

THE ROAD TO

Net Zero

AUTUMN 2022

BEYOND GDP. ALLIN ET AL ARGUE FOR A CHANGE IN MEASURING PROGRESS FOR A WORLD IN CRISIS

AKGÜÇ ET AL OUTLINE LABOUR AND SOCIAL EFFECTS OF THE EU'S FIT FOR 55 CLIMATE PACKAGE

NIRUPAMA SOUNDARARAJAN AND ARINDAM GOSWAMI CONSIDER INDIA'S COMMITMENT TO NET ZERO

SUSTAINABLE DEVELOPMENT

Foreword

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elcome to the Autumn edition of *The Road to Net Zero*, a *World Commerce Review* supplement. This publication has been prepared in response to readership demand for an overview of the steps being taken in the transition to a cleaner and greener sustainable world.

All aspects of climate action are examined, with the most respected authors providing the reader with the most comprehensive information available. Our brief is to provide all the data necessary for the readership to make their own informed decisions. All editorials are independent, and content is unaffected by advertising or other commercial considerations. Authors are not endorsing any commercial or other content within the publication. ■

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The social dimension of the climate transition

Mehtap Akgüç, Kalina Arabadjieva and Béla Galgóczi outline some of the key labour and social effects of the EU's Fit for 55 climate package and potential responses that should be considered

As well as the inclusion of the notion of just transition into the preamble of the 2015 Paris Agreement, and then in the Glasgow Climate Pact, employment and distributional aspects of climate change mitigation have been recognized at the highest policy level of European union. This can be seen as a modest but important achievement of a several decades-long campaign for a just transition by the labour movement.

The announcement of the European Green Deal (EGD)¹ in 2019 had already included pledges to 'leave no-one behind.' The Just Transition Mechanism² and the proposed Social Climate Fund³ are some of the main EU measures announced to date intended to mitigate the impact of the transition on the most affected regions, vulnerable individuals and businesses.

The Council Recommendation on the social and labour aspects of the climate transition, which is not legally binding, has also provided guidance to member states on how to ensure that the green transition takes place in a just and fair way.

This is a huge challenge that spans across many questions, such as the distributional effects of decarbonization policies, jobs losses and employment transitions, the protection of basic social rights and inclusion of citizens in decision-making, to name but a few.

By no means should this instrument be seen as a substitute for strengthening the social dimension of EU legislative and policy measures on climate change. Nor should it give reason to lower climate ambitions – a 'just transition' does not mean 'slow transition.'

A just transition for the EU can only be 'just' in a true sense if it goes with maximum climate ambition, particularly given Europe's historical debt to low carbon footprint developing countries. With this in mind, we outline some

of the key labour and social effects of the EU's Fit for 55 climate package⁴ on the EU population and potential responses that the recommendation should consider.

Employment effects

Climate policies are having and will continue to have a major effect on the world of work. Millions of new jobs are being created in the transition to a net zero carbon economy, but a large number of jobs will also disappear.

Inclusive and comprehensive social and economic policies are essential to securing social justice, resilience and sustainability

The majority of jobs will go through a fundamental transformation. This unprecedented wave of restructuring will have unequal effects on many fronts, including skills, gender, age, economic activity and region. Sectoral differences are particularly high.

The energy and automotive sectors will be the ones most affected by the decarbonisation drive from climate and environmental regulations at European and national levels. While coal has no future and coal-dependent jobs will be gone, the automobile does have one, albeit in quite a different form from the one we know.

In the coal-based power sector the majority of currently existing jobs will disappear in a decade and the regional effects will be harsh⁵, as over 90% of coal jobs are concentrated in ten NUTS 2 regions, four of them in Poland.

With a more than 5% share of total European employment, the automotive sector is a key employer. For the car industry, the demise of the combustion engine and the electrification of the powertrain will require the development of new competences, skills and forms of work organisation.

These will have a substantial impact on the comparative advantages held by certain nations and manufacturers⁶. The renewable energy sector, construction and low-carbon infrastructure are expected to deliver most of the job creation⁷.

However, transitional policies should consider the local dimensions of the transition - the places where jobs are lost and created are not necessarily the same and relocating labour is not straightforward.

Jobs and skills

Climate change policy will have a major impact on jobs, their skill contents and how they are performed.

The transition will come along with increasing demand for skills in the renewable and cleaner energy sector, energy and resource efficiency, digital competences, STEM knowledge to trigger innovation and breakthrough technology, greener construction methods, city planning and design, technical competences in adaptation, waste management, maintenance and repair technologies to reduce resource exigency as well as boost circular economy practices, to name a few⁸.

To match the rising demand in specific skills and competences for the green transition, training programs and education curricula need to be adapted to the needs of the labour market. Public sector and businesses could cooperate to adapt the training and education programs.

Training, reskilling and upskilling should be made available to the wider workforce and in a flexible format to the extent possible (eg. online or flexible hours) to ensure that nobody is left behind and attract new talents to green jobs, avoiding skill gaps.

Working time and work conditions will also be impacted by climate change and environmental degradation. For example, extreme and frequent heatwaves will necessitate reorganization of working time in key sectors or equipment of air conditioners will be needed to provide appropriate health and care services in regions experiencing adverse climate effects⁹.

Distributional effects

Effective climate policies can only be based on a comprehensive policy framework that include regulation, standards, taxes and market mechanisms in a balanced manner. While market mechanisms – such as the EU's Emissions Trading Scheme¹⁰ - that set price signals to market actors are one important element of this in changing

investment and behavioural patterns, they can only have the desired effects in well-functioning markets, but current energy markets are far from that.

Moreover, the signals themselves have significant regressive distributional effects, disproportionately affecting low-income households, for whom fuel and transport consumption make up a higher share of their income¹¹.

Poorer households also have less capacity to change, as while low-carbon products (electric vehicles, rooftop solar panels, and so on) may have low operating costs, they tend to have high, upfront capital costs – presenting a hurdle for households with little access to cheap capital.

Certain vulnerable groups are likely to be affected more than others during the transition. For example, climate change induces gendered effects as men are disproportionately employed in polluting sectors. This can imply mitigating effects for women: while it can result in overall poverty for the household as men lose jobs, it might also encourage women to enter into the labour force for paid employment – yet with concerns about job quality – to support household income.

However, there is also wide evidence pointing to disproportionate vulnerabilities – such as having fewer resources at disposal, reduced access to education as well as being frequently excluded from information and decision-making processes – faced by women during green transition¹². Just transition must mean also empowering women and addressing these structural inequalities.

Another group experiencing vulnerabilities is migrants. For one, most of the foreign-born workers are employed in relatively low-paying and polluting sectors and have no or only limited access to training to upskill towards transition to low-carbon economy¹³.

The other aspect relates to the future – both internal and international – migratory movements towards Europe as a result of climate emergency. Both of these aspects point to the importance of targeted social and labour market policies to manage flows, ensure successful socioeconomic integration and just transition for everyone including migrants.

This would contribute to global climate justice as the ones most adversely impacted by climate change are not the main contributors to it.

Fundamental rights

The environmental, social and economic effects of climate change and related mitigation policies threaten the enjoyment of fundamental human rights¹⁴. These include basic social and economic rights, widely recognised in international and European human rights instruments and national constitutions¹⁵. They constitute entitlements to basic conditions for a decent human life, without which it is impossible to speak of a 'just' transition.

Both the distributional and employment consequences of climate change policies could affect various basic rights such as the right to work, the right to just working conditions, the rights to an adequate standard of living and to protection from poverty and social exclusion.

As the burdens of the transition fall disproportionately on those who are already most vulnerable, disparate impacts of policies along the axes of gender, ethnicity, migrant status, disability or other protected status could impinge on the right to equality and non-discrimination.

Threats to fundamental rights in global supply chains arise in the context of delivering the resources and technology necessary for decarbonisation¹⁶.

At the same time, fundamental rights can provide a normative framework for the basic elements – necessary but not sufficient – of just transition policy. Aside from the rights mentioned above, ensuring respect for rights to vocational training, fair remuneration, social security, equal opportunities, and collective bargaining – and others – could constitute the foundations of a strategy to address the impacts of the green transition on workers and citizens more broadly.

Discussion of fundamental rights is, however, largely absent from the European Green Deal and Fit for 55 packages. Reference is made to the European Pillar of Social Rights¹⁷, a list of 20 principles without binding legal effect. There is no mention of the EU's own Charter of Fundamental Rights¹⁸, nor other international legal norms.

The Recommendation could be an opportunity to strengthen the link between the just transition agenda and long-standing frameworks for the protection of fundamental labour and social rights, such as the European Social Charter or the core Conventions of the International Labour Organization.

Citizen participation

Climate protest movements such as Fridays for Future, as well as the tens of thousands of people who took to the streets during COP26 make clear that citizens want to have their voices heard when it comes to climate change.

A key challenge for a procedurally fair green transition is to ensure that the public, and especially the most affected communities and citizens, have an opportunity to participate in decision-making.

Participation is a means to empowering and fostering cooperation with affected communities, and contributing to better outcomes and increased democratic legitimacy. In the labour context, this means meaningful participation by workers and social dialogue.

Climate citizen assemblies, convened in France, the UK and some other European countries over the last years are gaining popularity as a forum for public debate on climate change. The on-going Conference on the Future of Europe includes a panel on climate change, too.

But simply providing a forum is not enough – decision-makers also have to listen. Transparency, information and capacity-building are crucial to meaningful involvement, as are active steps to include marginalised groups and to ensure diversity across factors such as gender, ethnicity, age, socio-economic status or geographic location.

The way forward

Getting climate change under control is in the interest of humanity, the unprecedented restructuring process economies need to go through in a few decades to reach net zero emissions is policy driven. These policies will have differential effects on people with different socio-economic characteristics, and policymakers have a dedicated responsibility to address these.

A just transition means that addressing both the employment and distributional effects of a transition to net zero should be an integral part of the package and not supplementary corrective measures.

The EGD has recognised this, but in practice social and employment policy initiatives have remained fragmented and additional. This shortcoming has become very clear with the announcement of the Fit for 55 package in July 2021.

Europe now has a Just Transition Fund with limited resources, dedicated mostly to helping coal regions manage the social and employment effects of coal phase-out. This is very important but reaches a small fraction of people affected by decarbonisation.

The newly announced Social Climate Fund has a very specific target, namely to fend off the detrimental distributional effects of a new emissions trading system for buildings and transport, but even for that it may not be enough¹⁹. Sectors that are highly affected, the automotive sector and energy intensive industries do not have dedicated instruments and a fund.

European-level labour market and social policy initiatives should provide guidance to member states to manage change, and the proposed Council Recommendation is one way of doing so.

In this context, 'leaving no-one behind' should be more than a slogan and translate into concrete measures. Contrary to the declarations, just transition policies are not yet an integral part of the European Green Deal agenda and of the more concrete Fit for 55 policy package.

A comprehensive just transition policy framework should include the following elements:

1. Support for workers in the transition to new jobs with measures targeted to specific sectors (automobile, energy intensive industries, etc.) tailored to national and regional specifics.
2. Deal with the distributional effects of climate policies with targeted measures against energy and transport poverty, supporting and facilitating the affordability and accessibility of low carbon technologies to lower income households (retrofitting of buildings, access to renewable energy, vehicle fleet change, developing public transport).
3. Regional development initiatives to help carbon intensive regions towards a sustainable low-carbon economy.

4. Promote social dialogue and stakeholder involvement at all levels (EU, national, regional and plant level) in managing change towards a zero-carbon economy, including meaningful involvement by citizens.
5. Make sure that newly created green jobs are also good jobs in terms of contract type, social security, wages and working conditions in line with the ILO decent work agenda.

