

# Conceptual History of Adaptation in the UNFCCC Process

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*While adaptation has, in the last 3 years, become the most fashionable item on the climate policy agenda, this was not always so. Since the early 1990s, numerous scientists and policy makers have been making the case that adaptation has been the overlooked cousin of greenhouse gas mitigation. As both are seen to be of equal importance, the lack of policy on adaptation is interpreted as a political strategy by developed countries to avoid admitting liability and the financial consequences of this admission. A tension between those in favour of mitigation over adaptation activities has strongly characterized the discourse on climate change policy. However, a closer look at the history of the concept of adaptation as applied in the United Nations Framework Convention on Climate Change (UNFCCC) process underscores the original intention that the treaty should focus on reducing the source of climate change, rather than on adapting to the changes. Adaptive capacity was considered to be an indicator of the extent to which societies could tolerate changes in climate, and was not seen as a policy objective. As a result of events that have unrolled since the inception of the UNFCCC, needs and perceptions have shifted. Today, there are strong grounds for having adaptation as a policy goal, but it must be recognized that the UNFCCC, and its Kyoto Protocol in particular, are first and foremost about abating greenhouse gas emissions. Thus, adaptation policy may find a more appropriate home beyond the existing climate change regime.*

merits of each approach with respect to the other has been ongoing among negotiators, policy makers and scholars since the inception of the dialogue on climate change.<sup>2</sup> Separation of mitigation of greenhouse gases from adaptation to climate change in thinking, practice and policy is well documented in the climate change literature,<sup>3</sup> and is evident, not only in relation to law setting, but also in the treatment of the two issues in scientific fora.<sup>4</sup> As a result, the conflict between adaptation and mitigation has become central in framing the science and policy debates on climate change. However, the flavour of the debate has shifted since the 1980s, as perceptions and political perspectives on adaptation have altered. This article explores some of the conceptual directions that thinking on adaptation to climate change has taken since the 1980s and the possible triggers for these shifts.

In order to reverse trends of changes in climate, scientists predominantly agree that anthropogenic sources of greenhouse gas emissions must be limited. In acknowledgement of this need, the international community adopted the UNFCCC in 1992 as the global legal policy framework for doing this. Not without reason therefore, policy on climate change has primarily emerged as mitigation policy, particularly focused on energy.<sup>5</sup> Kates remarks that the Intergovernmental Panel on Climate Change (IPCC), the scientific body supporting the UNFCCC process, reflected this prioritization in its earliest reports, which paid only scant attention

## INTRODUCTION: EMERGENCE OF ADAPTATION AS A POLICY RESPONSE

Although adaptation and abatement of greenhouse gas emissions (mitigation) are both set out in the United Nations Framework Convention on Climate Change (UNFCCC)<sup>1</sup> as responses to anthropogenic climate change, a dichotomy between the two as policy approaches has emerged as one of the most striking features of the discussion on how to respond. A fervent debate on the

<sup>2</sup> M. Oppenheimer and A. Petsonk, 'Global Warming: Formulating Long-Term Goals', in D. Michel, *Climate Policy for the 21st Century: Meeting the Long-Term Challenge of Global Warming*, pre-publication version (Center for Transatlantic Studies, 2004); T.J. Wilbanks *et al.*, 'Possible Responses to Global Climate Change: Integrating Mitigation and Adaptation', 45:5 *Environment* (2003), 28–38; E. Boyd, *et al.*, 'UNFCCC COP-8 Highlights: Wednesday, 30 October 2002', 12:207 *Earth Negotiations Bulletin* (2002), 1–2; and R. Verheyen, 'Adaptation to the Impacts of Anthropogenic Climate Change – The International Legal Framework', 11:2 *RECIEL* (2002), 129–143.

<sup>3</sup> S. Cohen, *et al.*, 'Climate Change and Sustainable Development: Towards Dialogue', 8:2 *Global Environmental Change* (1998), 341–371.

<sup>4</sup> S. Huq and M. Grubb, *Scientific Assessment of the Inter-relationships of Mitigation and Adaptation*, paper prepared for AR4 Scoping Meeting (8 August 2003), available at <<http://www.ipcc.ch/activity/cct2a.pdf>>.

<sup>5</sup> R.J.T. Klein, E.L. Schipper and S. Dessai, 'Integrating Mitigation and Adaptation into Climate and Development Policy: Three Research Questions', 8 *Environmental Science and Policy* (2005), 579.

<sup>1</sup> United Nations Framework Convention on Climate Change (UNFCCC) (New York, 9 May 1992).

to adaptation, vulnerability or equity.<sup>6</sup> Because of this focus on mitigation rather than adaptation in both scientific and policy fora, a number of scholars made the case in the 1990s for adaptation to 'occupy a more prominent role in climate policy'.<sup>7</sup> A move in this direction has now begun. Since agreement on the 2001 Marrakesh Accords<sup>8</sup> under the UNFCCC, focus on adaptation as a policy response to climate change flourished and adaptation projects have mushroomed. Indeed, even the UNFCCC has adopted a vital work programme on adaptation, which can certainly be considered the highest pinnacle for adaptation policy so far. However, to understand fully why this process took so long, we must appreciate the underlying reasons, which range from divergent political interest to a shift in scope of the definition of adaptation.

This article investigates the conceptual history of adaptation under the UNFCCC. It begins by exploring the dichotomy between adaptation and mitigation as it has evolved. The article looks back at the inception of political negotiations on a climate change convention, analysing past literature and discussions with key individuals. Based on this background, it discusses the conceptual evolution of adaptation. In conclusion, it looks at the current understanding and status of adaptation under the UNFCCC, suggesting that adaptation may now have reached its most important crossroads yet in terms of both discourse and policy.<sup>9</sup>

<sup>6</sup> R.W. Kates, 'Climate Change 1995: Impacts, Adaptations, and Mitigation', 39:9 *Environment*, (1997), 29.

<sup>7</sup> R.A. Pielke, 'Rethinking the Role of Adaptation in Climate Policy', 8:2 *Global Environmental Change* (1998), 159, at 160.

<sup>8</sup> *Report of the Conference of the Parties on its Seventh Session, held at Marrakesh from 29 October to 10 November 2001* (FCCC/CP/2001/13/Add.1, 21 January 2001) (Marrakesh Accords).

<sup>9</sup> The interpretation in this article is based on discussions with key individuals involved in formulating the UNFCCC and early work of the Intergovernmental Panel on Climate Change and the Advisory Group on Greenhouse Gases. Other relevant information is found in the Noordwijk Declaration on Atmospheric Pollution and Climatic Change (Doc. No A/C.2/44/5, 1989), Annex, the Ministerial Declaration of the Second World Climate Conference (Doc. No A/45/696/Add.1, 1990), Annex III, documents of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change (INC) *Mechanism and Technical and Financial Support to Developing Country Parties, Synthesis Report on Adaptation* (Doc. No A/AC.237/68, 11 August 1994); *Report of the INC for a Framework Convention on Climate Change on the Work of its Tenth Session held at Geneva from 22 August to 2 September 1994* (Doc. No A/AC.237/76, 10 October 1994); *Submissions from Parties or Other Member States on the Specific Near-Term Priorities and Needs of Developing Countries, Adaptation and Issues Related to the Financial Mechanism* (Doc. No A/AC.237/Misc.38, 17 July 1994); *Preparation of a Framework Convention on Climate Change: Set of Informal Papers Provided by Delegations, related to the Preparation of a Framework Convention on Climate Change* (Doc. No A/AC.237/Misc.1/Add.3, 18 June 1991); *Report of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change on the Work of its 4th session, held at Geneva from 9 to 20 December 1991* (Doc. No A/AC.237/15, 29 January 1991); 'Elements Related to Mechanisms', Draft Annex Relating to Insurance Submitted by Vanuatu (Doc. No A/AC.237/WG.II/CRP8, 17 December 1991) and the UNFCCC text itself, n. 1 above.

