A PLAYBOOK IN 20+ POINTS

THE NEW CLIMATE NARRATIVE

A STRATEGY TO OVERCOME RESISTANCE TO THE ECOLOGICAL TRANSITION

SOLARIMPULSE
FOUNDATION

A PLAYBOOK IN 20+ POINTS

THE NEW CLIMATE NARRATIVE

A STRATEGY TO OVERCOME RESISTANCE TO THE ECOLOGICAL TRANSITION

Despite the efforts undertaken since the Earth Summit in 1992 to protect the environment and fight against climate change, the situation has continued to worsen. Not only is it difficult to mobilise the public, businesses, and political decision-makers around these causes, but today we see ever more environmental detractors who directly oppose the necessary measures when they're not simply denying the reality of the problems.

Rather than locking ourselves into a conflictual divide, it is vital to take opponents into consideration, listen to their arguments and respond to them using a language they can understand, not the language of those who are already convinced.

It's clear that presenting environmental protection as difficult, expensive and sacrificial for the economy, mobility and comfort has not motivated many.

Rightly convinced of the worthiness of their cause, the environmental advocates unfortunately lacked a sense of communication psychology: a language that would have inspired action rather than sparking resistance and denial; that would have given the whole of society the motivation to act rather than triggering a will to resist; a compelling story on the transition capable of bringing key decision makers onboard. The humanitarian NGOs know that they will mobilize more resources portraying success stories, showing the results of their actions, rather than presenting a hopeless picture. Let's do the same for the environment: show an exciting image of climate action, increasing quality of life and continued economic development.

If such an approach was utopic in previous decades because solutions didn't exist to fight climate change and protect the environment in an economically profitable way, things have changed in the recent years.

It is therefore imperative to devise a new narrative and replace the one that has not worked in the past. What we are calling for is no less than a revolution in the way we speak about climate action.

At the occasion of the COP28, the Solar Impulse Foundation is bringing a strategic communication toolkit to policy and economic leaders to help them muster ambition and overcome resistance to climate action.

"It is imperative to devise a new narrative and replace the one that has not worked in the past. What we are calling for is no less than a revolution in the way we speak about climate action."

Dr Bertrand Piccard
President of the Solar Impulse Foundation

CONTENTS

CHANGING THE NARRATIVE IN 20+ POINTS 06-17

THE ALTERNATIVE GLOSSARY 18-19

GOING DEEPER 20-21

POINT 01
The importance of matching languages 22-23

POINT 02
Speak of Solutions, not just problems 24-25

POINT 03
Climate action as a vector for business opportunities and new markets 26-27

POINT 04
Frame decarbonisation as aconsequence of modernisation, not asthe end objective 28-29

POINT 05
Highlight savings and returns on investment, not costs and sacrifices 30-31

POINT 06
It's not about future technologies but existing ones 32-33

POINT 07
Start with what is easy and profitable 34-35

POINT 08
Efficiency over sobriety and degrowth
+
POINT 10
Quality versus quantity 36-37

POINT 09
Specify which degrowth you speak of 38-39

POINT 11
New professions versus lost jobs 40-41

POINT 12
Diversification versus endangered sectors
+
POINT 20
Climate urgency or economic imperative? 42-43

POINT 13
Why embark on the transition if big actors continue to pollute?
To gain a competitive advantage! 44-45

POINT 14
It's about humanity, not the planet
+
POINT 21
It's not only about climate change, but also the hidden gains 46-47

POINT 15
Protect the current generation, not just the future one 48-49

POINT 16
Setting legal limits to irresponsible behaviour, in the environmental space as in any other 50-51

POINT 17
Carefully choose how you name and speak about your policies
+
POINT 18
Showing is better than saying 52-53

POINT 19
Making the Transition an advantage to all - from North to South 54-55

REFERENCES 56-59

CHANGING THE NARRATIVE IN 20+ POINTS

When speaking about climate action, the words can either motivate and ignite change, or discourage and spur resistance. It is therefore crucial to adopt a new language – one that emphasizes the transformative opportunities, renewal, and fairness inherent in the transition, showing an exciting image of climate action. This section will explore more than 20 points that reframe climate action to help policy and economic leaders muster ambition and overcome resistance by focusing on the solutions rather than the problems.

POINT 01

The importance of matching languages

01

In order to convince anyone, we must use their language, not ours.

The language of the opponents to climate action focuses on job creation, economic development, freedom of action, and fighting against regulations. It is therefore on these points that we must focus the debate, not on that of respect for nature and the urgency of protecting it - because it simply doesn't resonate with them.

The aim is to demonstrate that, even without climate change, taking the necessary measures to modernise our world, making our processes and systems more efficient and our economies more profitable, is logical, as much as it is ecological.

POINT 02

Speak of Solutions, not just problems

02

Too often, climate action is portrayed as a constraint rather than as an enthusiastic path towards sustainable societal change. The overriding narrative is one of crisis, of problems, of urgency. And for good reasons. However, the current discourse is perceived as depressing and makes the situation look insurmountable.

Hope fosters action; igniting fear turns people off. Simply mentioning the problems and the urgency of the situation is counterproductive. People feel helpless in the face of a threatening future and do not see how or where to act. They are paralysed, like a deer in headlights.

In this context, even political leaders wishing to embrace a more progressive climate agenda are being contradicted by their electorate.

Rather than listing problems, we must talk in terms of solutions, of opportunities brought about by the ecological transition. Mobilisation will only become possible if we emphasise the tangible benefits.

If no economically viable solutions existed in the past to protect the environment, thousands of them exist today in the fields of water, clean energy, resource efficiency, mobility, construction, buildings, industry, agriculture, circular economy and waste management. But they must be implemented, which is not yet the norm, even though investing in these solutions is a profitable endeavour for investors and consumers alike, in both rich and emerging markets.

The current COP negotiations are not focused on opportunities, but on stopping climate change, by way of a process entailing hardship, costs and damage to the economy. This divides the actors, whereas putting all the profitable solutions on the table and studying which ones would be relevant to whom could create a consensus.

POINT 03

Climate action as a vector for business opportunities and new markets

03

The ecological transition should not be perceived as expensive. New companies with new products and services will grow, while existing companies will see opportunities for them to expand and diversify.

Businesses that invest in research and development of environmentally friendly technologies can tap into emerging markets by offering energy-efficient products, sustainable materials, and eco-friendly solutions. These innovations present lucrative business opportunities in sectors as diverse as green construction, electric vehicles, and smart grid technologies.

Today, companies can capture waste heat from factories to reduce heating costs. Or turn leaking methane emissions and other waste into usable products. They can transform or sell by-products of industrial processes for new business or revenue streams. They can use data analytics to make logistics run more smoothly and efficiently.

The opportunities are countless and warrant companies looking at every aspect of how they operate. The solutions to the climate crisis are often common sense and just waiting to be exploited. A more certain regulatory environment will help, but those companies that take the lead now will reap the first-mover benefits, making more savings and potentially finding new products and markets.

POINT 04

Frame decarbonisation as a consequence of modernisation, not as the end objective

04

We regularly associate climate action and decarbonisation. But these words scare many, because they are associated in their mind with excessive spending, a decrease in economic development and endangering industry and jobs.

If there is one word that would create consensus, it is “modernisation”. And that is exactly what it should be about. Wherever we look today, we see inefficient thermal engines, production processes, heating, cooling and lighting systems, as well as badly insulated buildings, all emitting CO_2, but also wasting precious resources and therefore money.

Replacing these obsolete and polluting systems and infrastructures, still widely used around the world, by modern alternatives represent a profitable business opportunity thanks to the inherent efficiency of the new technical solutions. Modernisation would be a much more motivating cause for all stakeholders. Using the vast array of available possibilities, modernisation would naturally lead to decarbonisation, which therefore becomes a logical consequence rather than a controversial goal in itself.

Let’s modernise with efficiency and profitability as a compass.

POINTS 05

Highlight savings and returns on investment, not costs and sacrifices

05

Citizens should not have to ask themselves what option to choose based on the environmental benefit it offers society but should do so based on how much it will benefit them and their wallet. Logically, investing in efficient solutions is financially profitable for investors and consumers in both rich and emerging markets. Investing in a heat pump will indeed represent an investment at the outset, but will provide considerable savings over the total period of ownership.

The ecological transition is about citizens grasping opportunities that open up to them, rather than being made to feel responsible for the transition imperative and thereby suffering through the ecological transition. Asking people to make sacrifices for no immediate return only creates resistance. Let's demonstrate how everyone can improve their standard of living thanks to affordable and accessible clean technology solutions. The policies should make it attractive for citizens to be engaged and play their part in a societal evolution that's both beneficial and sustainable.

POINTS 06

It's not about future technologies but existing ones

06

For the past several decades, there were no economically viable solutions to protect the environment, so we heard scientists and decision makers saying that no ecological progress could be made without innovation and invention of future technologies.

Developments in this area have been spectacular over the past years, but many have not yet realised it and they keep the same motto of waiting for future technologies before acting.

There are today thousands of technical solutions offering new industrial opportunities to protect the environment: clean energy sources cheaper than fossil fuels, decarbonised materials for construction, energy neutral buildings, efficient industrial or agricultural processes, effective waste management systems, taking our societies toward a truly circular economy, increasing efficiency to increase financial viability.

If these solutions were widely used, their producers would develop their businesses and create new jobs, while their users would save money, increase their purchasing power and improve their quality of life.

07

POINT 07

Start with what is easy and profitable

We hear far too often that it is impossible to decarbonise our way of living, with examples such as the well-known inherent difficulties of the aviation sector.

Instead of focusing on the most challenging issues, let's start with those where tangible, mature solutions already exist and offer a positive return on investment, like smart buildings, waste management, circular economy, modern industrial processes, resource efficiency etc.

These sectors, where policies and decision-making can make a quick and sustainable difference, are plenty. Let's not focus on high-hanging fruits when the low-hanging ones are ready to be harvested.

08

POINT 08

Efficiency over sobriety and degrowth

Even if it is clear that humankind is consuming far too many natural resources, opponents to climate action fear the terms sobriety and degrowth. We should rather speak of efficiency, which is essentially a way to obtain better results with optimised resource consumption.

Today, the notion of sobriety is associated with doing less with less, with a reduction linked to a sacrifice. On the other hand, efficiency is a reduction linked to a profit: doing better with less.

Using the term degrowth has a negative impact on the business and political decision makers, as well as on the electorate. Unless they are active ecologists, keen to make the necessary effort and sacrifice, they will see it as a loss of comfort, of purchasing power, of quality of life.

09

POINT 09

Specify which degrowth you speak of

The word "degrowth" introduces a vast misunderstanding if we don't specify what has to degrow. If it is pollution, inefficiency, waste, overproduction and overconsumption, we can create a consensus. Degrowth of the economy in itself, however, not only spurs resistance but also raises the question of funding available for education, health, social protection and pension schemes.

Growing the economy will bring social wellbeing, while growing production and consumption will destroy the environment but also deplete natural resources, and therefore increase their cost and damage the economy. More generally, we shouldn't fear to say that unlimited and unrestricted growth of production is a dangerous and archaic concept that we need to put behind us. As a consequence, prosperity indexes such as Gross Domestic Product (GDP) should be reformed.

The main question remains: is it possible to grow the economy while degrowing the consumption? The next point will show how to proceed.

10

POINT 10

Quality versus quantity

Until now, economic development was coupled with quantity of production, consumption and waste. However, advancements in clean technologies enable a shift in this paradigm, linking economic development to the quality of efficiency rather than the sheer quantity of products and consumption. In that sense, replacing what is polluting by what protects the environment is the business opportunity of the century.