Today a large part of the workforce is in fear of change, a concern that is justified in a labour market environment characterised by increasing precariousness.

As long as 'change' remains fearful, the biggest transformation since the industrial revolution ahead of us cannot succeed. Inclusive and comprehensive social and economic policies are therefore essential to securing social justice, resilience and sustainability. ■

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The grand energy bargain needed to defeat Putin

Ben McWilliams, Simone Tagliapietra and Georg Zachmann argue that deeper integration and accelerated investment will allow the EU to push the transition to cleaner and more affordable energy

Europe finds itself in the middle of a perfect energy storm. Over the last months, three overlapping shocks were pushing the European Union into the worst energy crisis it ever experienced. The first shock affecting global energy markets is an after-effect of the pandemic. During the peak of the COVID crisis in 2020-21, oil and gas investments sharply declined, resulting in a profound energy supply-demand imbalance once global energy demand quickly bounced back. Hence all fuel markets in virtually all corners of the world experience scarce supplies and high prices.

Next came the Russian shock, which started well before the invasion of Ukraine on February 24. Russia has been manipulating European natural gas markets since summer 2021 by substantially reducing exports and not refilling Gazprom-owned storage sites in the EU ahead of last winter.

Since spring this year Russia used its remaining supplies as leverage to push individual countries to relax sanctions on financial transactions and technology – by reneging on long-term supply contracts that were considered sacred by European partners. By the beginning of July, Russia is now only sending one-third of previously anticipated volumes.

As a result, gas prices in the EU have exploded more than tenfold and governments are nervously trying to protect consumers against this price shock by handing out billions in subsidies.

Finally, a series of unlucky coincidences have worsened Europe's already tight energy situation. Corrosion problems have pushed France to shut down half of its nuclear power plants, increasing the need for gas in power generation. Moreover, a severe drought has drained European rivers and lakes to extremely low levels, compromising not only hydropower generation, but also thermal plants that require cooling as well as coal-fired power plants that rely on waterways to deliver coal.

As a result of these three shocks, in the coming winter Europe will not have enough energy to meet desired demand. This represents Europe's greatest systemic risk right now, under both economic and political perspectives.

A disordered energy crisis would not only push Europe into a spiral of economic recession and social tensions, but also expose its political unity to the risk of energy protectionism. This would weaken its foreign policy, and notably its stance against the Russian aggression in Ukraine.

Energy security is challenged as never before and some trade-offs with social and environmental goods must be temporarily reassessed

Putin's strategy to weaken Europe's support for Ukraine by weaponizing energy is now clear to all. For European leaders not to succumb they must rapidly prepare the counter-offensive for what will be a difficult winter.

Choices over how to manage limited energy supply will shape the future of Europe's energy system and have wider political ramifications. If managed correctly, deeper integration and accelerated investments can allow Europe to defeat Putin's strategy while also pushing the transition toward cleaner and more affordable energy.

To make this happen, European leaders must strike a grand bargain to pool the diverse untapped energy potentials of its member states in order to unwind the Union from the dependency on Russia and lay the foundations for a rapid wave of clean energy investments.

- Firstly, all countries must honestly and immediately bring forward every available supply-side flexibility to the European energy market. This will require painful political compromises.

German nuclear and lignite might reduce gas dependency on Russia noticeably; Dutch gas fields could contribute a lot; stronger imports from Ukrainian nuclear plants could displace a few percentage points of gas-burn; and temporarily lowering pollution and labour-time standards even in less Russia-dependent countries would help supplies.

Energy security is challenged as never before and some trade-offs with social and environmental goods must be temporarily reassessed.

- Secondly, agreeing to jointly procure gas on international markets will reduce the risk that member states unity falls apart as they outcompete each other over limited supplies.

Moreover, joint procurement promises to lower financial and political cost for the gas and might allow to use pooled gas volumes to provide energy to the most severely hit consumers.

- Thirdly, all countries must make honest and comprehensive efforts to reduce demand wherever possible. This requires serious and straightforward communication to the public. Policymakers must explain to citizens that there is an impending trade-off between household energy consumption and the preservation of jobs and peace.

Moreover, countries need to ensure that all consumers have good incentives to reduce consumption. European leaders should agree to stop directly subsidising energy consumption and instead subsidise energy reduction. Regulatory tools such as speed limits or changing minimum temperature rules for buildings need to be on the table.

Politically unlocking yet untapped energy supply and demand reduction potential in Europe will substantially alleviate energy market pressures.

- The fourth crucial element of the grand bargain will be to secure a political commitment to maintain a well-functioning European energy market that ensures that molecules and electrons flow to where they are most needed.
- Fifth, European money should be pooled for providing compensation for difficult domestic decisions. Households in Groningen should be compensated for increased tremor risk, and it is not the Dutch government who faces strong incentives for doing so.

For terminating Algerian gas contracts and allowing gas to flow into Italy, Spain should be reimbursed the substantial price differential to more expensive LNG. And compensating demand reduction in Southern Europe might also be facilitated by providing joint incentives. Countries most responsible for the current crisis should contribute more.

- Sixth and crucially, the poorest in society exposed to energy poverty are more vulnerable than ever and continue to need support.

National governments should provide lump-sum transfers or other social aid that does not weaken price signals for reducing energy consumption. Given the massive fiscal imbalances in the EU – the above-mentioned European fund might also contribute.

- Finally, short-term imperatives must not detract from the deployment of long-term solutions to reduce fossil fuel consumption. The EU already has ambitious plans, further upgraded by RePowerEU, which will have a chance to function only if Europe manages the coming winter.

Programmes for electrification, for the deployment of heat pumps, for structural energy efficiency, for the digitalisation of grids, for the deployment of renewables, for the build-out of low-carbon industrial supply chains, for public transport solutions and for clean mobility should be reinforced.

This European grand energy bargain will ensure that the most dependent economies such as Germany can sustain a winter without Russian gas; that vulnerable consumers in all countries are protected; and that less-dependent countries are politically enabled to shoulder some of the burden.

Such a European solution is the best bet to protect the European institutions – such as the energy and carbon markets - that are needed for a cost-efficient transition to carbon neutrality and to defeat Putin’s energy weaponization. ■

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India's climate action



Nirupama Soundararajan and Arindam Goswami consider India's commitment to net zero emissions, which puts the environment and sustainability centre stage in policymaking

In 2015, 193 countries committed to 17 Sustainable Development Goals (SDGs). The term 'sustainable development' has gained immense popularity in India's policymaking circle in the last decade. It received a renewed push with the Honourable Prime Minister of India Narendra Modi unveiling India's *Panchamrit* plan at the 26th session of the Conference of the Parties (COP26) to the United Nations Framework Convention on Climate Change (UNFCCC), putting environment and sustainability centre stage.

With 17 per cent of the world population, India is a large country and therefore justifiably, the government is particularly focussed on ensuring reduction in carbon emission and creating a green economy with a renewed vigour and interest.

However, India's commitment to net zero emissions by 2070 cannot just be a political aspiration; it also has to be a collective objective of the local governments, the industry in particular, and the people as a whole.

When broken down, the nation has before it two key responsibilities. The first is to ensure that the industry and the public imbibe the principles of sustainable development into their everyday choices and into business as usual, and this is where environment, social, and governance (ESG) principles play a key role. Second, to develop a vibrant financing model that will help fund the necessary changes that will have to be made by industry.

Today, the role of ESG in the context of Indian business ecosystem has gone beyond the role of an extension of the corporate social responsibility (CSR) mandate.

This said, the first step towards adoption of ESG reporting was pushed by the Ministry of Corporate Affairs through the National Voluntary Guidelines (NVGs) on Corporate Social Responsibility (CSR) in 2009 and continued till the Securities Exchange Board of India (SEBI) mandated the filing of Business Responsibility Report (BRR), and from May

2021 the Business Responsibility and Sustainability Report (BRSR), a standardised reporting format in line with the global ESG reporting metric system, that replaced the BRR.

Despite its implementation, the efficacy of ESG ratings have often been questioned. A wide range of literature suggests a positive correlation between superior ESG ratings and financial valuations.

The Indian government should make every effort in creating the necessary policy environment and enabling regulations to collectively push industry, civil society, and all policy agencies in one direction

The ambit of ESG ratings is wide, varying from broad social and environmental issues to more localised issues around ensuring workplace diversity. Evidence suggests that investors demand higher yields for bonds with heavier carbon footprints and social bonds denominated in the US dollar or the euro have been issued at a price premium compared to standard bonds (Scatigna *et al* 2021)¹.

Janicka and Sajnóg (2022)², in their study concluded that public companies in the European Union undertaking ESG reporting have better financial performance than those not undertaking ESG and tend to be valued higher by the market.

Investors are also more interested in investing in companies that are more ESG conscious. Investors believe that companies that are more conscientious about their strategies are better prepared for long term sustainability.

In the last two years, the pandemic has acted almost as a litmus test. Not surprisingly, companies with better ESG rankings performed better in the last two years, validating the hypothesis that companies with better ESG ratings are indeed better prepared for force majeure events.

This was the case in both Europe (Englehardt *et al* 2021)³ and in India too (Beloskar and Rao, 2022)⁴. It is therefore no surprise that ESG ratings in India are also growing at a rapid pace. Bloomberg estimates that by 2025, one-third of total AUM would be ESG investments. The value of these investments is pegged at US\$53 trillion by 2025⁵.

Despite its rapid growth into the mainstream, the rise of ESG investing has been neither smooth nor linear. Since its very inception, ESG investing has been critiqued and challenged by investors and companies alike.

It was first questioned by the institutional investors themselves who argued that adherence to ESG guidelines will impact their fiduciary duty of maximising the value of shareholders irrespective of social, environmental, or broader governance issues.

However, with the rising concerns and awareness around climate and social issues, such arguments have been put to rest.

Another common criticism has been on the lack of standardisation in the definition of ESG parameters and in the rating methodology. Billio *et al* (2020)⁶ argue that this lack of standardisation mitigates any positive impact on the financials of the company.

There also exists a counter (and fair) argument to standardisation, that suggests that bringing in uniformity will enforce a one-size-fit-all framework across countries, which may be detrimental to many developing countries.

For India, finding this balance will be crucial and challenging to achieving the desired success in meeting the SDG goals.

Interestingly, in India, the impact of ESG ratings across company sizes is yet unknown. The Indian industries comprise of a large number of micro, small, and medium enterprises (MSMEs). The compliance burden on these companies is already high. Introducing ESG compliance may increase their burden rather than do any good.

This would also, therefore, have an impact on their access to capital. Furthermore, there is no conclusive data to suggest that ESG ratings have any real on ground impact on environmental and social parameters, notwithstanding the fact that the impact on these parameters are a lot more difficult to compute than governance parameters.

Even so, the investment potential in India is enormous. According to a Standard Chartered report⁷, the potential for private sector investments in order to meet the objectives laid down by India for SDGs 6 (water and sanitation), 7 (affordable and clean energy), and 9 (industry, innovation, and infrastructure), by 2030 is a whopping US\$1.124 trillion.

By comparison, for China, the amount is US\$2.828 trillion and for Bangladesh it is US\$132 billion for the same SDGs. Broken down into its components, by 2030, India will require investments to the tune of US\$1.558 trillion for universal access to power, US\$377.4 billion for universal digital access, US\$505.5 billion for sizeable improvements in the transport sector, and US\$192.2 billion for universal access to clean water and sanitation.

This translates into an investment potential of US\$701.5 billion for power, US\$226.5 billion for digital access, US\$176.9 billion for transportation and US\$19.2 billion for clean water and sanitation.

When it comes to financing sustainable development, India began her journey in 2015 with the issuance of the first green bond by Yes Bank at 8.85 per cent for INR 1,000 crore (US\$149,252,731) for developing infrastructure.

