



Darfur Joint Assessment Mission

Situation Analysis

AGRICULTURE, LIVESTOCK AND RURAL LIVELIHOODS IN THE GREATER DARFUR REGION



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**Thematic Working Group of
Agriculture, Livestock and Rural Livelihoods of
World Food Programme (WFP) and Food and Agriculture Organization (FAO)**

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Abbreviations and Acronyms

ALSDS	Agriculture and Livestock Sectors Development Strategy
CAHWs	Community Animal Health Workers
CBOs	Community Based Organizations
CDC	Center for Disease Control (Atlanta)
DJAM	Darfur Joint Assessment Mission
DRA	Darfur Regional Authority
FAO	Food and Agriculture Organization of the United Nation
FNC	Forest National Corporation of State Ministry of Agriculture
FYP	Five-Year Plan
GOS	Government of Sudan
HAC	Humanitarian Aid Commission
IDPs	Internally Displaced Person
IFAD	International Fund for Agricultural Development
IRC	International Rescue Committee
ITK	Indigenous Technical Knowledge
MFI	Micro Finance Institutions
MT	Metric Ton
NCA	Norwegian Churches Aid
NGO	Non-Governmental Organization
NRM	Natural Resource Management
OCHA	Office for the Coordination of Humanitarian Affairs
PPR	Peste des Petits Ruminants (name of animal disease)
PRA	Participatory Rural Appraisal
RF	Results Framework
SDG	Sudanese Gineh (local currency)
SAM	Severe Acute Malnutrition
SIFSIA	Sudan Institutional Capacity Programme: Food Security Information for Action
SMOA	State Ministry of Agriculture
SMOAR	State Ministry of Animal Resources
SWOT	Strength Weakness Opportunities Threat
TWG	Thematic Working Group
UNDP	United Nations Development Programme
UNEP	United Nations Environmental Programme
UNOPS	United Nations Office for Project Services
VAT	Value Added Tax
WFP	World Food Programme of the United Nations

Summary

1. CONTEXT AND BACKGROUND OF THE ANALYSIS

1.1 Introduction

1. The present document is a consolidated form of Situation Analysis of agriculture, livestock and rural livelihoods of all five states¹ of Darfur region. These analyses was carried out in the light of recommendations outlined in *Article 32* of the Doha Document for Peace in Darfur for conducting a needs assessment to '*identify and assess the needs for economic recovery, development and poverty eradication in the aftermath of the conflict in Darfur*'. The Darfur Regional Authority (DRA) initiated the preparation and implementation of the needs assessment through Darfur Joint Assessment Mission (DJAM), supported by the UN agencies operating in Sudan. The report presents two main sections, the assessment results and the Results Framework.
2. The results of the analysis are the outcomes of five participatory workshops of intensive multi-stakeholders consultations in Darfur states, conducted by the Thematic Working Group (TWG) of Agriculture, Livestock and Rural Livelihoods of Cluster Lead: FAO and WFP from September 18 to October 4, 2012. Throughout the process, the participants freely shared their understanding of the constraints to recovery of livelihoods in a post-conflict situation, articulated core concerns about current challenges in the food security and livelihoods sector, and discussed durable solutions to the prolonged humanitarian crisis in Darfur. The information contained in this report is, therefore, a primarily reflection of the participants' views in which they emphasized on setting priorities for a longer-term development for economic recovery through collective efforts of capacity building and institutional strengthening.
3. We recognized that this document will help DRA and other stakeholders with valuable inputs to the formulation of Strategic Development Plan (2013-2018) for Darfur to lay out its rehabilitation and development vision putting emphasis on economic stability, food security and livelihoods development for poverty reduction. Yet, it is to be mention that macroeconomic and other sectoral policy issues are of extreme importance to development of food security and livelihoods. Though these issues have been fairly touched in this milieu, however, we anticipate that other TWGs of cluster leads will further unfold these issues on such as fiscal management, business development and NRM approaches with emphasis on the need for reconstruction and development of food security and livelihoods sector.
4. As a matter of fact, the prolonged conflict in Darfur has crippled the life of the people, rural incomes, destroyed food production and degraded rural infrastructure and assets, which as a result severely affected the livelihoods of the people and thus triggered a serious humanitarian crisis. Since 2003, Darfur has been highly vulnerable to food and livelihoods insecurity due to a series of overlapping factors including fighting between different groups, banditry, looting of livestock, drought, floods, pests and diseases as well as poor crop and livestock production. Despite the relative stability over the whole Darfur since 2010, the security situation in Darfur has deteriorated in many parts in 2012. For instance, all the IDPs in Kasab camp in Kutum (more than 22,000 people) fled the camp, exposing the already vulnerable persons (elderly, women and children) to other dangers such as gender-based violence. In Mellit, about 4,000 farmers (at least 20% were women) have not been able to access their farms and failed to carry out the second weeding operation. Women, who are more involved in agricultural activities, are at risk of being killed or abused if they venture out to the fields. Livestock loss and severe reduction of productivity caused by heavy rains and floods in Malha area in North Darfur led to the death of more than 40,000 animals².

¹ Include West Darfur (capital Geneina), North Darfur (capital El-Fashir), South Darfur (capital Nyala), East Darfur (capital Ed-dein) and Central Darfur (capital Zalingi)

² An Update by FAO Sudan during Food Security and Livelihoods Cluster Coordination, 2012

- With the depletion of natural resources, continued population growth and persistent insecurity, it is now crucial that appropriate interventions are required to break the cycle of poverty and instability, and offer the population durable solutions that can further stabilize the region, attract investment and set up a long-term development. This situation analysis of Darfur states tries to identify priorities and strategic solutions based on the results of the consultation and information gathered from the participants of DJAM workshops and from other sources as well.

1.2 Food Security and Livelihoods Background to the Assessment

- Geography and Agro-ecology**, Darfur region consists of an immense rolling plain with an area of approximately 503,180 square kilometers that covers one-fourth size of Republic of Sudan with a total estimated population of 8.6 million³ in 2012 (Table-1), of which 80% reside in rural areas.

The volcanic highlands of the *Marrah* Mountains, popularly known as *Jabel Marrah*, dominate the central part of this plain. The *Marrah* Mountains have an average elevation of 7,200 feet (2,200 meters), with the highest peak, Mount *Marrah*, rising to 10,131 feet (3,088 meters). Elsewhere the sparsely populated plains of Darfur are relatively featureless

Table-1: Population according to 2008 population census

State/Wilayah	Capital	Area (sq.km)	Population 2008 Census Provisional	Population 2012*
Northern Darfur	Al-Fashir	296,420	2,113,626	2,470,000
Southern Darfur	Nyala	127,300	4,093,594	4,835,000
Eastern Darfur	Ed'ein			
Western Darfur	Al Geneina	79,460	1,308,225	1,300,000
Central Darfur	Zalingi			
TOTAL		503,180	7,515,445	8,605,000
* Source: Sudan Central Bureau of Statistics, the annual growth rate is 3.18%				

and arid, particularly in the north, where they merge into the Libyan Desert. The *Marrah* highlands receive heavier rainfall than other parts of Darfur, and a number of large *wadis* (seasonal watercourses) rise in the mountains and flow southward across the plains with alluvial beds that allow for growing of trees and seasonal fodder grasses that constitute an important source of livelihood around the *wadis*.

