Chapter 5

Natural Resources and Sustainable Energy

Priscilla Schwartz*

Learning Objectives:

- Get introduced to the concept of "sustainable energy for all" in the 2030 Agenda for Sustainable Development through the three dimensions of sustainability and the Right to Development principles.
- Understand the methods of operationalising sustainable energy as an inherent component of the Right to Development.
- Critically assess the "rights" approach to implementing the sustainable energy agenda by familiarising with some pertinent issues that beset it.

Sustainable Development and Energy Policy

The developmental value of exploiting natural resources, especially fuels, minerals, metals marine resources, and forestry products, have traditionally been in pursuit of economic prosperity for States. Energy resources including fuels, nuclear, renewables and alternative energy are vital components of economic resources by which we obtain energy to generate power for electricity and energy services for industrial, commercial, or household use.

The economic value attached to exploitation of resources for energy and development led to efforts by developing states to secure sovereignty over domestic natural resources.[1] The Rio Declaration of 1992 formulated principles around sustainable development,[2] with a view to modify the economic-oriented purpose of natural resources development by requiring states to consider their social and environmental sustainability.[3] The 2030 Agenda for Sustainable Development specifically recognises that social and economic development depends on the sustainable management of the planet's natural resources including conservation and sustainable use of the oceans, seas and marine resources for sustainable development.[4]

Energy resources policies have generally not focussed on social sustainability beyond the environmental impact of burning fossil fuel and for ensuring the availability of fuels to the public at lower prices. As a result, over 1.4 billion people remain with no access to modern energy, and

* Senior Lecturer and Director of the Energy and Natural Resources Law Programme at the Royal Docks School of Business and Law at the University of East London.

[1] GA Res 1803 XVII, paragraphs 1–4.

[2] *Report of the United Nations Conference on Environment and Development, Rio de Janeiro, Brazil, 3–14 June 1992* (A/CONF.151/26 Vol. I), annex 1.

[3] Priscilla Schwartz, *Sustainable Development and Mining in Sierra Leone* (Kent: Pnuema Spring, 2006.)

[4] A/RES/70/1, Paragraph 33 and SDG 14.

about 3 billion rely on traditional biomass and coal as their main fuel sources.[5] The predominant focus of much of energy planning is on large-scale centralised infrastructure development projects, and adopts a top-down approach to policy processes that target energy interventions around connections and megawatts-metrics. This focus of energy planning and direction of policy is deemed to be "wholly inadequate", and justifies calls for decentralised bottom-up national energy planning options that are more cost-effective especially for rural energy delivery.[6]

But energy resources have increasingly come to play a fundamental role in sustainable development policy, viewed severally as an explicit development tool for poverty reduction, an environmental protection mechanism, and an energy efficiency strategy.[7] The World Summit for Sustainable Development (WSSD), for example, calls for joint action to improve access to reliable and affordable energy towards mitigating poverty and to invest in clean energy technology options including renewable energy resources.[8] The 2030 Agenda reiterates this objective through SDG 7 in seeking to "ensure access to affordable, reliable, sustainable, and modern energy for all" (hereinafter, referred to as "SE4All"). How can countries apply the right to development (RtD) to operationalise this broad but laudable objective to benefit particularly the world's poor and vulnerable peoples? This chapter will seek to address this question. Insights into these areas will hopefully be useful to assist energy policy planners, energy regulators, development analysts and other stake-holders in decision-making on the trade-offs that are inherent in the quest to achieve sustainable energy for all by 2030.

The Promise of "Sustainable Energy for All" in the 2030 Agenda and the RtD

SDG 7 seeks *to ensure access to affordable, reliable, sustainable modern energy for all* (SE4All). Countries commit to strengthening the productive capacities especially of least developed countries (LDCs) in all sectors, including through the adoption of "policies which increase universal access to affordable, reliable, sustainable, and modern energy services".[9] The Targets for SDG7 call for commitments and practical actions to be taken at all levels to:

- ensure universal access to affordable, reliable and modern energy services;
- increase substantially the share of renewable energy in the global energy mix;
- double the global rate of improvement in energy efficiency;
- enhance international cooperation to facilitate access to clean energy research and technology;
- promote investment in energy infrastructure and clean energy technology;

[5] United Nations. *2012 International Year of Sustainable Energy for All,* http://www.un.org/en/events/sustainableenergyforall/, Accessed on 25/07/2017

[6] Practical Action, *Poor People"s Energy Outlook* (Rugby, UK: Practical Action Publishing Ltd, 2016), Available at http://dx.doi.org/10.3362/9781780449357, Accessed on 21 November 2016), p. 6.

