Identification and Screening of Climate Projects

Summary

Nordic Development Fund

January 2011

PROJECT IDENTIFICATION AND SCREENING - SUMMARY

Background

The strategy approved by the NDF Board in 2009 involves support for climate-relevant projects including both adaptation and mitigation initiatives. Adaptation covers a wide range of projects that will enhance the ability of partner countries to respond to climate change-related issues such as sea level rise; storms, floods, and drought, and threats to water resources, health, and agriculture. Mitigation efforts are targeted at reducing greenhouse gases (GHGs) by measures such as improved energy efficiency, increased use of renewable energy sources, carbon sequestration, and sustainable transport initiatives.

The broad mandate to provide financing for projects contributing to climate and development objectives, while apparently quite straightforward, in fact gives rise to a number of difficulties in defining projects that merit NDF support. Particularly given that NDF can provide grant funding, there are incentives for potential beneficiaries and co-financiers to claim that projects are climate-related when in fact they are primarily – perhaps exclusively - designed for other objectives. Such relabeling is likely to be an issue constantly faced by NDF in its new role.

In determining appropriate areas for NDF support it is therefore important to be rigorous and systematic in the definition of what constitutes a legitimate climate project or component. In particular the distinction should be made between (a) projects (or components) in which objectives, costs and benefits relate solely to climate change, and (b) projects (or components) which are highly relevant for climate but primarily aimed at other development objectives.

Adaptation

A key feature of climate change is that in general the poorest countries tend to be the most vulnerable and have no alternative than to try to adapt to the problems that are primarily caused by the rich and powerful countries, and over which they have no control. Furthermore, within the poor countries, it is invariably the poorest elements of society who are least able to take measures to protect themselves. In view of the massive economic consequences expected to result from climate change, both economic efficiency and social justice support the emphasis given to adaptation in NDF's project selection. While physical and economic circumstances vary considerably, it is clear that climate change will require adaptation activities in all of the NDF client countries.

The guiding principle for NDF approval is that adaptation projects should be defined as those that are primarily aimed at responding to the adverse consequences of climate change. As projects will typically have multiple objectives and consequences, isolating the costs that are incurred solely as a result of climate change may in fact become

exceedingly complex, but this information will have to be supplied by project proponents or potential co-financiers.

In practice the minimum criteria for NDF support should be first that projects should satisfy standard economic and social tests at the national level (i.e. excluding global impacts, but including other environmental aspects as well as poverty alleviation and gender implications) and second that they should be primarily climate-related. *The latter implies that at least half of total project costs should be incurred due to the actual or expected impacts of climate change.* Where explicitly climate-related components can be identified, NDF financing earmarked for those components may also be acceptable if the foregoing economic justification and climate relevance tests are applied to the component itself.

Experience to date indicates that it is not always straightforward to identify suitable adaptation projects for NDF support, the difficulty of disentangling climate-related costs from other project costs being a major obstacle. However, there is a growing body of physical evidence of the effects of climate change that clearly warrant immediate infrastructure development, with increasing glacier melting, storms, periods of flood and drought and sea level rise being conspicuous examples. Other types of intervention have also been shown to merit early attention, e.g. early warning systems, monitoring, training, governance and planning mechanisms, and disaster management, which take time to implement and have an insurance element, designed to respond to potentially catastrophic but as yet uncertain damage.

The potential long term severity of the impacts of climate change should not be a reason for diluting traditional project evaluation criteria. Of particular concern is that there may be a temptation to use unrealistically low discount rates to justify measures to combat the effects of climate change that may be realized many years hence. Indeed a role of NDF should be not only to support defined adaptation projects but equally important, to ensure that they satisfy economic criteria, rejecting those that are premature or otherwise unjustified.

Mitigation

In all NDF partner countries there is major scope for mitigation activities, with abundant opportunities for “win-win” energy efficiency and fuel substitution projects, i.e. those that are justified in conventional cost-benefit terms at the country level as well as yielding global benefits in terms of reducing greenhouse gas emissions. In addition, in some NDF partner countries economically justified reforestation or improved forest management provides considerable potential for carbon sequestration, large enough to be globally significant. Moreover, support for mitigation might be justified to the extent that the recipient country may qualify for CDM or other external credit for climate-sensitive policies, although this should generally be seen as a by-product rather than a primary project objective.

