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Citation

Barral, Virginie. 2018. The Principle of Sustainable Development. In: Ludwig Krämer and Emanuela Orlando, eds. Principles of Environmental Law. Cheltenham: Edward Elgar, pp. 103-114. ISBN 9781785365652 [Book Section]

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The principle of sustainable development

Virginie Barral

Abstract:

The rise of sustainable development as a central theme of modern international legal discourse has occurred over an extraordinarily compact period of twenty to thirty years at the end of the 20th century, and it is to this day undeniably dominating legal thinking in the fields of economic, social and environmental relations. Yet, the principle's broad and evasive texture carries with it significant hesitation as to its meaning, contents and legal implications. Such hesitation is first manifest in the multiplicity of terms associated with the expression, sometimes as a principle, but often as a concept, an objective, a framework or even a discourse or paradigm. It is also apparent in the contrasting opinions relating to its definition and constitutive elements. Arguably however, the variability of the standards attached to sustainable development is a necessary consequence of the evolving nature of the principle and do not prohibit the identification of the inherent constitutive elements of the notion. In addition, sustainable development's wide dissemination in international law is testimony to its legal nature. Sustainable development ultimately operates both as a principle of interpretation to assist the resolution of conflicts of norms or of interest in the judicial process, and as an objective that international subjects must strive to achieve.

Key words: principle, concept, objective of sustainable development; intra-generational equity; intergenerational equity; integration; principle of conciliation or conflict resolution; obligation of means.

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1. Introduction

The rise of sustainable development as a central theme of modern international legal discourse has occurred over an extraordinarily compact period of twenty to thirty years at the end of the 20th century, and it is to this day undeniably dominating legal thinking in the fields of economic, social and environmental relations. After the international community recognised an intimate connection between economic development (or lack thereof) and environmental degradation at Stockholm, in

1972,¹ in the space of a few years a number of initiatives within and outside the United Nations worked on ways to conceptualise this newly discovered and now unavoidable link.² These impulses were significant as they would ultimately lead to a call for a renewed model of economic and social development, one that would break free from traditional economic growth paradigms and that would instead integrate environmental concerns into development choices. It is this new model that the international community pledges to commit to at Rio in 1992 with the adoption of the *Rio Declaration on Environment and Development*, a legally precise, yet non-binding document, laying out the legal contours of a path to sustainable development. The two follow-up summits at Johannesburg in 2002³ and at Rio+20 in 2012,⁴ focused on moving from pledges to action, do not attempt to upset the carefully weighted balance obtained at Rio in 1992. Rather, they confirm the *Rio Declaration* as the reference point for any evaluation of sustainable development's legal implications. The Declaration, however, stops short of offering a definition of the term, and it is to the Brundtland Commission's report that one generally turns for that matter. *Our Common Future* thus posits that sustainable development is to be defined as development that "meets the needs of the present without compromising the ability of future generations to meet their own needs".⁵ Despite its many references, this definition has been criticised for its lack of clarity as well as for overshadowing the original meaning of the concept whose ancient roots could be traced back to 18th century Germany forestry principles.⁶ Alternative proposals reflecting a better balance in favour of ecological integrity have included: "development that does not degrade the biosphere".⁷ A more complete and elaborated definition can be found in the ILA 2002 *New Delhi Declaration of Principles of International Law Relating to Sustainable Development* which states: "the objective of sustainable development involves a comprehensive and integrated approach to economic, social and political processes, which aims at the sustainable use of natural resources of the Earth and the protection of the environment on which nature and human life as well as social and economic development depend and which seeks to realize the right of all human beings to an adequate living standard on the basis of their active, free and meaningful participation in development and in the fair distribution of benefits resulting therefrom, with due regard to the needs and interests of future generations."⁸ Definitional variance points to academic uncertainty and contestation as to sustainable development's meaning and legal implications. However, persistent and deeply rooted trends can be identified. This chapter will first consider the rationalisation of sustainable development as a concept, principle, rule, paradigm or discourse (2) before identifying the core trends explaining sustainable development's meaning (3) and legal significance (4). In a final section important gaps and futures challenges will be discussed (5).

2. Concept, principle, framework, paradigm or discourse?

¹ Stockholm Conference on the Human Environment (UN Doc. A/CONF.14/48/Rev.1 1972).