## ADAPTATION AND MITIGATION AS RESPONSES TO CLIMATE CHANGE

In looking at how to address climate change, some have made the case that individuals and society will be able to adapt to changes in climate just as they have since humankind's first appearance on Earth,<sup>10</sup> and, thus, explicit policy on adaptation is not necessary.<sup>11</sup> Another perspective holds that while all societies are either adapted or adapting to their climate to some extent, capacity to adapt to new variability and more rapid changes differs significantly and adaptation must be supported by policy. The former argument that adaptation could be left aside to 'happen' could be justified rather easily in the early stages of political negotiation when there was considerable hope that policy action could mitigate climate change<sup>12</sup> for two main reasons: there was faith in the extent to which mitigation would be possible and effective; and there was uncertainty over the extent to which climate change would occur and thereby how to adapt. In addition, there were several political and conceptual reasons why adaptation was left off the agenda. However, the most recent science confirms that climate change is not a distant prospect but a current reality. It has consequently been recognized that what can be achieved through mitigation at this stage may be insufficient for avoiding or even reducing certain features of climate change. It is consequently recognized that other responses – particularly adaptation – are necessary.<sup>13</sup> Thus, proponents of adaptation during the 1990s have finally had their voices heard.

Broadly, three schools of thought<sup>14</sup> can be discerned from the literature over time with regard to responding to climate change: the 'limitationist' view, where action to reduce greenhouse gas emissions (mitigation) is the core of efforts;<sup>15</sup> the 'adaptationist' view, where no explicit action is required as the 'invisible hand of either natural selection or market forces' will ensure that societies will adjust to the changes;<sup>16</sup> and the

<sup>10</sup> J.H. Ausubel, 'Does Climate Still Matter?', 350 *Nature* (1991), 649–652.

<sup>11</sup> Cf. B. Smit, *Adaptation to Climatic Variability and Change: Report of the Task Force on Climatic Adaptation*, Occasional Paper (Department of Geography, University of Guelph Canadian Climate Program, 1993).

<sup>12</sup> See T.J. Wilbanks *et al.*, n. 2 above.

<sup>13</sup> M. Parry *et al.*, 'Adapting to the Inevitable', 395:6704 *Nature* (1998), 741.

<sup>14</sup> A fourth approach has recently emerged from behind a political agenda to dismiss the integrity of the Kyoto Protocol which emphasizes adaptation as the only option; K. Okonski (ed.), *Adapt or Die: The Science, Politics and Economics of climate change* (Profile Books, 2003).

<sup>15</sup> R.W. Kates, 'Cautionary Tales: Adaptation and the Global Poor', 45:1 *Climatic Change* (2000), 5, at 6.

<sup>16</sup> *Ibid.*, at 6.

more recently expressed 'realist' view, where climate change is considered a fact, uncertainty of impacts acknowledged, and adaptation is considered a 'crucial and realistic response option along with mitigation'.<sup>17</sup> Kates notes that both the 'limitationist' and 'adaptationist' views have discouraged research on adaptation,<sup>18</sup> particularly as the 'limitationist' view holds that focus on adaptation would undermine incentives to reduce emissions.<sup>19</sup> Klein says that emerging policy responses, such as the funds created by the Marrakesh Accords to finance adaptation under the UNFCCC and Kyoto Protocol,<sup>20</sup> reflect that a 'realist' view has now been adopted.<sup>21</sup> This is also one that recognizes the vulnerability and lack of capacity of developing countries to adapt to climate change, which is seen as ignored by the other two extreme views.<sup>22</sup> It is also the only perspective that supports a complimentary approach between adaptation and mitigation, a view that has only very recently emerged.

## THE DICHOTOMY: ADAPTATION VERSUS MITIGATION

While mitigation focuses on the source of climate change, adaptation addresses its consequences. The relationship between adaptation and mitigation is such that, in theory, the more mitigation that takes place, the less adaptation will be needed, and vice versa.<sup>23</sup> Nevertheless, the impacts of mitigation will not be immediately evident, just as the full effects of current greenhouse gas emissions will not be experienced for many years due to the inertia in the global climate system. Mitigation is also slow due to lags in the implementation of effective policies,<sup>24</sup> including the delay in the entry into force of the framework for emissions reductions under the Kyoto Protocol. On the other hand, the results of adaptation efforts will have near-term visibility because of strong links with development initiatives. Those in favour of promoting adaptation policy made the case in the 1990s that adaptation had been sidelined by the climate change negotiations through explicit

emphasis on mitigation embodied by the negotiations on the instrument that became the Kyoto Protocol, urging for adaptation to be given greater prominence in the climate change debate.<sup>25</sup> Thus, while adaptation and mitigation are different types of responses, they have been pitted against each other.

In examining the literature, it is possible to identify a number of specific reasons why adaptation has not been granted as much attention as mitigation from the start. For one, adaptation was viewed as a 'defeatist' option, and support for it was considered an acknowledgement that climate change impacts would require adjustments beyond normal behaviour,<sup>26</sup> as well as an admission that mitigation would be insufficient or ineffective. In the context of building support for a mitigation framework, a focus on adaptation was therefore seen as unconstructive.<sup>27</sup> Further, there was a view that identifying adaptation options would be tantamount to admitting that climate change was really occurring<sup>28</sup> in the times of high scientific uncertainty and a distinct rift between 'believers' and 'climate sceptics'.<sup>29</sup> Burton claims that it was 'dangerous'<sup>30</sup> as it might also demonstrate a country's lack of discipline towards emissions limitation, and countries proposing adaptation would be seen as 'closet polluters'.<sup>31</sup> The adaptation approach was associated with not only a 'fatalistic and optimistic' view, similar to a 'do nothing' strategy, but also with 'faith in scientific progress', because it was considered that adaptation efforts would primarily come from technical and technological solutions.<sup>32</sup>

Discussing the funding of adaptation was also considered 'an implicit acceptance of responsibility for causing climate change',<sup>33</sup> something that touched too much

<sup>17</sup> R.J.T. Klein, 'Adaptation to Climate Variability and Change: What is Optimal and Appropriate?', in C. Giupponi and M. Schechter (eds), *Climate Change and the Mediterranean: Socio-Economic Perspectives of Impacts, Vulnerability and Adaptation* (Edward Elgar, 2003), at 2.

