ORIGINAL RESEARCH ARTICLE

Population and Reproductive Health in National Adaptation Programmes of Action (NAPAs) for Climate Change in Africa

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Abstract

This paper reviews 44 National Adaptation Programmes of Action (NAPAs) to assess the NAPA process and identify the range of interventions included in countries' priority adaptation actions and highlight how population issues and reproductive health/family planning (RH/FP) are addressed as part of the adaptation agenda. A majority of the 44 NAPAs identify rapid population growth as a key component of vulnerability to climate change impacts. However, few chose to prioritise NAPA funds for family planning/reproductive health programmes. The paper emphasizes the need to translate the recognition of population pressure as a factor related to countries' ability to adapt to climate change into relevant project activities. Such projects should include access to RH/FP, in addition to other strategies such as girls' education and women's empowerment that lead to lower fertility. Attention to population and integrated strategies should be central and aligned to longer-term national adaptation plans and strategies (*Afr J Reprod Health 2010; 14[4]: 133-145).*

Résumé

Population et santé de reproduction dans les programmes d'adaptation nationale de l'action (PANA) pour le changement climatique en Afrique. Cette étude passe en revue 44 Programmes d'Adaptation Nationale de l'Action (PANA) afin d'évaluer le procès du PANA et d'identifier l'étendu d'interventions comprises dans les actions d'adaptation des priorités chez les pays et de mettre l'accent sur la façon dont les questions de la population et de la santé de reproduction / la planification familiale (SR/PF) sont abordées comme faisant partie des programmes de l'adaptation. La majorité des 44 PANAs identifient la croissance rapide de la population comme étant un facteur clé de la vulnérabilité aux impacts du changement climatique. Néanmoins certains ont préféré d'accorder la priorité aux fonds du PANA pour les programmes de la planification familiale/la santé de reproduction. Cet article souligne la nécessité de traduire la reconnaissance de la pression de la population comme un facteur lié à la capacité d'adapter le changement climatique aux autres activités des projets pertinents. De tels projets doivent comprendre l'accès à la SR/PF, l'éducation de la fille et l'émancipation des femmes qui mène à une fécondité réduite. Il faut que l'attention donnée à la population et aux stratégies intégrées soit centrale et alignée à des plans et des stratégies d'adaptation nationale à plus long terme (*Afr J Reprod Health 2010; 14[4]: 133-145).*

Keywords: Adaptation, Climate Change, Reproductive health, Family planning, National Adaptation Programmes of Action, National development.

Introduction

Perhaps the greatest irony of climate change is that countries that have had the least to do with growing emissions are likely to experience the most severe impacts. Due to the persistence of carbon in the atmosphere, global warming is inevitable in the coming decades under any scenario produced by the Intergovernmental Panel on Climate Change (IPCC), and global greenhouse gas emissions will continue to increase at least up to the year 2020.[1] While mitigation is critical, there is a growing consensus that helping affected countries and people adapt to climate change is also important since the impacts of climate change are already being felt and will worsen in the future.[1-7]

While most of the international focus is on mitigation of climate change, including through well-publicized international conferences and agreements such as the Kyoto Protocol, adaptation as a response to the climate change problem has gained importance in the international policy agenda.[8] For example, the Bali Action Plan, an addendum to the United Nations Framework Convention on Climate Change (UNFCCC), recently identified the need for enhanced action on adaptation.[4]

A large share of the population in Africa is already vulnerable and living in marginalized areas that are susceptible to climate variation and extreme weather events. Population growth is occurring most rapidly in Africa, increasing the scale of vulnerability to the projected impacts of climate change. In 2005, the average population density in developing countries was 66 people/km^2 compared to 27 people/km^2 in developed regions.[9] More than half (27) of the 49 Least Developed Countries (LDCs), a majority of which are in Africa, are projected to at least double their current population by 2050, based on the most recent population projections of the United Nations. Human population growth will increase vulnerability to many of the most serious impacts of climate change. Scarcity of food and water, vulnerability to natural disasters and infectious diseases, and population displacement are all exacerbated by rapid population growth.[9, 10]

Recognizing that LDCs, including developing Small Island States, are among the most vulnerable to, and have the least capacity to cope with, extreme weather events and the adverse effects of climate change, National Adaptation Programmes of Action (NAPAs) were established as part of the Marrakech Accords of the 2001 UNFCCC Conference of Parties (COP). NAPAs were intended to provide assistance to LDCs in developing plans to address the adverse effects. NAPAs, which are supposed to link with national development processes, provide an avenue for LDCs to identify priority activities that respond to their urgent and immediate adaptation needs.

What is the experience with NAPAs to date? What interventions are being included in NAPAs? Are population and reproductive health/family planning (RH/FP) addressed in NAPAs, including through projects proposed by countries? This chapter begins with a description of the NAPA process and a discussion of their development, preparation, and financing. It then analyses how population factors are addressed in NAPAs and the range of adaptation interventions identified and prioritized by countries, including RH/FP. The chapter ends with a discussion of the challenge of addressing population and RH/FP through the existing NAPA process and a discussion of how NAPAs are aligned with national development processes. Finally, the paper makes suggestions for the NAPA process to include more integrated programming that links with development strategies.

Methods

Study Population

The focus of this study was on a group of developing countries recognized by the United Nations as the poorest and weakest segment of the international community. These countries are characterized by, among other indicators, extreme poverty, economic weaknesses and the lack of growth related capacities, often compounded by structural handicaps that hamper the countries' efforts to improve the quality of life of their people. The countries are also characterized by acute susceptibility to external economic shocks, natural and man-made disasters including climate change. This recognition led UNFCCC to decide that the developing countries should be assisted in preparing NAPAs to address urgent and immediate needs and concerns related to adaptation to the adverse effects of climate change.

Study Design

The current list of LDCs includes 49 countries: 33 in Africa, 15 in Asia and the Pacific and one in Latin America. Cape Verde graduated from the list at the end of 2007. The 44 NAPAs that were submitted as of May 2010 were included in the analysis. The NAPA documents were exhaustively reviewed, and relevant information on all NAPAs and projects was compiled by the authors into an Excel database.

Analysis focused on this database and on content of the NAPAs and projects. This information was supplemented by a review of the literature on NAPAs, adaptation, and the relationship between population and climate change.