Coupling economic development with the quality of efficiency, implementing clean and profitable solutions, allows for a more sustainable approach to economic development than selling an ever-increasing number of products at ever-decreasing prices, with lower salaries and dangerous social inequalities. Selling a long-lasting quality can allow a higher profit margin and better wages on the producer's side and a lower cost over the total period of ownership for the consumer.

Using less energy to produce better, longer-lasting products is at the core of the qualitative economy enabled by the ecological transition.

11

POINT 11

New professions versus lost jobs

Many are worried about losing their job in the new, qualitative economy.

While some old jobs will surely be lost, new professions will emerge. Many studies show that the balance will be positive. But we need to train the workers for the needs which will arise from the new business opportunities such as installing heat pumps, solar panels and EV chargers, renovating buildings and replacing old infrastructures with modern ones.

The key word for a smooth and just transition should be that of "upskilling": there is an ever-growing need for our workforce to modernise, just as our processes evolve to achieve a more efficient future. We should value these new workers by calling them "technicians of the future".

12

POINT 12

Diversification versus endangered sectors

Similarly to the professions, entire sectors and industries will also have to evolve, diversify and modernise.

Let's not forget that hard-to-abate sectors, which today rely on finite resources, can soon see infrastructure worth billions become obsolete. Long-term investors such as pension funds will consider them stranded assets. This represents a huge danger to the stock market and can rapidly develop into a crisis if all the investors understand it at once and try to sell their shares.

The earliest movers, if accompanied by the appropriate policies and enabling environment, will be the first to reap the benefits of the transition, securing investor sentiment and shareholder trust.

In essence, the transition amounts to a new industrial revolution, which adapts to the needs of today while future-proofing its activities and avoiding stranded assets.

13

POINT 13

Why embark on the transition if big actors continue to pollute? To gain a competitive advantage!

Very few countries would make a significant improvement at global level by reaching carbon neutrality alone, and question why they should make an effort while big polluters don't reduce their emissions.

We need to think about the ecological transition less as a response to the climate crisis, but rather as the only rational option to ensure profitability, sustainability and competitiveness within a qualitative economy.

Actually, the countries most advanced in climate action will become the most modern and efficient ones. By taking strategic decisions before it is too late, the pioneers will have more options later.

This approach encourages countries to view climate action as a pathway to becoming more modern and efficient, thereby unlocking financial benefits and gaining a competitive edge in the global market.

14

POINT 14

It's about humanity, not the planet

Many people perceive the climate change issue as affecting only nature, and they want to "save the planet". However, it is not only the planet that is threatened, but humanity and the quality of life of each individual. Actually, the planet will be better off without humans, and it is humans themselves who will be impacted, and already start to be.

As climate change negatively impacts humans, climate action can and will positively impact human quality of life!

POINT 15

Protect the present generation, not just the future one

15

We talk too much about climate action as a way to protect future generations, when it should be framed as a way to provide benefits and protection to the current inhabitants of the planet.

Very few people will change their behaviour in favour of those living in the future, especially if it is perceived as suboptimal. Who will give up using a comfortable combustion engine car today to prevent the South Pole from melting in 30 years?

Furthermore, we were told that we would see the first symptoms of climate change in the second half of the century, but more frequent and more severe natural disasters are already here. Therefore, positioning climate action as a means to protect the current population and enhance their immediate well-being can foster greater public engagement.

We have a responsibility to show the extent to which lower income households will also benefit from the needed societal changes the transition calls for. We must also highlight how, through massive and necessary upskilling and reskilling, everyone can find a job in a new, qualitative economy which leaves no one behind. Solutions are here today; the same must be true for the benefits.

POINT 16

Setting legal limits to irresponsible behaviour, in the environmental space as in any other

16

It's not a question of having more regulations, but more relevant regulations.

The argument against environmental regulations often centres on the notion of restricting personal liberties. However, it is essential to communicate that limitations are not unique to climate action but are common across all domains, for the greater good.

As the saying goes, 'someone's freedom stops where somebody else's starts'. Few people question speed limits, income tax regulations or sanitary norms in food production. All of these restrict our freedom and free-will, but also our capacity to harm ourselves or others. We need to consider the environment in a similar manner.

The current legal framework still allows us to damage our environment by wasting natural resources, polluting the air, the water and the soils, hence harming ourselves and those around us. The goal is not to have more regulations, but to modernise the legislation, the norms and the standards, in order to create the necessity to use the new clean and efficient solutions by pulling them to the market.

The narrative must highlight that enforcing environmental responsibility is what can ensure equal access to a healthy and sane life in which our society can best function.

17

POINT 17

Carefully choose how you name and speak about your policies

Choose the wrong words, and the electorate can (and probably will) kill your policy, no matter how good it is. Both the policy and the message tied to it need to be given equal importance.

For example, the word green is often associated with the political left wing and cannot easily be endorsed by other political parties. Clean, or efficient, are the obvious better words.

Consider how Canada's carbon tax is never referred to as a tax, and is structured in such a way that the income goes back to the citizens in the form of a rebate. Consider how the American Inflation Reduction Act is in fact an unprecedented catalyst for climate action, with a better perception than the Green Deal that is associated in people's mind to the green political party. In Switzerland, the right wing fought against the Climate Law, which would have been more easily accepted if it would have been named "the Modernisation Law".

18

POINT 18

Showing is better than saying

Far too often, we hear the famous "We have to act now!", but without understanding how to act and what to do.

To keep credibility, activists as well as decision makers should not just announce intentions or objectives without clearly spelling out how they will achieve them.

When we hear politicians or CEOs wanting to reduce CO_2 emissions by X% by a certain date or limit temperature increases to 1.5°C, it comes across as wishful thinking, in addition to being abstract to most of the population. Nothing will happen if a concrete action plan is not clearly laid out, which encompasses a clear legal and regulatory framework, procedures and above all concrete, tangible and mature solutions outlined to achieve these goals.

POINT 19

Making the transition as an advantage to all – from North to South

19

If fighting against climate change is presented as a financial sacrifice for rich countries and a threat for the economic growth of developing countries, it will face opposition from the entire world.

Even if surveys show that climate change is one of the top issues lower-income households care about, being a part of the ecological transition is perceived as having (too) high barriers to entry. However, the transition should be a source of fairness. The transition isn't for the happy few EV owners - it starts at the factory floor.

These are different processes in the North and the South. The North must modernise its operations, which involves replacing polluting and expensive infrastructure, while in the South, infrastructure must directly be built in a modern and efficient manner. Centralised electricity production using fossil fuels will never reach the periphery without running lines that are often unaffordable for developing countries; decentralised renewable energy at scale, solar, wind, geothermal, biogas, electric turbines for small rivers, will provide local populations with low-cost electricity, allowing education, health, new jobs and all other aspects of development. This is the area that development agencies should focus on.

For citizens in the emerging economies, the narrative of fairness is especially critical, and must also be recognized in terms of the opportunity that has been afforded to developed economies versus those that have not yet had the chance to develop. The narrative should be one about emerging economies not suffering from the same mistakes as developed economies, and instead benefiting from a more effective route toward equitable growth and overall justice.

20

POINT 20

Climate urgency or economic imperative?

Industrial sectors or governments that are reluctant to act on climate will not be receptive to the notion of urgency to act. But there is another urgency that can touch them more: the imperative to save money. Every minute, people are losing tremendous amounts of money by using traditional light bulbs rather than LED, fossil energies rather than cheaper renewable sources, gas or oil heating systems rather than heat pumps, badly insulated buildings and outdated industrial processes. Companies that resist instead of embracing climate action will suffer by missing the new business opportunities available.

21

POINT 21

It's not only about climate change, but also the hidden gains

The climate change deniers believe acting against CO_2 emitting sectors is irrelevant, but they have to understand that it is not "only" about climate change. Even if there was no global warming, there would still be all the other factors associated to prejudicial human activities, like pollution (air pollution alone kills 8 million people per year), depletion of natural resources (which increases the cost of energy and therefore reduces citizens' purchasing power) or biodiversity.

THE GLOSSARY

In communicating about climate action, we can significantly influence general perception and acceptance if we replace certain words, like:

REPLACE THIS	>	BY THIS
DECARBONISATION		MODERNISATION
COST		PROFITABLE INVESTMENT
PROBLEMS		SOLUTIONS
CRISIS		OPPORTUNITY
THREATENED JOBS		NEW PROFESSIONS
GOALS		ROAD MAPS
DIFFICULT		CHALLENGING
NEXT GENERATIONS		CURRENT GENERATIONS
SACRIFICE		ADVANTAGES
DEGROWTH		QUALITATIVE ECONOMY
SOBRIETY		EFFICIENCY
MORE REGULATIONS		MODERN REGULATIONS
ECOLOGICAL		LOGICAL

REPLACE THIS	>	BY THIS
WE MUST ACT NOW		THIS IS HOW TO ACT NOW
PROTECTION OF NATURE		PROTECTION OF THE PURCHASE POWER
CLIMATE ACTION		NEW BUSINESS OPPORTUNITIES
PROTECTING THE PLANET		IMPROVING HUMAN QUALITY OF LIFE
GREEN		CLEAN
LONG TERM ACTION		SHORT TERM BENEFITS
EXPENSIVE		ALLOWING SAVINGS
CLOSING DIRTY SECTORS		DIVERSIFICATION
FUTURE TECHNOLOGIES		EXISTING TECHNOLOGIES
"OTHERS STILL POLLUTE"		WE CAN BE MORE MODERN
QUANTITY		QUALITY
CLIMATE URGENCY		ECONOMIC IMPERATIVE

GOING DEEPER

That we can speak of a new climate narrative is because the facts on the ground have changed: it is now both technically possible and profitable to protect the environment, something that could not have been said even a decade ago. Whilst these solutions are not yet deployed at the requisite scale, it is imperative that we help citizens and businesses to understand the possibilities they afford.

This section further unpacks the points raised in section 1, providing context and examples to support the proposed narrative, including conditions that need to be met to ensure that the ecological transition can unlock its full potential.

POINT 01

The importance of matching languages

In order to convince anyone, we must use language that matches their interests.

This is as true for climate action as it is for any other endeavour. It is all very well to speak of the importance of protecting the environment or the need for urgent action to halt rising temperatures if this is not what your audience is concerned about. Rightly or wrongly, the language of the opponents to climate action focuses on job creation, economic development, freedom of action, and fighting against regulations. These are often the actors that harbour the most power in the global economy and it is therefore on these points that we must focus the debate.

Some may consider this to be a betrayal of those that seek to protect the environment and that the dominant economic system is at fault and must be drastically changed to give us any chance of reaching our climate goals. This is entirely understandable, but these groups are already convinced of the need for action and what form it should take.

There is but a small minority ready to make sacrifices for the greater good, to go without, to pay more to adapt to the needs of the environment. So while poll after poll shows that a great many people care deeply about climate change, they don't know what to do or are not prepared to do so for fear of losing out. That part of the population would like to protect the environment without sacrifice. Without spending a lot of money. Without changing everything in their business.

That's where the game is played.

That's why we need to present a new set of facts and tell a different story about climate action. Because the reality is that the ecological transition is an opportunity, not something to be suffered through.

The reality is that the ecological transition is an opportunity, not something to be suffered through.

The aim is to demonstrate that, even without climate change, taking the necessary measures to modernise our world, making our processes and systems more efficient and our economies more profitable, is logical as much as it is ecological.

We must match the language with the new opportunities that the ecological transition presents. For businesses, it's a new kind of growth focused on quality, efficiency and reduced waste, on new markets and diversification of existing sectors and income streams. For individuals, it is recognition that the transition is one of change but not one of cost. One resulting in lower bills and a better quality of life that is respectful of

the environment. For governments it's a wide variety of things: job creation, reduced public healthcare costs and many other hidden gains that can improve citizens' lives. At a macro-level, it is about changing the economic paradigm and offering a competitive advantage on the world stage.

