

CONNECTING THE SDG DOTS THROUGH SYSTEMS THINKING



By Dr. François Fortier

NO EASY TASK

The adoption of the 2030 Agenda for Sustainable Development in 2015, and of its 17 Sustainable Development Goals (SDGs) as a monitoring framework, was an explicit recognition of the limits of the old, post-World War II model of development, narrowly concerned with unidimensional economic growth.

The Agenda called for a broader understanding of prosperity in its social and ecological dimensions, with a sustainability narrative that takes a holistic view of development, mapping relations, and causality between various dimensions, while transcending sectoral, institutional and, jurisdictional borders to embrace whole-of-government and whole-of-society perspectives.

Yet, merely admitting that “everything is connected to everything ... is not useful as a policy message” (Le Blanc, Freire, and Vierros 2017, 26). Most crucially, addressing the economic, social, and ecological dimensions of sustainability faces resistance and antagonism between sectors and their respective actors, each having different and often conflicting interests (Máttar and Cuervo 2017; UN-DESA 2018).

While most stakeholders seem to have recognized the difficulties of such a holistic implementation, addressing them still faces the absence of a shared multidimensional conceptual framework and practical methodology for policy analysis, design and implementation (Allen, Metternicht, and Wiedmann 2017, 2). The Voluntary National Reviews (VNRs), through which governments present their implementation of the 2030 Agenda at the annual United Nations High-Level Political Forum for Sustainable Development (HLPF), have illustrated the difficulties of grasping and managing the dynamics between SDGs, particularly those politically sensitive ones (Fukuda-Parr et al. 2018, 9).

A body of literature has emerged since 2015 to fill that gap and scan the inner workings of SDG interactions, seeking to unearth the conflicts, trade-offs, and synergies between them. In practice, however, much of the reality of implementing the 2030 Agenda has remained focused on particular targets and goals, or at best a narrow nexus of a few related ones, executed by institutions still operating in silos and often competing with one-another for budgets and over mandates or jurisdictions (Nilsson 2017a, 7; Griggs et al. 2017, 226–36).

A HOLISTIC APPROACH

A holistic endeavor would imply horizontal and vertical integration, echoing the concept of Policy Coherence for Sustainable Development (PCSD), referring to the need for intersectoral and inter-institutional mechanisms that facilitate negotiated results synergies. It also seeks multi-level alignment to achieve consistent impact across jurisdictions and scales, from global governance to regional and national strategies, and down to sub-national and local levels (OECD 2003, 2; Cejudo and Michel 2015; OECD Recommendation on PCSD).

A feasible strategy toward a holistic implementation of the 2030 Agenda, therefore, requires comprehensive and practical analysis and design methods that can identify a large number of connections, including causal relationships and complex feedback loops between the SDGs and targets. The purpose is to recognize enough drivers and relationships to highlight the main links and trends without being overwhelmed by too many factors that have less impact on the rest of the system and fewer significant linkages.

SYSTEMS THINKING AS A MAPPING TOOL

To overcome this challenge, the 2030 Agenda recognizes sustainability as a dynamic system, with interdependencies and interlinkages that transcend individual sectors, locales, and times. Dynamic systems have inherent interconnections, woven through overlapping relationships of causal effects that carry ripples of impacts from any system driver to any others, synergizing emergent phenomena beyond the sum of its components, and often through one or several degrees of feedback loops (Collste, Pedercini and Cornell 2017).

In the context of sustainability, this makes any change in one dimension affect other aspects in all three. This systems approach, also known as system thinking, integrated analysis, or system dynamics analysis, is essential to understand sustainability challenges and successfully plan and implement solutions.

A systems approach allows appreciating elements and their relationships from various dimensions (sectoral, levels of governance, spatial scales, temporality), and the perspective of actors (individuals, institutions, collectives). With this framework, a systemic analysis essentially investigates each stakeholder's interests as a factor of continuity or change, in competition or collaboration through their relationships. In addition to the nature of factors and the existence of relationships, it also unearths the power that defines and motivates each of those relationships. Such power is expressed through behavioral patterns of conflicts, trade-offs and synergies, forming together the political economy of a system, essential to the understanding of its dynamics.

In the context of the 2030 Agenda, this means both technical and political analyses of the issues covered by the 17 SDGs. Ensuring a holistic implementation of the Agenda requires identifying allies and opponents of various options, mapping their relationships to manage conflicts, negotiating trade-offs, and nurturing synergies. This implies tailoring strategies to maximize support and minimize resistance and obstruction while taking advantage of synergies that provide collateral

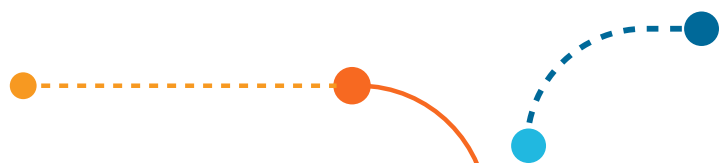
benefits and avoid hidden costs, zeroing on high-yield investments sometimes revealed only through multiple degrees of feedback loops (Nilsson 2017b).