[7] See *Report of the World Summit on Sustainable Development, Johannesburg, South Africa, 26 August – 4 September, 2002,* (A/CONF.199/20); A/RES/65/151; *Report of the United Nations Conference on Sustainable Development, Rio de Janeiro, Brazil, 20–22 June, 2012,* (A/CONF.216/16), Chapter 1, Paragraphs 125–129; A/69/323; A/RES/70/1.

[8] A/CONF.199/20

[9] A/RES/70/1, paragraph 27.

- expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries in accordance with their respective programmes of support.[10]

The Targets for SDG 7 commitments and action areas stated identify the means and methods by which States can achieve sustainable energy for development.[11]

The RtD normative framework is important for an enhanced understanding of the objective of SDG7 - to afford SE4All - and for the meaningful realisation of the specific commitments and practical actions. Carving a right to sustainable energy development could assure for all peoples the inalienable right to energy that would enable them to actively participate in and contribute to development, economically, socially, culturally, and politically. The RtD could also guarantee their enjoyment of the benefits that result from the processes of energy development.[12] The RtD entitles States to full sovereignty over their natural resources including renewable energy resources and appropriates to them the responsibility to create favourable conditions and equal opportunities for the enjoyment of energy rights.[13]

It is therefore possible for countries to promote sustainable energy RtD by exercising the duty bestowed on them to formulate policies and laws to improve peoples' well-being and enjoyment of the benefits of the RtD. This can be done by the formulation of appropriate national energy policies and strategies that promote sustainable modern electricity and energy services particularly in the developing countries. Going by the practical actions identified in the 2030 Agenda SDG7, sustainable energy development policies and strategies must cover energy infrastructure, renewable energy, clean energy research, energy technology, and related trade, investments, financing and support programmes that will enable people to participate in, and contribute to energy development, while improving their well-being.

The RtD perspective of SE4All is validated by the affirmation in the 2030 Agenda of Principle 3 in the 1992 Rio Declaration, which states, that "the right to development must be fulfilled so as to equitably meet the developmental and environmental needs of present and future generations".[14] This statement allows for the environmental dimension of sustainability that is not explicitly addressed in the DRTD to apply as a RtD in the pursuit of SE4All, since the DRTD pre-dated widespread consciousness on the environment, climate change and sustainable development. It entails a flexibility that allows for regulatory measures that will balance States' sovereignty of their natural resources to ensure sustainable patterns of production, consumption, resources conservation, protection of ecosystems and biodiversity and actions to combat climate change, all of which have implications for human beings, and human rights in the sustainable energy development processes.[15]

The 2030 Agenda also adopts the approach in both the DRTD and the Rio Declaration, to focus on human beings as the "centre of concern" for ensuring SE4All, and seeks to "build dynamic,

[10] Ibid, Targets 7.1 to 7.3
[11] Ibid, Targets 7(a) and 7(b).
[12] A/RES/41/128, Article 1.
[13] OHCHR, *Development is a Human Right*, http://www.ohchr.org/EN/Issues/Development/Pages/Backgroundrtd.aspx, Accessed on 17 August 2016.
[14] A/RES/70/1, paragraph 12.
[15] Ibid, SDGs 12 to 15.

sustainable, innovative, and people-centred economies".[16] Further, the 2030 Agenda's objectives converge with the RtD principles, in that they seek to enhance progressively given development pathways (e.g. economic and social), through domestic legal, regulatory, and institutional processes, and international cooperation on these, to ensure the improvement in peoples" well-being, as a human right.[17]

Thus, a rights framing of sustainable energy and energy development would mean that all peoples have the inalienable right to the provision of access to electricity and modern energy and energy services, through investment in energy infrastructure and technology that is reliable and economically viable. The right to access sustainable energy also includes the opportunity for people to participate in, and contribute to energy trade transactions – energy use in households, commercial buildings, manufacturing processes, and transportation – that is affordable and socially acceptable.

