Asquith, Systemic Sustainability Challenges, Presentation to the 2019 Sustainable Development Transformation Forum

A growing body of research on 'sustainability transitions' highlights the critical role of innovation in triggering fundamental systemic change. Such innovations can take many forms. New technologies, social practices, business models and organisational forms are continually emerging and interacting, offering new ways for society to meets its needs. Yet promising innovations often fail to break through into the mainstream because of the diverse lock-ins that favour established modes of producing and consuming. Even where new technologies already exist and political will is in evidence, widespread adoption may be hindered by resistance linked to vested interests, cultural norms or entrenched patterns of behaviour. The problem is that systemic change necessarily upsets the existing order. While the emergence of innovations often generates new incomes, jobs and business opportunities, it is also associated with the disruption and phasing out of established systems, with potentially far-reaching social and economic impacts (Figure 1.5).

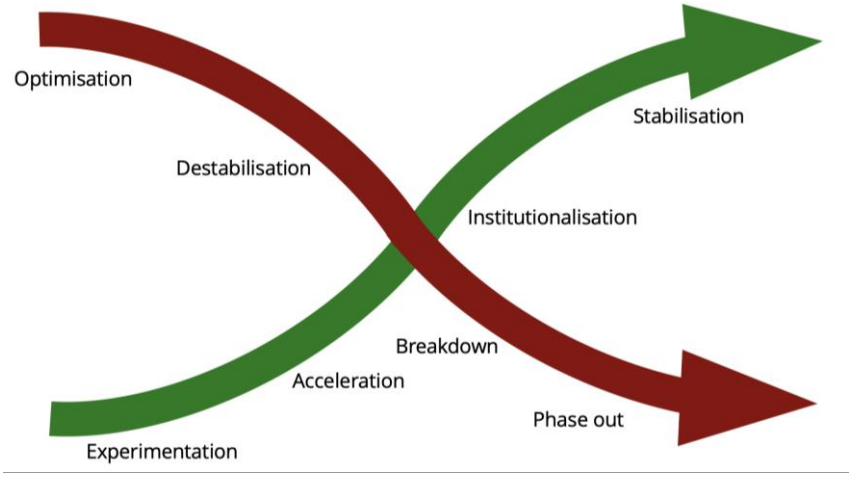


Figure 1.5 Systemic change is highly disruptive

Source: Loorbach, D., Frantzeskaki, N. and Avelino, F., 2017, 'Sustainability transitions research: transforming science and practice for societal change', Annual Review of Environment and Resources, vol. 42, pp. 599-626.

Transitions are also inherently uncertain processes, which cannot simply be planned and implemented from the outset. It is impossible to know in advance what new innovations will emerge, how they will be taken up and used, and how this will influence collective behaviours and ways of living. Apparently beneficial innovations can sometimes have unexpected and counter-productive impacts, pointing to the need for adaptive governance approaches and continual monitoring and evaluation.

Collectively, these characteristics create a complex challenge for policy makers. Triggering, enabling and orienting society-wide processes of systemic change requires contributions from diverse policy domains to enable the emergence and diffusion of innovations, and manage social consequences and distributional impacts. For example, environmental policies such as carbon pricing and strict regulations can play an important role by creating pressure on incumbent industries, incentivising eco-innovation and shaping the selection environment for innovations. Research and development policies enable diverse forms of experimentation, while supporting the formation of coalitions of actors across research, government and the private sector. Sectoral policies interact with industrial, fiscal and financial policies to enable the uptake and spread of new ways of producing and consuming. Welfare, employment, education and regional policies provide tools for compensating losers in systemic change processes, offsetting inequities, retraining workers and enabling regional reorientation and regeneration.

Critically, there is a need to recognise that some policies will impact negatively on others, which, in itself, calls for a policy response. A good example is the impact of some innovations on employment, where those who find themselves out of work will need to be compensated. Similarly, new forms of education and new curriculums will need to be developed, implying a shift of resources, both physical and human, within the education and training sector.

The job of the policy maker is to reconcile all these superficially competing policy options into a coherent whole to support the objective of sustainable development and moving towards the SDGs. This is not only about trade-offs; it also involves modifying or enhancing models of governance adapted to sustainability. It involves, above all, striving for coherence in policy making and communication of both the objectives sought and the means being used to attain them. Visions, goals and targets, including the SDGs, provide an essential mechanism for guiding policy interventions and identifying trade-offs and synergies between them.

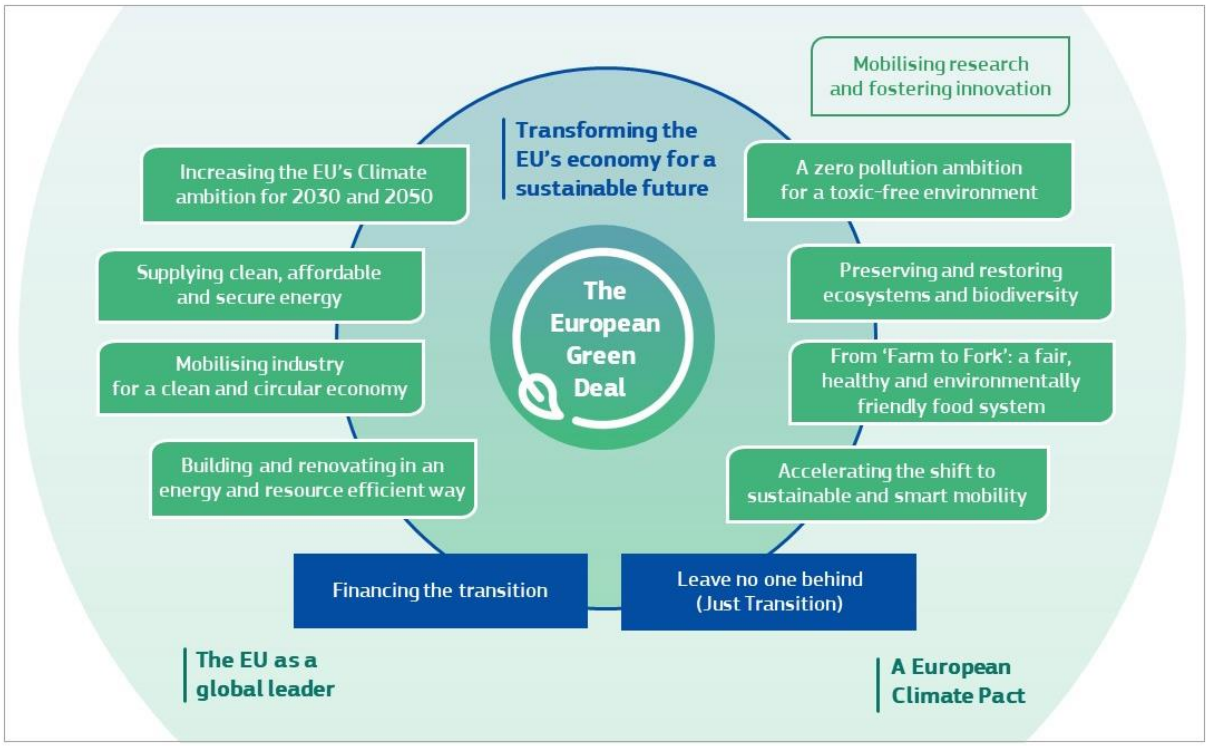
Even though this level of complexity and policy management may be difficult in some countries and institutions, it is absolutely necessary for the innovations needed for the SDGs to be deployed. Globally, it is no longer possible simply to promote growth – or, indeed, any other policy objective – and then deal with the consequences for other parts of the society or economy. History has shown that driving economic growth while ignoring impacts on the natural environment can have disastrous outcomes. Instead, there is a need for all areas and levels of government to work together with businesses, communities and citizens to achieve the multidimensional goals embodied in the SDGs.

These lessons for development policy and sustainability outcomes have been a long time in the learning. In environmental domain, for example, assessment approaches and policy responses have grown steadily more sophisticated during the last half century, reflecting growing recognition of the complex, systemic nature of environmental problems. In Europe, specific

instruments targeted at local sources of pollution were introduced in the 1970s. By the 1990s, recognition of the diffuse and multicausal character of environmental problems led to greater emphasis on changing economic incentives by integrating environmental concerns into sectoral policy and developing market-based instruments. In the last 5 years, these approaches have been complemented with more systemic policy approaches geared towards enabling sustainability transitions.

Transforming societal systems involves huge challenges but is essential to achieving the SDGs. The EU is increasingly moving in this direction, as exemplified in its European Green Deal (Figure 1.6). Published by the European Commission in December 2019, the Green Deal is a key part of the EU's strategy to achieve the 2030 Agenda. It addresses the need to transform the EU economy, notably the systems meeting society's need for energy, mobility, food and shelter. It also spells out the need for coherent action across policy domains and scales to foster innovation, mobilise public and private finance, correct market incentives and ensure a just and socially fair transition across the whole of Europe.

Figure 1.6 The European Green Deal



Source: EC, 2019, Communication from the Commission, The European Green Deal, Brussels, 11.12.2019 COM(2019) 640 final. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:52019DC0640&from=EN

Chapter 2. Food Systems and Nutrition Patterns[2]

One of the six entry points for transformation identified in the 2019 Global Sustainable Development Report (GSDR) is Sustainable Food Systems and Healthy Nutrition, with the idea that the way we produce and the systems that ensure food security cut across many SDGs and are not limited to SDG 2 (Eliminating Hunger). These include Climate Action (SDG 13), Clean Water and Sanitation (SDG 6), Gender Equality (SDG 5) and many others. Today, in a world population of 7 billion, 821 million people are chronically hungry, 124 million still suffer from malnutrition and 2 billion people are considered "food-insecure". At the same time, agriculture accounts for 80% of global deforestation, 29% of global greenhouse gases, and 70% of freshwater use. It is, therefore, clear that feeding the growing world population just by scaling up agricultural production by increasing output is not sustainable and is incompatible with the Paris climate agreement. So, there is a very strong need to reconsider how to go about addressing nutrition and food security issues while recognising the environmental impact of food production. Achieving the transformations needed to implement the SDGs and, in particular, SDG 2, will require innovative solutions both to how we produce food and how it is consumed. Part of that involves finding ways to reduce food waste as an ally in increasing the availability of food.

The World Food Programme estimates that, while hunger decreased on a world scale through the 1990s and the early part of the 21st century, from 2014 it was on the rise again. The highest numerical impact of hunger is in Asia, but the percentage of hungry people is highest in sub-Saharan Africa. The two priority SDGs are carried over from the Millennium Development Goals (MDGs); these are Goals 1 and 2, which cover poverty elimination and freedom from hunger, respectively. All of the other SDGs depend, in the final analysis, on reaching the first two SDGs. How, for example can hungry and poor people even begin to consider the quality of their well-being, their education, gender equality or reliable and safe water supplies, without solving their needs for existence first? Ending hunger is the first step to reaching all the other SDGs; it is the foundation and the strongest link between them.

"Zero Hunger" is the United Nations Secretary-General's vison for the future. Every human being has a right to food and there is no scientific or other reason why this right should not be enjoyed. In the UN's vision for an end to hunger, women are empowered through their contribution to the production and preparation of food, while priority is given to family farming that can be made sustainable and resilient with assistance from specialists and experts that can intervene in food systems everywhere. By adopting such a vision and approach, the UN hopes to end stunting in

[2] This Chapter is based on a main presentation by Mr. Hyoung-Joon Lim (WFP, Korea) and shorter presetations anc comments from Dr. Mi Hoon Jeong (ASEM-EIC, Korea), Mr. Demetrio Innocenti (GCF) and Mr. Rithy Sin (Government of Cambodia) in the 2019 SDTF.

children, achieve access to food year-round for everyone, increase smallholder incomes and productivity, and reduce wastage in food systems.

Stunting – abnormally small size – in children is not merely a reduced-height phenomenon or an embarrassment at school, it is an indicator of much more serious underlying problems. If children do not receive nutritious food in their first 2 years, they can be stunted for life. The 1000 days from conception to the age of two in a child's life are crucial for the quality of life a human being will be able to enjoy as she or he grows older. The impact on children of early malnutrition can be seen in measures such as brain size and brain activity, which indicate levels of real and potential mental abilities, disadvantaging stunted children in all walks of life and, especially in education. Such children thus suffer the double indignity of not being able to realise their own potential and not being able to contribute equally with their counterparts to the development of society.

Figure 2.1
The Impact of Malnutrition on Children's Growth

Source: World Food Programme Korea, www.un-rok.org/about-un/offices/wfp

The children in the photo above are all the same height. The one on the far left has had his 11th birthday, the girl in the middle is 9 and the boy on the right is almost 6. The effect of malnutrition, going from severe, to moderate to none, on the heights of these children is obvious moving from left to right. There are historical experiences that show what happens when a population moves from malnutrition to a normal intake of food. In the Korean peninsula, for example, in 1946, the average height of men was 166cm. In South Korea today the average is over 175cm because of improved nutrition. However, in North Korea, populated by essentially the same people and where nutrition levels are lower, the average male height barely reaches 170cm. The Korean peninsula, therefore, is an excellent laboratory for examining the effect of nutrition on height.

There is evidence that improving nutrition is a profitable investment in the economy. Improving nutrition levels ultimately reduces poverty because healthy, well-nourished people develop their mental and physical capacities, improve their employment and productive capacities and contribute to overall social and economic development. A study by Harold Alderman and Jehre Berman for the World Bank in 2006 estimated that "reducing the incidence of low birth weight not only lowers infant mortality rates but also has multiple benefits over the life cycle derived from the

economic benefits of reducing the incidence of low birth weight in low-income countries, both through lower mortality rates and medical costs and through increased learning and productivity. The estimated economic benefits, under plausible assumptions, are fairly substantial, at about USD 510 per infant moved from a low-birth-weight status. The estimated gains are primarily from increases in labour productivity (partially through more education) and secondarily from avoiding costs due to infant illness and death. Thus, there may be many interventions to reduce the incidence of low birth weight that are warranted purely on the grounds of saving resources or increasing productivity." These are little recognised but powerful incentives.

Other calculations result in the conclusion that a reduction of 1% in the rate of malnutrition reduces poverty by 4%, while a reduction in 1% in the rate of poverty only produces a 0.25% decrease in the rate of malnutrition. From these figures, it is possible to derive two conclusions: it is better to attack malnutrition directly, rather than as part of a poverty-reduction strategy, and that a significant reduction in malnutrition – while still not substantial – of 5% would produce a 20% reduction in the levels of poor people. As a further economic argument in favour of reducing nutrition – apart from the obvious humanitarian motives – is that investing in nutrition makes sense because the returns on investment are high: USD 1.00 invested in nutrition can save up to USD 166.00 in social costs, including health, which is a return of 166%. The impact of malnutrition on GDP in some African and Asian countries can be as high as 11%, while the global average is between 2% and 3%.

Improving people's nutrition by opening points of supply can provide other incentives. In Guinea-Bissau, for example, food-supply centres are linked with clinics where people can get check-ups and vaccination, as well as nutritional advice for their children. This helps the authorities to get an idea of the extent of malnutrition in the country and can inform decisions about actions to combat the phenomenon. At the same time, the food-distribution centres can offer training in a variety of skills of value and use to rural people to keep them healthy, raise their productivity and their ability to feed themselves, and open up other avenues for earning a living in the region, such as agri-business. Hence, the food-distribution centres can really transform the lives of the people who use them.

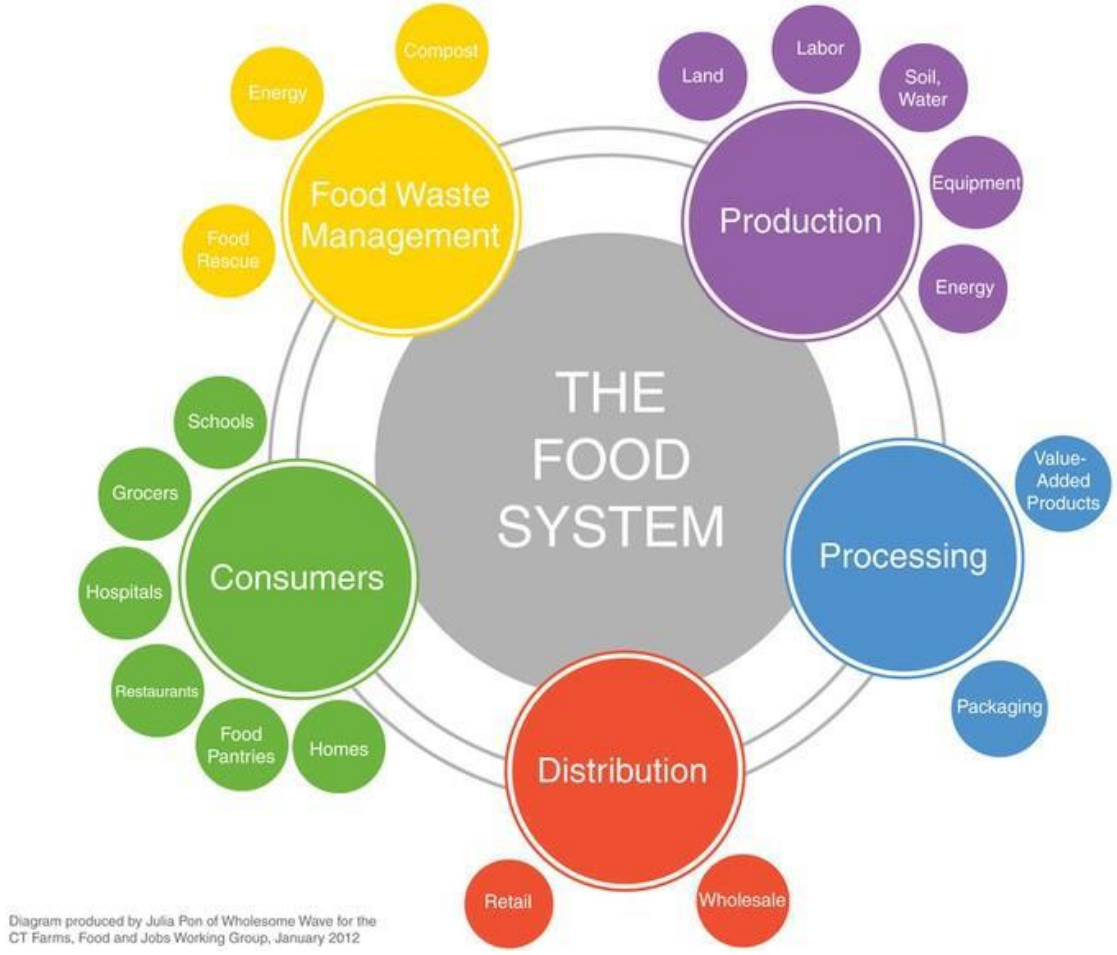
The Food System

Attacking malnutrition, hunger and food precarity depends on recalibrating the food system. It means examining all the processes and infrastructure that are involved in feeding a population: growing, harvesting, processing, packaging, transporting, marketing, consumption, and the disposal of food and food-related waste. It also relates to the inputs needed for each of these stages and all of the outputs generated by each of these steps (see diagram, below). However, these networks and supply chains that are vital to ensure that food is efficiently produced and transformed, transported and made available to consumers are not working and are not meeting the needs of society. They are disrupted by climate change, the imperatives and demands of globalisation and by conflict at every level. Indeed, the most vulnerable are often located in conflict zones where the supply chains are disrupted or in areas most severely affected by climate change. Even in the absence of instability, food chains are as vulnerable as any other economic linkages to

the failure of communication and transport links, inadequate and/or underperforming storage facilities, the vagaries and weaknesses of commercial markets, and the unpredictability of weather patterns linked to climate change. All of these factors can limit the ability of people to source the food they need on a regular basis.

Part of the mission of the WFP is to reduce the impact of failures in the food system and to reform it, at least locally, in order to reduce its vulnerability. For example, the WFP is actively seeking to attack what might be described as the "last-mile" problem. The vast majority of people likely to find themselves without access to quality food, or for whom access to food at all is a problem, find themselves located in remote rural areas. These geographically, economically, socially and politically isolated communities lie beyond the reach of the usual food supply chains. Where food is available, because of the remoteness of the communities, it is often too expensive for people to purchase. These communities are not only isolated, they also tend to be small, which limits their ability to obtain supplies by banding together and purchasing food in bulk.

Figure 2.2 The Food System



A problem linked to the "last-mile" issue is the variability of food crops due to climate variations – that may be exacerbated by climate change and, therefore, more unpredictable – or simply dependent on the harvest cycle that leaves poor families in both rural and urban areas

unable to source food supplies at reasonable prices or at all. In such "bad-year/lean-season" situations, the needy are obliged to reduce their intake of food overall and limit their consumption of high-quality food by acquiring cheaper, less nutritious varieties. At the other end of the scale is the "good-year" problem faced by farming communities that enjoy a bumper harvest that forces prices down during the harvest season, which can be good news for local consumers in the short term, but has negative consequences in the future. Without adequate and efficient storage systems for harvests, all of the crop appears on the market at the same time, not only driving down prices momentarily and reducing farmers' incomes, but also often negatively impacting quality because of the lack of quality storage. The market volatility induced by a bumper harvest creates uncertainty for everyone involved, which has impacts beyond the immediate food chain into investment practices and trends, generally. Farmers cannot source loans, which is already very difficult for them, but neither can investors in agribusiness or market facilities who cannot foresee reliable returns. Smoothing out supply is in the interest of all participants in the food chain, whatever the cause of the volatility.

Inadequacies in the food system do not impact everyone in the same way or to the same degree. In agriculture, women very often play a pivotal role, depending on the social norms and customs of their communities. Yet, women generally have less influence on decision making or may be excluded from it altogether, while assets and services that are vital to agriculture are controlled by men. Hence, inefficiencies, disruptions and dysfunction within the food system impact women disproportionately. They also can have the health effects mentioned earlier on children; disrupted markets and food systems limit access to food for all but, whereas, adults can survive penury and recover, children in those precious first 1000 days can be scarred for the rest of their lives.

The WFP intervenes to try to limit the impact of disruptions to the food system by acting where the skills and expertise of the organisation are the strongest. Whereas the WFP does engage in training and extension work, its efforts with partners are strongest in the "midstream" of the food system where food is transported, stored, processed, wholesaled and retailed. It has also devised a number of innovations, some based on new technologies, to support these efforts.

One example of WFP's interventions in support of the food supply chain can be found in Kenya's KaKuma and Dadaab refugee camps, which between them house almost a quarter of a million refugees from the civil strife in neighbouring Somalia. These refugees would be destitute and unable to pay for food, were it not for cash transfers from the WFP that allow the organisation to leverage its purchasing power and coalesce consumer demand to address inefficiencies along the supply chain and achieve the best value for refugees and the host communities. WFP used its supply chain expertise to process cash-based transfers and to ensure beneficiaries received their entitlements on time, allowing traders in refugee camps to increase their capacity to engage profitably and give best value to their customers. Additionally, the retail engagement initiative in Kakuma and Kalobeyei aimed to create sustainable markets where refugees and their hosts could access affordable food sold in the local markets. This included supporting small-scale retailers by: (i) linking them with wholesalers and distributors; (ii) organizing them into buying clubs; (iii) training on business skills; (iv) facilitating access to credit facilities; (v) enhancing fresh food supply chain into markets; (v) enhancing business opportunities for the host Kalobeyei traders; and (vi) introducing a smartphone application, Dalili, that provides up-to-date information on food prices

and fosters competition among retailers. Additionally, WFP tested and piloted point-of-sale application to help traders manage their businesses in a more streamlined manner. For the delivery of cash-based transfers (CBT), WFP's partnership with Safaricom, a leading telecommunications and mobile money transfer firm in Kenya, was vital. Safaricom provided WFP with a real-time data platform for transferring and managing CBT to beneficiaries, and payments to food retailers. Safaricom was responsive to WFP's requests for system enhancements and adopted a co-creation strategy exclusive to WFP, a process where both agencies worked together to create better ideas and products, for a mutually valued outcome. In line with the government's restrictions on the delivery and utilization of the cash for refugees, refugees redeemed their cash value vouchers by buying food from approved traders.

Another example, and one that impacts vulnerable children directly, is the Home-Grown School Meals project connecting local smallholder farmers to the supply chain of school meals programmes. This innovative approach links school feeding programmes with local smallholder farmers to provide millions of schoolchildren in 46 countries with food that is safe, diverse, nutritious, and, above all, local.

The benefits of this are evident and manifold. The schools provide local farmers with a predictable outlet for their products, leading to a stable income, more investments and higher productivity. The children enjoy healthy, diversified food; this makes it more likely that they will stay in school, perform better and improve their adult job prospects. At the community level, Home Grown School Feeding initiatives promote nutrition education and better eating habits and encourage the diversification of production with a special emphasis on local crops. Community involvement, in turn, enhances the sustainability of programmes.

Building on its expertise in food security, procurement, logistics and school feeding, WFP works with governments to develop national policies and strategies for Home Grown School Feeding programmes, and to design or implement such initiatives directly where needed. Local producers' contribution to the programmes, and the benefits they derive from them, depend on context-specific factors – the range of actors involved, the size and precise objectives of the programme, the quantity and type of foodstuffs required, and other purchasing and contractual variables. Models can, therefore, be different from country to country, and sometimes within the same national boundaries.

WFP's value chain provides maximum value at lowest cost to achieve zero hunger, reducing cost of food losses at every stage of the supply chain. A great example of this is a virtual farmer market (VFM) in Zambia that allows farmers and sellers in the region to negotiate the prices and make transactions through a smartphone application. A virtual farmers' market connects buyers and sellers throughout the country's agricultural sector, which makes it easier for farmers in remote areas to access markets and get up-to-date information on inputs and food prices. The Maano project has been made possible by the constantly falling smartphone prices that are driving a digital revolution in Africa, allowing phone users to access the internet at unprecedented levels. Operators and developers are also leveraging the power of mobile networks to transform services in health, agriculture, education, energy and water management. According to GSMA, the body which represents mobile operators globally, the number of smartphone connections across the

continent almost doubled over the last two years. More than half a billion people across Africa now subscribe to mobile services, with the number expected to grow to 725 million by 2020.

At the same time, millions of rural smallholder farmers struggle for access to local and national markets that could lift them out of hunger and poverty. VFM is a bold new WFP innovation project that leverages the digital communications boom to increase market access and improve livelihoods for smallholder farmers for good.

In another project in Bangladesh, the WFP is using SCOPE, its beneficiary and transfer-management platform that supports the programme intervention cycle from beginning to end. The SCOPE platform is a web-based application used for beneficiary registrations, intervention setups, distribution planning, transfers and distribution reporting. SCOPE currently supports all WFP transfer modalities: in kind, voucher and cash for a variety of project activities. The platform can be used in many ways depending on the specific needs of the country and the type of delivery mechanism required. Its e-card programme can be used to reach refugees living in exile, utilising the SCOPE biometric platform that registers family members using fingerprints to reduce losses and theft. SCOPE is operational in several countries including Bangladesh, Guatemala, Guinea, Malawi, Somalia and Sudan, among others. Country rollouts typically start small and then scale up once the platform and knowledge is established in the country.

Finally, the WFP is "catching 4 birds with 1 stone" through its "Zero Waste, Zero Hunger" initiative (the "stone"). This unusual programme seeks to involve restaurants in promoting rational use of resources and reduction of waste. The four "birds" are: reducing the size of portions that diners consume in restaurants, thus eating healthier; an improved societal image for restaurants that participate in the programme; encouraging people to contribute to greenhouse gas emissions by having smaller meals that mean less waste has to be burned; and raising funds for WFP's mandated programmes by passing on the savings on waste disposal to WFP.

Figure 2.3 The Zero Waste, Zero Hunger Initiative

Source: www.wfp.org

The World Food Programme has a long history of supporting those who cannot provide food for themselves or source it in insufficient quantity and quality from elsewhere. It is constantly evolving its systems and methods of delivery and restructuring the food system. Though the work is seemingly endless, there are durable successes, including the example of the Republic of Korea, which had in the past received assistance from WFP but is now a donor. The objective of the WFP in the context of the SDGs is to emulate the success of Korea and other countries that have "graduated" from food assistance to food donors but to do so sustainably and within the context of the 2030 Agenda.

The WFP and others are constantly seeking ways of doing things that fit within the aims of the 2030 Agenda, recognising that technology, while not providing a "silver bullet", can unlock efficiencies that will contribute to that end. Technological innovation may be a prerequisite for the transition to sustainable food systems, but on its own it cannot deliver the transition without changes in governance, behaviour and economic incentives. It is worth repeating that merely upscaling food-production practices to meet the projected increase in food demand to 2050 would be unsustainable and incompatible with the terms of the Paris Agreement and the SDGs. In transitioning towards sustainable food systems, the focus must be on enabling more equitable global access to nutritional foods, reducing food loss and waste, and maximising the nutritional value of production, while minimising the climatological and environmental impacts of production. At the same time, the food system needs to be made more resilient to the impacts of climate change. Only by devising reforms to the food system can food security be enhanced with improved health outcomes and sustained contribution to development outcomes.

In addition, and supplementary to the WFP's targeted support for fragile and vulnerable communities facing malnutrition and food insecurity, modalities need to be adopted that can

sustainably increase production of food for all regions and societies. A body of research produced by the Asia Europe Meeting's (ASEM) Eco-Innovation Centre, has identified a series of issues specifically affecting agriculture world-wide that threaten the continuance of quality, reliable agricultural products, including food from a sustainability perspective. These issues include climate change, an aging agricultural-producer population, poor resource- and eco-efficiency, small and technologically undeveloped farming units, and ill preparedness to work towards the SDGs.

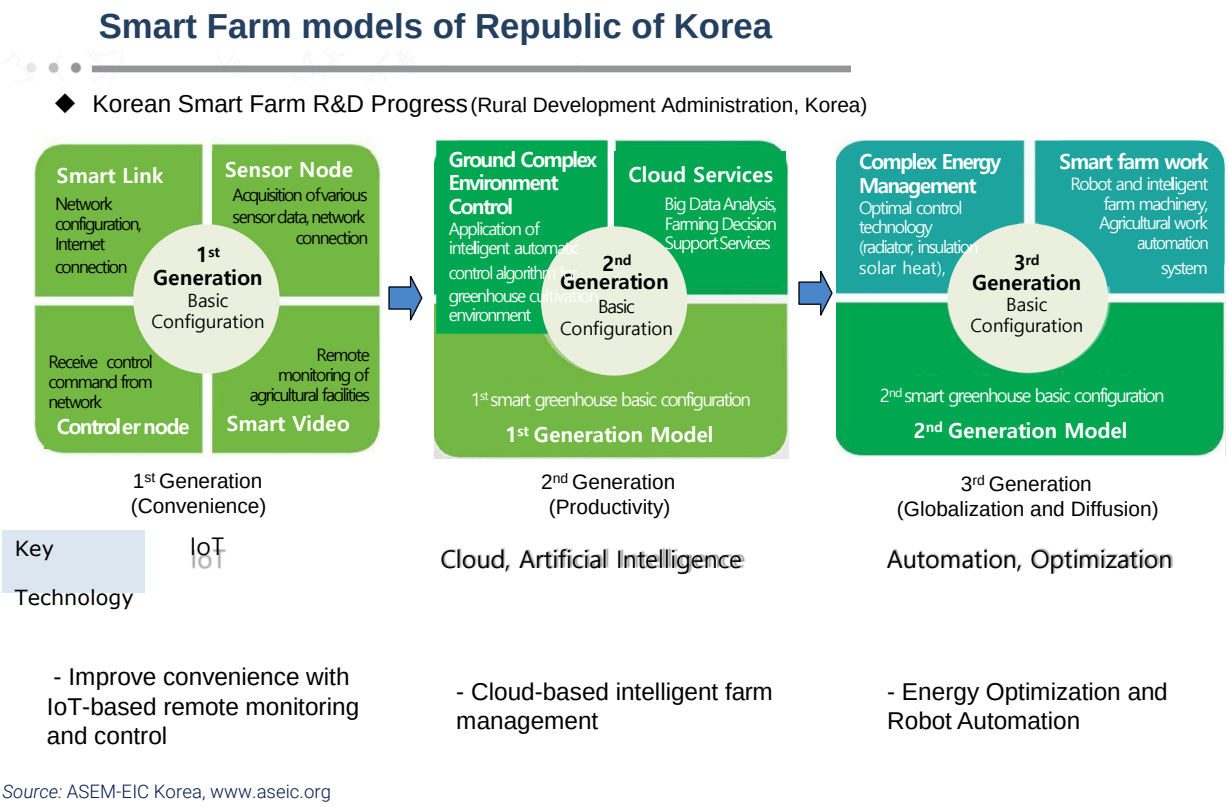
To meet these challenges, new approaches to agriculture are needed. One of these is "smart farming". This is a management concept that uses modern technology to increase the quantity and quality of agricultural products. According to the United Nations Food and Agriculture Organization (FAO), it recognises that farmers in the 21st century have access to GPS, soil scanning, data management, and Internet of Things technologies. By precisely measuring variations within a field and adapting the strategy accordingly, farmers can greatly increase the effectiveness of pesticides and fertilisers and use them more selectively. Similarly, using Smart Farming techniques, farmers can better monitor the needs of individual animals and adjust their nutrition correspondingly, thereby preventing disease and enhancing herd health. It can be used to increase agricultural production, enhance distribution methods, rationalise consumption and improve the quality of rural life. In short, smart farming is technology's contribution to meeting SDGs 15 (Life on Land), 2 (Zero Hunger), 6 (Clean Water and Sanitation), 12 (Responsible Consumption and Production) and 13 (Life Under Water), as well as others.

In a similar vein, "precision agriculture" (PA) is also a technological approach to agriculture that is very specifically directed to individual crops and even fields. This is a modern farming management concept using digital techniques to monitor and optimise agricultural production processes. Rather than applying the same quantity of fertilisers over an entire agricultural field, or feeding a large animal population with equal amounts of feed, PA can measure variations in conditions within a field and adapt its fertilising or harvesting strategy accordingly. Likewise, it assesses the needs and conditions of individual animals in larger herds and optimises feeding on a per-animal basis. PA methods promise to increase the quantity and quality of agricultural output while using less input (water, energy, fertilisers, pesticides, etc.). The aim is to save costs, reduce environmental impact and produce more and better food. The methods of PA rely mainly upon a combination of new sensor technologies, satellite navigation and positioning technology, and the Internet of Things. PA has been making its way into farms across Europe and is increasingly assisting farmers in their work.