To truly bring about the ecological transition, we must ensure that the discussions, rather than focusing on climate per se, are tailored to the specific interests of the individual or group we are engaging with. Aligning the discourse with their particular concerns and priorities also needs to be coupled with efforts to show what each of us can win through the ecological transition - a process that will touch on every aspect of our lives.

POINT 02

Speak of Solutions, not just problems

Climate change is nothing new. Scientists have been studying and reporting on the issue for almost 40 years[1].

The forecasts have become increasingly worrisome: rising temperatures, extreme weather events and melting ice caps; and today we already see, devastating meteorological phenomena such as heatwaves, hurricanes, erosion, floods and forest fires. UN Secretary General Antonio Guterres summarised the situation well last year: "we are on a highway to climate hell with our foot still on the accelerator."[2]

Despite the incessant warnings, not enough progress is being made. This news instils in us a sense of anxiety and dread about what the future holds.[3]

It is scientifically proven that fear paralyses. Better known as the Fear Paralysis Reflex (FPR),[4] this natural mechanism is hardwired into our brains. When we find ourselves in a situation where we don't feel safe, our body tells us to stop.
That's why amending the discourse around climate action is essential. Not because all we need is hope, but rather because this reflects the current reality[5] and is key to trigger change. We saw the beginnings of this in the final part of the IPCC AR6 report this past year,[6] dedicated to the solutions that humanity can put in place to contain climate disruption. Hope lives on in the evocation of solutions.

Innovation is flourishing, and there are thousands of innovations that need to be talked about and implemented. These solutions abound in all areas (water, clean energy, resource efficiency, mobility, construction, housing, industry, agriculture, the circular economy and waste management) and can be adapted to any type of environment: developed and developing countries alike.

Each of these solutions exist today and represent an opportunity to save more and waste less.

Here are but a few examples; 90%[7] of methane from landfill sites can be captured and used to heat cities. Pollution and the heat from flue gases can be recovered to produce energy up to 80%[8] cheaper than natural gas. Distribution of treated water can be reduced by 50%[9] for local authorities in cities using AI technologies and 30%[10] for private individuals in buildings by using divides that identify where leaks are happening. Vegetation on roofs can reduce temperatures by up to 4°C[11] during heatwaves. Bio-sourced materials made from grass[12] or coconuts[13] can be used for construction but also to store CO_2. Stickers that prevent rotting and extend the shelf

life of fresh fruit by two weeks.[14] Aircraft flight optimisation systems can reduce CO_2 emissions from air transport by 5%.[15] The examples keep on coming.

Each of these solutions exists, today, and represents an opportunity to make our world more sustainable, to save more and waste less. They build hope and offer alternatives. Without them, it is impossible to project ourselves into a desirable future.

When talking about problems, let's strive to pair them with solutions. Inspire change by showing that their implementation can improve quality of life for people all across the world without limiting our economic activities. There is not one answer to how we protect our way of life, but the diversity of human ingenuity that is giving us a myriad of solutions. SIF

POINT 03

Climate action as a vector for business opportunities and new markets

In the face of the looming climate crisis, a paradigm shift has emerged which entirely reshapes the way in which corporations perceive their roles and opportunities.

The traditional dichotomy of environmental responsibility versus profitability is fading, giving way to a new era where sustainability is becoming a springboard for innovation, faster growth and market expansion. It comes as no surprise that, over the past 5 years, the demand for sustainable products by consumers averaged a 28% cumulative growth versus 20% for their traditional alternatives.

Consider the case of Tesla, a true trailblazer in the electric vehicles sector. The company's approach has managed to not only address environmental concerns but also to capture an untapped market segment, by recognizing early on the potential of electrified transportation to be economically interesting for both technology providers and adopters.

But it's not just about high-profile tech companies, small and medium-sized enterprises can absolutely reap the benefits of the transition as well, and are increasingly doing so.

For example, local solar panel installers are growing exponentially worldwide, as their products are becoming increasingly cost-competitive (the cost of solar photovoltaic panels has dropped by around 89% over the past decade[1]) and cater to the rising demand for low-carbon products, commodities and services among a more environmentally conscious consumer base: Nielsen's Global Corporate Sustainability Report echoes the latter as it notes that over 73% of global consumers say they would adjust their consumption habits in order to reduce their environmental impact.[2]

Climate action extends beyond product innovation, to operational efficiency and waste reduction.

Moreover, innovative business models are emerging in unexpected sectors that were once considered "hard-to-abate".

Take the example of traditional construction companies: today, these firms are adopting energy-efficient materials and designs to align with stricter environmental regulations while simultaneously tapping into a new market focused on sustainable building

solutions that deliver sizable returns. The World Economic Forum notes that green-certified buildings can command a 7.6% premium on the real estate market,[3] all the while enabling the reduction of energy consumption by up to 25%, of water usage by 11%[4] and operating costs by up to 9%.[5] Once more, we observe the virtuous cycle unfolding between suppliers and embracers of sustainable efficient solutions.

Climate action for business is not limited to product innovation, but also encompasses new ways to consider operational efficiency and waste reduction. Recognizing that industrial processes waste approximately 20-50% of consumed energy as heat, forward-thinking companies can already convert waste heat from industrial processes into usable energy (by storing it in ceramics for instance[6]), significantly cutting heating costs and curbing emissions.[7]

Or consider the disruptive field of carbon productivity that allows carbon to be understood not as a mere pollutant but as a raw material for innovation. Valuable commodities such as building materials or plastics, or producing cleaner fuels such as from biomethane captured from landfills. This marks a substantial shift in sustainability, turning what was once considered an environmental hazard into a source of opportunities for creating new, circular products and processes.

Similarly, traditionally conservative sectors such as agriculture are starting to see the benefits of early adoption, pioneering innovative solutions and tapping into new markets and additional revenue streams through sustainable practices.

For instance, there's a growing emphasis on using agricultural waste or byproducts to create circular products such as leftover biomass from crop processing might be used to produce animal feed or biodegradable packaging materials. Others are also positioning themselves as forward-thinking adopters by exploring novel methods for enhanced crop productivity which also address soil health, water conservation, and greenhouse gas emissions, as can be done with precision agriculture techniques making use of drones, sensors, and GPS technology.

The impetus for businesses to adopt climate-conscious practices is no longer merely rooted in moral obligation or regulatory pressure. In fact, the market rewards those who pioneer sustainable solutions. It is obvious today that companies that proactively invest in eco-friendly technologies and practices are securing a competitive edge, not just by reducing operational costs but also by tapping into emerging markets. At the same time, pioneering companies can secure resource supply through novel and circular processes, diminishing their operational dependency on external actors. By embracing change ahead of the curve, corporations can uncover new products, untapped markets, and enhanced efficiency, ultimately propelling themselves into a future where sustainability and efficiency drive profitability. SIF

POINT 04

Frame decarbonisation as a consequence of modernisation, not as the end objective

Since the industrial revolution, the rise and fall of the global economy has been inextricably linked to the rise and fall in emissions.

It's clear that for our future prosperity, this needs to change. The logical consequence of this thinking is that decarbonising the economy would entail a fall in the global economy.

Furthermore, if you're objective is to decarbonise, your motivation is to reduce emissions and therefore protect people and the environment. A noble and just pursuit - but one we have not been overly successful in pursuing to date.

What if we recast the objective.

Instead, we should seek to have modern, efficient systems that avoid waste and make the most of the resources at our disposal and improve the quality of life of citizens. For what reason? Because businesses and consumers are paying for less than optimal processes that actually cost us all more. By pushing for modernisation we push for the best that is available and affordable and that helps reduce our overall costs - with decarbonisation as one of the welcome consequences of a general upgrade process.

Consider the built environment, one of the most challenging areas to modernise: in the EU, buildings are responsible for 40% of energy consumption. 53% of residential buildings are rated as low-insulation[1] and 75% of overall building stock is considered inefficient.[2] Despite this only 1% of the EU building stock is renovated each year. Much energy is being wasted and these costs are passed onto consumers. They contribute to worsening energy poverty and a cost-of-living crisis. It is estimated that improving the energy efficiency of buildings, using more efficient heating technologies, and increased low-carbon electricity could save between 30 and 40% of a household's energy costs, thereby improving people's quality of life and giving them more expendable income.

Rigorous environmental standards will drive uptake of modern, clean and efficient technologies.

The technologies are largely available in this sector: better insulation, new techniques for infrastructure design, real-time sensors to identify where energy is being wasted or heat is being lost. All this is perceived as costly, but through the use of Energy Performance Contracts (EPCs) and low-interest loans, it is possible to offset the upfront costs and make it financially beneficial for owners, installers and investors over the long term.

This needs to be combined with more modern building standards and requirements that will drive the uptake of these innovations and for providers to offer these services.

This extends to the actual construction practices; using rubble from previous builds, It has proven to be perfectly capable of adhering to building standards, though has not been widely adopted as building regulations do not always permit its use. Given this information, use of such low-carbon alternatives should become a legal requirement for construction.

Regulating entities often fear imposing more rigorous environmental standards for fear of damaging the economy; actually, this is what will drive its modernisation. Replacing inefficient processes by modern, clean and efficient technologies can bring economic benefits to all economic actors involved, whilst also reducing environmental footprint. SIF

POINT 05

Highlight savings and returns on investment, not costs and sacrifices

Historically, making the right choice when it comes to protecting the environment has forced citizens to choose between what is good for them and what is good for the environment.

However, advancements in both the availability and financial viability of technologies has upended this narrative. Today, the ecological transition need not be a burden, but rather an avenue for both economic gain and a smaller environmental footprint.

The modern era of environmental consciousness isn't merely about embracing altruistic values - it's about recognizing the tangible benefits that clean solutions can offer both individuals and communities. Consider the installation of a heat pump. It is a significant upfront investment, but the long-term benefits in terms of reduced energy bills are substantial; the IEA estimates that depending on geography and the size of the home, owners can make annual savings of between USD 300 and USD 900.[1] Or electric vehicles, where the cost of ownership is significantly lower than that of traditional internal combustion engine vehicles, with owners saving on average 6000 USD over the lifetime of the car, including fuel and maintenance costs.[2]

The financial advantages stemming from such investments are evident, and appeal not only to environmentally conscious individuals but also to those only considering their financial outlays.

We must reframe and redefine climate action from something sacrificial to something beneficial.

As such, the ecological transition is about demonstrating all the ways in which citizens can enhance their lives while contributing positively to the protection of our planet. This is crucial; it reframes and redefines climate action from something sacrificial to something beneficial. For political leaders, much is about reshaping policies to incentivize and attract citizens towards an active engagement that is both lucrative and sustainable.

There is an urgent need to ensure this becomes the prevailing narrative of the ecological transition, highlighting both the accessibility and affordability of clean technologies (not necessarily at first, but over the total cost of ownership), making them the obvious and logical choice for citizens.

This synergy between technology and financial gain extends to energy-efficient appliances and smart home solutions, allowing residents much greater control and visibility to manage energy usage efficiently. It is estimated that a smart thermostat,

homeowners can expect an estimated 10-15% of energy savings.[3] Or when it comes to heating, innovative shower drain solutions can recover up to 60% of the heat lost while showering and reuse it to pre-warm the incoming fresh water, saving from 42% to 60% of the thermal energy used for showering.[4] Similarly, water-saving technologies exist that can reduce utility bills, such as through greywater recycling systems that collect and filter wastewater from showers, sinks, and laundry for reuse in irrigation or toilets.

The bottom line is clear: citizens need no longer be asked to choose between their own quality of life and the greater good. Citizens, when presented with cost-effective and sustainable choices, are not merely acting as stewards of the environment but are also ensuring their own financial well-being. This is the story that must become and everyday reality. SIF

POINT 06

It's not about future technologies but existing ones

"I am told by scientists that 50% of the reductions we have to make to get to net zero are going to come from technologies that we don't yet have."

