PROJECT IDENTIFICATION FORM (PIF) [1]

PROJECT TYPE: FULL-SIZE PROJECT
TYPE OF TRUST FUND: LDCF

PART I: PROJECT IDENTIFICATION

Project Title:	Climate risk finance for sustainable and climate resilient rainfed farming and pastoral systems		
Country(ies):	Sudan	GEF Project ID:[2]	
GEF Agency(ies):	UNDP (select) (select)	GEF Agency Project ID:	4591
Other Executing Partner(s):	Higher Council for Environment and Natural Resources, Sudan	Submission Date:	April 10, 2012
GEF Focal Area (s):	Climate Change	Project Duration (Months)	52
Name of parent programme (if applicable): ➢ For SFM/REDD+ ☐		Agency Fee ($):	570,000

A. FOCAL AREA STRATEGY FRAMEWORK[3]:

Focal Area Objectives	Expected FA Outcomes	Expected FA Outputs	Trust Fund	Indicative Grant Amount ($)	Indicative Co-financing ($)
CCA-1 (select)	Outcome 1.1: Increased knowledge and understanding of climate variability and change-induced threats at country level and in targeted vulnerable areas	Output 1.1.1: Risk and vulnerability assessments conducted and updated; Output 1.1.2: Systems in place to disseminate timely risk information	LDCF	1,650,000	2,000,000
CCA-1 (select)	Outcome 1.2: Strengthened adaptive capacity to reduce risks to climate-induced economic losses	Output 1.2.1: Adaptive capacity of national and regional centers and networks strengthened to rapidly respond to extreme weather events; Output 1.2.2: Targeted population groups covered by adequate risk reduction measures, disaggregated by gender.	LDCF	3,800,000	9,600,000
(select) (select)			(select)		
(select) (select)			(select)		
(select) (select)			(select)		
(select) (select)			(select)		
(select) (select)			(select)		
(select) (select)			(select)		
(select) (select)			(select)		
(select) (select)			(select)		
(select) (select)	Others		(select)		
		Sub-Total		5,450,000	11,600,000
		Project Management Cost[4]	LDCF	**250,000**	600,000
		Total Project Cost		5,700,000	12,200,000

[1] It is very important to consult the PIF preparation guidelines when completing this template.
[2] Project ID number will be assigned by GEFSEC.
[3] Refer to the reference attached on the Focal Area Results Framework when filling up the table in item A.
[4] GEF will finance management cost that is solely linked to GEF financing of the project. PMC should be charged proportionately to focal areas based on focal area project grant amount.

B. PROJECT FRAMEWORK

Project Objective: To increase climate resilience of rainfed farmer and pastoral communities in regions of high rainfall variability through climate risk financing						
Project Component	**Grant Type**	**Expected Outcomes**	**Expected Outputs**	**Trust Fund**	**Indicative Grant Amount ($)**	**Indicative Cofinancing ($)**
Institutional framework and capacity for sustainable climate observation and early warning	TA	1. Institutional and technical capacity for climate observation, forecasting and early warning strengthened at national and local level	1.1. Rainfall modelling and simulations for three target states (Kassala, N Kordofan, Gedarif) to enable projection of local climate change impacts; 1.2 Three, solar powered automated weather stations installed to enhance the availability, quality and transfer of real-time climate data on 30,000 ha of drought-prone land for purposes of drought forecasting and early warning; 1.3. Sudan Meteorological Authority and Remote Sensing Authority is equipped and trained to provide effective services on climate observation, risk analysis, forecasting and early warning; 1.4. Improved communication protocols and mechanisms (i.e. partnership with mobile phone operators) to provide timely and accurate weather and climate risk forecasts to, farmers and pastoralists in 3 target states	LDCF	1,550,000	2,000,000
Capacities to design and deploy weather index-based insurance to address residual risk and promote long term adaptation	TA	2. Residual climate risk to rural livelihoods in the states of greatest rainfall variability addressed through parametric insurance products	2.1. Comparative analysis and feasibility assessment of different business models for index-based insurance 2.2. At least one risk transfer product for smallholder farmers (such as weather index insurance) designed and introduced, covering at least 30,000 farmers and pastoralists who depend on rain-fed farming systems 2.3. Insurance literacy programme / awareness campaign designed and delivered to small businesses,	LDCF	1,900,000	3,600,000

			community-based organisations, local farmers and pastoral communities 2.4. Legal and regulatory framework for risk transfer in target states assessed, policy recommendations developed and reinsureance secured			
Financial service provision for farmers and pastoralists to increase adaptive capacity of rural livelihoods	TA	3. Improved access of vulnerable farmers and pastoralists to financial services for climate change adaptation and disaster risk reduction	3.1. Legal and regulatory framework analyzed and improved to increase the co-provision of microcredit and microinsurance services 3.2. In 3 targeted locations at least 6 community adaptation plans developed to inform and enable the provision of MFI credit packages to stimulate smallholder adaptation and disaster risk reduction 3.3. At least three micro-credit productsdesigned and offered through financial service providers to increase resilience of farming and pastoral practices as prioritised in local adaptation plans (e.g. through drought resistant seeds and animal breeds or efficient water harvesting, irrigation and storage technologies); 3.4. Flexible seasonal and annual repayment installmentsdesigned and tested to account for pastoral mobility and income cycles of local farmers	LDCF	2,000,000	6,000,000
				Sub-Total		5,450,000	11,600,000
				Project Management Cost[5]	LDCF	250,000	600,000
				Total Project Costs		5,700,000	12,200,000

[5] Same as footnote #3.

C. INDICATIVE CO-FINANCING FOR THE PROJECT BY SOURCE AND BY NAME IF AVAILABLE, ($)

Sources of Cofinancing	Name of Cofinancier	Type of Cofinancing	Amount ($)
National Government	Microfinance Development Facility (SMDF)	Grant	1,600,000
Local Government	Higher Council of Environment	In-kind	600,000
GEF Agency	UNDP	Grant	10,000,000
Total Cofinancing			12,200,000

D. GEF/LDCF/SCCF RESOURCES REQUESTED BY AGENCY, FOCAL AREA AND COUNTRY[1]

GEF Agency	Type of Trust Fund	Focal Area	Country Name/Global	Grant Amount (a)	Agency Fee (b)[2]	Total c=a+b
UNDP	LDCF	Climate change	Sudan	5 700 000	570 000	6 270 000
(select)	(select)	(select)				0
Total Grant Resources				0	0	0

[1] In case of a single focal area, single country, single GEF Agency project, and single trust fund project, no need to provide information for this table

[2] Please indicate fees related to this project.

PART II: PROJECT JUSTIFICATION

A. DESCRIPTION OF THE CONSISTENCY OF THE PROJECT WITH:

A.1.1 the GEF focal area/LDCF/SCCF strategies:

1. The project is aligned to the LDCF/SCCF focal area objective 1 to "reduce vulnerability to the adverse impacts of climate change". Specifically, the project contributes to Outcomes 1.1 'Increased knowledge and understanding of climate variability and change-induced threats' and Outcome 1.2 'Strengthened adaptive capacity to reduce risks to climate-induced economic losses'. In order to address climate risks in rainfed agriculture, which most of poor families depend on for subsistance, the proposed project will support the development of a range of financial mechanisms to incentivize investments in climate change adaptation and risk reduction measures of smallholder farmers and pastoralists. LDCF resources will enable the reliable collection and interpretation of real-time climate data, establishment of institutional capacity for rainfall forecasting and drought early warning, provision of micro-finance services to address climate-related risk, and complementary insurance products to address residual climate change risk in rainfed areas. In this context, parametric insurance will be used strategically as an enabler of micro-finance for adaptation practices in fragile environments of rainfed agriculture, and as a catalyst to improve systems for the collection, analysis and communication of climate risk and early warning information.

A.1.2. For projects funded from LDCF/SCCF: the LDCF/SCCF eligibility criteria and priorities:

2. The project fully satisfies the LDCF eligibility criteria as stated in the GEF Council Paper GEF/C.24/12. The project proposal has been developed with guidance from the Least Developed Country Fund (LDCF) of the GEF[6]. It has also followed the Programming Strategy on Adaptation to Climate Change for the Least Developed Countries Fund (LDCF) and The Special Climate Change Fund (SCCF)[7]. It is in full conformity with NAPA and LDCF priority areas of support under the sector of agriculture. NAPA specifically prioritises adaptation support to rainfed farmers and pastoralists as it states that "In many parts of Sudan, rain-fed farmers and pastoralists have devised numerous kinds of coping strategies to

6 GEF Assistance to Address Adaptation. GEF/C.23/Inf.8/Rev.1, prepared for GEF Council. May 19-21 2004.

7 GEF/LDCF.SCCF/R3/1.Rev.3; prepared by the GEF Secretariat.

deal with agricultural production in the face of climatic variability. With the advent of changes in climatic patterns in recent decades, many of these strategies are proving to be no longer effective" Therefore, targeted support to the rainfed communities is urgent.