Adding to these approaches is "climate-smart agriculture" (CSA), which is an integrated approach to managing landscapes – cropland, livestock, forest and fisheries that address the interlinked challenges of food security and climate change. CSA aims to simultaneously achieve three outcomes: increased productivity, enhanced resilience and reduced emissions.

The Republic of Korea is one country that has embraced smart agriculture, which explains to some extent the country's success in moving from food-dependency to surplus.

Figure 2.4 Smart Farm models of Republic of Korea



Source: ASEM-EIC Korea, www.aseic.org

Other countries are following suit, among them the Netherlands, Japan, the Lao People's Democratic Republic, India and Viet Nam. What is needed now is some form of standardisation that respects the specifics of each country and region, while introducing tools that can be used in every context with the same degree of predictability and efficacity, investment in smart technology to improve the system, enhanced communication between users including farmers themselves and companies rolling out the technology, and support from the public authorities for this type of approach and innovation.

The gambit is not merely to increase farmers' output and to get that output to where it is needed and consumed, but to do so sustainably and in coherence with the other 16 SDGs. This is what the Green Climate Fund has been concentrating on since its creation in 2010.

From 2015 to the present, the GCF has funded more than 110 projects with 5.6 billion dollars. Fifteen percent of projects are related to either cross cutting programmes or climate change mitigation and adaptation. All projects are divided into two categories: disaster management and investment. They are chosen by following six criteria set by the GCF: climate impact potential; partnership; efficiency; effectiveness; impact on people; and sustainable development in line with the SDGs. A good example is a project in Senegal co-conducted by the WFP and the GCF, ensuring food productivity and price with food insurance against flood and drought.

All these efforts by the international community have one thing in common: the struggle to ensure adequate, quality food supplies to all in a sustainable fashion compatible with the Paris Agreement and the 2030 Agenda. Individual countries will need to adapt and adopt new ways of doing agriculture to comply with the new realities. Examples and advice do exist and, if there is one message to repeat, it is that no country is alone in the fight to ensure healthy and reliable provision of food in the 21st century. In this context, the adoption of the SDGs is already an extraordinary accomplishment and contribution to the integration of nutrition into the overall objective of sustainability.

The other accomplishment is the inclusion of all sectors of the economy and the society into the drive towards the SDGs. Private actors have begun to see that they have a place in the struggle for the SDGs, both for their own survival as companies and for their profitability further down the road. The GSDR has also shown that an alliance between science and all the actors involved in the SDGs and nutrition is feasible and desirable. Information can drive policy and science can validate the effects and impacts of policies. Science can also help to show how the objectives identified at the global level can be integrated into national and local policies to eliminate hunger and malnutrition. The work of the WFP, the GCF and initiatives like smart farming draw on the outputs of science and technology research to implement their progressive activities in support of creating systems that underpin the drive for reliable, quality and sufficient supplies of food.

Chapter 3. Energy Decarbonisation and Universal Access to Energy[3]

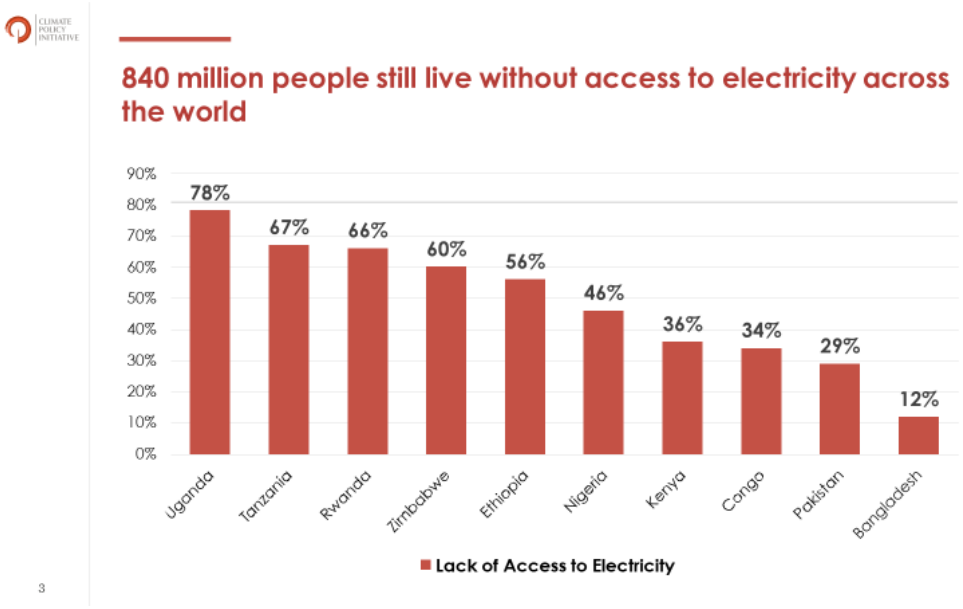
Access to reliable supplies of energy is crucial for economic and social development in every sphere. Without energy, new agricultural practices cannot be introduced or are hindered, industrial processes stagnate or fail to operate and new forms of communication – which often means empowerment, especially of women and disadvantaged groups – cannot be made available. However, to date, energy sources have largely been unsustainable when they are based on burning fossil fuels: oil, coal, peat, wood and gas. SDG 7 (Affordable and Clean Energy) is predicated on the basic assumption that supplies of energy can be assured by recourse to clean and/or renewable fuels, with improved efficiency throughout based on international, shared research and enhanced investment in technology for sustainable energy use at all levels from village cooking stoves to national and international electricity grids.

There has been significant progress in meeting some of the targets, with the rate of electrification set to rise to over 90% globally by 2020 and close to two thirds of the world's population having access to clean cooking fuels and technologies by the same year, which is an increase from just over half ten years earlier. In the energy-generation sphere, there has also been some progress and the percentage of electricity from renewable sources has passed from under 17% in 2010 to some 18% in 2020, but this is barely keeping pace with the increase in electricity consumption, which has been increasing at 18% per annum over the same period. Meanwhile, global primary energy intensity (the ratio of energy used per unit of GDP) improved by 2.3% annually between 2010 and 2016, which is good news, but not yet at the target of 2.7% sought by target 3 of SDG 7. The very good news, however, is that international financial flows to developing countries in support of SD7 objectives almost doubled between 2010 and 2016, the last year for which data is available.

Yet, the improvements recorded in recent years, though they are a source of hope, cannot lead to complacency. One of the commitments behind the SDGs is to "leave no-one behind", yet almost 850 million people remain without access to reliable energy supplies; from over 75% of the population in Uganda, for example, to "only" 29% in Pakistan and 12% in Bangladesh.

[3] This Chapter is based on a main presentation by Mr. Dhruba Purkayastha (CPI, India) and contributions from Mr. Leow Foon-Lee (National University of Singapore), Mr. Sangmin Nam (UNESCAP-ENEA) and Ms. Laura Ramòn (Government of Costa Rica) at the 2019 SDTF.

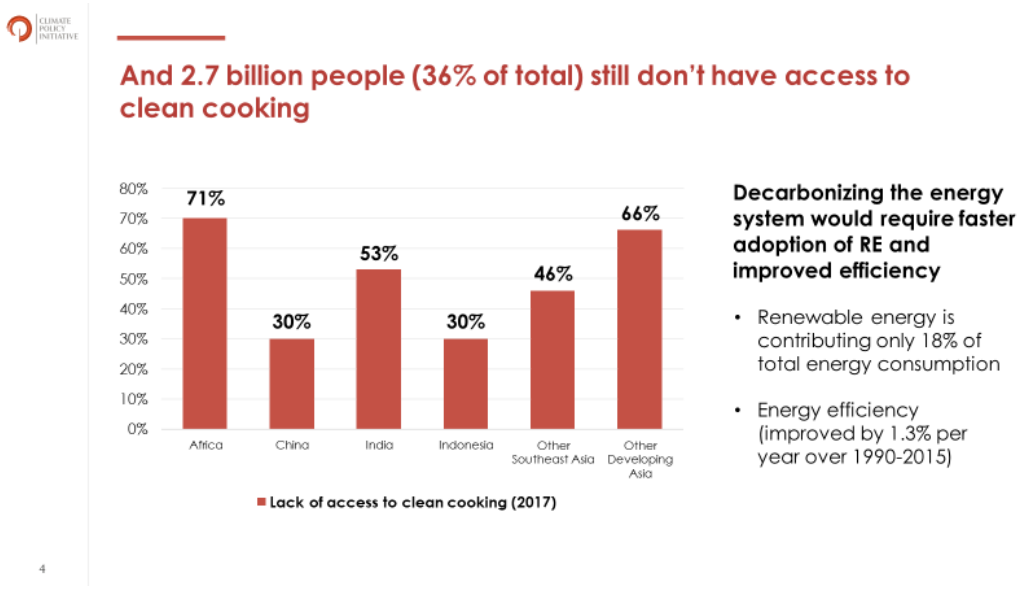
Figure 3.1



Source: Climate Policy Initiative, India, www.climatepolicyinitiative.org/the-regions/india

At the same time, some 2.7 billion people – almost a third of the planet's population – are still forced to rely on inefficient, polluting and health-threatening, outmoded means of cooking, with the highest proportion of households in this situation located in Africa (71%), and over half the people of India (53%) unable to use clean fuels. For this situation to be overcome and for electricity supplies and clean cooking methods extended, the decarbonisation of energy supplies would need to be vastly accelerated through the adoption of renewable technologies and even greater progress in improving the efficiency of energy use. However, getting access right and improving energy efficiency do not necessarily go together.

Figure 3.2



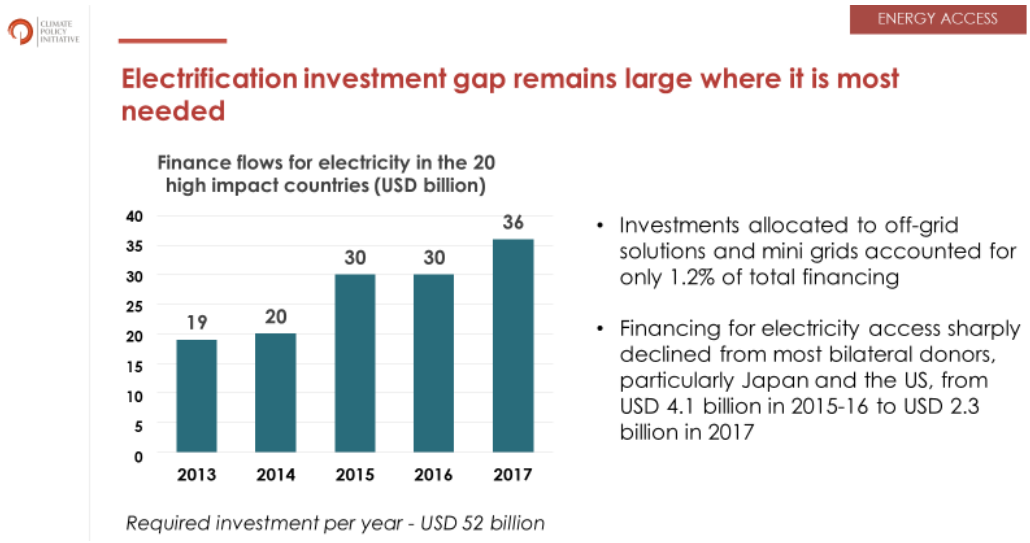
Source: Climate Policy Initiative, India, www.climatepolicyinitiative.org/the-regions/india

Financing Energy Access

A report released in late 2019 claims that the world is at a "tipping point" in the race to meet global energy goals by 2030 because, hitherto, investment in the energy sector that could extend access to disadvantaged groups is falling behind needs. The Climate Policy Initiative, which authored the report, argued that in sub-Saharan Africa, for example, where needs are highest and access to clean energy is very low, "there continues to be severe underinvestment in the energy sector, and vulnerable groups – particularly women and displaced people – are disproportionately impacted by the lack of energy access." (*Sustainable Energy for All*, CPI, October 2019, Washington DC). This situation requires intervention, in the spirit of the SDGs, by governments – but also by investors – to increase financing to this "unglamorous" sector and render the use of unsustainable or harmful methods for cooking obsolete with a very positive impact on health and development outcomes. Without such investment, the CPI warned that the situation was unlikely to develop along a positive trajectory and the stagnation in energy practices would continue to be harmful to vulnerable communities and disadvantaged members of society.

One of the problems is that such relatively small-scale assistance to often rural communities is not only unglamorous it is only marginally profitable and, even then, only in the very long term. Private investment will require incentives from government and guarantees covering returns that are essential for the private sector to justify its involvement and the use of its resources. Unfortunately, such incentives and guarantees are impossible for many governments of developing countries to make. Nor can we expect the slack or the gap in financing to be taken up by the domestic public sector or the international donor community. The data shows exactly the contrary: that donors are less interested in financing what they regard as "infrastructure" projects than they once were, perhaps mistakenly assuming that the private sector would fill the gap and having to take other demands on their resources into consideration in a time when there is less and less public support for international development financing through Official Development Assistance (ODA).

Figure 3.3



Source: Climate Policy Initiative, India, www.climatepolicyinitiative.org/the-regions/india

The 2019 Global Sustainable Development Report (GSDR), as part of its call for action, specifically mentioned the need for urgent action to ensure access to clean energy in rural areas for electricity and cooking. Aware of the failure, so far, of the traditional methods of attracting financing for the "last mile" of energy supplies, the Report calls for "non-standard" approaches to securing investment and financing. This could include any number of innovative instruments – some perhaps as yet unknown – but it is urgent to find ways to generate the necessary financing and to create partnerships that will be capable of closing the financing gap.

Looking at financial flows to the residential sector, the picture is one of bias towards large-scale projects, rather than supplying electricity to households. The "darling" area is the commercial and industrial sectors combined and only a third of flows have been for development of residential connectivity. This is the "tipping point", referred to earlier, where the profitability of investing in residential connectivity decreases the further the beneficiary is from the centres of population. Once the profitability frontier has been reached, only public incentives can induce the private investor to continue to support the extension of electricity access to the residential sector.

When it comes to investment in the crucial home-cooking area of activity, the picture is even more distressing. In order to reduce dependence on unclean, non-renewable energy sources for cooking, CPI estimates that a level of investment equal to some USD 4 billion per year will be required. However, investment in the sector is actually declining, from some USD 32 million in 2013/14 to USD 27.5 million in 2017, the last year for which reliable data is available. Moreover, there is a concomitant decline in the proportion of public funding as a percentage of the whole for clean cooking from 81% in 2013/14 to only 22% in 2017.

Even more surprising is the drop in public funding for clean-energy domestic cooking initiatives as a percentage of total public finance to only 1%, with the rest's having been taken up by private operators that see the potential for profit in marketing innovative cooking technologies with lower environmental impact. These innovations may have another advantage: they may free

families – particularly female members of families – from the burden of sourcing the wood and charcoal they have habitually used for this purpose. For the households involved, this can be a multiple-benefit outcome where the private investor also reaps a reward.

Clean Energy Challenges and Possible Solutions

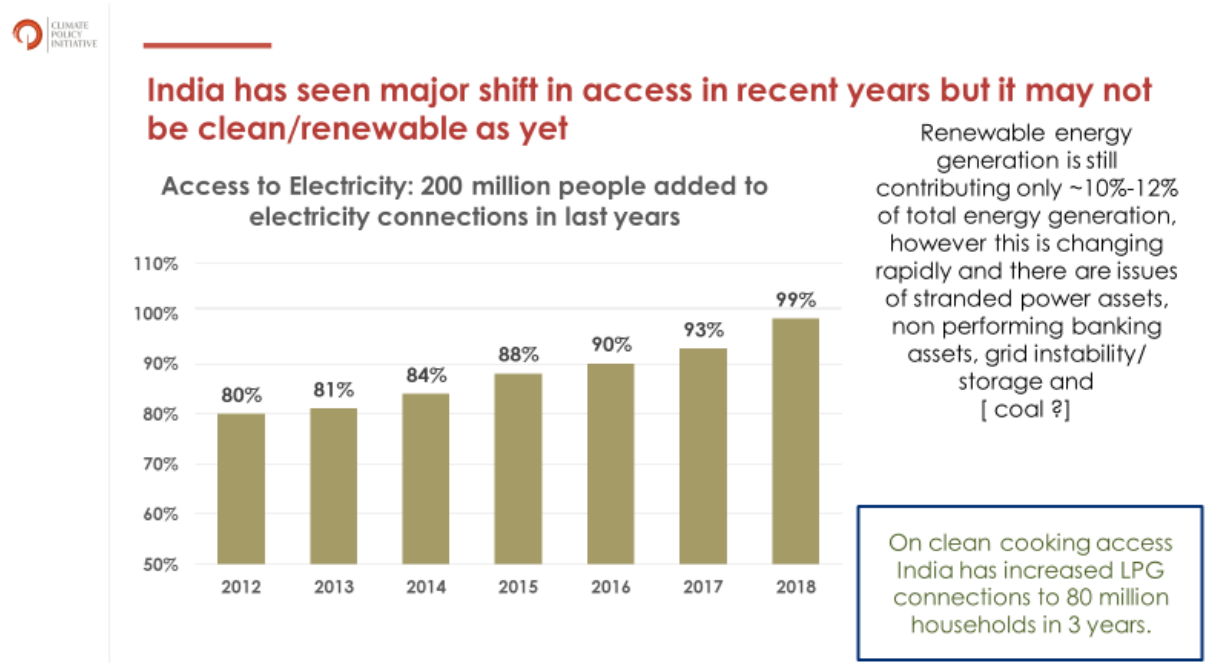
There is an apparent conundrum when it comes to ensuring access to supplies of energy, whether that be "clean" energy from renewable resources, or "traditional" energy from coal- or oil-fired power stations. The consumer generally does not care about the provenance of the electricity, they simply want to get their hands on it. However, they are not too keen to pay for access; neither are the electricity suppliers particularly enthusiastic about paying for the extension of services to areas with little ability or willingness to pay, either because they cannot pay, or because they are not sufficiently numerous to provide a viable market at reasonable rates. For big operators the small size of the investment needed to extend the grid to a disadvantaged area might simply not be worth their while, which means that it may not be a desirable or even a viable option for the private sector. In these circumstances, while it would be preferable to get the market to work, it will almost inevitably not. Another approach is necessary. The public sector must step up to the plate to secure energy access for those at the end of "the last mile".

To overcome these hurdles, the public sector is really the only recourse, whether it be by direct financial intervention, through subsidies, the provision of incentives or through partnerships. What is needed is a significant increase in public commitments to and investment in access to energy from international public finance institutions such as the international development banks, foundations and the ODA agencies of development partners in the industrialised countries. Though certain quarters may see this falling back on public resources as a curse in terms of efficiency and substitution, it can also be a blessing because the public sector can impose much-needed regulations and limits on the sources of additional energy, prioritising clean energy within a national, regional or international strategy for energy supplies, such as that encapsulated in the SDGs. A public approach to extending electricity supplies and reforming domestic cooking methods to eliminate the use of dirty and harmful fuels can be integrated and aligned with the SDGs. Such a strategy could be based on all fuels for power generation and cooking, making sure that the least damaging to the environment were explored first and measures taken to make their use practicable. In addition, a publicly-led campaign for the use of cleaner fuels would take account of the gender bias that means women are more heavily involved both in fuel gathering and in cooking, making them prime victims of pollution from unclean sources of energy.

India is one country that has taken decarbonisation seriously, deploying policy and regulatory measures to address the need for extended energy access while limiting the overall impact on the environment by reducing reliance on the most polluting fossil fuels. The approach has had to take into account the impossibility of replacing fossil-fuel use overnight, or even in the short-to-medium term, but it does include replacing the most harmful fuels wherever possible and signalling to the private sector that the future for energy supplies in the country is going to be in renewables. For example, although renewable energy generation still only represents up to 12% of overall electricity generation and there remain problems of stranded power assets, non-performing

banking loans, instability in the grid and storage of energy, investment in renewables is growing and can be expected to continue to do so for the foreseeable future.

Figure 3.4



Source: Climate Policy Initiative, India, www.climatepolicyinitiative.org/the-regions/india

The strategy adopted currently is to increase the amount of renewable, non-carbon energy sources in installed capacity and this has shown results in that the proportion of these sources of new capacity in fiscal year 2014 was 13%, but in fiscal year 2019 it had jumped to 22%. This trend is even more remarkable, give that over the same time period the increase in installed capacity year-on-year more than doubled. More than 100 million people were connected to the grid during this period, leading to an electricity access rate approaching 99%, although people in remote rural areas are still not able to be connected. This has purely been the result of public initiative and not of private investment, alone. The cost has been borne by the taxpayer, which also creates a political problem because electricity supply in India, as in many other countries, is a political issue. It will require continued political support to continue, especially if it is to include a drive for renewables to replace the existing carbon-fired plants. The evolution of private participation in the Indian power sector can be traced to the opening of the generation sector to private investment in 1991. The passage of the 2003 Electricity Act was followed by a large increase in private entry into generation and forays into transmission and experiments with distribution franchise models in urban and rural areas. At the start of the 12th five-year plan (2012-17), the sector saw a sharp reduction in bid euphoria and greater risk aversion on the part of bidders, who are concerned about access to basic inputs such as fuel and land, as well as the shift to renewables that are seen as offering less opportunities for profit and reliance on technologies that may be unfamiliar to the private sector in India.

Power generation from renewable sources is only one way of reducing the carbon emissions produced by the energy sector. One of the targets of SDG 7 is the reduction of energy

intensity and this can only be achieved by improvements in energy efficiency either from modifications to existing plants and facilities or by the adoption of more efficient practices and equipment. In India's case, the policy objective is to reduce energy intensity by 50%. The country intends to achieve this objective by setting environmental energy-use standards and labelling appliances and equipment so that consumers will know they are contributing to the national effort. Conventional filament lightbulbs are being phased out and replaced by LEDs, while fans and industrial machines are also expected to become energy-saving. Management schemes have been adopted for existing installations of streetlights, public services, agricultural pumps and energy use by SMEs. A big effort is going into setting up solar energy installations for use on agricultural premises to provide power for heating, lighting and stationary power use in, for example, fixed threshing machines and large milking stations.

Building codes for commercial and residential installations have also been introduced. The ECBC residential codes, revised in 2017, are intended to boost energy efficiency in the residential sector by promoting energy efficiency in the design and construction of homes, apartments, and townships. Prepared in consultation with stakeholders consisting of architects and experts including building material suppliers and developers, the codes' parameters are expected to be adapted to local conditions, especially climate, throughout the country. At its launch, the 2017 residential ECBC was expected to save 125 billion units of electricity per year by 2030, or 100 million tonnes of CO2 emissions. The residential sector is also being targeted by an initiative to implant solar energy panels on building roof tops.

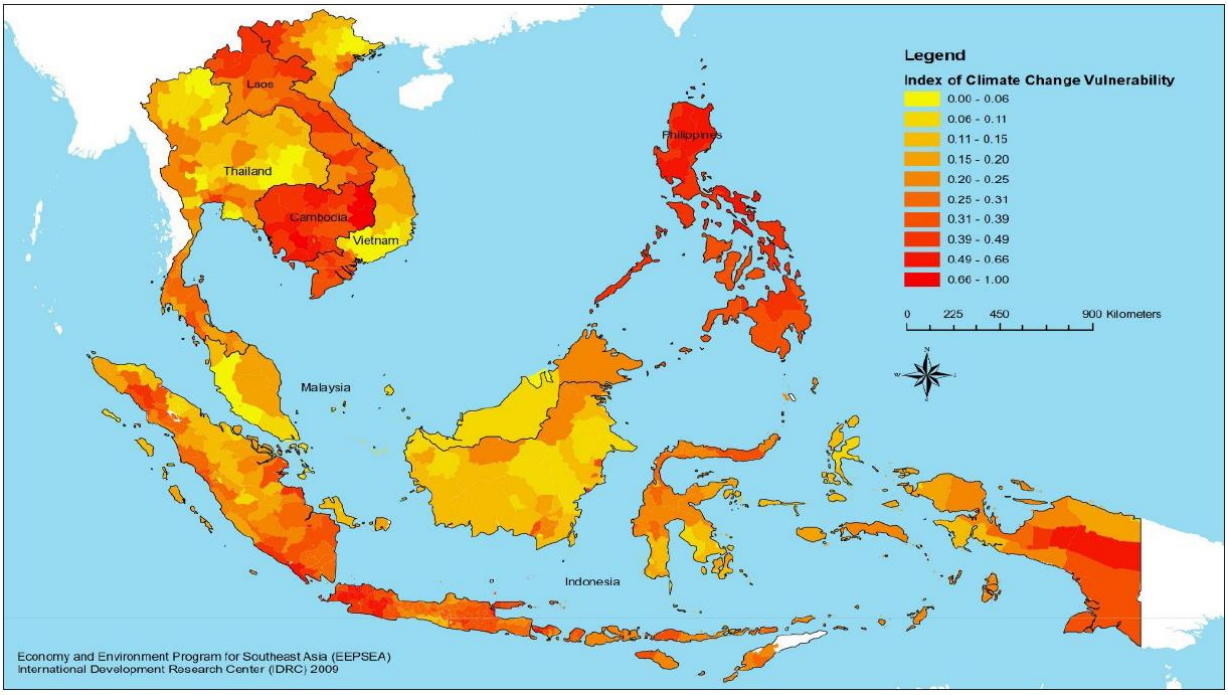
A special effort is underway to reduce carbon emissions from transport. The central government has pledged budgetary support of INR 100 billion (USD 1.3 billion) for the introduction of electric vehicles (EVs) to provide incentives for people and companies to switch from petroleum-fuelled engines. The Indian government has created momentum through its Faster Adoption and Manufacturing of (Hybrid &) Electric Vehicles schemes that encourage, and in some segments mandates the adoption of electric vehicles (EV), with a goal of reaching 30% EV penetration by 2030; about 1% of new vehicle sales were EVs in 2019, almost all of them two-wheelers. The scheme creates demand incentives for EVs and urges the deployment of charging technologies and stations in urban centres. If these aims are realised by 2030, they will generate an estimated saving of up to 474 million tonnes of oil equivalent (Mtoe) and 846 million tonnes of net CO2 emissions over their lifetime. However, complying with the government's Bharat Standard-VI emission regulations will cost the car industry an estimated INR 70 billion (USD 925 million), which represents a significant charge on a sector that represents up to 40% of the country's manufacturing base. For their part, 10 states and union territories have published draft or final policies aligned with the economic and demographic realities of each region.

Varied approaches have been taken. For example, given Delhi's air pollution issues and status as a high-employment hub, the city's policy targets the components of electric vehicles that have achieved parity in terms of life cycle and total cost while aiming to create employment in the batteries sector, an area that is also attractive to Karnataka, which has ambitions to become a battery manufacturing and research centre. Kerala is concentrating on mass transport and Tamil Nadu is integrating EV- promotion into its comprehensive environmental policy. Hence, each state is adopting measures adapted to its own particular circumstances, which is a trend that is anticipated in the SDGs.

Regional Implications of Energy Production and Climate Change

With half the population of India, ASEAN's 622 million people nonetheless represent the third largest population grouping on the planet and this number is expected to increase to 717 million by 2030, most of them in urban centres including megacities and coastal conurbations. With an increase in temperature of "only" 2°C, the ASEAN countries can expect increased risk of heat-related high mortality, water and food shortages because of a higher incidence of drought conditions that will also cause crop failures and lower production levels that will negatively impact all output including food products, such as wheat and maize, which will lead to higher food insecurity. In addition, the concentration of people in the urban centres will be accompanied by higher income and wealth inequalities across the region, as well as urban-related vulnerabilities.

Figure 3.5 Vulnerability to climate change of ASEAN countries (except Myanmar)
Dark color = more vulnerable (Finlayson 2016)



Source: http://www.silaonline.org/wp-content/uploads/2017/11/2017-impact-of-climate-change-on-ASEAN-international-affairs.pdf

Against this background, all ten member countries of ASEAN have submitted Intended Nationally Determined Contributions (INDCs) to limiting the effect of climate change to a global temperature increase of 2°C or less. INDCs pair national policy setting — in which countries determine their contributions in the context of their national priorities, circumstances and capabilities — with a global framework under the Paris Agreement that drives collective action toward a zero-carbon, climate-resilient future. An archive of INDCs is maintained by the Secretariat of the UN Framework Convention on Climate Change (UNFCCC). They create a constructive feedback loop between national and international decision-making on climate change, as required

by the Paris Agreement and reflect each country's intentions for reducing emissions, taking into account its domestic circumstances and capabilities. Some countries also address how they'll adapt to climate change impacts, and what support they need from, or will provide to, other countries to adopt low-carbon pathways and to build climate resilience. Five of the ASEAN countries have also submitted biennial update reports to the UN Framework Convention on Climate Change (UNFCCC) Secretariat. To coordinate action on climate change within the region, a Special Ministerial Meeting on Climate Change (SAMCA) and an Expanded Special Ministerial Meeting on Climate Change (E-SAMCA) – the latter consisting of ASEAN, plus China, Japan and the Republic of Korea – was held in Singapore hosted by the then Chair of ASEAN, on 10 July 2018. The meetings were an initiative by Singapore to provide ASEAN and the three additional countries a platform to:

1. Engage one another on their climate action plans in a regional "Talanoa" dialogue (seeking to break the climate deadlock by drawing participants closer together through sharing their stories of climate change: Where are we now? How do we want to go? How do we get there?) setting;
2. Reaffirm their commitment to the Paris Agreement; and
3. Galvanise regional action to address climate change.

Singapore, as a low-lying country is particularly vulnerable to the effects of climate change, particularly with respect to rising ocean levels. The country is making efforts to establish capacity building training centres to support efforts to reach the SDGs. It hosts the ASEAN Specialised Meteorological Centre (ASMC), as well as the regional office of the World Meteorological Organisation, which places Singapore in a unique position to share climate projection data and weather outlooks for ASEAN countries. In December 2018, ASEAN countries Cambodia, Indonesia, Lao PDR, Myanmar and Singapore, along with Japan, agreed to establish the South-east Asia Disaster Risk Insurance Facility (SEADRIF) in Singapore to provide financial solutions for immediate relief for countries following natural disasters. SEADRIF, with support from the World Bank's own Disaster Risk Financing and Insurance Program, initially concentrates on the flood-risk exposure of Cambodia, Laos and Myanmar, but will extend its reach to other ASEAN countries in time. The Singapore Cooperation Programme was established in 1992 to provide training and capacity building for partners and has since offered its services to more than 125,000 officials from 170 countries in such areas as sustainable urban management and water management. In 2015 the country launched its Sustainable Development Programme (SDP) to support the 2030 Agenda under the SCP.

Besides building regional and ASEAN political and technical support for climate action and the SDGs, Singapore has also made its own commitment nationally. An inter-ministerial committee on the SDGs is coordinated by the Ministry of Foreign Affairs and the Ministry of Environment and Water Resources to support the preparation of the country's VNR in a spirit of "national ownership". The country participates actively in the High-level Political Forum on the SDGs (HLPF), which informs its own national approach to the SDGs' implementation. In order to sensitise the population to the importance of the SDGs and climate change to Singapore, the national day celebrations in 2019 were held around the theme of tackling climate change and what citizens can do to understand the issues, participate in mitigating its effects and how the country is adapting to the challenges presented by it.

The science behind reducing reliance on unsustainable sources of energy and the impact they have on the climate, among other things, is demonstrated both by the GSDR and by data produced by several UN agencies. The GSDR, in its characterisation of the integrated approach to realising the SDGs through six entry points and four levers (see Annex i), identifies decarbonisation and universal access as the fourth entry point. The UN Economic and Social Commission for Asia and the Pacific (ESCAP) has emphasised the urgency of accelerating and generalising the decarbonisation of energy sources and speeding up the adoption of renewables to at least 70% by 2050 to reach the IPCC's goal of global temperature increase of 1.5°C. Such an effort would contribute to reducing the number of people without electricity access, decrease reliance on polluting fuels for cooking and reduce mortality due to the use of such fuels.

The objective of reducing reliance on non-renewables for electricity generation is not Utopian. India and China, for example, have made great strides in renewable forms of energy in the last decade.

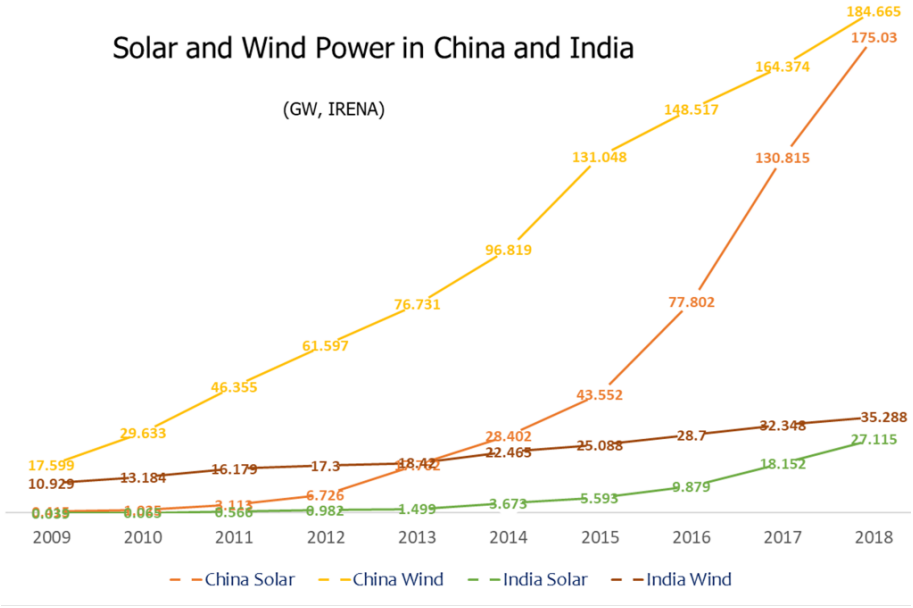


Figure 3.6 **Solar and Wind Power in China and India (GW, IRENA)**
Source: IRENA (2019) Renewable Capacity Statistics, 2019, www.irena.org/publications

Countries such s the United Kingdom and Germany are also reducing their reliance on non-renewable sources of energy. Over a third of electricity generation in the UK is now from non-carbon sources, while in Germany the figure is closer to 50%. Elsewhere, countries such as Honduras and Nicaragua are achieving very high levels of electricity generation from renewable sources, reaching to as much as 90% of the total generation capacity from a variety of renewable sources including solar, wind, hydro and geothermal.