Understanding reality through systemic connections (frequently visualized as Causal Loop Diagrams, or CLDs) facilitates change processes, helping stakeholders understand the problems of a current system, showing how processes can prevent reaching objectives, and what alternatives may overcome obstacles (Stroh 2015, 145). The approach also facilitates the definition of shared goals, agreed measurements, and sustained communication between stakeholders (Stroh 2015, 28).

In other words, a systems approach helps achieve a given goal by fostering synergies while anticipating and mitigating conflicts between drivers and actors, and between goals and intervention strategies.

There is ample and robust evidence of the benefits of applying systemic analysis to the 2030 Agenda. For example, the extensive interlinkages between agriculture and at least nine SDGs in the context of rural development in Rwanda illustrate how agricultural investments have a higher impact on poverty than other sectors, but at the cost of unequal land tenure and other processes of differentiation (Bueb, Peters and Yepes 2017). It shows where detailed system analysis can reveal positive and negative ripple effects and enable system-based planning for optimum synergistic impact.

Another study examining the impact of climate-smart agriculture on various SDGs has shown how new techniques focussed on climate adaptation and mitigation can also inadvertently impose significant trade-offs on poverty reduction as well as gender and social inequality. Such trade-offs, therefore, need to be managed by climate-smart programmes, notably through non-farm alternative livelihoods (Hellin and Fisher 2019).



SYSTEMS APPROACH AS A UNIQUE OPPORTUNITY

A systems approach to the 2030 Agenda can therefore be a unique opportunity that “allows broad multi-disciplinary and multi-sectoral conversations, makes it possible to synthesize knowledge and to scope knowledge needs and provides rational and concrete focal points (clusters of targets that need to be addressed together) for an integrated approach to implementation and monitoring.” (Griggs, et al. 2017, 8).

Furthermore, revealing and working with interconnections between SDGs and their targets “support more effective negotiations, by enabling countries and sectors to see more clearly where their interests coincide, where they diverge, and how they might reconcile their differences.” (Weitz, Nilsson et Davis 2014, 49). Such understanding provides the necessary tactical information in building stakeholder coalitions around diverse and shared interests, where multiple impacts can rally allies in a common change strategy (Sawin 2018).

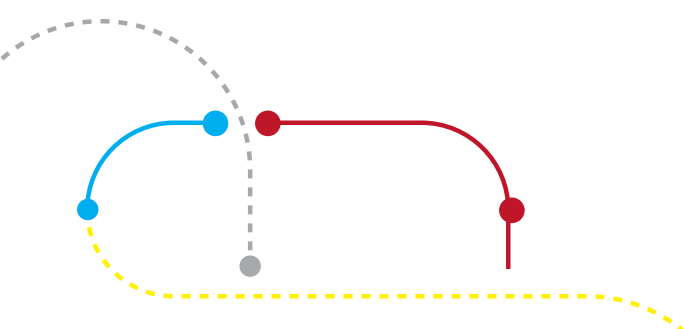
A contemporary, vivid, and tragic example of the necessity of a systems approach to sustainable, coherent policies are that of the Covid-19 pandemic. Not only is Covid a medical condition with amplifying factors deeply rooted in public health policies and services as well as social determinants of health, all relevant to SDG 3 (good health and wellbeing), but it is also driven by conditions of poverty, food security, nutrition, employment, as well as gender and racial equality (SDGs 1, 2, 5, 8, 10), and to risks from zoonic viruses and other pathogens heightened by human encroachment of natural habitats and climate change (SDGs 13 and 15).

A systems approach is essential to reveal how this combination of factors can drive a complex dynamic such as the pandemic, aligning actors

and their interactions in producing a crisis, and offering paths to mitigation and recovery. As importantly, a systems analysis also alerts to damaging activities or counterproductive interventions that may worsen the situation through unexpected feedback loops. This could be the case, for example, when developing infrastructure to reach the targets of SDG 9, but without giving due attention to maintaining and rebuilding natural habitats, thus increasing the risks of zoonic transmissions and future pandemics (Naidoo and Fisher 2020).

In this way, system thinking is critical to plan recoveries with coherent “multisolving” policies (Sawin 2018) that account for interactions within and between economic, social, and ecological domains, and across institutions, fields of expertise, scale, and over time. The approach highlights the importance, for example, of equality and inclusion (United Nations 2020) to avoid drastic impoverishment, social disruption and human insecurity, worsened refugee crises, or unbridled environmental destruction.

