
Guidelines for Project Identification and Screening

Nordic Development
Fund

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Table of Contents

Multiple criteria for screening climate change projects

1. Background.....	2
2. Defining Climate Projects.....	2
3. Adaptation.....	3
4. Mitigation.....	5
5. Multiple Criteria.....	8
6. Summary and Conclusions	11

1. Background

The Nordic Development Fund (NDF) is a joint Nordic finance institution focusing exclusively on climate change and development in low-income (LIC) and lower middle-income countries (LMIC). NDF has adopted a new strategy in November 2015, which underlines NDF's role in channeling finance to innovative climate change interventions that reduce poverty in developing countries. In line with the new strategy, the NDF Guidelines for Project Identification and Screening (originally launched in 2010 and previously amended in 2013) have been updated to reflect the core principles and strategic priorities highlighted in the 2015 strategy.

With the large number of projects annually submitted for NDF consideration, it has been found necessary to employ a systematic procedure for addressing project suitability. In addition to the core project criteria of climate relevance and economic viability, a set of strategic criteria have been formulated based on NDF's strategic focal areas to ensure optimal value added by NDF. The objective of the screening process is to ensure that the selected projects fit within NDF's strategic ambition and facilitate transparent and informed prioritization in portfolio development.

It is difficult to rank countries, sectors or projects scientifically with regard to priorities for climate change interventions, not only because of the uncertainties surrounding climate change itself, but because vulnerability to climate change is but one of many criteria to be used in assessing priorities for development assistance. NDF has a history of association with 27 countries. The current resources mean in practice that approximately only 12-15 of these low-income (LIC) and lower middle income (LMIC) countries can receive funding from NDF at the moment.

2. Defining Climate Projects

The NDF strategy approved by the Board in November 2015 reiterates NDF's strong commitment to support both adaptation and mitigation initiatives. While generally drawing on the descriptive definitions of the OECD DAC "Rio Markers" for climate mitigation and adaptation, NDF notes on-going work in fine tuning these markers. In addition, NDF follows the work by e.g. Multilateral Development Banks (MDBs¹) and the Green Climate Fund (GCF) in defining and tracking climate mitigation and adaptation interventions.

Adaptation covers a wide range of activities that will enhance the ability of partner countries to respond to climate change-related issues such as sea level rise; storms,

¹ A group of Multilateral Development Banks (MDBs) covering the African Development Bank (AfDB), the Asian Development Bank (ADB), the European Bank for Reconstruction and Development (EBRD), the European Investment Bank (EIB), the Inter-American Development Bank (IDB), and the International Finance Corporation (IFC) and World Bank (IDA/IBRD) from the World Bank Group (WBG) MDBs work jointly to improve harmonization and transparency in climate finance reporting.

floods, and drought; and threats to water resources, health, infrastructure, and agriculture. Adaptation measures may include climate change impact analysis and national adaptation planning as well as "climate proofing" of sectors, geographic areas and specific projects.

Mitigation efforts are targeted at reducing greenhouse gas (GHG) emissions by measures such as improved energy efficiency, increased use of renewable energy sources, sustainable transport initiatives, and carbon sequestration.

In determining appropriate areas for NDF support it is important to be rigorous and systematic in the definition of what constitutes a legitimate climate change project (or component of a project) that it supports. 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 change but are primarily aimed at other development objectives.

The foregoing issues can be considered separately with regard to projects supporting adaptation to climate change, and those aimed at reducing GHG emissions and enhancing carbon sinks (mitigation). There will, however, often be cases in which projects contain both adaptation and mitigation aspects, the synergies being most apparent in renewable energy-forestry-land management linkages. In such cases, it is conceivable that projects may fail screening tests for adaptation alone or mitigation alone, but overall may be judged suitable for NDF support.

It will be noted that there are various modalities by which NDF support may be applied, including not only traditional project by project co-financing with major partners, primarily the Multilateral Development Banks (MDBs), but also mechanisms such as the Nordic Climate Facility (NCF). Also, NDF seeks to work with potential co-financiers in developing projects at a sufficiently early stage for the institution to exert maximum leverage in promoting climate-related activities in project design.