These advances contribute to national energy efficiency which, in turn, makes extension of electricity supplies to so-far deprived groups of people and areas more feasible. By using innovative technologies, such as mini-grids and off-grid, localised systems, as many as a billion people can be connected to electricity for a relatively modest global cost of USD 391 million. By 2018 the number of people without electricity fell to below 1 billion, with India completing universal electrification,

Indonesia not far behind, Bangladesh reaching 80% of the population, Kenya 73% and Ethiopia 45%. The impact on people's quality of life, on their health and on the environment generally can be considerable. Raising energy efficiency has the highest impact on heating and cooling, but it also has a major effect on transport, which means cleaner buses and cars, more efficient engines and less polluted streets. From negligible numbers in 2010, by the end of the decade, over 5.5 million electric cars and 260 million electric two-wheelers – a particularly polluting for of transport in developing country cities – were on the road.

These advances can be seen as impressive, but they are clearly not enough. Even if, for example, the reliance on non-renewables in China fell much more than expected, the global dependence on carbon is not declining fast enough to meet the SDGs. Policies are desperately needed world-wide to encourage reduction of reliance on carbon fuels for all purposes. Under half of the UN's Member States have regulatory policies governing the decarbonisation of transport, only 44 have introduced carbon pricing and about 20 have some form of regulation of heating and cooking fuels. Even when these policies do exist, they have to be implemented and this is major problem. Further, regulatory policies need to be backed up by efforts to reduce the price of renewables, particularly where the private sector has a big part to play. The authorities cannot require enterprises to lower the cost of renewables compared to non-renewables if their input costs remain high. Nonetheless, the market can be offered a significant role in the form of incentives and tax breaks for the producers of products making use of non-polluting, renewable energy technologies. Transformation is possible, and faster than might be thought. In 1900, hardly any engine-powered vehicle were visible on the streets of New York, which were clogged with horse-drawn conveyances; only 13 years later, the horses had practically disappeared to be replaced by horseless carriages: petrol-driven cars.

The SDGs have been established in the context not only of international governance and the role of the international community, but also rely on implementation in individual Member States that are sometimes small and resource-poor, or highly dependent on official development assistance (ODA) or both. A country such as Costa Rica has to work within a Central American sustainable development strategy that includes cooperation for sustainable energy provision through renewables. The region has an installed natural capacity for hydro-electric generation and is increasing its use of solar energy. The country has now reached 100% of electricity generation from renewable sources: wind, hydro, geothermal … Electricity represents only 22% of total energy demand; the rest has to come from imported fossil fuels. The drive currently is to reduce this reliance on outside sources and to replace it, especially for transport, from natural resources. Further, a national plan foresees replacing fossil fuels in all sectors – agriculture, industry and domestic consumption – as well as transport.

Costa Rica has recognised that policies for energy production, distribution and consumption have to be sustained and produce a regulatory regime that is not subject to change with every new government. This stability is essential to achieving the momentum that is required to achieve successful liberation from fossil fuels over time. The country and the Central American region have had a lot of experience in implementing energy policies, but that does not necessarily give them a way of predicting the future. Clarity is key to developing long-term policies that can be both flexible and stable at the same time. Without the stability, the private sector is harder to entice into partnership with the government and without flexibility it is impossible to adapt to changing

circumstances. Electricity generation, in particular, requires extensive financial and management resources that can only be accessed with private-sector involvement. Therefore, the energy strategy reserves a specific place for private participation.

The experience of Costa Rica and other small countries can be reflected in much larger contexts, in China and India, for example, or within the European Union. The energy strategy has to be inclusive and integrated. Encouraging the electrification of transport without extending the electricity supply makes no sense but extending the electricity supply from non-renewables flies in the face of the sustainable-development strategy. The one must be synchronised with the other. In this sense, decarbonisation and the adoption of renewable, non-polluting sources of energy are classic examples of the interconnectivity of all the SDGs. Provision of electricity enhances development prospects, lifts people out of poverty, improves health prospects, creates employment, raises gender equality and improves educational outcomes.

Chapter 4. New Trends in Governance for Transformation[4]

Modern governance is based on the division of responsibility and action into separate areas where, for example, ministries at the national level behave as though they were autonomous and acting in isolation. This phenomenon impedes the policy coherence that is a *sine qua non* of moving forward towards reaching the sustainable development goals – the SDGs. Policy coherence is also required for any development effort that requires input and action in overlapping or neighbouring policy areas, which is something we have learned from the debate around international development, aid and good governance.

Government is not the only place where responsibilities for different areas of human interactivity and policy are separated and held apart from one another. The interaction between and within the non-governmental and private sectors is also limited by narrow horizons of objectives, responsibilities and resources. Indeed, the literature is strewn with references to the "competition for resources", or "competition for public or government attention." In the non-governmental world, the trades unions concern themselves with workers' rights and privileges, the employers with profit, and never the two shall meet. The non-governmental organisation (NGO) concerned with child poverty or the environment pursues its goals often without interest or attention to seemingly unconnected issues or even the links that are evident between them.

This divisive phenomenon has a name: "siloisation", making refence to the grain and other crop silos that dot the rural landscape in many countries, standing splendid and isolated, completely enclosed while operating on several levels within. Each silo is its own empire, heedless of its counterparts in other fields or in other places. The workers in those silos and the women and men who operate them are either unaware of others in the same situation or careless of them. Each remains splendidly ignorant of the other, even though they all contribute to a common objective of storage and supply of whatever are their contents, using similar techniques and technologies, and employing similar skills.

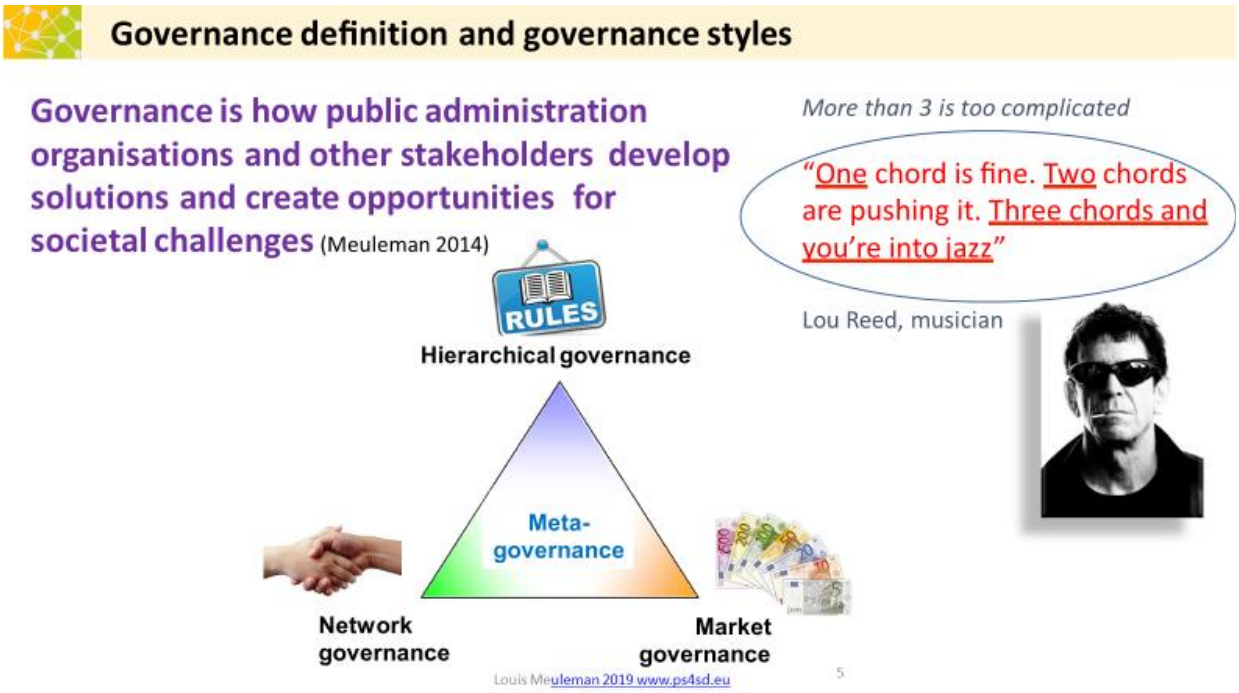
Continuing to use a model of governance that relies on silos will handicap the ability to move towards achieving the SDGs, perhaps fatally. Despite this, and in spite of the long-time knowledge recognition of the problem in governance for development generally, silos persist and resist assaults on them like the fortresses of old. A new approach is needed.

[4] This Chapter is based on a main presentation by Mr. Louis Meuleman (UN Committee of Experts on Public Administration/University of Leuven) with additional material from Mr. Stephan Klingbiel (UNDP Seoul), Mr. Dulue Mbachu (Bloomberg, Nigeria) and Ms. Ro-Anne Quashie-Harry (Government of St Vincent and the Grenadines) at the 2019 SDTF.

Reforming Governance for the SDGs

Louis Meuleman has explored the nature of governance and the phenomenon of siloisation. Policy silos are obviously not physical – although institutions can suffer from being distant from each other, as well – they are political, mental and institutional. Longstanding calls to break down the silos are part of the drive for policy integration and coherence. However, policy integration and policy coherence are not the same thing and the difference is important. One cannot have policy coherence without policy integration; the one begets the other but not the other way around. Where politicians and civil servants seek to highlight their achievements and career successes, as in most modern democracies, they tend to want to take responsibility for policies that are successful, rather than share the limelight with another ministry or department. This can and often does lead to political silos, however cynical that might seem. Mental silos can be derived from a belief that an individual or an individual's institution has the only genuine conception of a problem and, therefore, the only viable solution to it. Policy sectors, like, for example, agriculture, transport or environment, have their own appreciations of an issue that they assume is superior to anyone else's, so they tend to act alone or with minimal consultation with other parties, despite the obvious advantages of cross-fertilisation of ideas and approaches.

Figure 4.1 Governance definition and governance styles



When it comes to institutional silos, the problem is more one of "logical" disaggregation of policy formulation. If a problem is large and imposing, it seems to make more sense to divide it into smaller segments, each one dealt with in a different part of a silo: silos within silos. Professional advancement is then based on moving further up the viewing chain until the entirety of a policy

objective becomes visible. These institutional silos have the benefit of allowing individuals to concentrate their efforts on task without being disrupted by input from outside. However, working in this restricted mode until the next promotion actively prevents the individual from achieving an overview of the policy solution.

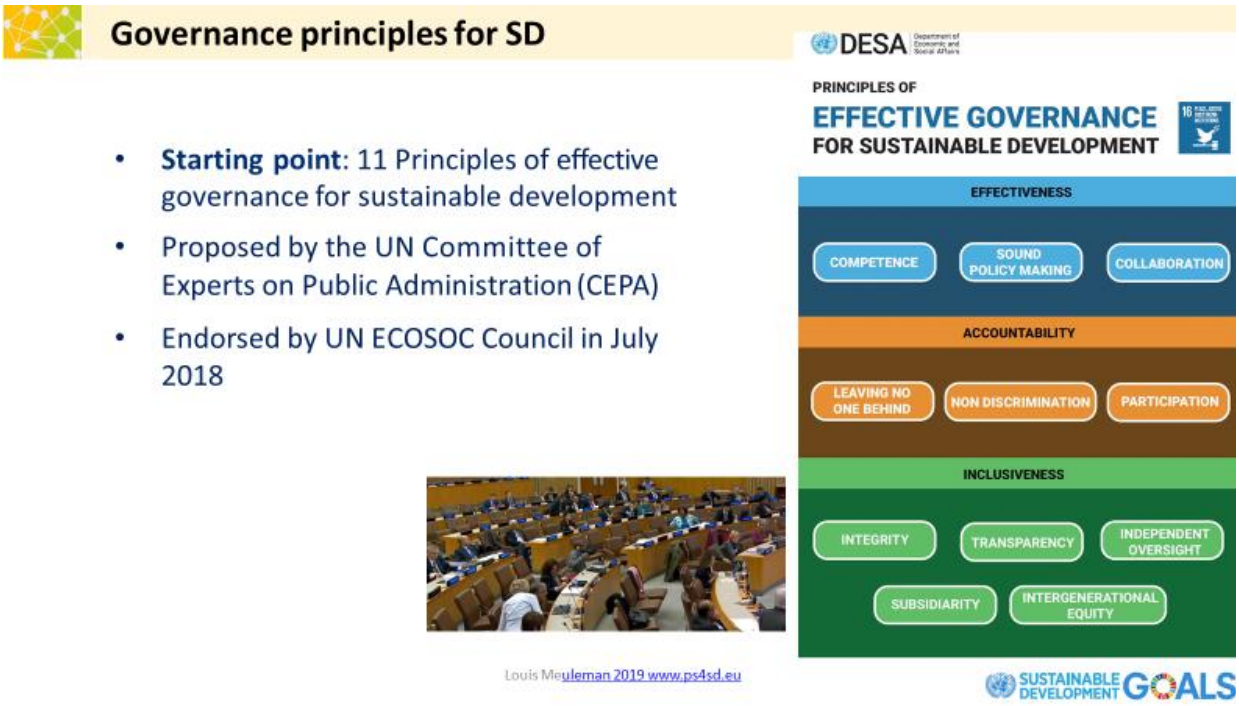
The problem of siloisation shackling attempts to move forwards towards the SDGs and developmental outcomes, in general, has led to calls for "breaking down the silos", as though breeching the walls would "liberate" the contents therein. This may not be the wisest approach. Taking the silo analogy to its logical conclusion, breeching the walls would merely result in the destruction of the contents and the loss of important skills learned by the operators and employees. If "breaking down the silos" means merging them, rationalising their human capital content and saving money, will it improve policy integration and lead to policy coherence? That seems unlikely.

Instead, again according to Meuleman, it makes more sense to consider the advantages of silos, rather than dismissing them as inherently bad.

As in a military context, clear lines of sight and an easily recognisable command structure are extremely important for efficiency and service delivery. Working in silos can concentrate minds on a specific issue and bring appropriate resources within a structure to bear so that the silos' objectives are met. Moreover, where command lines are clear and responsibilities well-defined, accountability is more readily clarified. The concept of compartmentalisation in policy making is well-entrenched in many societies and may be necessary where skill and training levels are deficient, as in some developing countries, or where public life has a historical tendency to be hierarchical. The existence of silos could, therefore, be beneficial for stability and understanding of operations. This is important for external access and identification of policy-making focal points. Despite the assumption that silos engender suspicion and remoteness, the opposite may actually be true; they could be identified from outside as reliable and trustworthy contact points on a specific issue or policy question. It is also very important to note that, for the moment, at least, there is no viable, tried and tested alternative to silos.

Yet, there has to be a way of improving governance and recognising that the value of siloisation can be integrated into something else. That something else is the "governance principles for sustainable development" endorsed by the United Nations' Economic and Social Council (ECOSOC) in July 2018.

Figure 4.2 Governance principles for Sustainable Development



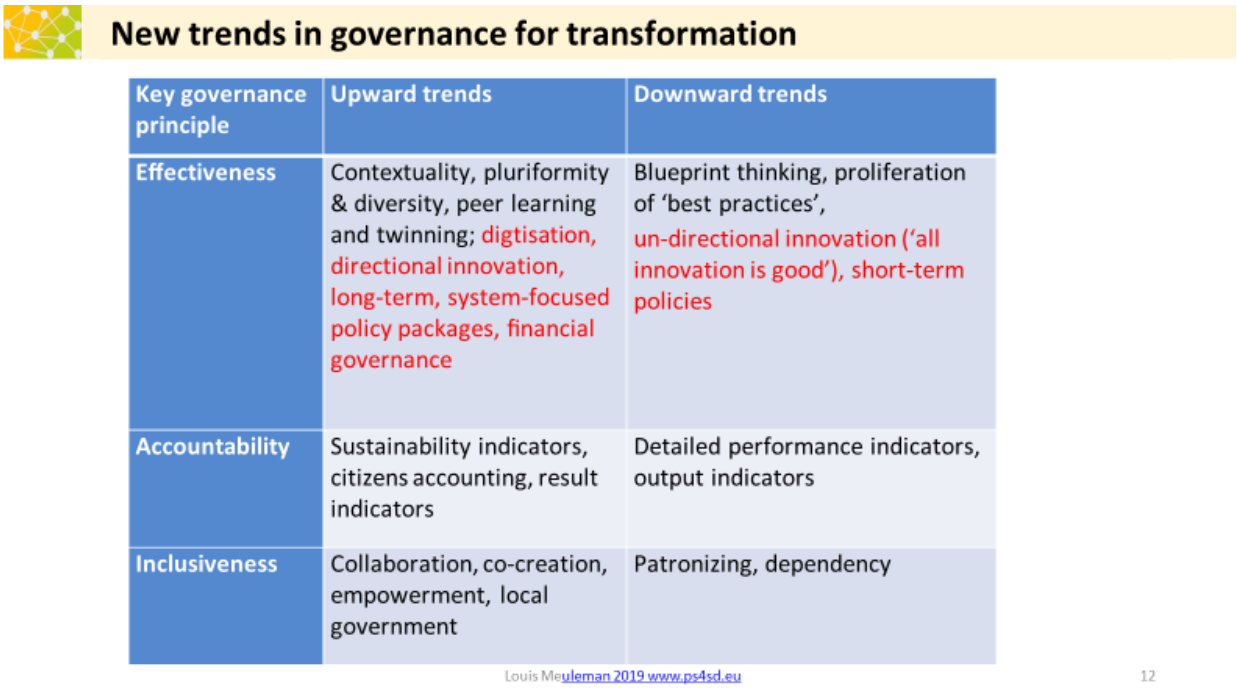
The eleven principles, outlined in the above figure, concentrate on *effective* governance divided into three shades. Effectiveness requires high levels of competence and, therefore, adequate training of civil servants and policy makers that leads to sound policy making based on reliable inputs including data that can be interpreted by implementers and working across silos in collaboration with other branches of government. Accountability, which adheres to the 2030 Agenda of "leaving no-one behind", includes non-discrimination against minorities or other disadvantaged groups in society including women and children, and relies upon the participation of all stakeholders in policy formulation and implementation. Inclusiveness seems like accountability, but it is more about making the silos work together so that no-one – even in decision making and policy making – is left behind. Though this model is specifically aimed at the public sector, it can be applied equally well, of course, to the non-governmental and private sectors.

This "new" model is not about inventing something new, or even about reinventing the wheel, it is about refining the "wheel" of governance and introducing it to a new age of our common future: the SDGs. It is about finding the right combination that works in a country or in a region or in a combination of regions and countries. For example, in the Netherlands, two cities exemplify differences in lifestyle and culture: Rotterdam, the hard working, down-to-earth industrial society and Amsterdam, where everyone is an artist or aspiring to be one. The local governments have two different approaches to resolving the same problem in these two different cities: confronting climate change and implementing the SDGs. To face the challenges posed by the SDGs, societies need to think locally to adapt themselves to what are global imperatives.

That means re-inventing the relationship between citizens and government at all levels, especially facilitating reliable information between the two and, hence, effectively involving citizens

in their own governance. At the same time, the authorities need to think about how to involve their citizens in policy formulation for sustainability, while recognising the responsibility of government at all levels to provide not only information but leadership. This means reversing some trends and embracing others.

Figure 4.3 New trends in governance for transformation

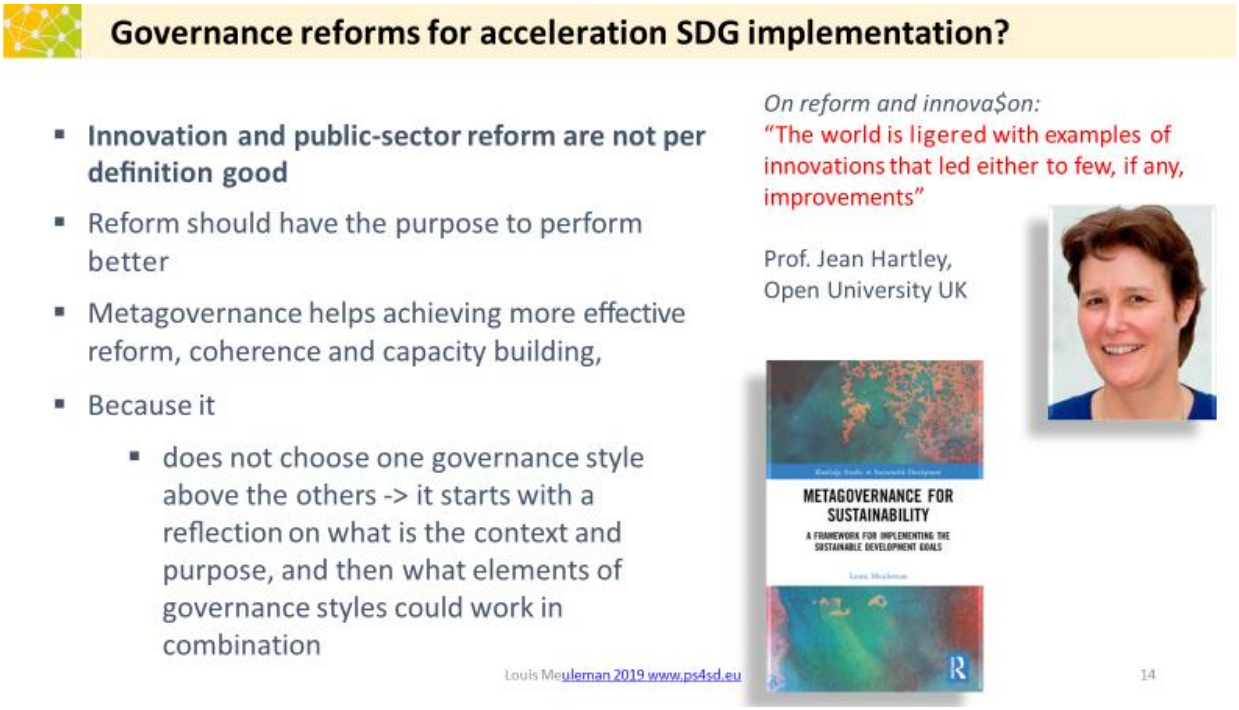


Meanwhile, the silos are still there. We need to decide what to do about them.

As we have seen, the silos have their uses and, in reality, are very difficult to dispense with, even if we wanted to. The silos, in fact, contain vast amounts of knowledge and expertise that are needed to transform our societies to confirm to the SDGs. We cannot simply announce that the silos have to be broken down without at least having some idea of what with what we would replace them. It may simply not be feasible and, even more importantly, even desirable to replace them at all. Breaking down the silos releases energy and resources but not, necessarily, in a very productive way. At the current juncture in our planet's trajectory, we do not really have time to reflect on how we would replace the silos; we need action from governance structures now, not some time in the future.

The question is more one of restructuring or reforming governance structures and practices to make them more responsive to the requirements of the SDGs and sustainable development, in general. Governance structures need to be able to accelerate the move towards the SDGs, not hinder it. This needs an overall, bird's-eye (or drone) view of what is going on, with a whole-of-governance perspective.

Figure 4.4 Governance reforms for acceleration SDG implementation?



The idea that "reform" will always bring good results needs to be called into question, since not all "reform" has produced the outcomes the reformers had hoped for. This is not to say that reform is "bad" – that would be to go to the other extreme of stasis, where any reform would imperil the established balance of competing forces – but that reform would be carried out with very clear objectives and be ready to re-orient if the initial presumptions turn out to be wrong or imprecise. Recognising that silos exist is not an excuse for tearing them down.

Besides, there are ample examples of effective reforms that brought direct and immediate benefits to governance structures. The Nordic countries have a history of "victimless" reforms, where efficiency did not give way to hardship. The introduction of the British National Health Service (NHS) was greeted with dismay and predictions of doom by free marketeers in 1947, but has, more or less, stood the test of time, while electoral systems have also evolved in defiance of critics that thought them condemned in advance to failure, such as the cumbersome, but representative electoral system in Ireland and in Australia.

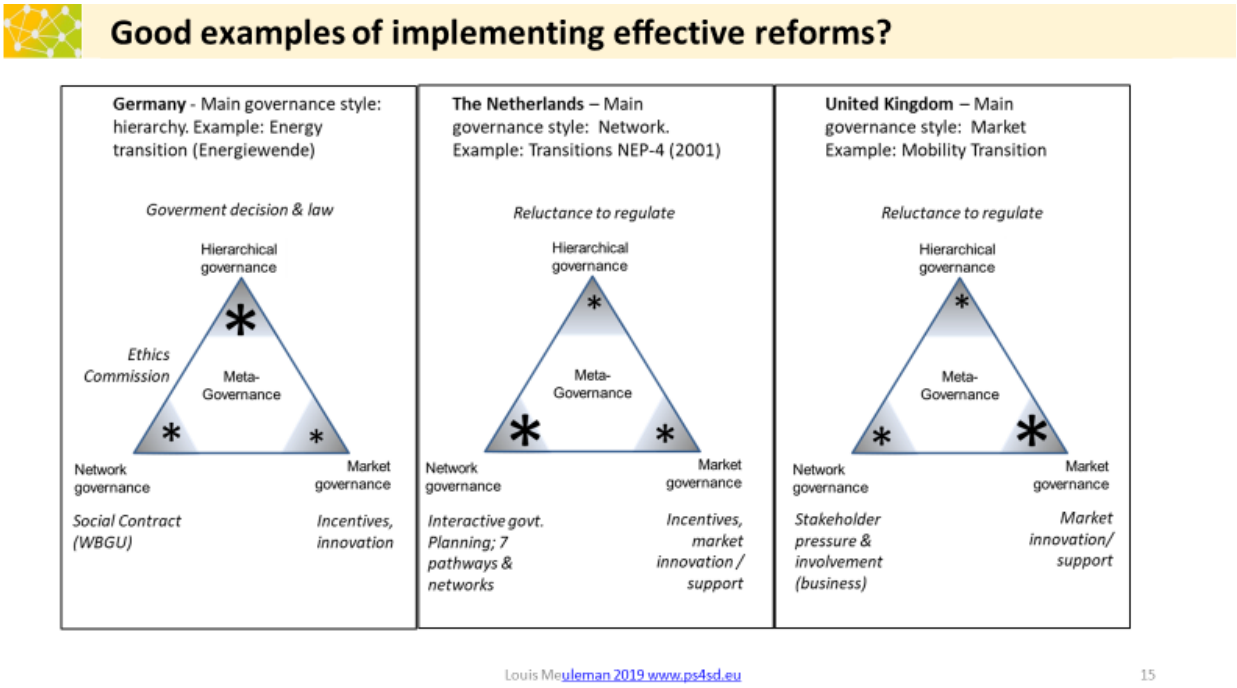
Reforms required to implement the SDGs have equally been criticised as unworkable, unfair or irrelevant, partly because, in order to comply with the SSDGs, they imply winners – which is a good thing and the objective – but also losers, who are often the beneficiaries of unreformed systems and whose privilege depends on the very inequity that the SDGs are specifically intended to combat. Reform to improve the prospects of the classes and groups of individuals and corporations that already benefit from the *status quo* may be easier to implement than those with a more universal application.

What is needed is governance for transformation, and that calls for something even more idealistic: making the silos "dance" together. Instead of tearing down the walls of the silos – in

effect, destroying them – they should be encouraged to see the advantages of working together: waltzing in tune, rather than bopping in discordance and apart.

Instead of seeing the silos in competition with each other, they should be acknowledged as complementary and harmonious. When one group attains an objective, that is not a cause of dismay, but of rejoicing, since the objective is shared across all branches of government and all sectors of society. If the objective reached is the result of inter-silo interactivity, then the glory is shared and the satisfaction mutual. A new paradigm of multi-institutional sense of accomplishment should guide the actions and interactions between actors and branches of government to render achievement of the SDGs more feasible. This can only come about with *effective* reforms…

Figure 4.5 Good examples of implementing effective reforms



Of course, each situation is different and requires its own approaches and strategies to deal with and implement reforms, but the figure, above, presents some examples based on real-life experience. The point being made is that societies need to respect their cultures of governance, while adapting to the needs of implementing effective reforms. This is obviously very important when it comes to working to support *and sustain* movement towards the SDGs. Whatever the governance culture, it seems clear that there are some very basic principles that need to be followed to enhance and augment feasibility. The first among them is policy coherence. The silos need to work in sync and comprehensively, ensuring that one is not pulling against another or doing all the heavy lifting. This matters at the national level but it is also essential between the national level and the sub-national levels and the non-governmental sector. This issue is so important that UNEP and others are working to formulate a composite indicator of policy coherence for

sustainable development that can be used in governance models to show where this critical element is lacking or, indeed, present.

On the international level, there has to be enhanced accountability and transparency, so that the developing world does not get the impression that the "rich" world is "getting away" with externalising environmental, economic and social problems. The European Union, for example, has undertaken to analyse and acknowledge its own ecological and economic "footprint" and to work to reduce it as an act of global social responsibility. The EU is a good example of where global, national and sub-national governance can be reformed to become more coherent when approaching sustainable development and the SDGs. The very nature of the EU means that its decisions can only be implemented if they are based on policies that are coherent at all levels between and within member states. Global policies will only work if they involve real-time, multi-level governance. Only then can realistically legally binding international agreements be enforced, and no-one left behind.

One avenue for reinforcing national and regional capacities for governance reform is international cooperation through regional groupings, like ASEAN and the EU, or through the United Nations system, parts of which are highly specialised in supporting governance reforms. One such agency is the United Nations Development Programme Seoul Policy Centre that aims to learn the lessons of Korea's unique rapid development from a developing state to a high-income country and apply some of those lessons in other countries, such as Myanmar. Specifically, in support of SDG 16 (Peace, Justice and Strong Institutions), the UNDP's activity rests on four pillars: Conflict prevention; Rule of law, security and human rights; Inclusive political processes; and Responsible and accountable institutions. All four concern the cross-cutting priorities of gender equality, protection and inclusion of young people, and the struggle against corruption.

The UNDP's Seoul Policy Centre, which replaced the UNDP country office when Korea joined the OECD in 2009, works through its "Development Solution Partnerships" (DSPs) to study how the Korean experience can help partner countries to make a similar transition from "developing" to middle- or high-income status. This model identifies and documents elements of Korea's experience that can realistically be seen as a basis for policy tools to be applied elsewhere. This entails knowledge sharing directly between Korean policy makers and their counterparts facilitated by the UNDP, which can identify where mutual poles of interest lie and seek seed funding and advisory services from Korean entities for development projects based on Korean experience in the national context of the partner country. Once that has been accomplished, the UNDP is in a position to help the partner countries mobilise domestic resources to sustain development initiatives by the partners. The result is concrete, country-level policy innovation generated with Korean input but with national ownership. This model is designed to buttress sustainability by associating proven experience with national ownership.

A crucial element in the implementation of the DSPs, especially with regard to meeting the SDGs, is ensuring the lowest level of corruption and mismanagement as possible. Here, the experience of Korea is again useful. Annual monitoring of corruption risk in the public sector and publishing the results of anti-corruption initiatives by unit amounts to institutional incentives to fight corruption. Extending such an assessment to the legislative framework can establish frameworks for limiting the risks for corruption in laws and regulations, before they occur. Alongside these

measures, transparency in public procurement and projects financed with public money are crucial for the credibility of the anti-corruption measures, as in the case of Seoul's Clean Construction System (CCS). The CCS allows for real-time monitoring of every stage of public construction contracts through the internet with mandatory reporting by everyone involved in the project with responsibility for dispersing funding. It means that citizens and anyone with an internet connection can see what is going on at a project site, how much it is costing and how long it is taking to complete. The opportunities for graft are reduced almost to zero.

Through the UNDP Seoul Office, Korea's positive experience has been exposed to partner countries all over the globe including such diverse nations as Thailand, Ukraine, Tunisia and the Philippines, as well as Myanmar – where UNDP is operating in a forestry project – Kosovo, Malaysia and Uzbekistan. In Myanmar, there is a peculiar problem linked to the actions of armed groups in the area of the forests, parts of which may be under their control. This poses the problem of dealing with non-state armed groups (NSAGs), which is also encountered elsewhere as Member States grapple with the complexities of implementing the SDGs, including SDG 16 and the governance improvements that are explicit to its achievement.

Bad governance can contribute to the creation and survival of NSAGs, as in the Niger Delta, where a very poor population is suffering the negative environmental impacts of the oil industry but reaps none of its benefits. An insurgency has continued sporadically for years, with demands that both the State and Federal Nigerian governments intervene to clean up the region and provide education, services and employment for the population. Despite promises, too little has been done. The oil industry damages or destroys the environment through its activities, including gas flaring, and leads to criminality but it is not "just" a Nigerian problem – environmental damage does not respect borders – it is an international, global problem. Translating the noble efforts of international organisations and the United Nations system, as well as the positive and instructive experience of the Republic of Korea, to Africa has been problematic, largely because of the lack of political will and policy statements that are not backed up by concrete action. While those involved in advocacy work for measures to protect the planet have no doubt that time is running out, a major challenge remains to convey that sense of urgency to the political elite and governments across Africa.

There is certainly increased awareness of the need for sustainable development, with African officials increasingly talking about climate change and departments being created to address the emerging issues. In Nigeria, for instance, the government prides itself as the first in Africa to issue Green Bonds, whose proceeds would be used to fund sustainable and environmentally friendly projects, but even the positive moves that include solar energy installations, for example, are poorly coordinated and managed.

However, this has been seen before. Decades ago, African countries, through their continental body, the African Union, agreed to build a green wall of trees, stretching from west to east Africa, to halt the southward advance of the Sahara Desert. It was a great idea, but its implementation was haphazard, with inadequate resources deployed and indifferent results achieved. Meanwhile, the Sahara has continued its southward march, driving pastoral communities before it, and providing a source of conflict with crop farmers that has been evident across west and central Africa. What needs to be done needs to go beyond mere tokenism.

For a continent with a majority of the world's poor, effective tackling of the factors driving climate change would imply more investments going to education, sustainable power resources, reforestation and eradication of poverty; but this is hardly the case. Which is why many governments signed up to the UN's Millennium Development Goals without devoting the requisite efforts and resources to make them a success. In Nigeria, which is Africa's most populous country with more than 200 million people, in the last decade about 80% of government revenues have consistently gone for the upkeep of government officials, who constitute less than 2% percent of the population. Not much is left for human capital development, for which it is no surprise that about half of the population lives in extreme poverty. Nigeria desperately needs a champion, a spokesperson to defend the planet but, in such circumstances, a Nigerian “Greta Thunberg” would be an unlikely luxury. For many countries across Africa, the situation is not very different, which is why it is so important to convey the sense of urgency the current global situation demands to those who allocate expenditure and resources.