<sup>18</sup> Kates originally proposed this view in a 1997 paper, where he used the term 'preventionist' instead of 'limitationist'. His observations on the lack of research on adaptation stem from this initial paper; see R.W. Kates, n. 6 above, at 32.

<sup>19</sup> See R.W. Kates, n. 15 above, at 6.

<sup>20</sup> Kyoto Protocol (Kyoto, 11 December 1997).

<sup>21</sup> See R.J.T. Klein, n. 17 above, at 2.

<sup>22</sup> See R.W. Kates, n. 15 above.

<sup>23</sup> See S. Huq and M. Grubb, n. 4 above.

<sup>24</sup> S. Huq, personal communication via electronic mail (24 February 2004); I. Burton, *Mitigation and Adaptation: The Case for Separation*, Paper Presented at Mitigation and Adaptation: Towards a Mutual Agenda Workshop (Essen, 15–16 May 2003).

<sup>25</sup> B. Apuuli *et al.*, 'Reconciling National and Global Priorities in Adaptation to Climate Change: With an Illustration from Uganda', 61:1 *Environmental Monitoring and Assessment* (2000), 145–159; I. Burton, 'Deconstructing Adaptation . . . and Reconstructing', 5:1 *Delta* (1994), 14–15; R.A. Pielke, n. 7 above.

<sup>26</sup> See M. Parry *et al.*, n. 13 above, at 741.

<sup>27</sup> See I. Burton, n. 25 above.

<sup>28</sup> D. Sarewitz and R.A. Pielke, Jr, 'Breaking the Global Warming Gridlock', 286:1 *The Atlantic Monthly* (July 2000), 54–64, available at <<http://www.theatlantic.com/cgi-bin/o/issues/2000/07/sarewitz.htm>>.

<sup>29</sup> An example of climate sceptics is the Global Climate Coalition (GCC), a lobbying group representing large businesses, primarily in the USA, including Exxon, Shell Oil and other petroleum companies. The various members had been questioning the science behind the calls for the UNFCCC since the early days, and was active as a group between 1997 and 2002. In the early 2000s, several GCC members left in recognition of the need to embrace opportunities for responding to climate change, rather than ignore the reality of climate change.

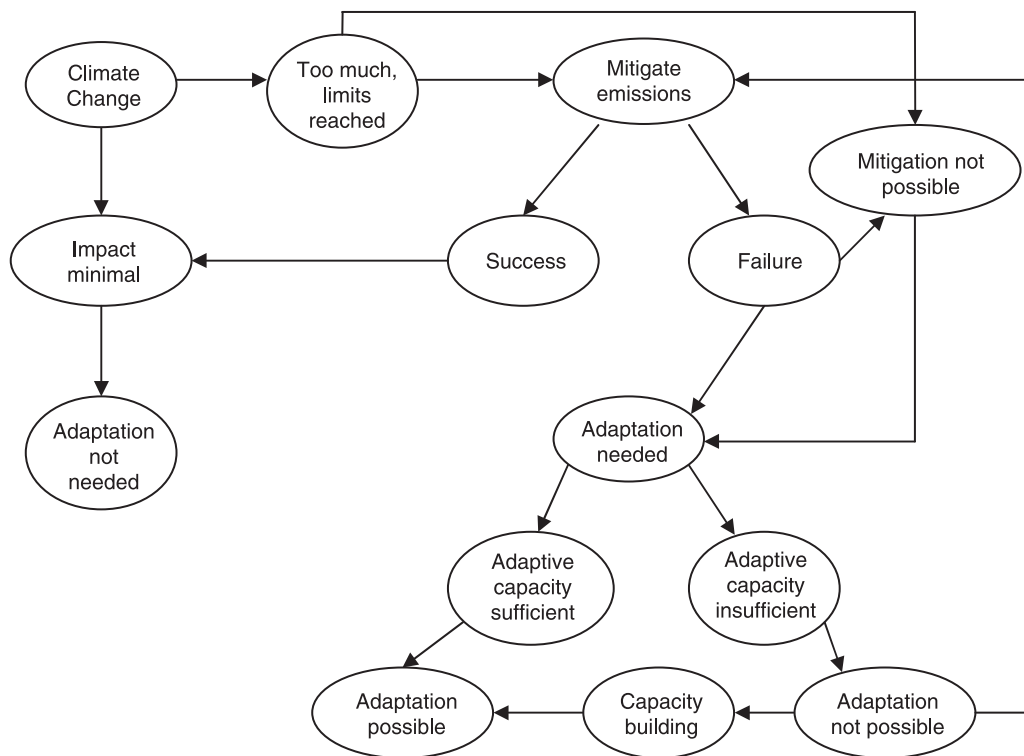
<sup>30</sup> See I. Burton, n. 25 above, at 14.

<sup>31</sup> See I. Burton, n. 24 above, at 3.

<sup>32</sup> A.D. Tarlock, 'Now, Think Again About Adaptation', 9 *Arizona Journal of International and Comparative Law* (1992), 169, at 172.

<sup>33</sup> P. Sands, 'The United Nations Framework Convention on Climate Change', 1:3 *RECIEL* (1992), 270, at 275.





**FIGURE 1** PATHWAYS FOR RESPONDING TO CLIMATE CHANGE

on the highly politicized early debate surrounding accountability. To this end, adaptation was implicitly linked with discussions on liability and compensation, which developed countries wanted to avoid.<sup>34</sup> There is also an indication that some developing countries were fearful that discussions on adaptation would derail developed-country commitments to mitigation of greenhouse gas emissions.<sup>35</sup> As a result, the policy debate in the early 1990s was ‘framed as a choice between mitigation and adaptation’.<sup>36</sup>

In terms of cost-effectiveness and urgency, adaptation was considered secondary to mitigation because adaptation was seen as a long-term strategy that should be undertaken once the effects of climate change were more

evident.<sup>37</sup> Another complication was that the UNFCCC only addresses anthropogenic climate change and does not extend to climate variability. Lack of scientific evidence has been a constraint to distinguishing between the two, although according to the IPCC’s most recent reports, this distinction is negligible when climate change is defined as including variability.<sup>38</sup> Nevertheless, this too contributed to creating an additional methodological barrier to advancing adaptation work under the UNFCCC.<sup>39</sup>

These possible pathways, as illustrated by figure 1, clearly influenced those drafting the UNFCCC. In this context, Bodansky comments on the interpretation of Article 2 of the UNFCCC,<sup>40</sup> which states the objective of the convention (box 1) as favouring mitigation over adaptation. The objective was specified in the Second World Climate Conference Ministerial Declaration<sup>41</sup>

<sup>34</sup> P. Vellinga, personal communication via telephone (October 2003).

<sup>35</sup> O. Pilifosova, ‘Where is Adaptation Going in the UNFCCC?’, in A.C. de la Vea-Leinert, R.J. Nicholls and R.S.J. Tol (eds), *Proceedings of SURVAS Expert Workshop on European Vulnerability and Adaptation to Impacts of Accelerated Sea-Level Rise (ASLR)* (Hamburg, 19–21 June 2000), available at <<http://www.survas.mdx.ac.uk/pdfs/2volwher.pdf>>.