- The region is a mixture of desert and semi-desert in the north, poor savannah in the middle and rich savannah in the south, and well endowed with natural resources such as rich soils, significant forests and open woodlands, vast reserves of underground water, with reliable annual rainfall ranging from 150 to 300 mm per annum. Soils, which are generally sandy, support some seasonal grass and low thorny shrubs with tropical *maquis* vegetation. Two main soil types exist in Darfur, namely, the sandy soils and the dark clay soils; both are suitable for cultivation. The sandy soils are mainly stabilized sand dunes known locally as *qoz* lands. Other soil types, locally known as *gardud*, a non-cracking clay soils, found in many parts of South Darfur, and the '*naga*', a cracking clay-soil, which also exists in South Darfur. Forests in Darfur though constitute almost half of total Sudan's forest area but during the years of conflict it were destroyed leaving bare land forests and rangelands with a low frequency of tree and shrubs covered with grass used for livestock grazing.
- Agriculture, Livestock and Livelihoods Background Situation**, Darfur continues with political, security and socio-economic challenges that generated humanitarian needs although its economy during pre-conflict era was very strong through trade in cereals, cash crops, horticulture and livestock export. Darfur was a net earner of foreign exchange through livestock export, which generated 20% of national export earnings prior to the discovery of oil⁴. Because of conflict, livestock trade from Darfur has declined drastically and sales are mostly for local consumption although some attempt were made for livestock exportation but due to heavy taxes and high transportation cost it is impeding the process. Almost similar scenario in local cereals (millet and sorghum) markets, which has also declined and only the trade in food aid has been sustaining the

³ According to Central Bureau of Statistics, Darfur population expected to increase during 2008-2013 to reach 8.6 million with an annual growth rate of 3.18%. This has reference to Conceptual Framework document of Darfur Land Commission published by DRA on July 31, 2007

⁴ This information has reference to the final report of Food Security and Nutrition Assessment of the Conflict-Affected Population in Darfur, June 2007 although the statistics is old but it was hard to obtain the latest.

current agricultural markets. The previously well-established regional trade market was depending on the complementary livelihoods of farmers and pastoralists but due to increasing drought, pest infestation, floods and livestock migration patterns have changed and some pastoralist groups have diversified their activities to include cultivation. Farming has expanded across the traditional rangelands in the central belt of Darfur that previously provided pasture. Environmental pressures and land tenure issues have led to increased tension and conflict between these competing livelihood systems⁵. Besides internal displacement, a new influx of refugees from bordering countries, and their settlement on agricultural areas may have negatively affected cultivation by residents. Although through a vigorous implementation of recovery strategies over the last decade by the various aid agencies especially in finding durable solutions for IDPs and returnee farmers, Darfur still faces a number of food security challenges and livelihoods, these include:

- Limited water resources for crops and livestock
- Declining soil fertility
- Lack of extension services for farmers and livestock keepers
- High level of crop pest infestation
- Use of poor quality seeds
- Unstable product prices
- Conflicts over land and water resources
- Prevalence of heavy livestock diseases
- Drought and insecurity of livestock
- Lack of adequate agricultural and livestock marketing infrastructure
- Limited capacity of agriculture and livestock research centers
- Poor financial resources of farmers and livestock keepers
- Poor roads infrastructure
- High number of IDPs, and other
- Cross-border issues

9. The following were the key emerging themes that transpired in the workshops:

- Reconstruct and expand physical infrastructure such as feeder roads, dams and irrigation catchments/reservoirs, water points '*hafirs*', agricultural resource centers, quarantine system, rural markets, grain storages and higher agricultural vocational training centers,
- Improve agricultural production and productivity,
- Increase availability of rural credit and micro-finance,
- Provide access to extension services for all categories of farmers,
- Promote livestock health and production efficiency and resilience,
- Increase availability of improved animal breeds and poultry stocks,
- Alleviate poverty through sustainable livelihood and employment opportunities, with special attention to IDPs and returnee farmers and livestock keepers,
- Explore market opportunities for trade and develop agriculture and livestock value-chains,
- Provide mobile livestock health clinics, establish slaughter houses and tanneries,
- Improve agriculture and livestock research through innovative PTD⁶ demonstrations,
- Alleviate environmental degradation and invest in natural resource management,
- Improve capacity of State Ministry of Agriculture and Sate Ministry of Animal Resources to plan and implement programs, improve policies and support institutional strengthening,
- Develop and implement longer-term development programs.

⁵ H. Young, A. Osman, R. Dale: "Strategies for Economic Recovery and Peace in Darfur; Why a wider livelihoods approach is imperative and inclusion of the Abbala (camel herding) Arabs is a priority". Feinstein International Center, Tufts University, July 2007

⁶ PTD or Participatory Technology Development is an approach, which involves farmers in developing agricultural technologies that are appropriate to their particular situation. It is a practical process: farmers, as "insiders", bring their knowledge and practical abilities to test technologies, and interact with researchers and extension workers—the "outsiders". In this way, farmers and the outside facilitators are able to identify, develop, test and apply new technologies and practices. PTD reinforces the existing creativity and experimental capacity of farmers, and help them keep control over the process of generating innovations. It is an integral part of community-based initiatives. It is a process of developing technology led by the farmers.

2. ASSESSMENT OBJECTIVES AND METHODOLOGY

10. ***Objectives of the TWG.*** The main objectives of the assessment were to:
- Provide updated information on agriculture, livestock and rural livelihoods situation of the farming populations affected by the prolonged conflict in Darfur;
 - Assess coverage of agriculture and livestock services and livelihoods assistance programmes among the conflict-affected population in Darfur;
 - Develop a strategic Results Framework highlighting the priority needs with costing across the outputs and timeframe, and
 - Propose foundational activities, short and long-term interventions for sustainable agriculture, livestock and rural livelihoods for Darfur region.
11. ***Implementation of the Workshop.*** The TWG-8⁷ of DJAM conducted the Situation Analysis through a stakeholders' workshop, using a *Participatory and Consultative Approach*, held in all five states of Darfur from September 18 to October 4, 2012. At the outset of the workshop, participants got briefing on DJAM and background information for the study. Following an intensive consultative discussions and presentations, participants identified and prioritized the needs to help region in planning and decision-making processes of post Doha conference scheduled in early January 2013. The workshop covered the following elements of,
- An analysis of all five states and condition of affected farming households and ecosystem;
 - Identification of major issues related to affected population and ecosystems that require attention;
 - An analysis of key stakeholders – groups of people and institutions.
12. The participants composed of community people, government officials⁸, professionals from private sector and NGOs, CBOs of agriculture and livestock domain, locality commissioners, representatives of IDPs and returnee farmers including a good number of rural women and youth. The workshop guided the overall situation analysis process in gathering information on community perceptions and experiences of risks and challenges related to accessing essential resources needed to rebuild the food security and livelihoods infrastructure as well as recovering economic activities. Relevant data collection was from various sources through administering open-ended assessment and following SWOT guidelines. These were:
- Desk review of available documents including DJAM 2007 reports,
 - Secondary information from relevant government ministries (5 Years Plans for Darfur),
 - Internet search of ministerial and institutional websites,
 - Discussions with the honorable State line Ministers and their staff members,
 - Consultations through probing key questions to workshop participants,
 - Consultation using telephone, and
 - Problem ranking and prioritization of needs using PRA approach.