There is a general need to improve the quality of governance across Africa and efforts have been made – the African Peer Review Mechanism is one example – but they have so far produced unimpressive results. If the SDGs are to have a chance of being reached in Africa, there needs to be serious attention applied to the problem of poor governance on the continent. Not all bad governance is the result of venality or appropriation. It also needs to be recognised that the human and institutional capacities of some African Member States are insufficient to the task of understanding the SDGs and the institutional and policy changes that are necessary to reach them. In the style of the UNDP’s DSPs, there is a pressing need for enhanced exchange of information and experience in confronting the challenge of implementing the SDGs and generation of genuine political commitment. This implies communicating the sense of urgency that is needed for reform of governance at least in terms of the SDGs and 2030 Agenda. Currently, many people in Africa are not paying attention to issues of the environment or do not see the link between the impact of unsustainable development and their own predicaments. A case in point is the regular flooding suffered by the city of Lagos that results from sea-level rise, itself due to climate change from the use of fossil fuels, but it is not being described as such by many in government and so it is not receiving appropriate attention. If this sense of urgency continues to be lacking around the SDGs, the outcome will be the same as it was with the MDGs – sign up but do nothing.

If lack of probity and awareness in governance is one hurdle to be surmounted in some Member States, others suffer from lack of capacity, especially when small island developing states (SIDS) confront the effects of climate change on seal levels and changes in weather patterns. The idea that “governance” can be “apolitical”, may be true in an academic sense, but it is very far from the reality. Politics is integral to governance in all countries, but it also includes institutional arrangements. To reach the SDGs, governance needs to be defined as leading to the distribution of the benefits of development to everyone. Unfortunately, this can make it a very expensive business, especially in the political reality of SIDS and other small or very vulnerable states where populations are low, and poverty may be high. Here, it is even more important that governments should be convinced to place higher priorities on the SDGs rather than on their political futures, which might, in the end, turn out to be the same thing.

The institutional silos that divide and isolate policy makers and policy shapers exist, even at the level of small and poor states; people have been operating in them and in a particular

environment that must change. Here, too, the silos must be persuaded to "dance". Implementing the SDGs will be a challenge for all levels of government and in all states, but especially in the SIDS. There, there is need to move to a higher level of policy and institutional activity to acknowledge and achieve the transformative power of governance for a positive outcome. Hence the idea of "sustainable governance", a two-way street linking the country level and the global level, with high-quality governance at *both* levels. The example of a SIDS, St Vincent and the Grenadines is illustrative of the sheer scale of the tasks faced by such countries as they attempt to plan and govern for the attainment of the SDGs. The limited human capacity in terms of quality *and* quantity means that dealing with the requirements of potential donors and international institutions – even complying with bureaucratic regulations – soon becomes beyond the ability of the local institutions to cope. St Vincent chose to overcome this difficulty by organising a multilateral international round table to draw up a "master plan" for implementing the SDGs. That helped, but it did not solve the problem entirely, since each individual development partner still had its own internal rules with which the hard-pressed public service had to comply.

Despite these problems with international partners, St Vincent does have a national strategy for the SDGs that is directed from the Prime Minister's office. Policies have included taxes on plastics and Styrofoam, for example, as serious polluters, to produce revenue for the fight against hunger in compliance with SDG 1 (Zero Hunger). The government, itself, has been restructured better to manage the drive to reach the SDGs by orchestrating the dance of the silos, linking with civil society, tracking and providing reliable household and poverty data by the Ministry of Finance, and restructuring the existing National Development Plan to incorporate language and guidance that refer specifically to the SDGs. In a sign to the society at large, the government has changed the public narrative to be about *sustainable* development, rather than "development", *per se*. These significant achievements reflect both flexibility and limitations; without improved governance in both the national and the international spheres, small and poor countries will be stretching their resources to the limit to reach the SDGs.

Though the SDGs are inclusive and integrated, reaching each of them presents different problems, depending on the size, culture, political system and level of economic development in a country or region. Identifying universal or, at least, the most commonly occurring elements of governance for the SDGs is an important early step in formulating a strategy for achieving them. One thing that has become very clear is that the established siloisation way of doing government will not serve the interests of societies striving to reach the SDGs. Tearing down the silos, however, is unlikely to be the answer; it may, in fact, make sense to reinforce them due to the need to concentrate on the complex issues to be resolved for the SDGs. The existence of non-communicating silos may be contributing to bad governance practices and corruption by militating against transparency in government (and, incidentally, in the private sector) reinforcing a culture of secrecy or "need to know" principles. In many African countries, the silos of government and the private sector – including NGOs – are "fiefdoms", centres of power jealously guarded by their principals. This needs to change; it needs to be displaced by something more communicative, based on shared values, shared information and a shared sense of mission.

Bringing about changes in governance structures requires cooperation at all levels, in what the UNDP Seoul Office describes as "triangular knowledge-exchange" between national authorities in the high-income countries, the developing world, and the private, non-state actors whose

integration into the global effort towards the SDGs is pivotal. The principle of “no-one left behind” applies to sections of society, but it also applies to all national and sub-national jurisdictions, no matter what their human, natural and physical resources may be. This global effort to break down barriers in to pass information is “desiloisation” on a global scale.

It may be the only chance we have to have a realistic shot at meeting the SDGs by 2030.

Chapter 5. Changing Values, Preferences and Behaviours[5]

A major and inevitable aspect of the reasoning behind the SDGs is that implementing them will require an end to "business as usual" as a concept. The understanding that the planet will not be able to survive traditional, non-sustainable forms and models of economic and social development necessarily means that the search for a new way of doing business is on. The inevitable conclusion is that there will have to be a new model or models; that means there will need to be a mixture of change and transformation in which there will be a realignment of advantages and disadvantages within, across and between societies and political groupings, be they international organisations, regions, countries, sub-national units or within the nature and structure of non-state actors. The precise mix of change, as opposed to transformation, will depend upon the issues being dealt with, the levers being used and the criticality of the problem.

There is a difference between the concept of change and that of transformation. Change can occur over a medium to long period, guided by the acceptance by those affected of its implications. It, therefore, can occur in all cultures and societies, easily absorbed by democratic and less-democratic political organisations. Change is generally considered to be of relatively small scale and its impact is mostly incremental, causing little disruption and affecting people's behaviours on some level but not imposing some unpopular and, therefore, often unworkable change in their attitudes.

Transformation, in the context of the SDGs especially, has to be without delay and produce a completely new paradigm, often in several groups in society simultaneously with large-scale impact felt throughout the entire structure and structures concerned by it. Rather than being conservative of existing culture and practice, transformation is of necessity disruptive because it is intended to bring about something entirely new in the way things are done, the way they are achieved and the way that outcomes and benefits are distributed. It, therefore, attacks existing values at some level and not just current behaviours. Transformation does not just introduce new ways of doing things; it discounts and discards the old ways. For these reasons, transformation is much harder to achieve than change, especially in democratic societies where public or pressure-group resistance can imperil its introduction.

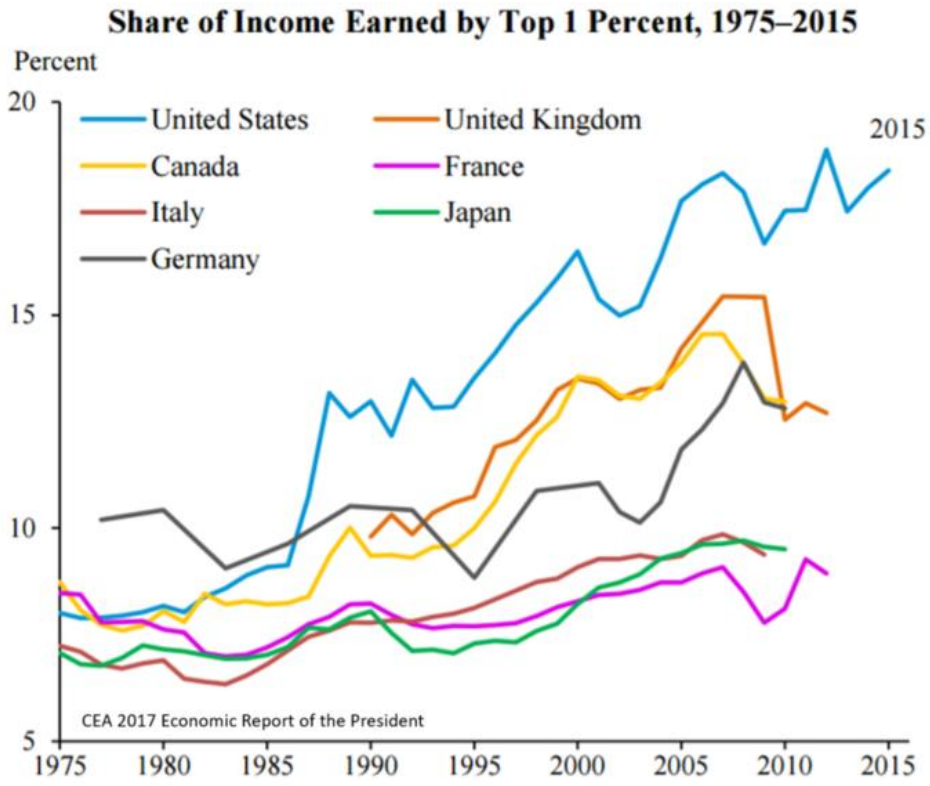
A particular manifestation of this resistance to transformation or, rather, the difficulty of bringing it about is the need under the SDGs for transformation to reduce inequality. This, of course,

[5] This Chapter is based on a major presentation by Ms. Sara Castro de Hallgren (UN DESA), with contributions from Mr. Dhruba Purkayastha (CPI, India), Ms. Tandin Wangmo (Government of Bhutan) and Dr. Eskandar Omidinia (Government of Iran) at the 2019 SDTF.

is the specific topic of SDG 10, but it is also threaded through all of the other SDGs. In a finite world, ending poverty (SDG 1) can only be achieved by reducing some of the imbalances in wealth by taking from the rich in some way to redistribute wealth to the poor. The same logic applies to access to food and nourishment (SDG 2), which implies also reducing privileges in access, to SDG 5 on Gender Equality, to SDG 8 (Decent Work and Economic Growth) and SDG 12 that aims to promote Responsible Consumption and Production. To a greater or lesser extent, the same principle applies to all the other SDGs: in the process of implementation, there will be winners and losers, and those who stand to lose are the ones who currently hold the most power.

Transformation to reduce or eliminate inequality has rarely, if ever, been without pain. Historically, such real or attempted transformations have included revolution, war, civil disobedience, mass mobilisation with its inevitable reaction and other disruptions to society before a re-equilibrium has been attained. This was the philosophy behind Malthus's conception of the reduction of society through hunger and the exhaustion of agriculture to supply enough nourishment to maintain peace; it is the same idea behind Garrett Hardin's "Tragedy of the Commons" that suggests that individual or groups of individuals act against the common good by pursuing their own self-interest and depleting a common good at the expense of everyone else. In the case of the SDGs, it is clear that the common good is the planet itself and the ecosystems it supports, but the "risk" to the privileges of some groups of the populace – until now maintained intact – will endanger the common good by defending their advantages, despite the obvious terminal cost.

Figure 5.1 Share of Income Earned by Top 1 Percent, 1975-2015



Source: World Wealth and Income Database.

While it is very difficult within a given society to find levers to drive transformation, it is even more problematic on a global scale. In the figure, above, it is easier to produce transformation in the "southwest corner", before severe divergences occur, but the problem is magnified by the time it reaches the "northeast" corner, where inequality has reached extreme levels. Then only solution at these higher levels has to include better and more efficient means of communication and knowledge transfer to identify levers that are going to be effective at the higher levels.

Turning to the SDGs, the level of difficulty associated by transformation is also associated with the same complexity of winners and losers, with the fewer "losers" associated with SDG 3 (Good Health and Well-being) and Quality Education (SDG 4). In fact, improvements in these two fields not only implies greater equality for the direct beneficiaries, but advantages for the economy, as a whole, because of the effect on skill levels and productivity. These benefits can be translated into a common good that will also be unevenly distributed in terms of income distribution and wealth accumulation because the wealthy own and draw a disproportionate amount of advantage from them. This can be seen historically when the wealthy actually supported universal education and improved health care because of the resulting improvement in productivity and, as a consequence, profitability. The state also gained from the transformation for many of the same reasons; it made sense to have educated and healthy civil servants to handle the day-to-day activities of the state at all levels and o deliver the services from which most people benefitted and that had been demanded by rich and poor. Altruism may have had its role to play, but it was not the major one: rational approaches to economic necessity were what enabled these transformations.

However, in other aspects covered by individual SDGs, the picture is somewhat different, and resistance is more palpable. The vast majority of SDG targets are unlikely or very unlikely to be met by the due date of 2030 (see Figure, below). Closer inspection shows that these are the ones that either require the most sacrifice on the part of the wealthy or from which they appear to have the least to gain. Most importantly, those with the least likelihood of success are those that have the most impact on the ecology of the planet and its environment, as well as items that seem to be "unnecessary", such as ending income inequality and reducing greenhouse gases (GHGs), which poses a direct cost on current industrial practices and, thus, on profit levels in the short term.

Figure 5.2 Projected Distance From Reaching Selected Targets (at Current Trends)

GOAL	WITHIN 5%	5–10%	>10%	NEGATIVE LONG-TERM TREND
Goal 1		1.1. Eradicating extreme poverty	1.3. Social protection for all	
Goal 2		2.1. Ending hunger (undernourishment)	2.2. Ending malnutrition (stunting) 2.5. Maintaining genetic diversity 2.a. Investment in agriculture*	2.2. Ending malnutrition (overweight)
Goal 3	3.2. Under-5 mortality 3.2. Neonatal mortality		3.1. Maternal mortality 3.4. Premature deaths from non-communicable diseases	
Goal 4	4.1 Enrolment in primary education	4.6 Literacy among youth and adults	4.2. Early childhood development 4.1 Enrolment in secondary education 4.3 Enrolment in tertiary education	
Goal 5			5.5. Women political participation	
Goal 6		6.2. Access to safe sanitation (open defecation practices)	6.1. Access to safely managed drinking water 6.2. Access to safely managed sanitation services	
Goal 7		7.1. Access to electricity	7.2. Share of renewable energy* 7.3. Energy intensity	
Goal 8			8.7. Use of child labour	
Goal 9		9.5. Enhancing scientific research (R&D expenditure)	9.5. Enhancing scientific research (number of researchers)	
Goal 10			10.c. Remittance costs	Inequality in income*
Goal 11			11.1. Urban population living in slums*	
Goal 12				12.2. Absolute material footprint, and DMC*
Goal 13				Global GHG emissions relative to Paris targets*
Goal 14				14.1. Continued deterioration of coastal waters* 14.4. Overfishing*
Goal 15				15.5. Biodiversity loss* 15.7. Wildlife poaching and trafficking*
Goal 16			16.9 Universal birth registration **	

Source: Global Sustainable Development Report 2019, https://unosd.un.org/sites/unosd.un.org/files/unosd_2019_sdtf_publication.pdf

In the Figure, above, taken from the Global Sustainable Development Report (GSDR), the standard listing of the SDGs numerically has been reversed to show (the "mirroring" is intentional) that the argument concerning the "southwest" corner, as opposed to the "northeast" corner still applies. The SDGs are traditionally listed numerically in order of "social", to "economic" to "environmental". When the figure is upended, the most incremental changes appear at bottom left, whereas the SDGs that require most radical transformations are located at the top right, in line with

the positional level of difficulty of implementation already described. This characterisation suggests an alignment with species of governance that progress from the "democratic", located in the southeast to the authoritarian in the northwest. There is, however, a link that could make all the difference in democratic societies and that is social pressure from mass movements based on an understanding within a society, or at least part of it, that transformation, however painful, has to take place for the good of all. One such movement is the climate-change mobilisation brought about by young people in the "democratic" countries that has also reached into international organisations and those societies that could be thought of as less open.

Moving from the "southwest" corner to the "northeast" in terms of the measures needed to implement the SDGs will require what could be called "meta-levers", forces so strong that they can effect deep transformational change without causing societal turbulence and too much pain. One such lever is one that threads its way all through the discussion about implementing the 2030 Agenda, and that is good quality governance based on good leadership. It will be impossible to reach the SDGs without strong leadership based upon the principles of scientific credibility and informed representation. A style of "leadership" that relies on responding to demands, rather than formulating them will be doomed to fail in the course to the SDGs.

The concept of leadership has different ramifications, according to where and when it is understood. In post-colonial societies it can have many forms, and that is important for identifying a strategy for implementing the SDGs. In some post-colonial societies in Africa, for example, the "rulers" are not, necessarily, the "leaders", who may take their status from traditional modes of governance that predate colonial occupation. This does not mean that they are "better" but that their influence is very important, in spite of what the "official" governing structures may say. The importance of leadership or, rather, the quality of leadership depends also on the mindset of the individuals forming the society, on their education and on their personal experience, position in society and their receptiveness to change. In essence, it may be necessary to effect the first round of change in the people, themselves.

To understand what is happening in the larger society and in the outside world, people need to be educated and need to be able to understand the concept of change and transformation in order to embrace or, at least, to accept it without creating the stresses in society that constitute the "pain" that accompanies transformation. The people, upon whom all transformation ultimately rests, have to understand why it is necessary and what the intended outcome is expected to be. Once that point has been understood and, hopefully, reached, a second facilitator is the involvement of the people in policy making and decisions based on changes in policy directed towards transformative change. The principle of inclusiveness is key to winning popular acceptance for change and transformation. This involvement of the people is also crucial to avoid as much of the pain associated with transformation as possible.

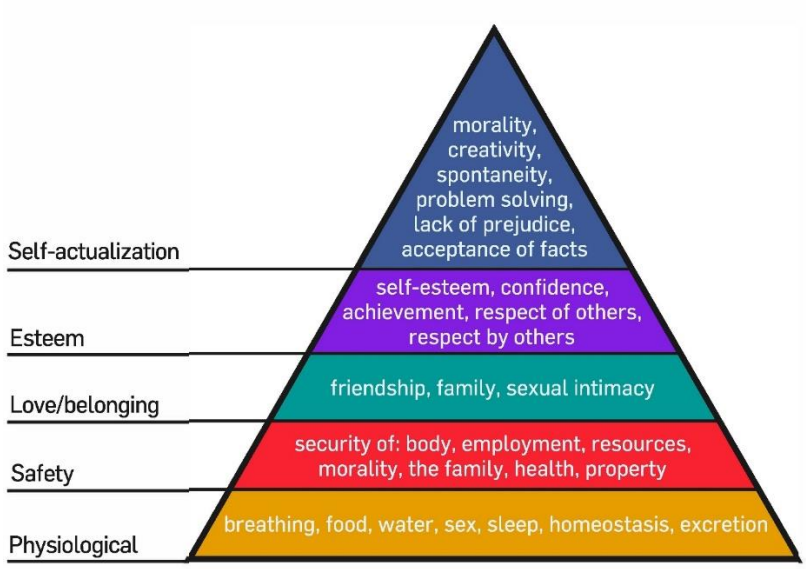
None of this is possible without the trust of the people in those who govern them, whether they be traditional leaders or elected officials in a democracy or post-colonial society. That trust can only come from good governance and probity in political affairs. In too many societies, probity is in small supply and confidence in their leaders is lacking in the populace. This trust is not a luxury, but a necessity if conflict and pain is to be avoided or minimised. Too often, authorities appear to be saying to their populations, "Do what I say, not what I do.", but people are not dupes and will

react negatively to such attitudes towards them. Unfortunately, such attitudes are all-too-often responsible for governance failures and the widespread deterioration in popular trust in what has been identified as the "governing class."

In order to maintain the trust and confidence of the people, policies need to have positive outcomes right from the start. This is extremely hard to do, especially when the objective is one of the SDGs that are supposed to bring about lasting, fundamental change and transformation over a longer term. "Ten years", for some people is a long time; farmers, for example, often live from year-to-year, so they need to see some benefits from transformations almost immediately to get behind them. Hence, policies for change and transformation need to build in short-term impacts to maintain popular support. Moreover, the beneficiaries need to understand the achievements when the advantages are not immediately obvious, such as when farmers are encouraged to plant a new drought-resistant crop that only shows a profit after it has been marketed perhaps weeks or months after the harvest, while the previous, heavily irrigated crop produced immediate returns in terms of food supplies or cash.

This becomes a "First-world" problem when it comes to changing consumers' attitudes and behaviours that are unsustainable. According to the "hierarchy of needs" pyramid stylised by Abraham Maslow in the 1940s, individuals – and this could be extended to societies – first have to satisfy their basic physiological needs: air, food, water, shelter, sex, sleep, and so on. These basic requirements do not leave much room for caprice or choice; they have to be satisfied for the individual or the society to survive, not to make life worth living but to make life possible at all. At the next level, there is recognition that the acquired requisites of survival need to be protected and so some sacrifice of personal independence has to be sacrificed to a common body in order to obtain the security of the individual, her means of sustenance, physical possessions and overall moral and physical well-being. From there, bonds of family and other interpersonal relations and mutual support systems come into play and by this stage the individual or the society is reasonably comfortable and moves into the phase of esteem and psychosocial satisfaction. The final part of the pyramid is achieved when the individual or the society has satisfied all the other needs and can develop other, non-survival skills such as creativity and high moral standards that replace the basic requirements for human existence.

Figure 5.3 The Hierarchy of Needs



Source: https://commons.wikimedia.org/wiki/File:Maslow%27s_Hierarchy_of_Needs.png

Within this schema, needs can be identified but alongside the needs are wants, which are much harder to clarify and much more difficult to control. At each stage of the pyramid, needs give way to wants and these desires are what, in the most highly industrialised, high-income countries, drive consumption patterns that will have to change if a return to sustainability under SDG 12 (Ensure Sustainable Consumption and Production). It seems that progress up the pyramid of hierarchical needs produces desires that were already "luxuries" in the previous stage. Hence, the more an economy develops, the more its populace will seek to satisfy the higher-echelon's needs until they become symbolic of an individual's self-esteem; consumption becomes a measure of status and success. This process has now, in some advanced countries reached a point of cusp, where conspicuous and careless consumption competes with social responsibility in the political and social marketplace.

The dilemma comes from the fact that consumption is one of the engines of growth and all societies seek growth in order to develop socially and economically. Moreover, consumption is an integral factor in measuring GDP, which is, in itself, used by governments and economists as a barometer of economic success and progress. Some countries such as the Philippines, El Salvador or the United States have 50% or more of their GDP based on consumption. The trick is, how to ensure that consumption is sustainable, while it continues to create jobs, drive imports and exports and stimulate trade and economic activity within societies. However, the concept of sustainable consumption as being able to provide the same economic driving force as "traditional" consumption has been difficult to sell, since some countries interpret it as a threat to their economic development.

The "luxury" of choice is a lifestyle phenomenon that arrives in the later stages of development, very far from the base of Maslow's hierarchy of needs, where the choice is between livelihoods and death. Consumption drives choice, choice drives consumption and, while the

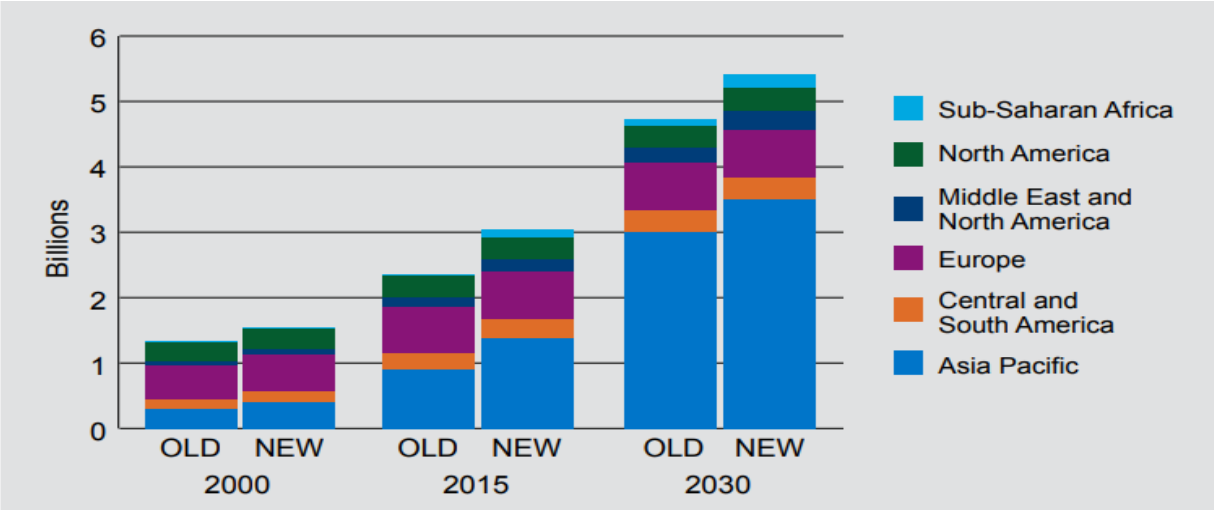
strongest influencing factor may be price, prestige and self-esteem also matter; in some industries – textiles, for instance – they matter very much. Unfortunately, sustainable consumption may appear attractive because of the statement it makes about the consumer, but the price differential may be so great that it drives the mass market away from sustainability. Sustainable goods are often part of an identifiable supply chain that includes national and/or international certification schemes that guarantee the nature of the product to the consumer. These schemes have a cost and that cost is factored into the final price, reducing the competitiveness of the product. There is, therefore, a price *disincentive* to sustainable consumption behaviour.

The supply chain and the chain of production are key to making consumption sustainable. The traditional conception of the production cycle is, confusingly, linear: a product is conceived, the component parts are manufactured with inputs from any number of sources, some of which are sustainable (bamboo, for example) and many of which are not. The product is then assembled using labour or technology – which is, itself, drawing on inputs with the same potential profile – or both, usually, both. It is then taken to market, which may involve physical transport or not, it is marketed and then consumed. Finally, the product ends up as waste. That is where the linear story ends; only, it doesn't.

During the life of a product – its use – it may be consuming water, energy, chemicals or other inputs that are also potentially hazardous or, at a minimum, drawn from unsustainable sources. These represent a sustainability cost to the product. A clear example is a motor vehicle that has been manufactured using a wide variety of inputs, many of which are inherently unsustainable such as steel, plastics, synthetics, and so on. During its life, the vehicle consumes petrochemicals in the form of fuel, lubricants and even cleaning materials, including water. Each of these products end up as some form of waste. In the case of the vehicle, itself, unless it is taken to a recycling plant to be disposed of, much of what had constituted it from the beginning of the cycle will return in one way or another to the environment where it will contribute to pollution and non-biodegradable waste. Hence, the "damage" caused by that particular item will continue long after its official "life" is over.

There is an alternative to the linear conception of the product cycle. A circular mode of production assumes that there is knowledge of the origin of components at each stage of the process so that, when they have been used they can be recycled, which means that only components that *can* be recycled are used. During the period of operation, fuels and other inputs are sourced from known origins and a recyclable as possible. Taking the case of the automobile, the metal components could all be made from recycled metals or replaced by organic, sustainable materials, where plastics had previously been used, and so on. As for fuel and lubricants, these can also come from non-carbon, sustainable sources: energy from renewables for electric engines and organic lubricants employed to replace those originating in the petrochemicals industry. At the end of its life, such a vehicle would be completely recyclable, and the purchaser would have known that from before the moment of purchase, which would have been a significant incentive to acquire it. It would be very easy for the consumer to see what is sustainable and what is not, as well as the final impact on the environment. The key interface is that between the retailer and the customer – between supply and demand – but not just between the final purchaser, all the way up the chain of production.

Figure 5.4 The size of the global middle class, 2000, 2015, and 2030 (billion people)



Source: Brookings, The Unprecedented Expansion of the Middle Class, 2017 update, https://www.brookings.edu/wp-content/uploads/2017/02/global_20170228_global-middle-class.pdf

For the circular mode of production to be successful in defending sustainable development, both sides of the deal need to be educated and committed to sustainability; they need to see the value of sustainable production to the environment, to society and, ultimately, to themselves. Consumers, especially in the growing global middle class, are crucial to advancing this agenda, for they are the ones who typically demand sustainable products when they can both see the value in them and when they can afford them. People living from day-to-day rarely have enough time or information to differentiate between a sustainably produced good and an unsustainably produced one; they seem identical. However, with progress towards the middle class, education and overall awareness improve and should lead to more aware consumption. The global middle class is increasing in size very rapidly in some parts of the world, especially in Asia, where in absolute terms, by 2030 it will be three times greater than it was in Europe in 2000.

All these new consumers will assume that they will have access to the same standard of living and goods that their European and North American elders have been enjoying for decades. Reducing poverty to zero (SDG 1) will have a commensurate effect on higher-income sectors of communities, contributing to the growth of the middle class and this, in part, explains the large increase in its numbers. The problem for policy makers is how to satisfy the consumption demands of the new middle class sustainably. An illustration of this challenge has already been experienced in China, where the newly comfortably off sought to acquire motor vehicles and did so, in their millions. Where once streets were full of pedestrians and bicycles, they became clogged with individual vehicles. It would be Utopian to imagine that any government would ensure its vast unpopularity by refusing to allow individuals to enjoy the fruits of their labours, even when such fruits may be poisoned in the long term.

In the end, the solution comes back to reformed or adapted institutions and methods of governance. The problem of how to persuade the farmer to plant a more sustainable crop and that of how to persuade a consumer (including manufacturers and retailers) to exercise a preference for a sustainable product end up being the same. In the absence of an intrusive and autocratic state

– which would be, in any case, unsustainable and unlikely to be "progressive" in terms of the environment – the answer is the same: education and knowledge sharing to enlighten people about the issues surrounding sustainability on every level. Behaviours have to change.

That, however, is not enough. Multiple studies and bodies of research have sought to explain and understand why consumers, faced with a choice, do not make the "right" one. Behavioural economics is striving to answer this question, but the solution is elusive. Even the 2019 Nobel-prize winners Abhijit Banerjee, Esther Duflo and Michael Kremer were unable to discover a cogent answer, except to conclude that there is simply not enough knowledge about why people make choices in the marketplace. What is clear is that, even at the more impoverished levels of society, choice is not based on price, alone, and other factors, such as taste in food or utility in goods play major roles. This is something about which more knowledge is clearly needed so that policy makers can introduce the right incentives into the marketplace and influence people to make the best decisions for sustainable development.

This applies not only on the personal and national scale, but is also true internationally. When countries decide on specific policies that impact on sustainability – when they decide to build a new coal-fired power station, for example – it is important to know why such a clearly "unsustainable" decision was taken when the costs are clearly obvious in terms of damage to an already suffering environment. Only part of the answer comes from ignorance of the effects of a given decision. As with the Chinese motor cars, governments need to deal with trade-offs that are politically very difficult. If people demand – and need – access to electricity, a cash-strapped or politically vulnerable government may well opt for short-term political gain over long-term sustainability, especially when the cost will be borne by future generations when the current authorities have become merely a memory.

Successful models of governance that have assumed the challenge of sustainable development do, however, exist, although, to be fair, they seem to work best when applied in small countries. Costa Rica, for example, has embarked on a very ambitious zero-carbon development track and has already achieved virtually complete electricity generation from renewable sources. Even there, however, the reality is that for other energy uses, the country is still reliant on imports of fossil fuels that are not only harmful for the environment but are also very expensive for this small country. When development, as in the Costa Rica or in almost any other small developing country, depends upon creating employment, building services and promoting manufacturing, energy supplies are crucial and, as in the cases where poor people cannot pick and choose their type of necessities based on some remote concept of sustainability, they have to be obtained where they can be found. The economy, the society and the people cannot simply be asked to wait for a "greener" future, especially when they are able to see other countries improving prosperity without the "constraints" of sustainability.

What may be needed is a change in mindset and a reform of the way of thinking about what constitutes "successful" development. Economic progress is traditionally measured in terms of GDP, which has implications for the way in which governments manage the economy and includes using consumption as a constituent of GDP. High levels of consumption contribute to GDP growth and that contributes to the impression that an economy is developing. In recent times, however, organisations such as the OECD and the World Bank have begun to acknowledge the shortcomings

of the GDP as a measure of progress or, at least, not *the* measure of progress. Other indices have been and are being developed to measure satisfaction or well-being among a population and these, as much as GDP, seem to influence how people see the success or failure of their leaders. The framework for the measurement of sustainable development, developed by the United Nations Economic Commission for Europe, Eurostat and the OECD, in 2013 before the SDGs were even formalised, specifically sets out to measure well-being using a wide array of indicators that have since been integrated into the OECD's own Index of Well Being, synthesised into nine indicators.

On a more "human" level, Bhutan has gone further, abandoning GDP as a measure of progress and instituting a "Gross National Happiness" standard, which meshes well with the SDGs since it aims to enhance the well-being and happiness of the people. The GNH is unique but it is based on the cultural, emotional and psychological dimensions of society, all of which are intimate elements of the SDGs, as well as of Maslow's hierarchy of needs, in that they are essential to understand the human condition. By establishing the GNH, Bhutan's authorities signalled to the population that the objective of the progress they were offering was an improvement in their lives to achieve the objective of human happiness. The idea that happiness could replace prosperity is fairly new and may be impenetrable to some societies, but it seems to work in Bhutan. If a people can be convinced that their government is working towards their happiness, then perhaps trust in government – which includes trusting the authorities when certain forms of unsustainable activities that improve lives in the short term need to be abandoned for long-term benefit – can permit some of the hard choices that may need to be made for development to be truly sustainable.

This is the context in which Bhutan has meshed the SDGs and the GNH; There is a parliamentary SDG committee and the GNH commission acts as a high-level committee on the SDGs. A national SDG task force has been constituted alongside a similar body to prepare the voluntary national review for the UN's High-level Political Forum. Apart from these governmental institutions, the country has instituted a nation-wide campaign to teach the implications of the SDGs and the GNH together, urging practical, grass-roots initiatives to produce sustainable results, including incomes through small-scale initiatives, while promoting environmentally sensitive education. The national plan is to develop as many sustainable economic initiatives as possible and to support local initiatives that correspond to the SDGs and the GNH. To measure the results, a number of indicators have been developed that can apply equally to the SDGs and the GNH. By borrowing the SDG targets and adapting them to local objectives, the outcomes of the GNH can be measured continuously allowing the trajectory to be adjusted if necessary.

Though Bhutan is a small country and its context is rather individual, some similar efforts are being undertaken in Iran, where education or the SDGs is given a very high priority in centres of learning. Again, the emphasis is not so much on economic advancement but on enhanced well-being for the population. In the formal educational system, environmental education is based on the belief that early life experiences drive future attitudes and that it is in the early years of a person's life that social and cultural barriers can be lowered to produce adults that are more aware of the effect of their lifestyles on the environment. The message is that well-being can be improved by caring for the environment, in spite of possible short-term costs.