<sup>36</sup> See A.D. Tarlock, n. 32 above, at 170. This is particularly documented in US literature, where the Government was encouraging the private sector to make a choice as to whether they would mitigate, prevent or adapt to climate change. As quoted in W.A. Morrissey, *Global Climate Change: A Concise History of Negotiations and Chronology of Major Activities Preceding the 1992 UN Framework Convention*, CRS Report for US Congress (1998), available at <<http://www.cnie.org/NLE/CRSreports/Climate/clim-6.cfm>>: ‘The selection of any particular (strategy) package . . . is a largely political choice of preferred means to achieve the overall policy goal’.

<sup>37</sup> I. Burton, ‘Adaptation to Climate Change and Variability in the Context of Sustainable Development’, in L. Gómez-Echeverri (ed.), *Climate Change and Development* (Yale School of Forestry and Environmental Studies and United Nations Development Programme, 2000).

<sup>38</sup> J.T. Houghton et al. (eds), *Climate Change 2001: The Scientific Basis*, IPCC WG I contribution to the TAR (Cambridge University Press, 2001).

<sup>39</sup> See O. Pilifosova, n. 35 above.

<sup>40</sup> D. Bodansky, ‘The United Nations Framework Convention on Climate Change: A Commentary’, 18:2 *Yale Journal of International Law* (1993), 451–558.

<sup>41</sup> See UNGA, Ministerial Declaration of the Second World Climate Conference, n. 9 above.

**BOX 1 UNFCCC OBJECTIVE**

UNFCCC, Article 2: Objective:  
 'The ultimate objective of this Convention and any related legal instruments that the Conference of the Parties may adopt is to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.'

Source: United Nations, 'United Nations Framework Convention on Climate Change', in *Report of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change on the Work of the Second Part of its Fifth Session, held at New York from 30 April to 9 May 1992: Addendum (Doc. No A/AC.237/18 (Part II)/Add.1, Annex I, 16 October 1992).*

and the Noordwijk Declaration,<sup>42</sup> which state that 'stabilizing the atmospheric concentrations of greenhouse gases is an imperative goal'.<sup>43</sup> Although this phrase did not survive the negotiations on the final convention text, Article 2 describes stabilization of greenhouse gas concentrations as the primary action.<sup>44</sup> It is the latter section of the article regarding food production and economic development, not adaptation of ecosystems, which is interpreted as supporting human adaptation.<sup>45</sup> As described above, at the time of writing the convention text, it was believed that mitigation was a greater priority, because mitigation was considered the most effective method for responding to climate change. It was in this sense an 'upstream' approach, like those advocated by environmentalists for dealing with pollution problems, and the model appropriate for the previously negotiated Montreal Protocol<sup>46</sup> and action on acid rain,<sup>47</sup> where those countries that were

the source of the problem were also responsible for taking action to mitigate and consequently had to bare the associated costs. Vellinga recalls that the predominantly Organization for Economic Cooperation and Development (OECD)-member writing and research team were fearful of the potential costs their countries would face with respect to providing funding to developing countries to respond to the changes in climate.<sup>48</sup>

Thus, mitigation was the policy response of choice in the early stages of the UNFCCC because adaptation was considered only the secondary response, and a controversial one at that. This has also implied that literature and research on each of the two responses have advanced at different speeds: much more work has been carried out on mitigation,<sup>49</sup> creating a lack of understanding and consensus about adaptation. Because of the challenges to furthering adaptation policy, the adaptation discourse stemming from those seeking stronger policies on adaptation was strongly influenced by a need to justify equivalent treatment of adaptation and mitigation. Due to delays in the implementation of the Kyoto Protocol, however, adaptation emerged as the only viable option for furthering climate change policy. So, whereas thinking originally suggested that there could be a choice between whether to mitigate emissions or to adapt to the changes, this perspective has largely disappeared from the mainstream. On the other hand, it is still recognized that whereas mitigation comes down to following regulations and making conscious changes in production, transport and other service industries, adaptation will not be an optional action. Nordhaus makes the point regarding our choices succinctly: 'Mitigate we might; adapt we must'.<sup>50</sup> Thus, the question is simply whether capacity is sufficient to undertake the necessary adaptation. But this shift has happened quite unexpectedly and not quite as logically as may be expected. The conceptual understanding of adaptation to climate change has also evolved throughout the UNFCCC negotiations and has had a strong influence on the development of adaptation policy as well.

## CONCEPTUAL SHIFT IN THINKING ABOUT ADAPTATION

Waggoner noted in the early 1990s that 'the first obstacle to adaptation is reluctance to contemplate it',<sup>51</sup> reflecting the political atmosphere during the UNFCCC's

<sup>42</sup> See UNGA, Noordwijk Declaration on Atmospheric Pollution and Climatic Change, n. 9 above.

<sup>43</sup> *Ibid.*, para. 8.

<sup>44</sup> 'United Nations Framework Convention on Climate Change', in *Report of the Intergovernmental Negotiating Committee for a Framework Convention on Climate Change on the Work of the Second Part of its Fifth Session, held at New York from 30 April to 9 May 1992: Addendum (Doc. No A/AC.237/18 (Part II)/Add.1, Annex I, 16 October 1992).*

<sup>45</sup> See S. Huq, n. 24 above; P. Sands, n. 33 above.

<sup>46</sup> Protocol on Substances that deplete the Ozone Layer (Montreal, 16 September 1987).

<sup>47</sup> An early proposal for a 'Law of the Atmosphere' to address atmospheric changes, including acid rain, ozone depletion and climate change as part of one legal instrument, rather than in separate protocols, recognized the interdependence of these issues; I. Burton, 'Human Dimensions of Global Change: Toward a Research Agenda', in N.J. Rosenberg *et al.* (eds), *Greenhouse Warming: Abatement and Adaptation* (Resources for the Future, 1989). Advocated by Canada in the late 1980s, this initiative eventually lost out to the option for a convention specifically on climate change; see D. Bodansky, n. 40 above.

<sup>48</sup> See P. Vellinga, n. 34 above.

<sup>49</sup> See T.J. Wilbanks *et al.*, n. 2 above; S. Fankhauser, *The Costs of Adapting to Climate Change*, GEF Working Paper No 16 (GEF, 1999).

<sup>50</sup> W.D. Nordhaus, *Managing the Global Commons: The Economics of Climate Change* (Massachusetts Institute of Technology, 1994), at 189.