3. According to Sudan's NAPA document, the groups that are most vulnerable to climate risks are traditional rain-fed farmers and pastoralists. Climatic shocks, such as drought keep generating large-scale human suffering from hunger among these groups, including forced out migration from rural areas and the death of livestock herds. In addition to these effects, the interplay between dry spells and flooding also contributes to widespread losses of property and livestock. Rain-fed farmers and pastoralists are typically the least able to cope with climate-related shocks in Sudan. There is ample evidence of past climatic shocks generating a chain of events that led to the disintegration of community and the discontinuity of human habitation. In general, this has been due primarily to a combination of extreme poverty levels and limitations in income-generating activities. These factors largely contribute to increased vulnerability of local communities during climatic shocks (NAPA, 2003, section 3, *Identification of Adaptation Needs*).

4. The NAPA document prioritizes the establishment of a drought early warning system, including enhancement of capabilities of regional meteorological stations to monitor hydro-climatic variables, community-based disaster preparedness measures and micro-credit programmes in support of adaptation measures. In the context of advancing the implementation of these priorities, the government of Sudan has requested LDCF funding to introduce climate risk finance mechanisms to achieve resilience of rain-fed farmer and pastoral communities in regions of high rainfall variability.

5. The proposed project will achieve this objective by creating an enabling environment for climate risk management of smallholder farmers and pastoralists in rain-fed areas. Based on the establishment of an effective climate observation infrastructure, which includes the setup of automated weather stations to enable real-time data generation, which in turn will help facilitate the analysis, interpretation and dissemination of climate change induced risks, forecasting capacity and early warning systems will be developed to enable climate change resilient decision-making in local communities. At the same time, the project will create a regulatory framework aimed at incentivizing financial service providers (banks, insurance companies and NGO/CBO intermediaries) to develop and deliver back-to-back micro credit and climate risk insurance services. This will include the development and introduction of weather index-based insurance. These measures are expected to catalyze currently available (and considerable amounts of) lending capital towards adaptation measures. In doing so, the proposed project is aligned with the LDCF Results Framework Objective CCA-1 as described in Table A above. This approach also underpins the recognition of the linkage between adaptation and poverty reduction (GEF/C.28/18, 1(b), 29) and is aligned with the scope of expected interventions as articulated in the LDCF programming paper and decision 5/CP.9.

6. Additionally, the proposed project builds strategically on the first LDCF project that is currently under implementation and aims to introduce a set of adaptation measures targeted towards small-scale farmers and pastoralists residing in 5 highly vulnerable agro-ecological regions(River Nile State, Northern Kordofan, Gedarif, Southern Darfur, and Central Equatoria), as identified by the NAPA. The first NAPA-follow-up project implements some of the critical ex-ante measures of share-cropping, water harvesting, sand stabilisation and tillage adjustments, rangeland and farm crop diversification, strengthening local leadership for adaptation, communal funds for shock absorption and community-based early warning. The proposed second LDCF project will focus activities in the regions of particularly high rainfall variability that also fall under the same geographic coverage of the first LDCF project, thereby providing complementary risk management mechanisms to address residual climate risk.

A.2. national strategies and plans or reports and assessments under relevant conventions, if applicable, i.e. NAPAS, NAPs, NBSAPs, national communications, TNAs, NIPs, PRSPs, NPFE, etc.:

7. The project has emerged from the **NAPA** consultation process which identifies smallholder farmers and pastoralists in rain-fed areas as the most vulnerable to current climate variability and future climate

change. Typically, such farmers are living in conditions of persistent poverty, relying on rainfall and traditional agricultural practices (mainly sorghum, millet and livestock). This combination renders them highly vulnerable to climate variability, as evident from the widespread suffering in rural areas during past droughts as well as floods. Indeed, chronic drought is one of the most important climate risks facing Sudan. Recurring series of dry years has become a normal occurrence in the Sudano-Sahel region as a result of climate change and traditional coping strategies are no longer adequate to withstand covariate risks. Pastoral and nomadic groups in the semi-arid areas of Sudan are also affected and their production remains consistently low due in large part to an agricultural system that is not well adapted to increasing rainfall variability and prolonged drought events. Rainfall variability, coupled with overall trend towards decline is particularly prominent in the Northeast and central parts of Sudan that requires particular attention in addressing adaptation needs. The **First National Communication** of Sudan to the UNFCCC also highlights importance of supporting rainfed farming and pastoral systems for the adaptation actions.

8. Poverty assessments that underpin Sudan's Poverty **Reduction Strategy** indicate that deprivation in survival is prevalent all over the country, though it is higher in rural areas. By using the combined index for deprivation in survival for both rural and urban areas the States of the Red Sea, Blue Nile, Kassala, and North and South Kordofan emerge as the most deprived areas for both rural and urban populations. Therefore, these regions of the country have been prioritized for the poverty reduction efforts. By putting an additional overlay of high climate, especially the rainfall, variability that is directly correlated with rural incomes, Kassala, Kordofan states and Gedarif emerge as priority regions in terms of addressing climate poverty and have consequently been prioritized as target locations for the proposed project. These regions are equally prioritised by the NAPA (as highlighted in the vulnerability hotspot map of NAPA). The project therefore has carved the scope based on these vulnerabilities that require immediate action, based on national priorities as outlined in the NAPA and Poverty Reduction Strategy.

B. PROJECT OVERVIEW:

B.1. Describe the baseline project and the problem that it seeks to address:

PROBLEM AND UNDERLYING CAUSES:

9. Climate change presents an additional stress for Sudanese people already struggling with poverty, post-conflict recovery and environmental degradation. Sudan has the largest number of displaced people in the world today and is currently the location of the food aid's largest operation - providing aid to 11 million people in 2010 (only through WFP). Many of the reasons for the food aid's presence are unrelated to climate change, notably those relating to conflict and displacement. But there is no escaping the long history of climate-related humanitarian crisis in Sudan, nor the likelihood that this will be exacerbated by rising temperatures forecast over coming decades. The vast country encompasses the full range of meteorological diversity – semi-arid in the north and savannah in the central regions and the south. Nevertheless, drought has been the dominant threat throughout. Data from weather monitoring stations records that average rainfall has decreased significantly over the last 60 years, accompanied by an increase of variability, especially in the north and west. Vulnerability to climate change is accentuated by the dependence of 70% of the population on rain-fed agricultural livelihoods. In its National Communication of 2003, the Sudan government predicted a significant long term decline in the yields of staple millet and sorghum, due to shorter growing seasons imposed by higher temperatures. Subsequent studies relating to winter crops for 1994-2005 support this predicted trend. Drought threatens approximately 12 million hectares of rainfed land, particularly in the Kordofan and Darfur states. Between 1971 and 2001, over ten million people in Sudan were affected by drought. In 2000, drought reduced food stocks and caused prices to rise three-fold compared to the same period in the previous year (Zakieldeen, 2007).

10. The NAPA (2007) assessed the likely impacts of future climate change on agriculture. It states that, combined with growing socioeconomic pressures, climate variability and change are likely to intensify the desertification of arable areas. It also predicts that the humid agro-climatic zones are likely to shift southward, rendering areas of the north increasingly unsuitable for agriculture. In fact, an estimated 50 to

200 km southward shift of the boundary between semi-desert and desert has occurred since rainfall and vegetation records were first held in the 1930s. This boundary is expected to continue to move southwards due to declining precipitation. The remaining semi-desert and low rainfall savannah which represent some 25% of Sudan's agricultural land are at considerable risk of further desertification. This is forecast to lead to a significant drop (approximately 20%) in food production. The areas suitable for arable land, as well as the important gum Arabic belt, are also expected to decrease in size, with negative impacts for both local incomes and food security[8]. SNC projections indicate that climate change will also impact water resources. Reduced groundwater – either through decreased precipitation or increased temperatures and evaporation – would have serious repercussions. National studies show that soil moisture would decline. Coupled with increased water consumption, population growth, a high variation in rainfall and a high rate of evaporation, climate change is increasing the likelihood of a water crisis for Sudan, particularly in the arid north.