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Results and Discussion

Development, Preparation, and Financing of NAPAs

Among the 49 eligible LDCs, 44 (90 percent) have submitted their NAPAs to UNFCCC, 31 of them from Africa. In addition, four NAPAs are in the final stages of preparation and are expected to be completed before the end of 2010. Angola is the only African LDC which has yet to submit a NAPA. The current status of preparation of the NAPAs is presented in Table 1.

According to UNFCCC, the rationale for developing NAPAs rests on high vulnerability and low adaptive capacity of LDCs, many of which count among the world's poorest. This demands in turn the immediate and urgent support for projects that allow for adaptation to the adverse effects of climate change. As such "activities and projects proposed through NAPAs are those whose further delay could

increase vulnerability or lead to increased costs at a later stage".[11] Acknowledging that countries need to have national adaptation plans which identify and prioritize not only urgent and immediate needs but also medium- and long-term needs, longer-term national adaptation plans are part of the ongoing UNFCCC negotiations.[1] It was envisaged that NAPAs would fit into the longer-term national plans of action on adaptation.

Following NAPA guidelines, countries undertake four steps to develop their NAPAs: 1) establish a NAPA organization that should include local communities and representatives from various sectors (e.g., agriculture, water, energy, forestry, health, and tourism); 2) synthesize available information on impacts, coping strategies, and national and sectoral development plans to provide a baseline measure of vulnerabilities; 3) identify projects through consultations with stakeholders and develop a list of priority projects; and 4) submit the NAPA to UNFCCC.

An important guiding principle in the preparation of NAPAs is that the process ought to be a bottom-up, participatory approach that involves a broad range of stakeholder groups and focuses on local communities, considering their current vulnerability and urgent adaptation needs.[11]

Financing is a key component of NAPAs. Although estimates of the funding required to assist developing countries to adapt to the impacts of climate change vary widely,[2] there is general agreement that the cost could be in the range of tens of billions of dollars per year. The total estimated cost of implementing the 459 projects prioritized by the 44 NAPAs is over US$1 billion,[3] yet, currently, the NAPAs fund, also known as the Least Developed Country Fund (LDCF), has mobilized about US$176 million, hence showing a huge disparity between the financial needs of NAPAs and the mobilized financial resources. Furthermore, there is consensus that resource shortfalls hinder funding of NAPAs and that countries are generally under-estimating the costs of adaptation.[15, 16]

How NAPAs Characterize Population as a Factor Related to Climate Change

Analysis of NAPAs to explore how they describe population dynamics and climate change showed that most NAPAs identify population and health issues as relevant for climate change adaptation strategies.

Thirty-eight NAPAs, including 26 of the 31 submitted by African LDCs, explicitly make linkages between climate change and population and identify rapid population growth as a problem that either aggravates the vulnerability or reduces the resilience of populations to deal with the effects of climate change (Table 1 and Summary Table 1). Although the different NAPAs have diverse concerns, the effects of rapid population growth have been linked with climate change through five factors: food insecurity, natural resource depletion/degradation, water resource scarcity, poor human health, migration and urbanization.[4]

Population pressure and food insecurity

Thirty-six NAPAs link high population growth to food insecurity. Population pressure contributes to this by increasing a country's vulnerability to food shortages in the event of occurrences such as droughts and floods and by increasing demand for food and putting additional pressure on the food supply system and already diminishing food resources such as fish stocks, as reported in The Gambia.

Population pressure is more pronounced in areas that are more susceptible to events such as droughts and floods. For instance, NAPAs recognize large populations residing on scarce arable land (Central Sudan along the Nile River, Uganda).

Population pressure and natural resource depletion/ degradation

Natural resource depletion or degradation is a central theme of the NAPAs and is often linked to population pressure. Excerpts from selected NAPAs

[1] Longer-term national adaptation plans are part of the UNFCCC discussions on enhanced action on adaptation taking place under the Ad Hoc Working Group on Long-Term Cooperative Action (AWGLCA).

[2] The estimated annual costs of adaptation (US$) range from 31 billion[12], 100 billion[13], 55-135 billion by 2030[5], 50 billion[14] to 89 billion by 2015[6].

[3] The total cost of implementation of all the NAPAs is currently estimated at US$2 billion by Oxfam and the International Institute for Economic Development (IIED), revised up from the original US$1.6 billion. This was based on an extrapolation of the costs of submitted NAPAs.

[4] This classification was guided by analysis on population and NAPAs by Bryant et al. characterizing population as affecting climate change primarily in three ways: (1) by acting in tandem with climate change to deplete key natural resources, for example through soil erosion and deforestation, (2) by causing a significant escalation in demand for resources, such as fresh water and food, that are declining in availability due to climate change, and (3) a heightening of human vulnerability to the effects of climate change, including by increased pressure on human health and by forcing more people to migrate and settle in areas at risk of extreme weather events.[17]

Table 1: Analysis of NAPAs

Country/Region	Completion or expected completion date	Number of priority projects in NAPA	Category of NAPA alignment with development planning process[a]	NAPA recognizes 'rapid population growth' and links it to climate change	NAPA mentions RH/FP	NAPA links RH/FP with adaptation strategy	NAPA identifies RH/FP project	Country population projected to at least double by 2050[b]	Unmet need for family planning (%)
Africa									
Benin	Nov-05	5	A	•				•	29.9
Burkina Faso	Dec-07	12	B	•				•	28.8
Burundi	Feb-07	12	A	•					29.4
Cape Verde	Dec-07	3	A	•					14.2
Central African Republic	Jun-08	10	B						16.2
Chad	Feb-10	2	A	•				•	n.a
Comoros	Nov-06	13	B	•	•	•			34.6
Democratic Republic of the Congo	Sep-06	3	A					•	
Djibouti	Oct-06	8	A	•				•	26.3
Eritrea	May-07	5	B					•	27.0
Ethiopia	Jun-08	11	B	•	•	•		•	33.8
Gambia	Jan-08	10	A	•		•		•	n.a
Guinea	Jul-07	25	A					•	21.2
Guinea-Bissau	Feb-08	14	A	•				•	n.a
Lesotho	Jun-07	11	A	•					30.9
Liberia	Jul-08	3	A	•				•	35.6
Madagascar	Dec-06	15	A	•				•	23.6
Malawi	Mar-06	5	A	•				•	27.6
Mali	Mar-06	19	A	•				•	31.2
Mauritania	Nov-04	28	B	•					31.6
Mozambique	Jul-08	4	A	•					18.4
Niger	Jul-06	14	A	•				•	15.8
Rwanda	May-07	7	A	•				•	31.7
São Tomé and Principe	Nov-07	22	A		•		•		n.a
Senegal	Nov-06	4	A	•				•	31.6
Sierra Leone	Jun-08	24	A	•				•	n.a
Sudan	Jul-07	5	B	•					26.0
Togo	Sep-09	7	A						32.3
Uganda	Dec-07	9	A	•	•	•	•	•	40.6
United Republic of Tanzania	Sep-07	6	A	•				•	21.8