People should be able overall to enjoy the benefits of energy-led development that is environmentally safe and sustained via an increase in the uptake of renewable energy and alternative fuels, and the regulation of energy consumption to ensure supply and efficiency.[18] SE4All is therefore vital for the realisation of the RtD, and can be applied as a RtD to power economies but more importantly to empower particularly the world's poor to achieve their development needs. The RtD framing helps to place in context the broadly stated sustainable energy goal in the 2030 Agenda (SDG 7) and would aid its practical application within the three dimensions of sustainable development that are necessary for operationalising it.

Operationalising Sustainable Energy RtD

Clearly, sustainable energy dynamics are complex, involving interaction at various levels between people, institutions, technologies and markets. There is need for concrete policy, legal and practical actions in order to safeguard the RtD of the poor to participate in, and enjoy fully the benefits of sustainable energy by 2030. The RtD remains critical for implementing SDG 7 to empower particularly the under-privileged. To operationalise the right to SE4All, energy development policies, plans and strategies should embed in a balanced way the economic, social, and environmental dimensions of sustainability and adopt the implementation mechanisms set out in SDG 17 of the 2030 Agenda. The implementation mechanism/means of implementation advocate, effective use of domestic resources, private business activity, investment, innovation, job creation, international trade monetary and finance, and technology facilitation mechanisms.[19]

a. Economically sustainable energy options

In the economic paradigm of the right to sustainable energy development, emphasis will fall on financing and investment in energy infrastructure projects, energy technology, their commercialisation, and returns on investment to enable the provision of access to electricity and

[16] A/RES/41/128, Article 2(1); A/RES/70/1, paragraph 27.
[17] A/RES/41/128, Articles 4(2) and 10.
[18] Priscilla Schwartz, "Sustainable Energy Infrastructure: Law, Policy and Practice", *International Journal of Private Law*, vol. 2, no. 2 (2009), pp. 135–149; Priscilla Schwartz, "Powering the Right to Development: Sustainable Energy in a Changing Climate", Available at www.ohchr.org/Documents/Issues/Development/Dignity/PriscillaSchwartz.pdf, accessed on 8 on August 2016.
[19] A/RES/70/1, paragraphs 60–63 and 67–70.

modern energy and energy services for all. To ensure this supply side of energy, states and non-state actors will need to allocate financial resources, and adopt innovative financing approaches to fund the development or improvement of energy infrastructure. They can invest in oil and gas exploration and production and diversify increasingly towards renewable energy sources and the adoption of advanced energy technologies that will eliminate emissions, or in advanced fossil fuel and nuclear technologies.[20] Countries' energy polices and strategies should combine use of renewable energy resources, low carbon emission technologies and sustainable use of traditional energy services.[21]

Another aspect of the economic dimension would involve the use of alternative energy strategies for the rational segmentation of energy markets to distinguish non-commercial from commercial models, the latter being market driven, tariff oriented and aimed at profits and cost recovery.[22] The price and cost dynamics are thus vital to ensuring economically viable sustainable energy and they underpin decision-making relating to the energy supply side. SDG 17 of the 2030 Agenda and the Addis Ababa Action Agenda (AAAA) on financing for development,[23] identify various public and private financing mechanisms that states could target in order to address the inherent investment cost burden and price dynamics in energy infrastructure development to ensure accessibility and reliability of supply to their populations.

Multilateral Development Banks (MDBs) are a key to providing such lending and for leveraging contributions and capital and mobilising resources from capital markets on behalf of states. States could opt for a range of financing tools including public- private partnerships, blended finance, nonrecourse project financing, special purpose vehicles risk mitigation instruments and pooled funding structures.[24] For instance, the World Bank is committed to ensuring additional energy access to 65 to 80 million people in sub-Saharan Africa. It has in a "joint engagement" with it member institutions recently approved US$138 million "comprehensive and complementary financial package" for the development of a 57 MW heavy fuel oil, green-field thermal power plant in Sierra Leone – the Western Area Power Generation Project.[25] In accordance with the norms and principles of the RtD, states could use such opportunity to require MDBs' public-financed energy agreements and project agreements (or contracts) to specify accessibility and affordability conditions for the poor as a risk instrument (power supply risk) that can be insured before the commencement of the project.

---

[20] T. B. Johansson, "The Imperatives for Energy and Sustainable Development" in Bradbrook et.al (eds), *The Law of Energy for Sustainable Development* (New York: IUCN Academy of Environmental Law Research Studies, 2012), pp. 46-52.