⁷ TWG-8 is consisted of agriculture, livestock and rural livelihood sub-sectors, guided by the cluster lead: FAO and WFP

⁸ Officials mainly from Ministry of Agriculture and Forest, Ministry of Animal Resources and Fisheries, and Ministry of Water Resources and Planning, and HAC offices

3. SYNTHESIS OF ASSESSMENT RESULTS

3.1 Agriculture and Livestock Situation and Challenges

13. **Crop Production and Diversification**, Darfur contributes largely to Sudan's food security, which dominates the Sudanese economy (Table-2). In fact, food security through increased crop production is amongst the highest priorities of Darfur States that accords a high attention to the issue and provides support to the food production and productivity almost in all the food insecure localities. In spite of the fact that agriculture in Sudan contributed by about 31% to the gross domestic product of the country in 2011, yet labour force engaged in it exceeds 75% of total population, with majority being in Darfur. Most crop production in Darfur is typically a traditional *rain-fed* farming of small-scale farms. However, limited areas devoted for semi-mechanized farming in South Darfur where farms are large and mechanization as well as manual labours employed. Some farmers practice winter farming, mostly vegetables production, using *wadi* and small-scale irrigation techniques. However, crop performance in both season results in low yields, reflecting unreliable rainfall, poor soils, low-input agriculture and low level of technology adoption. This is due to many reasons among which limited research efforts on improved cultivation practices for both *rain-fed* and *wadi* crops, weak coordination and linkages among stakeholders, unfavorable climatic conditions, weak implementation capacity of SMOA and SMOAR, and poor transfer of agricultural technologies are the most that has not been satisfying the interest of all the categories of the farmers.

Table-2: Average area, production, and yields of main Cash crops in Darfur over the period 2007/08-2011/12

Sesame				
State	'000 Feddan		'000 ton	Ton/Feddan
	Planted	Harvested	Production	Yield
South Darfur	12	10	1	0.105
North Darfur	50	29	2	
West Darfur	87	60	5	0.079
Groundnuts				
	Planted	Harvested	Production	Yield
South Darfur	1449	1026	259	0.252
North Darfur	334	208	37	
West Darfur	730	438	100	0.229
Lubia beans				
	Planted	Harvested	Production	Yield
South Darfur	15	1	40	40.000
North Darfur	16	1	38	38.000
West Darfur	7	1.45	28	19.310

Source: Federal Ministry of Agriculture, Khartoum, 2012

14. Millet largely grows in Darfur compared to other cereals (Table-3). The greatest groundnut areas are noted to be in Darfur, particularly South Darfur where farms are mostly small household units of up to 2.0 hectare, cultivated by hand or by animal traction and can, therefore, be protected by household members (Table-3). Both tables (Table-2 and Table-3) show discrepancies between areas planted and areas harvested. These differences can be attributable to many reasons including the security situation, labour availability and other natural factors as climate change related factors.

Table-3: Average area, production, and yields of main Food crops in Darfur over the period 2007/08-2011/12

Sorghum				
States	'000 Feddan)		'000 ton	Ton/feddan
	Planted	Harvested	Production	Yield
South Darfur	1336	828	224	0.271
North Darfur	408	229	22	0.094
West Darfur	261	178	48	0.269
Millet				
	Planted	Harvested	Production	Yield
South Darfur	2123	1272	208	0.163
North Darfur	1646	977	102	0.104
West Darfur	444	281	49	0.174
Wheat				
	Planted	Harvested	Production	Yield
South Darfur	10	9	4	0.472
North Darfur	0	0	0	
West Darfur	8	7	3	0.481

Source: Federal Ministry of Agriculture, Khartoum, 2012

15. According to 2011 pre-harvest crop surveys in Darfur⁹, major constraints to crop production and diversification are due to lack of inputs and farm labours, pests infestations, poor soil fertility, erratic rains and flash flood coupled with inter-clan conflicts. The survey has recommended for provision of inputs, field training and extension services including support of micro-finance and other market services¹⁰. Though, the forthcoming summer harvest is expected to be favorable but heavy rains and recent flooding has affected the potential of the agricultural season in Central, North and South Darfur causing soil erosion, washing out of crops mainly sorghum, and destruction of some *hafirs* and earth dams. Shortage of labour is another factor that may affect crop harvest at crucial time. Crop destruction by livestock is still one of the major causes of crop loss and sporadic conflicts between farmers and pastoralists. Historically, the semi-mechanized sub-sector is a very low-input: low-output system, comprising clearing, ploughing, sowing and weeding and harvesting, whereas the traditional dry farming system is of very much smaller units owned by households, using greater levels of labour input, and usually receiving greater returns in terms of yields per ha¹¹. Comparing information on Table-3 with previous data shows evidence of annual crop harvest areas that are at most only half of pre-war levels.
16. **Food Security situation:** Food insecurity continue to prevail in Darfur over the past two decades, where the region has shifted from being a self-sufficient producer of major staple food crops to a situation whereby approximately half the population is dependent on food aid¹². Crop production has been severely hampered as farmers can no longer access their land and/or key inputs such as quality seeds and tools. Findings from the SMOA and WFP comprehensive food security assessment carried out in November 2011, showed that the highest percentage of food insecure households is found in North and West Darfur (23 percent each), compared to 11 percent of the households in South Darfur. Moreover, about one-third of households in both North and West Darfur were vulnerable to food insecurity at the time of the survey. In all, two thirds of households in South Darfur are food secure compared to just over 40 percent each in North and West Darfur.

⁹ On an annual basis, the respective SMOAS of Darfur states conducts pre and post-crop surveys with technical and funding support from WFP and FAO. The ministry take the lead in data collection, enumeration and report preparation than those are validated in the Food Security and Livelihoods cluster coordination meeting

¹⁰ Farmer to Market Projects/Initiatives is one amongst WFP multi-dimensional projects/initiatives designed to alleviate poverty and contribute to the national economy. The concept behind the project is to enable small-scale farmers to get out of the cycle of under-production and poverty, become self-sufficient and produce a surplus. It operates through a tripartite agreement between Bank of Sudan, Ministry of Agriculture and WFP reaching some 100,000 farmers of which over 20,000 were in the Darfur region. The main objective of the project is to connect small-scale farmers (less than 5 to 10 feddans) to the following four "markets":

- A micro-credit market, so that they can invest in labor for planting and weeding, better quality seeds, use good fertilizer, etc.
- A micro-insurance market (so that the farmer will be paid if he loses his crop) and for credit-risk guarantee for the banks (so that they can lend to small scale farmers with no collateral).
- An extension services market - provided by Ministry of Agriculture extension staff - to support the farmer with the best techniques, soil analysis, advice on seeds/fertilizer, marketing of the crop, etc.
- Sale market - either
 - through local traders, and wholesalers and/or
 - through large private sector companies (either Sudanese or international)
 - through "buyer of last resort" - Sudan Government Strategic Reserve Corporation (and/or in the short-term; UN World Food Programme - if price/quality are competitive with international purchase - for its own school feeding and other programs)
- **11** The semi-mechanized sector consists of a number of individual big farmers and companies comprising accumulations of registered areas of nearly 6.7 million ha across the country, the traditional sector in Darfur is made up of small family units of 2 ha to 50 ha, farming for both income generation and livelihood subsistence.