Starting from the seemingly impossible task of producing sufficient transformation beyond mere change to reach the SDGs, it emerges that the task is not impossible at all, just difficult. Policy

makers who are committed to implementing policies – and the transformations that must accompany them – do have the means at their disposal to gain acceptance of those policies by the population, but they have to be prepared to grasp them.

In some circumstances, this may imply changing the mindsets of the policy makers, themselves, encouraging them to divorce the old ways of measuring development and to espouse a new way of seeing. In other circumstances, it is the mindsets of the population or of sectors of the population that need to be adjusted to embrace transition. By using the experiences of societies and countries with perhaps very different backgrounds and bases, it may be possible to re-invent modes of governance that support sustainable development and accelerate progress towards the SDGs.

Chapter 6. Building Coalitions for Transformative Change[6]

The Preamble to the United Nations 2030 Agenda for Sustainable Development that launched the 17 Sustainable Development Goals (SDGs) states, "This Agenda is a plan of action for people, planet and prosperity. It also seeks to strengthen universal peace in larger freedom. We recognise that eradicating poverty in all its forms and dimensions, including extreme poverty, is the greatest global challenge and an indispensable requirement for sustainable development. All countries and all stakeholders, acting in collaborative partnership, will implement this plan. We are resolved to free the human race from the tyranny of poverty and want and to heal and secure our planet. We are determined to take the bold and transformative steps which are urgently needed to shift the world onto a sustainable and resilient path. As we embark on this collective journey, we pledge that no one will be left behind." The mention of a "collaborative partnership" is recognition that no single body – not even the UN – can achieve this transformation alone. Right from the beginning it was recognised that the SDGs could only be reached by coalitions.

Many things and associations can qualify for coalitions; everything from a system of military alliances to wage war to a charity drive can be a "coalition". The objective is to find which kinds of coalitions are best to support the drive towards the SDGs.

SDG 17, reflecting the Preamble, specifically cites "Partnerships for the Goals" as one of the objectives to be used as a tool for achieving the other 16. Indeed, partnerships are indispensable to reaching the SDGs by 2030, which is a very tight deadline. Success will demand collaborative action from all the sectors that play a role in development, including the public and private, academic and NGO, and other non-state sectors in an interdisciplinary effort to drive the agenda forwards. This cooperation will inevitably identify synergies that will lead to effective networks and partnerships to define pathways to the SDGs and optimising collaborative effort.

Networks constitute an essential tool for the successful implementation of the SDGs because of the scale of the ambition, mentioned above, but also because of the intrinsic links between the goals themselves. This complexity means that no single actor, corporation or institution will have all the expertise and experience required to meet the challenge presented by the 2030 Agenda. Hence, networks provide obvious advantages over other systems of collaboration. They offer:

- Access to a rapid and efficient exchange of information;
- Bringing together stakeholders and actors with varied perspectives, expertise and knowledge;

[6] This Chapter is based on a major presentation by Ms. Lauren M. Barredo (SDSN), with comments from Mr. Benjamin Jouannes (GSEF), Mr. Kalamoungkhoune Souvanouvong (Government of the Lao PDR) and Dr. Astra Bonini (UN DESA) at the 2019 SDTF.

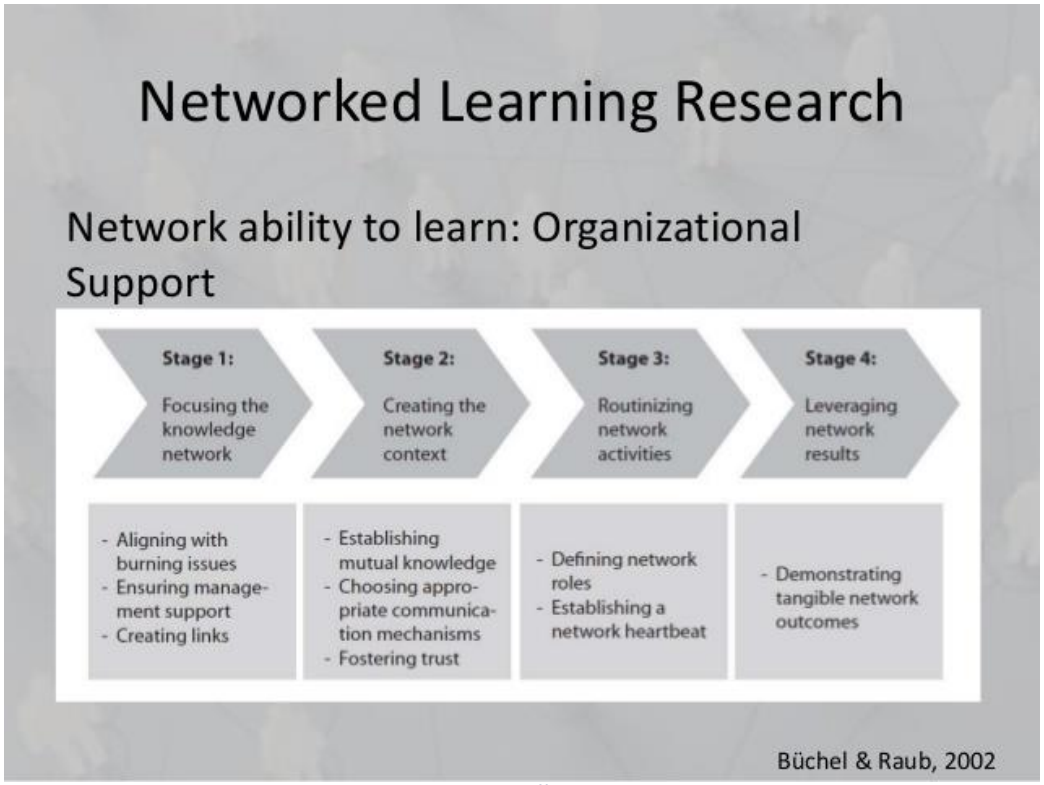
- Coordination of actions and reduction of redundant efforts, while identifying trade-offs and reinforcements; and
- Flexibility, which contributes to adaptability in the face of changing circumstances.

Within a network, actors with a common objective come together to leverage each other's strengths for a common goal and, therefore, expect an outcome of benefit to themselves as well as shared benefits. In theory, anyone and everyone who shares the common objective can become a member of a network and there is no limit to the number of members. On the contrary, the more members a network contains, the more knowledge is shared and the greater the knowledge bank thus created. Members of a network will typically need to recognise their commonality, so as to ensure that it is the common goal that motivates members and gives them value to the other members. Hence, the most efficient networks will the those that have very clear objectives but also have clear entry and exit strategies for members whose contributions can easily be identified as having value.

Networks can have members with similar backgrounds and skills – as in, for example, a professional association – but not necessarily. It might make more sense for there to be a mix of skills and experiences that are complementary and provide a whole that is greater than the sum of the individuals. The UN Global Compact is an example of a large network whose members' only similarity overall is that they are all from the private sector. The Compact contains firms from every sector, from all countries and from every size of enterprise.

Efficient networks liberate energy by eliminating expertise overlaps and redundant or irrelevant information inputs. Members of a network do not have to learn the skills and knowledge of their partners because the partners can bring these elements to the table, having filtered out unnecessary "noise" and identifying value. It is thus important, not only to establish networks, but to ensure that they are efficient; the contrary case only leads to inefficiency and confusion, which defeats their purpose, as health care workers in a Bolivian case discovered to their distress and peril when the element of coordination was missed out of their networking organisation.

Figure 6.1 Networked Learning Research



Source: Building Knowledge-creating Value Networks. Bettina Büchel and Steffen Raub. European Management Journal, 2002, vol. 20, issue 6

The other advantage of networks is their flexibility in the face of changing circumstances. The varied membership and extended expertise available to networks means that they can change according to the circumstances. In the case of the SDGs, this means that, as the progress towards them advances, new challenges will be faced that may not have been foreseen in advance or that were predicted but require a new set of approaches to confront them. It is precisely because of some of these changes – climate change, natural disaster, civil unrest, redistribution of wealth or power – that the SDGs were found to be necessary in the first place, so a collaborative structure that can be resilient in the face of shocks is needed. However, networks differ in scope and nature; some are successful, while others peter out. There seem to be three requirements for successful networks, according to Barredo, Cortés-Puch and Maddox[7]:

- Trust between actors/members;
- Effective engagement of all stakeholders and prevention of free riders; and
- Clear and equitable added value for all members.

There is a direct and positive relationship between the strength of a partnership and the extent of trust between the partners. Trust, as in all relationships, is built up over time through repeated interaction that either produces positive results or fails to do so between partners. Where the outcome is positive, the bonds between members become stronger and joint action may

[7] Barredo, L., M. Cortés-Puch and Cheyenne Maddox (2019), "Sustainable Development Goals and Networks as a Collaboration Model", in Leal Filho (Ed) *Encyclopedia of Sustainability in Higher Education*, Springer Nature, Basel.

become bolder. In the context of the SDGs, networks of necessity are being formed by groups that may have historically been hostile to each other or perceived as rivals. An example is the relationship between government and the social partners in the form of non-governmental organisations and private sector associations. Networks involving these members may, thus, start out from positions of hostility that will have to be overcome if the network is to function at all, never mind effectively in favour of the drive towards the SDGs. The stakes are high and getting higher, so compromises will have to be made. As time goes on and progress towards the SDGs is made in an atmosphere of ever-increasing urgency and awareness of the challenges of sustainability, it is likely that trust will be established because the alternative would be too costly for all stakeholders involved.

Achieving the SDGs will require more than simply passive or transactional engagement by stakeholders and the members of networks; it will depend on transformational engagement that produces collective action in which all participants feel they that they are all leading the network. This kind of engagement may be difficult, but it is not impossible, especially in an era of crisis where there is substantial motivation to hold the network together and make it effective. If trust has been established, the effort is, obviously, easier but it will still be predicated on the continued commitment and motivation of all the partners, which, itself, is dependent on their being able to identify the positive outcomes to which they are contributing and in which they will share. At the same time, membership in and commitment to, in terms of time and knowledge sharing, a network presupposes that those who are not members do not stand to gain from the outcomes produced by the network or, at least, not to the same extent. This may be a problem when the network is specifically working towards the common good, the truly global commons. How to overcome this difficulty remains to be seen.

The obtention by a network's members of clear and equitable added value is, of course, related to the incentive of transformational engagement. However, the additional element is the notion of "equitable", which implies the sharing of risks and rewards. These need not be "equal", meaning none receives more benefits than another, but they do need to be "equitable", in the sense that each member takes away from the network value equal at least to what she or he has contributed. This requires clarity of commitment and frank communication between members. It is clear that all members of a network are not equally able to contribute their time and resources to the common effort and this should be made clear from the start and as the network progresses and evolves. This is very important when dealing with networks supporting progress towards the SDGs. Distortion of contributions to and entitlements from a network erodes confidence in it and leads to a decline in engagement by partners and a drop of efficiency that decreases the contribution the network can make to the common problem, in this case, the SDGs.

There are a number of networks in the sustainable development sphere that demonstrate their potential to contribute to the resolution of a shared challenge or set of challenges. In academia, the Sustainable Development Solutions Network (SDSN, www.unsdsn.org) and Future Earth represent efforts mostly, but not exclusively, by the scientific community to come together and combine knowledge that can be used to face the challenges of SDG implementation.

SDSN is godfathered by the United Nations Secretary-General and includes over 800 institutions ranging from universities and research bodies to non-profit organisations and other

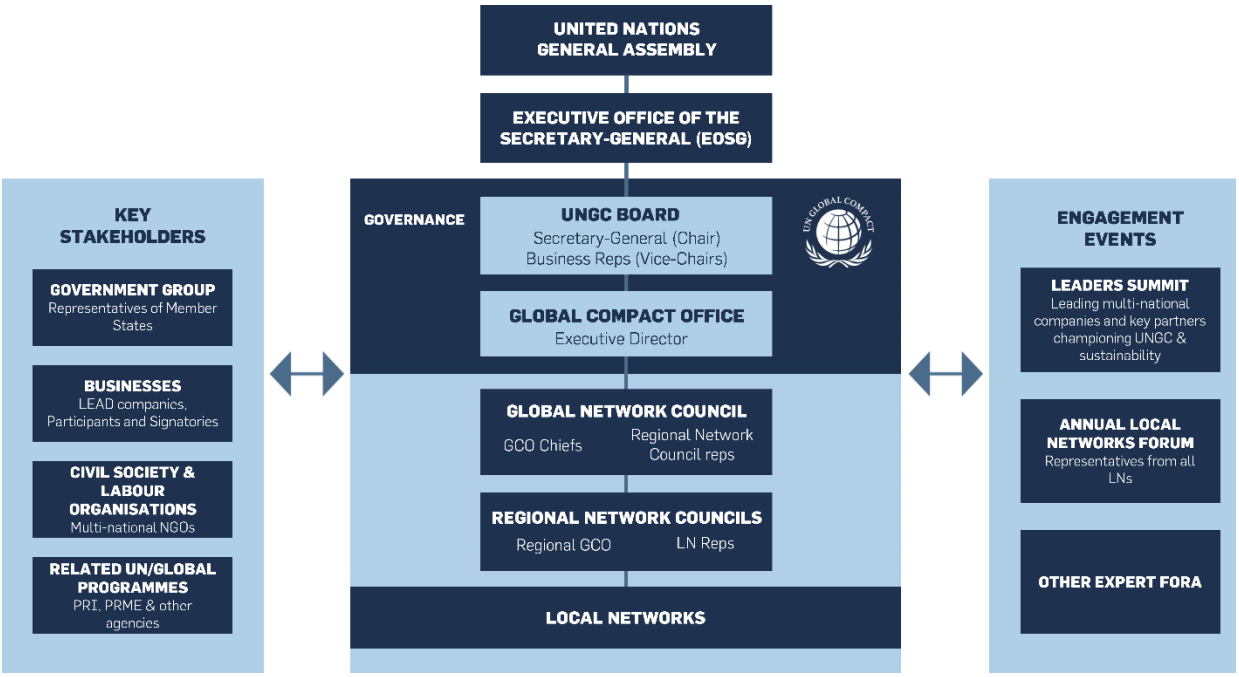
civil society groups. The reach of SDSN is very wide, with 25 national partner networks (Afghanistan, Belgium, Bolivia, Brazil, Canada, China (hub), France, Germany, Greece, Hong Kong SAR, Indonesia, Italy, Japan, Kenya, Malaysia, Mexico, Nigeria, Philippines, Republic of Korea, Russia, Spain, Switzerland, Thailand, Turkey and the United States) and 11 regional network partners (Amazon, Andes, Australia, New Zealand and Pacific, Black Sea, Caribbean, Great Lakes, Mediterranean, Northern Europe, Sahel, Southeast Asia and South Asia). Several new member networks are waiting in the wings. SDSN provides a resource-sharing space to its member institutions and, in the other direction, provides members with a repository for their own research and results on sustainable development issues. The SDSN's SDG Index and Dashboards Report (https://www.sdgindex.org) applies academic approaches to data from government and international agencies to produce easily accessible information for policy makers and civil society organisations so that they can adapt their own approaches and actions appropriately. Hence, the Network provides a service not only for its academic members but for all actors involved in seeking sustainability.

Future Earth (https://futureearth.org) describes itself as a "… global network of scientists, researchers and innovators collaborating for a more sustainable planet." It is organised into 5 "Global Hubs" (Canada, France, Japan, Sweden and United States), as well as 5 "Regional Centers" (Asia and MENA) and "Regional Offices" (North Africa, South Africa and South Asia), and 18 "National and Local Organizations" (Australia, China, Finland, France, Germany, India, Ireland, Japan, Mongolia, Philippines Republic of Korea, Romania, Russia, Spain, Sweden, Switzerland, Chinese Taipei, and the United Kingdom). While, as in the SDSN, regional and national networks can join Future Earth, individual membership by researchers is also available and the organisation operates a flexible model on the basis of a very wide range and diversity of expertise and skills among its academic membership. Future Earth reflects its origins in bringing together a number of Global Research Projects relating to sustainability science, of which there have been 20, 18 of which are still in operation. The organisation's focus is unashamedly science-based, and its main focus is on enriching innovative research for its body of academia by expanding members' access to knowledge and data and by sharing new ideas for consultation and discussion.

The SDGs demand integrated involvement from the private sector that goes beyond the traditional roles of providing employment, innovation, finance through taxes and subsidies, and income enhancement. Private enterprises are called upon under the 2030 Agenda to look beyond their immediate commercial objectives and over the horizon of future growth and existence. The planet is in peril and so are all those who live upon it and draw resources from it, including private enterprise and business communities. Networks can help private-sector corporations and businesses cope with these new demands from the international community and potentially turn them into opportunities.

One of these networks, mentioned above, is the United Nations Global Compact (www.unglobalcompact.org), which unites companies and other stakeholders in building a sustainable world economy. There is no requirement that a firm be a member of any other network, merely that they should be committed to sustainability and that they should continue to contribute to the network and allow their information and experience to be shared with other members of the Compact.

Figure 6.2 Governance Structure UN Global Compact



Source: www.unglobalcompact.org

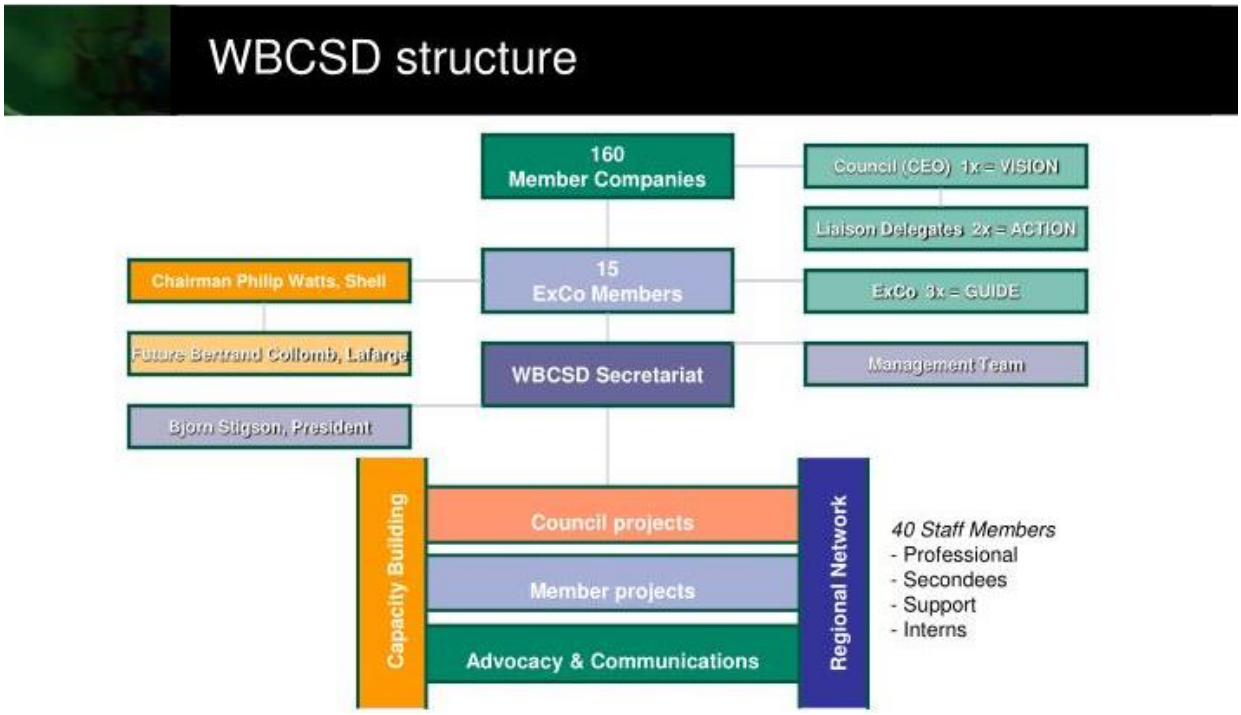
The concept of "sustainability" is encapsulated in the "ten principles" of corporate sustainability. There are two principles under the heading of "Human Rights", (Principle 1: Businesses should support and respect the protection of internationally proclaimed human rights; and Principle 2: make sure that they are not complicit in human rights abuses), four under the heading of "Labour" (Principle 3: Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining; Principle 4: the elimination of all forms of forced and compulsory labour; and Principle 5: the effective abolition of child labour; and Principle 6: the elimination of discrimination in respect of employment and occupation), three classed under "Environment" (Principle 7: Businesses should support a precautionary approach to environmental challenges; Principle 8: undertake initiatives to promote greater environmental responsibility; and Principle 9: encourage the development and diffusion of environmentally friendly technologies) and one under "Anti-Corruption" (Principle 10: Businesses should work against corruption in all its forms, including extortion and bribery). The Ten Principles are derived from the Universal Declaration of Human Rights, the International Labour Organization's Declaration on Fundamental Principles and Rights at Work, the Rio Declaration on Environment and Development, and the United Nations Convention Against Corruption.

This effort has attracted the membership of over 9,500 companies of every size from more than 160 countries and operating in almost every sector. The Compact has produced a vast body of literature and information on sustainable business, operates training sessions for members and prospective members, and generally supports knowledge transfer for companies already running or transitioning to sustainable operations. The network is unashamedly promoting what it calls global goals for local business and providing peer support to private entities that share that vision. One of the key messages from the Global Compact is that sustainable business is good business

and that consumers will exercise choice in favour of enterprises that have expressed adherence to the 2030 Agenda by seeking to render their commercial activities sustainable.

The World Business Council for Sustainable Development (WBCSD, https://www.wbcsd.org) is an independent network of enterprises led by the CEOs of over 200 major firms worldwide and established at the end of the 1990s. It differs from the Global Compact in that it is a "top-down" organisation and does not require its members to be pre-committed to sustainable development. However, it is unabashed in its support for the SDGs and the ideal of the 2030 Agenda.

Figure 6.3 Governance Structure World Business Council for Sustainable Development



Source: wbcsd.org

The WBCSD brings together "leading CEOs", which means the heads of some very large companies worth some USD 8.5 trillion and employing over 19 million people in every industrial sector world-wide. The Council operates under six headings: "Circular Economy", "Cities and Mobility", "Climate and Energy", "Food and Nature", "People" and "Redefining Value". Since 2015, it has aligned its activities and published reports on the SDGs, covering issues as wide as plastic waste, low emissions economies, climate action and policy, climate-smart agriculture, human rights, and governance and internal oversight of enterprises, to cite just some of the 37 topics in their work programme. In classic networking style, the WBCSD provides a forum for its members and secures input from them on a non-curated basis, looking for ways that the private sector can contribute to attaining the SDGs.

The networks described above are designed to be complementary to government and the state sector in order to further progress towards the SDGs. Country governments have their own

organisations that can resemble networks, such as the Organisation for Economic Co-operation and Development (OECD) or the G20.

The OECD grew out of the Marshall Plan, an economic rescue package from the United States to help European democracies recover from the Second World War, and was established with an original membership of 20 that included all the Marshall Plan beneficiaries, plus Spain, Portugal, Iceland and Ireland; by the end of the 1960s, the Organisation had 27 members and by 2020 it had 36 member countries with a combined GDP of some USD 57 trillion, or almost three quarters of world GDP of over USD 80 trillion (2017). Criticised by some as the "Rich Nations' Club", the OECD's expansion has included many nations previously considered "developing", as well as the market-oriented former Soviet satellites in Eastern Europe. Although the Organisation has been mainly concerned with aligning member-countries' economic policies and stability in areas such as tax reform and national accounting, it has also had a more discreet emphasis on economic and social development in the poorer countries through the autonomous OECD Development Centre and the Development Assistance Committee (DAC) that brings together donor countries from the market economies.

The OECD operates on the basis of consensus among members, which means that pronouncements from its numerous committees represent the collective view of members, rather than the research on which they and the 500 or so publications produced every year, are based.

Figure 6.4 Governance Structure Organisation for Economic Co-Operation and Development

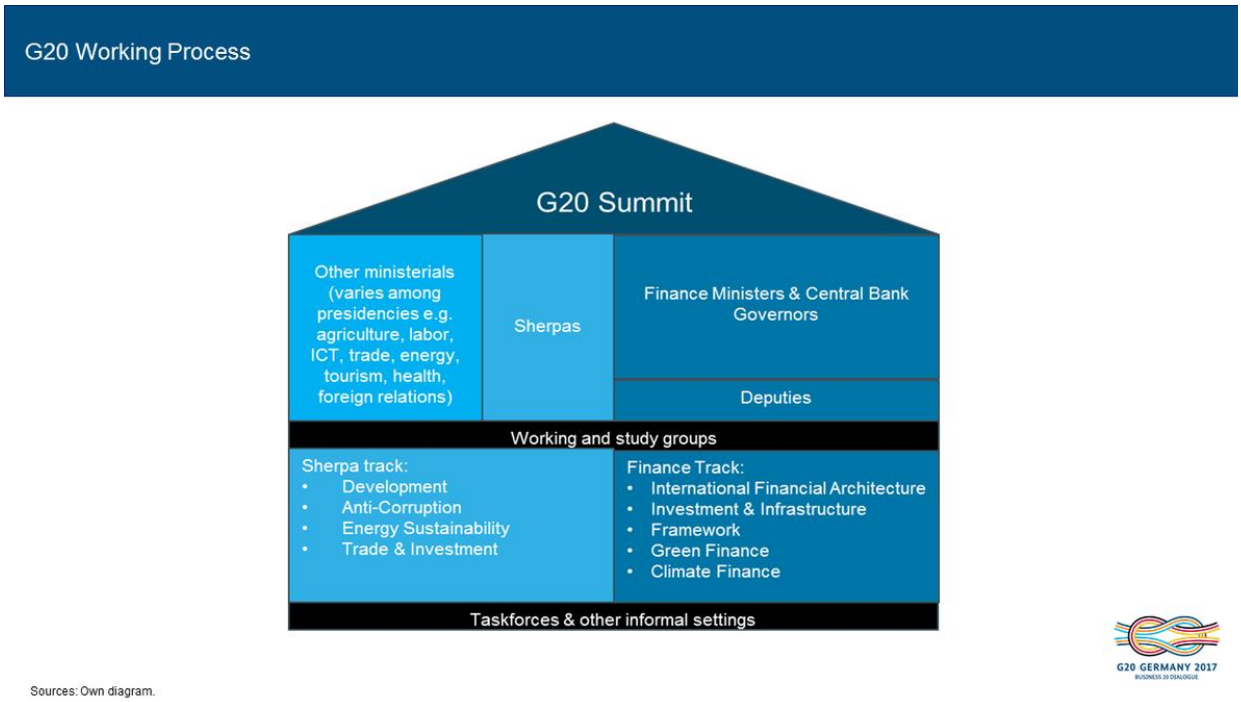
Source: oecd.org

Prior to the adoption of the SDGs by the international community in 2015, the OECD was already looking at sustainability issues, especially those affecting partner countries in the global South, but also within OECD countries themselves. The format of the committee meetings means that opinions and positions are freely expressed and debated among members before a consensus

is reached. This implies that member countries are committed in a very real sense to the policies agreed at the OECD. This is crucial in respect of the SDGs because a global concerted effort will be necessary to reach them. In recognition of this, the OECD has created a number of study groups and expert panels to look into how the SDGs can be attained and the contribution that member countries can make to that effort. In particular, the Organisation has created an "SDG Financing Lab" to record and generate data on costs associated with the transition required for the SDGs and how those costs are being covered. Given the overwhelming importance of OECD member economies in the world economy, it is clear that the bulk of spending on the SDGs will come from them, hence the importance of analysing and tracking their contributions to the global SDG effort.

The G20 convenes the Heads of Government and Governors of the Central Banks of Argentina, Australia, Brazil, Canada, China France German, India, Indonesia, Italy, Japan, Mexico, Republic of Korea, Russia, Saudi Arabia, South Africa, Turkey, the United Kingdom, The United States and the European Union (represented by the Chair of the Commission and the Governor of the ECB). Rather than have a fixed Secretariat, as in the case of the United Nations and the OECD, the G20 Secretariat rotates between member countries and is located in the country holding the annual Presidency (Osaka in 2019 and Saudi Arabia in 2020).

Figure 6.5 Governance Structure G20



Sources: Own diagram.

The Group does not produce regular reports, as the OECD does, but the annual Declaration from the Leaders' meetings have consistently committed the member nations to the 2030 Agenda and this is very important, given the scope of membership, which, when placed alongside the separate membership of the OECD, includes all the economically advanced and high-income countries whose commitment is crucial. Indeed, the 2018 Declaration stated that the Leaders, "… reaffirm their commitment to leading the transformation towards sustainable development and

supporting the 2030 Agenda for Sustainable Development …" as part of the G20 SDG Action Plan adopted in China in 2016, because "… a strong economy and a healthy planet are mutually reinforcing."

These are two of the many formal links between nations and governments that can be considered as "networks" for the purpose of fostering efforts to ensure that the SDGs are achieved and that the targets are met. The main problem is how to support these intergovernmental efforts. That problem is partly solved by the evolution of non-state networks. With the development of new information technologies and the ability for people and groups all over the planet to communicate with each other and to organise in real time, the formal and semi-formal networks that are the hallmark of civil society will have an increased role in monitoring the behaviour of the scientific, business and intergovernmental networks in support of the SDGs, as well as drawing on the information they provide to encourage and mobilise grass-roots support for the SDGs.

The information currently shared essentially between members of networks can be expected to filter out to the outside world and be taken up by other groups and networks in support of the SDGs. Indeed, this is a core component of the mission of many networks. While the expert and specialist members of networks provide and analyse data, they also prepare information for digestion by civil society and the general public. In this sense, more groups are necessary to disseminate information and create shared, fact-based understanding of the SDGs, which is the cornerstone of support for the 2030 Agenda.

The SDGs are, of course, themselves the result of a series of coalitions that grew out of a certain amount of networking between groups on many levels. One of the advantages of coalitions is that they can place stakeholders "around the table", which implicates them in the decisions that are being taken and, in the case of the SDGs increases the likelihood of the buy-in that will be necessary from all stakeholders if the goals are to be achieved. Coalitions can also imply resource sharing for monitoring and regulating the implementation of the goals, a process that has continued since their adoption. With the arrival of the "digital world", the opportunities for close and continued collaboration within a coalition have broadened; in some cases, to include the entire planet. The International Labour Organization, for example, has a tripartite approach to coalitions and networking that brings together civil society – essentially the trade unions – the private sector and governments, which can be challenging for smaller entities but has the advantage of establishing coalitions within coalitions that enable them to have influence in discussions that would otherwise not be available to them; this gives them more leverage to be heard than they might otherwise have had.

On the less positive side, working through coalitions can be time-consuming, since there is the implication that all members of a coalition have to agree to a given strategy or position. Depending on the size and reach of the coalition, this can be a lengthy process, especially where trade-offs between stakeholders may be concerned. Where the basis for a coalition is consensus, there are other challenges – for example, determining exactly what "consensus" means. In an organisation like the OECD, where consensus is the official form of decision making, policy statements can take a very long time to produce. Similarly, during the negotiations that led to the 2030 Agenda, there were multiple occasions when it seemed the discussions had reached an

impasse. It can take time and extraordinary negotiating skills to unblock such a situation, which is a handicap when time is short and the topic urgent to resolve.

Coalitions can be critical in cases where the discussions revolve around norms or societal values. A company can come in and say they want to build a wind farm, and a single farmer can say he wants to lease land, and a scientist can model the cost savings for a community, but that does not mean that every other person will not protest because, for example, they think it is unattractive. What is at stake in many cases is what people value, even when the "evidence" is overwhelmingly opposed to it. Coalitions are useful here, not only in scenarios where everyone is at the table ready to build consensus, but also when everyone is not at the table and the effort is to build an advocacy plan targeted to those who are missing. Different member(s) of the group would know best how to communicate with different constituencies, what kind of argument, vocabulary, and data would be compelling. For example, extremely conservative survivalists in the United States are responsible for installing a good deal of off-grid renewable energy capacity, but the Sierra Club and Greenpeace probably don't know how to talk to them very effectively.

Coalitions can be the most difficult to build In extreme cases, particularly where trade-offs are significant and every stakeholder is going to need to compromise on something. Nonetheless, coalitions may present the only way to come to a solution long-term durability and not be open to renewed debate and hurt feelings every few years or so. Peace treaties are an extreme example of this.

When looking at the nature of coalitions – including networks – it is important to recognise the different natures of country level, regional level and global level coalitions. The relevance of coalitions, and the levels at which they operate, to the progress towards the SDGs depends on a number of factors. The most successful coalitions are those that, whether it be on a country, region or global level, are as inclusive as possible, especially as the SDGs call for inclusiveness. Hence, the "inclusiveness" required is societal and includes the state, other levels of government, private operators, non-profit institutions, non-governmental organisations and other interested, active actors in society.

Coalitions need to be clear about their own capacities and objectives. In order to maximise their influence and, presumably, provide value to their members, they need to have defined and clear goals that are aligned with their capacities. On the other side, coalitions need to have a partner in policy making that is prepared to work with them, listen to them and draw on their knowledge, skills and data. In the case of the SDGs, to some extent, the influence of coalitions depends upon how much of a role the public authorities have inside them and on the specific policy area with which they deal. The SDGs will only be achieved, in the final analysis, with concerted action by the public authorities, supported by other parts of society that are integral to the process. Coalitions, therefore, must see as their final "target" the public authorities with responsibility for the policy area in which they are concerned. This applies whether the coalition in question operates locally, nationally, regionally or internationally.

Where coalitions can have a very significant and rapid impact is in changing the behaviours of their members when such behaviour is integral to progress towards the SDGs. For example, a coalition that is formed to reduce the impact of fossil fuels could include industry groups, government ministries and smaller elements of civil society and the internal dynamic of the

coalition could be instrumental in reducing the use of carbon, hence reducing the cost to the authorities of enforcing regulations and hastening the introduction of clean fuels. They can also provide one of the most important elements of policy influence, which is finance. It is far easier for a coalition of interests to find or raise finance for their objective tan it would be for a single operator. This applies not only to civil society, but also to government. The contribution of an allied coalition of groups or interests can reduce the cost of implementing a measure, even if it does not provide or raise any extra financing.

Why do coalitions fail? One of the reasons why coalitions do not succeed is the lack of formality, with poor or inexistent rules and procedures and where the members have only a vague idea of the contribution they are supposed to make and/or how they are going to make it. They can also be fragile if one of the members – the government, for example – exercises a dominant role, binging policies to the table as faits accomplis and expecting the other members simply to be their allies in promoting the policy, or where a dominant industry group tries to use the coalition to further its own business interests to the exclusion of the needs of other group members who may, perhaps, be consumers. On the international level, especially in developing countries or regions, the influence of a dominant partner – a multi-lateral lender, for example – has such overbalancing power the other members of the coalition feel powerless. In such a situation, where a group of beneficiary countries has come together to create a coalition for the implementation of a particular SDG or group of SDGs and has included a lender or donor in the coalition, the group can become "hostage" to the financing body that may pursue its own agenda, rather than that of the beneficiary countries in terms of prioritising the SDGs or the order in which they should be funded.