Those were the words of US Special Envoy for Climate John Kerry in 2021. Whilst the sentiment is hopeful, it places an onus on future technologies solving our current climate crisis that can be detrimental.

The first question raised by this statement is where are the technologies to tackle the first 50% of emissions? If they exist, why are they not widely used? The answer to this is the whole point: if we don't create the conditions that will pull these existing solutions to market and allow them to succeed, what chance is there that these future technologies will not face the same fate? In that case, we are simply innovating for innovation's sake.

Until very recently, stopping climate change was a challenge that we lacked the proper arsenal to overcome. That time is now over. We have the technological solutions to take action today, whether they be high-tech or low-tech.

That is why the focus is on creating the conditions to use the technology that we have available today, compared with a techno-solutionist approach that places hopes in future innovation without necessarily addressing the enabling environment that is required to increase adoption of those technologies.

It's better to create an enabling environment for existing solutions rather than rely on unproven solutions of the future.

Real innovation lies not just in the technology, which is at the start of the journey, but in all the subsequent steps required to reach the destination. These include support for R&D, development of the technology, investment in scaling up, modernisation of the legislative framework to enable implementation and finding adoption grounds to make the solutions land.

We need to give visibility to solutions that exist today, that are beneficial to both the environment and the economy and that can be scaled. This is part of the Solar Impulse Foundation's ambition, with its Solutions Explorer[1] to be further expanded to a global scale. Connecting solutions with investors and with adopters, from large corporations to municipalities, is another key part of the effort to make solutions land.

It is critical that we understand what can be achieved with the technologies of today, and adapt our legislation and standards accordingly. They can both enable and disable adoption, and it's not a one-size fits all policy; what is possible in some countries is not in others, and vice versa. However, there are simple, non-binding measures that can accelerate the adoption of technologies by consensus.

For example, Consider the effort to make LED light bulbs widely accessible in India, where government efforts massively drove down the prices. Or where worldwide sales of electric vehicles has surged in recent years largely thanks to government incentive policies. Even internal combustion vehicles have become far more efficient thanks to stringent fuel economy standards; legislation passed at the start of the Obama era means that a vehicle bought today will go twice as many miles to the gallon as one bought in 2008.[2]

In the construction industry, it could be made compulsory to carry out a study of the potential to exploit geothermal energy prior to any new construction, in the same way as for other renewable energies. Such a step would demonstrate advancements within the sector, making it easier to see how geothermal heating could reduce energy bills, including within cities.[3] Similarly, to reduce freshwater usage we could authorise the reuse of greywater from sinks and showers to flush toilets or wash clothes, drastically cutting household water bills. Or we could facilitate the uptake of two-way EV charging points (known as vehicle-2-grid technology) thereby allowing personal electric vehicles to act as mobile batteries that can help to balance the grid. More broadly, we could encourage local authorities to have greater flexibility and thresholds to undertake innovative procurement.

All these proposals suffer from obstacles - not technological, but legislative. It therefore makes sense to draw on the collective administrative intelligence of our neighbours to update certain points and export other aspects on which we are ahead.

The multitude of existing technologies offers a practical, immediate and economically viable way of reducing greenhouse gas emissions. But the results will only be tangible if a favourable framework is put in place that will facilitate their access to the market. The resulting impacts will be as manifold as the diversity of the solutions implemented: job creation, economic growth, financial savings, increased purchasing power and a better quality of life.

It is therefore better to act with tangible solutions that are with us today rather than postpone action and rely on expensive or unproven solutions such as nuclear, carbon capture or geo-engineering to bail us out. SIF

POINT 07

Start with what is easy and profitable

As we have established, many of the technologies exist already today to reduce our environmental footprint. To advance more quickly, we must create an enabling environment more conducive to the uptake of these technologies.

The pace of change will differ depending on the sector, and certain so-called hard-to-abate sectors are complicated by the economics, technological advancement, or critical resource dependencies.

But even in these sectors, we should not fall into the trap of waiting for silver bullet solutions. Thousands of different technologies exist today, and it is their combination that will decarbonise these sectors. It's important that we don't become dissuaded from embracing this pace of change : let's focus on what we can do today and what makes financial sense across all industries, even the ones that may seem most problematic.

Focus on what is possible and makes financial sense across all industries, even those most problematic.

It's important to remember the words of "Paddy" Padmanathan, the former CEO of ACWA Power, a company responsible for consistently setting some of the lowest prices per megawatt of solar power: We are in the process of "an energy transition, not an energy switch. It doesn't sort of magically decarbonise the following week."

For transition sectors such as fossil gas, emissions can for example be reduced by stopping methane leaks. Annual investment of around USD 13 billion would be required to mobilise all methane abatement measures in the oil and gas subsector - less than the total value of the captured methane that could be sold, meaning that related methane emissions could be reduced by almost 75% at an overall savings to the global oil and gas industry.[1] This is especially critical as studies suggest a significant undercounting of methane emissions in decades past.

Others, such as Aviation and Maritime transport, face many headwinds. And yet things are also progressing.

In aviation, while Sustainable Aviation Fuel is currently the most impactful initiative to reduce emissions for aircraft, it is only expected to account for 5% of total aviation fuel demand by 2030, with today's feedstocks being quite limited, posing a problem for the future.[2] But that does not mean nothing else can be done. Flight systems that allow

for fuel savings on flights, support systems that allow aircraft to continue operating on the ground while switching off their auxiliary power systems, electric taxis to move aircraft around the airport: each of these can chip away at the overall footprint.

Cargo ships use some of the dirtiest fuel - bunker fuel - to power their ships. The industry as a whole has been lagging behind, and because these giant ships' life spans an average of 25 years, the wrong decisions made now can lock in carbon emissions for the future. That being said, Maersk - the world's largest container carrier - has made quite significant strides to green its future operations by placing orders for 19 new methanol fueled ships and will seek to retrofit existing ships toward the second half of this decade. There is a long way to go, but the economics are beginning to sort themselves out.

In other sectors, the picture is far rosier. Electric Vehicles for personal transport are seriously taking off around the world with all their inherent efficiencies. These vehicles - which it is estimated are at a standstill for 23 hours a day, can also be considered as mobile batteries to be exploited. Through Vehicle-2-Grid technology, they can be used to store excess renewable energy produced when the sun shines and the wind blows, balancing the grid. Furthermore, once these batteries are no longer suitable for transport, they can be installed in homes, providing a source of domestic energy storage.

In buildings, it is possible to drastically reduce the amount of energy that is wasted by using energy efficient lighting and heating, and far more effective insulation. Façade shading can also significantly decrease the need for ventilation in the hotter summer months; systems that can more easily and cost-effectively capture geothermal heat are increasingly available for colder moments of the year. Certainly, there are investments required for each of these measures, but the savings generated can help pay for the upgrades themselves.

In high-emitting industries such as steel and cement production (representing almost half of all industrial emissions), technologies are also rapidly becoming available.

Hydrogen-based steel production helps decarbonise the sector, and while costs are not insignificant, efforts such as Europe's Carbon Border Adjustment Mechanism will pull up the sustainability of the entire sector while avoiding market distortions. Further, increasing carbon prices will counterbalance these increases to the cost of doing business. For cement production, there are a great many solutions becoming available including the use of rubble from demolitions to be included within the mix and allow for drastic emission reductions. It is also increasingly possible to substitute clinker in cement production, which represents 90% of the emissions.

Central to most industries is the use of heat for production processes. It is now increasingly possible and cost-effective to capture the wasted heat and use it for different purposes including heating of buildings or electricity production. These notions of circularity continue when it comes to recycling and reusing rare earth metals, for instance.

We would do well to remember this and act where we can, as there are good investments and savings to be made. SIF

POINT 08

Efficiency over sobriety and degrowth

+

POINT 10

Quality versus quantity

There are various schools of thought about the best way to unlock the ecological transition, but we know that we must reduce our environmental footprint, and that we must do so rapidly.

Calls for degrowth or a society of sobriety have no less validity than others and in a different economic model, may even be desirable. However, they are simply not optimal ways to talk about the shift required. Firstly, they entail a systemic change whose timing isn't compatible with the urgency we face: even Noam Chomsky, the great leftist public intellectual states that it is too late to move away from capitalism to combat climate change.[1] Secondly, they spark conflict and drive people away from climate action.

We must do away with conventional divisions and avoid entering into power struggles that do not advance us toward our goal.

There are different types of degrowth that exist and the exact definitions are paramount; but as a public policy position, it is largely untenable if you wish to acquire the support of corporations as well as the majority of the population. Advocates of each will necessarily disagree and will act as obstacles to one another's success.

To return to Chomsky, he recently said that "If you want to stop destroying the planet and human life on Earth, you have to bribe the rich and powerful."[2] We believe that the key to doing so is to focus on efficiency, in all its forms, and in every aspect of society.

Efficiency unites, sobriety and degrowth divide.

Why? Because efficiency unites, sobriety divides. Regarding a society of sobriety; there is an issue with both the potential for impact and to whom we are apportioning responsibility for the change. For many activists, a society of sobriety must rest foremost with the consumer; it should be up to each and every one of us to ensure that we only buy goods that have a reduced environmental footprint. However for this to spread to a whole of society movement that would have the requisite impact in the limited time that remains is wishful thinking.

Sobriety also runs the risk of being quite unfair - something core to the climate debates. It necessarily impinges on people's quality of life, especially in less economically developed countries. Think of air-conditioning; in some of the warmest places on earth - who could deny such a comfort to the people living there? But if air-conditioning becomes widely adopted, we will simply blow our carbon budget. This makes the entire debate a non-starter in the Global South?

There is a better way.

By optimising resource utilisation and minimising energy consumption, efficiency measures contribute significantly to the overall goal of sustainability and environmental preservation.

Efficiency is a way for all sectors of society to benefit, including those most powerful and driven by financial gain. Efficiency can be the driver of a qualitative economy that uses fewer resources whilst improving quality of life. By modernising our infrastructure, we can do away with the old and polluting systems that dominate our society. We can reduce costs and save money. Even if the upfront costs are significant, the savings can pay for themselves over time. We can create new businesses and markets for goods and services by making the byproducts of industrial processes productive. Think of capturing waste heat from factories. Or extracting rare earth metals from electronic devices for re-use. Or using data to identify where we are wasting food. Or simply using much more efficient means of generating heat in homes, such as geothermal.

We should also note that if we don't become more efficient, we will need much more sobriety and degrowth to succeed. Indeed, we currently waste two-thirds of the fossil energy we actually produce. If we improve the efficiency side as well as how it is actually produced, we will need much less energy to do the same thing.[3]

Let us be clear - unlimited growth is a dangerous aberration and is in itself an addiction. We should put in place future-proof policies in case economic growth is no longer achievable in the same way, especially if we want to meet our environmental and social objectives. Efficiency is a surefire way to take us in this direction. And one that is more likely to be accepted by decision makers than degrowth and sobriety. SIF

POINT 09

Specify which degrowth you speak of

Degrowth is a notion that invites a lot of misunderstanding. The concept remains controversial, sparking confusion and in the eyes of many a future they would not look forward to. However, some argue that a planned degrowth - a purposeful strategy to downscale production and consumption - is more enticing than recession and its associated social chaos.

In many societies, economic growth is indeed deeply rooted as a sign of progress, prosperity, and well-being. The idea of degrowth challenges this cultural perception, people often associating it with economic decline or a drastic reduction of living standards.

In fact, degrowth is more about ensuring a shift towards a sustainable society, by indeed consciously reducing less-than-necessary production, envisioning a scaling down of destructive sectors such as fossil fuels, mass-produced meat and dairy, fast fashion, advertising, cars and aviation, including private jets, and ending the planned obsolescence of products.