² World Charter for Nature (UN Doc. AG/RES/37/7 1982); World Conservation Strategy (IUCN 1980); World Commission on Environment and Development, *Our Common Future* (Montreal 1987).

³ World Summit for Sustainable Development (UN Doc. A/CONF/199/20 2002).

⁴ United Nations Conference on Sustainable Development (UN Doc. A/CONF.216/L.1 2012).

⁵ *Op. cit.* note 2 at 51.

⁶ For such criticism see Kim and Bosselmann (2015) 198. On the roots of the principle of sustainable development, see Bartenstein (2005) and Sand (2007).

⁷ See Muys, cited in Kim (2016) 25 note 145.

⁸ ILA, *New Delhi Declaration of Principles of International Law Relating to Sustainable Development*, 2002, annex to resolution 3/2002, preamble para 14, available at

If sustainable development is rarely associated with the term rule⁹ it is frequently referred to as a concept, often as a principle, and sometimes as a paradigm or discourse. Some even see in it a yet broader framework constituting the law of sustainable development.¹⁰ Whether sustainable development falls into one category or another is not without significance, especially if one attempts to elucidate its legal characterisation. A principle can be understood as the formulation of legal values with a high degree of abstraction and generality.¹¹ Such high level of generality will allow the principle to apply to a wide variety of individual situations. Principles, however, require a case by case concretisation of their specific legal implications in the individual circumstances.¹² On that account, a concept, as “an idea of something formed by mentally combining all its characteristics or particulars”,¹³ may well be classed as a principle. And indeed, according to Virally, principles of international law may be formulated as concepts. Such formulation will thus have the effect of condensing a number of legal norms that cannot be concisely expressed but that are inherent to the principle.¹⁴ For this author, a concept will be the most abstract form in which a legal principle may be expressed as all references to the concrete circumstances in which it may apply are thereby suppressed.¹⁵ The core distinction between rules, principles and concepts thus lies in their degree of abstraction and generality,¹⁶ rather than in their capacity to express legal values and to inform conduct. It is however *a priori* more arduous to attach specific legal consequences to a paradigm or a discourse.¹⁷ Yet sustainable development seems to straddle these various classifications, at least in academic discourse.¹⁸ Its most frequent formulation however remains that of a concept or a principle. According to one view, sustainable development’s normative value together with the collective interest in its achievement and its capacity to facilitate the integration of economic, environmental and social factors militate in favour of its recognition as a general principle of law.¹⁹ In judicial practice, whereas the International Court of Justice has seen in it initially a concept²⁰ and more recently an objective,²¹ a new milestone has been reached when the arbitral Tribunal, in the *Indus Waters Kishenganga* case, referred to it as a principle.²² Ultimately and in line with the distinction between concepts and principles, even expressed as a concept, sustainable development can be characterised

⁹ On the distinction between rules and principles see chapter one, this volume.

¹⁰ Sands & Peel (2012) 10. See also Cordonier Segger & Weeramantry (2005 at x).

¹¹ See Dupuy & Kerbrat (2014) 376.

¹² See Virally (1968) 533 and Barral (2015) 210. On another view, principles “point to particular decisions about legal obligations in particular circumstances, but they differ in the character of the direction they give” and state “a reason that argues in one direction, but does not necessitate a particular decision” (Dworkin 1977 at 26).

¹³ *Dictionary.com Unabridged*. Retrieved December 20, 2016 from Dictionary.com website <http://www.dictionary.com/browse/concept>.

¹⁴ See Virally (1968) 534.

¹⁵ *Ibid.*

¹⁶ Dupuy & Viñuales (2015) 52. These authors further consider concepts as guiding norms that are implemented by principles, which, in turn, are realised by rules (at 52).

¹⁷ Dryzek defines a paradigm as generating explanation of aspects of the natural or social world whereas a discourse is composed of shared concepts, categories and ideas that enable actors to understand situations. See Dryzek (2007) 45-46.

¹⁸ Whilst Dryzek views sustainable development as a discourse (2007) 56, Barstow Magraw and Hawke, in the same volume, refer to the notion sometimes as a paradigm, sometimes as a framework and sometimes as a concept (2007) 614 and 621. Dupuy & Viñuales label it a concept (2015) 80, Sands & Peel a principle (2012) 217 as well as Voigt (2008) 147 and 375, and a vast number of other authors including e.g. Maljean-Dubois and Mehdi (2000) 21 and Giuffrida (2004) 1093.