Table 1: Analysis of NAPAs **(continued)**

Country/Region	Completion or expected completion date	Number of priority projects in NAPA	Category of NAPA alignment with development planning process[a]	NAPA recognizes 'rapid population growth' and links it to climate change	NAPA mentions RH/FP	NAPA links RH/FP with adaptation strategy	NAPA identifies RH/FP project	Country population projected to at least double by 2050[b]	Unmet need for family planning (%)
Zambia	Oct-07	10	B	•	•	•		•	26.5
Asia									
Afghanistan	Sep-09	2	B	•				•	n.a
Bangladesh	Nov-05	15	B	•					4.6
Bhutan	May-06	9	B	•					n.a
Cambodia	Mar-07	20	A	•					25.1
Lao People's Democratic Republic	May-09	12	A	n.a					•
Maldives	Mar-08	11	A	•					37.0
Yemen	Apr-09	12	A	•				•	50.9
Latin America and the Caribbean									
Haiti	Dec-06	14	A	•					37.5
Oceania									
Kiribati	Jan-07	10	A	•	•	•			n.a
Samoa	Dec-05	9	A	•					n.a
Solomon Islands	Dec-08	7	A	•					n.a
Tuvalu	May-07	7	A	•					n.a
Vanuatu	Dec-07	5	A	•					n.a
NAPA in Preparatory Phase									
Angola	Q4-10*							•	n.a
Myanmar	Q4-10*								19.1
Nepal	Q4-10*							•	24.6
Timor-Lesté	Q4-10*								3.8
NAPA has not yet been initiated									
Somalia	**							•	n.a
Equatorial Guinea	**							•	n.a

[a]*The authors divided the NAPAs into two categories regarding linkage with development planning process. Category A—NAPA does not clearly demonstrate how it is linked to the national and sectoral development plans including PRSPs. Without giving details, the document only mentions that " ..the NAPA was created on the basis of…or…has established strong linkages with…or …supports .." the national development goals and strategies as espoused in the country's development plans including PRSPs.*

Category B—NAPA clearly establishes how it is linked to national and sectoral development plans complete with a detailed analysis of the identified vulnerabilities and proposed projects. Some contain matrices of detailed analyses

[b]*This is based on the United Nation's Population Projections based on the medium-variant. http://esa.un.org/unpp/*

*NAPA preparation ongoing

** Not yet agreed to a project proposal to finance the preparation of NAPA

Summary of Table 1

	Total	Africa	Percent	Africa percent
Development and Preparation of NAPA				
Total NAPA submitted [as of May 2010]	44	31		
NAPA in preparation stage	4	1		
NAPA not yet initiated	2	2		
Total number of priority projects identified in NAPA	460	326		
NAPA not clearly demonstrating linkages to national development planning processes including Poverty Reduction Strategies (PRSs)	33	23	70	74
NAPA Coverage of Population and Reproductive Health/Family Planning (RH/FP) Issues				
NAPA recognizing "rapid population growth" and linking it to climate change	38	26		
NAPA mentions RH/FP and links it to adaptation strategy	6	5		
NAPA identifies RH/FP project as part of country's priority adaptation strategy	2	2		
Total number of RH/FP projects that have been funded	0	0		
Number of LDCs whose population is projected to at least double by 2050	27	24		
Unmet need for family planning among LDCs				
Countries with over 20% unmet need for family planning			80	84
Countries with over 10% unmet need for family planning			90	100

indicate that rapid population growth "results in the imbalance of the already limited resources and the threat of climate instability" (Comoros), "is a cause of decline in resources base" (Ethiopia), "is partly contributing to unsustainable natural resource use" (Gambia), has "led to ecological imbalances expressed by the deterioration of livelihoods" (Niger), is "an important factor of pressure on the environment" (Haiti), is "placing pressure on sensitive environments"(Tuvalu), and "tend[s] to degrade highland ecosystem" (Uganda).

Population pressure is directly linked to deforestation in the NAPAs of Mozambique, Rwanda, Sierra Leone, and Uganda. The Uganda NAPA goes further in associating high population density with observed biodiversity loss.

Population pressure and water resource scarcity

Population pressure is deemed to increase the demand for water and further reduce its future availability. In Sudan, for example, "unfavorable weather conditions combined with population growth have rendered the Setaite River incapable of sustaining the town of Gedarif." Water scarcity is identified as a common problem in Tuvalu and is associated with the growth in population and urbanization. Population increases in urban centres have put pressure on groundwater, as noted in Zambia's NAPA.

Population pressure and poor human health

A number of NAPAs link population and climate change to risks to human health. In Africa, Uganda's NAPA notes that heavy rainfall has led to flash floods and resulted in the outbreak of waterborne diseases such as diarrhoea and cholera, while prolonged dry spells have resulted in outbreaks of respiratory diseases. Population pressure increases the country's vulnerability to these diseases and its ability to cope with increased health costs.

Population pressure, migration, and urbanization

Nineteen NAPAs link climate change to another major demographic concern, migration. Climate change imposes additional burdens on communities already facing migratory challenges caused in part by rapid population growth. Migrating populations, either in search of new agricultural lands and pastures or urban areas, are already economically vulnerable, and this vulnerability is increased since, in most cases, the zone that receives them is often already faced with a high risk of economic, social, and environmental vulnerability.

