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COMMENTARY

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The role of the private sector in sustainable development

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To Dr Tony Allan: scholar, colleague and friend. Tony and I served on the Water Security Council of the World Economic Forum (2008–10) – he was my mentor in engaging the private sector. He influenced my own thinking and that of so many others.

The private sector supplies most of our basic needs in the water, energy and food chains. These supply chains are our lifelines, but they are also responsible for most of the air, land, and sea emissions and pollution. Achieving a new business model for the sustainable development of these primary resources cannot be achieved unless concerned scientists and politicians engage and work with the private sector. Doing so requires a better understanding of the challenges and constraints on commodity flow along these supply chains. This is how we might do it.

Issues for discussion

The global challenge of sustainable development and the gaps in the water, energy and food chains that constrain access to primary resources

These have long been the focus of serious study, most recently by Aldaco-Manner et al. (2019), Carmona-Moreno et al. (2021), Daher et al. (2019), Dare and Mohtar (2018), Gardezi et al. (2020), International Renewable Energy Agency (IRENA) (2015), Keulertz and Mohtar (2019), Mohtar (2016), Mohtar et al. (2015), Pahl-Wostl et al. (2021), Portney et al. (2017), Purwanto et al. (2021), Walker (2020) and Weitz et al. (2017). The gaps are exacerbated by the interlinkages along and between these systems, and by external stresses including demographic change, climate change, poor governance, and lack of coherence among policymakers.

Shortfalls in primary resources have uneven, but always negative implications for availability and access to these necessities, particularly for the most vulnerable. To achieve sustainable development and universal access requires a good understanding of the entire supply chain from production, processing and transport to distribution. Identifying the challenges and enablers of these processes is the first step to improving their reliability and resilience.

The role of climate change in shortfalls of primary resources and its impact on water, energy and food production and use

Climate change has and will continue to constrain food production through extremes of storm, flood and drought. Global heating and seasonal shifts have also impacted the viability

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of crops, times of planting and harvest, and irrigation requirements. Temperature extremes have increased energy requirements for heating and cooling. Disruptions of supply chains by climate change are reported by Baskin (2020), Daher et al. (2017), Goodarzi et al. (2020), Harris and Wei (2018), and Huang et al. (2009), and International Water Resources Association (IWRA) International Scientific Committee (2021), Mohtar (2011, 2016, 2017), Mohtar and Daher (2015), Slay and Dooley (2020) and UN-ESCWA (2016).

Challenges to achieving the Sustainable Development Goals (SDGs) in the face of scarcity of human resources, capital and technology, and competing claims

In 2015, world leaders agreed on 17 SDGs that straddle sustainability, interconnectedness and global concerns. Each country has its own plan to achieve these goals, but it remains a daunting task to deal with a system that is complex, highly interdependent and involves every sector of society. Different countries are at different stages and levels of readiness and it is already clear that several of the goals will not be achieved by the target date of 2030. Scarcity of human and financial capital and the lack of coherent policies pose big challenges, and countries face painful trade-offs. Nevertheless, the SDGs have given momentum to the sustainability agenda and serve as a platform from which to achieve societal security. Apart from technological advances, policies are needed to incentivize good practice and change consumers' behaviour. In short, what is needed is a new business model that involves all sectors of society.

The Global Compact: the promise, what has been done and its further potential

In 2000, the United Nations Global Compact (UNGC, 2017) was formed to promote responsible business practices and UN values among the global business community and the UN System. UNGC has been active on projects that support national agendas in many countries, but it has been criticized for not doing enough, indeed for providing a *blue wash* for participating companies. The question remains as to how accountable these companies are, and whether the UNGC mandate can be expanded to include measurable outcomes and impacts beyond project-based investments.

The private sector has a key role in sustainability. Indeed, it is the dominant player in water, energy and food. A governance structure could facilitate public engagement but the nature of the structure needs further discussion and dialogue between the private and public sectors.