¹⁹ See Voigt (2008) 375.

²⁰ *Gabčíkovo-Nagymaros Project (Hungary v. Slovakia)*, Judgment, ICJ Reports (1997) 7 at para. 140.

²¹ *Pulp Mills on the River Uruguay (Argentina v. Uruguay)*, Judgment, ICJ Reports (2010) 14 at para 177.

²² *Indus Waters Kishenganga (Pakistan v. India)*, Partial award, 18 February 2013 at para 450, available at <http://www.pca.cpa.org>. For an account of these cases, see Barral (2015) 181-187.

as a legal principle, although it may well represent the most abstract formulation of such legal principles. It can further safely be concluded, as will be seen below,²³ that this abstract legal principle formulates an objective to be achieved.

3. Meaning and definitional debates

Despite, or perhaps because of sustainable development's dominance in international environmental discourse, and despite numerous initiatives - including three UN summits - devoted to defining and elaborating this principle, its core meaning and conceptual content is still subject to significant controversies and uncertainty. The concept's high degree of generality and abstraction, which has the advantage of making it applicable to an extraordinarily wide variety of situations, also carries with it the inconvenience that sustainable development may mean very different things to different people to the point of emptying it of any coherent meaning and function. Thus, for Mc Closkey, "its reach is so broad and its hope is so great that it disintegrates when examined closely".²⁴ Sustainable development's success as an inescapable new paradigm of economic, social and environmental relations has encouraged the concept to be appropriated by a variety of remotely related movements. If there is uncertainty and contestation as to the precise meaning of sustainable development, there is an inherent sense that the sustainable development of fossil fuel energies is not in the purview of the principle. Yet the concept's malleability may allow for such distortion of its original meaning. And indeed for some, "no concept of international law has been used and abused more than the concept of sustainable development".²⁵ Whilst it is agreed that sustainable development rests on the integration of three interdependent and complementary pillars: economic development, social development, and environmental protection,²⁶ there is persistent academic contestation as to the respective weight to accord each of these pillars. At one end of the spectrum, Kim and Bosselmann argue for a normative hierarchy between sustainability (as in environmental conservation), and development (as in socio-economic growth and equity), in favour of sustainability on the basis that ecological integrity should constitute a *grundnorm* of international law.²⁷ At the other end of the spectrum, Tolentino seems to view environmental protection as a mere tool conducive to economic growth and long term development.²⁸

The same academic hesitation prevails concerning the identification of the essential components of the concept of sustainable development. The ILA identifies seven core principles instrumental in achieving the objective of sustainable development, and thus arguably constituting its conceptual architecture. These are the duty of states to ensure sustainable use of natural resources; the principle of equity and the eradication of poverty; the principle of common but differentiated responsibilities; the principle of precautionary approach; the principle of public participation and access to information and justice; the principle of good governance; the principle of integration and interrelationship.²⁹

²³ See below section 4 this chapter.

²⁴ Mc Closkey (1999) 157.

²⁵ Dupuy & Viñuales (2015) 79.

²⁶ As clarified as soon as 1997 at Rio +5 (see A/RES/S-19/2) and confirmed regularly ever since.

²⁷ See Kim and Bosselmann (2015) 199 and 204. Voigt also posits that all three pillars of sustainable development should not be treated equally as all activities must be subject to the protection of those essential natural conditions on which human societies depend. See Voigt (2008) 41.

²⁸ See Tolentino (2016) 910.

²⁹ See *New Delhi Declaration of Principles*, above n 8.

Interestingly, and perhaps somewhat surprisingly, the principles of prevention, cooperation and environmental impact assessment (EIA) are not included.³⁰ In contrast, for Birnie, Boyle and Redgwell, the elements of sustainable development include: integration of environmental protection and economic development; the right to development; sustainable utilization and conservation of natural resources; inter-generational equity; intra-generational equity; procedural elements (namely cooperation, EIA, public participation and access to information).³¹ According to Dupuy and Viñuales, the main components of the concept are: the need to take into account the interests of future generations; the duty of every State to exploit its natural resources in a sustainable way; the duty to take into account the interests of other States; and the duty to incorporate environmental considerations into their development policies.³² Sands and Peel, for their part, focus on four key components: the principle of intergenerational equity; the principle of sustainable use; the principle of intra-generational equity and the principle of integration.³³ This handful of examples is representative of the inconclusiveness of the literature attempting to identify the core elements of sustainable development.