¹² WFP runs one of the largest and most complex operations in Darfur providing food assistance to people affected by conflict, displacement and chronic under-nourishment, particularly in the east and border areas to the south. Since WFP began implementing its early recovery targeting activities in 2009, 1.2 million people no longer require food assistance. Many of them are now self-employed or engaged in projects and activities initiated by WFP. However, WFP will continue to support activities designed to promote long-term food security and resilience among communities in Darfur and at the same time provide lifesaving food assistance to the food-insecure.

17. ***Seed and Tools Assistance***, Since the beginning of the Darfur conflict, various aid agencies have been providing emergency improved seeds and tools to IDPs, returnees, and other vulnerable farmers to offset the shortage of crop seeds and farm tools. On a yearly basis, these agencies have been targeting returnees and vulnerable households with emergency seeds, mainly through direct distributions, vouchers and fair schemes, and through seed and tools package initiatives. Farmers also obtain their seed from multiple sources including their own saved seed, local grain/seed

Table-4: Average acreage cultivated according to receipt of seeds and tools

Profile	North Darfur	East and South Darfur	West and Central Darfur
Beneficiaries of seeds and /or hand tools	6.7 mukhamas	5.4 mukhamas	3.7 mukhamas
Non-beneficiaries of seeds and /or hand tools	6.4 mukhamas	4.4 mukhamas	3.6 mukhamas

markets and social networks but these are generally poor in germination. SMOA of South Darfur has a similar view about seeds quality outsourced by the farmers from local dealers since some cultivars are not adaptable to local ecological conditions. Households who had received improved seeds from the aid agencies were more likely found to be food secure than households who had not received seeds. There were no significant relationships between the receipt of farm tools, and other agricultural equipment and the food security status. Despite the continued assistance of seed and tools to vulnerable farmers in Darfur, a considerable seed gap still exists. It is most likely that in the upcoming 2013 summer planting season there will be a need of 4,000 metric tons of different variety of crop seeds and 600,000 pieces of farm tools for 285,000 households in Darfur¹³, among which a major support earmarked for return and reintegration of displaced farmers. The Table-4¹⁴ shows average acreage cultivated according to the receipt of seeds and tools, by Darfur state.

18. ***Water Resources and Micro-Irrigation***, Water resources in Darfur form the backbone of food security, and a means of increasing the economic returns from agriculture and livestock, and reducing production risks. Due to the conflict, majority of water yards and small-scale irrigation systems are dysfunctional in Darfur. In addition, many systems have outlived their lifespan or have collapsed from inadequate maintenance. Low rainfall and IDP-induced water drilling have also exacerbated scarce water supplies. The most commonly used water harvesting structure for domestic supply in the region is the *hafir*, a dugout fed by rainwater and run-off. However, increasing siltation and poor maintenance have led to a serious decline in total water storage capacity. The humanitarian aid effort in Darfur has led to the drilling and establishment of hundreds of wells and water points since 2003. Many of these boreholes are located in or near camps for displaced persons, with high flow pumps servicing populations of several thousand or more, particularly facilitating potable water. However, in real sense rehabilitation of many small-scale irrigation systems remains unaddressed. The predominant method of irrigation in the region is the conventional surface technique and water harvesting schemes at household levels with low efficiency; as a result, the loss of large quantities of water is more. Modern and potentially high efficient methods are limited and the overall losses associated with the traditional irrigation methods are high. Despite the increasing demand for water harvesting technology¹⁵ for rural households in Darfur, and its mechanism to convert the agricultural revival and balanced development to tangible reality, yet little intervention carried out on the ground as to-date.

¹³ According to the FAO 2013 Humanitarian Work Plan versus CHF Core Pipeline Requirements

¹⁴ This table adopted from the final report of Food Security and Nutrition Assessment of the Conflict-Affected Population in Darfur, June 2007 although the statistics is old but it was hard to obtain the latest.

¹⁵ October 1998: (I) The Ministry of Irrigation and Water Resources Report on listing and evaluation of small dams, (II) October 2002: The Conference on Drinking Water: Risks and Treatments (West States Region). III. August 2003, UNESCO Chair in Water Resources, Conference on Water Harvesting and the future of development in Sudan; IV. September 2007: A formal High Technical Committee had been formed in regard to the instructions of Vice President, Mr. Ali Osman, and the Minister of Irrigation, Eng. Kamal Ali, as to design implementation plan for the water harvesting projects, where a preliminary report had been made; V. December 2007: The Water Harvesting Conference by the Sudan Agricultural Council, under the auspices H.E. Vice President

19. The Federal Ministry of Electricity and Dams through its Plan of 2010/2011 proposed establishment and rehabilitation of dams and *hafirs* (water points for livestock) to a total volume of 1.12 million cubic meters in South Darfur, 0.24 million cubic meters in West Darfur and 0.46 million cubic meters in North Darfur states. Data on actual implementation is not readily available. The work has established a good contextualized practice on assessing and managing social and environmental impacts of dam building¹⁶. The following interventions may be undertaken to:

Table-5: List of proposed proposals submitted for external funding

Proj #	Agency	Project Title	State	Amount US\$	Time (Yrs)
3	GOS-3	Construction of Water Yards	WD, SD, ND	57,000,000	3
10	GOS-7	Promoting Water Harvesting	WD, SD, ND	37,000,000	3
15	GOS-12	Water Harvesting for conflict prevention in North Darfur	ND	30,400,000	6
16	GOS-12	Water Harvesting for conflict prevention in West Darfur	WD, ND, SD	20,400,000	6
21	UN OPS-2	Rehabilitation of Small Dams & Reservoirs in Darfur	WD, ND, SD	20,000,000	3
25	GOS-17	Rehabilitation of water yards, <i>hafirs</i> , water reservoirs and dams	WD, SD, ND	13,040,000	3
32	FAO-2	Water Harvesting for Improving Food Security in North Darfur	ND	10,000,000	2
33	FAO-3	Water Harvesting for Improving Food Security in West Darfur	WD	9,000,000	2
TOTAL				196,840,000	

Source: Darfur International Conference on Water for Sustainable Peace, 2011

- Expand water access through construction of small-scale water storage, shallow tube wells, and repair of water management infrastructure. Construction of bridges (*jessours*) and small dams in the *Jabel Marrah* Mountains is a priority,
 - Provide supplementary irrigation to increase agricultural productivity through the introduction of high efficiency low-cost technologies, such as treadle pumps where enough groundwater is available; and, preferably, low cost drip irrigation systems,
 - Provide water harvesting structures by launching rehabilitation and construction of new *hafirs*; construction of canals, micro-dams, and other groundwater harvesting structures such as micro water catchment systems and rainwater harvesting at household level, as practiced in much of North Africa.
20. ***Agriculture Food Gap***, Several recurring factors have combined to make food insecurity a persistent problem in 2012. Most acutely, low rainfalls have led to generally poor harvests in Sudan, especially in eastern Sudan, north Kordofan and Darfur in 2011. This combined with a reliance on importing key food items that are subject to fluctuating world prices. Increases in food prices disproportionately affects the poor the most, as the poorest 20% of Sudanese spend up to three quarters of their income on food. For example, in North Darfur, the price of a minimum healthy food basket has increased by approximately 30% since the beginning of 2012, and in South Darfur and west Darfur; the price of the minimum healthy food basket has increased by 27% and 22% respectively¹⁷.
21. Darfur as in almost all Sudan has also been affected by currency instability and elevated rates of inflation during 2012. The currency depreciated steadily since the secession of South Sudan and loss of oil revenues. The inflation rate, meanwhile, has almost doubled over the last twelve months, reaching a high of 30.4% in May 2012, mostly because of high food price inflation and the rising import cost of basic goods. Moreover, these trends exacerbated by high commodity prices and

¹⁶ Source: Donor Appeal document presented at Darfur International Conference on Water for Sustainable Peace, Khartoum, June 2011. According to Federal Ministry of Electricity and Dams, UNEP is working with UNOPS and state governments to implement a planned programme for building dams that will meet strategic needs for water resources.