<sup>51</sup> P.E. Waggoner, 'Now, Think of Adaptation', 9 *Arizona Journal of International and Comparative Law* (1992), 137, at 146.

infancy. This sentiment would also have resonated with many adaptation scholars 10 years after being made, although then it would not have been as accurate. A look at changes in interpretations of adaptation in the climate change science and policy provides further insight into how adaptation has been left 'behind' in climate policy. Such an examination informs us that the original understanding of what adaptation meant

differs from how adaptation is currently understood. The first indication is found by looking at how adaptation was defined in the early 1980s. The subsequent conferences, workshops and research have contributed a shift in interpretation of the concept, which has now become associated with developing-country interests, as shown in table 1. This section indicates how the science and negotiations that produced the UNFCCC

**TABLE 1** HISTORICAL FRAMING OF CLIMATE CHANGE DEBATE AND ADAPTATION THINKING

TIME FRAME	FORUM	MAIN QUESTIONS	STRATEGIES
<i>CLIMATE CHANGE DEBATE</i>			
1960s–1970s	World Meteorological Organization Climate scientists	Is climate change an issue we need to worry about? How will climate change affect the weather?	Weather modification, monitoring
Mid-1980s–early 1990s	IPCC INC UNFCCC COP	Is climate change occurring? How will climate change affect global ecosystems and humanity? Who should be responsible for reducing emissions?	Global emissions reductions regime, activities implemented jointly/joint implementation
Late 1990s–early 2000s	UNFCCC COP Regional decision makers	What are the relative costs of mitigation and adaptation? How vulnerable are communities to variability and its consequences?	Planned adaptation strategies
<i>ADAPTATION THINKING</i>			
1970s–early 1980s	Club of Rome Academics	What are the ecological limits to human development and growth? How can we respond to climate change? What sort of impacts can systems sustain? Will systems adapt automatically?	Individual adaptation
Late 1980s	Advisory Group on Greenhouse Gases IPCC	What will the impacts be? How much adaptation are society and ecosystems capable of? How much can ability to adapt offset need to mitigate?	Ecosystem adaptation
Early 1990s	IPCC INC	Is mitigation more important than adaptation for responding to climate change? Mitigation and adaptation as alternatives to responding to climate change.	UNFCCC
Late 1990s	UNFCCC COP Research bodies	How can policy support adaptation? Who is vulnerable to climate change and why? Climate change will occur – adaptation will be necessary. Close link between adaptation and development.	Vulnerability and impact assessments Adaptation policy
Early 2000s	UN Development Programme/ Global Environmental Facility World Bank and donor agencies Research bodies IPCC Third Assessment Report	What constitutes adaptive capacity? How can adaptation be integrated into existing sustainable development plans? What is needed to mainstream adaptation? How can adaptation policy be designed?	Development policy programmes and projects by multi-lateral and bi-lateral donor agencies

Source: climate change debate information adapted from Miller *et al.*, *Shaping Knowledge, Defining Uncertainty: The Dynamic Role of Assessments*, Background Paper to A Critical Evaluation of Global Environmental Assessments: The Climate Experience Workshop (College of the Atlantic in Bar Harbor, Maine, 22–26 June 1997) under the Global Environmental Assessment Project, Harvard University, CARE/IGES and IIASA, available at <<http://grads.iges.org/geaproject1997/1997>>.

reflected an initial application of adaptive capacity as a way to assess how much mitigation was needed. This also helps to explain further why adaptation was interpreted as secondary to mitigation, and the consequent bias toward mitigation.

In the years of drafting the UNFCCC, scientists working on adaptation issues considered adaptive capacity to be a measure of the limits to responding to climate change,<sup>52</sup> in line with the Club of Rome's 1972 report *The Limits to Growth*.<sup>53</sup> More precisely, the emphasis was on the 'ecological limits or levels of tolerance'.<sup>54</sup> This was referred to as 'tolerable limits', building on the original work in 1975 by economist William Nordhaus to examine what these limits might be.<sup>55</sup> The focus was on how much a system could be stressed before it would collapse, an essentially ecological approach, although both ecosystems and human systems were considered. Climate scientists meeting in Villach, Austria, in 1987 attempted to address the question of how much climate change could be tolerated by ecosystems and society.<sup>56</sup> In direct response to this, the Advisory Group on Greenhouse Gases<sup>57</sup> (AGGG) developed climate change targets and indicators in 1990 for estimating the 'limits' of temperature and sea-level rise that could be tolerated by nature.<sup>58</sup> The Second World Climate Conference Ministerial Declaration in 1990 recommended that 'limitations and adaptation measures be addressed',<sup>59</sup> thus picking up on the concept of ecological and social limits of climate change being defined by the extent of human and ecosystem capacity to adapt to the changes. From this perspective, capacity to adapt was considered something inherent in ecosystems and society, therefore not requiring explicit policy. Bodansky highlights the view that if adaptation to climate change is possible, 'such change could be viewed as benign'.<sup>60</sup> Thus, the amount of mitigation necessary was dependent on these limits – societies

and ecosystems could adapt to a certain amount of change, but beyond that limits would be breached.

On the policy front, adaptation appeared primarily on the agenda of small island developing States (SIDS), although the 1992 World Conference on Environment and Development<sup>61</sup> underscored a four-track approach for managing climate change, of which the final one mentioned strategies for adaptation: (1) improved monitoring and assessment of the evolving phenomena; (2) increased research to improve knowledge about the origins, mechanisms and effects of the phenomena; (3) the development of internationally agreed policies for the reduction of the causative gases; and (4) adoption of strategies needed to minimize damage and cope with the climate changes, and rising sea level.<sup>62</sup> The UNFCCC does not define adaptation, but during the convention's intergovernmental negotiating committee (INC) process, a submission by Australia and New Zealand identified it as 'all purposeful and deliberate activity taken in response to or in anticipation of the adverse effects of rapid climate change'.<sup>63</sup> At the Tenth INC (INC-10), they proposed to develop a research and policy framework on adaptation that would, among other things, elaborate an agreed definition of adaptation;<sup>64</sup> however, this never took place. The Alliance of Small Island States (AOSIS) had early on proposed a set of tasks on adaptation for the UNFCCC, highlighting, in particular, funding related to adaptation activities.<sup>65</sup> AOSIS had been an advocate of greater emphasis on adaptation throughout the negotiations process, and had been granted recognition of the importance of protecting SIDS from sea-level rise in Agenda 21.<sup>66</sup> In its 1991 proposal to the INC, AOSIS stressed the importance of addressing sea-level rise

<sup>52</sup> See P. Vellinga, n. 34 above.

<sup>53</sup> D.L. Meadows *et al.*, *The Limits to Growth* (Universe Books, 1972).

<sup>54</sup> S. Boehmer-Christiansen, 'Global Climate Protection Policy: The Limits of Scientific Advice, Part 1', 4:2 *Global Environmental Change* (1994), 140, at 151.

<sup>55</sup> See M. Oppenheimer and A. Petsonk, n. 2 above.

<sup>56</sup> W.E. Franz, *The Development of an International Agenda for Climate Change: Connecting Science to Policy*; IIASA Interim Report IR-97-034/ August (Harvard University and International Institute for Applied Systems Analysis, 1997).

<sup>57</sup> The AGGG was established in 1986 by the World Meteorological Organization, United Nations Environment Programme (UNEP) and International Council of Scientific Unions (ICSU) as an expert group on climate change science responsible for organizing workshops and promoting studies. To some, the AGGG is seen as the precursor to the IPCC, although the purpose and agenda of the two bodies are not identical.

<sup>58</sup> F.J. Rijsberman and R.J. Swart (eds), *Targets and Indicators of Climate Change* (Stockholm Environment Institute, 1990).