The impact of the green bond, despite being a success in Europe and North America, was muted. The bonds were completely subscribed to by the International Finance Corporation (IFC). Anecdotal evidence suggests that there was no significant pricing advantage for either the issuer, Yes Bank in this case, or to the borrowers whose projects were invested in.

India's green, social, sustainability (GSS) debt issuance increased more than six-fold (+585 per cent) to reach US\$7.5 billion, with 89 per cent in under green theme in 2021 following a pandemic-induced decline in issuance in 2020. Cumulative volume has almost doubled in the last two years to represent US\$19.5 billion in value.

It was therefore not surprising that the green bonds issuances in India in 2021 was exceptional and set a new record in 2022. India issued US\$6.3 billion of green bonds in 2021. It was the strongest issue since the first issue in 2015.

Of these, US\$6.3 billion was raised through green bonds targeting renewable energy, US\$85 million towards low carbon buildings, and US\$20 million towards water management. Several 2021 Climate Bonds Certified deals also financed renewable energy projects, particularly solar and wind.

These were issued by Azure Power Energy (US\$414 million), Power Finance Corporation (€300 million/US\$352 million), Renew Power (US\$1 billion) and Vector Green Energy (INR 12.37 billion/US\$166 million)⁸.

Between September 2021 and February 2022, Adani Green Energy along with its three subsidiaries had raised a total of more than US\$1.21 billion through domestic (rupee denominated) and overseas (dollar denominated) green bonds⁹.

The Finance Minister of India Nirmala Sitharaman, while presenting the Union Budget 2022-23, announced the proposal to issue sovereign green bonds worth INR 24,000 crore (~US\$3.3 billion) to push green financing initiative in India. The sovereign green bond is expected to fund India's net zero emission by 2070 commitment.

This will be a big step for India, especially amongst the BRICS nations, as India will be the first country to issue such a bond. The green bond can be an effective tool for supplementing the renewable energy market with long term cost of capital.

This said, the government is yet to clarify on the quantum of bonds, the markets and, currencies in which they will be issued.

Some of the major factors that the government would need to consider is the tenure of the bond (typically green bond tenures are at least 15 years), the currency of issue, and how to attract the retail investor. While in most western countries, green bond issuances have been oversubscribed, in India this has not necessarily been the case.

India grapples with the same constraints as the rest of the world when it comes to green bonds. Definitions, or their lack thereof, have led to a great deal of confusion over what is and can be considered green.

CICERO, a second party reviewer of green bonds, offers 'shades of green' methodology, through which green bonds are graded 'dark, medium or light' green depending on the underlying project's contribution to *"implementing a 2050 climate solution."*

There is no fixed definition or binding carbon standards. This has kept some mandated green investors away, who prefer to do their own due diligence, thus raising the cost of investing and monitoring.

Issuers face reputational risk and potential accusations of 'greenwashing' if proceeds are not used for their intended purposes or if issuers are unable to prove that proceeds have funded projects with a positive impact.

Furthermore, infrastructure companies in India have not always had a good credit history to command the highest rating. In addition, apart from the biggest names in the power generation sector, viz. NTPC and Tata power, no other company has the credit rating to be able to issue bonds in the capital markets.

Due to the nature of the business, power generation is very capital intensive and relies heavily on debt for funding, which further hampers new companies from being able to raise debt in the capital markets.

With the sovereign green bond in the pipeline, policymakers may want to replicate the German 'Green Twin Bonds' which are identical to conventional bonds in terms of maturity and coupon rate but with a smaller issue volume compared to conventional bonds.

Another important step would be to develop a uniform framework with metrics to identify and categorise green projects. Such a metric should further consist of parameters to determine the quality of a green project (light green, deep green etc.).

Policymakers must develop a methodology to evaluate the impact of a green projects and publish such analysis in a timely manner to create transparency for investors and public. This would also promote investor confidence in the market and help such projects to access further funds in future.

The funds raised through Sovereign Green Bonds must be available to both the public sector as well as the private sector, even if that entails strict scrutiny of ESG parameters and Environment, Health, Safety (EHS) standards of the project to be considered as green.

For power projects, especially clean energy projects (including wind, solar, hydrogen etc.), state governments must fix Power Purchase Agreement (PPA) prices in the long run and must avoid frequent policy changes to such agreements.

Policymakers in India should consider setting up a specialised institution backed by the Government or supported by a third-party agency to act as a guarantor for corporates issuing green bonds or other green debt instruments.

Such an agency may charge a fee from the issuer and ensure that the fund raised through such issuance of debts are indeed used in green projects. Such an institution may also be responsible for penalising issuers for missing their green objectives. This would promote investor confidence and help in market development.

Such an agency may be set up on the lines of the Export Credit Guarantee Corporation (ECGC) in India and/or Japan International Cooperation Agency (JICA) and Japan Bank for International Cooperation (JBIC) of Japan. The agency should be also empowered to impose penalty on defaulters for missing annual green objectives.

Involving local government bodies will be crucial to meeting India's SDGs goals by 2030. Hence it also makes sense to introduce more local level bonds focussed on local level objectives, pertinent to industries in certain geographic locations.

For example, a sustainable bond focussing on reducing air pollution in Delhi specifically for Delhi based industries will be of more value for local governance and have further ground impact. A suitable model to consider is that of Municipal Bonds issued by the Bangalore Municipal Corporation and the Municipality of Chennai which helped local government in undertaking projects related to infrastructure development in the area.

Another novel development in India has been the introduction of an Emissions Trading System (ETS). India has run a pilot of ETS, also known as carbon trading, in Surat in collaboration with the Government of Gujarat and researchers from Harvard Kennedy School, Yale, the Energy Policy Institute at the University of Chicago (EPIC), and The Abdul Latif Jameel Poverty Action Lab (J-PAL).

It was in fact the world's first emissions trading system for particulate pollution. This emissions trading program was built on the earlier innovation by the Gujarat Pollution Control Board (GPCB) that used continuous emissions

monitoring systems to track industry emissions in real time. About 350 industries around Surat had installed continuous emissions monitoring systems and would transmit real-time, high-quality emissions data.

This new scheme took advantage of this technology's modern, transparent approach to monitoring. Under the Surat's ETS, in its third phase which began on November 16, 2019, the cap on the total mass of suspended particulate matter emissions was set at 276 tons per industrial unit¹⁰.

The cap was based on an assessment of emissions data from the government's continuous emissions monitoring system (CEMS). For the November 16 to December 31 trading period in 2019, the GPCB distributed 80 per cent (220.8 tons worth of emissions) of permits free to participant industries at the start of trading.

The pro-rata allocations were based on the boiler and heater capacity of an industrial unit. The remaining 20 per cent of emission permits were auctioned by GPCB through the National Commodities and Derivatives Exchange (NCDEX) Limited e-market.

A preliminary survey of the 158 participating plants in the scheme, by EPIC India stated that the Surat ETS is projected to reduce particulate emission by 29 per cent while lowering the cost of particle emissions, and increase average and individual industry profits, relative to status quo regulations¹¹.

Media report suggests that further research has found that the ETS pilot succeeded in reducing emissions by 24 percent with little cost to the industry¹².

In August 2022 the Indian parliament passed the Energy Conservation (Amendment) Bill, 2022 which proposes that the central government specify a carbon credit trading scheme, where the central government or any authorised

agency may issue carbon credit certificates to entities registered under and compliant with the scheme, while such entities can trade these certificates in the secondary market¹³.

This will further encourage penetration of renewables in energy mix, and effective implementation. The Bureau of Energy Efficiency (BEE) has also released a blueprint for national carbon market in India.

Much like for green bonds, policy groundwork is essential. Policymakers need to come out with regulatory guidelines for ETS along with explicit directives for all participants on the ETS ie. market makers, issuers, intermediaries, assurers etc.

India also needs to set measurement standards for taxonomy in the ETS market. There is also value in creating a baseline for measuring carbon emission reduction. Currently, there is no sector specific guidelines to specify how much of carbon reduction should each sector undertake.

Domestic companies should work towards creating a decarbonisation fund which can fund decarbonisation projects. Licenses for undertaking such a fund can be accessed through collaboration of foreign companies with domestic companies.

Policymakers should come out with innovative ways and incentives for companies to participate in the Voluntary Carbon Credit Market. Policymakers should clarify and create guidelines to address the difference between carbon offset and carbon credit.

India has made significant strides in her relentless effort to meet the 2030 SDG goals. However, the deadline is not far off. Time is of the essence and the government should make every effort in creating the necessary policy

environment and enabling regulations to collectively push industry, civil society, and all policy agencies in one direction. ■

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Achieving net zero emissions

High-quality, reliable, and comparable gauges are lacking. Charlotte Gardes-Landolfini and Fabio Natalucci on how to close the data deficit

Climate change is transforming the global investment landscape, creating new risks and opportunities. Physical risks, from rising sea levels to the lethal heat waves scorching Europe and elsewhere, affect asset values for everything from stocks to real estate and infrastructure. So-called transition risk—including government policies to reduce greenhouse gas emissions—lowers the value of fossil fuel companies.

To evaluate these risks and support the transition to a low-carbon economy, investors and others in the financial world need information. For example, they may want to know if a company's assets are physically vulnerable, the volume of greenhouse gases it emits, and what its plans are for lowering emissions.

In addition, heightened geopolitical risks, notably due to Russia's war in Ukraine, and the [deterioration](#) of the global economic outlook may make the transition to a low-carbon economy more complex, expensive and disorderly.

Energy policy decisions could also be affected by the amount of carbon lock-in—which occurs when fossil fuel-intensive systems perpetuate, delay or prevent the low-carbon transition—that is generated in the near term, including by a delayed phase-out of thermal coal.

Data deficit

Currently, however, financial market participants face a lack of high-quality, reliable, and comparable data needed to efficiently price climate related risks and avoid greenwashing—spurious attempts by financial or non-financial companies to burnish their environmental credentials.

This data deficit poses a serious obstacle to the energy and ecological transition, which requires migrating capital toward low-carbon industries and massive new investments in mitigation and adaptation.

It also makes it more difficult for financial supervisors to assess risks to financial stability given uncertainties and challenges to quantifying climate-related impacts. Therefore, policymakers urgently need to ensure that better climate data are made available.

A [new report](#) from the Network for Greening the Financial System takes an important step. It features a [directory](#) that evaluates available climate data, identifies gaps, and offers practical, concrete ways to close those gaps.

The report, a product of a working group co-chaired by the IMF and the European Central Bank, strengthens what we call climate information architecture. This has three [building blocks](#): high quality, comparable data; global disclosure standards; and climate alignment approaches and methodologies, including taxonomies of assets and activities.

*Banks, pension funds, and other investment firms
need better climate data to assess risks*

The report makes three contributions. First, it highlights that, despite the substantial progress on the climate data front since [COP26](#), challenges remain, including:

- Insufficient coverage in disclosures of non-publicly listed companies and small and medium-sized companies
- Limited availability of comparable and science-based forward-looking information, such as targets, commitments, and emissions pathways, that are needed to assess physical and transition risks
- Auditability is needed to build trust and enhance the quality of data, yet it remains limited

Second, the report makes tangible policy recommendations:

- Foster convergence toward common and consistent global disclosure standards, for example by increasing availability of granular emissions data and improving the reliability of reported climate-related data
- Increase efforts toward shared principles for taxonomies, for example by increasing the linkages between taxonomies and disclosures
- Develop well-defined metrics and methodological standards, for example by better harmonizing forward-looking metrics and reinforcing public and private cooperation to improve methodologies
- Better leverage available data sources, approaches, and tools, for example by improving use of new technologies

The third and most important contribution is the climate-data directory, which surveys available data based on the needs of the financial sector and how information is used.