The migration of people and cattle, noted as one of the traditional adaptation strategies in Burundi and Niger, is identified as one of the real and potential adverse impacts of climate change. The migration of at least 10 percent of the population and a loss of cultivable lands are anticipated impacts of climate change in the Comoros, while, in the United Republic of Tanzania, people living along the coast will be forced to migrate, potentially causing social conflicts and environmental degradation due to rapid population growth.

In Burkina Faso and Rwanda, people migrating from densely populated regions looking for better living conditions in less-populated areas not only increase their vulnerability by exposing themselves to a high risk of drought and desertification in the recipient areas but also by contributing to further degradation.

Climate change will have a significant impact on urban settlements, especially in the face of increasing population and continual urban migration. In Djibouti, the NAPA notes, unfavourable climatic conditions have led to migration from rural areas to "new urban areas" where previously nomadic populations are being forced to settle around water points established by the state. Rapid urbanization in The Gambia is "paralleled by clearing of forests and woodlands, expansion of cultivated area, over-fishing of particular species and severe coastal erosion."

In Sao Tome and Principe, the relocation of populations at risk of food insecurity and landslides in Malanza, Santa Catarina, and Sundy was identified as a priority adaptation activity.

In summary, NAPAs, including those by African LDCs, are quite thorough in their treatment of the effects of population and climate change, although analyses of demographic factors, including age structure and household size, are not adequately addressed. A number of researchers have identified analysis of these demographic factors as important for understanding the links between population and climate change.[18-23]

Given that population is highlighted in most NAPAs, it follows that projects to address the effects of rapid population growth are included among priority projects. The next section examines which sectors and projects were prioritized in the NAPAs.

Sectoral Classification of Submitted NAPA Projects and Priority Projects

The total number of priority adaptation projects identified in the 44 NAPAs is 460, although the number of such projects varies widely among the countries. Using the same classification as UNFCCC, [24] identified projects fall into 12 broad categories, as shown in Figure 1. Since some projects and activities are difficult to classify into any one sector, UNFCCC includes them in a cross-sectoral category. In the NAPA preparation process, projects are ranked by the stakeholders in order of importance subject to select criteria, including the expected outcomes of the projects, for example, mitigating adverse effects of climate change, poverty reduction to enhance adaptive capacity, synergy with multilateral environmental agreements, and cost effectiveness.[11]

Figure 1 shows the distribution of projects by sector. Half of the projects fall into three sectors: food security, terrestrial ecosystems, and water resources. This can be explained by the fact that agriculture, livestock, fisheries, and other income-generating activities rely on terrestrial ecosystems and water resources, which are important for feeding and sustaining livelihoods for millions of people. The health sector accounts for around 7 percent of the total projects, after food security (21 percent), water resources and management (16 percent), terrestrial ecosystems (15 percent), cross-sectoral (9 percent), and coastal zones and marine ecosystems (8 percent). In addition, in the Solomon Islands and Sudan, two cross-sectoral projects have health sector components. The fewest identified priority projects are in the tourism, insurance, and energy sectors.

All 44 countries identify the health sector as among the most vulnerable to climate change. However, less than half of the countries (19) have proposed a single project in this sector. In terms of priority project ranking, projects in the health sector are generally not ranked among the first five priorities in any of the NAPAs (Figure 2). Indeed, the ranking of the priority projects follows the same pattern as the distribution of the projects by sector. Health sector projects would therefore be ranked seventh in terms of priority.

In an analysis of 14 NAPAs by Osman-Elasha and Downing, a major weakness identified during the preparation of NAPAs was the institutional barriers that hindered a free exchange of information, including communication problems between central offices and states, regions, or provinces.[25] The authors found that NAPA cordina-