Clarity of purpose is absolutely essential for the survival and success of a coalition, and its absence is a second reason for failure. The contrary is also true: coalitions that become so closed that their members fail to understand their topic or field of interest in the context of the real world may isolate themselves from it and end up making demands that are unrealistic, thus devaluing the issue and – most importantly – the impact it may have on the desired outcome, in this case, progress towards the SDGs. There needs to be a very clear unity of purpose between members of a coalition for it to be effective and one of the "rules of engagement" must be to communicate with and form part of the outside world, especially that part of it that concerns policy making. This applies on every level and is as important to the members of the coalition, as it is to the national or international policy makers. Where there is clarity of purpose and objective, a coalition can relatively rapidly insert itself into the policy debate as a partner with recognised objectives and roles. Large coalitions, such as the business networks we have already discussed, need to take this issue of clarity very much to heart so as to be seen by all the relevant actors as viable and attractive partners with which to work. A very good example of where a coalition has been able to ensure that it is viewed as an indispensable partner is the Global Fund to Fight AIDS, Tuberculosis and Malaria (www.theglobalfund.org), which is able to demonstrate research power and financing, as well as a specific target with defined strategies to reach it. While the Global Fund may be seen as somewhat unusual because of its funding from, among others, the Bill and Melinda Gates Foundation, as a model its experience for other coalitions is instructive.

Coalitions work best when they have very well-defined objectives, as we have seen, and fail when their objectives are vague, either to their own members or to the policy makers that they are trying to influence. A good example of a successful coalition for energy was created by the two

West African states of Benin and Togo, whose energy supplies failed to reach a level of self-sufficiency. They joined together to negotiate with their neighbours to the west (Ghana) and east (Nigeria) for a fair price for energy imports. Together, they had a greater bargaining power than either would have had on its own, and this is one of the important aspects of coalitions when the objective is one clearly shared by the members. In Ecuador in Latin America, municipalities that wanted to recycle their waste into a source of energy discovered that none of them had sufficient quantities of waste to make such a project viable, so several cities came together to form a coalition specifically for pooling their rubbish and disposing of it in a mutually advantageous manner.

Where there is a clear alliance between the public, the private sector and government, coalitions seem to have the greatest chance of success on the national or local level. In a number of developing countries, public-private-people-partnerships (PPPPs) have sprung up to achieve harmonious change where all parties are involved and can see the advantages of a successful outcome. In these coalitions, there is a recognition of interests that need to be reconciled, rather than ignored, which brings about the buy-in from local communities and enhances the chances of success of a given project. One example of this is initiatives to introduce electric vehicles that depend upon the construction of a network of charging stations over a given territory. For this to be possible, there has to be an increase in electricity supplies to the region, which implies government action, the manufacture of electric vehicles and components, retraining of people to maintain the charging stations and their appropriate siting. PPPPs are formed to ensure that the interests of all groups affected by the proposal are taken into account, but also to solicit local information about the best locations and to inform local inhabitants of the benefits that can accrue to them. There is, therefore, an educational aspect to the coalition that goes in all directions, so that all participants can not only feel involved but can also feel direct benefits.

The descriptor, “coalition”, covers a multitude of small and large, national, regional and international associations of individuals, levels of government and corporate actors. It can cover networks, partnerships or loose associations, and it can be used to describe both fixed and temporary groups. What all coalitions have in common is a shared objective. This does not mean that members’ interests are identical; rather, interests may be complementary, but there is an implicit notion of inclusiveness and integrity.

For the SDGs to be attained, coalitions are needed that respect the principles of inclusiveness, clarity of purpose and balance between members. While coalitions support movement towards all of the SDGs, it is more than likely that coalitions with differentiated objectives linked to specific SDGs will have more success. This does not mean that interested parties need to belong to several coalitions. The reality is that within coalitions, such as the Global Compact or SDSN, further coalitions form to concentrate on specific SDG-related issues. Indeed, the WBCSD is specifically organised to represent individual SDG-related approaches to doing business, recognising that the “whole picture” is rather vast and could be daunting for individual members of the coalition. What is clear, however, is that coalitions around the SDGs will be integral to successfully achieving them.

Chapter 7. Tackling the political economy of transformative change[8]

Daniel Hausknost and Colm Foy

There are two different stories going on in the Global Sustainable Development Report (GSDR – see Annex i). The first is the story that sounds the alarm (see Chapter 5) – the diagnosis that the international community has failed so far to reach the most critical goals of ecological sustainability. Even worse, some of the most important environmental indicators – like greenhouse gas emissions, absolute material footprint and biodiversity loss – are moving in the wrong direction with no signs of making the required U-turn anytime soon. This is a devastating diagnosis. The GSDR says that " … under current trends, the world's social and natural biophysical systems cannot support the aspirations for universal human well-being embedded in the Sustainable Development Goals …"; and it says that "… the great majority of indicators of ecosystems and biodiversity are showing rapid decline."

If this story is true, we are in deep trouble because it would mean that, unlike in the realm of social and economic development, where some progress has been made, in terms of the health of the planet overall, we have achieved nothing and seem to have no idea of how to achieve our goals.

There is, however, the other storyline running through the report: the story of hope and feasibility, about the "… shaping of innovative pathways towards achieving the SDGs …", about the need to scale up and adopt sustainable technologies, the need for more science and more knowledge, the need to encourage sustainable investment, the need for more and better governance on all levels and the need for "… a global decoupling of GDP growth from the overuse of environmental resources." All of these are no doubt important levels and levers of action, but these are the very same strategies and action plans that have been around for the past 20 to 30 years and that have failed.

There is a quite dramatic mismatch of the two storylines running through the GSDR; a quite dramatic mismatch between the diagnosis of a life-threatening disease and the proposed treatment for flu-like symptoms. The parallel with the arrival of Covid-19 at the end of 2019 and the wide variety of reactions to it and lack of co-ordination in responses is striking.

In *The Conflict of the Faculties*, philosopher Immanuel Kant tells the story of a doctor who consoles his seriously ill patients with hopes of a speedy convalescence by telling them that their pulse beats better or that their stool has improved or that their perspiration has improved, and so

[8] This Chapter is based on a major presentation by Professor Daniel Hausknost (Vienna University of Economics and Business) and informed by contributions from Ms. Nabuko Kajiura (UNESCAP-ENEA), Ms. Rafia Khan (Centre for Policy Dialogue, Bangladesh) and Ms. Nur A'in Razak (ASEM) at the 2019 SDTF.

on. One day he asks one of his patients how he is doing and the patient replies, "How should I be? I'm dying of improvement, pure and simple!"

Another medical analogy; in this case the entire human race and life on Earth are dying of improvement. If we stick to the same medication that has not attacked the root causes of our illness in the past, then we will be dying of symptomatic improvement, quite literally.

In the search for the right "medicine" to bring about transformative change, some stubborn myths need to go, among them Nik Gowing's "Zombie orthodoxies" (see Chapter 8).

The first myth is the widespread belief in the feasibility of an absolute long-term decoupling of global environmental pressures from economic activity in a growth-oriented economy: the myth of "green growth". Decoupling an economy that is addicted to growth from its material and energetic base is impossible. A systematic review of the empirical evidence of absolute decoupling based on almost 1000 publications from the past 20 years found no evidence of the possibility of long-term and substantial absolute decoupling within the existing economic model. Those instances of decoupling from carbon-based energy sources, for example, that can be observed in the UK or Germany, are the result more from deindustrialization or the outsourcing of energy-intensive industrial production to other countries, than they are of green-growth policies and evidence of a commitment to transformative change. If consumption is taken into account, there is not a single instance of substantial absolute decoupling. Decoupling is unavoidable, however, but it will require a "politics of sufficiency" to complement efficiency, meaning that the absolute levels of consumption, at least in the rich countries, must decrease quite considerably. The outlook for a politics of sufficiency and on a reduction in consumption levels, however, is incompatible with current conceptions of market capitalism.

Myth number two is the belief in – and the reliance on – conscious individual behaviour change. There is mounting scientific evidence that continuous efforts to convince consumers in high-income countries finally to embrace and practice "sustainable consumption" (SDG 12) have been, by and large, futile. Insights from environmental sociology show that individual behaviour is embedded in and guided by social, cultural and material structures that constitute the riverbed in which our behaviour flows. Add to that the insights from behavioural economics (see Chapter 5), and it becomes obvious that the resolution to behave sustainably in a fundamentally unsustainable economic system will have very modest chances of success. While middle-class consumers around the world increasingly mix some organic and fair trade products in their weekly shopping and do their recycling, this does not reduce their overall environmental footprint. Quite to the contrary, a study by the German Environmental Agency found that those social strata with the highest environmental awareness also tend to have the largest environmental footprint.

The third myth is that innovation will save the planet. There is a widespread belief today that we simply need to replace fossil energy with renewables and combustion technology with electric motors to save the climate and the biosphere. This is not good enough. Even with the technologies we can expect to have available in the next two to three decades, it will be impossible simply to substitute the entirety of global fossil-fuel-based energy consumption with renewables. The renewable revolution only works if energy and material consumption levels drop dramatically – quite the opposite of what can be observed today and can expect to see in the future.

If the challenge of saving this planet's biosphere – and human life within it – is to be taken seriously, then the transformation required boils down to prioritising the biophysical planetary boundaries and to build a new economy within them. This has to be – and can be – done without leaving anyone behind. The resulting economic system, however, may be fundamentally different from the capitalism of today.

Transformation is a half-blind endeavour: we know what we do not want anymore – fossil fuels, unsustainable modes and levels of production and consumption, as well as poverty and economic injustice – but we cannot possibly predict what a sustainable, inclusive, socially just and egalitarian society might look like in practice and on a global scale.

Thus, a political economy of transformation must start from disabling that which we do not want in order to make room for the new. A political economy of transformation must be based on the principles of an intentional, creative destruction: in order for a new door to open, another door must close. Unless the door to fossil-fuel-based overconsumption is closed, the door to a sustainable economic model will not open up.

For Joseph Schumpeter, who coined the concept, "creative destruction" was an inherent feature of capitalist development. New, key technologies emerge and destroy the old socio-technical paradigm and its industrial structure, leading to a new business cycle of economic growth. The directionality of creative destruction has been defined only by its capacity to enable new consumer utility and thus new opportunities for consumption and profit. This logic has no consideration for sustainability, but only for expansion.

To subject the logic of creative destruction to the goal of a comprehensive sustainability transformation requires a radical politicisation of creative destruction. It means to make collective and binding political decisions on which doors to close and which doors to open. Intentionally changing the course of civilisational development cannot avoid the re-politicisation of the very nature of the economy by asking what purposes the economy should serve in the first place.

Accordingly, the key concept of a transformative politics of creative destruction is that of decision, not of solution. There are plenty of solutions at hand – the world is full of wonderful solutions – but there is a need to decide which ones to take and which to reject, and that requires the willingness to enter into conflict, to attack vested interests and to take great risks. Such decisions are vital, even at the risk that they do not lead to further business opportunities and economic growth but may even shrink the monetary volume of the economy.

Agroecology provides an excellent example of an area where we do actually know what to do, what solutions to employ. The GSDR makes it very clear that agroecology – including the growth of smaller sustainable farms – offers one of the most promising solutions to unsustainable land use and related GHG emissions.

Agroecological practices are trusted globally to bind millions and millions of tons of carbon in the soil but they do not offer a business model that promises more or higher profits to private companies under current systems of economic organisation. Although agroecology promises sustainable livelihoods to millions if not billions of people, it is incompatible with the dominant economic model. That means that, if the social and political decision is to pursue an agroecological path, existing industrial agricultural practices will have to be modified or even abandoned, which

implies acceptance of the political struggles and contradictions that will accompany such a decision.

The transformation of complex systems from one state of dynamic equilibrium to another necessarily entails non-linear, disruptive and at times chaotic change. On the way, the system changes its identity – otherwise there would be no transformation. The fact is that the coming decades will entail non-linear, disruptive and chaotic change to cope with the actions necessary to reach the SDGs. This might be intimidating, but it is quite normal behavior for complex systems.

"Policy coherence" will, itself, need transformation in its conception away from some sort of harmonious governance that seeks to avoid disruption and confrontation and towards actively promoting radical change in which some of the previous "winners" have to accept some concept of "loss" and, even those who have never been "winners" will have to accept a more gradual and mutated form of progress and development. There is a need is to disrupt the coherence of our economic systems in order them push it away from its unsustainable equilibrium.

There are two governance options. The first is to embrace the fact that a purposive and time-bound transformation entails non-linear, disruptive and, by definition, unpredictable forms of change and to build political institutions with the capacity, power and legitimacy to make transformative decisions of creative destruction. The other is to continue to talk about "transformation" without meaning real transformation and that will lead to irreversible climate collapse.

Positive transformation cannot be the responsibility of government and the political authorities, alone. Specifically in relation to SDG 12 (Responsible Consumption and Production), the three actors of public authorities, private producers and consumers all need to appreciate the need for substantial and permanent change in the way goods are produced and consumed. This can only happen if all three actors are able to see the benefits that will accrue to them as a result of the transformative change and they need clear lines of responsibility to be able to do that. These lines of responsibility need to be transformed so that policies are derived from the inclusion of the governed who are not going to continue to be passive (or rebellious) "victims" of change but will henceforth by drivers of it. Shared contribution to change also implies shared responsibility for it. While each actor will at the outset seek to satisfy its own self-interest, even at the expense of the others, the eventual outcome has to be something the value of which all can agree and to which all can adhere.

Sharing responsibilities means a more equitable distribution of finance, but also of knowledge. Under the present systems of governance, all parties have a short-term view: politicians want to be re-elected, private operators – including small-scale farmers, artisans and entrepreneurs – need to generate returns and profits, and the consumer has a limited time horizon in terms of their daily needs and even their political choices. In the case of anti-pollution measures (SDGs 6, 11 and 13), for example, there is an obvious need for education and awareness raising to demonstrate to people, and even the polluters, that their daily lives and perhaps their continued existence depends on transformation away from polluting practices on land, in the air and in water. This is more difficult in the rural areas of developing countries, where the pollution of the air may seem less, than in the cities, where the air has become unbreathable. Farmers and rural actors cannot, necessarily, see for themselves that the air is less clean, that the land is more barren or that the

waterways are running out of fish and other marine life. The long-term effects of drinking polluted water by definition take a long time to manifest themselves and uneducated communities may not see the link. Policy makers in developing economies will need to convince people either to accept a lower rate of growth and development or to have it stagnate in order to preserve the planet for future generations, while the inhabitants of the high-income countries will have to accept a lower standard of living, as defined in the terms used hitherto of consumption, GDP growth and wealth accumulation. Previously structural transformation had been an important concept for the developing countries. Structural transformation means reallocating labour and other inputs from lower productivity sectors (such as agriculture) to higher productivity sectors (such as manufacturing and, eventually, services).

A good example of this is in the case of Bangladesh, where value addition to GDP from the manufacturing and services sectors is rising while that of agriculture is in decline. The economy of the country remains predominantly agrarian, with over 40% of employment derived from it, but the balance is changing and, with the change, the visible priorities of the people. In terms of political economy, the non-agricultural sector is gaining more weight and, therefore, the political pressures that the sector can bring to bear is increasing.

Another example is the growth of the electric vehicle (EV) industry. While all may agree that deriving fuel – including that for transport – from renewable sources is desirable, there is going to be a cost. That cost is going to be borne not only by the shareholders of the large automobile manufacturers, but also by the workers in their factories. EVs require far fewer parts and much less regular maintenance that gasoline- or diesel-powered cars, motor bicycles, trucks and buses, which means fewer opportunities for employment, especially at the lower skill levels. There are possible short-term solutions. The current most viable competitor for EVs is fuel-cell vehicles (FCVs) that use a process that employs a comparable workforce and distribution system to conventional vehicles with very little pollution at the point of use (both EVs and FCVs use non-renewable components for their batteries and propulsion systems, respectively). The combined influence or its dispersal between them of EV and CFV manufacturers remains to be seen, but the question is indicative of the political economy complexity that transformative change can provoke; and these are – relatively – "easy" transitions.

Policy makers seeking substantive transformative change can, as we have seen, only do so with allies in the private sector and among consumers. Research by ENVforum has spotlighted another aspect of sustainability, which is the circular economy (see Chapter 5), and the importance of the role of the private sector in bringing it about. Inciting businesses to become involved in the circular economy demands a commitment by policy makers and others to educating business leaders to explain that, by moving away from unsustainable production patterns, they can improve the efficiency of their resource use as well as reduce their environmental pollution load and waste generated. Governments, organisations and the non-state sector can support this transition by establishing strategic cooperation with businesses, for example providing access to funding and technologies, as well as financial incentives to incite business – and consumers – to participate in creating and maintaining a circular economy. The struggle here, again, is about changing mind sets and encouraging policy makers, business and, indeed, the whole society to "think the unthinkable" (see Chapter 8). Mechanisms, such as eco-labelling and formal education can help, but they will

only work if they are used on a basis of a complete change in attitudes throughout the society. Merely tweaking "business as usual" will not work.

One of the major elements of achieving transformative change is the quality of leadership. Here, it is vital to recognise that "leadership" does not apply only to the highest levels of government or states: it applies to all levels of society , from the most modest village assembly, through the management of a medium-sized enterprise, to the structures of major non-governmental organisations (NGOs), to major boardrooms, the committees of international organisations and to the heads of state and government. Leadership at all levels must be of sufficient quality to bring about transformative change by establishing trust and authority. Where trust and authority are absent or actively distrusted, it is impossible to achieve transformative change (or, indeed, in some cases, any change at all). Examples abound, from the rejection of Eastern European governments following the decline of the Soviet Union to the overthrow of corrupt regimes in African countries like the former Zaire. These are extreme examples, but a more recent one is the experience of the combat against Covid-19 where, in some places, restrictions put in place to limit human interaction were resisted by elements of the populations who believed or were led to believe that they were unnecessary limitations on their freedom. Carried to a global scale as a response or reaction to the effects of transformative change, such challenges could be fatal to the drive for the SDGs.

There is a need to neutralise resistance and opposition in a positive way – it should be possible to integrate possible resistance into the process of transformation, itself. There are situations where financial incentives can help by, for example compensating farmers for not encroaching on ecologically fragile systems and protecting migratory birds by halting encroachment onto their nesting areas. People need to understand the meaning of "transformative change" and – perhaps much more importantly – they need to grasp what are the consequences of not making the transformation. While, in developing countries, structural transformation is still a relevant indicator of economic development, through the lens of the SDGs, two more indicators need to be addressed and communicated to the general population, business groups and all economic actors, as well as the public authorities. These are social development and environmental protection. Transformative change subsumes structural transformation, social development, and environmental protection. It requires, as we have seen, behavioural changes and policy reforms. Bangladesh has been relatively lucky in the policy sphere because its 7th 5-year plan (2016) was drawn up so close to the adoption of the SDGs that it is aligned with them.

However, while many countries have their policies reasonably aligned with the SDG, they are clearly struggling with resistance to the implementation of these policies. Campaigns can be useful - one of the proven methods to neutralize opposition to unpopular but necessary reforms is through campaigns. In Bangladesh, for example, public campaigns in support of family planning programmes, educational reforms, immunisation practices and other initiatives won acceptance through concerted government and NGO-led campaigns to inform the population of the issues and risks to their health and well-being of not complying with the new policies.

Whether people show interest in adapting to a new policy change or try to block it depends on education, awareness and, inevitably on the country context to a great extent and to the quality of leadership at all levels. The levels of awareness among the citizens are incredibly important and relate to the cultural environment. For example, in Bhutan the idea of sustainable living has been

deeply entrenched in the culture. The same is not the case for other countries, especially those that have undergone a capitalist transition, and there is likely to be stronger push back on the policies designed to bring social changes. Denial, resistance and refusal will come from groups with vested interests. For example, fossil-fuel suppliers will initially resist moves to replace their products with accessibility to renewable energy. Rather than trying to overcome such resistance by force, at least in the initial stages persuasion may prove more fruitful and less disruptive. Some disruption is inevitable, and changes take time to filter through a society. It is essential to remember that "creative destruction" consists of two parts, one of which is "creative". Those who stand to lose in the short term from the "destruction" can be converted to "creators" in the following phase.

This is already happening to some extent, though not enough. The oil and petrochemicals industries are actively seeking other options for their operations outside fossil fuels. They can see the writing on the wall: change is coming, whether they like it or not, and they will either have to adapt or die. Continuing with "business as usual" is not really a long-term option and private companies are more and more realising this. Indeed, they are responding by seeking their own solutions to transformative change (see Chapter 6). As more information becomes available, as the urgency of the situation and the need to take the SDGs seriously grows, initiatives by the private sector can be expected to increase. Though this may be reassuring, however, it is not enough. Transformative change requires direction, not just change for change's sake. Drives towards a repositioning of private activities or shifts in government priorities need to be grounded in a full commitment to systemic change on the part of all economic, social and political actors – and that needs to be an international response. There is no point in achieving transformational change in one country or region while the rest of the world continues on its self-destructive path to annihilation.

Change is not easy; although it is often called for by specific groups who may feel themselves disadvantaged; the actual experience of change can be intimidating. This can be visible from an early age. For example, in many Asian countries, children occupy an assigned seat in school; if they are told to change their places, they become unhappy. How much more intimidating can it be, therefore, to be told that, in order to survive you must reduce your standard of living, especially when that standard of living is low to begin with?

Policy makers, industry leaders, the non-state sectors and country leaders need to work together to bring transformative change into reality. Academics can undertake research, but it is up to political and community leaders to find effective ways to implement policies. Building awareness is essential if transformative change is even to become possible, never mind a reality. This is a very real, very heavy responsibility that seems to have been underestimated by leaders everywhere. Instead of being considered as an option, communication with the overall population and explaining the importance and implications of the SDGs – as well as the consequences of ignoring them – should be an absolute priority for leaders throughout nation and international society. Transformative change is a global issue. It is the responsibility of the developing as well as the developed countries and, though the approaches may be different and the challenges varied, the obligation and commitment need to be the same.

Chapter 8. New Realities of Governance[9]

Colm Foy and Nik Gowing

It may seem like nonsense to say that the century since the First World War has been filled with years of tranquillity but, on the level of governance, it was. At least, for the most part.

There were upheavals in what would become the "developing" world, the former colonies and satellite states of the great powers, but they were controlled and even, in some cases, orchestrated. In the economically advanced and industrialised countries, ways of doing things became established, replacing the old order based on government by self-sustaining elites with evolved democracies and an emergent capitalist class. The centralised regimes emerging in the Soviet Union and, post-World War 2, the People's Republic of China behaved in accordance with certain principles of central control that were predictable, despite some tragic upsets such as failed agricultural collectivisation and the Cultural Revolution. At the periphery, there were revolutions and disruptions but even they followed a reasonably predictable pattern, especially when they were fomented and fuelled from outside.

Both in the Western democracies and in the centralised economies, institutions were created or developed that were designed to work within some form of the status quo. The civil service followed rules and established guidelines, ready to carry out the instructions of the political leadership or, when necessary, to temper the enthusiasm of elected officials with the realism of day-to-day management of the society. When the civil service failed in these duties, the result could be catastrophic, as in the collapse of the Weimar Germany and its replacement by the Third Reich. The civil service has seen itself and, to a large extent, with some justification, as being a bulwark against extremism and political chaos. Derided by some, precisely because of its conservatism, the civil service has been used by others to justify their own immobilism or the discovery that once in power more radical policies are harder to implement. This leads to gradualism in politics, which, while reassuring for the established elites, can be frustrating for those who feel themselves left out of them.

Another barrier to change or a restraint on it is the paucity of reliable and verifiable information. Policy makers need data in order to design and implement policies. "Data" can include numbers and calculations, but it also may be made up of opinions, arguments, ambitions and information on the real-world experience of people who are not part of the political class. Some data is simply not available, especially when dealing with new concepts or extensive change brought on by, for example, the 2030 Agenda and implementation of the SDGs. There may also be barriers to access to data such as "pay walls", membership requirements or there may be financial

[9] This Chapter is drawn from the presentation and discussion of the keynote address by Nik Gowing to the 2019 SDTF.

or human capacity deficits that preclude data gathering. There is a glaring inequity in access to science and technology data depending on whether someone who wants or needs the data is in an advanced economy or in a developing one. Other data may be suppressed or distorted, or its importance may not be sufficiently recognised by the gatekeepers of information flow in the civil service, political parties, academia or the media. Information may be filtered or so raw that it is difficult to see relevance to a particular topic or region. Hence, for example, there is wide awareness that Earth's climate is changing in various ways, but an ordinary inhabitant of the planet may not be aware of how that is affecting or will affect her or him. Even local representatives in villages, municipalities, cities and regions can be confronted with either an absence of information about climate change or so much of it that they are unable to make informed policy decisions or appeal to higher level authorities to correlate a policy response to the extent of the threat.

A shift in social and political organisation since the end of the Cold War has created an international phenomenon of powerful corporations that have vested interests and that are known because of their products and services virtually everywhere. These economic units can be very influential for a number of reasons. They are often connected organically to the political elite by sharing members or enjoying more discrete links such as family ties or membership of alumni groups. Individuals can pass from the board of a company to positions of political power, and vice-versa, possibly several times. This is very common not only in the market and the formerly centralised economies; it is also true in developing countries, sometimes more so, since the pool of qualified individuals tends to be smaller. Where corporations are very wealthy, they are able to exercise influence on the political elite by offering election funds, employment post-office and, in the worst cases, by outright corruption. In some situations, corporations control the economic levers of power through employment provision, purchase of commodities or their involvement in financial services such as pensions, health insurance or management of investment portfolios.

There has to be a link between finance and governance – the one without the other produces negligible results – and the private sector, as the generator of wealth and income, must be a partner in the reform and restructuring of governance. Until the 20th century, the role of the private sector was to generate profits for its owners and shareholders but, as we shall see, that paradigm has outlived its rationale. There is, nonetheless, a problem: private enterprise needs to diversify but may not yet know into what it should diversify – there is a fundamental challenge: growth must be linked with *development*, which means people need to have jobs to develop economically and individually. Traditionally, gross domestic product (GDP) has been the measure of "success" both by government and the private sector – a country or a region with a steadily increasing GDP is held to be "successful", even though the majority of the people living there may see little improvement in their quality of life.

Avoidance of using GDP as a measure of the success of governments and replacing it with some other measure, such as well-being, might produce better outcomes. In this case, there will be better use of resources and policies adjusted to improving the quality of life (which, incidentally, will be good for politicians' careers).

However, "Conflictivity" – a result of the need to make hard choices – is unpopular amongst politicians and political leaders. Jumping off a cliff is unattractive to politicians and political leaders on every level. One way of avoiding that is to embrace the needs and priorities of the private sector,

the public sector and the non-state sectors, then work jointly to resolve them in the interests of the planet. To reduce conflictivity, there is a need to explore synergies, even on the micro level. An example is offered by a young entrepreneur in Côte d'Ivoire who set up a business to put bicycles into the community, thus reducing vehicle pollution and improving health through exercise. Governments, including the civil service, similarly need to be more agile, less responsive and more proactive and flexible.

The need to change – everywhere – implies incentives, but also regulations and laws that are perceived as legitimate. In an ideal world, citizens should also apply pressure on their governments and institutions from a position of reason and rationality, expressing group interests, surely, but also taking into account the overall polity. This is not Utopian, but it does depend on transparency and information transfer from government and civil society to the people. Institutions set the rules, but they should also adapt to pressure from the people. There should be a closer connection with science in decision making and policy elaboration.

A major issue is raising the consciousness of the leadership, both through the "Greta effect", but also by identifying the "immediate" benefits for our leaders' electorates. In other words: are there votes in change? Where can these benefits be identified? However, there is a disconnect between awareness among the public, information getting to governments (via the civil service) and the policy horizons of politicians. Is business as immobile as the civil service or can the private sector take a long view, identifying profit in the long term, depending on which, it will change? Perhaps where that is not the case or it is too far in the future, the behaviour is the same as it is for the political class.

However, the huge changes that need to happen to implement the SDGs are not happening. On the contrary, there are movements in response to the SDGs that are opposed, and many of those opposed to the SDGs are well-funded by established interests.

There has been an unbundling of international treaties and the rule of law. Stability is unravelling and that means that leadership has to be more adaptable, innovative and responses to the immense changes that are occurring in society and the world. This does not only apply to "formal" government structures and institutions; it also applies to the boards of companies, leadership of civil society and, indeed, anywhere where people gather to take collective decisions that will influence and affect society in lasting ways. That includes, of course, the failure to act, which can be just as impactful as taking the wrong decisions or not taking sufficiently radical decisions.

Recognising that there is a significant problem is not the same thing as understanding what it is all about. For example, all governments and even private enterprises accept that the planet is undergoing changes that will profoundly affect how people and other living things will live in the future. Most people with access to information or whose daily lives are affected directly acknowledge that climate change is real and that resources can never be endless. They see the changes around them in terms of deforestation, declining marine stocks, poor air quality, rising prices of natural-resource-based goods and food. Actually, seeing the problem is easy, understanding it is not. Yet, in order to confront and eventually solve the problem it needs to be understood and it needs to be understood by the policy makers and leaders who can make the changes necessary to confront it.

The lack of understanding is leaving leaders feeling impotent and, as a result they are often in denial, especially since the speed of change is unprecedented at the same time as the threats increase. Suddenly, everything is urgent and imminent. Dealing with the lack of sustainable development, while recognising that economic and social development for at least the last five centuries has depended on unsustainable development, requires more than "business as usual", by definition. A series of studies undertaken by the "Thinking the Unthinkable" project reveals a staggering level of denial of the challenges facing modern societies from unsustainable development to new forms of communication and the speed of transmission of everything from information to health threats.[10] These high levels of denial exist in all areas of collective activity and policy leadership, be they public, private, non-profit, state or non-state. The "conformity" of current leadership is disqualifying them from dealing with the new normal, where flux is continuous, unpredictable and often extremely rapid. Conformity in the public sector, conformity in the boardrooms, conformity in the hierarchy of the non-state sector leads to a refusal to acknowledge that things could really be as bad as they are. The shock of the scale and existential threat from COVID-19 in early 2020 to all we take for granted confirmed in even more profound ways the instinctive resistance most leaders have to thinking the unthinkable. In many ways the horrors of COVID-19 must be viewed as a dry run for the even greater need and challenges for decisive, irreversible action to combat the climate emergency and implement the SDG's with the speed that is necessary.'

Another example of this is the growth in the distribution and use of new communications technologies, accompanied by the breakdown of former channels of information in the media. While radio continues in most poor countries to be the prime vector of communication, uncontrolled information through the internet is increasing. In the industrialised and formerly centralised economies, the phenomenon is much more advanced, to the point where it is unlikely that the written press will even survive. Television is now in the homes of almost every household in the OECD economies but is fragmented into dozens of different stations and service providers, even as young people turn away from television to streaming and selective on-line services. Traditional "news" outlets now must compete with a plethora of sources available via the internet, some of which are produced by responsible professionals, many of which are not. Sorting out "fact" from "fiction" has never been more difficult and the term, "fake news", has entered the vernacular.

Leaders do not know how to deal with the fragmentation of the communication universe. They have not learned how to reconcile the freedom it confers on information flows with the need for verification and responsibility. They may even be tempted to use the communication revolution and its flaws for their own, short-term ends, but this can lead to a crisis of information that distorts reality and makes leadership even more difficult, rather than helping leaders to make informed decisions that rise to the challenges of a rapidly changing world. Hence, there is a way in which the quality of leadership and of governance can be negatively impacted by the communication revolution. An example of this is when the news cycle is self-generating: a comment made by a leading personality is picked up and amplified by her or his preferred social or traditional media, then repeated by the same person deriving legitimacy from the presence of the story on the media.

[10] The Thinking the Unthinkable web site can be reached at : www.thinkunthink.org.

The story is then requoted by the individual, rerun by the media and thus become "legitimate" in the information marketplace.

Another phenomenon emerging from the communication revolution is sheer number of communication and information outlets, resulting in the formation of what might be called "tribes" – groups of individuals or institutions that form around a set of media outlets that exchange information and opinions adjusted to the tribe's members' own beliefs and opinions. It is a paradox that the very "revolution" that set communication free has resulted in its being shackled by a self-imposed atomised exile of information. One tribe does not interact with another, nor does it compete with another. Rather, each group exists in its own, separate universe, where opinions are hardened, and prejudice becomes the norm. Leaders – political leaders, in particular – exploit this new tribalism, building their support bases on the belief system of the tribe and adapting messages to the tribe, irrespective of whether the belief system is based on fact or real-life existence. The difference between the post-communication revolution and before it is that the gatekeepers have largely disappeared and there is now no means of identifying where fact has given way to fiction.

This is posing a particular challenge for leaders who have to base their actions on reliable information, making choices that may have negative impacts on the people on whom they rely for support. "Alternative facts", as an expression, would have seemed ridiculous a very short time ago, but there is some proof that individuals do believe that they exist. All "facts" are now "opinions". For the 2030 Agenda there are serious implications. Reaching the SDGs will require sacrifices on the part of many and those sacrifices will have to come at the possible cost of political support. Leaders need to be able to explain to their followers that sacrifice has a reason and can be justified on the basis of what we know, but the communication revolution provides an alternative version - or, rather, a series of possible versions - of what we know. It takes a good deal of political courage to go before electors and tell them that they will have to give up the life they know because that life is going to become untenable in the short term.

So far, there is little evidence that the political courage in government, in the boardrooms and in the marketplace, is in plentiful supply. The Global Sustainable Development Report (GSDR) (see Annex i) makes it very clear that we are not on track to reach the SDGs by 2030 and that, in fact, very little progress has been made. The contrary is, unfortunately, true: most SDGs at the current rate of policy action and results will not be reached and we are only reasonably sure that only three targets under two SDGs will be met. Among the reasons for this lack of progress is the lack of understanding of the sheer scale of the challenge, the scale of the disruption about to strike and already visible, and the scale of the actions that will be required to handle it. It is like a sandstorm on the horizon that is visible, large and clearly threatening but its impact is difficult to fathom and measures to save the people from it are even more elusive. Moreover, leaders are simply not used to dealing with the level of disruption that is coming from unsustainable development, nor the extent of the responses to it. The policy comfort zone that has been in place for so long is about to be shattered and leaders are not ready for it or, indeed, able to cope with it. Added to this is the fact that now the reality changes are moving much faster than the electoral cycle, so that politicians who want to be re-elected are having to cope with a different reality at the ballot box than had existed when they first began to campaign.