For example, banks, pension funds, and other investment firms apply scenario analyses and stress testing to analyse climate-related risks from individual securities and companies themselves, in combination with credit ratings. They need climate-related data to assess vulnerability to these risks at the sector, company, household, and sovereign level, and to evaluate the determinants of physical risks and transition risks.

Policymakers may need other data to determine whether a sharp drop in asset prices could hurt balance sheets of financial companies, putting financial stability at risk.

Climate data directory

The climate data directory can shape evidence-based conclusions on the main data gaps. For example, it shows where raw data aren't available to construct metrics such as the exposure to climate policy relevant sectors, or the share of assets such as coal-fired power plants in energy portfolios.

Missing are accounting data and exact geographic location of assets, as well as data on greenhouse-gas emissions and effects related to biodiversity, forest depletion, floods, droughts, and storms.

Though not offering direct access to underlying data, the directory is a public good, a living tool aimed at better disseminating climate-related data and offering practical solutions to bridge data gaps. It's designed to help financial professionals identify relevant sources to meet their needs, facilitate access, and better disseminate existing climate-related data. It can play a decisive role in fostering progress on the four policy recommendations described above.

The report's findings and accompanying policy recommendations line up closely with the IMF's work on climate data, disclosures, and taxonomies and other methodologies intended to align financial portfolios with Paris Agreement goals.

Metrics and methodologies

For example, the Fund's [Climate Change Indicators Dashboard](#), a statistical initiative to address the growing need for data used in macroeconomic and financial stability analysis, may benefit from the directory's improved metrics and underlying methodologies.

The IMF is also leading a [joint project](#) to provide guidance on the Group of Twenty's [high-level principles](#) for taxonomies and other sustainable-finance alignment approaches. This work is particularly relevant for emerging market and developing economies, which face considerable challenges in reducing greenhouse-gas emissions and attracting private capital to finance the transition.

The IMF participates in the International Financial Reporting Standards Foundation's new [standard-setting board](#) for sustainability and climate disclosures, which plays a key role in such work. It also co-leads the Financial Stability Board's Climate Vulnerabilities and Data [workstream](#) to incorporate climate in the organization's regular vulnerabilities assessment.

These efforts aim to address areas of concern in climate vulnerabilities, metrics, and data based on their materiality and their cross-border and cross-sectoral relevance. Finally, the IMF has started to include [climate-related risk analysis](#) in its [financial sector assessment programs](#).

Late last year, the IMF dedicated its annual statistical forum to [gauging climate change](#) and discussed with other international bodies how to close climate finance data gaps. And in October, we will publish an analytical chapter of the Global Financial Stability Report that takes a more in-depth look at financial markets and instruments in scaling up of private climate finance in emerging market and developing economies. ■

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This article is based on an [IMF Blog](#)

Making sense of ESG data



There is a regulatory push towards the disclosure of ESG information. Martijn Groot says there is a need for a more comprehensive approach to data preparation

Until recently, environmental, social and governance (ESG) data management was at a low level of maturity across both the buy side and sell side. Although there have been reporting frameworks in place for decades including the principles for responsible investment (PRI) and global reporting initiative (GRI) standards, the absence of standard data collection, integration, and reporting solutions often required firms to create their own 'ESG data hub' to provision their own analysts, front office, and client reporting teams.

This situation is rapidly changing. Financial services firms are recognising the key role ESG metrics play in decision-making across the investment management process. Not only does ESG data inform new product development, asset allocation and client reporting in an increasingly competitive market, but the regulatory push towards the disclosure of ESG information under the Sustainable Finance Disclosure Regulation (SFDR) means that asset managers are required to report on the ESG metrics of their portfolios.

SFDR also requires proper documentation as to the sources or models behind the reported information. Data preparation processes need to withstand rigorous scrutiny, as regulators demand the ability to explain figures and are increasingly conscious of the issue of greenwashing

This has far-reaching ramifications for financial services firms globally. Any firm that sells or distributes investment products into the European Union will have to follow the SFDR regulation. SFDR requires firms to report on mandatory Principal Adverse Impact (PAI) Indicators as well as some optional ones.

Paradoxically, the reporting requirements for the publicly listed companies that asset managers invest in lag behind the SFDR timetable. This causes an information gap and the need to supplement corporate disclosures with third party ESG scores, expert opinion, as well as internal models to come to an overall assessment of ESG criteria.

However, the regulatory environment for ESG data is far from the only factor driving growth in ESG data management.

In recent Alveo research that polled the views of 300 asset owners and asset managers in the UK, US and Asia-Pacific, just 21% of the survey sample cited 'regulatory reporting' as a key driver of their use of ESG data. This indicates that beyond regulatory compliance enhancing their ESG data management is something firms see as a must do to boost the overall value of their business.

ESG data management and quality challenges are very real and the inability to surmount them significantly impairs the ability to meet new and evolving standards, regulations and industry best practice protocols

Regulation has an important role, of course, but firms are increasingly investing in an ESG data management capability today because they understand the broad benefits that it will bring to their business rather than being forced to do so by the need to comply with the latest rules and stipulations.

Need for enhanced ESG data management

This growing need for ESG data will impact a vast array of financial services businesses worldwide. Asset management firms are increasingly concentrated on optimising their ESG data management and doing so quickly.

The Alveo research found that well over nine out of ten (95%) of the sample are looking to improve their ESG data management. 32% are looking to do so in the next six months, with 80% in total looking to do so within a year.

There is also a need for ESG-data for the banking industry. For instance, in corporate banking, ESG data is increasingly crucial to support customer onboarding and, in particular, Know Your Client (KYC) processes.

On top of that, banks will have to report their 'green asset ratio' – in essence, the make-up of their loan book - in terms of the mix of business activities of the companies they lend to, categorised according to the EU Taxonomy.

In the future, if a company signs up in order to obtain a loan from a bank as part of the screening criteria, it will be asked to disclose what kinds of business activities it is involved in and what kinds of sustainability benchmarks it has in place.

Banks and other sell-side financial services firms will also frequently screen their suppliers, as part of a process called Know Your Third Party (KY3P). They will want to know who they are doing business with, so they can then report this in their own Annual Report.

Banks will also want to climate stress test the products they hold in their trading book for their own investment against certain climate scenarios.

The European Central Bank (ECB), the Monetary Authority of Singapore (MAS), as well as the Bank of England have all incorporated climate stress test scenarios in their overall stress testing programmes to gauge the solvency and resilience of banks.

ESG data also has a role to play in the way banks manage their mortgage book as they are increasingly looking for geospatial and climate data, for example, to work out the flood risk of the properties they finance.

This is information that was previously typically used by (re)insurance firms but that will now be used more broadly in the financial services industry.

Both sell-side and buy-side financial services companies will also need to integrate ESG data with data from the more traditional pricing and reference providers to give a composite view, incorporating not just the prices of instruments and the terms and conditions but also the ESG characteristics.

Scoping the challenge

ESG data needs to be anchored across the organisation, integrating with all the different data sets to provide a composite picture, becoming a key source of intelligence, not just for the front office but also for workflows in risk, finance and operations.

Given that need, it is perhaps unsurprising that the Alveo research finds that 80% of businesses are aiming to improve their ESG data management within the next year.

However, for many firms, this may be easier said than done. Sourcing accurate ESG data and properly interpreting it is a particular challenge, as information needs to be gathered from a wide array of data sets including third party estimates, ratings, news and corporate disclosures.

Corporate disclosures especially are still patchy and sometimes difficult to come by, while the withholding of relevant data means that records are frequently incomplete or held in silos.

This inevitably impacts the effectiveness with which key data is distributed and disseminated to senior leaders and decision-makers. In some cases it is simply missing.

Usability issues include the disparity in methodologies third-party firms use to estimate or score firms on ESG criteria. Rating firms have their own input sets, models and weights and often come to different conclusions. Compared to credit ratings, the correlation between the scores given to a firm by different rating agencies is lower.

However, credit analysis is as old as the banking industry and the metric gauged (probability of default) is clear. It could be that, with increased global disclosure standards under IFRS, ESG scores will converge.

Comparability issues in ESG are exacerbated by different standards, different reporting frequencies or calendars and also the lack of historical data to track progress and benchmark performance over a longer time period.

The biggest challenge in many firms, however, is how to embed the ESG data in a range of different business processes to put users on a common footing. This requires the capability to quickly onboard new data sources, integrate, harmonise and vet that data, fill in the gaps where needed and provide it to users and business applications.

Achieving all this is far from easy. The data management structure and model is not always clear and invariably siloed. It often still needs to be integrated into wider reporting, especially in finance and risk, which are typically the functions where all information flows necessarily come together. These firms are therefore focused on improving their ESG data management and are also prepared to invest to make that happen.

Beyond pure data management, putting in place robust high-quality data governance processes and practices will also have an important role to play here in controlling access and ownership and ensuring that data usage is monitored efficiently.

Finding a solution

Accessing ESG data and ensuring it is of good quality, comparable with other ESG data sets and well-integrated within existing workflows can often be complicated.

Whenever new data categories or risk metrics are introduced, data management practices typically start with improvisation through desk-level tools including spreadsheets, local databases and other workarounds. This is gradually streamlined, centralised, operationalised and ultimately embedded into core processes to become business-as-usual (BAU).

Generally speaking, firms need to cross-reference to a comprehensive data model that covers regulatory ESG information and underlying data sets. In addition, they must achieve transparency as to which sources and what types of data are leveraged, the business rules used and any manual remediation.

Comprehensive ESG data management

A comprehensive approach to ESG data management is needed to provide consistent data to service multiple use

cases. Yet, accessing ESG data and ensuring it is of good quality and well-integrated within existing workflows can be difficult.

However, data management solutions and Data-as-a-Service offerings are now available to help firms acquire the ESG information they need, the capabilities to quality-check, supplement and enrich it with their own proprietary data or methods, and the integration functionality to place users and applications on a common footing.

Achieving this demands that any challenges presented by the quality of data are dealt with from the outset. What organisations need is a process that seamlessly acquires, integrates and verifies ESG information. Additionally, historical data to run scenarios can help with adequate risk and performance assessment of ESG factors.

A data management function should also facilitate the easy discoverability and explainability of information and effective integration into business user workflows.

In short, data management should service users from the use case down, rather than from the technology and data sets up. Specific capabilities should include cross-referencing taxonomies and condensing information, for example to report on indicators that serve as performance KPIs, or that meet reporting mandates in the financial sector.

Data derivation capabilities and business rules can spot gaps, highlight outliers, whether they are related to historical patterns, or outliers within a peer group, industry or portfolio; and provide estimates where needed. Additionally, historical data to run scenarios can help with adequate risk and performance assessment of ESG factors.

The speed that the regulator has picked up with regard to enabling a sustainable economy not only confronts companies with a very tight implementation schedule, but also with major challenges regarding the sourcing, processing and quality assurance of large sets of frequently unstructured data.

Mastering this data challenge is a prerequisite for successfully competing for new market offerings and sustainable products. Early operational readiness is key to staying ahead of the curve in adapting to the new ESG regime.

The major decision points that need to be addressed right now are first, determining the target operating model and governance, second, designing the target data and system architecture and third, moving forward with a well-proven approach for a customised implementation.

Once a data management system has been put in place within an effective operating model, there are many benefits: from efficient data onboarding and provisioning business users to securing data lineage and data cost and usage management.

This significantly increases the return on any existing and future ESG data investments. Firm-wide availability will increase usage and, in turn, will benefit the whole organisation and ensure firms are optimising their data.

Towards ESG Data-as-a-Service

Because ESG data management capabilities should support a company's compliance processes end-to-end, the Data-as-a-Service model where a supplier manages the sourcing and integration but also quality management of required ESG data emerges as the preferred service model.