In view of the above, and of NDF’s mandate, which is to support climate and development, the strategy that has been adopted is to support economically justified projects, say for energy efficiency or reforestation, as long as they have significant and positive climate impacts. This would apply even where the incremental costs of specifically climate measures are either zero or cannot be disentangled from other project costs, or indeed where (positive) climate implications may not even have been considered in the design

and implementation of energy efficiency or reforestation projects. *For this purpose, NDF defines climate benefits as being "significant" if their present worth at least equals ten percent of project investment costs.* As in the case of adaptation, projects should also satisfy standard economic and social tests (or be expected to if not easily quantified) at the national level, and similar provisions exist for possible financing of explicitly climate-related components.

A major conceptual and empirical issue concerns the social value, or global benefits, of reducing GHGs, and the topic continues to be the subject of intense study and debate. Obviously the lower the level of costs per unit of carbon, the more difficult it will be to classify a project as having significant global benefits. Unfortunately, while there is a general consensus that the marginal social costs of GHGs will increase rapidly as the century progresses, estimates of the costs themselves vary widely. Critical determinants of this variation include not only the assumptions made about actual damage costs at any point in time, but also the assumptions made about the appropriate discount rate to use. For this purpose, little guidance is provided by the various carbon markets and CDM-type mechanisms, where a range of prices are observed, the markets being notoriously imperfect and subject to major political constraints and manipulation.

At the high end of the estimates, the highly publicized Stern report, employing extremely low social time preference rates (or discount rates), comes up with between $ 25 per ton of CO_2 for a least cost scenario and $ 85 per ton for a "business as usual" scenario. Based upon this, the UK government has proposed using a figure of $50 per ton. By contrast, most studies suggest a maximum of $ 16 per ton of CO_2, while a recent World Bank publication implicitly uses about $8 dollars per ton. In view of this uncertainty, its limited funding capacity, and the need to ensure that the projects or components it supports make a genuinely significant contribution, it is appropriate for NDF to be conservative in the value that it implicitly places on GHG reduction. Thus in assessing the merits of proposed projects or components, NDF will value GHG reductions at $10 per ton of CO_2, and discount future benefits of CO_2 reductions at an annual rate of 5%. Eligibility of projects for NDF support therefore involves fairly strict requirements.

Summary and Conclusions

While the approach described here suggests quantitative indicators for screening projects or components, the intention is essentially to establish rough guidelines within which NDF staff should apply their professional judgment in determining whether or not projects or components can be defined as adequately climate related. Estimation of precise climate-related costs or benefits to determine the extent to which a project qualifies or does not qualify for support is certainly not called for. Prioritizing selection is not an exact science at the best of times, and the many physical uncertainties, long time horizons, and imperfect market conditions make this especially true in the case of climate change.

As experience grows, consideration will continually be given to revising the suggested screening criteria. For example there may emerge increasingly clear examples of projects in which climate adaptation is a primary objective, or where adaptation is becoming increasingly costly; or the estimated costs of GHG reductions may show a significant increase. In practice, evidence to date suggests that the criteria should essentially be seen as a means of rationing the limited resources available to NDF in order to ensure that

the highest priority climate-related projects are funded. If, with the current criteria there is an overwhelming demand for NDF support, those criteria should become more demanding. The potential for such developments will require the continual updating and re-evaluation of the screening criteria and continued efforts to systematize and update country profiles.

January 2011

1. Screening example 1: Adaptation

Project description

The project seeks to reduce rural population's vulnerability to natural disasters and increase their resilience to climate change impacts through planned adaptation measures. The project has three major components:

Component 1: Natural resources management with the aim of reducing disasters and adapting to climate change ($4.41 million). This includes increasing forest cover, sustainable forest management and soil conservation; training in climate resilient production systems and sustainable production practices; and establishing measures for water harvesting, water capture, and CO_2 sequestration

Component 2: Infrastructure to help reduce losses due to extreme weather ($5.12 million). This is based on identification of most vulnerable sites, and measures to protect houses, roads, bridges, schools, and health centres from flooding and landslides.