¹⁷ *UN and Partners Work Plan 2012, Mid Year Review*, published by OCHA, Sudan, 2012. Information sourced out from WFP (FSMS 2012).
Situation Analysis of Agriculture, Livestock and Rural Livelihoods in Darfur, TWG of FAO-WFP, DJAM Sudan, 21 November 2012

lower levels of domestic food production in 2012 due to ongoing conflict in agriculturally productive areas and a poor harvest¹⁸.

22. The limited livelihoods opportunities, especially for the elderly, women and youth make them more vulnerable to soaring food prices and other shocks. Few permanent returns of IDPs to their villages of origin recorded in 2011-2012; while on the other hand, there is an important movement of seasonal returnees to undertake agricultural activities. IDPs have no access to pre-conflict livelihood strategies and have lost their livelihood assets. They now only have access to very limited and poorly remunerated income earning opportunities. Some livelihood strategies are associated with very high risks, particularly if it involves travelling outside areas of displacement. In some places the over-crowding and competition for work and basic services has created tensions between IDPs and the resident population. For many of these IDPs, return to their area of origin is highly unlikely until security situation is to improve. Households women-headed are estimated to be around 35% since the start of the conflict in Darfur. This situation has forced women to take more roles and responsibilities in agriculture and livestock to ensure the survival of their families. It is estimated that an about 370,000 households (at least 30% women) expected to be food insecure and lack other options to diversify their income sources and livelihoods¹⁹. Proposed interventions targeting 666,000 women and 1,554,000 men include support to crop farm protection committees, raise awareness on peaceful coexistence, and apply traditional crop and grazing practices.
23. There is an indication of an anticipated upcoming 'hunger gap' which heightens that nutritional needs have not diminished over the first half of 2012²⁰. The new displacements in Darfur may result in increased malnutrition due to food insecurity. According to latest available data (OCHA 2012), the global acute malnutrition levels for children under-five in Sudan are at 16.4%, which is above the internationally accepted emergency "critical" threshold of 15%. Of these, 5.3% of the children are suffering from severe acute malnutrition (SAM). If this trend continues than more than a half of children are likely to be suffering from SAM at any time of the upcoming years and 1.5 million children will suffer from moderate acute malnutrition.
24. ***Agricultural Research and Linkage Mechanism***, Darfur farmers severely face technological options, poor support services such as agricultural and livestock extension service, research and credit schemes. Agriculture and livestock research institutions are weak and under funded with weak planning capacity, as a result, many of the issues facing the sector needs attention for development. The region recognizes research as a vital component and emphasizes its importance to continue to meet the challenges and demands of the farmers to increase crop and livestock production. In Darfur, research and technological options are weak by a lack of well-trained research scientists and resources to carry out the research protocols in animal and crop husbandry, varietal trials and seed selection, soil improvement, livestock breeding, rangeland and pasture.
25. The use of improved technologies and practices is of paramount importance to improve the production and productivity of smallholder farmers in Darfur, particularly for the returned farm families. This is mostly true where the traditional agricultural practices are dominating with low level of productivity and food insecurity situation. Therefore, the adoption of research findings is important to achieve food security and to contribute to the efforts for poverty reduction. The adoption process of new findings of the research requires the active involvement of all actors involved in both research and extension. This includes researchers, input and credit suppliers, agricultural extension institutions, NGOs, community and beneficiary households. Formation of research-extension-farmer linkage is one of the established systems to bring all those actors to work together. Unfortunately, there is no such mechanism of linkage with the stakeholders in Darfur. The major objective of the linkage is to address the felt needs of farmers through strengthening the

¹⁸ WFP's report reflected in the UN and Partners Work Plan 2012, Mid Year Review, published by OCHA, Sudan, 2012

¹⁹ According to the Special Report of FAO's SIFSIA on Quasi Crop and Food Supply Assessment Mission to Sudan, January 2012

²⁰ UNICEF's report reflected in the UN and Partners Work Plan 2012, Mid Year Review, published by OCHA, Sudan, 2012

collaborative efforts of all institutions that are involved in research and technology disseminations in particular, and agriculture and livestock development in general.

26. A number of other challenges for research also exist. These include how to diversify the cereal monoculture and thereby reduce land degradation associated with it. The degradation of Darfur's natural resources is a significant problem. Even though farmers are using indigenous technology, the benefits they derive do not match the enormous effort they invest in their land. It is therefore critical that the research system provide them with options of technologies, mainly high value crops that have much higher yield potentials than the ones that the farmers are presently using. A significant increased investment in research and technology generation is crucial for sustained agricultural growth in the region based on the recommended five principles for building strong regional agriculture and livestock research systems:
- Increasing stakeholder input in research planning and monitoring,
 - Improving funding and financial sustainability,
 - Increasing transparency and accountability,
 - Strengthening linkages between research, extension and end-users,
 - Increased collaboration.
27. ***Institutional Capacity Building and Coordination***, Institutional and technical capacities of relevant line ministries and local NGOs are utterly lagging behind, particularly capacity for integrated food security, nutrition and livelihoods programming in Darfur. For example, the SMOA in South and East Darfur with the support from IFAD was able to set up or refurbished its field offices at *Locality* level but in some cases, the offices are not fully functional, mainly due to lack of operational fund, staff and logistics support. Agricultural extension services are weak by a lack of well-trained technicians, experts and resources to carry out the task properly. SMOA experts have little to offer farmers about improved agricultural practices and do not have adequate skills to cope with today's farmers seeking a livelihood from a range of natural resources since they have multiple-range of skills and knowledge gaps.
28. The farmers and livestock keepers in the region have scarce participation in farm planning and in decision-making process with the stakeholders. In the *hafirs*, the livestock keepers have no full control over their water management and so the use of water distribution. It is foreseen the impact of extension interventions on human assets, in the form of development of skills and knowledge of both farmers/livestock keepers and technicians, and improving the quality of institutional support are integral component of food security and livelihoods development where region needs to emphasize more.
29. One of the major problems persisting in the food security sector is the lack of coordination link between the institutional support service providers those involved in agriculture and livestock services. Unless there is an effective coordination linkage with the stakeholders, the capacity development will not sustain rather it will weaken the performance of stakeholders including SMOA and SMOAR. The regional authority including stakeholders knows the institutional support problem. In this regard, they made some form of investment to develop services and participatory methods. There still exists a large gap between the availability of extension service and the application of right extension methods to transfer agriculture and livestock technologies. There is no effective agricultural support system in the states to assist farmers in the adoption of improved practices. As a result, the impact of the investments in farming is considerably low in terms of crop and livestock production, water savings and thus evolves concerns on sustainability both economically and environmentally. The inadequate institutional capacity requires upgrading in order to enforce agriculture and livelihoods laws and develop regulations to enhance community participation in development through training for new skills and techniques, particularly human and institutional capacity of relevant State Ministry of Animal Resources and Fisheries, and State Ministry of Agriculture and Forestry.