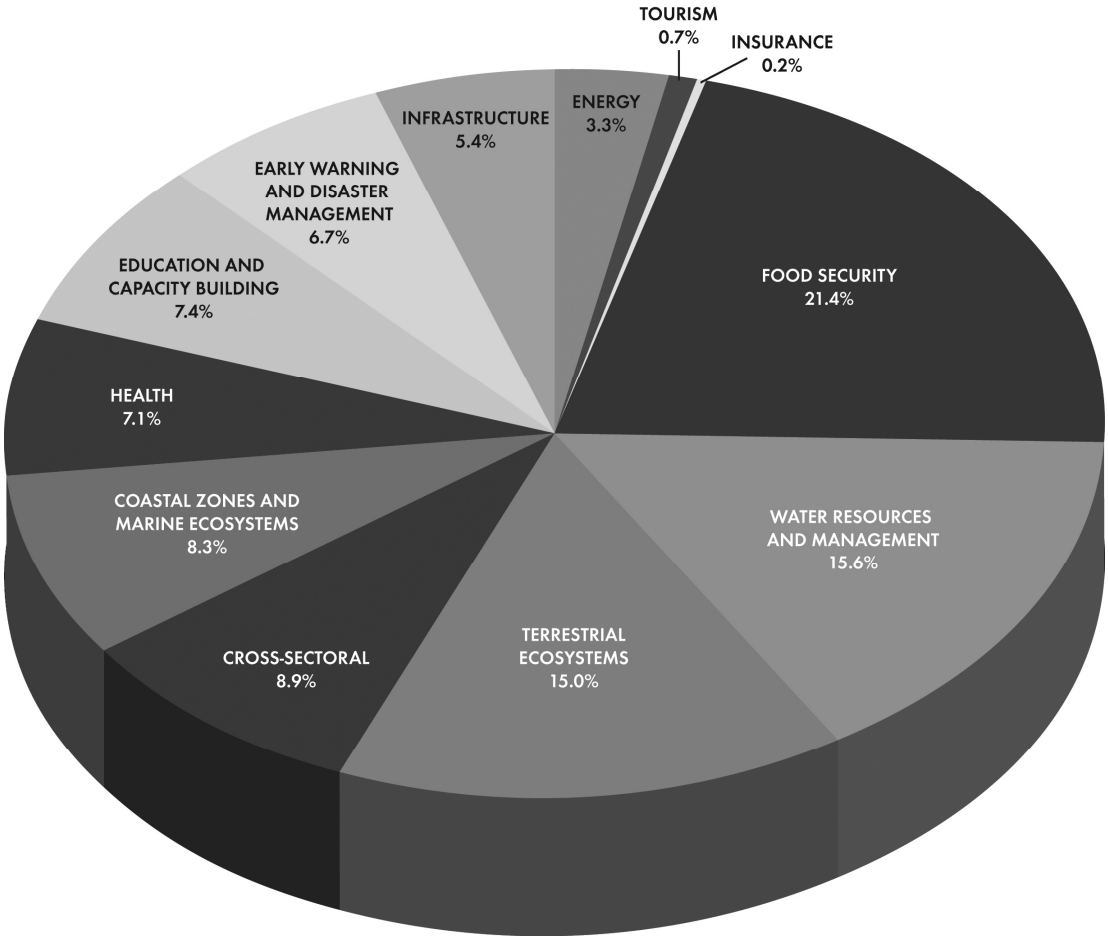

Figure 1: Distribution of NAPAs projects by sector

tion teams are found mainly under the umbrella of either environment or meteorology departments and that most also host UNFCCC Focal Points. This composition of the teams has implications for the content of the NAPAs and may explain the low priority given to health and by extension to RH/FP.

Reproductive Health/Family Planning and Adaptation Strategies in NAPAs

Since most of the NAPAs identify rapid population growth as an integral challenge to adapting to climate change, it follows that slowing population growth should be a key component in dealing with the effects of climate change. Reduced population pressure can ameliorate some of the effects of climate change and/or increase the ability of countries to adapt, and RH/FP has been recognized as one of many strategies that can slow population growth and reduce demographic pressure[26, 27] and can also contribute significantly to solving climate change.[28, 29] Yet, as mentioned above, there is limited identification of adaptation projects in the health sector, under which RH/FP broadly falls. In addition, the identified health-sector projects are not ranked highly among the priority actions, and priority actions are more likely to be implemented.

Only six NAPAs, five of them from Africa, clearly state that slowing of population growth or investments in RH/FP should be considered among the country's priority adaptation actions (Table 1). These countries are the Comoros, Ethiopia, Gambia, Kiribati, Uganda, and Zambia. Furthermore, among those NAPAs that clearly make this case, only Uganda actually proposes a project with components of RH/FP among its priority adaptation interventions. Another project with RH/FP components is proposed by Sao Tome and Principe, but its NAPA links population pressure neither to climate change nor to RH/FP. In both Sao Tome and Principe's and Uganda's NAPAs, RH/FP is integrated with other priority adaptation interventions.

Comoros' NAPA notes that population growth is a source of vulnerability and credits family planning programmes for the reduction in the population

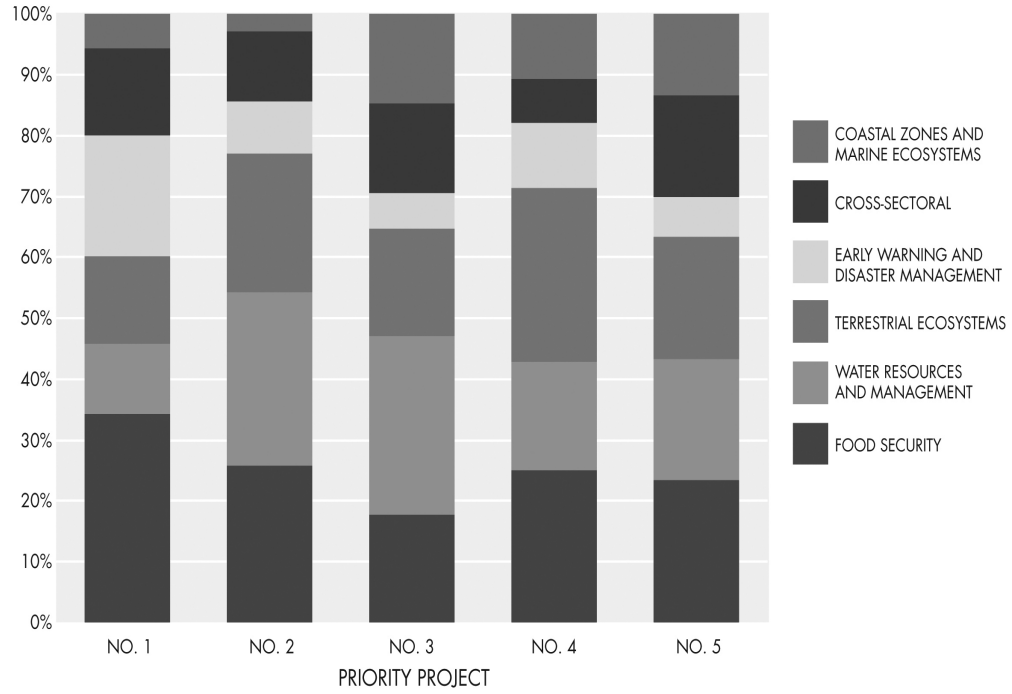

Figure 2: Distribution by sector of the top 5 priority projects in NAPAs of 44 countries

growth rate. Even though the NAPA establishes clearly the linkage between climate change and FP policies, the NAPA team fails to identify a priority project with RH/FP programmes.

In Ethiopia, high population growth is identified as one of the causes of vulnerability to climate change. During the NAPA process, mainstreaming family planning into agriculture was proposed as an adaptation strategy in the regional consultative workshops. Although the NAPA identifies mainstreaming of family planning into agriculture as one of the potential cross-sectoral adaptation options, there is no component of RH/FP in any of the proposed priority agricultural projects.

In Gambia, partly as a result of population pressure, the natural environment has taken the full brunt of unsustainable use of natural resources, as seen in the negative effects on the forest cover, rangelands, and aquatic and marine organisms, as the NAPA reports. Taking cognizance of this fact, the NAPA proposes the stabilization of rural populations as a strategy for adaptation. However, none of the identified priority adaptation actions have RH/FP components or other interventions designed to stabilize rural populations.

Kiribati's NAPA mentions that the country has population policies to encourage family planning, although these policies are yet to have a substantive effect. In the final ranking of projects, the NAPA team clearly identified family planning as an adaptation strategy. Surprisingly, the identified priority projects did not have a single RH/FP project among them, despite the explicit mention. However, the document distinguishes between short-term adaptation, focusing on urgent and immediate needs (through the NAPA), and long-term strategic planning for adaptation, which is addressed by an existing project outside the NAPA, the Kiribati Adaptation Project, that has "support for population and resettlement" as one of its programmes.