11. Sudan is one of the driest but also the most variable countries in Africa in terms of rainfall. Extreme years are more common than average years (Zakieldeen, 2007). Rainfall, on which the overwhelming majority of the country's agricultural activity depends, is erratic and varies significantly from the north to the south of the country. The unreliable nature of the rainfall, together with its concentration into short growing seasons, heightens the vulnerability of Sudan's rainfed agricultural systems. Rainfall is not only very variable, but is also becoming increasingly unpredictable. The coefficient of rainfall variability (CV, or the percentage deviation from the norm), measures the uncertainty of rainfall: the higher the CV percentage the more uncertain the rainfall. In Sudan, the CV decreases from north to south (190% to less than 15%). The CV seemed to increase between 1941 and 2000 according to data from some weather stations (Elfasher, Kassala, Karima). Average rainfall also declined over the same period. Declining and uncertain rainfall makes life very difficult for traditional farmers and herders and severely affects their livelihoods.

12. Food security is mainly determined by rainfall, with absolute majority of Sudan's people directly dependent on climate sensitive resources for their livelihoods. The highest concentration of Sudan's population is in the northern and north-eastern parts, making these the areas of high human exposure to climate change risks. Moreover, the states of Red sea, Kassala, Kordofan states and Khartoum are poorer than the national average and also have a very high and increasing rainfall CV – coefficient of variability (based on data during1971-2000), along with decreasing rainfall. These areas are frequently affected by drought and / or floods. This current variability will be further intensified, as a result of climate change.

13. Even though efforts are put in place, especially through the first LDCF financed project, to help enhance current coping strategies at the local level, erratic rainfall patters create a constant residual risk, especially in connection with high severity and low frequency drought and/or flood events. As a result, despite ongoing adaptation efforts, residual risks remain especially high in the regions of high inter and intra-annual rainfall variability. Currently farmer and pastoralist communities in the parts with high rainfall variability largely depend on humanitarian aid to buffer these residual risks in phases of post-disaster recovery. Humanitarian aid is often not timely or effective as it is not mobilized around pre-established climate signals (e.g. number of high temperature above certain threshold or number of days without rain etc) and has a predominantly reactive, ex post operational character. This is largely due to flaws in the current climate observation system, which includes gaps in weather monitoring coverage, technical skills and insufficiently developed communication channels for climate risk information. Moreover, with increasing risks of droughts and more variable climate, damage compensation and recovery funds have become scarce and demand for financial mechanisms for climate risk management has increased. The financial resources and capacities of the government to repeatedly finance humanitarian relief after extreme climate events (especially drought disasters) are insufficient and donor funds keep being strained. There is increasing recognition that 'ex-post' funding is not only insufficient, but that it is often inefficient, poorly targeted, and slow. Moreover, it provides no incentives for proactive risk reduction measures such as improved collection, analysis and communication of climate risk and early warning information; diversified

[8] UNEP (2007) Sudan – post conflict environmental assessment; Government of Sudan (2007) NAPA

agriculture and livestock rearing; resource efficient water collection and storage schemes at the village level, etc. While there will always be a need for post-disaster finance, there is a need to find alternative, proactive approaches to meeting growing financial demands of farmers and pastoralists in Sudan to reduce the exposure and sensitivity of their livelihoods to increasing rainfall variability and drought; find more direct and faster means of getting cash to people for 'ex ante' drought risk reduction and 'ex post' recovery; and creating better incentives for risk reducing behaviour.

14. Farmers and herders in rain-fed areas who rely on timely and stable amounts of seasonal and annual rainfall are increasingly vulnerable as climate change brings more erratic patterns of rainfall. The situation is clearly more acute in the parts of the country that are characterized by high rainfall variability and high incidents of poverty. Here the rural communities are trapped in vicious cycle of highly unreliable and increasingly unpredictable climate with an overall trend of more volatile drought or floods and inability to adopt a wider range of risk management options. This is mainly due to limited access to financial resources to invest in farm-based and / or off farm adaptation options. Microfinance products, such as small loans, saving schemes, insurance and other financial services are not available to the vulnerable farmers and pastoralists in rain-fed areas, which prevent these vulnerable groups from engaging more effectively in resilient agricultural production, the development of productive livelihood capital, and the protection from covariate risks. The underlying reasons are not unique to Sudan. The Banks, Micro Finance Institutions and other financial service providers are often reluctant to lend in rural areas or for agricultural activities because they perceive communities, especially those engaged in rain-fed, climate sensitive agriculture to be risky. The net result is less net lending to agriculture-based livelihoods than the sector demands, particularly among smallholders living in high-risk areas. This leads to a downward trend towards severe climate poverty. Therefore, additional efforts to help transfer, share or spread the risk are necessary for vulnerable farmers and pastoralists in rain-fed areas to adapt to growing rainfall variability.

15. In addition, rural communities in Sudan are challenged to manage covariate risk without additional help. In order for rural population to better manage increasing climate variability, the Government of Sudan has identified a need to provide communities with better risk information through seasonal forecasting and early warning communication channels. In addition, the Government has identified the improved provision of risk finance services such as micro-finance that is better tailored to addressing climate risks and other innovative risk finance instruments, such as index insurance, to help pastoralists and farmers to better manage covariate risk in rainfed agriculture (introduction to micro-credit to support adaptation priorities are among adaptation needs according to NAPA, section 3 - *Identification of Adaptation Needs*). The breaking point for current vicious cycle, that rainfed communities are trapped in, can be increased availability of financial mechanisms for climate risk management such as micro-finance and weather-based index insurance that safeguards both lenders and borrowers against unpredictable, high-severity, low frequency risks. As noted above, First National Communication and draft Second National Communication highlight lower than average rainfall over the past decades and severe droughts that can only be averted at a prohibitively high cost – if at all. In such instances, weather index insurance usually proves to be the most cost-effective adaptation measure. To prepare for rare but high-severity events, transferring risk through the insurance is generally more economical than trying to shore up limited resources and directly prevent possible losses. By offloading residual risks to a broader community, risk transfer will not only cap losses suffered by individuals but it will also reduce the burden on public budgets. In so doing, it will make local communities more resourceful when a disaster strikes and protect livelihoods from potentially catastrophic damage. While index insurance cannot be treated as panacea, under the current circumstances in Sudan it holds a great promise to improve availability of climate data, as no index insurance can be created or function without stable climate data that determines the threshold/s to trigger the payouts. This will greatly incentivize improvements in observation infrastructure, forecasting capacity and more effective ex ante risk reduction. At the same time, index-insurance will help unlock local finance for adaptation by safeguarding the loans against climate risks and thus making micro-finance services available to the most climate risk exposed rural communities that otherwise would not have been possible. Therefore, a combination of timely forecasts, early warning delivery and financial mechanisms for climate risk management will boost adaptation capacity of rainfed farmers and pastoralists to tackle pressures of climate poverty in highly

exposed areas.

BASELINE PROJECT:

16. At the baseline early warning system in Sudan includes regular warnings on the food security situation, floods, epidemics, fires, emergencies, droughts, and armed conflicts. Efforts were made to establish such systems by developing disaster indicators, with the aim of forecasting, alerting local communities and providing information to decision-makers and the international community on the expected situation. The early warning system is currently anchored in the Humanitarian Aid Commission (at the Ministry of Humanitarian Affairs) that provides an overall coordination of post disaster aid distribution among the government and aid agencies. The Office for the Coordination of Humanitarian Affairs (OCHA) is engaged in emergency preparedness and response, involving government, international agencies and NGOs in developing contingency plans. While HAC provides an overall coordination in the disaster management, OCHA coordinates the UN system. The current set up is very much aid oriented in delivering warnings on multiple hazards, does not have well established outreach and communication channels to the communities at risk and is not supported by a climate observation system of sufficient coverage. The resources, including institutional functions, are overly scattered across many organisations. At least 10 Ministries and institutes are part of the system with their committed budgets. Despite the flaws, if well consolidated the current efforts in EWS provide a solid baseline for improved, community oriented options. As such, $14 million has been budgeted by the government to support early warning in 2010-2012. This baseline project covers the cost of maintenance of existing observation network, field data collection, processing, consolidation, monitoring and warning services, including seasonal forecasts dissemination and communication, and coordination both at state and federal levels.; and $2million annually for famine, flood and drought related disasters[9]. Despite impressive allocations at the baseline the needs are far greater in Sudan to address risks of famine resultant from climatic shocks or conflicts (the latter in fact is often exacerbated by the resource limitations posed by climate change driven droughts and floods that are evidenced to increase in their frequency and severity over the past 10 years). For example, inter-agency appeal filed by OCHA in 2012 for food aid amounts to $1billion, whereas pledged resources currently reach over $6million only.