It also involves structural elements, such as removing the dependencies on growth - transforming the current limited definition of 'fiduciary duty' that favours the short-term financial interests of shareholders to one that prioritises wellbeing or efficiency or reducing waste, for instance - and supports the introduction of social elements such as job guarantees.

It is precisely the evolution of clean and efficient technologies that changes the terms of the debate.

On their own, these are all critical elements of the ecological transition. But grouping them under the term "degrowth" allows for its opponents to label them as anti -growth. It spurs resistance and triggers legitimate questions such as how the advocates of degrowth would see education expenses, healthcare, social protection and pensions paid for, thereby playing on the fears of citizens.

All this calls for being more precise about degrowth: if you do not specify what it is that you wish to degrow, the assumption is that it is just the economy, and therefore Gross Domestic Product (GDP). Certainly, GDP is too blunt an instrument to measure the performance of an economy. It does, however, remain the most widely used.[1]

The claim that GDP growth can be environmentally sustainable still lacks any real empirical evidence, with little absolute decoupling of physical resource use from economic growth. Much of that which has been touted as such by national governments is in reality linked to the transformation of their economy towards more services and the export of environmentally demanding activities abroad.[2]

If GDP is an inaccurate measure for sustainable well-being, what we should - and can - be after is a post-growth model where increased economic activity, driven by the deployment of efficient processes, can ensure social welfare while remaining within the planetary boundaries.

In fact, Kate Raworth's concept of the doughnut economy encourages that we be growth-agnostic. She mentions "having dug into the debate (around green growth or degrowth) and found that both sides had some strong arguments, both too quickly dismissed the opposition's case, and neither had a singularly compelling answer."[3]

But the facts have also changed since Raworth's book was first released. Technological advances and economic shifts over the last decade enable this paradigm shift, linking economic development to the quality of efficiency rather than the sheer quantity of products and consumption. Using less energy and resources to produce better, lasting products, is at the core of what we can call the qualitative economy. This can be true for any manufacturing process or use of energy, and also extends to the development of a strong, circular economy that becomes less reliant on externally provided resources.

It is precisely the evolution of clean and efficient technologies that changes the terms of the debate. Whereas previously the costs were prohibitive, the replacement of old and polluting infrastructure is nowadays financially viable, with greater efficiency unlocking savings that would otherwise not exist.

In a nutshell, talking about degrowth without defining it is detrimental to climate action. Pollution, inefficiency, waste, overproduction and overconsumption, all have to degrow. And in parallel, the existing potential of clean technologies must be harnessed to reach a post-growth economy that allows humans and the environment to thrive. SIF

POINT 11

New professions versus lost jobs

The disruption brought about by the ecological transition will be widely felt, especially in regions tied to carbon-intensive industries. In these places, a just transition often means a slow transition, fostering a false sense of security that could further lock-in economic activities that struggle to compete.

That's why up-skilling and re-skilling of workers will be a critical factor in both the pace and location of the ecological transition. Scenarios from the International Labour Organization (ILO) show that by the end of this decade, 71 million jobs will need to transform for any just green transition to succeed, with a further 7 million unsustainable jobs will disappear. Of those, 5 million will continue to exist within the same country and occupation but in another industry, but up to 2 million jobs will be lost without equivalent vacancies arising.[1]

Naturally, this plays into fears by many workers that they will be left behind. However, research shows that the ecological transition has opportunities for workers at all skill levels. For example, the energy sector in Europe is expected to continue generating demand for low- and medium- skilled roles, with 75% of employees being manual workers and technicians in 2050.[2]

Up-skilling & re-skilling workers will be critical to both the pace and place of the transition.

In communities most likely to lose carbon-intensive industries, the focus should be on diversifying the economy and focusing on job creation, by creating a favourable investment climate. Governments have an interest in ensuring that the induced employment built up around these pillar industries over decades is protected, as vulnerable communities must be protected from the losses caused by climate change mitigation policies. Unprotected households often resort to adverse coping strategies such as selling their productive assets to meet immediate consumption needs, or taking their children out of school to avoid education-related expenses.[3] This can foster the intergenerational transmission of poverty and negatively impact a country's human capital and economic growth.[4]

This is just the start of the transition - especially in low and middle income countries - and there is limited evidence of successful social protections being rolled out.[5]

This should be no afterthought: research by the ILO and UNEP has found that at least half the global workforce - the equivalent of 1.5 billion people – will be affected by the transition to a greener economy.

Unfortunately though, most economies are singularly unprepared for this transition.

According to the Green Economy Coalition, few countries have yet reoriented their skills systems in line with their green ambition.[6] Furthermore, the Adecco Group found that 40% of G20 economies only acknowledge the need for skilling as part of their climate transition plans.[7] The problem will be even more acute in lower-income countries, with "a lack of capacity for training and skilling, agricultural sectors with many workers who are not ready to transition into other jobs, and high levels of SMEs operating at the local level who do not have the capacity or adequate support to engage."[8]

There are a few examples of effective measures being implemented or well primed to transition. The North-East of Scotland has long been known as the oil and gas capital of Europe. Redundant workers from these industries have many transferable skills to be used in the production of renewable energy. Oil-rig engineers can use their experience of deep-water support structures in jobs in the offshore wind sector. Electrical engineers could switch their skills to installing wind turbines or in cable jointing at wind and solar farms. Coupled with this, a ten-year £500 million Just Transition Fund includes measures to support skills development.

As for Germany, which has the strongest manufacturing base in Europe and a relatively large share of jobs (18%) at a high risk of automation,[9] considerable efforts have been made to offer assistance to further vocational training; citizens now have a legal right to state funding for this purpose, including loans that cover the entire cost of training, or a year of further training for salaries in the amount of unemployment benefits.[10]

Citizens should remind their governments that when they included the notion of a 'just transition' in the Paris Agreement, they signalled that it needed to be managed, rather than left to market forces. The jobs will come, but it's critical that efforts are made to support those places which will be hardest hit. Failure to do so will hamstring the entire transition.

POINT 12

Diversification versus endangered sectors

+

POINT 20

Climate urgency or economic imperative?

As we confront the imperatives of the ecological and energy transition, it's clear that entire sectors and industries are entering a new era of transformation. Businesses will have to evolve in order not to die in this newly competitive landscape, missing out on trillions of dollars worth of opportunities.[1]

It is especially the case for hard-to-abate sectors, which currently rely on finite resources and outdated technologies. Ranging from fossil fuels to heavy manufacturing, they are responsible for a third of global CO_2 emissions,[2] and face the risk of billions of dollars in infrastructure becoming obsolete in the wake of more stringent environmental regulations and consumer preferences.[3] Additionally, it has been estimated that 60% of oil and gas reserves and 90% of known coal reserves must remain unused in the ground in order to limit global warming to 1.5°C.[4] As the world shifts towards clean and sustainable practices, the companies behind these once-dominant industries run a major risk of holding onto a good deal of stranded assets.

Getting the balance and pace of this shift right will be critical to ensuring market stability.

This bears consequences beyond the companies themselves, impacting the broader financial markets. Investors, including long-term players like pension funds, are at risk of significant losses if they don't diversify away from these assets. Global estimates of potential stranded fossil fuel assets amount to at least $1 trillion,[5] and others estimate that about $2.1 trillion of the power sector's capital stock could be stranded by 2050 in the Net Zero 2050 scenario.

Getting the balance and pace of this shift right will be critical to ensuring market stability.

Long term investors have a fiduciary duty to ensure the financial security of their beneficiaries. Retaining investments in the short term remains beneficial, but is likely to become problematic in the long term, especially as others divest from their holdings, reducing their value. Such a mass sell-off of assets could lead to a financial crisis with far-reaching implications - not least a reduction in the investments required to fuel the ecological transition itself.

It's crucial that long term investors and pension funds send the right signals to the market. And they are already doing so. Key players like Norway's $1.1 trillion Government Pension Fund Global, the world's largest sovereign wealth fund, divested $13 billion of investments from companies involved in exploration and production of fossil fuels.[6] In recent years, others have followed suit, with divestment going from a fringe strategy to one where over a thousand major investors, pension plans, and endowments are committed, with institutions representing a value of $40.51 trillion.[7]

The challenge this poses to businesses with significant environmental footprint is clear: they must choose between proactively diversifying their activities [8] whilst foregoing short term profitability, or staying with a business as usual approach that serves only their current interests and could see them as less agile and able to compete in the future.

Incumbent energy providers may find this to be especially challenging. Consider the French energy services giant Engie, which has widely diversified the portfolio of energy sources to include wind and solar, and has established itself by offering decarbonisation strategies to its clients, with a target to reduce its clients footprint by 45 $MtCO_2eq$ by 2030.[9] Or Iberdrola who set out their stall to become a world leader in renewables before it was fashionable to do so, and invested 10.73 billion euros with 90% allocated to renewables and smart grids in 2022. They are today Europe's largest utility by market capitalisation.[10]

On the other hand, consider companies dependent on energy intensive sectors. SLB, a company that provides infrastructure to oil and gas producers has seen significant success spinning off into new domains. Notably, their expertise in drilling has helped to open up exploitation of climate-friendly geothermal technology in cities. Or how they have found business opportunities by identifying methane leaks from oil and gas operations - a critical activity central to reducing the outsized impact of methane emissions on our carbon budget. Or the Finnish fuel and chemicals producer Neste, which in 2015 derived over 50% of its operational profit from oil products, but within three years had renewable-products as the predominant driver of its business, accounting for 70% of the company's operational profit. Over this same period, Neste's market capitalization tripled, with a remarkable 90% of its valuation attributed to the renewable-products division.[11]

Companies that take bold and early steps to embrace diversification, seizing green growth opportunities, are not only contributing to a greener future but are also positioned to secure investor confidence and shareholder trust. Adapting their strategies to seize this opportunity, first movers are taking the opportunities presented by geopolitical shifts and leveraging cost-effective green financing to expand their carbon-free manufacturing capabilities for green steel or recycled plastics. For instance, research indicates that green leaders among EU chemicals companies have seen their enterprise multiples[12] increase by a factor of two to five, while that of the laggards have remained flat.[13]

A new industrial revolution? A Great Reallocation? While risks remain, it's clear that businesses and companies at the forefront of the net-zero transition are those who identify fresh avenues for value generation and take strides toward realizing them. SIF

POINT 13

Why embark on the transition if big actors continue to pollute? To gain a competitive advantage!

Each year, when the UNFCCC Conference of the Parties kicks off, it's important to remind ourselves that these negotiations - especially for the major powers - are more about geopolitics than environmental protection.

It's about making sure that you get what you want without giving away too much. And while over time the issues evolve, the battle lines were drawn years ago and the players have remained largely on the same side.

This is a reflection that the climate change negotiations were established as a response to the climate crisis, not as a means to maximise the opportunities afforded by the ecological transition. Of course, these opportunities have only become quite so apparent in the last decade or so, but nowadays being clean and efficient is logical rather than merely ecological.

Countries that anticipate disruption can transform these future problems into current opportunities.

The countries that anticipate the shift and grasp the opportunity will have a competitive advantage. There are various examples of this; we know that our water resources are stretched, so why not follow in the footsteps of Portugal and the Netherlands, pioneers in the reuse of greywater? What about energy storage, which will be a key enabler for the integration of renewable energies; why not take inspiration from Japan, Denmark or the UK who are supporting the use of EV batteries to extend storage and balance the grid? We know that certain critical raw materials will be in short supply and difficult to access, so why not emulate the EU and recycle what we already have?[1] Or consider how China is investing heavily in the future, recognizing that 40% of China's GDP[2] is generated from high-emitting sectors. To allay this risk, they are far outpacing the rest of the world when it comes to deployment of renewables, accounting for almost half of all new capacity in 2022, a figure expected to rise to 55% in 2024.