3. Adaptation

General Approach

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. Within the poor countries, it is typically the poorest elements of society who are least able to take measures to protect themselves. In view of the massive social and 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.

Project Criteria

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, hence, explicitly contributing to increasingly climate-resilient sustainable development. The core screening criteria for adaptation projects are as follows:

Projects should satisfy standard economic and social tests (or be expected to if not easily quantified) at the national level, i.e. excluding global impacts.

Projects should be primarily climate-related, i.e. at least 50% of total project investment costs would be incurred due to measures helping to adapt and build resilience to the current or expected impacts of climate change.

Where co-financing with MDB's will be employed, those institutions have to be relied upon to ensure that approved projects satisfy the first of the above criteria. The second requirement on the other hand involves specific analysis that will have to be carried out by NDF staff. This will require a thorough understanding of how climate change affects project design, including quantification of the incremental investment and operating costs due to climate change, and disentangling such costs from those that are not climate-related. This is the key part of the project analysis; and there will be considerable variation in the type of information required for the various cases.

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. For example, identification of the costs incurred because of climate change for infrastructure projects may require hypothetical redesign, possibly in terms of timing, sizing, or location. Institutional reforms that may enhance the ability to address problems caused by climate change may also be justified in terms of improving general capacity to respond flexibly to other, at present unanticipated, future challenges. In addition, measures helping to build adaptive capacity in light of future climate change impacts generally help strengthen the resilience of societies to current climate risks in light of natural climate variability. Sometimes costs of an otherwise identical project may be incurred earlier than they otherwise would be as a result of climate change (e.g. a reservoir designed to store water from rapidly melting glaciers); in such a case the cost of adaptation would be the difference between the present worth of the water supply system costs with and without the expected climate change. Note also that suitability of an adaptation project for NDF support requires that excessive GHG emissions during project construction and operation are avoided.

In principle, the present worth of costs incurred due to climate concerns should be compared with the present worth of total project costs, but in practice, an allocation based upon investment costs alone will be sufficient. The results should be interpreted in light of the criteria for NDF support, namely that the project should satisfy conventional cost-benefit tests at the national level and that climate change should be responsible for at least 50% of project investment costs, but preferably a much higher percentage than this.

Financing Specific Components

Thus far the criteria have been discussed in terms of the commonly observed case in which it is difficult to identify totally climate-related components, i.e. where capacity building or physical infrastructure may be required to respond to various causes or objectives. However, it will sometimes be possible to identify explicitly climate-related components to which NDF financing may be applied. For example, a coastal zone management project may fail the 50% test, but possibly there could be one very attractive component, such as building a sea wall, that might be worth supporting, or indeed included only because of NDF's intervention. In such a case, the NDF-financed component would be acceptable if, in addition to the requirement that the overall project be justified in standard cost-benefit terms, the component itself is economically justified and is also primarily (i.e. at least 50%) a response to climate change. In practice, determining whether or not an investment should legitimately be considered as a component suitable for NDF support will often be a matter of judgement, best arrived at by close cooperation between NDF and a potential co-financier at an early stage in project development.

Finding Suitable Projects

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 e.g. clearly warrant immediate climate-smart infrastructure development, with rapid glacier melting, storms, periods of flood and drought and sea level rise being conspicuous examples. Experiences and lessons learned from adaptation interventions are increasingly becoming available and merit attention, covering e.g. livelihoods diversification, insurance schemes, improved resilience of ecosystems and ecosystem services, monitoring of changes in disease outbreaks and development of national response plans, strengthening of institutional and regulatory systems for climate-responsive planning, improved early warning systems, and disaster risk management.