17. The proposed LDCF project will build on this baseline project to improve observation capacity, seasonal forecasting and provide climate risk and early warning information through well-defined and reliable communication channels, aimed at reaching those at risk and communicating relevant risk information in a timely and accurate manner

18. Beyond the lack of reliable rainfall forecasting and early warning in rain-fed areas, smallholder farmers and pastoralists lack a sufficient earnings and capital base to make their livelihood systems more resilient to highly variable climate risks. Thus, high risk areas in Sudan remain trapped in a vicious cycle of poverty and climate shocks, which in turn exacerbate human and material losses and increase the erosion of livelihood capital. In recognition of the important role that micro-finance can play in reducing poverty and social vulnerabilities, the Central Bank of Sudan (CBOS) has established a targeted programme to develop and expand the microfinance sector. The Central Bank of Sudan has established a Microfinance Unit to serve as its specialized department, transferring US$40 million to 7 Banks for the establishment of microfinance services. To date, only a small portion of this amount has reached the people most in need, due to a persistent tendency of not providing loans to groups which are perceived as 'high risk' (including smallholder farmers and pastoralists in rain-fed areas). As a result, the prevalent perception of microfinance

[9] These are approximate figures taken from the budgets of various relevant national organisations such as Disaster Management and Refugee Studies Institute (DIMARSI), the Ministry of Agriculture and Forestry, the Higher Council for Environment and Natural Resources (Ministry of Environment and Tourism), Civil Defence (Ministry of the Interior), the Ministry of Animal Resources, the Sudan Meteorological Authority, the Strategic Reserve Corporation (Ministry of Finance and National Economy), the Commission for Refugees and Ministry of Health (Emergency Humanitarian Action). Funds for EWS and disaster response are so scattered across the institutions that it is very difficult to track the total earmarked allocation that constitute the baseline.

among both banks and policy makers in Sudan relates to a social protection with low expectation for repayment and profit making, rather than to that of a viable and profitable activity. The CBOS programme stipulated that 30% of loans must target women and 70% the rural population. According to the Bank, 45% of the money has been loaned (with the bulk of the business being in Gedaref state). Participating banks across the north include the Animal Resources, Farmers, Savings and Loan and Agricultural banks. A number of specialized and commercial banks have provided small scale microfinance services for more than 15 years. These include the Agricultural Bank of Sudan [with experience in rural areas and with community-based (CBOs) and civil society organizations (CSOs)], and the Savings and Social Development Bank (SSDB) that serves as an intermediary for UN agencies. Unfortunately, their outreach remains minimal. Furthermore, none targets the poorest of the poor, and they have limited links with grassroots organizations.

19. NGOs, on the other hand, have been much closer to grassroots organizations and the borrowers. However, their efforts are often hampered by a social 'beneficiary' rather than a client approach. Indeed, considerable amount of cheap capital for on-lending is available in Sudan. Through the Sudan Microfinance Pilot Project, the CBOS supports the delivery of micro-financing as a targeted poverty reduction activity and provides loan capital at sub-market rates to selected banks. The Sudan Microfinance Development Facility (SMDF) also provides capital along with training and technical assistance. Banks that do not participate in this baseline Pilot Project are asked by CBOS to invest 12% of their portfolio in microfinance, either directly or through wholesale lending. There is thus a plentiful supply of cheap capital for on-lending, but largely underutilized under current conditions of uncovered climate related disasters that pose significant risks to repayment and solvency.

20. The CBOS baseline project offers a great opportunity to develop index insurance that is provided back to back with credit and other microfinance services for farmers and pastoralists in rain-fed areas, thereby unlocking considerable amounts of subsidized lending for adaptation through insurance contract and loan conditions.

21. Linking climate risk information and risk finance in a way that stimulates availability of stable relevant climate change data for localized planning purposes and unleashes larger micro-finance opportunities that can support adaptation is urgently needed in Sudan to address the critical NAPA priority of climate change risks to agro and pastoral systems. However, the following barriers preclude this preferred adaptation solution to establish sustainably:

22. Currently, communication of early warning is mainly channeled to humanitarian aid actors and does not have sufficient outreach to those who are at risk. Observation infrastructure and forecasting capacities are also limited to support key livelihood decisions of farmers and pastoralists in response to the climate risks. One of the main barriers to developing a climate risk observation network for such a geographically large and poor country as Sudan is the absence of risk management mechanisms which can effectively draw on such data, such as weather index insurance that can help raise private demand on climate data. Presently, there is no knowledge of how insurance of covariate risks (such as severe drought) can help catalyze systematic use of observational climate data and set incentives to the development of observation infrastructure.;

23. While autonomous efforts to manage and diversify climate risk are ongoing, farmers and pastoralists in rain-fed areas are still perceived as risky borrowers by the banks This perception, in turn, reduces their access to credit and forces borrowers to face high interest charges. The net effect of these limitations is that farmers and pastoralists remain trapped in low-productive survivalist practices that are highly sensitive to climate change. As a result, currently available and traditional financial service providers do not provide sufficient options for smallholder farmers and herders to access finance that will enable investment in risk management practices;

24. Capacities of microfinance institutions currently in Sudan are limited to develop lending products that could protect their products from low-frequency and highly covariate risks. Blending credit with index insurance could offer such an opportunity. However, knowledge and capacities are missing at the MFIs, NGOs or insurance companies to develop and deliver such coupled micro-finance/micro-insurance schemes. As a result, there is no public funding available for pre-market maturation investment that is essential if such schemes are to develop (e.g. to assess the feasibility of different schemes, develop the capacity of relevant institutions, and develop a suite of functional products);.

25. When risk assessments suggest that weather insurance is an appropriate adaptation tool, which is the case in Sudan, the public funding is required to cover the start-up costs of developing weather insurance markets and the catastrophic layer of risk. By focusing on these activities, governments and donors can reduce the potential for creating disincentives that impede the adoption of other climate change adaptation strategies.

26. The proposed second NAPA follow-up project is therefore designed to introduce risk finance mechanisms and micro-credit systems to cover less frequent and highly covariate climate risks (such as prolonged droughts and severe floods). More specifically, the proposed project will focus on index insurance for climate risk management in the states of high rainfall variability where certain residual risks will always remain even after the adaptation measures have been implemented. Based on this criteria, out of the five states where the NAPA follow-up project is being implemented, the second LDCF initiative on climate risk finance / index insurance will focus on Northern Kordofan, Gedarif and will also extend geographically to cover the state of Kassala that equally meets the above criteria of climate variability, reliability on climate sensitive livelihood and high incidents of climate poverty.

B. 2. incremental /Additional cost reasoning: describe the incremental (GEF Trust Fund) or additional (LDCF/SCCF) activities requested for GEF/LDCF/SCCF financing and the associated global environmental benefits (GEF Trust Fund) or associated adaptation benefits (LDCF/SCCF) to be delivered by the project:

27. The project **objective** is to introduce climate risk finance mechanisms in Sudan to achieve climate resilience of rainfed farmer and pastoral communities in regions of high rainfall variability. Towards achieving this objective, the following Outcomes will be delivered.

Outcome 1: Institutional and technical capacity for climate observation, forecasting and early warning strengthened at national and local level

Baseline:

28. The Humanitarian Aid Commission (HAC) has an overall coordination function for all actions in regard to disaster risk management with defined responsibilities in early warning, emergency response, risk analysis and needs assessment. At the state level HAC has offices headed by state commissioners responsible for coordination of the state steering committee for disaster risk management; sectoral committees also function at the state level. Over 10 Ministries and institutes are charged with varied responsibilities for disaster risk management that cover the range of functions from contingency planning at federal and state levels to hazard monitoring, preparedness and ex-post aid coordination. These functions are performed with budget allocations across all responsible institutions ranging from $4-26 million a year. This includes both state allocations and donor support in early warning system that covers the cost of maintenance of existing observation network, field data collection, processing, consolidation, monitoring and warning services, including seasonal forecasts dissemination and response coordination both at state and federal levels. One of the pertinent needs that have been identified relate to the strengthening of institutional capacity for early warning and climate information management. In view of declining rainfall, temperature rise and erratic rainfall distribution, the National Meteorological Authority provides