[21] United Nations. *2012 International Year of Sustainable Energy for All.*

[22] Priscilla Schwartz, "Sustainable Energy Infrastructure: Law, Policy and Practice".

[23] *Outcome document of the Third International Conference on Financing for Development, Addis Ababa, Ethiopia, 13–16 July 2015,* Endorsed by UNGA Resolution 69/313 of 27 July 2015.

[24] Ibid, paragraphs 44 and 70.

[25] World Bank, *Energizing Sustainable Development: Energy Sector Strategy of the World Bank Group*, 11 April 2011 (Washington DC: World Bank); World Bank/WAPGP, *World Bank Group Supports Western Area Power Generation Project in Sierra Leone*, 14 July 2016, Available at http://www.worldbank.org/en/news/press-release/2016/07/14/world-bank-group-supports-western-area-power-generation-project-in-sierra-leone, accessed on 12 July 2017.

A particularly strong mechanism for applying the RtD participatory principles to enhance the political and economic rights of especially developing states and their populations is the innovative infrastructure gap-bridging forum initiative. The forum functions to identify investment opportunities for the infrastructure gap economies, to ensure the sustainability of such investments and encourage arrangements for the transfer of environmentally sound energy technologies to developing countries. The initiative will encourage "greater range of voices to be heard, particularly from developing countries", on how to identify and address the energy infrastructure and capacity gaps in poor countries.[26]

At the domestic level, states should endeavour to enhance their resources including through effective and efficient taxing systems for collection (from the formal and informal sectors), to combat tax evasion and avoidance, and to mobilise the resources to address the rights of their public to enjoy accessible and reliable energy services.[27] States must however also consider rationalising their taxation policies through the lens of human rights especially in deciding from whom they should collect taxes so as to avoid profoundly inequitable and discriminatory effects on the poor.[28]

b. Socially sustainable energy options

Energy policies and strategies that aim to assure the right to energy that is socially sustainable should be robust in scoping the issue-areas of coverage, which may be economic, political, social or cultural, and the diversity of interests that must be assured or protected. Commonly, social sustainability concerns have considered the public interest through strategies to prevent political unrest that may occur in oil producing countries owing to security of supply of fuel.[29] Socially sustainable energy policies should at the baseline, provide the opportunity for people to participate in and contribute to development including energy trade transactions and use of energy technologies that are affordable, socially acceptable and improve well-being overall. Participation and contribution could be measured by energy use (in households, commercial and non-commercial purposes, manufacturing processes, and transportation), the mix of renewable energy and energy efficient technologies, and the range of educational programmes on sustainable energy options that are adopted.

In relation to energy use and social sustainability, strategies to ensure affordability and acceptability should focus mainly on policies and project implications for consumers and on consumption in terms of low energy tariffs and on creating conditions for awareness and attitudinal changes in demand management to promote energy efficiency.[30] Sustainability strategies for managing energy demand should target the point of end use such as, in buildings, lighting, appliances, and private vehicles, to facilitate more efficient use of energy. They should aim to reduce the need for more supply and to address other market or government failures (e.g.

---

[26] *Outcome document of the Third International Conference on Financing for Development, Addis Ababa, Ethiopia*, paragraphs 2 and 14.
[27] Ibid, paragraphs 20 to 27.
[28] Magdalena Sepulveda, "Taxation for Human Rights", *Tax Justice Focus*, vol. 9, issue 2 (2014), pp. 3–4.
[29] A.F. Alhajji, "What Is Energy Security? Economic, Environmental, Social, Foreign Policy, Technical and Security Dimensions", *Oil, Gas and Energy Law*, vol. 3, no. 6 (2008), www.ogel.org/article.asp?key=2787, accessed on 25 July 2017.
[30] Priscilla Schwartz, "Sustainable Energy Infrastructure".

lack of efficiency standards and certification schemes) that prevent the adoption of clean technology and renewable energy technology.[31]

Evidence from Africa shows that energy-efficient technologies like solar-power devices can provide cheap energy services at a low environmental and economic cost especially for transportation and lighting. Such devices have been helpful in supporting economic activity and enhancing livelihoods, providing lighting in street trading, and for charging mobile phones and other appliances.[32] To ensure meaningful participation of consumers, policy makers and other stakeholders, however, such strategies should be accompanied with relevant information on energy efficient laws, the advantages and disadvantages of the technologies, and training needs for relevant groups. They must further apply educational tools like labelling programmes, awareness-raising campaigns, and awards to recognise energy efficient or renewable achievements.[33]