There is ultimately a lack of definitive agreement as to what the essential features of sustainable development and those indispensable for its achievement are. Yet such variability seems inherent to a principle that demands adaptation and is subject to evolving economic, social and environmental circumstances. It is by nature an evolutive concept and its components must thus evolve accordingly if sustainable development is to be achieved. The malleability of sustainable development's conceptual architecture is thus not testimony to its lack of texture but simply reflects its nature as a general principle whose precise implications need substantiation on a case by case basis and according to prevalent circumstances.³⁴ It is also possible to distinguish between the core constitutive elements of sustainable development, which are arguably immune to evolving circumstances, and those standards and principles that derive from these inherent features and whose respect and application varies. Sustainable development's inherent frame can be reduced to three elements. Intergenerational equity which refers to the sustainability dimension of the expression; intra-generational equity, which refers to the developmental dimension of the expression; and integration, which is aimed at bridging both dimensions together.³⁵ Intergenerational equity is at the heart of the Brundtland definition and features in principle 3 of the Rio Declaration. It requires states and the current generation to preserve the environmental capital which they do not own but rather hold in trust for future generations. It thus involves a duty to protect the environment and preserve natural resources for the benefit of future generations and to allow them access to an environmental capital capable of meeting their own needs.³⁶ Intra-generational equity,³⁷ for its part, commands the fair distribution of the benefits of economic and social development within one single generation, both at the inter-state level (involving a degree of redistribution from developed to developing states) and intra-state level (involving solidarity and redistribution within one national society). The pursuit of both inter- and intra-generational equity in isolation from each other however would not be conducive to sustainable development and development will arguably only be sustainable when both sets of concerns are duly integrated. The principle of integration, which according to principle 4 of the Rio

³⁰ Though there is a brief mention of EIA under the principle of precautionary approach.

³¹ Birnie, Boyle & Redgwell (2009) 116-122. See also Boyle & Freestone (1999) 8-16.

³² Dupuy & Viñuales (2015) 80. See also Dupuy (1997) 888-892.

³³ Sands & Peel (2012)207. See also Sands (1994 and 1995).

³⁴ See Barral (2012) 382-383, and (2015) 379-382.

³⁵ Barral (2012) 380-381, and (2015) 375-382.

³⁶ See Brown Weiss (1989).

³⁷ See French (2001).

Declaration, requires environmental protection to constitute an integral part of the development process,³⁸ thus confers its specificity to sustainable development and has been referred to the core philosophy underlying the concept.³⁹ However, rather than viewing integration as sustainable development itself,⁴⁰ it is more aptly seen as the key technique for the realisation of the objective of sustainable development.⁴¹ Beyond this irreducible core, the list of standards and principles gravitating around sustainable development and contributing to its achievement may indeed vary *ratione materiae, ratione personae and ratione temporis* in view of sustainable development's intrinsically evolving nature.⁴² However all such standards can be attached to either the intergenerational dimension of the principle (such as the sustainable use of natural resources, the precautionary principle, the principle of participatory decision-making or the principle of prevention) or its intra-generational dimension (such as the right to development, or the principle of common but differentiated responsibilities). The variability thus merely concerns the range of applicable standards in a specific set of circumstances but does not affect the requirement for due respect to sustainable development's inherent core, *i. e.* the achievement of both inter and intra-generational equity through the integration of both concerns.

4. Legal significance

Another question dividing the academic community on the significance of sustainable development is that of its legal nature. Accepting that the principle of sustainable development expresses legal values does not necessarily entail recognition that such principle is capable of constraining the conduct of international subjects and imposing a certain course of action. It may not translate into a legally binding norm. Opinion as to whether the principle of sustainable development may give rise to such a norm varies greatly. For some, the question is beside the point since rather than reflecting a mere principle of international law, sustainable development has to be viewed as a new branch of international law,⁴³ whilst others insist that what matters is its role in the global community rather than its status.⁴⁴ There is evidently truth in the argument that irrespective of its precise legal status, sustainable development plays a crucial role in international environmental relations and beyond. Its prominence in international legal discourse is not merely the consequence of the international community's consecration of the concept in a variety of declarations of principles, plans of application and codes of conduct. Sustainable development has also undeniably exerted its influence over treaty negotiations and now shapes the contents of an extraordinary number of international agreements across a multitude of fields, including economic, environmental and social cooperation but also human rights, peace, scientific research, health, culture, corruption or security.⁴⁵ The principle thus features in more than 300 treaties⁴⁶ with more than 200 inclusions in the operational part of the agreement

³⁸ On the principle of integration see Barral & Dupuy (2015).