information on early warning on a daily basis as part of the regional climate outlook forum of ICPAC - Climate Prediction and Application Centre. It produces agro-meteorological bulletins on a ten-day basis, with 3-7 day forecasts that mainly focus on drought and floods. Weather station density seems relatively adequate in Sudan. However, only 32 synoptic stations out of 75 are currently working 24 hours a day and 5 agromet stations out of13 remain fully functional. These indicate persisting funding constraints that have put the observation infrastructure at risk. This particularly impacts maintenance of adequate coverage, essential for forecasting and early warning. Reduction in the quantity or quality of the observational datasets has degraded significantly the quality of weather forecasts that are relevant to decision making at national and community levels. Long time series data are available since 1900. 3 automated stations have been installed in the Northern Sudan recently. 6 weather stations are fully operational in the Northern Kordofan that receives a great deal of attention in terms of climate monitoring due to its susceptibility to high inter-annual hydro-meteorological variations. Two key sources of climate data generation and observation are the Sudan Meteorological Authority (SMA) and the Remote Sensing Authority (RSA). The former provides an analysis of the timing of the rainy season, its progression through Sudan and highlights areas of early or late onset of season. SMA produces seasonal rainfall forecasts based on statistical models. The RSA mandate is to distribute RS and GIS data to all line ministries and interested parties. Despite these essential elements of capacity for observation, forecasting and early warning some critical gaps remain. The government budget allocation fails to satisfy the needs for continuous observation, maintenance of all weather and hydrological posts to keep high density network throughout the country. Currently government budget allocates $100,000 annually to RSA. Forecasting skills are also limited to provide adequate indication of the intra-seasonal distribution of the rainfall including onsets, cessations, wet spells and dry spell locations for specific tercile forecasts. Moreover, the spatial resolution of the forecasts remains fairly coarse, while extensive grazing systems depend heavily on spatial information necessary to manage herd migrations or cropping decisions for farmers. Early warning system largely serves organizations that deliver humanitarian food aid and broader regional scale in horn of Africa, mainly in relation to trans-boundary floods, and does not operate effectively at the state and sub-national levels to serve the interests of local rainfed farmers and pastoralists. Communications of warnings is not designed to timely and effectively reach out farmers, especially the mobile pastoral communities. Extension services increasingly receive targeted capacity development support to enhance the communication end of the early warning system. Given the high volatility of reoccurring droughts and floods that often, along with other important factors, trigger food insecurities in Sudan, number of international organizations, that are present in the country (mainly UN agencies), support the development of hydrometeorological capacity. As such, SIFSIA – Sudan Institutional Capacity Programme – Food Security Information for Action has invested over US$10 million during past 3 years to improve information systems for food security. However, this type of donor and programme driven support is often tailored for aid planning in response to major disasters and do not account for support to long term climate risk management solutions. The initiative focuses on institutional capacity development in support of generating, analyzing and disseminating food security information. The programme does not intend to leave any legal and financial incentives to sustain the observation, forecasting and early warning system in Sudan that is so vital for long term food security in the face of climate change.

Alternative:

29. In addition to the support the rainfed farmers and pastoralists receive from Government as well as international donors to sustain their incomes and livelihoods, more robust risk management mechanisms are desirable to help advance and incentivize adaptation measures. On the basis of the detailed background work that went towards Sudan's NAPA and additional consultations with Government, LDCF resources will be used to provide targeted and timely forecast and early warnings of slow onset (so called "creeping") threats, such as drought and desertification. . Accurate and timely weather data is key to the role out of successful index insurance products. Making available a reliable stream of relevant data that will permit private sector entities to use in order to price contracts and to determine index values so that claims can be settled quickly are among the many benefits for investing in suitable climate measurement technologies. Such technologies, complimented with better maintained observation systems and forecasting capabilities, are increasingly becoming less and less expansive, especially if the cost of maintenance can be covered by

local institutions such as Banks that have strong interests in keeping them operational through their participation in index-based insurance scheme. For example, In India after the introduction of index insurance, starting in 2005 a private sector company began the installation of over 400 automatic weather stations to complement the Indian Metrological Department's network and support market growth of index insurance. LDCF funds will be used to raise the private sector demand on climate data through the index insurance that will generate additional private sector funding into the expansion and maintenance of the observation infrastructure, the basis for hazard monitoring and timely early warning. This proposed LDCF financed project will therefore encourage public and private, national and local authorities to invest in developing index based insurance services by the simple activity of installing, automated, solar-powered weather stations capable of broadcasting regular updates on weather conditions and rainfall quantities. The solar powered weather stations will improve geographic coverage observation and improve fundamental infrastructure for forecasting purposes. Improved coverage of observation network is also a predicament for any type of index insurance to effectively operate and minimize the so called "basis risk". This is when insurance payouts do not match actual losses. LDCF resources will cover the cost of procuring, installing and developing and implementing a maintenance plan (for period during and after the LDCF financed project), for at least three weather posts in the three sites of three selected states covering 20-30km radius[10] each will also be used for collecting rainfall data necessary for weather insurance in addition to being essential infrastructure for improved forecasting and early warning.

30. LDCF resources will be used by the Sudan Meteorological Authority to improve their observation and forecasting capacities and strengthen the national meteorological reporting network to ensure that there is a reliable quality of meteorological data for long and medium range forecasts and seasonal forecasts. . Pastoralists and farmers have long used indigenous forecasting methods to predict seasonal climate events. However, many traditional forecasting methods are perceived as becoming less reliable with increasing climate variability, thereby necessitating the improvement of evidence-based climate forecasts to suppor livelihood management decisions that take into account the range of possible climate risks. The LDCF resources will not only help finance the development of technical forecasting skills of officers at the key institutions but also finance the development of targeted forecasts required for farmers and pastoralists. For example, forecast of greatest interest to pastoralists concerns the timing of the onset of the rains as opposed to the aggregate volume of rain over a season, because migration patterns depend on when grass and water are available in different sites, not on the average availability over a period.

31. LDCF resources will also introduce Livelihood, Early Assessment and Protection (LEAP) software at the SMA and RSA and facilitate closer cooperation between these two authorities. Since LEAP uses both ground and satellite rainfall data it can bring these two institutions together in addressing the data gaps by better combination of two sources. LEAP has been identified as priority and the most suited tool during the SNC preparations. The reason is that it can cover the whole country, even the areas where weather stations do not exist, by combining satellite and ground data. It runs localized models to convert rainfall data into crop or rangeland production estimates and subsequently into livelihood stress indicators for vulnerable population. It then estimates the financial magnitude of the livelihood-saving interventions these people need in the event of a climate shock. Thus LEAP provides a good proxy estimate of the funding needs of protecting transiently food-insecure people's livelihoods at a time of shock. The index (e.g. drought index) defined by LEAP can also help establish the trigger for insurance payouts (LEAP has been successfully used in Ethiopia for determining the index as well as trigger for the payouts[11]). WFP's and WB's experience with LEAP, particularly in Ethiopia is that it can trigger in a transparent, objective and verifiable way the immediate release of contingent funds to activate the government response before the crisis has an impact on people's lives and livelihoods. As a result the second phase of LEAP support is underway during 2011-2012 to further revise the tool to integrate flood index and other components to

[10] This range for coverage will be acceptable given the homogeneity of the landscape in the arid and semi-arid parts of Sudan. And will provide acceptable distance with insured locations in the targeted areas.

[11] IRI (2009) "Index insurance and climate risk: Prospects for Development and Disaster Management", Climate and Society #2.

improve seasonal forecasts and long term risk assessments. The proposed project will fully consider these adjustments during PPG phase and consider the LEAP experience in neighboring Ethiopia that provides a relevant reference for Sudan[12]. Capacity development for extension services will include effective warning and alert communication techniques and a partnership developed with local mobile service providers for timely transmission of vital messages to the public, and especially to pastoral communities. The successful results from Kenia index-insurance that engage mobile companies both for warning and payout transfers will be customized in the context of Sudan (this possibility will be further examined during the PPG phase).

Outcome 2: Parametric insurance product introduced to promote local adaptation measures and address residual risk in States of high rainfall variability

Baseline:

32. Insurance is a particularly well developed industry in Sudan, where the first Shariya-compliant (takaful) insurance company was established in 1979. The Bank and insurance sector in Sudan has undergone major reforms in 2002 and is at mature stage of development with well regulated framework in place. During the reform period the country introduced the Basel requirements to the banking sector and aligned them with Shari'ah principles. The range of insurance products is broad and insurance is required for many financing transactions with banks. In 2006, net insurance premiums received by the industry exceeded gross claims payments to customers by 21%13. Livestock insurance in Sudan commenced in the early sixties of last century. At present, eight companies are engaged in livestock insurance, including Shiekan Insurance and Reinsurance Co. Ltd. (SIRC) and El Watanya Cooperative Insurance Company (WCIC). In view of the catastrophic risks and the need for government support, crop insurance only started in season 2002/2003 by SIRC. The success of the experience encouraged WCIC to enter the scheme in 2008 in a pilot wheat area of 42,000,000m^2 and in 210,000,000m^2 in 2009. However, there is a full recognition of limitations in current system especially in covering the risks related to increased variability of climate. For example, one of the main reasons of 103% of loss ratio in 2000 in livestock insurance scheme was very high rates of claims as a result of severe droughts. In spite of the high potential for agricultural insurance in Sudan, evidenced by steady growth in insurance coverage, transaction costs remain too high, a factor expected to increase in costs as climate related risks become more prevalent in scale and intensity. As a result, insurance coverage is enjoyed only by the wealthier segment of the agricultural sector, bypassing the most needy farmers and pastoralists engaged in rainfed agriculture and trapped in climate poverty. Shift from individual field coverage to area coverage through index insurance and remote sensing applications will allow a higher number of vulnerable households to withstand climate shocks.