30. ***Policy and Institutional Concerns and Darfur Five-Year Plan***, Peace and security remains as foundational activities for and prior to any development plan. Moreover, the institutional, organizational and technical capacities of line ministries and institutions such as SMOA, FNC, SMOAR and concerned CBOs particularly farmers and herders' organizations are generally weak and require special attention. As in many parts of Sudan, institutional and legislative systems are weak too and new land policy reforms and regulatory legislations need to enact for development. Bear in mind that, insufficient land use and tenure policies had created (and will still create) insecurity and disputes between agro-pastoralists and nomads, if core issues are not resolved. However, policy concerns in agriculture usually revolve around Land Policy, Natural Resource Management Policy and policies related to Private Sector Development.
31. In terms of livestock production, a major piece of legislation that could affect the livestock trade is the 2010 Agriculture and Animal Producers' Act. If endorsed by the General Assembly, this would effectively cancel the Organizations of Farmers and Pastoralists Act of 1992. Producer Associations would replace the Pastoralist Union and Farmers Union and would include traders. There is concern that this would reduce the voice and representation of small-scale livestock producers²¹.
32. One of the most crucial policy interventions is a need of an effective agricultural extension system for delivery of all aspects of agricultural-related technological information among the farmers and herders that can lead to the success of achieving food security and livelihoods. The extension system in use in Darfur is weak with no formal structure of extension services and strategies. The extension units within SMOA and SMOAR lack formal extension policy guidelines and trained staff that can guide the region to offer extension services in a best possible way. In general, the most significant shortcomings of the extension service in the region have been:
- Lack of suitable adaptation of technology packages to local conditions
 - Unresponsiveness to the variation in farmer needs
 - Lack of ownership by the intended beneficiaries
 - Poor research-extension-farmer linkages
 - Weak communication of new ideas to farm families, and
 - Limitations in the quality of field and technical staff
33. The current trend and perspective in the delivery of agricultural extension service in Darfur region increasingly recognize is to meet the diverse needs of modern farming. Therefore, a fundamental change of approach through policy enactment is called for toward educating and enabling farmers to define and solve their own problems and determine and take some responsibility for the extension services they require. To realize these benefits, the present extension system in Darfur needs redefining to permit suitable approaches that account for user diversity and to develop partnerships with farmer organizations, NGOs, and the private sector for service delivery. The presence of a regional extension policy in Darfur could have addressed these issues and have streamlined the extension functionaries in a more befitting manner but due to its absence is affecting the food security development. The regional government and policy makers will need to initiate the process for formulating an extension policy.
34. The existing Five-Year Plan (FYP) for Agriculture and Livestock Sectors Development Strategy (ALSDDS) of Darfur is in place. The FYP (2011-2016) has been formulated as a mechanism to revive the agriculture and livestock sectors and thus to contribute to regional economy. The primary objective of the ALSDDS is to create an enabling and conducive environment for improving profitability of the agriculture and livestock sectors as the basis for improving farm incomes and reduce poverty in the medium and long-term. The FYP mainly puts emphasis on agriculture and livestock productivity and profitability, promotion of private sector/public sector and processor, development of rural infrastructure including water resources, public-private-partnerships,

²¹ A Stakeholders Mapping and Survey on Pastoralism and Pastoralists in Sudan conducted by Tufts FIC, SOS Sahel Sudan, and UNEP in June 2012.

institutional and capacity strengthening of stakeholders including regional government at all levels. The users view the ALSDS as an instrument for guiding public and private efforts towards broadly shared objectives and specific inputs and outputs. The FYP to bring about improvements in the food security and livelihoods sectors in Darfur is though encouraging but the pace of its implementation is slow. This is mainly due to limited resources and funds, poor planning and management of line ministries, and importantly the specific strategic direction towards implementation of ALSDS is not clearly articulated or weak with no transparent monitoring system. The implementation ministries, SMOA and SMOAR, lack well-trained technicians, experts and resources to carry out the ALSDS task properly. Both ministries have little to offer farmers and livestock keepers about food security and livelihoods development, and they do not have adequate skills to cope with today's farmers seeking a livelihood from a range of natural resources since they have multiple ranges of institutional and capacity gaps.

35. ***Livestock Health and Production***, Livestock population in Darfur estimated at over 28 million animals comprising of cattle and sheep as dominant species followed by goats, camels, horses and donkeys²². In absolute terms, this accounted for 8.2 million head of cattle, 10.4 million sheep, 8.65 million goats, 0.77 million camels, 2 million donkeys and 0.4 million horses. South Darfur state has the largest number of cattle among the five Darfur States. Livestock are the only ready source of cash for many households to buy inputs for crop production and other necessary commodities. However, due to numerous problems such as inter-ethnic conflict, unavailability of water and pasture, poor range management, animal diseases, and the restriction of traditional migratory routes has been impeding the livestock production in the region. Livestock exports from Darfur in the past accounted for an estimated 25% of all livestock exports from Sudan, and currently can by no means be lesser than previous. Darfur was self reliant for food, and had active trade relations with other regions of Sudan and neighbouring countries such as Chad and Libya which supplied non-food consumer goods in exchange for livestock and forest products of *gum arabic*.
36. Restrictions on traditional migratory routes for livestock were a serious concern for Darfur, particularly for South and East Darfur states. The restriction on traditional migratory routes imposed by the new country South Sudan against livestock encroaching South Sudan areas for search of pasture, water and market opportunities. Previously, these areas were normal grazing field for livestock during dry season. Pastoral communities living in the localities of *Bahr-el-arab*, *Abujabra*, *Assalaya* and *El-fardose* in East Darfur and *Dimso*, *Buram*, *Um-Dafug* and *El-radom* in South Darfur that borders South Sudan were the victims that induced congestion and concentration of livestock with limited water and pasture in their bordering localities. The movement of pastoralists with large numbers of cattle puts a strain on water and pasture resources and the movement of livestock causing damage to crops, increasing tensions between pastoralists and farmers. Nomadic community leaders are reportedly holding discussions with South Sudanese communities along the border to ensure the safe passage of the nomads into South Sudan but have not yet received permission from the South Sudan authorities to do so. About 25,000 pastoralists with some 500,000 heads of cattle and other livestock are currently concentrated in Tulus area of East Darfur, according to a recent inter-agency assessment in the area. Some pastoralists are now trading in Goz Idmbo in El Radoom locality of South Darfur while others have moved to Um-Dafug on their way to the Central African Republic.
37. Other factors are also affecting livestock health and production in Darfur. These include spread of animal diseases due to poor vaccination coverage, weak disease surveillance and reporting systems and inadequate clinical services. Animal disease is one of the main constrains and burden for the livestock owners and other stockholders to fight against them. Diseases, which occasionally outbreak are Bacterial diseases (*Haemorrhagic Septicaemia*), Black Quarter, and viral diseases (Sheep Pox, PPR) and some other diseases, which permanently stay, e.g. internal and external

²² These data has reference to the Annual Report 2011 of SMOAR, South Darfur but these figures are actually of the year 2002 of livestock population census. Official statistics on the livestock population in Darfur in recent years have been hard to obtain.

parasites, tick infestation, and blood parasites. A situation analysis showed various endemic diseases in the region causing significant mortality and morbidity losses in livestock.