This commentary proposes that *attaining sustainable development is a process that requires collective effort with the private sector and the active engagement of the private sector*. Its objectives are to explore the roles that the private sector can play in sustainable development, with a focus on water, energy and food. It presents the key players that produce and manage these resources, the current and possible future role of the private sector, and a road map for further engagement.

Who produces and manages the primary resources?

The water supply chain

Who owns the shares?

In the United States, 88% of the population is served by a public community water system and the remaining 12% by private systems. Overall, in Organisation for Economic Co-operation and Development (OECD) countries, 200–300 million people (17–25% of the population) are served by the private sector (Perard, 2017). Worldwide and in major cities, 85% of water services are publicly owned and run (GWI, 2020). The jury is still out on which system is better in terms of efficiency and cost to consumers. Kopaskie (2016) discusses ways in which the private sector can assist water security in high- and middle-income economies, and presents various governance models for private-sector involvement and investment.

While there is growing interest in increased private-sector involvement and investment, without public regulation that holds the private sector responsible for public services such as water there is a risk of reduced access to these services (Lloyd-Owen, 2022, in this issue). Clearly, engaging the private sector in research, development, technology and innovation requires close cooperation and coordination among all stakeholders (Debaere & Kapral, 2021).

Food supply

Who owns the shares?

In the mid-20th century, crop yields were boosted by mechanization, crop breeding, fertilizers, pesticides and irrigation. Today, we are seeing a new agricultural revolution based on precision and digital agriculture that has the potential to further transform the global food system (Nature Food, 2020). However, over the last 20 years, public funding for agricultural research has declined: US annual public agricultural research spending dropped from US$6 billion to US$4.5 billion (Clancy et al., 2016; USDA-ERS, 2019), cutting core agricultural research including soil science and crop breeding, and cutting staff by 21% (Coe et al., 2020). Global private-sector spending on agricultural research increased from US$5.1 billion to US$15.6 billion per year between 1990 and 2014 (Fuglie, 2016), and private-sector agricultural research spending in the United States increased by over 60% between 2008 and 2013 (King et al., 2012). The food system is now controlled by a small pool of companies: a handful of corporations control 90% of the grain traded globally; six companies provide most the seeds, fertilizers and pesticides; Wal-Mart, which feeds one in five American shoppers, is the 10th largest economic entity in the world; big industrial farms comprise only 1% of farmers, but control 65% of farmland.

Although there is increased recognition of the importance of private-sector development for food and nutrition security, illustrated in the UN 2030 Agenda for Sustainable Development (UNSDG, 2015) and the Malabo Declaration on Accelerated Agricultural Growth and Transformation (African Union, 2014), the 2017 UN Global Compact Progress Report found that one-third of its signatories had yet to develop any measurable SDG targets; and 60% of the companies assessed by

PricewaterhouseCoopers were not engaging meaningfully (PWC, 2019). In its statement to the World Summit on Food Security, the European Centre for Development Policy Management (ECDPM, 2013) noted:

- Smallholders are important to food supply and security.
- There is a huge need to improve current agricultural infrastructure and institutions.
- Food supply chains are very inefficient.
- The growing water scarcity and competition for water challenges future expansion of food production and puts at risk the supply for present world population.
- Attention must also be paid to biodiversity, soil depletion and land availability and use.

Energy supply chain

Who owns the shares?

For oil and gas, the 13 biggest energy companies, as measured by their oil reserves, are government owned and operated. Saudi Aramco, Gazprom (Russia), China National Petroleum Corp., National Iranian Oil Co., Petróleos de Venezuela, Petrobras (Brazil) and Petronas (Malaysia) are each bigger than ExxonMobil, the largest of the multinationals. State-owned companies now control more than 75% of all crude oil production (Bremmer, 2010), but the private sector will play a crucial role in the transition to renewable energy.