33. While many potential clients are reluctant to interact with banks due to their formal structure, urban concentration and perceived disinterest, the general level of awareness of financing options and non-bank services such as insurance in particular is relatively high. A broad range of insurance products is available that could be adapted to the micro-market with a minimum of effort. A more systemic use of insurances against uncontrollable risk (weather/harvest, fire/theft, medical issues/death) could serve to add-on, if not fully replace circumstantial relief grants as a more predictable, objective and thus equitable system of risk mitigation.

Alternative:

34. In line with NAPA priority on addressing climate risks to most vulnerable traditional rain-fed farmers and pastoralists, LDCF funds will be used to introduce weather-index based insurance that is proposed as a new climate risk management tool that helps people to cope with current weather related-risks and if designed accordingly, also addresses future risks associated with climate change.With relatively low administrative costs and faster payout times, micro-insurance schemes and index-based weather

[12] FAO (2011) Supporting Innovative Climate Risk Management for Food Security
[13] CBOS: Annual report 2007.

insurance are therefore particularly attractive for cash strapped developing countries such as Sudan. An insurance product will be developed based on the participatory and detailed analysis of the various business models for index insurance deployment in Sudan. A contract will be written against an index establishing a relationship between lack of rainfall and crop failure, verified by long historical records of both rainfall and yields. Farmers will collect an immediate payout if the index reaches a certain measure or "trigger," regardless of actual losses, so farmers will still have an incentive to make productive management decisions. This removes "moral hazard" and other problems inherent in crop insurance. Indemnifications will be triggered by pre-specified patters of the index as opposed to actual yields, which eliminates the need for in-field assessments. Therefore, high costs associated with settling claims on a case-by-case basis, through field visits are not necessary. This reduces transaction costs associated with sectoral or crop insurance that makes index insurance much more affordable for the poor parts of rural population. When well designed, index insurance will also permit farmers to enhance adaptive capacity through greater risk-taking experimentation in farming and agro-pastoral practices not possible in crop-insurance schemes.

35. . Current coping measures are no longer adequate with increasing variability of rainfall that directly correlates with yield stability. As experience shows with risk transfer opportunity farmers are willing to experiment with new farming methods or crops. LDCF funds will be used to design the index insurance contract in a way that conditions the farmers to either diversify or switch to certain varieties that are more resistant to declining rainfall conditions, or even condition the change of certain cropping, tillage and soil conservation practices, or tailor the insurance contract only to the farms that practice water harvesting and other risk management and long term adaptation measures. The index that is linked with rainfall or temperature rather than crop loss will be determined based on historical climate data. The project will introduce index based insurance schemes for livestock and selected crops. It will therefore facilitate the formulation and introduction of the insurance schemes, working out important design issues noted above so that it becomes a powerful risk finance instrument not only in the context of current climate variability but also for future climate risks. Government of Sudan through its Social Fund has long experience of hedging and replenishing various financial schemes, such as revolving fund in support of photovoltaic energy solutions and many others. This provides for strong evidence that the index insurance scheme in case of exceptional catastrophic incident can be hedged through this fund. Additionally, in case of Sudan, where the considerable funds are available for humanitarian aid, hedging the insurance in case of catastrophe can also be secured through these funds. Moreover, the two parallel and interconnected schemes linked with index-insurance can be designed to ensure necessary hedging. Relief agencies can link up with index-insurance scheme and select a weather-based index that can effectively serve as an early or lead indicator of an emerging crisis. This will help avoid the usual delays incurred when relief agencies must first demonstrate an emergency and then appeal for donations from governments and donors. Earlier the relief arrives after a shock, the greater its effectiveness in cushioning adverse welfare impacts, avoiding the distress sale of assets and speeding up recovery. In case of disasters of catastrophic scale timely mobilized relief funds and government resources from the Social Fund can provide hedging for the insurance in such emergency circumstances. PPG will explore the combination of such viable schemes in further detail. The index insurance is most effective when integrated into broader development or risk management initiatives. Therefore, index insurance will be embedded into the broader frameworks of poverty reduction, NAPA implementation and disaster risk management strategy of Sudan. It will be designed to serve these multiple agendas by focusing the regions and communities prioritized by these policy frameworks and stimulating risk reduction and adaptation measures through the insurance contract conditions. Even though it is a private sector product, index insurance cannot be developed without securing public investment into creating essential conditions – legal base, technical capacity and awareness for a successful start up and scaling up. The project will develop a clear regulatory framework to guide index based insurance specifically in three pre-identified states of Northern Kordofan, Kassala and Gedarif characterized by high climate variability. Clearly defined rules, procedures, by-laws, conflict resolution mechanisms and the institutional structure will be put in place to ensure effectiveness and sustainability, including legal and regulatory system to enforce contracts and supervise insurance. Since index insurance is relatively new risk finance product and can be difficult for stakeholders to understand – time and resources will be invested in explaining how it works (particularly focusing on costs and benefits, risks and opportunities). Project will

support extensive series of training for the beneficiaries that aim at raising awareness and financial literacy as well as cultivating the trust in this new financial product for climate risk management. Specialized biannual training sessions will be organized for the MFIs to cover the main elements of index-insurance such as (i) determining indemnity payments under the contract; (ii) a payoff structure that defines the relationship between the index and indemnity payments; and (iii) basis risk, which is the risk that an index will not perfectly cover all the losses that any particular individual might experience; (iv) low cost index insurance deployment model etc. Index insurance will be designed and rolled out to cover the climate change risk of at least 30,000 farmers and pastoralists in an initial three state pilot established by the project. As a result, at least 10% of pastoralists and farmers of the target states will participate in the index based insurance scheme and 25% - cumulatively by end of the project.

Outcome 3: Capacities of microfinance institutions developed to improve credit services to climate risk exposed farmers and pastoralists and finance adaptation measures on the ground

Baseline:

36. It is estimated that 53% of the population in Gedaref, 70% in Northern Kordofan and 40% of the population in Kassala state live at or below the proxy poverty measure of twice the minimum wage of USD 200/month). Around 70% of the population in these three states reside in rural areas and survive on subsistence farming and livestock raising. There is a low appetite for providing micro finance and traditional insurance scheme to farmers and pastoralists that are engaged in rainfed production systems. Even though by African standards, bank usage in Sudan is relatively high at 144 bank accounts per 1000 adults[14], micro-finance still remains under-developed. 93% of this deposit base was used for lending in 2007 (20% for import, 17% for local trade, 10% for industry, 7% for agriculture and only 3% for 'social development' including microfinance)[15]. Only a small fraction of the financial services portfolio is in microfinance. Microfinance in Sudan is largely supply-driven and government-subsidized. In 2006 the Central Bank of Sudan established the Microfinance Unit to serve as its specialized department. $40 million has been transferred to the 7 Banks for them to establish microfinance services. Additionally, commercial banks have been asked to allocate 12% of outstanding portfolio to "micro-finance" and large amounts of subsidized capital for on-lending are being channeled through banks for microfinance. This is a strong signal from the government for the Banking sector to more actively engage in microfinance in support of country's poverty reduction agenda. However, there are number of critical flaws in the current system that precludes the MFI sector to fully unleash its potential in Sudan. Culture of non-repayment has characterized the formal financial sector for many years. Both the government and the donors created the conditions for cheap funds to be channeled without adequate financial services or expectation for repayment. Significant debt default problems have plagued the industry. Consequently, despite a strong government demand for the MFIs to deliver to the poor, microfinance service provisions are very limited for rainfed communities. There are none or very few intermediaries that can provide retail microfinance, although there is some involvement of NGOs and CBOs in this role.The. But their engagement in commercial activity has only been recently approved and their intermediation role has not been well established. There is also a tendency of not providing loans to high climate risk groups. Farmers and pastoralists are viewed under this category, largely due to high correlation between the productivity and climatic conditions (weather events). The current profile of microcredit recipients largely consists of those involved in trade and small tourist transport (e.g. riksha). Agriculture input financing through loans and micro-credits is very rare. In order to respond to this challenge and turn micro-finance into a powerful poverty reduction and food security funding mechanism, UNDP in 2010 launched a targeted capacity building initiative for microfinance institutions that is still ongoing. The $20million project aims to develop an institutionally diverse and commercially sustainable microfinance sector offering a range of financial services in both urban and rural clients. The capacity development work is structured around four main components: (i) strengthen the human and institutional Capacity of the Bank of Sudan (BOS) and the Ministry of Finance and National Economy (MOFNE) to regulate and supervise the microfinance industry - *Suitably enabling environment*

[14] Getting Finance database in World Bank: Banking the Poor, 2009.
[15] Ibid.