Research conducted among hedge funds, pension funds, insurance companies and other investment firms in the UK, US and Asia-Pacific found more than three-in-ten opted for this approach. Having capabilities in-house is good news for all stakeholders, but beyond this, drawing on the services of an expert solutions provider and adopting Data-as-a-Service models may prove to be the best route to address these challenges.

ESG data management and quality challenges are very real and the inability to surmount them significantly impairs the ability to meet new and evolving standards, regulations and industry best practice protocols.

Given the complexity and range of the challenges, there is a clear need for firms to draw on in-depth third-party expertise and use solutions that help collect, collate and validate data and offer a one-stop shop of ESG content as well as the integration of it into business workflows to put it to use. ■

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A black and white underwater photograph of a sea turtle swimming towards the left, surrounded by a school of fish. The scene is dimly lit, with light filtering through the water from above, creating a textured surface on the water's surface.

TISE's strategy for sustainable growth

In this Q&A, Cees Vermaas explores the impact of macro-economic conditions on latest listing trends and the execution of a strategy to deliver a business model for sustaining future growth



Cees, can you tell us a little about yourself and your role as CEO of The International Stock Exchange (TISE)?

Yes, it would be my pleasure. Originally, I am from The Netherlands and I have an information technology background but now I have been working within international financial market infrastructure for more than 20 years.

I have held senior executive positions within several international exchanges, including CEO of CME Europe Ltd, CEO of Euronext Amsterdam and Head of European Cash Markets for NYSE Euronext.

Since November 2020, I have been CEO of TISE with responsibility for all aspects of leadership and management of the Exchange. Focusing on strategy, business development and infrastructure, I am working with, and creating enhanced value for, all our stakeholders, including our staff, members, issuers and shareholders.

Our aim is to do this by executing a strategy which delivers a more diversified and scalable business model to sustain future growth.

And can you give us an overview of TISE?

Built on a culture of responsiveness and innovation, TISE is one of Europe's leading stock exchanges for listing bond issuances aimed at professional investors.

We have an increasingly diversified and scalable business model which puts us in an excellent position to make the most of the opportunities which will emerge, not least when more buoyant market conditions return

Headquartered in Guernsey and with staff operating across Dublin, Guernsey, the Isle of Man, Jersey and London, our regulated market is uniquely positioned within the European time zone but outside both the UK and the EU.

As a major professional bond market, we are among the leading venues in Europe for listing high yield bonds and private equity debt securities, and we are experiencing solid growth in structured finance and securitisation transactions.

We also have a pool of 'domestic' equities and a significant share of the market for listed UK Real Estate Investment Trusts (REITs), as well as a comprehensive sustainable market segment, TISE Sustainable.

We are living in a very unstable period politically, economically and socially – how has this impacted business so far this year?

The first half of 2022 comprised two very different quarters in terms of new listing volumes on TISE. Following a record 2021 and a record first quarter this year, new listings have since been subdued primarily due to a significant shift in macro-economic conditions.

There has been the much-anticipated pullback from the historic bull market run as geopolitical instability, global supply chain issues, persistent inflation and rising interest rates have combined to provide unfavourable conditions within the debt capital markets.

I would be lying if I said that we have been immune from the effects of the more unfavourable conditions, but the refinement of our core bond market proposition has successfully mitigated against the worst of the downturn and facilitated further growth in the size of our market.

So far, we have gone through the fixed income market downturn much better than most of our competitors.

Ultimately, there were 487 securities listed on TISE during the first half of the year, contributing to a 11.2% rise year on year in the total number of securities on TISE's Official List, which reached 3,815 on 30 June 2022, representing a total market value of more than £600 billion.

You mentioned that TISE is a major professional bond market so what have been some of the trends and developments in that sector?

It was just over a year ago that we enhanced our international bond listing offering through the introduction of our Qualified Investor Bond Market (QIBM). Launched at the start of August 2021, there were more than 1,000 newly listed bonds on QIBM in its first year.

Most recently, the QIBM proposition has been further enhanced through a detailed revision of its post-listing continuing obligations to ensure it reflects a proportionate regulatory and disclosure regime for all bond products and structures.

Listings on QIBM during the first half of 2022 have included investment grade corporate bonds, high yield bonds, private equity debt securities, securitisations, sovereign bonds, convertible bonds and profit participating notes.

The volumes are marginally lower than the same period during what was a record 2021 and actually if you look closer they were on a par with last year when excluding the impact of high yield bonds.

TISE remains the leading European venue for listing high yield bonds and the slowdown is a function of high yield market being particularly impacted by the wider economic backdrop. Lenders have shown significant risk aversion and issuers have paused issuances as rates and yields made borrowing more expensive.

There is a relatively healthy pipeline in institutional loans and high-yield bonds earmarked for M&A and LBO transactions which should precipitate listings in the future.

In terms of other trends, there was a 7.6% increase year on year in private equity related listings on QIBM during the first half of 2022. The private equity sector remains very strong with a significant amount of capital to be deployed and TISE remains the leading venue for the listing of securities related to this transactional activity.

There have also been more investment grade corporate bonds, sovereign bonds (including another bond from the States of Jersey) and securitisations listed on QIBM during the same period. Securitisation listings increased by 10% year on year and included prominent deals from major international banks backed by a range of asset classes including auto loans, credit card receivables, loans to SMEs, as well as residential and commercial mortgage-backed securities.

Sustainability is a key item on everyone's agenda now, so what has been happening at TISE in terms of related listings?

TISE bond listings are including a growing number of sustainable bonds. In July 2021, we became a Partner Exchange of the United Nations' Sustainable Stock Exchanges Initiative (UN SSE) and we launched our comprehensive sustainable market segment, TISE Sustainable.

TISE Sustainable is open to issuers and securities from across both our bond and equity markets who are independently assessed as complying with an internationally recognised framework or rating which demonstrates their environmental, social or sustainable credentials.

Since its launch, we have admitted sustainable issuers, green bonds, sustainable bonds, sustainability-linked bonds and humanitarian catastrophe bonds to TISE Sustainable.

At the end of June 2022, there were more than £13 billion of listings on TISE supporting environmental, social and sustainable initiatives, which demonstrates the role we can play as a facilitator of global sustainable capital flows.

You've talked about a strategy of diversification, and we can see that in terms of the bonds you are listing but what about the geographical origin of the business?

There has been continued growth and internationalisation of member firms who facilitate business on the Exchange.

Building on the success in this regard during 2021, so far during this year there have been two new Member firms from Ireland and one from Jersey. This means that most of the leading listing agents for Euronext Dublin's GEM market are now Members of TISE and in a position to directly facilitate listings on our market.

As well as strengthening TISE's credibility and visibility amongst the advisory community, the geographic expansion in the membership underpins the delivery of our strategy to diversify and scale up our bond listings in the UK, Europe and internationally.

In H1 2022, the UK remained the largest single domicile of issuers with listed securities on TISE, but more than 25% of all issuers listing securities on TISE in the first half of the year were domiciled in the European Union, predominantly Luxembourg, Ireland, and The Netherlands, as well as France, Germany, Italy, and Sweden.

Have there been any more developments regarding trading activity or other services?

In February, we launched our new bespoke auction trading system, NOVA. The auction platform provides an automated price discovery and transaction model which delivers even greater value to our current equity issuers.

NOVA also provides us with a flexible platform which can be adapted to support new products and services, including a prospective private markets offering.

Indeed, we have continued to explore opportunities to launch our own offering within the private markets. This has included partnering with a selected potential customer to explore beta testing of an initial product concept which we intend to bring to market by the end of the year.

Utilising our NOVA trading system and expertise in the regulated market, we are well positioned to provide an efficient and scalable private market facility for private companies and private funds.

Could you summarise your plans for the future?

We remain focused on executing our strategy to add significant scale in our core markets and service a diversified

range of products. I am pleased with the progress we have made in executing our strategy, despite the challenging macro-economic environment.

We have an increasingly diversified and scalable business model which puts us in an excellent position to make the most of the opportunities which will emerge, not least when more buoyant market conditions return. ■

Cees is the Chief Executive Officer of The International Stock Exchange Group Limited, a position he has held since November 2020. He is responsible for all aspects of leadership and management of the Company. With a strong focus on strategy, business development and infrastructure, he aims to work with, and create enhanced value for, the Group's stakeholders, including its staff, members, issuers and shareholders.

Cees has more than 20 years' experience within international financial market infrastructure. He has held senior executive positions within several international exchanges, including CEO of CME Europe Ltd, CEO of Euronext Amsterdam and Head of European Cash Markets for NYSE Euronext. Prior to that, he spent a decade working in IT and programme management roles within leading Netherlands based companies Philips and Delta Lloyd Group.

Cees holds a degree in Business Administration and Industrial Engineering from The Hague University of Applied Sciences in the Netherlands.





Shifting from competition to collaboration

Rumina Dhalla and JC Carteron argue that if business schools are to authentically contribute to the SDGs, then there is a need to shift both business and business schools towards collaborative business models

More and more business schools and business scholars across the globe are making an overt commitment to practice responsible leadership and integrate UN Sustainable Development Goals (SDGs) in their teaching and research. It is without a doubt that many are signalling their commitment by joining global organisations such as [Globally Responsible Leadership Initiative](#) (GRLI) and Principles of Responsible Management Education ([PRME](#)).

Some, however, may be failing to meet their stated commitment and by consequence are failing to meet stakeholder expectations. Lars Moratis and Frans Melissen, who have investigated this lack of success, offer some insights in a [recent article](#) in *Global Focus*.

They suggest that responsible management strategies at business schools are isolated, are implemented sporadically, poorly, or inauthentically or are considered a fringe topic (*“Are business schools talking the walk?”* (2022), *EFMD Global Focus*, 16(1): 8-13).

Their investigation also found that commitment and integration effort at SDG are communicated poorly. Those who do excel in communication in the promotion of their positive, anecdotal actions, are likely have to be accused of greenwashing by their stakeholders.

We acknowledge that it is likely that some business schools may be authentically achieving their stated goals and are incorrectly perceived to be greenwashing, thus further investigation is needed to highlight those who are successfully accomplishing SDG integration.

Building on prior work, we suggest that the lack of success in the integration of SDG content in business school education is likely due to the traditional business school mindset of competition (not to say the dogma) rather than

collaboration which is critical for authentic responsible leadership and transformation to responsible management education.

For example, much of the popular media attention on business school is focused on rankings, signalling competition between business schools. A quick search online for the best business schools quickly brings up some

Given the size, scope, and severity of the challenge and the speed with which humanity will have to radically change to avoid catastrophic failure and 'hitting the wall too violently', collaboration is required

well-recognised media names all purporting to rank the 'best' including *Forbes (The Best Business Schools List)*, *Princeton Review's Best Business Schools*, and *US News Best Global Universities for Economics and Finance*.

The rankings and the jockeying for a top spot signal a culture of competitiveness among business schools. We believe that successful integration of responsible leadership mindset requires a shift from an entrenched mindset of competition to greater collaboration across business schools, across nations, and across disciplines.

It is not a question of denying that competition exists, or even that it can sometimes drive innovation, but rather of allowing spaces for collaboration. Thus, while competition can be an effective and well-known strategy to bring people together to focus on a common issue and seek out the best solutions, cooperation between stakeholders has a number of advantages.

For example, collaborators can share expertise and resources for mutual benefit, thus reducing need for individual investments, they can benefit from diversity brought by collaborators and benefit from the individual participants' social capital and network. Collaborations can diffuse risk for potential failures and mistakes and allow collaborators to leverage on economies of scale.