<sup>59</sup> UNGA, Ministerial Declaration of the Second World Climate Conference, n. 9 above, para. 14.

<sup>60</sup> See D. Bodansky, n. 40 above, at 500.

<sup>61</sup> This was based on scientific findings from meetings that took place from 1980 to 1987 in Villach, Austria, and Bellagio, Italy, organized by the World Meteorological Organization, UNEP and ICSU. The conferences concluded that an enhanced greenhouse effect was evident and that negative impacts on human beings and ecosystems might be experienced; W.C. Clark *et al.*, 'Acid Rain, Ozone Depletion, and Climate Change: An Historical Overview', in The Social Learning Group, *Learning to Manage Global Environmental Risks*, Vol. 1 (The MIT Press, 2001).

<sup>62</sup> UNGA, 'Note by the Secretary General: Report of the World Commission on Environment and Development' (Doc. No A/42/427, 4 August 1987).

<sup>63</sup> See *Mechanism and Technical and Financial Support to Developing Country Parties, Synthesis Report on Adaptation*, n. 9 above, para. 11.

<sup>64</sup> See Submissions from Parties or Other Member States on the Specific Near-Term Priorities and Needs of Developing Countries, Adaptation and Issues Related to the Financial Mechanism, *ibid.*

<sup>65</sup> See Preparation of a Framework Convention on Climate Change, *ibid.*

<sup>66</sup> Chapter 17, para. 17.125 of Agenda 21 states: 'They are considered extremely vulnerable to global warming and sea-level rise, with certain small low-lying islands facing the increasing threat of the loss of their entire national territories. Most tropical islands are also now experiencing the more immediate impacts of increasing frequency of cyclones, storms and hurricanes associated with climate change. These are causing major set-backs to their socio-economic development'; Agenda 21 (A/CONF.151/26, 5 June 1992).



for the survival of small islands as a consequence of the melting of ice caps.<sup>67</sup> In the proposal, they drew attention to the adaptation needs of poor, vulnerable countries.

After the entry into force of the UNFCCC in 1994, the next years were devoted to negotiating the Kyoto Protocol and, thus, explicitly focused on mitigation, as the Protocol is an instrument for reducing greenhouse gas emissions. Following its adoption in 1997, parties then agreed that a number of issues needed to be addressed before the Protocol could be put into operation – these were set out in the 1998 Buenos Aires Plan of Action (BAPA).<sup>68</sup> The negotiations were intended to culminate at the Sixth Conference of the Parties (COP-6) in 2000; however, due to failure in negotiations and high-level political dispute, it was not until COP-11 in 2005 that the set of rules, entitled the Marrakesh Accords, were adopted. During this in-between period, adaptation emerged as a policy option. However, in the lead-up to COP-6, where details on implementation of the Protocol were to be hammered out, there were still a number of barriers that continued to hinder rule development for adaptation in the UNFCCC process.<sup>69</sup> Concerns included scientific uncertainty, an overt focus of studies on impacts rather than on adaptation measures, and a lack of understanding of priority needs for vulnerability reduction. The concern on the part of developing countries that focus on adaptation would contribute to a ‘declining focus and efforts to achieve greenhouse gas mitigation in developed countries’<sup>70</sup> was still relevant. Furthermore, adaptation efforts were built mostly on the substance of Decision 11/CP.1<sup>71</sup> (box 2) that had been adopted at the first COP in 1995. This decision addresses the funding of adaptation activities but does not propose any explicit work programme on adaptation.

After the failure at COP-6, developing countries began to realize that attaining the Protocol targets presented a considerable political and practical challenge, and mechanisms would be implemented less rapidly than expected. In particular, the USA’s repudiation of the Protocol in March 2001 may have contributed to this change in mind-set. Negotiation for additional funds set out in the Marrakesh Accords, and completion of the BAPA issues, also created an opportunity for adaptation to play a larger role. Indeed, Decision 5/CP.<sup>72</sup> addresses the implementation of UNFCCC articles

## BOX 2 UNFCCC DECISION 11/CP.1

### Decision 11/CP.1 Stages for Adaptation Activities and Funding

Stage I: Planning, which includes studies of possible impacts of climate change, to identify particularly vulnerable countries or regions and policy options for adaptation and appropriate capacity building.

Stage II: Measures, including further capacity building, which may be taken to prepare for adaptation as envisaged in Article 4.1(e).

Stage III: Measures to facilitate adequate adaptation, including insurance, and other adaptation measures as envisaged by Article 4.1(b) and 4.4.

Source: UNFCCC, ‘Initial Guidance on Policies, Programme Priorities and Eligibility Criteria to the Operating Entity or Entities of the Financial Mechanism’, in *Report of the Conference of the Parties on its First Session, held at Berlin from 28 March–7 April 1995* (FCCC/CP/1995/7/Add.1, 6 June 1995).

on the adverse effects of climate change on vulnerable countries, and the adverse effects of policies and measures taken to implement the Kyoto Protocol. Shortly after the publication of the IPCC’s Third Assessment Report in 2001, however, an agenda item taking up adaptation was introduced in the UNFCCC’s Subsidiary Body for Scientific and Technological Advice,<sup>73</sup> amid a discussion on how to address the impacts of climate change, and, in 2004, a work programme on adaptation was adopted.<sup>74</sup> This outcome can be considered a considerable breakthrough. As the UNFCCC has no article solely on adaptation, and adaptation is mentioned only five times in the convention text, the case had previously been made by negotiators that there were insufficient opportunities to address adaptation under the UNFCCC. This contributed to a movement for the development of an Adaptation Protocol, or some similar legal instrument on adaptation on par with the Kyoto Protocol.<sup>75</sup> Although no official proposal on this issue has been made, the raising of the issue is testimony to the opportunities seen in

<sup>73</sup> See *Third Assessment Report of the Intergovernmental Panel on Climate Change: Scientific, Technical and Socio-Economic Aspects of Impacts of, and Vulnerability and Adaptation to, Climate Change, Scientific, Technical and Socio-Economic Aspects of Mitigation* (FCCC/SBSTA/2003/L.15, 12 June 2003).

<sup>74</sup> Decision 1/CP.10 (Doc. FCCC/CP/2004/10/Add.1).

<sup>75</sup> B. Müller, *An FCCC Impact Response Instrument as part of a Balanced Global Climate Change Regime*, Paper presented at Tata Energy Research Institute, New Delhi (16 May 2002); CAN Equity Summit, Nusa Dua, Bali, 20 May 2002; IED Special Event at FCCC SB16, Bonn, 11 June 2002, Brazilian Climate Change Forum, Rio de Janeiro, 26 June 2002, and International Federation of Red Cross and Red Crescent Societies’ Climate Change Conference, The Hague, 27 June 2002, available at <<http://www.wolfson.ox.ac.uk/~mueller/OCP/iri.pdf>>; B. Müller, *Montreal 2005: What Happened, and What it Means* (Paper No EV 35, Oxford Institute for Energy Studies, 2006).

<sup>67</sup> UN, Preparation of a Framework Convention on Climate Change, n. 9 above.

<sup>68</sup> See *Report of the Conference of the Parties on its Fourth Session, held at Buenos Aires from 2 to 14 November 1998* (FCCC/CP/1998/16/Add.1, 20 January 1999).