In the area of cooking energy, many poor people in developing States rely on burning fuel wood, amidst the grave implications for their health and well-being. A socially sustainable efficient option has been sought largely in coking stove technology. Several stove models including the "Berkeley-Darfur" stove, "wonder stove" and "clay stove" provide the poor with reliable cooking energy to address the supply and demand for fuel wood and its efficient use.[34]

Similarly, renewable energy can be very instrumental in promoting the RtD especially in empowering the rural poor and local communities through the provision of energy services, development of indigenous technological and manufacturing capacity. Renewable projects have for example, provided support to small and medium enterprises and to rural women to ensure their participation in the renewable energy market opportunities in rural areas. Similar projects integrate capacity-building efforts with renewable energy technology financing grants to buy-down capital costs that increase affordability of solar home systems.[35]

It is important however to stress that ensuring participation in and contribution to an energy RtD would require capacity building within developing states toward innovation and energy technology. The focus of policy in this regard should be to enhance especially indigenous capabilities for low-carbon innovation that could be harnessed by adapting, developing, deploying, and operating low carbon technologies effectively within specific domestic contexts

---

[31] World Bank, *Shock Waves: Managing the Impacts of Climate Change on Poverty, Climate Change and Development* Series (Washington DC: World Bank, 2016); T.B. Johansson, "The Imperatives for Energy and Sustainable Development".

[32] ECOWAS, *Draft Regional Strategy on Energy Efficient Lighting*, (Praia, Cape Verde: ECOWAS, 2014); World Bank, *Shock Waves.*

[33] R.L. Ottinger, "Legal Frameworks for Energy and Sustainable Development", in Bradbrook, et.al (eds), *The Law of Energy for Sustainable Development* (New York: IUCN Environmental Law Research Studies, 2012). pp.103–123; ECOWAS, *Draft Regional Strategy on Energy Efficient Lightning.*

[34] A.S. Miller, "Financing Clean Energy for Development", in Bradbrook, *et al*. (eds), *The Law of Energy for Sustainable Development* (New York: IUCN Academy of Environmental Law Research Studies, 2012), pp. 473–486; Priscilla Schwartz, "Powering the Right to Development".

[35] World Bank, *Energizing Sustainable Development*; A.S. Miller, "Financing Clean Energy for Development".

and circumstances.[36] A more recent energy policy research however advocates a "holistic vision" in policy approach towards an inclusive, decentralised renewables planning, a meaningful integration of the voices of the poor in energy planning, and a "Total Energy Access" delivery means.[37] In other words, the policy, regulatory and financing instruments for holistic energy access and service provision should decentralise energy technologies or clean cooking technologies and mainstream them into holistic energy planning. The policy direction should also aim to include the participation of end-users, the voices of the energy-poor, or the specific market, or finance as appropriate; and the planning and measuring of energy access progress must be done more holistically.

The most empowering RtD tool to ensure a pro-poor sustainable energy agenda is the potential from human waste. Pilot projects in Kenya and Uganda show that human waste holds "significant financial value" and the propensity to provide profound social, environmental, and economic opportunity for economies.[38] Promoting the energy value of human waste using the RtD is totally essential for realising SDG7 for several reasons. First, it could assure social inclusivity and equitable production methods that will place "human beings" at the centre of energy development in their countries. Second, it can provide the opportunity for the poor to participate in, contribute to, and benefit from the energy development process. By attaching a monetary value to both the faeces and to the faeces collection activity, the process could incentivise people to participate by collecting or contributing faeces (individually and collectively) to a government-led industry, a private sector venture, or a public private partnership initiative.

c. Environmentally sustainable energy options

Environmental sustainability and right to sustainable energy policy must involve public interest concerns over the impacts on people, the environment, and the economy as a whole. The main activities and areas of concern are those where the most conflict of interests and trade-offs are likely to take place. These include energy infrastructure development (e.g. petroleum and bio-energy projects), the management of energy product waste and disposal, and decision-making to determine whether the interests of the poor are adequately considered and addressed through appropriate legal frameworks, alongside business rights and interests.