for microfinance to develop - ($0.25m); (ii) establish the Sudan Microfinance Facility and support its ongoing operational costs - c*apable, transparent, autonomous, efficient Facility delivering appropriate tailored services*; -($2.7m) (iii) develop the microfinance industry - *Improve institutional capacity of financial institutions (Banks, community Sunduqs) to providing services to a broad geographic range of market segments through technical assistance and training* – ($17m)*;* The last component aims to increase number of micro-finance service providers, quality of service, including increased number of financial products delivered to the rural and urban poor. This is an important endeavor at the baseline undertaken for financial sector development in Sudan that mainly targets Northern and Eastern States of the country. The project also works with informal financial schemes with an objective to make them recognized as formal retail providers. In fact, such informal financial support schemes have flourished for centuries across the country. The *sanduq*s are basically accumulating or rotating savings and credit schemes founded on the principle that members add contributions to a common pot on a regular basis and in sequence; each member is given the usage of the total fund for a specific period of time. The basic model has been augmented in some areas and groups, e.g. by shifting the savings contributions to investments (*musharakah*) in joint projects and then sharing the profit from these projects (dividends). Similar to cash *sanduq*s, pastoralist communities traditionally build up reciprocal social security systems around primary sources of wealth to reduce problems of food insecurity. These Sunduqs can play a critical role in micro-insurance delivery as they are endowed with trust and proved financially viable. Moreover, the existence of an informal market for financing at extremely high rates indicates that there is a demand and a critical mass of bank-ready clients does exist. Combination of various models of linking micro-insurance with micro-finance will be determined in detail during the PPG phase.

Alternative:

37. The role of micro-finance in delivering index insurance is significant, either through the banks and their micro-finance facilities or community funds – sanduqs. Therefore, establishing the linkages between farmers, insurance and credit providers will be critical for the success of the refined scheme. When lenders know that borrowers are covered by insurance, they will more likely extend credit to them opening the opportunities for rural population to make investments that may raise their productivity, especially if the latter is incentivized by the insurance scheme as part of the requisite climate risk management conditionality spelled out in the contracts. In package, together with index insurance, MFIs become more willing to take risk and give loans for agriculture input financing. In fact, index insurance might unravel huge potential of the microfinance sector in Sudan. In fact one of the successful cases of index insurance comes from Maharashtra, India where Swiss Re pioneered index-based weather insurance in collaboration with microfinance institutions and the local direct insurers exactly for the reasons outline above, as early as 2004. Since then, an industry has developed that provides coverage against poor monsoon rainfalls to several hundred thousand farmers. At an estimated annual premium volume of about USD 100 million, more than 1 500 000 farmers have taken weather insurance policies through schemes provided by the government-run Agricultural Insurance Company and private insurance companies.

38. The project will work directly with local farmers and pastoral communities to help develop adaptation plans, based on rainfall models and simulations produced under component 1.These participatory adaptation plans will identify and guide the implementation of the most cost-effective climate risk reduction measures ranging from drought resistant seeds and animal breeds or water harvesting and saving technologies. Identified measures will help advance a new paradigm for climate resilient water and soil management practices especially, during periods of intensified drought. The measures will orientate towards natural (soil and water) resource conservation, their efficient use, and improvement of their production functions. The adaptation plans will feed into MFI credit packages for stimulating adaptation. Risk reduction and prevention measures will be included into the loan and insurance contract conditions. This is indeed in strong interest of both insurance providers and the beneficiaries. The reason being that these measures reduce exposure to climate risks while at the same time ensure that risk transfer product continues to be affordable for less frequent, more severe drought events. The project will develop the index based insurance product and set insurance premiums in a way that, in turn, it will provide a strong incentive to invest in those types of prevention activities that promise to yield net economic rewards and build

resilience. LDCF funds will be used to establish the rules and regulations for enabling linkages between micro-finance and micro-insurance that is to bundle index insurance (designed to promote long term adaptation) with micro-finance delivery mechanism that brings necessary cash investments into the on the ground efforts to improve agricultural productivity in the face of mounting climate change risks. Micro-finance, especially in combination with index-insurance can deliver important adaptation finance at the local level and help reach the most vulnerable segments of the rural population. The project will work with a wide range of micro-finance institutions and help adjust their schemes to deploy adaptation finance in combination with index-insurance. Flexible repayment installments, yearly or seasonal will be tested to consider the seasonal or inter-annual climate variability as well as peculiarity of pastoral mobility. This will be done without undermining an overall repayment schedule and financial discipline of all parties. Micro-finance institutions will be supported to adopt a wholesale approach and include adaptation services to the farmers and pastoralists. The project will help the MFIs to identify farmers and pastoralists with willingness to participate in the scheme, and to accept the terms and conditions of the project; also identify demonstrated interest to innovate on agro and pastoral activities (assessment may be obtained from the resident extension officers and NGOs) and provide incentives (e.g. through flexible repayment) for adoption of adaptive practices, including training and technical service package from the partner extension providers. Such practices will be available and well tested in the framework of the first NAPA follow-up project as well as other initiatives that the project will carefully document and offer to MFIs for further support. But will mainly focus on drought resistant seeds and animal breeds to increase drought tolerance and improve productivity, and stimulate water harvesting and saving techniques and technologies. Towards end of the project the adjusted microfinance scheme will support portfolio of adaptation measures in three target states with the total value of $30-40 million, benefiting 150,000 farmers and pastoralists.

B.3. Describe the socioeconomic benefits to be delivered by the Project at the national and local levels, including consideration of gender dimensions, and how these will support the achievement of global environment benefits (GEF Trust Fund) or adaptation benefits (LDCF/SCCF). As a background information, read Mainstreaming Gender at the GEF.":

39. The project will have significant adaptation and associated socio-economic benefits. This will be achieved by introduction of sustainable risk finance product, index insurance that will support lending to small-scale rainfed agro-pastoral communities. As a result of the project intervention, farmers and pastoralists will be able to use insurance to safeguard investments that increase their productivity as well as long term resilience to climate change. At least 3,000 people will directly benefit from this risk finance scheme. The scheme, combined and delivered with micro-credit operations will help them build wealth and acquire assets need to allow them to diversify and better absorb the climatic shocks. With climate change, severity and scale of drought and / or flood incidents will increase, especially in the regions of high climate variability of Sudan. As this trend unfolds, the price of the insurance will gradually increase. Over time, the cumulative rise will help incentivize improvements in farming systems or a gradual transition to other livelihood activities, as necessary. Indeed, index insurance makes sense in Sudan, particularly in the target regions as there the weather is one of the major risks confronting households, banks and relief and humanitarian agencies. It can play a powerful role in stimulating the lending to the most risk sensitive communities and unlock the potential of micro-finance as poverty reduction and food security funding mechanism in the face of climate change. By combining credit provision with the delivery of adaptation services under the component 3 the project will turn local micro-finance institutions into the actual delivery channels for adaptation financing at the sub-national and local levels. The project will encourage female members of farmers and pastoralists to engage in index-insurance contracts as the experience shows they are much more diligent in repayment and have higher degree of financial discipline. At least 20% of the target beneficiaries of the project will be women.

B.4 Indicate risks, including climate change risks that might prevent the project objectives from being achieved, and if possible, propose measures that address these risks to be further developed during the project design:

The project has identified the following risk and risk management strategies

Risk	Level	Mitigation
Targeted farmers and pastoralists are skeptical and unwilling to engage into the index-insurance scheme	Low	The project will invest resources in familiarizing the target community with index-insurance that will be designed to yield a benefit that exceeds the cost. The product will also be designed in a way that is affordable to the target community and basis risk is low.
Micro-finance sector proves to be immature to deploy index-insurance or facilitate long term adaptation at local level.	Medium	The project will work very closely with the UNDP's capacity development project for microfinance development and follow the key lessons and recommendations. In addition to bank-based micro-finance facilities, the project will also engage with sanduqs to explore alternative and possibly more viable options for index-insurance deployment and adaptation finance delivery
High volumes of humanitarian and food aid in Sudan as primary means for addressing disasters may continue distorting incentives for private sector to engage in risk finance.	Low	Establishing the weather- index for micro insurance scheme will help the government and the HAC to improve timeliness and efficiency in aid delivery opposed to currently ad hoc fundraising practice when emergencies arise. The project will develop strong partnership with HAC and humanitarian agencies, such as WFP to adopt index as a trigger and lead for well coordinated and targeted operation that can play constructive role of insurance hedging during climate related catastrophes. Such partnership through the index insurance scheme and availability of hedging option will incentivize private financial institutions to engage in risk finance.