Some countries took measures long ago, notably Sweden which was one of the first countries to introduce a carbon price which covers 40% of greenhouse gas emissions, complemented by an emissions trading scheme.[3] This combination results

in one of the highest carbon prices in the world at EUR 122/tonne.[4] Yet far from losing competitiveness over the last 30 years, the country's GDP has increased by well over 50% since the introduction of its carbon tax in 1991.[5]

Countries that anticipate disruption and create the right enabling environment to drive business in this direction will thrive, transforming these future problems into current opportunities. By actively pursuing these policies, governments offer themselves more options for the future and strengthen their resilience. The work of the Solar Impulse Foundation, to identify over 1,500 clean, efficient and financially viable technologies, was useful not just because it showed what existed on the market, but also because they represent 1,500 pieces of market intelligence for the future.

As for businesses, they must be proactive. Many well-established companies have collapsed due to their inability to anticipate major revolutions in their respective sectors. Kodak failed to adapt to the digital photography revolution, even though one of its engineers, Steve Sasson, invented the digital camera in the 1970s. They went bankrupt and whilst they still operate they do so in far more limited sectors, having failed to capitalize on their competitive advantage in a changing industry. The automotive industry has been caught equally flat-footed by the rise of EVs, the entire industry usurped by an outsider. Many fossil fuel companies will find the shift especially challenging, with so much of their current value based on assets that may or may not be exploited, and recognizing that no one can really compete with Saudi Aramco, who see themselves as being the last oil major standing in the coming years.[6]

It remains challenging as many are hamstrung by the fiduciary duty they owe to their shareholders. To try and give them greater visibility, many multinationals have introduced an internal carbon price. According to CDP, by 2020, 3,171 companies are planning or have already introduced an internal price on their carbon emissions.[7]

Citizens should recognize this new paradigm, supporting the decisions of pioneering governments by making strong choices at the ballot box. The major players are increasingly recognizing the competitive advantage that the ecological transition affords them, and are playing politics accordingly. It explains some of the "protectionist" measures seen in the Inflation Reduction Act in the United States and Europe's Carbon Border Adjustment Mechanism.

Let it be said clearly: there will be winners and there will be losers. However, recognition of the competitive advantages afforded by the ecological transition may move society towards its goal of a reduced environmental footprint more quickly than international negotiations that currently seem mired in the same old conflicts. SIF

POINT 14

It's about humanity, not the planet

+

POINT 21

It's not only about climate change

When we speak of saving the planet, we must be clear that we actually speak of saving humanity and preserving our quality of life. That is not intended to sound callous, but rather to emphasise that our prosperity will be based - as it always has been - on the natural environment.

Nature is the foundation of our society and economies. It provides what are known as ecosystem services, or services provided by nature, such as clean water, carbon sinks, etc. These are usually, but not always "free", and like most free things, we don't usually value them appropriately. However, the economic value of global ecosystem services is valued at about USD 120-140 trillion annually - far in excess of the total value of the global economy (USD 94 trillion in 2021). Something has got to give.

For decades now, we have been outstripping the planet's capacity to cope with our activities. The 2022 data shows that our current global ecological footprint is about 1.75 planets, and would be much higher if we all lived as we do in the more economically developed world. By 2023, six of the nine planetary boundaries have been crossed, suggesting that Earth is now well outside of the "safe operating space for humanity".[1]

The issue is that by living beyond our means for so many years, ecosystems are less able to provide for us. Estimates show that between 1992 and 2014, produced capital per person doubled, and human capital per person increased by about 13% globally; but the stock of natural capital per person declined by nearly 40%.

The true concern lies in our potential to alter the Earth to such an extent that we render it unsuitable for human life, collapsing the foundations on which we've built our civilisations and economies.

Nature must enter into economic decisions in the same way buildings, machines, roads and skills do.

The consequences of climate change on humanity is on an upward trajectory.[2] Our food resources are increasingly vulnerable, as crops are succumbing to droughts and wildfires. Over half of Europe has been grappling with severe drought conditions over the last few summers, leading to food shortages and significant price increases[3]

And if the world warms by 2°C, 80 million more people will face hunger by 2050, particularly in sub-Saharan Africa, South Asia, and Central America.[4] Of course, those most vulnerable will suffer first, but these problems - natural and social - will not be held back by borders.

This must change. Nature needs to enter economic and finance decision-making in the same way buildings, machines, roads and skills do. To do so ultimately requires changing our measures of economic success; GDP does not account for the depreciation of assets, including the natural environment.

Furthermore, a conservative estimate of the total cost globally of subsidies that actually damage Nature is around US$4 to 6 trillion per year.[5] Financial flows devoted to enhancing our natural assets are small in comparison.

As the Dasgupta Review on the economics of biodiversity stated upon its release in 2021: "The solution starts with understanding and accepting a simple truth: our economies are embedded within Nature, not external to it. Biodiversity enables Nature to be productive, resilient and adaptable. Just as diversity within a portfolio of financial assets reduces risk and uncertainty, so diversity within a portfolio of natural assets increases Nature's resilience to shocks, reducing the risks to Nature's services. Reduce biodiversity, and Nature and humanity suffer."[6]

It goes without saying that planet Earth will endure the challenges posed by climate change, as it has weathered them in the millions of years before. The other creatures on this planet may not fare so well - our actions have seen wildlife populations dropping an average of 69% since 1970 - the point we are trying to make here is that human prosperity is entirely dependent on the sustainable use of these resources we have at our disposal. Looking to the far future, failure to figure this out may lead to the next great extinction. To the planet, this is nothing new, having borne witness to the previous five.

So, while the argument here is in favour of nature, it is to make clear nature's role in human prosperity. We live in a capitalist society where the role is to grow capital. But that capital is at its core it is based on something that has been extracted from nature and we should seek to maximise the utility of that capital by recognizing its centrality to our entire growth model. Otherwise, we are eroding the foundations beneath our feet upon which our prosperity is grown. SIF

POINT 15

Protect the current generation, not just the future one

One of the overarching themes of environmental protection is that we must take decisive action today to ensure the planet is habitable for our children and theirs.

The unfortunate reality is that it does not translate to effective policy, especially in democratic political systems where focusing on the short-term will almost always prevail over long-term, systemic issues. Targets for 2050 are undermined because nobody who is currently in charge will be around by then.

One need only look at the political kryptonite that is raising the retirement age, a subject that no administration will touch until they absolutely must, making it that much harder to address than it would otherwise have been.

For the ecological transition, the objective must be to show that people's léives can be improved in the here and now, and most certainly in their lifetime.

Let's look at most people's pre-eminent concern; their occupation. As Chapter 11 indicated, almost half of the global workforce will be affected. Recognizing that this is far more disconcerting for workers and communities that have grown up around industries that will eventually need to be phased out, the World Economic Forum studied ten developed and emerging countries and found that a further 12 million "green jobs" will be required by 2030 - and that currently only 1% of the workforce was currently employed in such roles.[1] So many opportunities for growth exist.

The opportunities are for today's citizens as much as tomorrow's – this is the story we need to tell.

Or consider air quality, which kills 7 million people each and every year. Almost half die from household air pollution which could be significantly reduced by access to clean fuels and technologies for cooking. In pure cold, hard financial numbers, the global cost of air pollution is estimated at $8.1 trillion USD, or over 6% of GDP.[2] Indeed, another study of data from 178 countries of the period 1995-2017 found that a 1% increase in CO_2 emissions increased healthcare expenditure by 2.5%.[3] It would be better and cheaper for everyone if we focused far more time on fixing this problem.

Another major concern for individuals is how energy costs will impact their quality of life. Consumers may face additional up-front capital costs and have to spend more in the near term on electricity if cost increases are passed through to them.

Lower-income households are naturally more at risk. But at the same time, renewable energy costs are collapsing, which entails lower energy costs. In addition, the high up-front costs can be covered by innovative financing mechanisms, such as servitization or cleantech leasing models, with the energy savings can be used to make the repayments over a number of years, as is the case with heat pumps. This can ultimately keep energy costs the same or lower for consumers.

We also need to consider that the negative impacts of climate change - most notably through the rise of extreme weather events - are already being felt today, and that inaction will continue to cost us. The Stern report of 2006 predicted long ago that economies would suffer significantly from inaction, with a drop of up to 20% of GDP, whereas taking action would only cost about 1% of GDP.[4] More recent analysis by Swiss Re indicates that major economies could lose 4% of GDP by 2050 even if we meet the Paris targets of below 2°C, the best case scenario in their study.[5]

On the flip-side, serious analysis from New Climate Economy in 2018 indicated that "bold action could yield a direct economic gain of US$26 trillion through to 2030 compared with business-as-usual."[6]

Clearly, the results are dependent on the correct political choices being made, and due to the very nature of the ecological transition, these are far-reaching and multitudinous. What is clear is that the opportunities of the ecological transition are as much for today's generations as they are for the future - and it is this that we need to demonstrate today. SIF

POINT 16

Setting legal limits to irresponsible behaviour, in the environmental space as in any other

Our current legal system gives us ample opportunity to pollute our environment.

We can freely use fossil fuels to produce heat and electricity, release methane - a gas 28 times more polluting than CO_2 - from open-air landfills,[1] allow factory fumes to pollute the atmosphere, turn a blind eye to plastic pollution flowing down our rivers and into the oceans, and ignore the impact of crop protection chemicals on the wider environment.

To tackle against climate change, some governments have sought to introduce regulations, but there has been push back, often on the grounds of limiting people's individual freedoms.

Carbon taxes raise fears about the economic impact on individuals and businesses; the ban on internal combustion engine vehicles raises fears about consumers' freedom of choice; the ban on certain plastic products raises fears about consumers' freedom of choice; Environmental zoning to protect sensitive natural areas has raised fears about property rights and individual development. The development of organic farming to improve nutrition has raised fears about farmers' freedom to choose their inputs.

These examples show the fundamental challenges of balancing environmental protection and individual freedom. And yet, these questions do not arise when it comes to non-environmental issues.

Sanitation requirements for food production, speed limits, safety regulations limiting the carrying of firearms...all these elements are not called into question under the guise of restrictions on individual freedoms and free will.

Our current legal system permits us to pollute our environment. The time has come for this to change.

Although environmental regulations are adopted for the collective protection of the population, the proposal becomes difficult to accept when it comes to restricting freedoms. Yet we all share the same environment. When the air is polluted, we breathe it; when plants are contaminated, we consume them; when the oceans are damaged, we eat the fish; and so on. So it's not just a question of the ecological consequences, but also for our own health.

Consider air quality; air pollution therefore causes more deaths every year than tobacco. Although many countries ban smoking in public places (e.g. the Evin law in France),[2] it seems unthinkable to ban pollution of our common good: the atmosphere. And yet we can avoid smoking, but we cannot avoid breathing.

The objective is not to multiply regulations, but rather to put in place relevant ones that protect the collective. A change of mentality is needed, taking into account the inestimable value of our ecosystems and their impact on our society and economy. We need to take account of negative externalities in everything we do.

An interesting example arises when it comes to speed limits. The argument is essentially one of safety, to protect both the driver and other road users. Could it have been accepted from an environmental point of view, recognizing that driving at lower speeds can reduce emissions by 10-20%, even if one is forced to drive a little longer, and thereby restricting freedom of movement?

Debates on these issues are an important part of the legislative process. Governments must often seek to balance the need to protect the environment with respect for individual rights and choices. In the past it was more challenging as the technologies were not available or financially viable. But that is no longer the case, and thus policy leaders must be able to make the case for policies that limit freedoms as with many other policies but protect the collective good. The time has come. SIF

POINT 17

Carefully choose how you name and speak about your policies

+

POINT 18

Showing is better than saying

In a world flooded with grand promises and ambitious targets, "actions speak louder than words" couldn't be more relevant.