<sup>69</sup> See O. Pilifosova, n. 35 above.

<sup>70</sup> *Ibid.*, at 140.

<sup>71</sup> Decision 11/CP.1 (Doc. FCCC/CP/1995/7/Add.1, 1995).

<sup>72</sup> Decision 5/CP.7 (Doc. FCCC/CP/2001/13/Add.1, 2001).



adaptation. The continued interest in a larger platform for adaptation policy indicates that the existing provisions, even with the various funds adopted through the Marrakesh Accords to support adaptation and the 2004 work programme on adaptation, are not considered sufficient.

Part of the reason that adaptation policy developed so slowly thus stems from the lack of explicit provisions within the UNFCCC, which has left policy makers and scholars struggling to identify where best to address adaptation to climate change under the UNFCCC.<sup>76</sup> However, a strategy – whether conscious or unconscious – has overcome this dearth to some extent. Adaptation has primarily been discussed in the context of other articles that address related issues,<sup>77</sup> particularly ‘developing-country issues’ such as capacity building and technology transfer. It has been noted that this approach is too piecemeal<sup>78</sup> and continues to reflect lack of consensus on the meaning of the concept. What it has done is to broaden the definition of adaptation to include the other developing-country issues currently on the agenda and provided for in the UNFCCC – thus a space has been created for it within the legal framework. However, this has implied that adaptation has been ‘used’ and ‘abused’ when necessary. Oil-exporting countries can be described as abusers in that they have continuously attempted to couple any discussion on adaptation to the impacts of climate change with a discussion on adaptation to the impacts resulting from measures taken by developed countries to mitigate emissions, such as reduced fossil-fuel consumption.

But, ultimately, adaptation discussions in the UNFCCC have been linked to discussions on funding, which is in itself a particularly contentious issue in the UNFCCC negotiations. Calls for adaptation policy have been frequently and closely accompanied by calls for adaptation funding. Bodansky notes that the inclusion of financial resources at all in the final text of the convention was part of the bargaining package, and that one of the purposes it aimed to fulfil was ‘to aid developing countries in adapting to the adverse effects of climate change if steps taken under the convention fail to abate global warming adequately’.<sup>79</sup> Thus, in another way, supporting adaptation became synonymous with supporting development, and adaptation was profiled

as an equity issue. The most significant push for this came out as a result of negotiations at COP-6 in 2000. At that point, the COP President, Jan Pronk, divided the negotiation issues into four categories, and placed adaptation along with technology transfer, capacity building and funding – thereby explicitly branding adaptation as a developing-country issue. Adaptation then began appearing in parties’ statements but was scattered in different negotiation issues, which is closely related to the conceptual confusion about its meaning. Thus, while adaptation had carved out a niche for itself among the other developing-country issues, this did not facilitate the advancement of adaptation policy – in fact the contrary was true. The lack of a specific definition of adaptation, even more confused by its association with other aspects of the UNFCCC, posed as a significant constraint to furthering policy on adaptation.<sup>80</sup>

This is also related to a question regarding whose interests are met by pursuing an adaptation agenda. Adaptation has been characterized as a developing-country issue; however, it is clear that developing countries have different priorities. For those who already emit large quantities of greenhouse gases, adaptation is a useful measure to take focus off mitigation discussions in the UNFCCC negotiations. However, these countries do not necessarily need assistance in identifying or driving adaptation processes, but may require financial support. SIDS may need assistance with infrastructural adaptation, but are generally more concerned with halting the rise in greenhouse gas emissions that is threatening to cause sea-level rise such that the territory of their countries will disappear. At the same time, it is thought that developed countries may be playing a role in bolstering the importance of adaptation to developing countries. The ultimate aim here would be eventually to compel high-emissions developing countries to agree to mitigation commitments as a result of provisions on adaptation. Calls for adaptation funding continue to challenge the existing funding structures in an effort to seek channels for funding adaptation efforts this way. They also recall older proposals that appeared to have been abandoned, such as for an insurance mechanism. The new funds, the Special Climate Change Fund and Adaptation Fund,<sup>81</sup> adopted through the Marrakesh Accords, are being put into operation, but questions about the definition of adaptation appear to be halting this process. There is evidence that scholarly discussions about adaptation are not in complete rhythm with policy debates.

<sup>76</sup> F. Yamin and J. Depledge, *The International Climate Change Regime: A Guide to Rules, Institutions and Procedures*, Draft Copy (Institute of Development Studies, University of Sussex, December 2003).

<sup>77</sup> M.J. Mace, *Adaptation Under the UN Framework Convention on Climate Change: The Legal Framework*, Paper presented at ZICER Seminar, Justice in Adaptation to Climate Change, 7–9 September 2003 (University of East Anglia, 2003).

<sup>78</sup> E.L. Schipper and E. Boyd, ‘UNFCCC COP 11 and COP/MOP 1: At Last, Some Hope?’, 15:1 *Journal of Environment and Development* (2006), 75.

<sup>79</sup> See D. Bodansky, n. 40 above, at 32.

<sup>80</sup> See P. Vellinga, n. 34 above.

<sup>81</sup> The Adaptation Fund became operational following the entry into force of the Kyoto Protocol on 16 February 2005 and the adoption of the Marrakesh Accords at COP-11 in November 2005. The Special Climate Change Fund falls under the UNFCCC and was technically operational in 2001 but rule development has been slow.

More recently, mitigation has also been linked with funding for developing countries, through the 'flexible mechanisms' established by the Kyoto Protocol, particularly the Clean Development Mechanism (CDM).<sup>82</sup> The CDM allows a developed country to gain emissions-reduction credits for investing in sustainable-development projects in developing countries. The CDM increased the appeal of the mitigation argument also for developing countries. This was particularly the case up to and immediately after the negotiation of the Protocol. This may no longer be the case, as many recognize now that the CDM may not bring the benefits originally expected.<sup>83</sup> Furthermore, the delay in the entry into force of the Kyoto Protocol and the resulting uncertainty may have been a catalyst for developing countries to look beyond the CDM and the Kyoto Protocol for funding opportunities. Furthermore, beginning at COP-8 in 2002, discussions have highlighted the possibility of elaborating targets for emission reductions for developing countries after 2012, therefore souring the appeal to developing countries of discussions surrounding mitigation. Thus, adaptation appears as a convenient topic to take the focus off mitigation. The strong developing-country support for the Delhi Ministerial Declaration on Climate Change and Sustainable Development, focusing on the role of climate change in development policy, adopted at COP-8, is evidence for this specific strategy.<sup>84</sup>

In sum, mitigation has been given more attention since the UNFCCC was drafted, not only out of political choice, but because mitigation was considered more important even from the beginning. This is the primary reason why the UNFCCC does not reflect a great emphasis on adaptation. Table 1 indicates the shifts in thinking in the climate change debate, and reflects how understandings of adaptation have altered since the 1970s. It reflects how different approaches for responding to climate change were questioned by various groups over time. Figure 1 indicates the differing conceptual pathways to adaptation that were considered by these groups. Thus, within the policy context of negotiations and the UNFCCC, adaptation has gone from being understood as a spontaneous adjustment that would determine the limits of how much climate change could be tolerated, and hence how much mitigation was necessary, to being seen as a fundamental policy strategy to promote the attainment of sustainable development. Placement of adaptation on the development agenda has been encouraged by the linking of

adaptation with other related developing-country issues under the UNFCCC.