B.5. Identify key stakeholders involved in the project including the private sector, civil society organizations, local and indigenous communities, and their respective roles, as applicable:

40. The project will be nationally executed with the involvement of the main implementing partners and relevant stakeholders such as Higher Council for Environment and Natural Resources. Ministries of Environment and Agriculture, including the extension services, Central Bank of Sudan, Sudan Microfinance Development Facility, local MFI institutions, community sanduqs and resident NGOs, NShiekan Insurance and Reinsurance Co. Ltd. (SIRC) and El Watanya Cooperative Insurance Company (WCIC), Humanitarian Aid Commission, Meteorological Authority, the Remote Sensing Authority. More detailed stakeholder analysis will be conducted during the PPG.

B.6. Outline the coordination with other related initiatives:

41. The project will closely coordinate and build the synergies with the LDCF project on Implementing NAPA Priority Interventions to Build Resilience in the Agriculture and Water Sectors to the Adverse Impacts of Climate Change in Sudan. This first LDCF project of Sudan covers all five agro-climatic zones and implements adaptation measures well tailored to localized climate hazard profiles on these five specific zones. The proposed second LDCF project will operate in 3 states (2 states coinciding with the first project) where the climate variability is greatly pronounced and leaves high residual risk even after the optimal adaptation actions have been made by the rainfed farmers and pastoralists. The project will provide an important risk finance funding to manage the residual risk. These two projects therefore offer a great potential for synergies that will be assured through joint coordination mechanism, such as shared project board.

42. The project will also closely coordinate and build on UNDP's *Capacity Development for Inclusive Finance in Eastern Sudan*, focusing on imporved acess to micro-finance in the states of Kassala and Gedarif. The project is desinged to dvelop capacities of Sudan's Microfinance Development Facility ensure that existing and new microfinance providers in Eastern Sudan should be able to increase their outreach to the poor by 15-20% per year. The level of capacity building required in order to attain this target is considerable, both at the retail and meso-levels, to introduce systems, delivery mechanisms and product adaptations appropriate for the micro-market, and ensure transparency and accurate performance monitoring. Linking the demand for business services to the existing supply in order to contribute to a more sustainable sector development and lower the cost of MFP operations. The project will also coordinate with *Livelihood Development* project of UNDP that undertakes important poverty reduction efforts in number of states with high social vulnerability. UNDP's project on Establishment of a *National Disaster Risk Management Programme* will enable an easy access to all stakeholders in disaster and climate related disaster risk management, especially the HAC and other important organizations. The project aims to address the risks from disasters triggered by natural hazards in North Sudan by focusing on three states- Red Sea, Kassala and South Kordofan – as well as on strengthening the capacities of Central government and promoting the development of a National Disaster Risk Management Strategy. The GEF project will work to embed index insurance in this strategic framework. With index insurance in place, governments and relief agencies can plan ahead of crises by tracking the index. The project will also coordinate and build on *SIFSIA – Sudan Institutional Capacity Programme – Food Security Information for Action* that helps to improve information systems for food security, which includes new weather stations, climate data analysis and training. This is highly relevant for index insurance that requires considerable improvements in observation capacities. More detailed stocktaking of all relevant projects and programmes will be conducted during the PPG

C. DESCRIBE THE GEF AGENCY'S COMPARATIVE ADVANTAGE TO IMPLEMENT THIS PROJECT:

43. UNDP's comparative advantage stems from its strong presence in the area of disaster and climate risk management in Sudan. It is the lead agency taking targeting efforts in livelihood and poverty reduction tailored for specific conditions of individual states and local circumstances. UNDP currently coordinates the efforts for a long disaster risk reduction strategy for Sudan. It also supported the NAPA formulation and helped country to access the LDCF funds for critical NAPA priorities. UNDP is also among the lead agencies supporting the Central Bank of Sudan in developing a micro-finance facility and helping to build essential capacities to make MFPs more demand oriented and meet the needs of the poor. The project will benefit from UNDP's analysis of some of the important lessons and experiences from Ethiopia, Kenya, Malawi, Mexico, India, the Caribbean and other developing countries. The following main lessons derived from these case studies will frame the guidance to the project: (i) low climate data quality and quantity restricts the implementation and scale up of index insurance; (ii) premium subsidies for development and adaptation oriented projects will reap more benefits and result in more sustainable markets; (iii) index insurance can help vulnerable populations better manager climate risk and can be a useful strategy for adaptation; (iv) investment in capacity building and marketing are needed to support the scaling up of index insurance; (v) public investment in the development of a strong legal and regulatory system for index insurance is necessary for a successful outcome. More specific consideration is that when adaptation and disaster risk reduction efforts are not connected with risk transfer approaches there is limited space to maximise the potential benefits that risk reduction approaches can bring in terms of lowering the overall exposure for insurance companies and expanding coverage with affordable premiums. The proposed project fully considers this important lesson and includes risk reduction measures as contractual conditions for the index insurance. Another important lesson that project builds on is that index based weather insurance is most successful if designed and deployed in collaboration with microfinance institutions as part of existing financial products and services.

C.1 Indicate the co-financing amount the GEF agency is bringing to the project:

44. A total leveraged co-financing is $12,200,000. UNDP, as implementing agency for the proposed project brings over US$10,000,000 of its core resources to this priority adaptation project for Sudan. At the same time, the agency leveraged government co-financing in amount of 2,200,000 that constitutes the dedicated staff time of Higher Council of Environment, The Ministry of Environment, Central Bank of Sudan, Microfinance Development Facility (SMDF) and its dedicated budget, and other organizations directly engaged in the project implementation. It also includes facilities for project management and implementation (series of workshops, stakeholder consultations etc). UNDP already partners with number of UN agencies, government and private banking sector, and regional and local NGOs operating in the country in the framework of poverty reduction, climate risk management and access to finance to the poor. The partnerships will be expanded to cover the scope of this proposed project

C.2 How does the project fit into the GEF agency's programme (reflected in documents such as UNDAF, CAS, etc.) and staff capacity in the country to follow up project implementation:

45. This proposal has been developed with guidance from the UNDAF (2009-2010) that supports four interlinked development priorities of i) peace building; ii) governance and rule of law; iii) livelihoods and productive sectors; and iv) basic services. Under "Livelihood and Productive Services", the UNDAF promotes the outcome of the reduction of poverty and an increase in equitable economic growth by 2012 through improvements in livelihoods, decent employment opportunities, food security, sustainable natural resource management and self-reliance. Under this broad outcome the improvements in management of natural resources and an increase in resilience to natural, including climate related disasters is flagged. UNDP's CPAP for the same timeframe promotes a strengthening of the capacity of national, sub-national, state and local institutions and communities to manage the environment, climate risks and natural disasters to reduce conflict over natural resources. Based on UNDAF and CPAP guidance the proposed LDCF project also adopts the comprehensive approach with full recognition that climate change adaptation and development are inextricably linked, and additional adaptation benefits must be nested into the broader development gains. In terms of agency capacity to support the project, the Country Office in Sudan currently manages a programme portfolio of total value of over $200 million. It offers the following dedicated staff capacity for project implementation oversight support: (i) Environment Analyst who oversees the implementation on a daily basis, including quality assurance and monitoring and evaluation; (ii) Economic advisor who leads on UNDP's programming and policy advice on microfinance; (iii) Environment Associate – assists with budget revisions, quarterly reporting, auditing and recruitment procedures; (iv) finance Analyst - reviews the budgets and monitors project delivery status; (iv) Head of Operations Unit - assures compliance with overall fiduciary standards of UNDP; (v) UNDP CO Country Director and Resident Representative who liaise with the government and negotiate key policy and legislative changes proposed by the project.

PART III: APPROVAL/ENDORSEMENT BY GEF OPERATIONAL FOCAL POINT(S) AND GEF AGENCY(IES)

A. RECORD OF ENDORSEMENT OF GEF OPERATIONAL FOCAL POINT (S) ON BEHALF OF THE GOVERNMENT(S): (Please attach the Operational Focal Point endorsement letter(s) with this template. For SGP, use this OFP endorsement letter).

NAME	POSITION	MINISTRY	DATE *(MM/dd/yyyy)*
Mamoun Eisa Abdelgader	GEF Operational Focal Point	MINISTRY OF ENVIRONMENT, FORESTRY AND PHYSICAL DEVELOPMENT	AUGUST 8, 2011

B. GEF AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF/LDCF/SCCF policies and procedures and meets the GEF/LDCF/SCCF criteria for project identification and preparation.					
Agency Coordinator, Agency name	**Signature**	**DATE** *(MM/dd/yyyy)*	**Project Contact Person**	**Telephone**	**Email Address**
Yannick Glemarec, Executive Coordinator, UNDP/GEF		April 10, 2012	Keti Chachibaia Regional Technical Advisor, Green LECRDS	+421259337422	keti.chachibaia@undp.org