4. Mitigation

General Approach

In all NDF partner countries, there is major scope for mitigation activities, with abundant opportunities for “win-win” energy efficiency, renewable energy 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 (GHG) emissions. In addition, there is considerable potential for carbon sequestration, large enough to be globally significant, associated with economically justified reforestation or improved forest management in some NDF partner countries. Moreover, support for mitigation might be justified to the extent that the recipient country may benefit from carbon financing 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 determining whether or not NDF support for mitigation activities would be justified, two alternative approaches may be considered. One would be that NDF should only finance those activities that involve a net cost to the recipient country. In other words, in direct contrast to adaptation, eligible mitigation activities would only include those that fail national cost-benefit tests, although in global terms – i.e. when climate benefits are factored in - they would pass such tests.

However, the NDF mandate is to provide funding for both climate change and development, which can be interpreted to give the institution greater flexibility in determining project eligibility. The shortcoming of the above approach is that if only incremental climate-related mitigation costs can be supported, NDF participation in economically justified projects will be unduly restricted and important development opportunities lost. For example, exploitation of geothermal energy in several NDF partner countries appears to offer excellent prospects not only in terms of economic development, but also of the scope for replacing the use of fossil fuels and reducing GHG emissions. The preferred strategy is to allow NDF to support economically justified projects, say for energy efficiency, renewable energy or reforestation, as long as they have significant and positive climate impacts. This would apply even where the incremental costs of specific 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 the project.

Project Criteria

The core screening criteria for mitigation projects are as follows:

Projects should satisfy standard economic and social tests (or be expected to if not easily quantified) at the national level.²

Projects should have a significant climate component, i.e. the global benefits of the direct GHG emission reduction or carbon sequestration should be at least 10% of project investment costs.

Determining “significance” requires estimation of the annual reduction in greenhouse gas emissions over the lifetime of the project, i.e. a “with and without project” comparison. This includes assessment of net changes – which may be positive or negative – in GHG emissions during the project construction phase. Complex technical assessment will typically be required of the impacts of such activities as energy efficiency investments;

² For this purpose the value of any reduction in GHG emissions would not be included as a project benefit, the only exception to this rule being where, with some certainty, the reduction can be internalized in the form of carbon financing.

replacement of fossil fuels by renewable sources; transport investments; or carbon sequestration.

The annual global benefits of reducing GHG emissions should then be calculated by multiplying the reduction in the number of tons of CO₂ equivalent emitted by a figure representing the social value (in monetary terms) per ton of such reduction. (In practice, estimation of the social value of greenhouse gas emission reduction raises major conceptual and empirical issues).

The present worth of the stream of annual global benefits of direct greenhouse gas emission reduction stemming from the project should then be compared with project investment costs. The test for climate significance will be passed if the present worth of benefits thus calculated exceeds 10% of project investment costs.

Direct and the indirect greenhouse gas emission reductions should be estimated separately.³ Assumptions about critical variables (e.g. the discount rate used and in particular the value per ton of the direct CO₂ emission reduction) should be highlighted where major uncertainties exist. In case the direct CO₂ emission reduction does not satisfy the 10% criterion, NDF may consider financing the project if significant indirect CO₂ emission reductions are expected as a result of the project.

Financing Specific Components

Analogous to the case of adaptation, failure to satisfy the above criteria does not necessarily rule out a role for NDF in supporting a particular project. For example, there could be an energy efficiency project that fails the 10% test, but contains an identifiable component specifically aimed at carbon capture. NDF funding might be available for such a component. If so, in addition to the requirement that the overall project satisfies standard cost-benefit tests at the national level, minimum screening criteria for NDF financing should be that the component also satisfies similar tests at the national level, and that the global benefits resulting from the component are at least 10% of component investment costs.

Valuing Global Emission Reduction

The major issue to be addressed in determining the justification of mitigation projects or components is the difficulty of estimating the cost of GHG emissions, and the topic continues to be the subject of intense study and debate. Obviously the lower the cost per unit of carbon emitted, the more difficult it will be to classify a mitigation project as having significant global benefits. Unfortunately, while there is a general consensus that

³ Direct emission reductions are defined as the net emission savings caused by the project during the expected lifetime of the investment. Indirect emission reductions are defined as the net emission savings likely to be achieved as a result of future investments or policy and regulatory changes attributable to the project.

the marginal social costs of carbon emissions will increase 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.