38. New approaches are required to mitigate the impact on the livelihoods of poor households. Progress in advanced laboratories such as the prospects of East Coast fever vaccines, are promising results, improvements in the institutional performance of the existing veterinary service delivery through the private sector can make considerable improvements in the contribution of livestock to household economies. There is increasing awareness that several effective indigenous technical knowledge (ITKs) and ethno-veterinary practices for pests and disease control was ignored and was locked out of the formal knowledge management systems. Through scientific applications and in collaboration with advanced laboratories these materials, for bio-prospecting initiatives can add value to these products. However, access to such opportunities is limited to a few studies in the region because the inventory of ITKs is scattered in grey literature, rendering a comprehensive assembly of such information pivotal to the process of pharmacological characterization, validation and commercialization.
39. Livestock production draws an increasing attention and importance in Darfur. Various livestock farming systems²³ exist in Darfur of which traditional rangeland based system is the most common. Despite the potential of livestock sector in Darfur economy, yet focus on policy, strategy and investment is meagre, a sufficient reason to the continuation of food insecurity and poverty. Good pastures are expected in the forthcoming season which needs to be protected and adequately managed and fire lines need to be constructed besides rehabilitating water points to provide safe havens for livestock and to avoid negative environmental impacts. Access to targeted vaccination and treatment services in high-risk areas needed to protect livestock assets. Delivery of appropriate animal resources development services to livestock keepers to overcome other livestock management-related constraints (animal nutrition/feeding, reproduction, breeding, processing, marketing, etc.).
40. Government policy on livestock has traditionally emphasized animal and vaccination programs, often at the expense of wider concern for animal production issues and livestock marketing. The control and eradication of Rinderpest disease through vaccination has been a high priority. Initially, vaccinations provided free of charge, but during the 2000s this switched to an emphasis on cost recovery and the role of the private sector in supplying veterinary drugs. It is most likely that in the upcoming 2013 year there will be a need of 15 million doses of vaccines and 45,000 units of drugs for animal treatment for 240 livestock keepers in Darfur²⁴, among which a major support be earmarked for nomadic farmers. Some commentators lament declining government support to disease control, others highlight how Sudan's live quarantine system has served its export trade, especially compared with parts of Somalia (Somaliland and Puntland), which had no state-sanctioned quarantine system and were therefore unable to export live sheep to Saudi Arabia between 2001 and 2009, while Sudan faced the ban for just one year²⁵.
41. ***Quarantine System***, In Darfur, most affected areas infested by the movement of trans-boundary plant pests, animal diseases and noxious weeds across physical and political boundaries of the greater Darfur, bordered with South Sudan, Chad, Central African Republic and Libya. Such movement of pests through the borders of Darfur region threatens food security and creates a public concern to limit the spread and control the pests and diseases such as avian influenza, foot-and-mouth disease and locust. Presently, quarantine system for animal and plant health inspection is non-existent at the border-check posts in Darfur region that could offer inspection of regulated articles as well as determining appropriate phytosanitary measures. Establishment of quarantine stations at Border States of East, West, South and North Darfur are a priority issue on the

²³ Intensive Production System in the vicinity of urban centers such as crop-livestock integration by settled cultivators and organic livestock production through extension grazing rangelands

²⁴ According to the FAO 2013 Humanitarian Work Plan versus CHF Core Pipeline Requirements

²⁵ Working Paper on Economics of Pastoral Livestock Production and Its Contribution to the Wider Economy of Sudan, published by the Tufts FIC, Medford, MA and UNEP. June 2012.

development agenda. It will prevent introduction and spread of harmful plant pests and animal diseases into the states, and will support trade and exports of Darfur agricultural products and livestock through appropriate certification. The aim is to disseminate information on importing plants, insects, microorganisms, and non-domestic animals to the region available to authorities to facilitate informed decisions.

42. ***Nomadic Livestock Trade***, The livestock trade in Darfur, which is the major source of livelihoods for nomads, has badly affected by conflict. A recent study²⁶ shows that during the conflict, displacements of large numbers of rural households and looting of their livestock was widespread. In North Darfur, many markets are closed or market access was blocked. This led to poverty amongst the nomads and left them unable to access health, education and other basic services. This has resulted in continued displacement to other areas to look for alternative livelihood options. Darfur's livestock accounts for between one-quarter and one-third of Sudan's livestock resources post-secession. The study indicates that the livestock trade in Darfur has fallen by up to 50% since 2003, and illustrates the overall decline in the numbers of animals traded, and the fall in business for individual traders (Table-5). Because of these, it has negatively influenced in increase of livestock prices during the conflict years. However, there have been sign of some of positive developments, like inter-tribal cooperation with regard to managing livestock. In some parts of Darfur, agreements forged between otherwise hostile groups to secure access to trade due to mutual livelihood and economic interests. We expect that these agreements might be the foundation for future peace-building initiative to rebuild relationships between those groups.

Table-6: Anecdotal evidence of contraction in the volume of Darfur's livestock trade²⁷

Market	Feedback	Source
Nyala	There has been a 50% reduction in the number of cattle brought to Nyala per market day, compared with pre-conflict numbers	Cattle <i>gallaga</i> , Nyala
	The number of cattle sold per day in Nyala market fell from 500-600 per day in 2006, to 100-200 in 2011	Agent to Omdurman cattle trader, Nyala
	Pre-conflict, 200 sheep were sold per market day. In 2011, the number was just 50 per market dat	Sheep trader, Nyala
	One trader used to trek 1,200 cattle per year, pre-conflict, from Nyala to Omdurman, in four shipments. He now treks a total of 480 cattle per year, in two shipments, because of lack of capital and lack of supply	Cattle trader, Nyala
El-Fashir	Cattle shipments to Omdurman from El-Fashir market are down by more than 50% compared with pre-conflict years	Quarantine Dept., El-Fashir
	One trader used to buy 1,000 sheep per week from local markets in North Darfur, pre-conflict. It now takes him two months to gather that number, because of a fall in the supply of sheep and because local traders can no longer move with cash to grazing areas and water points to purchase sheep because of insecurity, especially banditry	Sheep trader, El-Fashir
Geneina	Cattle supplied to Geneina market have fallen by about 40% compared with pre-conflict levels. The cattle market used to operate on a daily basis; it is now weekly. Most cattle are consumed locally; few are of adequate quality for export	Cattle trader, Geneina

43. ***Production and Productivity of Crop, Livestock and Fisheries***, Despite considerable efforts made by UN agencies in providing information on food security and livelihoods in Darfur, current situation is by far not bright than known due to a lack of appropriate information system, at the state and locality levels which provide accurate and up to date information on number and distribution of needy groups and available data mostly has limited scope and coverage to IDP camps. The little statistics available by last DJAM mission showed average growth for the agricultural sector in Darfur to be close to 5% per annum, a figure that help boost significantly by

²⁶ On the Hoof, Livestock Trade in Darfur, a study report published by the Tufts University in collaboration with UNEP in June 2012. The study set out to understand what has happened to the livestock trade in the greater Darfur region during the conflict years: how it has responded to the constantly shifting conflict dynamics since 2003, how it has adapted, and to what extent it has recovered.