The US special presidential envoy for climate, John Kerry, said during the Clean Power Conference organized by the American Clean Power Association: 'Probably something like $20 trillion will be allocated to the market over the next years' (Anderson, 2021). After stagnating in 2020, global power-sector investment is set to increase by around 5% to more than US$820 billion in 2021. Renewables dominate investment in new power generation and are expected to account for 70% of the US$530 billion spent on new generation capacity in 2021, with the remainder to be spent on grids and storage. Thanks to rapid technological improvements, a dollar spent on wind and solar photovoltaic deployment today results in four times more electricity than a dollar spent on the same technologies 10 years ago (IEA, 2021a).

Renewable investment has thrived in markets with well-established supply chains, and where lower costs are accompanied by regulatory frameworks that provide cash flow visibility and lenders and financiers understand these sectors well and seek to support sustainable projects. Corporate-sector demand for clean electricity to meet sustainability targets has also played a role. Much of the spending in 2020 was concentrated in a handful of markets, most notably the People's Republic of China, the United States and Europe; for the sixth consecutive year, 2020 saw capital spending in the power sector higher than for oil and gas supply (IEA, 2021b).

As for power production, the US Energy Information Administration (EIA) reports that investor-owned utilities serve three of every four utility customers nationwide. That is, for 70% of the country, electricity is delivered by private, for-profit, investor-owned companies (EIA, 2019); the remaining 30% are served by utilities owned by municipalities. Worldwide however, publicly owned distribution utilities outnumber private ones (Alkhuzam et al., 2013).

Understanding the business model

CSR is not enough

Private-sector companies are sustained by their profits so their activities must be self-supporting. Many of these companies report to a board of investors who expect growth in their portfolio, so executive goals and strategic plans prioritize financial margins; their environmental, ecological and other footprints rarely explicitly enter their business models. Water, energy and food providers operate on very small profit margins: their survival relies on economies of scale, precision and perfection of the supply chain operation. The *green investment* of some new-trend companies is not mainstream to these sectors.

Corporate social responsibility (CSR) is practiced by many big and multinational corporations and involves investment in social welfare projects. In most cases, CSR operations are not linked to the company's business operation but are viewed as a public relations campaign by the company. Irrespective of where one stands on these issues, CSR is clearly not enough to transform company operations: real change is not going to happen unless social responsibility is linked to the company's core business model.

The role of investors

Meaningful change will happen when the company business model changes. A more sustainable model requires a change in mindset, not only of company executives but also in the strategic targets set by the investors (Allan & Dent, 2021). These targets may clash with the board's financial targets, in which case long-term gains in resources efficiencies, human and ecological health must be valued rather than short-term profits. This is where analysis of these trade-offs should be communicated and discussed with the board to broaden their perspectives and change the business-as-usual operational model.

The future and the role of the private sector

It is evident that a large portion of our vital resources of water, food and energy is provided by the private sector. It is also evident that long-term sustainability of water, food and energy supply requires engagement, support and leadership from the private sector. To better engage with the private sector, society needs:

- To better understand the business model(s) of the private sector, their operation, clients, business goals and limitations.
- To co-identify points of entry for a new business model driven by common, social and ecological values. This includes identifying the roles of the private sector in transitioning to a sustainable business model.
- To engage investors in transformation of the business model and quantitatively demonstrate the long-term sustainability gains over short-term profits. This requires targeted trade-off analysis and analytics that recognize that one size does not fit all. Good practices suited to one supply chain do not necessarily work for others.

- To co-design a sustainability campaign that engages all stakeholders – including consumers – regarding sustainable production, consumption and pricing of key commodities. There is a price to be paid for a more sustainable commodity and the consumers must be willing to pay it.
- To ensure equitable access to commodities and services: the business model must not deny access to these basic commodities.
- To develop new policies to facilitate the transition to a new, transformational model (incentives or taxes on unsustainable practices).
- To build capacity through formal and informal workforce training, considering the supply chains as systems that can be improved and offering innovative solutions.
- To target consumption and behavioural challenges to the exploitation and conservation of primary resources.

Conclusions

The private sector is a key player in the management of water, energy and food. Its role in sustainable development cannot be ignored. Engaging the private sector requires understanding its operations and limitations. Co-design of transformational business models is needed and must involve all stakeholders, including government, private-sector decision-makers and consumers.

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