In view of this uncertainty, the need to ration available funds to ensure that the projects or components it supports make a genuinely significant contribution, it is appropriate for NDF to be relatively conservative in the value that it implicitly places on GHG reduction. For this purpose, studies of the global (social) costs of GHG emissions conducted by independent economists rather than the prices emerging from carbon markets are used as a basis for setting a benchmark. It is therefore proposed that in its assessment of the merits of proposed projects or components, *NDF will value direct emission reduction at \$10 per ton of CO₂, and use a relatively high real discount rate of 5 percent.*

Several stakeholders have expressed the need to refine estimates of the social cost of carbon to make possible interventions (e.g. taxes or cap and trade) more realistic in effecting behavioral change. Therefore, the benchmark price discussed here should be subject to continual re-evaluation and adjusted in light of changes in generally accepted price levels.

5. Multiple Criteria

While providing support for economically justified climate change projects is the core objective of NDF, the two conditions are in practice minimum requirements; many projects may satisfy the conditions but for one reason or another may not be considered suitable – or at least of sufficiently high priority – to warrant NDF support.

In practice, many considerations are taken into account in determining whether or not to support a given activity. Relevant aspects are wide-ranging and include technical, economic, social, political, and administrative issues. Factors to be considered may have positive or negative aspects; projects may appear to be very high priority in some respects, but may fail in others. If serious enough, unsatisfactory performance relating to any one of the various factors could mean that minimum conditions for project acceptance are not achieved.

Prior to this 2016 update of the Guidelines, NDF had already in the 2013 version included a checklist that took into account many of the above mentioned factors helping to justify NDF's participation in a project systematically. This checklist has been very useful and has been further amended to ensure that the screening process is in line with NDF's strategy as of November 2015.

Checklist

Shown below is a checklist of aspects to be considered in assessing the merits of a proposed project;

Core Project Criteria - NDF's mandate is to support climate change and development projects; core project criteria can therefore be summarized as:

- *Climate Relevance* (based on the 50% and 10% tests for adaptation and mitigation respectively, for projects or components as appropriate)
- *Economic Justification* – based on judgment that the project satisfies standard cost-benefit tests such as the internal rate of return (IRR)

Strategic Criteria - NDF's strategic focal areas have been formulated into respective screening criteria to ensure optimal value added by NDF. Contrary to screening against the compulsory Core Project Criteria, NDF does not expect that a project will necessarily “score” highly/positively in all the following criteria. The objective is to ensure the project fits within NDF's strategic ambition, to assess the match and facilitate systematic prioritization in portfolio development. The strategic criteria are:

- *Catalytic role and leverage*: NDF is actively seeking a catalytic role in leveraging additional flows of financing through its innovative financing arrangements. In order to assess this capability, a preliminary assessment of targeted leverage (private and/or public) shall be prepared. This means estimating an expected monetary value, given the information available at the time of screening. In addition to the value, the main mechanisms for leverage need to be noted and a preliminary and justified estimate given of the time scale of realization of the targeted leverage.
- *Project preparatory funding*: NDF engages in project preparatory funding and capacity building where it can increase the climate relevance of interventions and partnerships and the potential for follow-up investment, replication and up-scaling. In doing so NDF avails international experience and expertise gained by Nordic countries to support effective new climate solutions. Therefore projects are screened against 1) the ability of NDF to contribute to project design and planning (incl. climate-relevance but also other technical support), and 2) the ability of the project to build recipient countries' capacity to produce concrete investment projects and/or enhance the enabling environment for climate compatible investments.
- *Support for innovation*: NDF aims to act as a test lab for innovative schemes, partnerships and financing mechanisms. Beyond passing strict Core Project Criteria, NDF screens proposed interventions for novelty, uniqueness and/or creativity in order to identify interventions with potential to drive transformative change for climate resilient green growth.
- *Support for private sector development and linkages between the public and the private sectors*: NDF actively looks for ways to engage the private sector, with a particular focus on micro, small and medium-sized enterprises (MSMEs) in the partner countries. Therefore the screening shall assess how the project supports the private sector directly (e.g.