Another advantage of specific cooperation between institutions of higher education, based on personal, anecdotal experience of one of the authors of this article, is that it can reduce the potential of unethical competition, as without mutual trust and respect, authentic collaboration is unlikely. For example, it is less likely one will openly compete with the same institutions that have helped yours by sharing their best practices.

Given the size, scope, and severity of the challenge and the speed with which humanity will have to radically change to avoid catastrophic failure and 'hitting the wall too violently', collaboration is required.

No institution can claim to know all the solutions, how to implement them and how to single-handedly transform the whole system. No longer can climate crisis and societal challenges be the responsibility of a 'few'.

SDG 17 specifically calls for partnerships and collaboration for sustainable development. We are beginning to see a number of universities publicly commit to cooperation. For example, higher education institutions are heeding the SDG 17 call and universities are signing pledges for cooperation for SDGs. In Canada, universities have launched a pan-Canadian initiative that highlights SDG-related involvement and collaborative projects.

Focusing on individualism for competitive and reputational reasons, while very well accepted and practised in the traditional profit-driven business models, need now to be authentically transformed to strategies that engender a collaborative, inclusive approach.

Popular media has taken business school education to task by pointing out that business schools teach traditional business practices and commitment to responsibility and ethics are inauthentic, and simply decoration.

This is particularly important if we are to be able to include previously excluded stakeholders and nations. We must be willing to reach across nations and disciplines to engage to find solutions to societal issues and address the climate crisis and sustainable development.

Where in the past business schools were able to achieve sustained competitive advantages through specialisations, branding, and achieving top spots in rankings, winning at sustainable development will require collaborative, inclusive, and responsible leadership. Anything less will be considered inauthentic and 'greenwashing'. A mindset of focusing on one's own success will create barriers required to seek innovative, inclusive solutions.

Schools may value the power and performance of certain corporations and their ability to innovate in order to outperform, or even overwhelm, their competitors, and Michael Porter's *Five Forces* framework is a familiar tool to assess competition in business and strategy.

If business schools are to authentically contribute to the SDGs, then responsible leadership dictates that there is a need to shift both business and business schools towards collaborative business models. This will likely require the dedication of meaningful resources to design and deploy their strategies at an institutional and systems level.

Collaboration is a 'bolder vision for business schools' as noted by [Peter Tufano](#) in *Harvard Business Review*. Tufano argues that if business schools are going to call upon businesses to collaborate and partner with stakeholders and be inclusive, then business schools themselves must also do so, authentically, and lead by example.

Business schools must acknowledge that the time where control and competition for competitive advantage has melded into the past; the current turbulent times require collaborative and responsible leadership to solve the critical issues facing our society.

In nature, competition certainly exists, however, cooperation and mutual aid between and within species is widespread and effective. While much of business strategy focuses on the tenets of survival of the fittest, the natural environment thrives on connectedness and sharing of resources.

It may benefit the higher education institutions to be inspired by what has made life a highly resilient system. SDGs address global challenges at a systems level and successful solutions will require collaboration across systems. This has implications for individual institutional survival as well.

Business schools are seen to be lagging behind business in addressing climate change issues in their activities, thus if they are to espouse their vision and commitment to sustainability but enact anything less, they will likely always be stuck at 'greenwashing'. ■

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Beyond GDP

Paul Allin, Diane Coyle and Tim Jackson argue that changing how we measure progress is key to tackling a world in crisis

It's an odd quirk of history that, on the first day of his ill-fated presidential campaign in March 1968, Robert F Kennedy chose to talk to his audience about the [limitations of gross domestic product](#)¹ (GDP) – the world's headline indicator of economic progress.

It seems stranger still that, despite the power of that iconic speech, [growth in GDP](#) remains to this day the predominant measure of progress across the world. Economic success is measured by it. Government policy is assessed by it. Political survival hangs on it.

Kennedy's speech inspired a host of critiques. It has been quoted by presidents, prime ministers and Nobel laureates. Yet GDP itself has [survived until now](#), more-or-less unscathed.

But amid ever-louder concerns about the failure of national economies to tackle the multiple threats posed by climate change, spiralling energy costs, insecure employment and widening levels of inequality, the need to define and measure progress in a different way now looks as unarguable as it is urgent.

The goods, the bads, and the missing

In simple terms, GDP is a measure of the size of a country's economy: how much is produced, how much is earned, and how much is spent on goods and services across the nation.

The monetary total, whether in dollars or euros, yuan or yen, is then adjusted for any general increase in prices to give a measure of 'real' economic growth over time. When governments adopt policies to pursue economic growth, this is how those policies are evaluated.

Since 1953, GDP has been the headline measure in a [complex system of national accounts](#) overseen by the United Nations. Developed during the second world war, these accounts were motivated in part by the need to determine how much governments could afford to spend on the war effort.

But in measuring the monetary value of economic activity, GDP can incorporate many of the 'bads' that detract from our quality of life. War, pollution, crime, [prostitution](#), traffic congestion, disasters like wildfires and the destruction of nature – all can have a positive impact on GDP. Yet they cannot really be construed as components of economic success.

But in their search for a reliable guide towards social wellbeing, governments, businesses, statisticians, climate scientists and all other interested parties must work with civil society, the media and the public to establish a more effective framework for measuring progress

At the same time, there are numerous aspects of our lives that simply go missing from this conventional account. The inequality in our societies. The contributions from unpaid work.

The labour of those who care for the young and the elderly at home or in the community. The depletion of natural resources or biodiversity. And the value of data and many digital services.

What lies outside the market, including public services funded out of taxation, remains unmeasured in a metric of monetary exchange. Kennedy was blunt: *"[GDP] measures everything, in short, except that which makes life worthwhile."*

It's a sentiment that has resonance half a century later. In a striking encounter during the Brexit debate, a UK academic was trying to convey to a public meeting the dangers of leaving the EU. The impact on GDP would dwarf any savings from the UK's contributions to the EU budget, he told the audience. *"That's your bloody GDP!"* **shouted** a woman in the crowd. *"It's not ours."*

This sense of an indicator out of touch with reality may be one of the reasons there is momentum for reform. When GDP conceals crucial differences between the richest and the poorest in society, it inevitably says little about the prospects for ordinary people.

But there are other reasons too for an emerging change of heart. The pursuit of GDP growth as a policy goal, and the impact that has on government, business and personal decision-making, has accompanied increasing devastation of the natural world, a loss of forests and habitats, the destabilisation of the climate, and near-meltdowns of the world's financial markets. At the same time, GDP has become a poor measure of the technological transformation of society.

Its tenacity as a measure of progress, despite these well-known limitations, arises from factors which are on the one hand technocratic, and on the other sociological.

As the headline measure in a sophisticated system of national accounts, GDP has a technocratic convenience and analytical elegance that remains unsurpassed by many alternative measures. Its authority arises from its ability to be simultaneously a measure of production output, consumption expenditure and income in the economy.

Despite this complex framework, it also offers the deceptive simplicity of a single headline figure which appears to be directly comparable from year to year and across nations, based on the simple (if inadequate) idea that more economic activity necessarily leads to a better life.

However, the combined technical authority and political usefulness of this idea has led to “path dependence” and forms of social lock-in that are difficult to address without significant effort. Think of switching to an alternative as being like switching from driving on the left to the right-hand side of the road.

Yet what we measure matters. And while we’re busy looking in the wrong direction, as Kennedy pointed out, bad things can happen. Kennedy’s campaign – and his critique of GDP – was cut cruelly short on June 5 1968, when he was fatally wounded by an assassin’s bullet. More than half a century later, his call for reform of how we assess progress (or its absence) has never been stronger.

The trouble with GDP: historical flaws

The way societies have understood and measured progress has changed considerably over the centuries.

Measurement of ‘the economy’ as a whole is a relatively modern, 20th-century concept, beginning with efforts

by statisticians and economists such as Colin Clark and Simon Kuznets in the 1920s and 1930s to understand the impact of financial crisis and depression.

Kuznets, now best known for his [curve](#) describing the relationship between GDP and income inequality, was particularly concerned to develop a measure of economic welfare rather than just activity. For example, he argued for omitting expenditures that were unwelcome necessities rather than services or goods consumers actively wanted – such as defence spending.

However, the second world war overtook and absorbed these earlier notions of a single measure of economic welfare, resulting in what first became modern [gross national product](#) (GNP), and then GDP.

The imperative – set out on the Allied side by John Maynard Keynes in his 1940 pamphlet [How to Pay for the War](#) – was measuring productive capacity, and the reduction in consumption required to have enough resources to support the military effort. Economic welfare was a peacetime concern.

Post-war, unsurprisingly, American and British economists such as Milton Gilbert, James Meade and Richard Stone took the lead in codifying these statistical definitions through the UN – and its process for agreeing and formalising definitions in the system of national accounts (SNA) is still in place today.

However, since at least the 1940s, some important inadequacies of both the SNA and GDP have been widely known and debated.

Indeed, as long ago as 1934, Margaret Reid published her book [Economics of Household Production](#), which pointed out the need to include unpaid work in the home when thinking about economically useful activity.

The question of whether and how to measure the household and informal sectors was debated during the 1950s – particularly as this makes up a larger share of activity in low-income countries – but was omitted until some countries, including the UK, started to create [household satellite accounts](#) around 2000.

Omitting unpaid work meant, for instance, that the UK's increased productivity growth between the 1960s and 1980s was then overstated, because it in part reflected the inclusion of many [more women in paid work](#) whose contributions had previously been invisible to the national GDP metric.

Another longstanding and widely understood failure of GDP is not including environmental externalities and the depletion of natural capital. The metric takes incomplete account of many activities that do not have market prices, and ignores the additional social costs of pollution, greenhouse gas emissions and similar outputs associated with economic activities.

What's more, the depletion or loss of assets such as natural resources (or indeed buildings and infrastructure lost in disasters) boosts GDP in the short term because these resources are used in economic activities, or because there is a surge in construction after a disaster.

Yet the long-term opportunity costs are never counted. This massive shortcoming was widely discussed at the time of landmark publications such as the [1972 *Limits to Growth* report](#) from the Club of Rome, and the 1987 [Brundtland Report](#) from the World Commission on Environment and Development.

As with household and informal activity, there has been recent progress in accounting for nature, with the development of the [System of Environmental Economic Accounting](#) (SEEA) and publication of regular (but

separate) statistics on natural capital in a number of countries. The [UK has again](#) been a pioneer in this area, while the [US recently announced](#) it would start following this approach too.

New challenges to the value of GDP

Other, perhaps less obvious failings of GDP have become more prominent recently. Digitisation of the economy has transformed the way many people spend their days in work and leisure, and the way many businesses operate, yet these transformations are not apparent in official statistics.

Measuring innovation has always been tricky, because new goods or improved quality need to be incorporated into observable prices and quantities – and what is the metric for a unit of software or management consultancy?

But it is harder now because many digital services are ‘free’ at point of use, or have the features of public goods in that many people can use them at the same time, or are intangible.

For example, data is without doubt improving the productivity of companies that know how to use it to improve their services and produce goods more effectively – but how should a dataset’s value, or potential value, to society (as opposed to a big tech company) be estimated?

[Recent work](#) looking at the price of telecommunications services in the UK has estimated that output growth in this sector since 2010 has ranged anywhere from about [0% to 90%](#), depending on how the price index used to convert market prices to real (inflation-adjusted) prices takes account of the economic value of our rapidly growing use of data.

Similarly, it is not obvious how to incorporate advertising-funded 'free' search, crypto currencies and [NFTs](#) in the measurement framework.

A key limitation of GDP, particularly in terms of its use as an indicator of social progress, is that it offers no systematic account of the distribution of incomes. It is entirely possible for average or aggregate GDP to be rising, even as a significant proportion of the population find themselves worse off.