## THE WAY FORWARD FOR ADAPTATION

The discussion above identifies that adaptation is not an alternative to mitigation, but is now a necessary objective. An increasingly dominant perspective holds that this should be supported by explicit adaptation policy, linked with the UNFCCC regime, on par with mitigation policy. But the UNFCCC and, in particular, the Kyoto Protocol are focused primarily on mitigating emissions, and space is limited for action on adaptation. As described above, several additional factors have constrained widespread acceptance of adaptation as a part of the UNFCCC's tasks. This includes a lack of conceptual consensus on adaptation and political abuse of the concept, which have in turn been caused by an attempt to carve out adaptation's place in the UNFCCC. While adaptation began its life in the UNFCCC process as an ecological concept, it has more recently been used as a synonym for development. With a new work programme on adaptation and an operational Adaptation Fund, adaptation looks set to stay a part of the mainstream of UNFCCC discussions.

Since 2002, a complementary approach between adaptation and mitigation has gained support, with the acknowledgement that adaptation and mitigation are not alternatives,<sup>85</sup> but rather 'two sides of one coin'.<sup>86</sup> Adaptation has greater prominence on the political and research agendas now and there is no longer the same need to justify its importance. Interest in developing synergies between mitigation and adaptation is growing, and the IPCC's Fourth Assessment Report (AR4) will consider, as a cross-cutting issue, the linkages between the two responses.<sup>87</sup> This suggests more than simply recognizing the complementary roles of adaptation and mitigation, or the 'balanced portfolio of responses' suggested by Burton.<sup>88</sup> In the context of discussions on cost optimization of adaptation and mitigation measures, it has also been suggested that an 'optimal mix' of adaptation and mitigation could exist.<sup>89</sup> Work on assessing this mix has been based on cost-benefit analyses,<sup>90</sup> and economic approaches

<sup>82</sup> Kyoto Protocol, Article 12.

<sup>83</sup> A. Michaelowa, *Mitigation Versus Adaptation: The Political Economy of Competition Between Climate Policy Strategies and the Consequences for Developing Countries*, Discussion Paper 153 (Hamburg Institute of International Economics, 2001).

<sup>84</sup> UNFCCC, 'Delhi Declaration on Climate Change and Sustainable Development', Decision 1/CP.8 (Doc. No FCCC/CP/2002/7/Add.1, 2002).

<sup>85</sup> N. Brooks, *Vulnerability, Risk and Adaptation: A Conceptual Framework*, Tyndall Centre for Climate Change Research, Working Paper TWP No 38 (University of East Anglia, 2003); see also R.J.T. Klein, n. 17 above and I. Burton, n. 37 above.

<sup>86</sup> See R. Verheyen, n. 2 above, at 131.

<sup>87</sup> See S. Huq and M. Grubb, n. 4 above.

<sup>88</sup> See I. Burton, n. 37 above, at 155.

<sup>89</sup> See A. Michaelowa, n. 83 above.

<sup>90</sup> S. Kane and J.F. Shogren, 'Linking Adaptation and Mitigation in Climate Change Policy', 45:1 *Climatic Change* (2000), 75–102.

based on public choice theory have been attempted.<sup>91</sup> The goal would be to assess how a country or organization could best invest money, but also to identify individual projects that would contribute both adaptation and mitigation components. Such solutions would have an extra advantage of being eligible for funding under mechanisms for both adaptation and mitigation. Certain policy measures may already fall under the category of both, i.e. mitigation measures can also reduce impacts and vulnerability, such as certain energy-efficiency programmes.<sup>92</sup> Agriculture projects with a focus on adaptation that also include a component of carbon sequestration fall under both categories as well.<sup>93</sup> There is some resistance to an approach to consider the two together,<sup>94</sup> partly due to the fact that the separationist sentiment between adaptation and mitigation remains strong, but also because it is acknowledged that an approach to 'optimize' would entail trade-offs that can result in neither the adaptation nor the mitigation component being effective.

More than anything, adaptation is currently receiving much 'lip-service' and it can certainly be seen as one of the 'trendiest' topics with respect to climate change and development, as evidenced by the numerous new research agendas, programmes and projects from disparate corners of the world with a prominent emphasis on adaptation.<sup>95</sup> But many of the key questions about adaptation remain unanswered – including to what extent it needs to be supported by *global* policy and, if so, the more fundamental question is whether the UNFCCC is the most appropriate policy framework for adaptation. Whereas it can hardly be denied that adaptation to climate change is necessary, the reason for this need is because many societies are highly vulnerable to both climate variability and change. But addressing only options for how to adapt will not enable us to get to the crux of the problem, namely how to reduce our vulnerability. In many places, vulnerability to climate is determined by factors that are far beyond the scope of the UNFCCC or any global treaty. While this concern may seem irrelevant if actions to reduce vulnerability are also ongoing, the truth is that many of these determinants of vulnerability are very difficult to influence because they are often part of larger socio-economic and cultural building blocks of nations. The related concern is that calls for adaptation policy that would mirror mitigation policy in scope and

importance in the UNFCCC process may detract from the mitigation agenda. Consequently, mitigation of greenhouse gas concentrations, through emissions reductions, sequestration or storage might be considered less urgent.

The dichotomy between adaptation and mitigation, though now less visible, continues to exist in the UNFCCC process. Adaptation now represents policy-driven adjustments to changes in climate, particularly in developing countries, and is promoted as a standard element in development agencies' work programmes. The objective of mainstreaming adaptation into development and sectoral policies<sup>96</sup> can be discerned on various agendas, from development agencies to research institutes and sectoral ministries in developing and developed countries. A recent development is the push by developed countries to set concrete adaptation plans and integrate adaptive management into their governance structures. What now needs to be the focus is not how to get funding for adaptation – as this has more or less been addressed – but rather how to ensure that adaptation strategies actually influence vulnerability in a successful and sustainable manner, so that existing development problems are also addressed. This would be the most effective way to optimize adaptation efforts, but still requires research and strategic thinking in the years to come.

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<sup>91</sup> See A. Michaelowa, n. 83 above.

<sup>92</sup> See S. Cohen *et al.*, n. 3 above.

<sup>93</sup> See R.J.T. Klein *et al.*, n. 5 above.

<sup>94</sup> See I. Burton, n. 24 above; R.J.T. Klein *et al.*, n. 5 above; R.S.J. Tol, *Adaptation and Mitigation: Trade-offs in Substance and Methods*, Working Paper (University of Hamburg, 2003); A. Michaelowa, n. 83 above.

<sup>95</sup> The new Linking Climate Adaptation database on organizations active in adaptation and the UNFCCC's similar database, mandated by COP-11, are examples.

<sup>96</sup> See R.J.T. Klein *et al.*, n. 5 above.