through guarantee schemes, loans/loan facilities, or technical assistance) and/or indirectly (e.g. through capacity building or other technical support for the public sector in order to improve enabling frameworks and private sector capacity). The screening shall also assess whether there is any direct contribution from the private sector and take note of the type of partnerships established with the private sector.

- *Piloting interventions with a high risk level:* NDF actively looks for piloting of interventions with a high risk level, for example, as a result of emerging approaches and technologies.
- *Identification of emerging climate change issues:* NDF wants to take part in interventions that explore evolving climate change issues and interlinkages with other emerging issues. Such areas could include, for example, the nexus between climate change, ecosystems, biodiversity and natural capital.

Other Project Level Aspects - Satisfactory achievement of the core and strategic objectives may require a host of supporting conditions to be met. While they may not be core or strategic objectives in themselves, and although it will generally not be appropriate to designate quantitative thresholds, the following aspects may be sufficiently important to determine whether or not a project should be supported, bearing in mind that they may be positive or negative:

- Alignment with relevant Sustainable Development Goals⁴, with particular attention on goals related to gender equality and poverty reduction
- Consistency with national development plans, including climate action plans and strategies for climate resilient green/low-carbon growth
- Relation to other relevant development projects/activities (multilateral/bilateral/national)
- Evidence of ownership/commitment by co-financing partner/ national executing agency (e.g. by financial contribution)
- Institutional capacity to manage/implement the project, including administrative structures, human resources, financial sustainability, general absorptive capacity etc.
- Support for Nordic development policy priorities, including support for sectors or activities in which Nordic companies or institutions have particular expertise

⁴ <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>

- Alignment with NDF’s operational policies and guidelines as well as relevant safeguard policies of NDF’s financing partners including impact analyses made by these institutions

6. Summary and Conclusions

Ever since receiving its climate change mandate, NDF has adopted a “learning by doing” approach, experimenting with various financing modalities and approaches, with the intention of defining its comparative advantage, and a niche in which it can be most effective. By insisting upon relatively rigorous tests to determine the acceptability of climate projects for its support, while systematically addressing the host of social, economic and administrative aspects of its projects, NDF has developed a reputation among its major co-financing partners as a substantive contributor to project design.

While in a general sense the main thrust of NDF financing continues to be traditional co-financing of individual projects with the established partners, use of its screening criteria provides a robust and transparent framework for systematically mainstreaming climate issues and ensuring its partners and stakeholders proceed accordingly. NDF staff are required to acquire in-depth technical understanding of projects considered for support, and will often require potential co-financiers to supply information on climate and other aspects of projects that would otherwise not be forthcoming. Moreover, while it is essential to promote investment in genuinely climate-related activities, it will be equally important for NDF staff to ensure that projects or components supported are justified in conventional economic terms as well as being sensitive to a range of other social, administrative, and strategic issues.

It should be emphasized that while the approach described here suggests some 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 project identification and selection is not an exact science at the best of times, and the many physical uncertainties, imperfect market conditions and the unavoidable need for value judgements, make this especially true in the case of climate change.

With regard to both adaptation and mitigation, project experience gained by NDF since the launch of its climate mandate in 2009 suggests that the preliminary thresholds for project acceptability outlined here are both useful and feasible, with there being a reasonable balance between the demand for and supply of NDF funds. However, as experience grows, consideration should continually be given to revising the stated 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 emissions may show a significant increase. Certain social issues may also become increasingly in need of additional development support. More generally, it is possible that growing demands for NDF funding support may require the criteria to become more strict in order to ensure that support is given to the highest priority projects. The potential for these various developments will require the continual updating and re-evaluation of the screening criteria.