Ordinary incomes have stagnated or fallen in recent decades even as the richest in society have become wealthier. In the US, for example, [Thomas Piketty and his colleagues](#) have shown that in the period between 1980 and 2016, the top 0.001% of society saw their incomes grow by an average of 6% per year. Income for the poorest 5% of society fell in real terms.

Given these many issues, it might seem surprising that the debate about '[Beyond GDP](#)' is only now – possibly – turning into actions to change the official statistical framework. But paradoxically, one hurdle has been the proliferation of alternative progress metrics.

Whether these are single indices that combine a number of different indicators or dashboards showcasing a wide range of metrics, they have been ad hoc and too varied to build consensus around a new global way of measuring progress.

Few of them provide an economic framework for consideration of trade-offs between the separate indicators, or guidance as to how to interpret indicators moving in different directions. There is a breadth of information but as a call to action, this cannot compete against the clarity of a single GDP statistic.

Statistical measurement is like a technical standard such as voltage in electricity networks or the Highway Code's rules of the road: a shared standard or definition is essential.

While an overwhelming majority might agree on the need to go beyond GDP, there also needs to be enough agreement about what 'beyond' actually involves before meaningful progress on how we measure progress can be made.

Change behaviour, not just what we measure

There are many visions to **supplant GDP growth** as the dominant definition of progress and better lives. In the wake of the COVID pandemic, it has been reported that most people want a **fairer, more sustainable future**.

Politicians can make it sound straightforward. Writing in 2009, the then-French president Nicolas Sarkozy explained he had convened a commission – led by internationally acclaimed economists Amartya Sen, Joseph Stiglitz and Jean-Paul Fitoussi – on the measurement of economic performance and social progress on the basis of a firm belief: that we will not change our behaviour *“unless we change the ways we measure our economic performance.”*

Sarkozy also committed to encouraging other countries and international organisations to follow the example of France in implementing his **commission's recommendations** for a suite of measures beyond GDP.

The ambition was no less than the construction of a new global economic, social and environmental order.

In 2010, the recently-elected UK prime minister, David Cameron, launched a programme to implement the Sarkozy commission's recommendations in the UK.

He described this as starting to measure progress as a country *“not just by how our economy is growing, but by how our lives are improving – not just by our standard of living, but by our quality of life.”*

Once again, the emphasis was on measurement (how far have we got?) rather than behaviour change (what should people do differently?).

The implication is that changing what we measure necessarily leads to different behaviours – but the relationship is not that simple. Measures and measurers exist in political and social spheres, not as absolute facts and neutral agents to be accepted by all.

This should not dissuade statisticians from developing new measures, but it should prompt them to engage with all who might be affected – not just those in public policy, commerce or industry. The point after all is to change behaviour, not just to change the measures.

Economists are increasingly adopting complex systems thinking, including both social and psychological understandings of human behaviour. For example, [Jonathan Michie](#) has pointed to ethical and cultural values, as well as public policy and the market economy, as the big influences on behaviour.

[Katharina Lima di Miranda and Dennis Snower](#) have highlighted social solidarity, individual agency and concern for the environment alongside the ‘traditional’ economic incentives captured by GDP.

GDP alternatives in practice

Since Kennedy’s 1968 critique, there have been numerous initiatives to replace, augment or complement GDP over the years. Many dozens of indicators have been devised and implemented at local, national and international scales.

Some aim to account more directly for subjective wellbeing, for example by measuring self-reported life satisfaction or 'happiness'.

Some hope to reflect more accurately the state of our natural or social assets by developing adjusted monetary and non-monetary measures of 'inclusive wealth' (including a team at the University of Cambridge led by this article's co-author Diane Coyle).

The UK government has accepted this as a meaningful approach to measurement in several recent policy documents, including its [Levelling Up white paper](#).

There are two fundamental arguments for a wealth-based approach:

- It embeds consideration for sustainability in the valuing of all assets: their value today depends on the entire future flow of services they make available. This is exactly why stockmarket prices can fall or rise suddenly, when expectations about the future change. Similarly, the prices at which assets such as natural resources or the climate are valued are not just market prices; the true 'accounting prices' include social costs and externalities.
- It also introduces several dimensions of progress, and flags up the correlations between them. Inclusive wealth includes produced, natural and human capital, and also intangible and social or organisational capital.

Using a comprehensive wealth balance sheet to inform decisions could contribute to making better use of resources – for example, by considering the close links between sustaining natural assets and the social and human capital context of people living in areas where those assets are under threat.

Other initiatives aim to capture the multi-dimensional nature of social progress by compiling a dashboard of indicators – often measured in non-monetary terms – each of which attempts to track some aspect of what matters to society.

New Zealand's [Living Standards Framework](#) is the best-known example of this dashboard approach. Dating back to a 1988 Royal Commission on Social Policy and developed over more than a decade within the New Zealand Treasury, this framework was precipitated by the need to do something about the discrepancy between what GDP can reflect and the ultimate aim of the Treasury: to make life better for people in New Zealand.

The NZ Treasury now uses it to allocate fiscal budgets in a manner consistent with the identified needs of the country in relation to social and environmental progress.

The relevance to combating climate change is particularly clear: if government spending and investment are focused on narrow measures of economic output, there is every possibility that the deep decarbonisation needed to achieve a [just transition](#) to a net zero carbon economy will be impossible.

Equally, by identifying areas of society with declining wellbeing, such as children's mental health, it becomes possible to allocate Treasury resources directly to alleviate the problem.

The UK's [Measuring National Wellbeing](#) (MNW) programme, directed by Paul Allin (a co-author of this article), was launched in November 2010 as part of a government-led drive to place greater emphasis on wellbeing in national life and business.

Much of the emphasis was on the subjective [personal wellbeing measures](#) that the UK's Office for National Statistics (ONS) continues to collect and publish, and which appear to be increasingly taken up as policy goals (driven in part by the [What Works Centre for Wellbeing](#)).

The MNW team was also charged with addressing the full 'beyond GDP' agenda, and undertook a large consultation and engagement exercise to find out what matters to people in the UK.

This provided the basis for a [set of indicators](#) covering ten broad areas which are updated by the ONS from time to time. While these indicators [continue to be published](#), there is no evidence that they are being used to supplement GDP as the UK's measure of progress.

Accounting for inequality within a single aggregate index is obviously tricky. But several solutions to this problem exist. One of them, advocated by the Sen-Stiglitz-Fitoussi commission, is to report median rather than mean (or average) values when calculating GDP per head.

Another fascinating possibility is to adjust the aggregate measure using a welfare-based index of inequality, such as the one devised by the late Tony Atkinson.

An exercise using the [Atkinson index](#) carried out by Tim Jackson, also a co-author of this article, calculated that the [welfare loss associated with inequality](#) in the UK in 2016 amounted to almost £240 billion – around twice the annual budget of the NHS at that time.

Among the most ambitious attempts to create a single alternative to GDP is a measure which has become known as the [Genuine Progress Indicator](#) (GPI).

Proposed initially by economist Herman Daly and theologian John Cobb, GPI attempts to adjust GDP for a range of factors – environmental, social and financial – which are not sufficiently well reflected in GDP itself.

GPI has been used as a progress indicator in the US state of Maryland since 2015. Indeed, [a bill introduced](#) to US Congress in July 2021 would, if enacted, require the Department of Commerce to publish a US GPI, and to *“use both the indicator and GDP for budgetary reporting and economic forecasting.”*

GPI is also used in [Atlantic Canada](#), where the process of building and publishing the index forms part of this community’s approach to its development.

A potential gamechanger?

In 2021, the UN secretary-general António Guterres concluded his [Our Common Agenda report](#) with a call for action. *“We must urgently find measures of progress that complement GDP, as we were tasked to do by 2030 in target 17.19 of the Sustainable Development Goals.”* He repeated this demand in [his priorities for 2022](#) speech to the UN General Assembly.

Guterres called for a process *“to bring together member states, international financial institutions and statistical, science and policy experts to identify a complement or complements to GDP that will measure inclusive and sustainable growth and prosperity, building on the work of the Statistical Commission.”*

The first manual explaining the UN’s system of national accounts was published in 1953. It has since been through five revisions (the last in 2008) designed to catch up with developments in the economy and financial markets, as well as to meet user needs across the world for a wider spread of information.

The next [SNA revision](#) is currently in development, led by the UN Statistics Division and mainly involving national statistical offices, [other statistical experts](#) and institutional stakeholders such as the IMF, World Bank and Eurostat.

But unlike the UN's COP processes relating to climate change and, to a lesser extent, biodiversity, there has, to date, been little wider engagement with interested parties – from business leaders and political parties to civil society, non-governmental organisations and the general public.

As the British science writer [Ehsan Masood](#) has observed, this revision process is happening below the radar of most people who are not currently users of national accounts.

And this means many very useful ideas that could be being fed in are going unheard by those who will ultimately make decisions about how nations measure their progress in the future.

The essence of sustainable development was captured in the 1987 [Brundtland Report](#): *“To contribute to the welfare and wellbeing of the current generation, without compromising the potential of future generations for a better quality of life.”*

Yet it remains unclear how the next SNA revision will provide such an intergenerational lens, despite a new focus on ‘missing’ capitals including natural capital.

Similarly, while the revision programme is addressing globalisation issues, these are only about global production and trade – not, for example, the impacts of national economies on the environment and wellbeing of other countries and populations.

Ambitious deadlines have been set further into the future: achieving the UN's Sustainable Development Goals by 2030, and reducing global net emissions of greenhouse gases to zero before 2050.

The SNA revision process – which will see a new system of national accounts agreed in 2023 and enacted from 2025 – is a key step in achieving these longer-term goals. That is why opening up this revision process to wider debate and scrutiny is so important.

It's time to abandon this 'GDP fetish'

One lesson to learn from the history of indicators, such as those about poverty and social exclusion, is that their impact and effectiveness depends not only on their technical robustness and their fitness for purpose, but also on the political and social context – what are the needs of the time, and the prevailing climate of ideas?

The current SNA revision should be a process as much about the use and usefulness of new measures as about their methodological rigour.

Indeed, we might go as far as [Gus O'Donnell](#), the former UK cabinet secretary, who said in 2020: *"Of course measurement is hard. But roughly measuring the right concepts is a better way to make policy choices than using more precise measures of the wrong concepts."*

In short, there is an inherent tension involved in constructing an alternative to GDP – namely achieving a balance between technical robustness and social resonance.

The complexity of a dashboard of indicators such as New Zealand's Living Standards Framework is both an advantage in terms of meaningfulness, and a disadvantage in terms of communicability.

In contrast, the simplicity of a single measure of progress such as the Genuine Progress Indicator – or, indeed, GDP – is both an advantage in terms of communication, and a disadvantage in terms of its inability to provide a more nuanced picture of progress.

Ultimately, a plurality of indicators is probably essential in navigating a pathway towards a sustainable prosperity that takes full account of individual and societal wellbeing. Having a wider range of measures should allow for more diverse narratives of progress.

Some momentum in the current SNA revisions process and ongoing statistical research is directed toward measurement of inclusive wealth – building on the economics of sustainability brought together in Partha Dasgupta's recent review of the [economics of biodiversity](#).

This framework can probably gain a broad consensus among economists and statisticians, and is already being implemented by the UN, starting with natural capital and environmental accounting.

Including wellbeing measures in the mix would signal that wellbeing matters, at least to some of us, while also recognising that many different things can affect wellbeing. The evidence to date is that planting wellbeing measures in a different part of the data ecosystem means they will be overlooked or ignored.

Wellbeing measures are not a panacea, but without them we will continue to do things that restrict rather than enhance wellbeing and fail to recognise the potential economic, social and environmental benefits that a wellbeing focus should bring.