These issues are usually addressed through requirements for public participation in domestic environmental impact assessment (EIA) legislation and international standards like the IFC Performance Standards,[39] and through norms of corporate social responsibility (CSR)[40]. One area

---

[36] R. Byrne, A. Smith, J. Watson, and D. Ockwell, "Energy Pathways in Low-Carbon Development: From Technology Transfer to Socio-Technical Transformation", *STEPS Working Paper*, 46(2011), STEPS Centre Brighton.

[37] Practical Action, *Poor People's Energy Outlook*, paragraphs 6 and 7.

[38] C.J. Schuster-Wallace, C. Wild, and C. Metcalfe, "Valuing Human Waste as an Energy Resource - A Research Brief Assessing the Global Wealth in Waste" (Hamilton, Ontario: UN University Institute for Water, Environment, and Health, 2015.

[39] International Finance Corporation, *Performance Standards for Private Sector Activities*, 2012, available at https://policies.worldbank.org/sites/ppf3/PPFDocuments/090224b0822f7442.pdf, accessed on 25 July 2017.

[40] A/HRC/17/31, annex; International Organization of Standards, *ISO* 26000: *Guidance on Social Responsibility, 2011*, available at http://www.iso.org/iso/iso_catalogue/management_and_leadership_standards/social_responsibility/sr_discovering_iso26000.htm, accessed on 19 August 2016.

in which CSR should be established to enhance peoples' well-being in furtherance of the right to sustainable energy is in the regulation of life cycle impacts of energy products including the regulatory and cost burden for disposal, recycling, and waste management. States should exercise their duty to formulate policies and strategies regarding life cycle costing that will facilitate investment into clean energy products and resources like hydroelectricity that bring gains over their life cycle making them cheaper than fossil fuel.[41]

States could also seek to create favourable environmental conditions for their peoples through energy development by putting in place regulatory standards, labelling requirements and disclosure obligations. For instance, they could apply pollution taxes on polluting products and impose environmental disclosure obligations on utilities.[42] Pollution tax instruments could internalise the costs for damage to society that is caused by polluting energy products and disclosure obligations should aim to influence consumer choices of clean energy products over inefficient ones. The overall effect of these strategies should not only ensure the environmental RtD, but also promote social and economic rights through the promotion of efficient equipment and the efficiency performance of products, contribute to emissions reduction and encourage fierce competition against less market efficient products.[43]

Issues in the RtD and Sustainable Energy Framework

The RtD recognises the sovereignty of states over natural resources within a regulatory framework that balances the three dimensions of sustainable development to ensure SE4All. The implementation options in all sustainability dimensions reveal a trend towards commercialisation of energy resources, services, and energy products within a liberalised market-based framework. This economic bias is supported in the AAAA financing framework to ensure investment, trade, technology development, and transfer, skills trading and competition between multinational companies (MNCs and small and medium enterprises.[44] This could have implications for energy policy design and development planning that equitably meets the needs of the poorest in societies.

In the context of energy infrastructure projects like petroleum or renewable energy (e.g. hydropower) development, investors usually enter a long-term relationship with the host country government through contracts, licences, and a fiscal regime under which investors operate. This is an area where the most market inefficiencies arise, (e.g. for long run production rights, allocation processes and risk potential), rather than in the market for the resources themselves.[45] Therefore, where infrastructure projects are successful, under the design for investments, finance and technology, "accessible" and "reliable" energy may be technically available "for all" but no commercial entities, low-income earners and the poor will be caught by the "affordability" objective of SDG 7. Also, modern energy infrastructure – power plants, oil refineries, transmission systems, and renewable and clean energy systems – are capital-intensive projects

[41] R.L. Ottinger, "Legal Frameworks for Energy and Sustainable Development".
[42] Priscilla Schwartz, "The Polluter- Pays Principle", in Jorge E. Viñuales (ed.) *The Rio Declaration on Environment and Development: A Commentary* (Oxford: Oxford University Press, 2015), pp. 429–449.
[43] ECOWAS, *Draft Regional Strategy on Energy Efficient Lightning.*
[44] *Outcome document of the Third International Conference on Financing for Development, Addis Ababa, Ethiopia,* paragraphs 116–118.
[45] Paul Collier and Anthony Venables, "International Rules for Trade in Natural Resources", *Staff Working Paper ERSD-2010-06* (2010), available at https://www.wto.org/english/res_e/reser_e/ersd201006_e.pdf, accessed on 25 July 2017.