One result is a retreat into what is left of the comfort zone but that leads to a retreat into the twilight, where the universe of reality – the pace and scope of change – remains in the dark. To confront the challenges, leaders need to turn on the lights. The reality, however, is that they have not even yet located the light switch. An example is the migration crisis that struck the European Union in the first quarter of the 21st century. It was, in retrospect, obvious that the instability to the east of the EU was going to create a refugee crisis and that the poverty and social incohesion to the Union's south would stimulate migration. The relative wealth, development and economic opportunities of the EU created a magnet for migrants who were desperate to leave their home countries for a better life or, indeed, any life at all. The Union's leaders, failed to imagine the scale of the migration crisis and, so, were woefully unprepared to deal with it. In spite of the fact that the data was available, news reports were warning of human waves eager to move west and north, political leaders were unprepared to cope with the levels of migration and were even less ready to win public support for the humanitarian reaction to it.

The situation with respect to the SDGs is analogous, notwithstanding the problems leaders encounter in sourcing accurate and reliable information. As the *Global Sustainable Development Report (GSDR)* makes clear, the evidence for the urgency of a comprehensive response to the challenges of unsustainable development is there and, indeed, has been for a considerable time (see Annex i). The warnings from scientists, academics, civil society and sections of the policy making community have been audible and visible. Yet, action has been slow and often symbolic or ineffectual. Decarbonisation of energy supplies provides an example of how this has played out in the real world. Whereas the evidence has been mounting for a very long time that the release of carbon into the atmosphere is one of the human activities that has contributed to climate change, nations and societies have been very reluctant to move to renewable energy sources, despite the fact that the technology is now cheaper and employs more people than carbon-based energy. Part of the problem in this domain is that the energy sector has been dominated by large corporations that initially saw no interest in changing their business plans. Of course, "large corporations" really means the human beings who sit on company boards and the investors who draw income from a company's activities. Their influence on the other human beings who inhabit policy making structures is part of the reason why so little has been achieved for so long.

That situation in the energy sector is changing, as board rooms begin to see the advantage of supplementing, and eventually replacing their carbon-based activities with renewable sources of energy, but the change is slow and has been long in coming. Across the corporate landscape, levels of stress have been rising, both in the corridors of management and within the workforce. As the evidence of the need for change rises, the initial reaction is denial: "Surely, it can't be that bad!". But it is, and when that realisation finally comes, when it finally dawns that the "unthinkable" is actually arriving and may even be already here, it creates stress levels that hamper the courage needed to enact the changes that are necessary. The reactions in corporate and policy circles have been negative, even panicked and that adds to the confusion and inaction even more.

Positive thinking and action are needed.

The answer to this crisis of leadership and the wave of pessimistic inactivity that seems to be about to engulf us all is to develop an attitude and an approach that is positive, not only among leaders but in the general population. That means creating a new awareness of the challenges of

sustainable development that emphasises the positive aspects and adopts tangible, transparent approaches to resolving the impacts of the negative effects. Hiding in the fantasy that things will return to "normal" will not bring about the changes that are urgently needed, nor will it convince already sceptical populations with access to a wide range of information and opinions that "everything is under control". Everything is not under control and the SDGs are only the most visible set of responses to the crisis of unsustainability; they are not the maximum response formula, but the minimum that we can do to hold back the destruction of our planet.

Therefore, the way things are done will have to change as the world enters a period of new dynamism, in the sense that there will be constant and integral change for the foreseeable future. The predictability and stability that have existed in the advanced economies, and that have been aspired to by everyone else as evidence of development, are no more. The first step in coping with the new reality is to accept that it exists and engage innovative tactics to dealing with it and benefiting from it. In public administration, this implies a mix of courage and humility at all levels; the courage to confront change openly and the humility to confess that we do not have all the answers – yet. The old way of doing thangs that relied – more or less – on applying tried and tested solutions to problems is no longer appropriate in a dynamically changing world where answers need to be sought and found much faster and more effectively than ever before.

Innovative solutions to challenges never encountered before need to come from sources that may be unexpected or "out-of-the-box". In fact, the very idea that there still is "a box" may be completely outmoded. Instead, mindsets need to change, and that change is possible with a little creative thinking. The idea that a new concept or approach is "wacky" because it does not conform to established practices and attitudes needs to be discarded. It may well be that a "wacky" idea is wise or that something that is considered "bonkers" should be thought of as "bold". One of the most influential technology companies has already adopted an approach that gives value to "wackiness" and it has paid off. All staff in the company – no matter their level or pay grade or formal responsibility – are encouraged to think about products, be aware of challenges facing the company, and to think about ideas and products that could resolve problems *even before they arrive*. The management considers that, if there is a cost to be borne by staff devoting time to resolving problems that are "none of their business" in the "normal" world, that cost is well worth it. As a result of this corporate culture, not only have profits and incomes increased incessantly, but the company is attracting highly educated, qualified people who stay with the firm for much longer than they do in "traditional" corporations.

In approaching the challenges presented by moving towards the SDGs, it is well to consider the attitudes of the youth and the rising generations. They will have been living with the new reality for most of their lives and have a different approach to problem solving than their elders, for whom their patience is limited. Young activists, such as those campaigning for a real reaction to climate change, represent only the visible wave of a movement of impatience that is rising everywhere. This is becoming evident in companies and in countries, as well as in the non-governmental sector. As part of a response to the challenges faced by leaders and institutions, the younger generations should be listened to and made part of the solution, rather than being seen as part of the problem. Young people – especially in the economically advanced countries, but also in the developing world – are often major consumers and social influencers. Adept in the use of social media, their capacity for mobilisation and influence is at a level never before seen in a younger generation. Their

aspirations and needs will have to be met, if they are not to become so impatient that a major rift is created in society. In the words of a senior executive in the Brazilian branch of a major multinational corporation, "We are in danger of creating a generation of angry consumers and angry citizens, if we don't understand that something big is changing."

Young people are a resource whose input to reacting to the challenge of sustainable development may well be crucial. They are certainly entitled to be participants in facing up to that challenge, since they will be the major beneficiaries or victims of any policies and approaches that are adopted. The Brazilian executive spoke of her consumers, but she also mentioned "citizens". This is a message for policy makers, governments and politicians at every level. Re-election is on the minds of politicians everywhere – even where the society is deemed not "democratic", for everyone has a "constituency" to which they have to answer – and young people will be important influencers politically as they become more involved in their societies. Political careers will come to depend on the youth vote (or failure to participate, which could be even worse), so politicians, corporate leaders and institutions who recognise the importance of generational inclusivity will benefit in at least two ways: winning support from an important sector of society and a higher probability of policy success.

The new way of thinking that is needed to cope with the challenges of sustainable development and reaching the SDGs will, necessarily, rely on contributions from the younger generation. It will also come from what has been called, "de-hierarchisation", or the dismantling of conventional, established power structures that are often inflexible and resistant to change. Companies seeking to survive and grow in the new environment that will emerge from the adoption of sustainable development as a guiding principle cannot do so if they continue to align management with a rigid structure of power and responsibility. The same thing applies to government at all levels: state structures and those of national and international institutions can face up the challenges facing us now and in the near future but only of they can reduce rigidity and actually encourage de-hierarchisation. What seems to be holding that process back is tension and fear – often at the top – that loosening rigidity is synonymous with loosening authority and responsibility, which then translates into job insecurity.

States, corporations and institutions can adapt to change, but they must learn to change themselves in ways that reward innovation and flexibility, while disdaining "business as usual." The whole idea of "thinking the unthinkable" starts here at the level of management of the institutions that govern our society. It is also important in some unexpected circles where it might even be considered "thinking the unpalatable". For example, in the armed services. These are some of the most rigid structures of human organisation, where "order are orders" and where the hierarchy fits into a rigid design unchanged in some cases for centuries. Everyone knows her or his place in the structure and, if there was any doubt, the concept of "rank" makes everything clear. Or seems to. In fact, in the new situation with which we are confronted and where warfare is also subject to new realities, there is also a need for innovative thinking and the concept of de-hierarchisation of ideas. New technologies are everywhere in the modern armed forces, which renders the world less predictable but makes further technological innovation imperative. Indeed, it is within the technological operations of the military that thinking the unthinkable happens most frequently. Achieving some state of sustainable development will also bring about changes to the environment in which the military operates and its success will depend to some extent of the level anticipation

it can achieve. Adapting to achieve the SDGs will cause disruption on a scale never before seen in modern times and the military will need to adapt to that new reality through new processes and practices that generate the maximum amount of innovativeness and flexibility, even within the structures of rank, title and seniority. Recognising this – and this appears to be happening in some circles – is key to the future development of the military in a positive way aligned with the SDGs and contributing to their achievement.

If the military can appreciate the need for new ways of thinking and doing, it must also be true of governments. The civil service is there to help the political authorities enact and implement law and regulations to govern societies. Like the military, most civil services – including those at the international level – are organised in a very rigid pattern of hierarchical control. Promotion may be by merit, but is often dependent on seniority, and seniority is gained all-too-often in a single administrative environment. Relations are established, networks developed and a sense of "belonging" encouraged. This cosy world has two effects a discrete system of power and influence within a department, and a standardisation of practice that promotes conservative thinking and action. Charged with enabling policy makers, the system can just as easily frustrate them.

Standard civil services also suffer from "siloisation" (see chapter 4), which means that departments and administrative sections are compartmentalised, locked into "silos", like so many grain elevators, with little communication between them and jealously guarded "empires" within them: "silos" within "silos". Whereas siloisation has benefits – in the concentration of knowledge and expertise, for example, and the possibility of discrete exchange of information before it leaves the department – it also presents challenges because of the likely lack of communication and reinforcement between silos. In the new configuration of societies and economies that occurs as the SDGs are approached, the silos need to be – and can be – made to work more flexibly and to share their knowledge and expertise or, at least, bring them to bear in dealing with overarching problems to which a universal solution needs to be found.

For example, the population of the planet is increasing, and everyone has a right to be fed. Indeed, SDG 2 specifically recognises that right. To feed people, agricultural production must be increased, but it must be increased sustainably. The pressures on land and marine life are already extreme, so the two objectives of protecting the environment and feeding the people would seem to be in conflict. The solution to this apparent conundrum can come from many sources: technology, fiscal incentivisation, fish-catch limits, and so on. While one ministry or department of government at the national level can co-ordinate the effort to increase food production, the achievement of sustainability will demand on contributions from many other parts of the government in ways that have not been seen as necessary in the past. Recognition of this will cause the silos to be more open with each other, to build bridges between them and ensure that innovation and flexibility are not stifled by fear of loss of influence and power. This may seem like a tall order, but it is not only necessary, it is entirely feasible, as long as there is political and administrative recognition of the need for it and as long as it is rewarded precisely because of its contribution to meeting the new challenges posed by sustainable development.

What this implies is the seemingly illogical idea of not having a comprehensive "plan", a fixed strategy of how to make things happen. Having a plan is precisely what produced the current situation of inflexibility and business as usual because a plan assumes that the factors at play

today will be the same as those that will apply tomorrow, and that is not at all true. The idea that having a plan means "everything is under control" is completely false and can lead to the complacency that brought us to the crisis we are in today. The challenge is to get governments, institutions and corporate boards to think in a different way. Planetary meltdown is no longer really "unthinkable" – we know it can happen – it is, rather, "unpalatable", so leaders and those who serve them do not want to think about it or, if they do, prefer to have a plan to "sell" to their electors and subordinates as a substitute for the reactivity and innovation that will really confront the problem. A good example of the riskiness of planning is how governments have dealt with the arrival of new communications technologies. The time has been so short, yet there is an impression that the IT revolution happened a long time ago. However, ten years before these words were being written in early 2020, Facebook, for example, did not exist, yet it now has a budget in excess of that of many countries and its influence is global. It would have been impossible to have a plan or a strategy to deal with it. The same thing applies to viruses and other "infections" of computer systems, to hacking and the many other ways of hijacking people's information and property.

It is the speed of change that is going to influence the way it is dealt with in the corridors of power and in the ministries and departments of the world's governments, companies and institutions. The way that speed is dealt with will determine the outcome of the response. One of the phenomena that is accelerating is populism, the reaction of people to a simplified characterisation of events or threats that incites a reaction based on perceived narrow self-interest or short-term benefit. Politicians are sometimes responsible for the rise of populism but, once it occurs, all policy makers and institutional actors have to deal with it.

The complication is that populism is enhanced by the communication revolution by which stories, theories and information, generally, travel at unprecedented speeds to unimaginable numbers of people. Policy makers can respond either by subscribing to a populist trend or by attempting to redirect it in ways that are more rational and in line with the national or international interest. A classic example of this was the "environmentalist" movement in the latter half of the 20th century where, contrary to expectation, protection of the environment became associated in some countries with the extreme nationalist movement and "defence of national culture and identity" that was felt to be under threat from "foreign" ideas and people. While some politicians were prepared to pander to the populist "green" movement, the majority rejected it and supported the wider based campaigns waged on a planetary scale.

Populism has become – perhaps has always been – a way for people to push back against what they see as power structures that do not serve their interests or that are not responding to the urgency of the threat facing them. It is an expression of lack of faith in people's leaders and an expression of the frustration people feel when the authorities do not meet the expectation that they will protect those they rule or administer. A rise in populism seems to signal a decrease in traditional tribalist party politics and their replacement by mass movements focussed on specific issues or groups of issues. The multitude of demonstrations organised with Ms. Greta Thunberg present a very good example of frustration with business as usual where hundreds of thousands, even millions, of people, most of them young, are frustrated and dismayed by the lack of effectiveness of global action to fight the climate emergency. These young activists are more aware than their parents and grandparents of what is going on in the world outside their windows and they are also

more aware of the failure of the political systems to cope with the challenge. Some are too young to vote, while others see their vote as having no consequence.

As the world's institutions awaken to the urgency of the SDGs and moving towards sustainable development, there are likely to be more expressions of resistance, mistrust and rejection of "conventional" politics, as people are asked to make sacrifices for reasons that are obscure to them. In the restructuring of economies, there will be winners and losers. The strains upon societies will increase and disillusionment by some is inevitable, while the overall tangible gains from sustainable development will be years away. In some cases, the benefits are invisible because they are things that did *not* happen. For example, moving away from fossil fuels will inevitably result in cleaner air over time but its main result is that the air will not have become unbreathable and our climate will not have continued to decline. It is very difficult for people who are not specialists to sacrifice in the interests of something that will not happen. People who lose their jobs or who never get them will have to face economic hardship unless policy makers can find solutions to their plight. The same thing applies to those who will see their incomes reduced or become more unstable. In the absence of compensatory measures, people will resist.

In developing countries – especially the very poor least developed countries – the authorities will have to explain that economic development on the pattern enjoyed by the "west" for generations is not to be had in the future and that new, sustainable development paths will need to be followed. This is a hard message to convey to people who already feel they are making sacrifices just to keep going; it implies that they cannot hope for a better future for themselves and their children. Moreover, it has to be admitted that, in many developing countries, politics and business lack a certain level of probity and honesty in public life. Privilege and corruption are corrosive to civil cohesion and trust in a society's leaders. The reform of political systems, thus, is integral to having the messages about sacrifices and the threat to all of us from unsustainable development. For example, a farmer in a poor country who has been able to increase her yields by the use of fertiliser, pesticides and herbicides will find it hard to accept lower yields by ceasing such harmful practices unless she and her family can somehow be compensated.

Though the coronavirus Covid-19 pandemic occurred after the Forum on which this book is based, there are lessons that can be learned from it for a populist response. The standard reaction to the pandemic has been the widespread use of stay-at-home orders that led to an immediate and vertiginous decline in economic activity. Despite government mobilisation of compensatory financial and fiscal measures, the other immediate effect was economic hardship for millions of people the world over. While most accepted the lockdown as a rational and inevitable measure, as time went on, signs of rebellion appeared. Social media, again despite attempts to control them, circulated stories of conspiracy, theories that the wealthy and/or the political leaders were not obeying the rules or that the rules were not even necessary. As the pain deepened and before the effect of compensatory measures could be felt, the seductive idea that governments had blown the threat up out of all proportion started to convince some people that they were being unfairly and irrationally "punished". A populist rebellion began to germinate and grow.

These populist reactions are predictable in the absence of a science-based educational programme to demonstrate the good rationality behind measures that cause short-term harm for long-term gain. This is the challenge for policy makers, non-state actors and boardrooms, alike. The

people dependent on them must both retain trust and adherence to authority. Shareholders who are told that their company is going to suffer economically in the short term in order to retain long-term viability must believe the board and the board members need to demonstrate that they are committed to keeping the company solvent and profitable in the interests of the investors, the workers and the consumers of its products. In government, policy makers and officials must show themselves to be transparent, imaginative and flexible as they seek solutions to the challenges posed by the struggle to reach the SDGs. Leaders need to lead, but they also need to understand where their credibility is thin and from where the people most at risk from change are drawing their information. It is telling that policy makers and industry leaders in the United Kingdom failed to predict the outcome of the popular vote to leave the European Union. Their failure was partly one of arrogance, believing that the evidence for staying in the Union was obvious, and partly one of disconnection with ordinary people. They saw themselves as the solution, whereas they were perceived by the people as the problem and Brexit as the solution. It was a monumental failure of the political system but one that others from outside the established political and economic institutions had foreseen.

What all these developments represent is what the German government has called "the end of tranquillity." The British Prime Minister, apologising for the outcome of the Brexit referendum, said "I did not appreciate the strength of feeling that would be unleashed …" during the referendum. This reveals two things: the Prime Minister was out-of-touch with popular frustrations, and he did not appreciate that putting exit from the EU on the table – previously, "unthinkable" – would make it seem possible. Brexit provided evidence of moves that are being seen all over the world to replace facts with feelings, where emotiveness is taking precedence over rationality. In short, there is a crisis of governance.

The first phase of confronting this breakdown in the established order and the crisis of governance is accepting that it exists. Populism may have become a more serious part of society, but that does not mean that governments and institutions need to be ruled by it. On the contrary, there are already institutional changes that are taking place in favour of sustainable development by actors in the private sector (see Chapter 6). Members of the United Nations' Global Compact take part in mobilisation of a global network of sustainability company and stakeholders, while the World Business Council for Sustainable Development brings together major companies with a net worth of over USD 805 trillion. Another business organisation, "The 'B' Team", so called because its founding proposition is that the established driving force behind business – the 'A' motive – has to be replaced by sustainability and net-zero emissions, the "B" motive. These private initiatives are symptomatic of a new-found and accelerating sense of urgency in the private sector, as described by the CEO of The B Team, Ms. Halla Tomasdottir, "I can't imagine a more important quest than to help drive momentum toward the solutions our world desperately needs and deserves—now and in the years to come." It is notable that all three of these initiatives do not restrict themselves to strictly "climate" issues but recognise that probity, good management and the protection of human rights are also part of the solution to the political problem of "selling" the absolute need for sustainable development. "Wealth" does not equal "wisdom", but it can contribute to the acquisition of wisdom and knowledge alongside government. However, even Facebook – which has been fined millions of Euros by the European Commission – failed to see the threats posed by unanticipated and indecent use of its platform, as well as the misuse of its oligopolistic power to control the

information “market” it largely controls. That company, as well as many others, will need to rethink its responsibilities in the times ahead, and there are signs that it is doing so.

If the private sector is capable of rising to the challenge of sustainable development and the path to the reach the SDGs, the public sector must be equally aware of its possibilities and its potential for driving home the message and defining its policies accordingly. The task is difficult, but it is not impossible, as long as the public sector is prepared to think the unthinkable and react to it. The “fault” has been to adhere for generations to a conformity of governance – no matter how that “conformity” is defined – that is now no longer credible or feasible as the challenges of sustainable development emerge and impose themselves on governance.

Not having a plan does not mean not having the capacity to develop one rapidly. The new governance strategy has to be based on the absolute certainty that the terrain will change and change rapidly. What is needed is a “rapid reaction” mentality that is designed on the basis of unpredictability and aligned with a recourse to unconventional and innovative approaches. Achieving the SDGs will be wholly dependent on the enactment of policies that are credible and acceptable to the people, based on transparency and – especially – on education that clarifies both the challenges and the responsibility of all sectors of society to respond, recognising the cost and the shared burden of the response. All of this implies a reform of governance, but also an acceptance of the need for courage and humility of the kind that has been lacking in some of the great challenges of our time.

By adopting a new form of governance – in the board room, in the governing bodies, in the national and international institutions – the challenges posed by sustainable development and the achievement of the SDGs can be overcome.

Conclusion[11]

David Smith and Colm Foy

While the headlines, both in the media and at international conferences on sustainability tend to be captured by climate change, sustainable development is about much more. Of the four major threats to sustainable development – Inequality, Biodiversity, Waste and Climate – biodiversity seems to draw the least attention. Yet, the loss of biodiversity has a serious and negative impact on the pollinators on which 75% of our food crops depend. More attention needs to be paid to biodiversity or humans and other forms of life will perish long before the climate renders the planet uninhabitable.

The struggle for implementation of the Sustainable Development Goals (SDGs) must be a global one and it must be collaborative. Reaching the SDGs will not be done by governments, alone, even if we recognise that they are the major actors with the most influence. National, regional and international public bodies will need to recognise that they need partners and they need innovation going forwards if we are to progress towards 2030 with any confidence. The *Global Sustainable Development Report's* six entry points and four levers described in Annex i to achieve transformative change need to be adapted to specific circumstances and the allies necessary to achieve the transformation must be brought on board early in the process as partners with governments.

Allies for transformation exist in the sphere of private enterprise and in civil society. Business organisations such as the World Business Council for Sustainable Development are obvious allies on the road to the SDGs, as are groups such as the Sustainable Development Solutions Network, but there may be others that can complement these large organisations when help is needed at the local level. The problem is that the nature of the SDGs means that jurisdictions cannot focus on only one of them, even if they can prioritise which SDGs to work on in their specific context. The SDGs and their targets are highly interlinked. Focussing on single goals or targets without taking the linkages into account can lead to a failure to achieve the desired goal and may lead to erosion of gains in other areas.

Thus far, it seems clear that current governance models are still not up to the task of moving forward fast enough to reach the goals. The goals are closely inter-linked and real progress is dependent on understanding these links, so typical governance systems that traditionally tend to focus on single goals are not suited for the task of realising the SDGs. New ways of thinking and operating that facilitate multi-disciplinary and trans-disciplinary approaches are needed to make real progress towards the goals. Systems are rigid – siloed – and over-specialised. Relations within public corporate structures are generally resistant to change, never mind transformation, which is so much more difficult and wide-ranging (and permanent). There is a desperate need for a new way of thinking in all governance structures and at every level. Unless innovative thinking and flexibility replaces traditional immobilism, the Goals will be missed.

[11] This chapter draws heavily on the concluding presentation of the 2019 Sustainable Development Transition Forum by Dr. David Smith, University of the West Indies

Even with reform and transformation, how can the SDGs be financed? The cost will be phenomenal, and the need is greatest where the finance is most scarce: in the developing world and the SIDS. Donors and private investors will be looking at paying for infrastructure, energy-generation reform, new ways of organising agriculture, transportation systems and a myriad of other things while reducing gender and income inequalities, raising living standards and improving education. For the financial transfers necessary to do all this to be effective, they will need to be monitored and targeted. Most of all, ways need to be found to convince private actors that there is profit in supporting transformation, if they are able to see the concept of "profit" in different ways.

The whole concept of "development" needs to be reviewed and recentred away from the "Gross Domestic Product (GDP)" concept towards something else that measures human well-being. There are movements towards this way of seeing – in Bhutan, with its National Happiness Commission, for example, or in the OECD' *Better Life Initiative*, which emerged from work based on the Commission on the Measurement of Economic Performance and Social Progress (also known as the Stiglitz-Sen-Fitoussi Commission) – but more needs to be done. Governments continue to rely on the GDP metric at their peril because it is simply incompatible with measuring progress towards sustainability and the SDGs. The example of the cleaning of energy production is a good example of where GDP fails to measure what is important. Moving from fossil fuels to renewable energy will, in the short term at least, cause GDP in some countries to stagnate or fall, provoking job losses, which looks like the exact opposite of "development". However, the impact of reducing fossil-fuel use is an improvement in the liveability and viability of the planet as a whole, which is clearly a "win".

The sustainability crisis was highlighted by scientists. Indeed, the most authoritative work to date on implementing the SDGs is the *GSDR* that is produced for the international community by a group of independent scientists. However, just as income inequality is rife on the planet, so is "information inequality". Research centres and universities in the developing world and the SIDS do not have the same access to information as their colleagues in the high-income countries or in organisations like the OECD. As academia has become more "capitalised", researchers are not only engaged in seeking funding, they are also expected to sell their reports and papers. Acquiring the information contained in those reports can be expensive and problematic for institutes in poorer countries.

Access to technology is another source of inequality. While all OECD member countries have highly developed and efficient information superhighways in place, with access to the internet available to almost everyone, this is not the case in the developing world. Things on this front are perpetually changing but probably not fast enough. The crisis is here and needs to be dealt with now, rather than in many years when the most vulnerable countries and regions are able to catch up with the rest of the world. This implies a massive investment in information technologies throughout the world but, especially, in the poorer countries. It is a paradox that those who need communication and information most, are the least likely to have access to it. The "digital divide" needs to be closed.

In developed countries the concept of the circular economy needs to be adopted and developed as far as possible across the industrial landscape. The idea of planning for end-of-life or end-of-use of a product should be built in from the moment of conception. That means that, at

every stage of construction and use, the waste is being accounted for in a sustainable way. The impact is a reduction in waste, first of all, but an increase in reuse subsequently. If a product already has an end-of-use plan, the facilities required to recycle or repurpose the whole item or its components can be made ready. As countries move into industrialisation, they should be able already to draw on the circular economy and avoid the problems that have come to beset the advanced economies and, indeed, the entire planet.

With information, technology and the circular economy there is a need for vast improvements in human capital through education and training. Agriculture is evolving because it is unsustainable in its current state and will not be able to feed the increased global population if production methods do not change. This means an investment in new ways of farming, with higher levels of technology and more sophisticated supply chains. There will be an increased role for crop science, especially if the move away from animal sources of protein continues. The new farm will need less labour, which implies people moving off the land to find work elsewhere for which education will be required. Thus, human capital, agricultural development and urbanisation are interlinked.

The challenges to be faced in moving forwards towards the SDGs are varied and substantial, and they cannot be met by continuing with "business as usual" on any level. Throughout this volume, one story stands out: the need for vast and comprehensive governance reform at all levels and in all structures of power. "Governance" is generally thought of as applying to governments and nations, but it also applies to the corporate boardroom and the substantial range of civil society organisations. There is also a desperate and urgent need to adopt multi- and trans-disciplinary approaches to development problems, since many of them are complicated, complex and/or "wicked". This is not "somebody else's problem", but the responsibility of all actors in society if we are to have any hope of reaching the SDGs.

Annex i. The Global Sustainable Development Report (GSDR) [12]

Eun Mee Kim with Colm Foy

The SDGs build upon the MDGs but deal with a wider set of challenges around the world and complete the 2030 Agenda, aptly called, "Leave No One Behind". The GSDR 2019, produced by the Independent Group of Scientists established by UN Secretary-General, Ban Ki-Moon on his last day in office, has as its ambition to make understanding the SDGs more manageable. The 15 scientists from around the world – (Indonesia, Switzerland, Austria, Belgium, Cameroon, Denmark, Finland, France, Ghana, Jamaica, Jordan, Lithuania, Mexico, Republic of Korea and the United States) and including a mix of men and women from different scientific disciplines in the natural sciences, humanities and social sciences – appointed to serve were instructed by Member States to perform a scientific and an independent and critical evaluation of the SDGs. Several members of the Group made the journey to Incheon for the launch of the GSDR at the 2019 SDTF.

When we began our work, we took as our starting point the Brundtland Report: Our Common Future published in 1987. That report was already calling for fundamental changes in our patterns of development so as to save humanity and the Earth from imminent disaster. It noted the need for "sustainable development", an appeal that was taken up at the Rio Summit, five years later. The Brundtland Report identified environment and development as being linked, arguing that they should be understood in such a way as to achieve them both, rather than in a conflictual and zero-sum relationship. In other words, we should not let development undermine our efforts to save the environment, but we need to make sure that development needs can be met with at the same time as preserving our environment. Unfortunately, the reality has not changed that much since 1987.

[12] This Chapter is based on the launch of the 2019 *Global Sustainable Development Report* by Professor Eun Mee Kim (Ewha Womans University, Korea), Dr. Parfait Eloundou-Enyegue (Cornell University, US), Professor David Smith (University of the West Indies).

What we wanted to do with the GSDR was to use the science to bring about change in our reality and to show a way forward. Our mandate was to concentrate on the science-policy interface and evidence-based research, since the SDGs were negotiated through a political process, without, necessarily, a science-based evidential approach. What we wanted to do was to produce a blueprint for the world in 2030 and beyond to 2050, using the situation in 1987 – publication of *Our Common Future* – as our baseline.

The GSDR is, of course, the result and the outcome of a process that began with the nomination of the Independent Group of Scientists and the definition of the Group's mandate by Member States. The Group was appointed by the United Nations Secretary-General in December 2016. Throughout 2017, and following a briefing for Member States after an initial workshop in New York, and in Helsinki, Finland, the Group organised its work and practices, gathering inputs from as many sources as possible and holding workshops to explore the different themes of the report. The Group's work was carried on with constant and continuous consultations with UN's Department of Economic and Social Affairs (UN DESA) and was supported by a Task Force comprised of six UN Agencies, in addition to UN DESA: United Nations Environment Programme (UNEP), United Nations Conference on Trade and Development (UNCTAD), United Nations Development Programme (UNDP), UNESCO and the World Bank.

The consultation and fact-finding process continued throughout 2018, included a meeting in Washington, DC and more workshops and regional consultations in South Africa, Argentina and Bangladesh, as well as the Group's participation in Regional UN forums, for example, in Thailand. These efforts culminated in a second briefing for Member States and the production of a first draft of what was to become the final report. After a third briefing for Member States and a regional consultation in Jordan, the final draft report was delivered to Secretary-General Guterres on 10 September 2019. The Final report was launched in the United Nations General Assembly on September 24.

Our report led us to recognise that time is running out for implementing the SDGs. Ten years to 2030 is not very long. So, we sounded the alarm bell and pressed the need to scale up and accelerate implementation without delay.

Figure i.1 Projected Distance From Reaching Selected Targets (at Current Trends)

GOAL	WITHIN 5%	5–10%	>10%	NEGATIVE LONG-TERM TREND
Goal 1		1.1. Eradicating extreme poverty	1.3. Social protection for all	
Goal 2		2.1. Ending hunger (undernourishment)	2.2. Ending malnutrition (stunting) 2.5. Maintaining genetic diversity 2.a. Investment in agriculture*	2.2. Ending malnutrition (overweight)
Goal 3	3.2. Under-5 mortality 3.2. Neonatal mortality		3.1. Maternal mortality 3.4. Premature deaths from non-communicable diseases	
Goal 4	4.1 Enrolment in primary education	4.6 Literacy among youth and adults	4.2. Early childhood development 4.1 Enrolment in secondary education 4.3 Enrolment in tertiary education	
Goal 5			5.5. Women political participation	
Goal 6		6.2. Access to safe sanitation (open defecation practices)	6.1. Access to safely managed drinking water 6.2. Access to safely managed sanitation services	
Goal 7		7.1. Access to electricity	7.2. Share of renewable energy* 7.3. Energy intensity	
Goal 8			8.7. Use of child labour	
Goal 9		9.5. Enhancing scientific research (R&D expenditure)	9.5. Enhancing scientific research (number of researchers)	
Goal 10			10.c. Remittance costs	Inequality in income*
Goal 11			11.1. Urban population living in slums*	
Goal 12				12.2. Absolute material footprint, and DMC*
Goal 13				Global GHG emissions relative to Paris targets*
Goal 14				14.1. Continued deterioration of coastal waters* 14.4. Overfishing*
Goal 15				15.5. Biodiversity loss* 15.7. Wildlife poaching and trafficking*
Goal 16			16.9 Universal birth registration **	

Source: Global Sustainable Development Report 2019, https://unosd.un.org/sites/unosd.un.org/files/unosd_2019_sdtf_publication.pdf

What we wanted to show was that we could not continue conducting "business as usual" and hope that everything will turn out all right. While we found that two Goals (3 [Global Health and Wellbeing] and 4 [Quality Education]), were on track and within 5% of being on target by 2030, others were wholly or partially unlikely to be within 10% and four Goals were simply – on current estimates – not going to be met at all because the long-term trend is currently negative. These were SDGs 12

(Responsible Consumption and Production), 13 (Climate Action), 14 (Life Below Water) and 15 (Life on Land). Moreover, components of SDG 2 (Zero Hunger – Ending malnutrition/overweight) and 10 (Reduced Inequalities – Inequality in income) fell into the same category. In a nutshell, there are four areas in which the progress has gone backwards, where we must make every effort to turn things around quickly. They are: (1) climate change mitigation; (2) bio-diversity loss; (3) rising levels of inequality; and (4) ecological footprint, in which the natural environment is not able to handle the human waste that is deposited into it.

It is very important to remember, despite the gloomy evidence on the rate of implementation, that the SDGs are still indispensable to move us forward towards sustainable development. The SDGs have great transformative power because all the SDGs are interlinked and taken together, could bring transformations needed for sustainable development. In addition, the Declaration accompanying the adoption of the 2030 Agenda makes clear the commitment of the international community to the five "P"s of *People, Planet, Prosperity, Peace and Partnership*. We, as scientists analysing the data and making projections from it became convinced that the SDGs and the 2030 Agenda are not only desirable, but they are necessary for the survival of life on the planet, and the planet itself. Their integrated nature and multiple impacts do represent the best chance for us to reverse the harmful trends that we have been experiencing and that have been identified in the past 30 years. The GSDR, therefore, is not only a report, it is a commitment to contribute to the successful implementation of the SDGs and the 2030 Agenda.