The task of updating the statistical framework to measure economic progress better is non-trivial. The development of the SNA and its spread to many countries took years or even decades.

New data collection methodologies should be able to speed things up now – but the first step in getting political buy-in to a better framework for the measurement of progress is an agreement about what to move to.

National accounting needs what the name suggests: an internally consistent, exhaustive and mutually exclusive set of definitions and classifications. A new framework will require collecting different source data, and therefore changing the processes embedded in national statistical offices.

It will need to incorporate recent changes in the economy due to digitalisation, as well as the long-standing issues such as inadequate measurement of environmental change.

Ultimately, this 'beyond GDP' process needs to grapple not only with measurement problems but also with the various uses and abuses to which GDP has been put. Kennedy's neat summary that it measures *"everything except that which makes life worthwhile"* points as much to the misuse of GDP as to its statistical limitations.

Its elegance in being simultaneously a measure of income, spending and output means that in some form, it is likely to remain a valid tool for macroeconomic analysis. But its use as an unequivocal arbiter of social progress was never appropriate, and probably never will be.

Clearly, the desire to know if society is moving in the right direction remains a legitimate and important goal – perhaps more so now than ever.

But in their search for a reliable guide towards social wellbeing, governments, businesses, statisticians, climate scientists and all other interested parties must abandon once and for all what the Nobel Laureate Stiglitz called a 'GDP fetish', and work with civil society, the media and the public to establish a more effective framework for measuring progress. ■


ABOUT THE AUTHORS

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Endnote

1. Strictly speaking, Robert Kennedy referred to gross national product (GNP) in his 1968 speech. You can read more about the UN's Towards the 2025 SNA process [here](#).

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A microscopic view of numerous green, spherical bubbles of varying sizes, some overlapping, creating a textured, cellular appearance. The lighting is soft, highlighting the edges of the bubbles.

Advancing to a sustainable future

Across the globe business aviation welcomes another milestone step in sustainable flight, Ed Bolen writes

The global business aviation community continues to advance toward a more sustainable future. In the US, our industry recently earned a long-sought victory to promote greater use of sustainable aviation fuels (SAF) at a time when our industry is under more pressure than ever before to demonstrate its environmental credibility.

Partly derived from a diverse array of renewable sources, SAF holds the potential right now to reduce lifecycle carbon emissions from the aviation sector by as much as 80 percent, and work continues to improve on that impressive figure even more.

In August, US President Joe Biden signed the Inflation Reduction Act of 2022 into law. This new legislation included a blenders tax credit (BTC) for SAF producers, making them eligible for a \$1.25 per gallon credit for each gallon of SAF sold as part of a qualified fuel mixture with a demonstrated lifecycle greenhouse gas (GHG) reduction of at least 50% compared to conventional jet fuel.

The stand-alone SAF tax credit, which goes into effect in January, increases by one cent for each percentage point by which the lifecycle GHG emissions reduction of such fuel exceeds 50 percent, up to \$1.75 per gallon.

Implementation of this credit marks genuine progress toward increasing SAF production, promoting greater availability at general aviation airports and reducing costs to end users. As we've seen with similar tax credit programs for other alternative fuels like biodiesel, the BTC will markedly incentivize production of SAF, significantly expanding its availability while also helping to reduce costs for the fuel for flight operations.

This credit will run through the end of 2024. On 1 January 2025, the Clean Fuel Production Credit (CFPC) will apply to all transportation fuels, based on the level of GHG reduction performance of a fuel versus a baseline emissions

factor. Under this system, SAF will be eligible for a credit of up to \$1.75 per gallon for fuels with a 100% GHG reduction, with lower credits for fuels demonstrating lower levels of GHG reduction.

Efforts across the industry and around the globe

Without question, SAF offers operators a proven method to actively curb CO₂ emissions and make business aviation flying even more efficient and more sustainable.

Business aviation offers the unparalleled ability to link communities and companies around the world and connect companies and clients throughout North America, Europe and beyond

Implementation of the SAF BTC also marks another significant step in fulfilling our industry's pledge to achieve net zero CO₂ emissions by 2050 under the Business Aviation Commitment on Climate Change.

First implemented in 2009 and renewed last year, this commitment addresses numerous ways in which business aviation stakeholders can reduce their carbon footprint.

From promoting more sustainable practices in everyday activities at business aviation flight departments to certifying new hangar construction to LEED (Leadership in Energy and Environmental Design) standards, our industry continues to make sustainability not just a buzzword, but an active priority across all facets of their operations worldwide.

These measures complement new, more efficient aircraft designs and engines being rolled out by business aviation OEMs that allow companies to go farther on less fuel. Sustainability is also one of the factors spurring development in the emerging advanced air mobility (AAM) industry.

Powered largely by all-electric or hybrid-electric propulsion systems that offer the promise of drastically reduced CO₂ and noise emissions over conventional rotorcraft, AAM offers new options for short- to medium-range trips, particularly in dense urban environments that may currently lack efficient transportation options.

Two key initiatives formed last year are furthering these efforts. The NBAA Sustainable Flight Department Accreditation Program advances a sustainability culture in business aviation organizations and recognize those that meet or exceed specified criteria in flight, operations, ground support and infrastructure.

Similarly, the NBAA Sustainability Subcommittee of the NBAA Maintenance Committee is working to develop educational resources to help business aircraft operators pursue initiatives to foster greater environmental awareness industry-wide.

Sustainability in focus at NBAA-BACE

Advancing our industry's sustainability is also a key theme at NBAA's conventions and events. Last year in Las Vegas, we unveiled an all-new carbon-offset program to make the NBAA Business Aviation Convention and Exhibition (NBAA-BACE) one of the world's largest carbon-neutral events. Nearly 100 exhibitors signed a Green Pledge to limit their environmental footprint throughout the show.

These programs will again be front-and-centre throughout the 2022 edition of NBAA-BACE, taking place October 18-20 in the Orange County Convention Center in Orlando, FL.

Additionally, the Business Aviation Sustainability Summit, held in conjunction with the show, will spotlight the benefits of SAF and other methods by which business aviation flight operations may reduce their carbon footprint.

NBAA-BACE will also feature more than 30 education sessions focusing on the most important issues in business aviation today, from AAM to workforce issues to sustainability and much more.

The show will also include the latest and most advanced business aircraft available today alongside next generation hybrid- and electric-powered, vertical take-off and landing (eVTOL) AAM aircraft pointing to our industry's promising and sustainable future.

Business aviation offers the unparalleled ability to link communities and companies around the world and connect companies and clients throughout North America, Europe and beyond.

Our sustainability focus also highlights the many ways our industry continues to innovate, to inspire and to answer challenges in strong and resilient fashion.

On behalf of the more than 10,000 members of NBAA, I invite the readers of *World Commerce Review* to consider attending NBAA-BACE, where you may experience first-hand our industry's exciting, and sustainable future. ■

Ed Bolen is President and CEO the National Business Aviation Association (NBAA)



Reducing emissions and changing lives

Pastoral describes the revolutionary new technology
that reduces CO₂ emissions and improves the lives of
low-income farmers

Pastoral is an ambitious venture, co-designed and incubated by the United Nations Development Programme (UNDP) and UK-based developmental innovation company Karakoram. Born out of a desire to make a real impact, Pastoral focuses on providing an effective solution to the environmentally disruptive farming practices of low-and-middle-income countries.

How can Pastoral make a difference?

When describing the history behind the venture, Pastoral CEO and co-founder Josh Thomas says: *"Many don't realise the negative environmental impact of too many livestock animals coexisting within the same piece of land."*

"This is an issue in around 80% of the world, particularly low-income countries where farmers don't have access to modern solutions and practical data and are therefore not equipped with the tools they need to make informed decisions and action change."

The team began their venture by carrying out product and user trials in Uzbekistan, building a rapport with the leaders of a farming collective comprising thousands of livestock farmers earning as little as five dollars per day.

35-37% of Uzbekistan's pastureland can currently be considered poor or low productivity, with an estimated 1.5% of Uzbekistan's land becoming degraded every year.

"Our priorities involve reducing land degradation and CO₂ emissions, as well as helping low-income farmers make a profit by providing them with reliable data," says Josh.

Some of the farmers Pastoral worked with owned herds with two animals per hectare, while the UN recommends only one animal for every 2.5 hectares. From the farmers' point of view, more animals on their land equated to increased profit, yet their approach was causing irreversible damage to their pastureland.

“Livestock is a huge emitter of CO₂ equivalency, also contributing to desertification due to overgrazing. These issues could easily be solved by having fewer animals on the same land, but it is not as simple as that,” Josh adds.

Wealthier Western countries tend to be able to rely on technology to manage a smaller number of healthier and thus more valuable animals, yet low-income countries don't often have access to the types of technologies that would enable them to raise healthy livestock.

The team identified a potential for a 40% increase in profitability for farmers, most of which would come from eliminating outdated farming methods and modernising farming practices using technology



Extraordinary potential

After their first trial in Uzbekistan, the team identified a potential for a 40% increase in profitability for farmers, most of which would come from eliminating outdated farming methods and modernising farming practices using technology.

The team also identified the possibility to reduce pasture degradation and CO₂ emissions by 30%. With that in mind, they are keen to scale up Pastoral to include more countries, namely Nigeria, India, and Indonesia, which hold the largest proportion of livestock on earth.

“With 100% market penetration, we have estimated there would be a reduction of 8 megatonnes of CO₂ in Uzbekistan alone,” explains Shea McManigal, CFO and co-founder of Pastoral.

“To put things into perspective, livestock farming in Uzbekistan emits 24 megatonnes of CO₂ annually, which equates to powering 33.6 million homes for one year or extracting 255 million barrels of oil. That’s why Pastoral has the potential to make such an enormous difference,” he adds.

Pastoral, as well as their partners at the UNDP and Karakoram, aim to expand the reach of the venture and develop it further to meet the requirements of secondary markets and add more features and sources of data.

Its Chatbot-based format, which can easily integrate with front-end systems such as Telegram, WhatsApp, and Facebook Messenger, can easily be adapted to the different needs of communities worldwide, providing an easy-to-use solution that employs technology farmers are already familiar with.

The communication tool was developed with all communities of low-income farmers in mind, no matter their location, allowing everyone to benefit from sharing valuable information with neighbours and those close by.

Celebrating the power of entrepreneurship

Pastoral won the 2022 *Entrepreneur's Award in Social Innovation* (EASI). Through this award, the City of London's Company of Entrepreneurs recognises and empowers 'Innovative, Ethical, Impactful' enterprise.

EASI is entirely dedicated to rewarding entrepreneurs' efforts towards solving social or environmental issues affecting the wellbeing of individuals or communities, and Pastoral was selected as the winner from amongst nearly 200 applicants.

This dedicated developmental innovation start-up has won an award package comprising a grant of £10,000, a 12-month support and fellowship package including introductions to other sources of funding, as well as access to a plethora of other opportunities and professional services, which the company hopes to use to further develop its project.

When commenting on being selected as the winners of the EASI Award, Shea says: *"We felt like no one was listening to our story or acknowledging the significance of our project."*

"Livestock production forms one of the pillars of the world food industry and is a primary contributor to poverty reduction, food security and agricultural development."

"According to the FAO, livestock contributes 40% of the global value of agricultural output and supports the livelihoods of food and nutrition security of almost 1.3 billion people. This is not being discussed enough."

“As entrepreneurs, we understand the importance of being tenacious: we are not in the business for quick wins, but to make a difference long-term. Winning the EASI award made us feel like we were finally being heard, and that the value of our mission had been recognised.”

The team at Pastoral are thrilled to have been offered support to reach their future goals and objectives, and to have been provided with such an incredible opportunity to make headway. ■

Pastoral
AGTECH