³⁹ Boyle & Freestone (1999) 10-12.

⁴⁰ Fitzmaurice (2001) 52.

⁴¹ See Barral, above n 35.

⁴² *Ibid.*

⁴³ See e.g. note 10 and Cordonier Segger & Khalfan (2004); French (2005); Gehring & Cordonier Segger (2005); Schrijver & Weiss (2004).

⁴⁴ Fitzmaurice (2001) 58.

⁴⁵ See Barral (2015) 485-486.

⁴⁶ See Barral (2015) 124 & (2012) 384.

rather than simply in the preamble.⁴⁷ Significantly, the vast majority of these conventions attach to sustainable development the function of an objective.⁴⁸ If the role of sustainable development thus appears to be that of an objective to be achieved, and an objective which clearly influences the content of modern international law in the field of environment and development, the very broad diffusion of the principle in international treaty law nevertheless raises afresh the question, beyond its actual role, of its legal nature and legal significance. One intimately related issue is the question whether the principle has reached customary status and, unsurprisingly, in the absence of clear judicial pronouncement on the matter, there is wide academic divergence on the issue. While most doubt that sustainable development has, as yet, crystallised into a general principle of customary international law;⁴⁹ others consider that if the process of crystallisation may not be fully complete it is nevertheless well under way.⁵⁰ Sands and Peel even go as far as to consider that “there can be little doubt that the concept of ‘sustainable development’ has entered the corpus of international customary law, requiring different streams of international law to be treated in an integrated manner.”⁵¹

Resolving the question of whether sustainable development has crystallised as a general principle of customary law or not arguably does not resolve the issue of the legal operation of that principle. There is, on this latter point, increasing recognition that one central function of the principle of sustainable development is to operate as a principle of interpretation aimed at conciliation⁵² and conflict resolution. For Lowe in particular, as an element of the judicial reasoning process, sustainable development operates as a meta-principle, acting upon other legal rules and principles, pushing and pulling their boundaries when they overlap or conflict with each other.⁵³ The principle thus acts as a modifying or interstitial norm and constitutes a convenient tool of conflict resolution in the hands of judges. Voigt, for her part, argues that the most important aspect of sustainable development being integration, the principle thereby requires a “balance and reconciliation between conflicting legal norms relating to environmental protection, social justice and economic development.”⁵⁴ Following on from Lowe’s theory, she adds that “as a general principle it can be invoked by courts and tribunals to interpret and even modify the application of other norms” and that “by serving the function of a conflict resolution tool it is applied as a principle for decision, rather than a principle for conduct.”⁵⁵ There is growing judicial practice supporting the view that sustainable development may act as an interpretative tool assisting the judge in resolving conflicts of norms or conflicts of interests. It is indeed to this effect that the international judge has had recourse to sustainable development in the *Gabcikovo-Nagymaros project case*,⁵⁶ the *Pulp Mills case*,⁵⁷ the *Iron Rhine case*⁵⁸ or the *Indus Waters Kishenganga case*⁵⁹ which all concerned economic development projects confronting conflicting environmental protection interests.⁶⁰ In the *Iron Rhine* and *Pulp Mills cases* the judge arguably went

⁴⁷ See Barral (2015) 128.

⁴⁸ It is the case for 265 of the treaties identified.

⁴⁹ See Boyle & Freestone (1999) 7; Cordonier Segger & Khalfan (2004) 45; Lowe (1999) 24; Malanczuk (1995) 50.

⁵⁰ See Dupuy (1997) 886; Giuffrida (2004) 1093; Maljean-Dubois & Mehdi (2000) 21.

⁵¹ Sands & Peel (2012) 208.

⁵² See Dupuy & Viñuales (2015) 53.

⁵³ See Lowe (1999) 31.

⁵⁴ Voigt (2008) 374.

⁵⁵ *Ibid.*, at 375.

⁵⁶ *Cit.* above n. 20.

⁵⁷ *Cit.* above n. 21.

⁵⁸ *Award in the Arbitration regarding the Iron Rhine (‘Ijzeren Rijn’) Railway between the Kingdom of Belgium and the Kingdom of the Netherlands*, 27 RIAA (2005) 35.