A number of initiatives are already aiming for that purpose, as documented by the Green, Resilient, and Equitable Actions for Transformation (GREAT) database, recently launched by Climate Interactive. Studies, policies, and concrete projects range from expanded multimodal urban transportation in Medellin, Colombia (which addresses not only mobility but also poverty, violence, and health) to New Zealand’s “shovel-ready” projects for active transport, climate adaptation and reduced pollution.



SUSTAINABILITY AS POLITICAL ECONOMY

While understanding the 2030 Agenda from a systems perspective, and planning its holistic implementation, maybe a necessary condition of a successful transition to sustainability, it does not seem to be a sufficient one. For more than half a century now, the growing understanding of the interrelations between the dimensions of sustainability has evolved to explain with significant accuracy the connections between creating wealth through economic activities, using natural resources and discarding wastes in environmental sinks, and sharing that wealth through contested social structures and institutions.

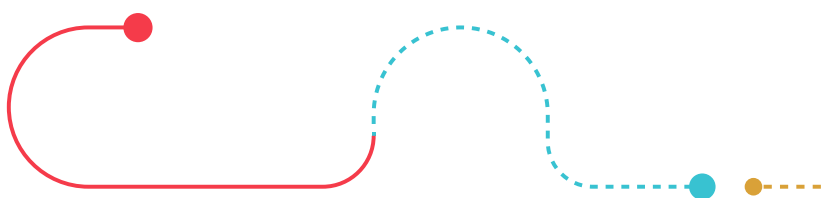
Climate change is a good example of how far we have come to understand these interactions: from our widespread ignorance of the problem 30 years ago, the ecological mechanisms of global warming are today well understood, the economic causes clearly identified, and the needed economic and social changes known and feasible. While some questions remain, such as with the timing and magnitude of ecological tipping points, or climate sensitivity to net solar warming, those remaining uncertainties only underline the necessity and urgency of sustainable practices without putting them in doubt.

However, and despite such scientific and technical progress of recent decades in our understanding of climate change and sustainability more broadly, our development strategies, policies, and programmes remain obstinately lethargic, bogged-down in obsolete discourses of unbridled growth and productivity, most often at the expense of human and social needs, and perilously so of ecosystems. The resulting political and administrative bottlenecks are numerous, with

institutions born of vertical models, mandated by sectors, in a competitive logic of silos, has long been unable to meet the challenges of sustainability. Incoherent policies abound, professional skills slip out of phase, financial resources get wasted, and accountability remains murky.

Beyond understanding sustainability, what has progressed much less in this paradigm is our collective ability to change the political economy that underpins development. This is a political economy defined by actors' interests and realised in strategies, relationships, alliances, and discourses, and often obstructs, sometimes with ruthless politics and violence, the necessary transformation towards sustainability. Short of confronting this political economy, analyses and strategies frequently stop at the foot of a presumed "political will," naively assuming it will serendipitously complete for us the difficult journey of transformation. The proverbial elephant in the room, however, is that beyond the science and technologies of sustainability, we must also, and resolutely, confront its power dynamics.

In this sense, a systems approach is an open forum that invites lifting the veil on actors and dynamics of change, to recognize those who, in this "political will," are allies or adversaries. From there, we can navigate with clarity the unavoidable conflicts, negotiable the necessary trade-offs, and nurture useful synergies – all inexorable landmarks of the path to transition. This is how systemic sustainability analysis appears not only as enlightening but also as essential for mapping the transition. It is an overview of the complex relationships between sustainability dimensions and between these dimensions and the mechanisms of governance and power dynamics that define these relationships.



A Note from the UN System Staff College

Time to re-double our efforts towards policy coherence for sustainable development

As the global pandemic continues to ravage lives and livelihoods, our immediate concern is to contain its spread and provide for those left in its wake. We have also been presented with a unique opportunity to rethink and redesign the systems they govern our world and create vulnerabilities to economic, health, and climatic shocks. It must be our endeavor that the world we rebuild integrates economic, social, and environmental policies to provide protection from future shocks and ensure long-term sustainability.

As the catastrophic human, social and economic effects of the pandemic threaten to reverse decades of development progress, the transformative vision of the 2030 Agenda and its Sustainable Development Goals (SDGs) are more relevant than ever today to guide us towards a more equal, abundant and just world where we live in harmony with our environment and ensure dignity for all.

Implementing the Agenda has always been a monumental governance challenge both within countries and across borders. Narrow considerations often result in policies that work at cross purposes and often negate each other's progress. Policy coherence across sectors and levels of government to coordinate long-term recovery must be our way forward.