Sao Tome and Principe's NAPA mentions the vulnerability of its essentially young (79 percent under 35) and predominantly urban population, manifested through frequent migration by coastal populations due to an increase in floods and coastal erosion. However, the NAPA neither acknowledges population pressure nor links it to climate change or to RH/FP. Yet it is one of the few countries to identify a project with components of RH/FP. The project, ranked third and titled "Communication Action for Behavior Change," has the objective of informing and sensitizing the population to behaviour changes for the prevention of diseases related to water, vector transmission, and other health problems linked to climate change. It specifically includes a component on family planning counselling.

The Uganda NAPA makes a clear link between population and climate change and notes the need for family planning. The document identifies a negative social coping strategy, "famine marriage," where, in times of food crisis, some parents

distressfully marry off their daughters to secure dowry for survival. This practice fuels early marriage, dropping out of school, and exposure to sexually transmitted infections and related reproductive health complications. The NAPA team identifies the "Community Water and Sanitation Project," which includes slowing population growth through family planning as part of a scaled-up poverty alleviation programme. However, the project profile does not mention the specific interventions in RH/FP, perhaps anticipating that NAPA project activities would link with RH/FP services in the country.

Zambia's NAPA reiterates the importance of meeting the goals of the Fifth National Development Plan (FNDP) 2006-2010, which includes integrated reproductive health with the objective of reducing the maternal mortality ratio. Despite this clear appreciation of the role of RH/FP in the NAPA and the linkage to the national development plan, the project team does not propose a project specific to RH/FP.

In summary, as shown in Table 1, although population is mentioned as an important factor related to climate change in 38 NAPAs, only six explicitly state that slowing population growth or meeting an unmet demand for RH/FP should be a key priority for their adaptation strategies, and only two NAPAs propose projects that include RH/FP. Neither of these projects has been funded.

Alignment of NAPAs with the National Development Planning Process

Since many of the adaptation needs identified in NAPAs are directly related to development issues, the effectiveness of NAPAs could be enhanced by integrating them into current development plans, policies, and programmes, including Poverty Reduction Strategies (PRSs). Ensuring that adaptation strategies align with national development processes could link development and climate change agendas. This is important since national development plans and strategies provide a framework for domestic policies and programmes, as well as for foreign assistance, with the overall aim of reducing poverty.[30] Theoretically, NAPAs and PRSs should embrace common projects that are built upon both short-term adaptation interventions and longer-term development strategies.[31]

A brief analysis of NAPAs reveals that even though all the documents have a section on the linkage of the NAPA with national development plans, the two are, in many cases, not well aligned. Two categories have been identified under which the NAPAs fall, in relation to alignment with national development planning processes. The first group, consisting of 33 and 23 countries (translating to 70 percent and 74 percent) for total and Africa, respectively, has NAPA documents which do not clearly demonstrate how they are linked to the national development processes. These documents only mention that the NAPA "was created on the basis of . . . ," "has established strong linkages with . . . ," or "supports . . ." the national development goals and strategies as espoused in the country's development plans without articulating any clear linkages.

The second category consists of 11 countries (25 percent) whose documents clearly establish the linkages between the NAPA and national development plans, complete with detailed analyses of the identified vulnerabilities and proposed projects. Some of these contain matrices of analyses showing how the NAPA fits into specific national development and sectoral development goals and even into specific programmes and projects (Table 1 and Summary Table 1).

Consensus is emerging about the disconnect between NAPAs and PRSs. A recent study commissioned by the Global Environment Facility (GEF) shows that mainstreaming adaptation into development agendas has not yet penetrated the world of PRSs.[32] According to the report, UNFCCC workshops have noted that crucially little work has been undertaken to integrate adaptation into development plans or existing poverty alleviation agendas.

A review of 19 PRSs in the 2007/2008 *Human Development Report* found that, although most of them cited climate events and weather variability as important drivers of poverty and constraints on human development, only four countries identified specific links between climate change and vulnerability.[6] A similar observation was made by UNDP's Water Governance Facility (WGF), which notes that a major weakness of NAPAs is the lack of clear linkages between their content and that of PRSs and other national development strategies.[33]

This disconnect may be due, in part, to the structural differences between development plans and NAPAs, both of which ought to be undertaken in a participatory process, with a multidisciplinary approach and a sustainable development perspective. Although the sustainable development approach implies a longer-term perspective, the guidelines for NAPAs to be "action-oriented" and "set clear priorities for urgent and immediate adaptation activities"[12] imply a shorter-term perspective. It is important, however, that NAPAs not only take into account short-term projects but also recognize the need for a coherent long-term adaptation strategy to which the implementation of the identified projects will contribute.[33]

NAPAs are, by definition, project-oriented. UNDP finds that most NAPAs focus entirely on small-scale project-based interventions to be financed or co-financed by donors; this has resulted

in “an upshot of a project-based response that fails to integrate adaptation planning into the development of wider policies for overcoming vulnerability and marginalization” (UNDP, 2007, p. 188). WGF corroborates this view by asserting that NAPAs generally focus on projects and are often not successful at integrating long-term development objectives.[33] McGray et al. state that the disconnect between NAPAs and the PRSs arises from the fact that the latter are prepared by ministries of finance or planning, which are often entirely disconnected from the environment ministries most closely associated with the NAPA process.[31] Osman-Elasha and Downing suggest viewing NAPAs as primarily important for raising awareness, at least among national stakeholders, and placing climate change adaptation on the development agenda.[25]

The Need for an Integrated Approach to Adaptation Strategies

Although a majority of the NAPAs identify rapid population growth as a key component of vulnerability to climate change impacts, few choose to prioritize NAPA funds for RH/FP programmes. Faced with multiple competing development priorities and climate change challenges, countries prioritize projects that are geared towards the alleviation of food insecurity and water resource scarcity, which are two key problems facing LDCs. Yet, in the LDCs, unmet need for family planning, or the percentage of women who want to stop having children or who wish to wait at least two years before having another child, is high. Overall, Yemen has the highest rate of unmet need (50.9 percent), and 80 percent of the countries have over 20 percent unmet need (Table 1). For African LDCs, Uganda tops with 40.6 percent unmet need, and 84 percent of the countries have over 10 percent and 20 percent unmet need, respectively (Summary Table 1). Mainstreaming RH/FP into projects designed to address food insecurity and water scarcity can help slow population growth and alleviate pressure on limited food and water resources.