Figure i.2 Selected Target-level Interactions

Source: Global Sustainable Development Report 2019, https://unosd.un.org/sites/unosd.un.org/files/unosd_2019_sdtf_publication.pdf

One of the mandates presented to us by the Member States, is that the SDGSs' 17 goals are "universal, integrated, and indivisible". This means that all the Goals must be implemented in totality, rather than piecemeal "cherry picking". Thus, we set out to try use scientific research to understand the nature and dynamics of the interactions between the SDGs. It was especially important to identify not only the way the SDGs supported one another, but also where they worked against one another. In other words, what were the trade-offs we would have to acknowledge and for which we would have to find solutions so that no-one would be left behind? Some of the co-benefits (mutually supportive SDGs) could be identified, so that we can suggest harnessing the synergy between the goals. The illustration below shows the apparent trade-offs between agriculture (SDG 15) and zero hunger (SDG 2). Much more research into these interactions and interdependencies is needed.

Some of the reasons for these negative co-relationships (trade-offs) are detailed in, for example, UNEP's report (UNEP (2019), *Measuring Progress Toward the Environmental Dimension of the SDGs*, Nairobi), cited in the GSDR where the research shows that intensive agriculture including oil palm and rubber plantations, as well as the illegal wildlife trade in Asia are severely damaging ecosystems. Elsewhere, deforestation for food production inadvertently leads to a reduction in natural allies, such as pollinators, and reduced the habitat for other beneficial forms of

life. However, it is also true that sustainable management of forests and wildlife can support food production and lead to a net reduction in hunger.

These interactions – and the agriculture/food nexus is only one of them – must be understood, if we are to transform a vicious cycle of destruction and resource depletion into a virtuous cycle of construction and resource conservation for future generations.

The report also acknowledges that the world is changing at an accelerated pace, qualitatively speaking, than it has in the past. The levers for change – the flow of information, flows of goods, flows of capital and flows of people – are increasing at rates that are much higher than they were in even the recent past. Metrics such as mobile cellular subscriptions, merchandise exports, remittances or international migration demonstrate these very rapid increases since Brundtland and they cannot help but have powerful impacts – for better or for worse – on our societies, economies and environments.

Of course, these are overall, global estimates and metrics. The situation viewed closer to the ground reveals very different experiences and very wide divergences in impacts. So, although the SDGs are global goals that apply to all Member States and every region of the globe, there are specific challenges at the country level and at the regional level that affect the ability of people to implement the goals. There must be a synergetic approach that recognises both the universality and the context of the SDGs. This is also challenge for the international community when it comes to supporting individual nations in their attempts to apply the 2030 Agenda.

The most important strategy tool of the 2019 GSDR is our conceptualisation of transformations that are needed in order to achieve sustainable development and levers that could help facilitate our actions toward them. They are the six entry points for transformation, and four levers for implementation (see below). Although we noted with alarm that only a decade is left for us to achieve the SDGs, we wanted to show concrete ways that can be done with the six entry points and four levers. We conceived of this framework as a way of tackling all 17 SDGs together, identifying in a reductive, but comprehensive manner how they share characteristics that can give us clues to the channels of their implementation.

Most importantly, this conception starts from the imperative that the SDGs must be implemented in a “universal, integrated and indivisible” manner, and that we should not cherry-pick the SDGs that we want to pursue. However, this mandate is not as easy to implement as it sounds because many of our governments and citizens have been more accustomed to “silo-thinking” and “silo-implementation”, without an overriding concern for policy coherence and integration. Thus, we have proposed understanding and implementing the 17 SDGs from a systems perspective. We have identified six “systems” that require fundamental transformations for us to achieve the SDGs: (1) human well-being and capabilities; (2) sustainable and just economies; (3) sustainable food systems and healthy nutrition; (4) energy decarbonisation with universal access; (5) urban and peri-urban development; and (6) the global environmental commons. If we examine the transformations that we must undertake to achieve sustainable development through these six systems, it becomes much more feasible to see how each (or most) of the 17 SDGs can be implemented; it also allows us to see the trade-offs and co-benefits between the goals.

The first of the six transformation entry points is human well-being and capabilities. This is very much related to the MDGs where we focused on poverty reduction (social development) and human development. The systems approach allows us to examine how the need to eradicate extreme poverty by 2030 (SDG 1) can be undermined by inequality. In particular, we note with alarm that women, indigenous peoples, ethnic minorities, persons with disabilities and other disadvantaged groups are exposed to compounded forms of inequality that make them particularly vulnerable to poverty and many other deprivations that are interconnected such as access to education, health, clean water and sanitation, good jobs, and greater risk in times of disasters. The transformation that we must seek should be mindful of these challenges, while enhancing the capacity of individuals and societies to cope with such challenges. Thus, the systems approach provides us with a possible road map that looks at challenges, but also at building human capabilities far beyond the extreme poverty threshold towards sustainable development in a much more comprehensive manner.

The second entry point is the concept of sustainable and just economies, which highlights the importance of balancing the effects of economic growth with human societies and the environment. The use of gross domestic product (GDP) as the sole or most often used indicator to measure economic progress has contributed towards single-mindedness in the pursuit of economic growth. Insufficient attention has been paid to rising inequalities in terms of production sites and the costs to the environment through depletion of natural resources, contamination, pollution, and waste disposal. Although globalisation has contributed to reducing poverty and generating jobs, it has also contributed to income inequality: just 1% of the world's population held 33% of the planet's total wealth in 2017 (GSDR 2019: xxiv). In an effort to transform our current ways of production and consumption that do not increase inequality, the second entry point calls for action from all stakeholders including governments, international organisations and the private sector to encourage investment in a direction that is more aligned with long-term sustainable development, decoupling of GDP growth from overuse of the environment, and working to reduce inequalities both within and between countries.

The third entry point is sustainable food systems and healthy nutrition, which shows, in very concrete terms, how the systems approach works across the 17 SDGs. Analysis of the food system shows how it is integrated to many of the Goals; we cannot take a silo approach to understanding just one SDG, for example, SDG 2 (hunger), without considering how increases in food production impact other Goals. Although a higher volume of agricultural production is needed to reduce hunger (SDG 2), it could result in a loss of bio-diversity if increased agricultural production fails to protect bio-diversity, which could be devastating if that one crop is destroyed for some reason. Agriculture production in many developing countries is greatly affected by climate change. We must balance the need for agricultural production and the ways we try to mitigate the effects of climate change, and not just on the production side. When we examine how food consumption behaviours of the Global North are intertwined, in terms of production patterns and the wage and labour structures in the Global South, the link between food security and nutrition, on the one hand, and affordable prices for agricultural products and a just economy, on the other, becomes obvious. There are clearly going to be trade-offs when one changes in relation to the other. Through the lens of sustainable food systems and healthy nutrition, we can also review the issue of vulnerability to disasters in the Global South, since the impact and cost of disasters for many of the countries in

the Global South exceed their capacity to manage them. Disasters can simply wipe out an entire country's GDP overnight as we saw, for example, in the Haiti earthquake of 2010. A disaster may undermine the whole economy, overall, but it will have immediate consequences through the reduction of the supply of agricultural or marine products for food security, and it will be most devastating for the most vulnerable people in disadvantaged groups. So, we must deal with the implications of disaster risk reduction and preparedness for food in the Global South; this is ultimately related to climate-change mitigation. When we examine the food system with a holistic and systems approach, we are able to see the interconnections and address the trade-offs and see how to enhance the co-benefits. Thus, the systems approach embedded in our six transformation entry points allows us to examine the interaction among the various SDGs, as we try to enhance co-benefits while we address trade-offs.

Energy decarbonization with universal access is the fourth entry point and it requires a fundamental transformation for us to reach the SDGs and ensure that human societies are able to live in harmony with the natural environment. We noted in our report that "Energy poverty remains extensive with close to 1 billion people without access to electricity – predominantly in sub-Saharan Africa – and more than 3 billion people relying on polluting solid fuels for cooking, which causes an estimated 3.8 million premature deaths each year, according to the World Health Organization (WHO)" (GSDR 2019: xxvi). Thus, on the one hand, access to energy is about basic human livelihoods and the quality of life, while, on the other, it is about the environment that we all rely on as a source of energy and resources. Similarly to the food-system analogy, understanding the energy system allows us to have a comprehensive understanding of how people's need of to have access to affordable, reliable and modern energy services should be balanced with the need to have a cleaner energy source for our environment and our future generations. This requires all stakeholders at the international and national levels to work together to reshape the global energy system so that we will work towards net-zero CO_2 emissions by the mid-21st century (GSDR 2019: xxvii).

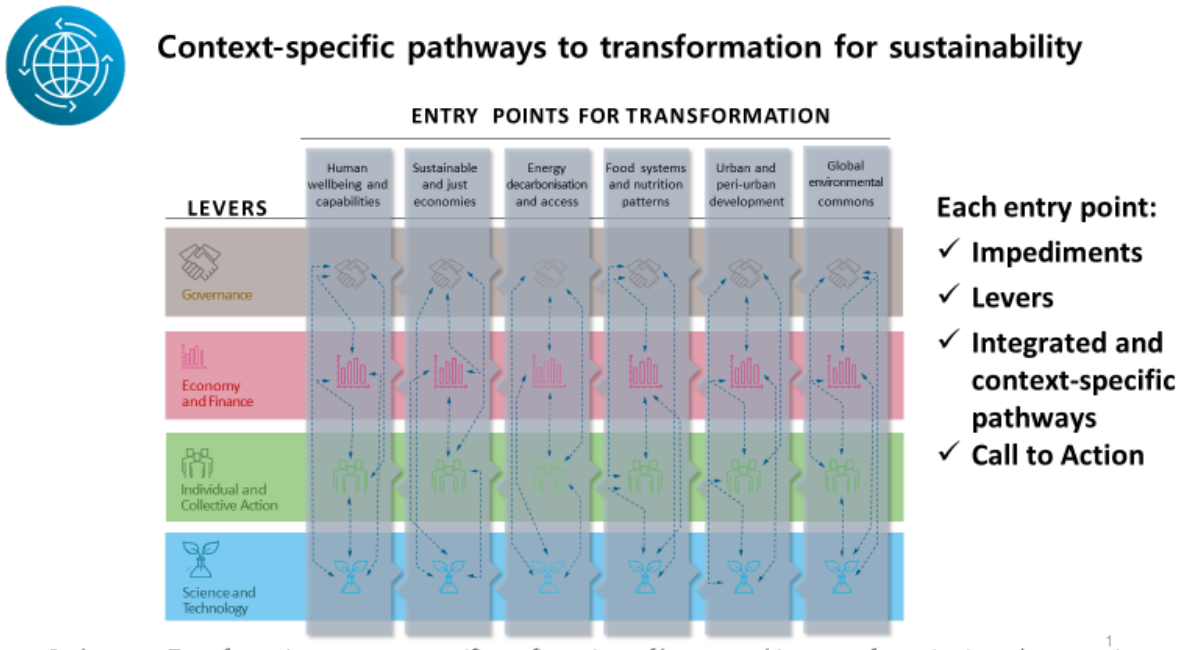
The fifth entry point is urban and peri-urban development, with an alarming projection that about 70% of the world's population and 85% percent of the global economic output will be urban by 2050 (GSDR 2019: xxvii). This staggering urban concentration of people could not only strain the cities' ability to serve the needs of their populations, but it will place a major strain on neighbouring rural areas for resources and access to a clean environment. If the current practices of urban infrastructure development continue to consume raw materials at current rates, the result will be major depletion of natural resources, loss of natural habitats and green space, loss of biodiversity, and greater vulnerability to natural disasters. Unless we change our business-as-usual activities of building, consuming and creating waste, we will not be able to achieve the SDGs. There is also an imperative to deal with urban poverty, such as in shanty towns surrounding the urban areas where wealth and income inequality is high and access to basic public services very low. Compact living in urban areas, however, can be a source of creative solutions if the more participatory way of governance suggested in the GSDR 2019can be adopted. National governments must devolve more autonomy to cities, while all stakeholders "should promote people-centred and pro-poor policies and investments for a liveable city that provides decent, sustainable jobs, sustainable universal access to vital services such as water, transport, energy and sanitation, with effective management of all waste and pollutants" (GSDR 2019: xxviii).

The sixth transformation entry point is the global environmental commons, which includes "the atmosphere, the hydrosphere, the global ocean, the cryosphere, polar regions, large-scale biomes and natural resources systems such as forests, land, water and biodiversity, which make up the Earth's shared resources" (GSDR 2019: xxviii-xxix). The long-term health of the global environmental commons is critical for the survival of humans, and we must recognise that the actions of humans have interactions with the global commons. It is important to transform our current ways of interacting with the global environmental commons, which is quickly depleting our natural resources and polluting our waters and air, as well as other elements of the natural environment. The challenge is to ensure that we find ways to manage the way we extract resources from the global environmental commons better, how to use the resources efficiently, how to distribute them so that no one is left behind, and how to dispose of waste (GSDR 2019: xxix). We must also remember that misuse and depletion of our global environmental commons can have severe consequences for our social, economic and political systems. Thus, the recognition of the intertwined nature of our human survival and the global environmental commons leads us to urge the international community, governments, local communities, the private sector and civil society at large to work together at the global, regional, international, domestic and community levels to change our patterns of using the global environmental commons. This could be done "through pricing, transfers, regulation and other mechanisms" (GSDR 2019: xxx).

The four levers are selected as a way to show how the six entry points for transformation can be implemented through the use of these levers. It is important to note here that the pathways represented in the vertical columns of the graphic are only illustrative because the actual pathways will be country specific. The four levers represent the mechanisms and means we can utilise to transform our world.

Governance, which is the first lever we propose, requires that the authorities at every level need to ensure that basic services are available to all, including and especially the poorest and most vulnerable. Increasing expenditures without ensuring universal access might have the perverse effect of creating even worse economic and social imbalance. A good example of this is the level of point-of-care costs to patients who, in many developing countries, account for up to 70% of health financing. Clearly, this places a burden on the poor and that burden might be unbearable, presenting an unsurmountable barrier to access for the poor who need care the most.

Figure i.3



Pathways to Transformation as context-specific configurations of levers to achieve transformation in each entry point

Source: Global Sustainable Development Report 2019, https://unosd.un.org/sites/unosd.un.org/files/unosd_2019_sdtf_publication.pdf

However, price is not the only criterion for assessing the contribution governance can make to the feasibility of SDGs achievement. Service delivery needs to be non-discriminatory, applied to all sections of society and without gender differentiation. This applies particularly to access to education, as it does to the social and financial hurdles faced by disadvantaged and vulnerable populations.

Another consideration is the level of quality of services provided by the different levels of government. A high level of quality can only be attained by continuous training, the availability of relevant supplies and access to quality-enhancing technologies, such as distance learning, medical diagnosis and communication with clients and suppliers. Adjustments in these fields need to be constant and on-going to ensure that services not only reach a high level of quality, but that they retain it.

Finally, one of the objectives of good governance is to increase the reliance of societies and their populations to external shocks of whatever nature. This implies that social protection should be extended to as many people as possible but should not be the responsibility of government alone. Citizens are also involved in assuming their part in assuring the well-being of themselves and their citizens and the private sector also carries an obligation to contribute to the overall economic and social health of their societies.

The second lever is the economy and finance, through which the private sector has a major role. While the public authorities are responsible for providing incentives for socially responsible investment, the private sector is charged with responding to those incentives and, indeed, taking

its own initiatives to support human well-being. In the GSDR, we explore some of the ways in which private operators can intervene positively, for example in health care, to reduce inequalities and raise the levels of well-being in their societies. Private actors can also contribute to skills levels, instead of waiting for the state to do it, and such contributions to the quality of the workforce should be reflected in the assessments of credit-rating agencies. They can also be introduced as conditions for accepting foreign direct investment by beneficiary countries.

The private sector is the source of an extensive amount of knowledge, experience, expertise and capital. These are resources that the public sector often does not possess or to which it has only insufficient access. There is ample scope in all countries to combine the social needs and responsibilities of government with the profit-led ambitions of private actors. This is specifically true of the requirements of the investments needed to achieve the SDGs, some of which require massive investment in, among other things, infrastructure. Responsible public-private partnerships (PPPs) combine the profit needs of the private partner with the policy objectives of the public one, with the burden of risk equitably shared.

Third, involving non-state actors in the implementation of the SDGs requires a society-wide effort that will require changes to the lever on individual and collective action. Policies that encourage contributions to policy making in the area of finance and investment from outside the public sector should be encouraged. This means involving non-governmental organisations (trade unions, political parties, gender-based groups …) in the discussions about spending priorities in order not to leave the debate to the traditional hierarchy, the wealthy or the well-placed. All these discussions need to be context-sensitive, taking account of local priorities and sensitivities. For example, the adoption of new technologies may require shifts in traditional practices or a change in mind-sets to enhance understanding and make the advantages clear in a given societal context.

Finally, the science and technology lever is introduced to resolve the problems posed by unsustainable development and climate change. The GSDR refutes the idea that science and technology can provide a "magic" bullet to end all our problems created by development patterns that are unsustainable. However, the report does recognise that, "science and technology offer many tools for improving the understanding of risks and possibilities and for guiding different lines of action." Not only can they present innovations for dealing with persistent problems in health and welfare, they can contribute to lowering costs, increasing awareness and improving access to communication, especially for rural populations. We recommend not only to continue with more science and research, but to make sure that what we already have discovered through scientific and evidence-based research should be made available to everyone. Thus, it is about science and technology *per se*, but also about universal and affordable access to science and technology across the globe.

For scientific and technological innovations to have the greatest impact, however, their introduction must be supported by the public authorities that are tasked with, for example, expanding access to mobile communication technologies and the internet. Technologies that improve access to safe supplies of water or regular energy supplies need to be adapted to local conditions and resistance to new ways of doing things will have to be overcome for everyone to benefit. This aspect of innovation introduction cannot be overstated because, as with the SDGs overall, on local implementation strategies can ensure the overall success of the SDGs.

Barriers to the delivery of certain services in health and education can be overcome with the help of new technologies. This can apply to the physical delivery of medicines and medical supplies to enhancing the ability of practitioners to exchange information. It can also apply to the techniques used for distance learning where individual travel to centres of learning can be difficult or impractical. Even assessing the need for new technologies can be supported by technology that delivers reliable and timely data on societal needs and all aspects of community demand/supply of services and goods. Such information is especially important in the context of health issues that may affect large populations, such as malaria, tuberculosis or viral epidemics.

The GSDR is an analysis of the challenges presented by implementation of the SDGs from a scientific perspective. The research and work that went into producing it made us all aware of the intrinsic value of research to the achievement of the SDGs. Hence, the report contains a "call to action" consisting of four poles.

The first of these is an appeal for continued and increased support for international scientific assessment and synthesis leading to greater coherence in recommendations based on the maximum amount of verifiable data. This could be aided by the second recommendation in the GSDR, which is to concentrate on establishing open-access national and regional SDGs knowledge platforms that can be easily used by the scientific community to exchange and review information and the findings of research. Again, in the context of the SDGs, where local conditions and contexts are vital, this is a tool that could have great significance for achieving the SDGs on the local level and contributing to regional capacities, as well.

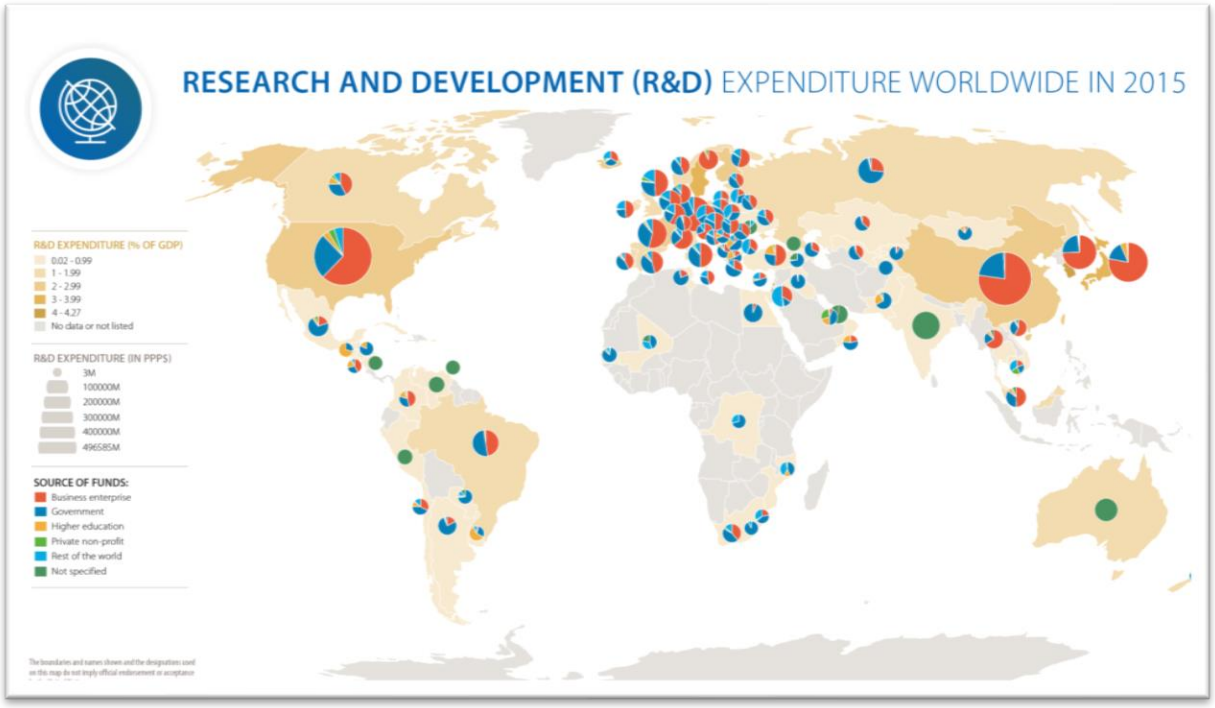
The acquisition and exploitation of scientific knowledge must be backed up by access to policy making and the political sphere. The report proposes to tackle this problem by suggesting the establishment of development councils that would be instrumental in "knowledge diplomacy". This concept relates to overcoming barriers to communication and understanding between the policy community and the scientific world, by building a bridge community composed of members from both whose objectives are the same: finding solutions for the achievement of the SDGs.

A further component of the call to action is a result of the persistence of "silos" that contain civil society, the scientific community, the public sector, the private sector, and so on. The report goes beyond asking for these silos to be in communication; it proposes that they form appropriate partnerships to produce unions that add up to being more than the sum of the parts into something much more able to move policy and support the SDGs. These partnerships would constitute another vector for communication and cross-fertilisation of ideas throughout all the sectors concerned with understanding and implementing the SDGs.

As part of this effort to share and distribute scientific findings, the GSDR contains recommendations to support international research and development that would both collate research findings and offer support between institutions, but would also provide facilities and expertise to developing countries that may lack the appropriate research resources. These open-access SDGs knowledge and technology platforms would specifically design, monitor and evaluate transformations to sustainable development. This would be part of a wider effort to harness and boost scientific capacity both through North-South and South-South transboundary research partnerships that would transfuse knowledge world-wide.

In order to nourish transnational and transregional partnerships, it will be necessary to extend and expand knowledge and training related to sustainable development, creating and maintaining a new generation of scientists and researchers with an understanding of the challenges of sustainable development. To this end, the report contains a recommendation that national and regional authorities develop and extend training and education curriculums to include sustainable development and build the concepts behind the 2030 Agenda into their educational programmes. Knowledge and research can only be validated and given credibility with recognised bodies of researchers as participants in its discovery and formulation. However, the resources of individual countries may be limited and/or specialised through necessity. Hence the need for regional funding institutions that should be set up specifically to supply finance towards building a community of specialised sustainable development scholars.

Figure i.4



Source: Global Sustainable Development Report 2019, https://unosd.un.org/sites/unosd.un.org/files/unosd_2019_sdtf_publication.pdf

The GSDR calls for extended and enhanced attention to research on sustainable development issues and, of course, on research and development in general. Without special appreciation of the role of science for Sustainable Development and further, continuous investment in it, we will not be ready to confront the challenges that will need to be faced as the world seeks to implement the 2030 Agenda and attain the SDGs. The authors of the GSDR are all scientists; research and knowledge acquisition are dear to us but, faced with the situation illustrated by this map, above, we realise that the system that currently decides how knowledge is produced may need transformational change. Most alarmingly, this map shows a clear bifurcation of scientific R & D between the Global North and the Global South. The Global South, with only a few exceptions, shows a dearth of R & D, which exacerbates the difficulty of countries in the Global South to produce

the necessary disaggregated data to help mitigate the effects of climate change, poverty, bio-diversity loss, inequality and so on. Thus, it is critical that R & D must be provided to the Global South through official development assistance (ODA) from both countries from the Global North and from international organizations, as well by private actor supplying R & D and technology transfer. In particular, we noted the importance of supporting and assisting higher education institutions (universities) in the Global South, which would help stop the brain drain and allow the universities and research facilities in the Global South to be able to generate the disaggregated data that is needed for sustainable development. While the MDGs and SDGs have emphasized the need to support elementary and secondary education, we noted the importance of also supporting higher education institutions in order to have "sustainability" of development.

The map also shows some other interesting things. A lot of science is being funded by the private sector, which may not be necessarily guided by the 2030 Agenda. In other words, privately funded R & D may have a stronger focus on the private sector's needs. Thus, we need to harness the advances of research in business practices and objectives, fundamental science, and in philanthropy to the SDGs by giving them a joint compass, a joint direction and objective that leads to the common good and is guided by the 2030 Agenda.

Another thing that emerges from close study of this map of global research is that relatively little public science is motivated by the quest for solutions to global challenges. In the short terms, this is understandable, given the attention to national and regional priorities, as well as the fact that public funding has to be justified by perceived national and regional needs. However, if we are to achieve the SDGs and follow the 2030 Agenda, this has to change. The world will need – indeed, does need – more mission-oriented research and scaled-up sustainability science that tries to tackle complex problems together with non-academic actors. This aspect of co-operation and "de-siloisation" is a threat that runs through the effort to reach the SDGs, as we learn more and more about the interdependence of the Goals and the integrated nature of the strategies we need to attain them.

The map demonstrates, as discussed above, that there is a pattern of highly unequal distribution of knowledge especially between high- and low-income countries. If we acknowledge that knowledge is a precondition for defining innovative pathways to sustainable development and that pathways in every part of the world are needed to achieve the 2030 Agenda, then this skewing is highly alarming. The lack of access to scientific knowledge in many of the places most affected by global change threatens the 2030 Agenda fundamentally. Urgent action is needed, both in the short term (open access, knowledge platforms, funding for researchers in these countries), and in the long term (building capacities, higher-education and research institutions, and scientific research-funding mechanisms).

We need special attention to issues such as gender equality, which is already happening, but it has to be redirected to be viewed through the lens of sustainable development and the 2030 Agenda. Gender inequality has been persistent and prevalent in both developed and developing countries. It is often compounded with other forms of inequality including income levels, access to health care, education and energy supplies, disaster risk management, and so on. In all these cases, the most likely to be left behind are women and girls, persons with disabilities, indigenous people among others; in other words, the most vulnerable. Gender inequality limits the opportunities and

the development of the capabilities of girls and women; it exacerbates the reduced conditions of girls and women in poverty and contributes to intergenerational poverty and inequality. Yet, there are ways of tackling gender inequality throughout the life cycle. They include, eliminating deprivations and building resilience across multiple dimensions where poverty and vulnerability are concentrated with special attention to the most likely to be left behind. We need to invest in early childhood education and support higher, gender-balanced enrolment in STEM (Science, technology, engineering, mathematics) fields.

We can support women's groups, labour unions, civil society organizations and community-based organizations to boost their capabilities to contribute to the sustainability transformation for equal and just societies. Unless we can reduce or eliminate gender inequalities, the hard truth is that we cannot attain the sustainable development goals. This is not only the work of the international community; it must also include and integrate the efforts of national and local policymakers and policy shapers at every level.

The basic message of the Global Sustainable Development Report, based on hard scientific research, is that the SDGs are attainable, and we can implement the 2030 Agenda. Over 100 scientists across the world contributed to the GSDR. They point to missing issues, criticize this and that, but the general response is very positive, and we see a general, strong endorsement of our insights by science across the globe. The conclusion is:

We need:

- Independent and Critical Assessment of SDGs Implementation
    - Evidence-based Research for SDGs that reflects the universal, indivisible and integrated nature of the 2030 Agenda, the Interlinkages and correlation among the 17 goals (Trade-offs and co-benefits) and policy recommendations to be based on scientific evidence including indigenous knowledge;
    - A strong message to the leaders of the UN and Member States to implement SDGs;
    - Reminding that we have only 10 years left until 2030;
    - With a strong alarm that we must act now to achieve the SDGs, but also showing a constructive message about how we can achieve SDGs with 6 entry points for transformation and 4 levers.

We all must work together to achieve the SDGs, and it has to start now and here!

Annex ii. The Incheon Communiqué

SUMMARY OF THE 2019 SUSTAINABLE DEVELOPMENT TRANSFORMATION FORUM

24 OCTOBER 2019

1. The sixth annual Sustainable Development Transformation (previously Transition) Forum, hosted by the United Nations Office for Sustainable Development of UNDESA, welcomed 140 representatives and experts from national and local governments, the United Nations system, policy think tanks, academic institutions, the media and civil society from around the world in Incheon, Republic of Korea, from 22 - 24 October 2019.
2. Participants discussed challenges and approaches to accelerating progress towards sustainable development including making the necessary transformative changes to how policies are made, economies are organized, production and consumption take place, our countries and our organizations are governed and how societies cooperate with each other. Business as usual is no longer possible and genuinely sustainable new models of development must be found.
3. In the spirit of the 2030 Agenda and the Sustainable Development Goals (SDGs), the international community, governments and all actors remain committed to ending poverty in the coming decade, permanently leaving no one behind, and achieving shared prosperity, while securing a stable climate and a healthy planet for present and future generations.
4. *Asia-Pacific Launch of 2019 Global Sustainable Development Report (GSDR)*. The Forum saw Asia-Pacific launch of the 2019 Global Sustainable Development Report, *The Future is Now - Science for Achieving Sustainable Development*. The participants welcomed the presentation and joined a moderated discussion of the report by the co-authors present from the Independent Group of Scientists. All the participants greatly enriched the conversation around the report with their fresh perspectives.
5. The GSDR contains a scientists' call to action based on their research, as well as a framework for action organized around six entry points to the social and economic challenges to be overcome in order to implement the SDGs, and four levers for transformation to enable those hurdles to be surmounted. The Forum explored how to make the transformative changes in the systems identified by the report: the energy system, the food and agricultural system, as well as sustainable and just economies. The Forum focused on the levers of governance, individual and collective action, financing and science and technology.
6. *From incremental change to transformation.* A key challenge identified by the scientists and in the discussions was how to move from incremental societal progress to transformative change. The international community has committed to achieving a hugely ambitious sustainable development agenda by 2030. However, the science tells us that this decade is the last window for getting to grips with global climate change if there is to be better-than-even chance of not exceeding the Paris Agreement temperature target.
7. *'Thinking the unthinkable'.* The Forum benefited from a presentation of the *Thinking the Unthinkable Project*, an effort to influence policy makers towards a new way of approaching political and societal problems in the face of new challenges from social movements.
8. *Making the seemingly impossible possible: political leadership and will.* The presentation noted that, while leaders and societies recognize that business as usual is not an option, change does come easily, especially big changes like those needed. In planning ahead, adaptive

governance capacity will be crucial, and governments, policy makers, businesses and others must be willing to 'think outside the box' to find solutions, to innovate across all walks of life, all the system entry points in all circumstances.

9. *'Making siloes dance', addressing trade-offs and capitalizing on synergies.* The 2030 Agenda and SDGs are an integrated agenda and set of goals. The 2019 GSDR elucidates the synergies and the trade-offs across the Agenda, providing a useful guide to governments and others in capitalizing on those synergies (between climate action and health, for example) but also in overcoming trade-offs (for instance, near-term tension between making a swift transition away from fossil fuels and ensuring continued affordable and reliable energy access, as well as other prerequisites for human well-being).
10. *Bringing everyone along with the needed transformations.* The international community and national governments are grappling with the need to move from the 'what to' to the 'how to' of implementing the 2030 Agenda. Change can bring winners, as well as losers and, if governments are to have the trust of people who may face the loss of jobs or reduced living standards, it will be important to reaffirm the commitment in the Agenda to "leave no one behind". This calls for inclusive dialogue on how to realize a 'just and fair transition', to tap the knowledge, not just of experts, but of ordinary people.
11. *Strengthening effective, inclusive and adaptive governance at all levels.* Countries have different histories, cultures, institutions and legal frameworks, all of which contribute to different styles of governance. Effective governance combines continuity and change – i.e., keeping the lights on and bringing light where there was none, while shifting the type of bulb and, in due course, the source of power. Whatever the governance style, governments need to deliver the goods, be accountable to their citizens and lead by example. In the face of major transformations, they must also be able to adapt, and to foster the innovations which make their societies resilient and adaptable to change.
12. *Changing the way societies consume and produce.* Among the biggest challenges to transformation is 'loss aversion', particularly of wealthy societies and consumers, who find the task of internalizing the external costs of unsustainable consumption patterns burdensome. What can change this status quo to bring about the large-scale changes required? Fiscal and other policies, incentives have an important role to play, but it is hard to imagine changes at scale without a fundamental change in values. Education, including sustainability and moral education, has a crucial role to play, including educational and awareness raising campaigns.
13. *Education is crucial to adaptive capacity and learning.* Korea's successful economic transformation certainly owes much to investments in education. Education of the population raises productivity, civic engagement and appreciation of the importance of science to sustainable development. Education imparts knowledge but also inculcates the values that can facilitate the behavioral changes required for transformation.
14. *Learning from a rich diversity of experiences.* Most countries that participated in the Forum have had the opportunity to report on their early experience with implementing the SDGs to the international community through their Voluntary National Reviews presented to the High-Level Political Forum on Sustainable Development. Those presentations provided a valuable opportunity for peer learning.
15. This SDTF has offered a further opportunity to share and learn from each other's experiences. There have, of course, been failures and shortcomings in all countries and organizations but there are also success stories, good practices – pockets, if not swathes, of excellence on which to build and from which others can learn.

16. *Gaining greater leverage to move the world.* Political will is primordial to achieving the 2030 Agenda, but it will also take finance and constantly improving science and technology -- closing financing gaps and the digital divide -- and transformative partnerships that can target and work to overcome the main obstacles to progress. Coalitions for transformative change need to be built or strengthened, with concrete, time-bound deliverables, adequate resources, and shared responsibility among all the partners.
17. *2030 is Now.* Participants in the 2019 SDTF left with a renewed sense of urgency to work within and across our siloes, with multiple stakeholders, towards positive and transformative change for sustainable development for all.

United Nations Office for Sustainable Development, UNDESA, Incheon, Republic of Korea, 24 October 2019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