Annex 1: Adaptation example - Nicaragua Disaster Management and Climate Change Project

The Project

The overall objective of the project is to reduce the vulnerability of rural populations of Nicaragua to climate change through risk management actions based on the management and conservation of natural resources in critical watersheds. Total project cost is \$13.5 million, of which \$10 million is financed by IADB, \$3 million by NDF, and \$0.5 million by the Government of Nicaragua. The project has three major components, as follows: 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 CO₂ 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, and institutional strengthening in the Environment Ministry, training of staff and local stakeholders. In addition, the project includes unallocated administrative, financial, and monitoring and evaluation costs of \$2.32 million. Each component and the overall project satisfy standard economic justification criteria.

Climate Change and Project Design

In view of the well documented history of exposure to extreme climatic events in Nicaragua, the project is essentially designed to address problems caused by climate change. Nevertheless some elements will be relevant in responding to other possible natural disasters, in particular earthquakes, as well as effecting more general institutional reforms and ability to respond to various, as yet unknown, contingencies. The NDF screening process consisted of a detailed examination of each component and major sub-component of the overall project, in each case identifying those 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.

Results

Overall, as the following table shows, the project satisfies the minimum NDF screening criterion, a fairly strict interpretation of the procedure resulting in with just over 50% of project costs being estimated as specifically responding to the problems caused by climate change. In general, administrative, capacity building, and institutional reform costs tend to be less climate-specific than infrastructure costs. 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 CO₂ sequestration being an explicit project objective.

	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

Annex 2: Mitigation example - Climate-Friendly Energy in the Greater Mekong Subregion (GMS)

The Project

The objective of the project is to improve access to clean energy for low income rural households in the GMS, promoting renewable energy based on locally available resources in ways that are not only cost effective but also contribute to a reduction in greenhouse gas emissions. Project components will include the following: (i) policy and capacity building; (ii) efficient utilization of biomass for bioenergy and organic fertilizers; (iii) small-scale liquid biofuels; and (iv) improved cook stoves. It is expected that the overall project as well as each of the identified components will pass standard economic justification tests. Total project cost, to be financed by the Asian Development Bank, is estimated at \$80 million.

Climate Change and Project Design

Based on preliminary estimates, the project has the potential to reduce greenhouse gas emissions by 87,550 tons of CO₂ equivalent per year by 2017. This will be achieved by: (i) installation of 44,000 biogas digesters, which will replace high levels of natural decomposition with production of biogas (18,876 tons of CO₂ per year); (ii) installation of 50,000 improved cook stoves, which use fuels more efficiently (49,874 tons of CO₂ per year); and (iii) 10,000 hectares of jatropha which will produce 1,100 liters oil per hectare per year (18,800 tons of CO₂ per year), and which will be used locally to reduce on-farm fuel costs, with surpluses exported to regional refineries for processing into higher value fuels.

In considering the suitability for NDF support of this preparatory TA, the following assumptions were made about the eventual ADB investment project that will stem from it: (a) project cost of \$80,000,000 is spread evenly over a four year construction period (b) annual reduction in greenhouse gas emissions will be 87,550 tons of CO₂ starting in year 6 (c) global value of reducing one ton of CO₂ is \$10 (d) project life is 25 years, and (e) test discount rate is 5%. The net change in GHG emissions during project construction was assumed to be neutral.

Results

The eventual investment project, and therefore the preparatory TA, satisfies the NDF screening criterion that global benefits of greenhouse gas emission reduction at least equal 10% of project investment costs. At a discount rate of 5% the present worth of project investment costs is \$71 million and the present worth of annual reductions in greenhouse gas emissions \$9.7 million. The value of the reduction in greenhouse gas emissions is thus about 14% of project investment costs, certainly a “significant” consequence of the proposed ADB project. Not quantified here, but an additional reason for defining this project as climate-related is that it will make an important contribution to agricultural resiliency, and therefore ability to adapt to climate change in the GMS.