There is also a likelihood that a majority of stakeholders involved in the preparation of NAPAs, although recognizing the importance of stabilizing population growth to better adapt to future climate changes, do not perceive RH/FP programmes to be urgent and immediate projects but rather long-term strategic planning interventions, perhaps best addressed in national development plans and PRSs. It is important to note, however, that population and RH/FP issues have not been adequately addressed by PRSs either. According to a World Bank review, most of the PRSs recognized population growth as an important issue for poverty reduction and included objectives and strategies but failed to translate these into specific policies or indicators to measure progress over time.[34] An unpublished review of 45 PRSs found that while two-thirds of them mention family planning, less than half include any implementation details.[35]

This view is given credence by the Kiribati NAPA, which clearly distinguishes between short-term adaptation for urgent and immediate needs (through the NAPA) and long-term strategic planning for adaptation (addressed by an existing project outside the NAPA, the Kiribati Adaptation Project, which has support for population and resettlement as one of its programmes). Even though the NAPA guidelines state the importance of aligning projects to long-term sustainable development planning, they place greater focus on urgent action, which may be construed by NAPA stakeholders to imply short-term rather than long-term planning and development.

Components of health and RH/FP, however, could be integrated into projects in other sectors, as has been done in the NAPAs from Sao Tome and Principe and Uganda. For example, integrating health into projects focusing on agriculture and water resources, which have a higher likelihood of being given a high priority for NAPA funding, would improve the chances of RH/FP being implemented. Furthermore, such integrated projects are more likely to meet the needs of vulnerable populations, which face risks in all aspects of their lives—food, shelter, livelihoods, health, etc., including their voiced desire to stop or space childbearing.

Conclusions and Recommendation

NAPAs are a major mechanism through which adaptation funding is to be provided to LDCs, which are likely to face the most severe impacts of climate change. This chapter has shown that the NAPA process favours short-term project responses to climate change adaptation and that priority tends to be given to single-sector projects focusing on food security and water resources. The NAPA process has also not been successful in aligning urgent and immediate actions to address vulnerability to climate change with existing national development planning processes, including PRSs, despite the requirement to do so. Thus, LDCs—and the global community—are missing an important opportunity to link meeting immediate and short-term adaptation needs with longer-term development issues, including the Millennium Development Goals (MDGs), that will also strengthen people’s ability to adapt to climate change.

Furthermore, demand for funding exceeds current available resources for NAPAs, indicating that developed countries are not meeting their promises to fund adaptation to climate change in the most affected countries.

Since environmental degradation and climate change have been linked to demographic factors, including population growth, slowing the rate of growth should be among the strategies implemented through NAPAs—and through national development plans. Voluntary RH/FP that respects the rights of individuals to choose the number and spacing of their children is recognized as one of many strategies that can help improve livelihoods and protect the environment by slowing population growth and reducing population pressure. RH/FP, included with investment in girls' education, economic opportunities and the empowerment of women, and investments in youth, which are all part of the MDGs, can help developing countries speed up their demographic transition from high to low fertility, lower mortality rates, and will likely help people adapt to climate change.

This analysis of NAPAs shows that population pressure is recognized as an issue related to the ability of countries to cope with climate change. Thirty-eight of the 44 NAPAs submitted broadly recognize and link rapid population growth to challenges the countries face in adapting to climate change. However, these linkages are not matched by a proportional response through adaptation projects that address population, including access to voluntary RH/FP. Only two countries among the 44 include RH/FP projects in their NAPAs, and neither of those projects has received funding.

This review leads to five recommendations:

- The favouring of single-sector projects within the NAPAs over integrated programmes does not reflect people's lives. Strategies for adaptation should reflect a multisectoral approach that recognizes that people do not live in single sectors. People deal simultaneously with food, water, livelihoods, health, and education, among other issues, including reproductive health. Wherever appropriate, projects or programmes funded through NAPAs should be integrated across sectors to avoid "winner" and "loser" sectors.
- The focus of NAPAs on short-term projects, rather than on linkages with development strategies that address medium- and longer-term issues, is inadequate. As countries develop longer-term adaptation strategies, a mix of short- and longer-term projects that involve participation across development sectors is important to ensuring a wide range of adequate responses in adapting to climate change that can save lives and, ultimately, strengthen livelihoods.
- NAPAs should translate the recognition of population pressure as a factor related to the ability of countries to adapt to climate change into relevant project activities. Such projects should include access to RH/FP, in addition to other strategies that reduce unwanted fertility, such as girls' education, women's empowerment, and a focus on youth.
- Countries that have already clearly identified RH/FP projects in their NAPAs should expedite their implementation.
- Attention to population and integrated strategies should be central and aligned to longer-term national adaptation plans and strategies currently being discussed as part of enhanced action for adaptation.