The rhetoric of "We have to act now!" has become a familiar refrain, yet it often lacks the substance required to instigate real change. To maintain credibility, both activists and decision-makers must transcend the realm of abstract objectives and delve into the specifics of how these goals will be achieved. Without a clear showcase of implemented strategies and achieved milestones, declarations remain mere rhetoric.

Reports have demonstrated for years that many net zero commitments, while a sign of good intention, lack the high levels of ambition required to keep global warming below 1.5° C. For instance, at least a fifth of the world's 2,000 largest public companies have now made some kind of "net zero" pledge to cancel out their carbon emissions. Yet, studies show the climate pledges of 25 of the world's largest companies, in the likes of Google and Maersk, will only amount to future emissions reductions of some 40% on aggregate.[2] Thus, when politicians or CEOs declare their intent to reduce CO_2 emissions by a certain percentage by a specific date or to limit temperature increases to 1.5°C, it's easy for such statements to be dismissed as wishful thinking.

Decision-makers must move from abstract objectives to specifics of how it will impact voters.

But the disconnect between lofty aspirations and concrete action plans renders these declarations ineffective, especially to the majority of the population. To bridge this gap, a comprehensive approach is essential—one that encompasses a clear legal and regulatory framework, well-defined procedures, and, most crucially, the implementation of tangible and mature solutions.

A robust legal and regulatory framework is the backbone of any effective climate action plan. Mere declarations of intent must be transformed into binding laws and regulations that compel individuals and industries to align with sustainability goals.

For instance, countries like Sweden, Denmark and Chile have successfully implemented stringent environmental laws,[3] resulting in significant reductions in carbon emissions. Statistics show that Sweden's CO_2 emissions per capita have decreased by 40% since 1990.[4] Chile's emissions appear to have already peaked and are declining to such a level that Chile could meet its NDC target of 95 $MtCO_2e$ by 2030 and put it on track to undercut its NDC budget by between 2% and 11%.[5] Since the climate strategy was released in 2020, Denmark made a decision to invest in a renewable energy project called Energy Islands, consisting of a network of offshore wind turbines in the North and Baltic Seas. In collaboration with government and private sectors, this project will generate enough energy for three million households, allowing Danes and neighbouring countries to power their homes. This project is set to be up and running by 2033. Although this project is yet to be completed it has potential to provide Denmark and surrounding countries to be fully renewable thus reducing the need for fossil fuels and non-renewable energy sources.[6] A testament to the power of a well-established legal basis.

So a good policy is evidently better than a bad one. No one disagrees with that, even if the appreciation of a law can differ. But that's not the whole battle. So while showing is better than saying, the latter is still important. You could have a great policy, working for all: businesses, civil society, local NGOs, politicians from across the aisle. Everyone is on board. This law will work for all spheres of society. But you name it wrong, You frame it wrong.

Take the American Inflation Reduction Act.[7] Everyone loves inflation reduction. But in this instance it has been a catalyst for climate action: since its passage through both US Houses of Congress, there have been more than 270 new clean-energy projects announced with investments totalling some $132bn.[8] There is something to be said about the framing and the narrative of this Bill that it managed to pass through one of the most sclerotic political establishments when it comes to climate action. Now take the Green Deal.[9] Whilst a very different legislative agenda, it touches on industry and agriculture and everything in between. But its perception as being part of a purely environmental agenda has not made it easier to accept by European populations, especially with the economic fallout of COVID-19 and the ongoing war in Ukraine. Green is associated with a political ideology, with a political party: automatically the opponents will have negative feelings about anything remotely associated with it.

That being said, good communications need good policy. Consider how Canada's carbon price is never referred to as a tax but as a "price on pollution," whereby the income goes back to the citizens in the form of a tax rebate.[10] This is unsurprisingly a winner among voters and is critical to its success and to how it is received. It also helps increase competitiveness amongst industrial actors, with its steadily increasing price forcing them to look toward being the cleanest and most efficient that they can be.

A law is like any product one might want to sell: it should look good, but its advantages should be obvious and convincing.

POINT 19

Making the transition an advantage to all – from North to South

If the fight against climate change is presented as a financial sacrifice for rich countries and a threat for the economic growth of developing countries, it will face opposition from the entire world.

Developing and emerging economies bear much less historical responsibility for climate change, yet their economies, citizens and infrastructures are vastly more vulnerable to its impacts. Africa accounts for 4% of global CO_2 emissions, and yet the effects of climate change are threatening human health and safety, food and water security and socio-economic development across continents. It is clear that developing and emerging economies need support to adapt but also to modernise. Indeed, there is no reason for upcoming economic development to be carbon-intensive while more effective, greener, and equally or more profitable ways exist.

Experts say that developing countries need $2.4 trillion every year to deal with the impacts of climate change and unlock the ecological transition for themselves.[1] This amount covers mitigation, adaptation and loss and damage. It is important to explicitly state what these funding requirements are for. The amount to be allocated to mitigation is the largest part - but it is also the part that has a revenue stream attached to it, and therefore which is attractive to investors.

Unfortunately, the capital flows directed towards mitigation are not high enough and the critical factor is "catalysing the private sector to get them into doing this in developing countries. They're doing this in rich countries: 81% of all climate mitigation and green transformation stuff is financed by the private sector in rich countries, but only 14% in poor countries." This is what the Bridgetown Initiative was intended to do: guaranteeing the foreign exchange risk that private investors have when they go to developing countries.[2]

The transition allows countries offers a more effective route toward equitable growth.

But these barriers to entry are not just for investors. They also extend to lower-income households where surveys consistently show that climate change is a top concern.[3] The belief persists that participating in the ecological transition is costly and unattainable, that it is reserved for the privileged few who can afford electric vehicles and rooftop solar panels. However, the reality is quite different, and with the right conditions, this potential could be exploited and become a vector for fairness, transforming the lives of citizens in these countries.

There is something wrong when Africa produces only 6% of global fossil fuels but has access to 39% of global renewable potential. Despite this, only 17% of greenfield foreign direct investment inflows into Africa were directed at renewable energy projects from 2017-22. As a result, the poorest countries are becoming poorer each year as they import fossil energy using foreign currencies.[4] But solar, wind, biogas, electric turbines for small rivers, and local geothermal sources can provide local populations with low-cost and sustainable electricity. Just as many of these countries were able to leap from the absence of telecommunications to bypassing landlines and having mobile phones, a similar technological leap is essential for the ecological transition: shifting from expensive centralised energy production with limited reach to decentralised, development-oriented energy production through renewable sources, which have become the most cost-effective options today.

There is thus an urgent need 1) for developing nations to adopt innovation and energy policies that can propel their clean energy and technology industries and 2) to reform existing global trade and intellectual property transfer rules to allow developing countries to harness their own green industries and also be able to access technologies developed in richer states. Exports of green technologies from the industrialised north almost tripled from $60 billion in 2018 to over $156 billion in 2021 whereas Global South exports rose from $57 billion to $75 billion in the same time period.[5] But should the emphasis be on financing local startups, or should we ensure that the necessary solutions are quickly adapted in the Global South? Both. One will undoubtedly create local intellectual property, and the other will bring technologies that have already proven themselves. There can be no large-scale implementation without profitability.

Despite the international recognition for the need of innovative financing mechanisms to reach said pledges, as exemplified by the 2023 Nairobi declaration,[6] it is clear that the current commitment of donor countries to mobilise $100 billion annually falls significantly short of the $2.4 trillion requirement, especially when considering that low-and middle-income countries could face costs of up to $580 billion annually by 2030.[7]

For populations in emerging economies, the narrative of fairness is of paramount importance. It is crucial to acknowledge the opportunities that developed economies have had in the past versus those still in the process of development. The narrative should thus shift towards emerging economies avoiding the same mistakes made by developed economies and other emerging countries and instead benefiting from a more effective route toward equitable growth.

The benefits of the ecological transition should be universal. And unlocking them remains the economic opportunity of the century. That is true in the richer global north as it is in the poorer global south. The economics are sound and there is opportunity to make the most of. SIF

REFERENCES

1. The importance of matching languages

2. Speak of solutions, not just problems

[1] IPCC: The Intergovernmental Panel on Climate Change is an autonomous intergovernmental organisation set up in 1988 as part of the G7 (Canada, France, Germany, Italy, Japan, the UK and the USA) by two UN institutions: the United Nations Environment Programme and the World Meteorological Organisation. This organisation assesses the state of knowledge about climate change, its causes and its impacts. The IPCC also identifies ways of limiting the extent of global warming and the severity of its impacts, and of adapting to the expected changes. https://www.ipcc.ch/about/

[2] UN, Secretary-General's remarks to High-Level opening of COP22, November 2022, https://www.un.org/sg/en/content/sg/speeches/2022-11-07/secretary-generals-remarks-high-level-opening-of-cop27

[3] Inégalités croissantes, pouvoir d'achat et éco-anxiété : Face aux inquiétudes des Français, le CESE appelle les pouvoirs publics à agir de façon coordonnée et ambitieuse | Le Conseil économique social et environnemental

[4] RPP: The fear paralysis reflex (RPP) is one of the first reflexes to develop in humans. It is triggered in utero, around the 5th week of life.

[5] Jochen Kleres et al, Fear, hope, anger, and guilt in climate activism, https://www.tandfonline.com/doi/full/10.1080/14742837.2017.1344546

[6] IPCC, Climate Change 2022: Mitigation of Climate Change, https://www.ipcc.ch/report/ar6/wg3/downloads/report/IPCC_AR6_WGIII_FullReport.pdf

[7] Solar Impulse Foundation, Wagabox, https://solarimpulse.com/solutions-explorer-fr/wagabox-1?queryID=e236e9e8112b78f8f3ce9243eab656ce

[8] Solar Impulse Foundation, The Eco-Stock, https://solarimpulse.com/solutions-explorer-fr/the-ecostock?queryID=8e0ace6c4c1d6e8be82e7daa2d587fe4

[9] Solar Impulse Foundation, HpO, https://solarimpulse.com/solutions-explorer-fr/ai-for-high-efficiency-water-networks?queryID=e72e9a1781b5c0a3e94f9f7f2e3502ed

[10] Solar Impulse Foundation, Shayp, https://solarimpulse.com/solutions-explorer-fr/shayp?queryID=56b55931dc0d8a1fbb1272958a1831e6

[11] Solar Impulse Foundation, Skywater & Sopranature, https://solarimpulse.com/solutions-explorer-fr/skywater-sopranature?queryID=03a19456e5388137ee1ff67834e585c5

[12] Solar Impulse Foundation, Gramitherm, https://solarimpulse.com/solutions-explorer-fr/gramitherm-1?queryID=4dd7d9ea85a573ffd6a7cba7a3710192

[13] Solar Impulse Foundation, Ecoboard, https://solarimpulse.com/solutions-explorer-fr/ecoboard-made-from-coconut-waste

[14] Solar Impulse Foundation, StixFresh & Shelf Defense, https://solarimpulse.com/solutions-explorer-fr/stixfresh-shelf-defense?queryID=d14544aa42f377fb1a14286057564a74

[15] Solar Impulse Foundation, OptiFlight, https://solarimpulse.com/solutions-explorer-fr/optiflight?queryID=4744eac09f5a0a71bb011ad42d47905f

3. Climate action as a vector for business opportunities and new markets

[1] Renewables competitiveness accelerates despite cost of inflation

[2] What sustainability Means today

[3] Commercial Real Estate seeing green premiums in Europe

[4] Re-assessing Green Building performance. Pacific Northwest National Laboratory

[5] Beyond The Business Case. Why You Can't Afford Not To Invest In A Sustainable Built Environment.World Green Building Council.