⁵⁹ *Op. cit.*, note 22.

⁶⁰ For an analysis of these cases, see Barral (2015) 320-331.

even further and used sustainable development to modify pre-existing treaty rules.⁶¹ That sustainable development can act as a principle of conciliation and conflict resolution in the interpretative process thus cannot be doubted. Limiting its operation to this function would however be unduly restrictive. If conceptually sustainable development may have initially represented an attempt to reconcile *a priori* contradictory interests, namely environmental protection and economic development, this vision overlooks the more ambitious dimension of sustainable development as a new social model. A vision where environmental protection and economic and social justice are not mutually exclusive and conflicting concerns which require striking an acceptable compromise but are rather complementary and mutually supportive pillars.⁶² Lassus Saint Geniès argues that whilst in the judicial context sustainable development acts as a principle of conciliation, in the multilateral negotiation context, where common interests are defined, it acts as a principle of mutual support.⁶³ This analysis also tallies well with the function of objective to be achieved conferred on the principle in international agreements. As an objective, sustainable development is to be achieved through the integration (rather than the mere conciliation) of intergenerational and intra-generational equity. And achieving this objective will require certain steps to be taken and certain measures to be adopted. Whilst there is little evidence supporting the proposition that the principle imposes an absolute obligation on states to develop sustainably, international legal subjects are arguably not free to ignore sustainable development's requirements. Instead, the principle may well impose on states a relative obligation, an obligation of means, rather than result, to take appropriate measures⁶⁴ with a view to achieving sustainable development.⁶⁵

5. Gaps and future challenges

Whilst the social dimension of sustainable development has been recognised as an interdependent and complementary pillar of the concept as early as 1997,⁶⁶ it has arguably been somewhat underexplored in academic commentary. Within the social dimension itself, the relationship between culture⁶⁷ and sustainable development would certainly deserve further research. Whereas the link between adoption of a path of sustainable development and the adoption or preservation of cultural models is apparent in relation to traditional knowledge, indigenous communities, climate resilience or biodiversity conservation, few studies have endeavoured to analyse these interactions in a holistic manner.⁶⁸ A related challenge to the achievement of sustainable development is that of the levels of participation, and in particular participation beyond the state. If sustainable development does represent a new social project, commitment to this new project cannot come from the state alone. Rather, it needs the involvement of a much wider array of stakeholders ranging from indigenous communities, to grass roots movements, NGOs, businesses and multinational corporations, as well as

⁶¹ *Ibid.*, at 336-337.

⁶² See Lassus Saint Geniès (2010).

⁶³ *Ibid.*, at 173-174.

⁶⁴ An indication of the measures to be adopted can be found in that variable list of standards and principles attached to the concept.

⁶⁵ For an analysis of sustainable development as an obligation of means see Barral (2015) 343-395, and (2012) 390-393.

⁶⁶ At Rio + 5.

⁶⁷ Note however that Guèvremont sees in it a fourth pillar of sustainable development rather than an aspect of social justice. See Guèvremont (2012-1).

⁶⁸ See for example the work of Guèvremont (2012-1 and 2012-2). See also Vadi (2014).

sub-national institutions such as federated states or cities, and ultimately society as a whole. An exclusively top-down approach is thus ill equipped to deliver the promise of sustainable development. Instead, achieving sustainable development will require the combination of both bottom-up and top-down approaches, with all the complexities and duplication of efforts that these may entail. In this vein, it has been suggested that sustainable development partnerships have the potential to constitute a useful bridge between international commitments and their national implementation.⁶⁹ The multiplication of responsibilities for sustainable development at the sub-national institutional level below only reflects its counterpart at the supra-national level. The lack of institutional coherence for sustainable development at the international level has been pointed out many times,⁷⁰ and the rationalisation brought about by Rio+20 may not have been enough to fully resolve the matter which promises to remain a challenge in the years ahead. Finally the relationship between the Sustainable Development Goals (SDGs) and the principle of sustainable development should offer a useful object of study. In particular implementation of the SDGs may well inform the meaning and operation of the principle and conversely the question may be asked whether the principle of sustainable development should inform and bring coherence to the SDGs?⁷¹

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⁶⁹ See Costa de Oliveira (2014).

⁷⁰ See for example Vatna (2011); Lavallée & Woitrin (2015).

⁷¹ See on this point Kim (2016).

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