and for developing countries with limited credit and varying needs, lowest costs societal options can be difficult.[46]

While the use of public interest regulatory norms and economic instruments is encouraged, the challenge for policy makers and regulators will be to balance the effectiveness of each instrument to avoid conflicts that might impact on the poor. For instance, subsidies are known to benefit the poor who cannot afford electricity in liberalised markets or who rely on energy for conducting petty-trading. Yet recent policies that aim to discourage fossil fuel consumption advocate the removal of fuel subsidies, while temporary incentives or subsidies are afforded to investors in order to facilitate the introduction of cleaner and new technologies into the market place, which the poor are unlikely to afford.

Similarly, pollution taxes are used to internalise costs for damage to society caused by polluting products while emissions trading schemes create a legal right to pollute, using accumulated emissions trading rights.[47] Neither EIA nor CSR instruments and mechanisms impose strict legal obligations on firms, which enable the poor in particular, to directly claim or seek legal redress other than requiring consultation, participation, and disclosure requirements prior to project commencement. Further, notable issues remain over renewable energy resources relating to costly or inadequate energy supply, conflicts between "incompatible interests" in bio-energy projects and technologies that attract higher prices that squeeze poor people's consumption.[48] All of these could undermine the RtD of the poor in all sustainability frames.

The key challenge to application of the RtD to promoting SDG 7, is how to balance the RtD protected under the DRTD specifically for human beings - individuals and peoples - with the business rights of legal entities, firms and institutions that entail under the SDG17 implementation mechanisms of the 2030 Agenda.[49] Some legal and conceptual clarification will be required from policy makers to assure a wider role to rights-based principles in the implementation of energy rights for the poor in the vital areas of the economic activities identified in the 2030 Agenda. To do so will help guarantee conditions of equal opportunities to all stakeholders and the flexibility to import human rights norms in the interpretation of contractual agreements with firms where appropriate and necessary to protect the public interest. It is pertinent to highlight that the DRTD "confirms that equality of opportunity for development is a prerogative both of nations and of individuals who make up nations".[50]

Conclusion

This chapter has provided a brief overview of the role of natural resources including energy resources in sustainable development policy including SDG 7 of the 2030 Agenda. It has

[46] A.S. Miller, "Financing Clean Energy for Development".
[47] R.L. Ottinger, "Legal Frameworks for Energy and Sustainable Development".
[48] Sanjay Kumar Kar and Piyush Kumar Sihna, "Ensuring Sustainable Energy Security: Challenges and Opportunities for India", *Oil, Gas and Energy Law*, vol. 4 (2014), available at www.ogel.org/article.asp?key=3500, accessed on 25 July 2017; J. Arevalo, P. Halder, J. Kortelainen, and B. Mola-Yudego, "Bioenergy: From Local Conflicts to Global Governance", *Oil, Gas and Energy Law*, vol. 12, no. 4 (2014), available at www.ogel.org, accessed on 25 July 2017; World Bank, *Shock Waves.*
[49] A/RES/70/1, paragraphs 60–63 and 67–70.
[50] A/RES/41/128, Preamble, paragraph 16.

illustrated the synergies between the RtD and the objective of SDG 7, to ensure sustainable energy and energy services for all. It has also shown that the RtD can apply through the economic, social, and environmental dimensions of sustainable development, and has suggested various policy instruments, strategies, and regulatory options that are available to states. They include strategies involving rational segmentation of energy markets to determine affordability, innovative energy financing opportunities for energy infrastructure, renewables, energy-efficient technology, application of fiscal instruments, public interest norms, and regulatory standards, labelling requirements and disclosure obligations.

This chapter has also identified issue areas that energy policy planners, regulators and other stakeholders should consider in decision-making when operationalizing the RtD to implement SDG 7. The key issue areas relate to: market inefficiencies inherent in energy resources projects; costly or inadequate supply of renewable energy; implications for "firm rights" in addressing energy rights from the RtD "human centric" framework; and balancing public interest regulatory norms with economic instruments to avoid conflicts that might impact on the poor. The main emphasis throughout the course however is that it is important to apply the RtD as articulated in the DRTD to understand the broad objectives of SDG 7, and to support the efforts of states to achieve SE4All in a practical and meaningful way, while protecting especially the rights of poor and vulnerable groups.