[6] The Ecostock is a shipping container that contains ceramics that can capture and store waste heat, which can then either be used as a heating source – hot air at constant temperature level is provided (up to 1000°C) – or be converted into electricity.

[7] Capture The Energy. Get An Overview About Typical Waste Heat Sources And Main Technologies For Waste Heat Recovery. Waste-Heat.EU.

4. Frame decarbonisation as a consequence of modernisation, not as the end objective

[1] Refurbishing Europe: Igniting opportunities in the built environment. McKinsey & Company.

[2] Energy Efficiency In Buildings. European Commission.

5. Highlight savings and returns on investment, not costs and sacrifices

[1] The Future of Heat Pumps. IEA.

[2] Electric vs. Gas Cars: Is It Cheaper to Drive an EV? Natural Resources Defence Council.

[3] Power2People: Smart Thermostats

[4] Solar Impulse Efficient Solution: Joulia Twinline

6. It's not about Future technologies but existing ones

[1] Solutions Explorer.

[2] Peak oil is here. Well, maybe. Zero podcast. October 2023.

[3] Celsius Energy, a Solar Impulse labelled solution.

7. Start with what is easy and profitable

[1] Methane Abatement. IEA.

[2] Decarbonizing aviation: Executing on net-zero goals. McKinsey & Company

8. Efficiency over sobriety and degrowth & 10. Quality versus quantity

[1] Ezra Klein Interviews Noam Chomsky. The Ezra Klein Show, podcast, 23 April 2021.

[2] Noam Chomsky on "savage capitalism": From climate change to bank failures to war. Salon. 11 April, 2023

[3] Episode 79. The Angry Clean Energy Guy, with Assaad Razzouk.

9. Specify which degrowth you speak of

[1] In 2025, the rules for what is measured in GDP will be revised by the UN, as statisticians continue to ask how sustainability and well-being could be more closely aligned to GDP. Report by the Commission on the Measurement of Economic Performance and Social Progress. Commission on the Measurement of Economic Performance and Social Progress. 2009.

[2] Growth, Degrowth or Post-growth? Towards a synthetic understanding of the growth debate. Forum for a New Economy. 2022. P. 18

[3] A Doughnut Economy Please, but Hold the Agnostic Frosting. Steady State Herald. 2021.

11. New professions versus lost jobs

[1] Skills for a Greener future. P. 9. International Labour Organization. 2019

[2] IRENA (2020b) Global Renewables Outlook: Energy transformation 2050, International Renewable Energy Agency, Abu Dhabi.

[3] Social protection as a compensation measure for the adverse impacts of climate change mitigation. P. 7. GIZ.

[4] Are skills the missing piece in green transitions?. Green Economy Coalition.

[5] Social protection as a compensation measure for the adverse impacts of climate change mitigation. P. 12. GIZ. https://socialprotection.org/sites/default/files/publications_files/GIZ_Social_Protection_CCM_LMICs.pdf

[6] Are skills the missing piece in green transitions?

[7] Climate action must be labour market action. P. 4. Adecco Group

[8] No just transition without skills Skills for climate change policies. P. 13. International Organisation of Employers.

[9] Germany needs a more coherent continuing education and training system that better addresses the needs of the low-skilled.

[10] Weiterbildung : Heil wirbt für Bildungszeit als Mittel gegen den Fachkräftemangel

12. Diversification versus endangered sectors & 20. Climate urgency or economic imperative?

[1] A McKinsey study estimated that global spending on physical assets in the transition would amount to about $275 trillion between 2021 and 2050, or about 7.5 percent of GDP annually on average.

The net-zero transition: What it would cost, what it could bring: https://www.mckinsey.com/capabilities/sustainability/our-insights/the-net-zero-transition-what-it-would-cost-what-it-could-bring

[2] The road to a sustainable industrial revolution (2022): https://www.siemens-energy.com/global/en/home/stories/decarbonizing-hard-to-abate-industries.

[3] Unextractable fossil fuels in a 1.5 °C world (2021): https://www.nature.com/articles/s41586-021-03821-8

[4] Stranded fossil-fuel assets translate to major losses for investors in advanced economies (2022): https://www.nature.com/articles/s41558-022-01356-y

[5] https://www.theguardian.com/business/2019/jun/12 worlds-biggest-sovereign-wealth-fund-to-ditch-fossil-fuels

[6] https://divestmentdatabase.org/

[7] That is reallocating from emissions-intensive businesses to low-emissions businesses, either transforming emissions-intensive businesses through decarbonisation or divesting them.

[8] ENGIE, au service de l'efficacité énergétique des entreprises et des collectivités. Engie

[9] Iberdrola expects 8-10% net profit rise before windfall tax. February 22, 2023.

[10] Playing offence to create value in the net-zero transition (2022)
https://www.mckinsey.com/capabilities/sustainability/our-insights/playing-offense-to-create-value-in-the-net-zero-transition

[11] "Enterprise multiple" refers to the ratio of enterprise value to earnings before interest, taxes, depreciation, and amortisation.

[12] Playing offence to create value in the net-zero transition (2022)
https://www.mckinsey.com/capabilities/sustainability/our-insights/playing-offense-to-create-value-in-the-net-zero-transition

13. Why embark on the transition if big actors continue to pollute? To gain a competitive advantage!

[1] REEPRODUCE - Dismantling and recycling Rare Earth Elements from End-of-life products for the European Green Transition. Sintef. September 2022.

[2] Renewable Energy Market Update - June 2023. IEA.

[3] Looking Back on 30 Years of Carbon Taxes in Sweden, 2020. Tax Foundation.

[4] Sweden's carbon tax, 2023. Government Offices of Sweden

[5] Looking Back on 30 Years of Carbon Taxes in Sweden. Tax Foundation

[6] Saudi Aramco bets on being the last oil major standing. Financial Times. 12 January 2023.

[7] Putting a price on carbon. CDP. April 2021.

14. It's about humanity, not the planet & 21. It's not only about climate change

[1] ''Earth beyond six of nine planetary boundaries''. Katherine Richardson et al., Science Advances (9), 2023
In the mid-2000s, scientists, led by Johan Rockström, aimed to define Earth's safe operating boundaries for humanity. They identified nine key processes influenced by human activity that threaten our planet's stability, including climate change, biodiversity, ocean acidification, and more. These processes are vital for our environment but have been significantly impacted by human actions.

[2] Climate change causing widespread and irreversible impacts, says IPCC. New Scientist.

[3] Falls in Europe's crop yields due to heatwaves could worsen price rises. The Guardian.

[4] COP27: The Climate Crisis is a Hunger Catastrophe. Action Against Hunger

[5] The Economics of Biodiversity: The Dasgupta Review - Headline Messages. GOV.UK

[6] The Economics of Biodiversity: The Dasgupta Review - Headline Messages. GOV.UK

15. Protect the current generation, not just the future one

[1] Jobs of Tomorrow: Social and Green Jobs for Building Inclusive and Sustainable Economies. January 2023.

[2] World Bank. 2022. The Global Health Cost of PM2.5 Air Pollution: A Case for Action Beyond 2021. International Development in Focus;. © Washington, DC: World Bank. http://hdl.handle.net/10986/36501

[3] The Impact of Air Pollution on Healthcare Expenditure for Respiratory Diseases: Evidence from the People's Republic of China. Risk Manag Healthc Policy. 2020; 13: 1723–1738.

[4] The Economics of CLimate Change: The Stern Review. 2006. Summary of Conclusions

[5] World economy set to lose up to 18% GDP from climate change if no action taken, reveals Swiss Re Institute's stress-test analysis. April 2021.

[6] The 2018 Report Of The Global Commission On The Economy And Climate. 2018. The New Climate Economy.

16. Setting legal limits to irresponsible behaviours, in the environment space as in any other

[1] MIT News, Reducing methane emissions at landfills, February 2022, https://news.mit.edu/2022/loci-methane-emissions-landfills-0202

[2] Légifrance, Loi n° 91-32 du 10 janvier 1991 relative à la lutte contre le tabagisme et l'alcoolisme, 10 janvier 1991, https://www.legifrance.gouv.fr/loda/id/JORFTEXT000000344577/

17. Carefully choose how you name and speak about your policies & 18. Showing is better than saying

[1] Black, R., Cullen, K., Fay, B., Hale, T., Lang, J., Mahmood, S., Smith, S.M. (2021). Taking Stock: A global assessment of net zero targets, Energy & Climate Intelligence Unit and Oxford Net Zero. P.25

[2] The truth behind corporate climate pledges. The Guardian (2021)

[3] In 2017 Sweden adopted a new climate policy framework. The framework consists of a climate act '', climate targets and a climate policy council. The 2020 Danish Climate Act sets the framework for Danish climate policy. Among other things, the Act governs how and when national climate targets are to be decided, and it describes the institutional setup and tasks of the Danish Council on Climate Change. Every five years, the government must present a new climate target with a 10-year horizon.

[4] Annual carbon dioxide emissions in Sweden from 1970 to 2022

[5] Country summary: Chile. Climate Action Tracker

[6] 3 Leading Countries in Climate Policy. Earth.org

[7] Inflation Reduction Act of 2022

[8] Biden's 'Inflation Reduction Act' reality check. Business Live. (August, 2023

[9] European green deal – Delivering on our targets. European Commission, Directorate-General for Communication. Publications Office of the European Union, 2021.

[10] How Canada Figured Out a Carbon Tax and Gave the Money Back. Zero Podcast. 13 july 2023.

19. Making the transition an advantage to all – from North to South

[1] COP 28 president: 'It's time to transform climate finance–and bridge its $2.4 trillion gap. 2023

[2] The Paris Meeting That Could Move Trillions to Climate. Zero Podcast. 15 June, 2023

[3] Climate Change Remains Top Global Threat Across 19-Country Survey. Pew Research Institute. 2022

[4] Energy shock hitting poorer nations reliant on imports hardest.Japan Times. 2022

[5] Green technologies: Coherent policy action needed for developing countries to reap the benefits. UNCTAD. 2023

[6] The Nairobi Declaration is heavy on demands that major polluters commit more resources to help poorer nations. It urged world leaders "to rally behind the proposal for a global carbon taxation regime including a carbon tax on fossil fuel trade, maritime transport and aviation, that may also be augmented by a global financial transaction tax

[7] Zagema et al.. "Climate Finance Shadow Report 2023: Assessing the delivery of the $100 billion commitment." Oxfam International, 2023

Concept & Writing
Bertrand Piccard

Research & Writing
Bertrand Piccard
Léa Andersson
Jean Constantinesco
Alessandro Gaillard
Remy Kalter
Sixtine Morin
Myriam Schwartz

Editorial
Michèle Piccard
Héloïse Lauener

Contact
fondation@solarimpulse.com

SOLARIMPULSE
FOUNDATION

Graphic Arts
Bontron & Co – Geneva
www.bontron.ch

Printer
Imprimerie Chapuis – Geneva
www.imprimerie-chapuis.ch

Printed in compliance with
ISO 14001
CO_2 Footprint Compensation
My Climate Foundation
www.myclimate.org

When speaking about climate action, the words can either motivate and ignite change, or discourage and spur resistance.

It is therefore crucial to adopt a new language – one that emphasises the transformative opportunities, renewal, and fairness inherent in the transition, showing an exciting image of climate action.

To this end, Bertrand Piccard and the Solar Impulse Foundation have prepared The New Climate Narrative, a strategy to overcome resistance to the ecological transition.

Across 20+ points, this document reframes climate action and makes it an attractive opportunity, helping policy leaders to deal with it through the lens of solutions rather than problems.

THE NEW CLIMATE NARRATIVE