*The issues we face in all parts of the planet are connected and cannot be managed in a siloed ad hoc manner; they must be addressed systematically. **Dr. Francois Fortier**, a faculty member of our online course on policy coherence for sustainable development, elaborates on this idea with great clarity in his brilliant think-piece above 'Connecting the SDG Dots through Systems Thinking.'*

*As we prepare to launch the next edition of this course with the backdrop of an ongoing global recovery, **Dr. Fortier** along with experts from OECD and the Lee Kuan Yew School of Governance join us in imagining the road ahead and equipping policymakers, UN staff, activists and engaged citizens around the world in developing a profound understanding of why policy coherence remains vital to sustainable development and provide them with the tools to apply these lessons to their work.*

*If you're interested in being part of this cohort with hundreds of learners from around the world representing virtually every country and all sectors, we invite you to apply for the next edition of our course **Policy Coherence for Sustainable Development**, which runs online for five weeks from 15 February to 19 March 2021. We are accepting applications till 15 January 2021.*

BIBLIOGRAPHY

- Allen, Cameron, Graciela Metternicht, and Thomas Wiedmann. "[An Iterative Framework for National Scenario Modelling for the Sustainable Development Goals \(SDGs\)](#)." *Sustainable Development* 25, no. 5 (2017): 15.
- Bueb, Benedict, Megan Peters, and Elizabeth Yepes. "[Using a Systems Approach to Achieve Inclusive Development: The Case of Agriculture in Sub-Saharan Africa](#)." SDG Knowledge Hub, IISD, November 30, 2017.
- Cejudo, Guillermo M., and Cynthia Michel. "Addressing Fragmented Government Action: Coordination, Coherence, and Integration." CIDE, 2015.
- Collste, David, Matteo Pedercini, and Sarah E. Cornell. "[Policy Coherence to Achieve the SDGs: Using Integrated Simulation Models to Assess Effective Policies](#)." *Sustainability Science* 12, no. 6 (July 2017): 921–931.
- Fukuda-Parr, Sakiko, Matthias Bruckner, Thea Hegstad, Martina Kuehner, and Marcia Tavares. "[Voluntary National Review Reports: What Do They Report?](#)." *CDP Background Paper*, no. 46 (July 2018): 17.
- Griggs, Dave, Måns Nilsson, Anne-Sophie Stevance, and David McCollum. "[A Guide to SDG Interactions: From Science to Implementation](#)." Paris: International Council for Science (ICSU), 2017.
- Hellin, Jon, and Eleanor Fisher. "[The Achilles Heel of Climate-Smart Agriculture](#)." *Nature Climate Change*, June 17, 2019.
- Le Blanc, David, Clovis Freire, and Marjo Vierros. "[Mapping the Linkages Between Oceans and the Sustainable Development Goals: A Preliminary Explanation](#)." New York: UN-DESA, 2017.
- Máttar, Jorge, and Luis Mauricio Cuervo. *Planificación para el Desarrollo en América Latina y el Caribe: Enfoques, Experiencias y Perspectivas*. ECLAC Books. United Nations, 2017.
- Naidoo, Robin, and Brendan Fisher. "[Reset Sustainable Development Goals for a Pandemic World](#)." *Nature* 583, no. 7815 (2020): 198–201.
- Nilsson, Måns. "[Important Interactions among the Sustainable Development Goals under Review at the High-Level Political Forum 2017](#)." New York: Stockholm Environment Institute and UN-DESA, 2017a.
- . "[You Need to Understand SDG Interactions – Here’s Why](#)," May 2017b.
- OECD. "Policy Coherence: Vital for Global Development." Paris: Organization for Economic Cooperation and Development, 2003.
- Sawin, Elizabeth. "[The Magic of ‘Multisolving’: Six Principles and Practices to Unlock Cross-Sectoral Collaboration](#)." *Stanford Social Innovation Review*, July 16, 2018.
- Stroh, David Peter. *Systems Thinking for Social Change*. White River Junction, VT: Chelsea Green Publishing, 2015.
- UN-DESA. "[World Public Sector Report 2018. Working Together: Integration, Institutions and the Sustainable Development Goals](#)." New York: United Nations Department of Economic and Social Affairs, 2018.
- United Nations. "[Shared Responsibility, Global Solidarity: Responding to the Socio-Economic Impacts of COVID-19](#)." United Nations, March 2020.
- Weitz, Nina, Måns Nilsson, and Marion Davis. "[A Nexus Approach to the Post-2015 Agenda: Formulating Integrated Water, Energy and Food SDGs](#)." *SAIS Review of International Affairs* 34, no. 2 (2014): 37–50