References

1. Intergovernmental Panel for Climate Change (IPCC). Climate change 2001: impacts, adaptation, and vulnerability. Contribution of Working Group II to the third assessment report of the Intergovernmental Panel on Climate Change. Cambridge, UK: Cambridge University Press, 2001.
2. Huq S, Rahman A, Konate M, Sokona Y, Reid H. Mainstreaming adaptation to climate change in Least Developed Countries (LDCs). London: International Institute for Economic Development (IIED), 2003.
3. Assessments of Impacts and Adaptations to Climate Change (AIACC). Science in support of adaptation to climate change: recommendations for an adaptation science agenda and a collection of papers. Presented at a side event of the 10th session of the UNFCCC COP. Buenos Aires, Argentina, 7 December, 2004. Website: www.aiaccproject.org/whats_new/Science_and_Adaptation.pdf. Accessed 5 May 2009.
4. United Nations Framework Convention for Climate Change (UNFCCC). Bali Action Plan, 2007. Website: http://unfccc.int/files/meetings/cop_13/application/pdf/cp_bali_action.pdf. Accessed 5 May 2009.
5. UNFCCC. Investment and Financial Flows to Address Climate Change. Bonn: UNFCCC, 2007.
6. United Nations Development Programme (UNDP). Human development report 2007/2008: fighting climate change: human solidarity in a divided world. New York: UNDP, 2007.
7. Food and Agriculture Organization of the United Nations (FAO). Adapting to climate change. Unasylva No. 231/232 Vol. 60(2009/1-2). Rome: FAO, 2008.
8. Reid H, Huq S. International and national mechanisms and politics of adaptation: an agenda for reform. Human Development Report Office Occasional Paper No. 2007/14. New York: UNDP, 2007.
9. Jiang L, Hardee K. How do recent population trends matter to climate change? PAI Working Paper No. WP09-1. Washington, DC: Population Action International, 2009.
10. Global Leadership for Climate Action (GLCA). Facilitating an international agreement on climate change: adaptation to climate change. A proposal of the GLCA, 2009.
11. UNFCCC/LEG. 2002. Annotated guidelines for the preparation of national adaptation programmes of action. Website: http://unfccc.int/files/cooperation_and_support/ldc/application/pdf/annguide.pdf. Accessed 12 March 2009.
12. Stern, Nicholas. The economics of climate change. The Stern Review. Cambridge and New York: Cambridge University Press, 2006.
13. The World Bank. The economics of adaptation to climate change. Final consultation draft. Washington, DC: The World Bank, 2010.
14. Oxfam International. Adapting to climate change. Oxfam Briefing Paper 104: Oxfam International, 2007.
15. Agrawala S, Fankhauser S, eds. Economic aspects of adaptation to climate change: costs, benefits and policy

instruments. Paris: Organisation for Economic Co-operation and Development (OECD), 2008.
16. CCCD (Commission on Climate Change and Development). Closing the gaps: disaster risk reduction and adaptation to climate change in developing countries. Final report. Stockholm: Ministry of Foreign Affairs, 2009.
17. Bryant L, Carver L, Butler D, Anage A. Climate change and family planning: Least Developed Countries define the agenda. Bulletin of the World Health Organization 2009;97:852-7.
18. Jiang L. Population and sustainable development in China: population and household scenarios for two regions. Amsterdam: Thela Thesis, 1999.
19. Jiang L, O'Neill B. The energy transition in rural China. International Journal of Global Energy Issues 2004;21(1/2):2-26.
20. Liu J, Daily GC, Ehrlich P, Luck GW. Effects of household dynamics on resource consumption and biodiversity. Nature 2003;421(6922):530-533.
21. Mackellar FL, Lutz W, Prinz C, Goujon A. Population, households and CO2 emission. Population and Development Review 1995;21(4):849-865.
22. Prskawetz A, Jiang L, O'Neill BC. Demographic composition and projections of car use in Austria. Vienna Yearbook of Population Research 2004;1(1):175-201.
23. Van Diepen A. Households and their spatial-energetic practices: searching for sustainable urban forms. Nederlandse geografische studies No. 266. Groningen, Utrecht: Faculteit der Ruimtelijke Wetenschappen, RUG/ Koninklijk, 2000.
24. UNFCCC. "NAPA Projects Database." Website: http://unfccc.int/cooperation_support/least_developed_countries_portal/napa_project_database/items/4583.php. Accessed 12 June 2009.
25. Osman-Elasha B, Downing T. Lessons learned in preparing national adaptation programmes of action in eastern and southern Africa. Policy analysis report. Oxford, UK: European Capacity Building Initiative (ECBI), 2007. Website: www.eurocapacity.org. Accessed 12 March 2009.
26. Ross J. Understanding the demographic dividend. Washington, DC: Futures Group, POLICY Project, 2004.
27. Moreland S, Talbird S. Achieving the Millennium Development Goals: the contribution of fulfilling the unmet need for family planning. Washington, DC: Futures Group/Health Policy Initiatives/USAID, 2006.
28. O'Neill B, Dalton M, Fuchs R, Jiang L, Pachauri S, Zigova K. Global demographic trends and future carbon emissions. Proceedings of the National Academies of Science, Oct.11, 2010. http://www.pnas.org/content/early/2010/09/30/1004581107.full.pdf+html. Accessed 12 October 2010.
29. Moreland S, Smith E, Sharma S. World population prospects and unmet need for family planning. Washington, DC, April 2010. http://www.futuresgroup.com/publications/world-populationprospects-and-unmet-need-for-family-planning. Accessed 12 October 2010.
30. Bojo J, Green K, Kishore S, Pilapitiya S, Reddy R. Environment in poverty reduction strategies and poverty reduction support credits. Working Paper No. 30890. Washington, DC: The World Bank, 2004. Website: www.basel.int/industry/wkshop-1206/3.%20Additional%20materials/Bojo%20paper%20on%20env%20in%20PRSPs.pdf. Accessed 28 March 2009.
31. McGray H , Hammill A, Bradley R, Schipper EL, Parry J. Weathering the storm: options for framing adaptation and development. Washington, DC: World Resources Institute, 2007. Website: www.wri.org/publication/weathering-the-storm. Accessed 12 March 2009.
32. Hedger M, Mitchell T, Leavy J, Greeley M, Downie A, Horrocks L. Desk review: evaluation of adaptation to climate change from a development perspective. London: Institute for Development Studies (IDS), Global Environment Facility (GEF), Department for International Development (DFID), 2008. Website: www.esdevaluation.org/images/IDS_Report_on_Evaluating_Adaptation_for_GE_publication_version.pdf. Accessed 10 March 2009.
33. Water Governance Facility (WGF 2009). Water adaptation in NAPAs: freshwater in climate adaptation planning and climate adaptation in freshwater planning. A UNDP side publication to WWDR3. Stockholm: WGF, 2009. Website: www.watergovernance.org/downloads/UNDP_NAPAs_water_adaptation_to_climate_change_20_Jan.pdf. Accessed 28 March 2009.
34. The World Bank. Population issues in the 21st century: the role of the World Bank. Working Paper No. 40583. Washington, DC: The World Bank, 2007.
35. Borda M. How well do poverty reduction strategy papers address family planning? an analysis of 45 countries. Unpublished manuscript. Washington, DC: Constella Futures, POLICY Project, 2005. Cited in: Bhuyan, Borda and Winfrey, 2007:19.