Component 3: Capacity development ($1.65 million). Includes risk management plans, hazard mapping, municipal climate change planning processes, development of payment for ecosystem services, climate change modelling, institutional strengthening in the Ministry responsible for the project, and training of staff and local stakeholders.
In addition, the project includes unallocated administrative, financial, and monitoring and evaluation costs of $2.32 million. Total project cost is $13.5 million**,** of which $10 million is financed by a Multilateral Development Bank (MDB), $3 million by NDF, and $0.5 million by the country's Government.

Screening

First of all we assume that the overall project as well as each of the identified components will pass standard social and economic tests. Hereafter, to follow NDF's screening criteria, a detailed examination of the project through "without" and "with climate change" scenarios will be carried out. The screening includes each component of the project where the evaluator will try to identify costs that could be defined as exclusively responding to climate change. For example, in Component 1, these would include only the *additional* costs of soil conservation, over and above those that would be required in a stable climate environment; in Component 2, only the *additional* cost of protective infrastructure construction; and in Component 3, only the cost of *additional* institutional reform measures or staff training activities. In general, administrative, capacity building, and institutional reform costs tend to be less climate-specific than infrastructure costs.

	Climate Costs ($)	Non Climate Costs ($)	Climate Costs as % of Total Costs
Component 1	2,626,022	1,784,308	**59.5 %**
Component 2	3,073,092	2,048,728	**60.0 %**
Component 3	1,036,000	612,000	**62.8 %**
Unallocated admin, financial, M&E costs	363,515	1,955,635	**15.6 %**
Total	**7,098,629**	**6,400,671**	**52.5 %**

As the table above shows, the project satisfies the minimum NDF screening criterion as 52.5 % of the project costs is estimated as specifically responding to actual or expected impacts of climate change. Not included in the calculation, but increasing the attractiveness of the project in light of NDF's new mandate, is the contribution the project might make in terms of mitigation, with CO_2 sequestration (through improved soil management and tree planting) being an explicit sub-component.

2. Screening example 2: Mitigation

Project description

The overall objective of the project is to i) improve access to clean energy for low income rural households; and ii) promote renewable energy based on locally available resources in ways that are not only cost effective but also contribute to a reduction in greenhouse gas (GHG) emissions. The project components include:

Component 1: policy and capacity building;
Component 2: efficient utilization of biomass for bioenergy and organic fertilizers;
Component 3: small-scale liquid biofuels; and
Component 4: improved cook stoves.

Based on preliminary estimates, the project has the potential to reduce GHG emissions by 87,550 tons of CO_2 equivalent per year by 2017. This will be achieved by: i) the installation of 44,000 biogas digesters, which will replace high levels of natural decomposition with production of biogas (18,876 tons of CO_2 per year); ii) the installation of 50,000 improved cook stoves, which use fuels more efficiently (49,874 tons of CO_2 per year); and iii) the planting of 10,000 hectares of *Jatropha* which will produce 1,100 liters of oil per hectare per year (18,800 tons of CO_2 per year) to be used locally to reduce on-farm fuel costs and with surpluses exported to regional refineries for processing into higher value fuels. The total project cost to be financed by a Multilateral Development Bank (MDB) is estimated at $80 million. Preparatory work for this project is the subject of a technical assistance (TA) project which NDF considers to finance.

Screening

First of all we assume that the overall project as well as each of the identified components will pass standard social and economic tests. Hereafter, the following assumptions are

made about the subsequent investment project that will be developed based on the TA: (a) the project cost of $80 million is spread evenly over a four year construction period (b) the annual reduction in GHG emissions is estimated at 87,550 tons of CO_2 starting in year 6 (c) the global value of reducing one ton of CO_2 is $10 (d) the project life is 25 years, and (e) the discount rate is 5%.

At a discount rate of 5% the present worth of project investment costs is $71 million and the present worth of annual reductions in GHG emissions is $12.6 million. Hence, the value of the reduction in GHG emissions is approximately 18% of project investment costs. Consequently, the eventual investment project, and therefore the preparatory TA, satisfies NDF's screening criterion as the total value of the GHG emission reductions are 18 % of project investment costs i.e. more than the required amount of 10%. Not included in the calculation, but increasing the attractiveness of the project in light of NDF's new mandate, is that it will make an important contribution to agricultural resiliency and consequently improve the project area's ability to adapt to climate change.