²⁷ This Table has been adopted from Table-1 of the Study Report, On the Hoof - Livestock Trade in Darfur, published by the Tufts University in collaboration with UNEP in June 2012

good policies, sound institutions and appropriate investments. Livestock production issues revolve around ineffective animal health programmes; and poor nutrition. What is more important that, livestock trade is limited and restricted by poor infrastructure, lack of regulations, lack of quality control and dependence on export market?

44. Given the importance of agriculture and livestock to the economy of Darfur, improving livestock and agricultural productivity and arrangement of mechanism to manage and maintain available natural resources in rural and urban areas will be a springboard for creating an enabling environment for income generating activities in Darfur. In a region where farming systems are diverse and complex, with approximately 80% of the population depending on it, poverty reduction would not be possible without increasing the productivity of agriculture and livestock. It also needs to take into consideration of the fisheries sub-sector. However, lack of water in such drought prone areas remains a serious limiting factor for crop production as well as livestock rearing. For this reason, sustaining of crop and livestock depends largely on enhancing the productivity of the water catchments in addition to establishment of *hafirs*, water yards and water harvesting structures.
45. In Darfur, fisheries are less concern though a greater potential for fish farming is available around *wadis* and large ponds. However, the poor management and technical skills for fishing, storage and processing, undeveloped markets, both internal and external are salient features in fisheries sub-sector. The economic impact of fish farming on women and their households is highly significant, which means, one fish farm with 2 fishponds will yield a minimum return of \$5,400 per cycle (source: IRC-UK, September 2010). With an average of 2 cycles per year, average annual revenue estimates at \$10,800 per farm, which results in close to \$6,000 in profit per woman²⁸. The positive impact of fish cultivation on food security is also substantial. In a year, 10 fish farms with 2 fishponds each will produce a minimum of 144,000 fish or between 48 MT and 96 MT depending on the weight of the fish. Enhancing the productivity of the water resources in Darfur through adoption of crop-livestock interactions, livestock-fish interactions and crop-fish integration will offer a promising opportunity to intensify food security production and increasing ecological integrity to have a positive impact on livelihoods and natural resource management.

3.2 Rural Livelihoods and Poverty Situation and Challenges

46. Rural livelihoods are undergoing a substantial shift in Darfur, and routinely targeting during conflict; mostly comprise farming, livestock and forestry. The farmers mainly practise traditional *rain-fed* agriculture, mostly producing millet, sorghum, groundnuts, sesame, *hibiscus* and *gum arabic* prior to the conflict. Pastoralists raise livestock, often as nomadic herders, and depend principally on the sale and export of sheep, cattle, goats and camels. The poverty in the rural areas of Darfur is due to degradation of agro-ecological environmental, lack of productive assets such as land, capital and skills as well as lack of linkages of rural sector with other sectors of the economy such as urban markets. Given farming the main economic activity in rural areas, poor farmers have been seeking ways of supplementing their farm income, which is usually subject to risks that arise from the vagaries of weather and fluctuations in market prices. As an option, these farmers sell their labours to better-off farmers. Non-farm sector offer a viable opportunity for vulnerable and marginalized rural groups such as women, the youth and landless poor people.
47. The conflict in Darfur has exerted serious impact on livelihoods of many people where circa 400,000 households squeezed into 50 camps that deprived them from engaging in normal agricultural activity. These families solely became dependent on humanitarian assistance for their livelihoods with few opportunities to resume farming or generate income from other activities²⁹.

²⁸ Concept Note on Fish Farming: Improving Livelihoods in Cote D'Ivoire, Note prepared for Nova Fisheries by International Rescue Committee-UK, September 2012

²⁹ WFP began implementing its early recovery targeting activities in 2009 including Food for Work (FFW), Food for Recovery (FFR), Food for Assets, Farmer to Market (F2M) and SAFE. In total, WFP has shifted 30% of its operations from relief to early recovery in the last three years, targeting over one million people including hundreds of thousands of displaced people in the camps and the rural residents living on fragile land affected by desertification

Safe Access to Firewood and Alternative Energy (SAFE) is now WFP's flagship projects in Darfur. Through SAFE, WFP aims to boost household income and agricultural production, helping narrow the food gap among families and build resilience and capacities of communities to

Situation Analysis of Agriculture, Livestock and Rural Livelihoods in Darfur, TWG of FAO-WFP, DJAM Sudan, 21 November 2012

However, currently a few managed to return to their land temporarily to plant, maintain and harvest crops. The prevailing insecurity and displacement in Darfur continues to affect access to livelihoods opportunities and access to commercial markets, which will contribute to increased vulnerability and reduced resilience among farming populations especially the livestock keepers in the affected areas. There is therefore an increasing need to continue to provide livelihoods assistance through collective efforts for improving livelihoods diversification in helping returnees and vulnerable household beneficiaries.

48. Livestock production for trades is one of the key components of rural livelihoods in Darfur. Cross-border trade with Libya, Chad, and Central African Republic has long been a feature of Darfur's livestock trade, although Egypt is officially Sudan's most important market for the export of camels. Even Saudi Arabia is Sudan's most important export market for livestock, Sudan is still much less significant to Saudi Arabia, where annual average imports of livestock of 24% and 18% of mutton were accounted between the period 1998-2009 and period 2000-2007 respectively. Sudan does not currently have adequate policies, veterinary services, or physical infrastructure to support its livestock trade in responding to these more rigorous requirements, especially when competing with new suppliers like Australia, Brazil, New Zealand, and the European Union³⁰. High dependence on a small number of export markets, particularly Saudi Arabia and Egypt, leaves Sudan's export trade vulnerable to national bans and/or changing trade regimes. There is also a high level of variability in Saudi's demand for live sheep annually, which in turn affects Sudan's export trade. The main ways in which conflict has affected the livestock trade in Darfur are due to:
- The closure of many village markets and massive disruption to the primary markets;
 - Shifting market activity between secondary markets as trade moves to markets in more secure locations and away from markets that are less accessible because of insecurity;
 - High risks in livestock trading due to looting and banditry;
 - High trading costs, mainly due to the costs of protecting a livestock herd being trekked on the hoof;
 - High taxation burden have doubled or even trebled in some locations; and
 - Lack of capital for livestock trading due to rapidly price rising.
49. ***Food Market Environment***, Darfur food markets heavily rely on local cereal and groundnut oil on one hand, and on markets in central Sudan on the other hand. Central Sudan markets are the main sources for many food commodities, for example sugar, lentil and salt. Local factors are influencing the prices of local cereals, the scale and coverage of the food aid program in Darfur creates a major impact on the economy including markets and local cereal production. While prices of local cereal and oil are mostly driven by local factors, as volumes of local production, availability of food aid on markets and security conditions, prices of other commodities, coming from central Sudan, tend to follow the general price patterns in central Sudan. Realizing the importance of local commodities markets in Darfur, stimulation of both cereal and oil markets needs a special attention in any future plans. This is exceptionally critical within the context of food security, especially for thousands of vulnerable households whose food baskets are composed of a very limited number of food items; according to the WFP minimum cost food basket, cereal alone provides more than 70% of the per capita daily intake of calories.
50. The UN food aid program is likely to continue given the lack of alternative sources of food and income for IDPs in particular (OCHA 2012, NCA 2011 & NCA 2012). Food aid beneficiaries frequently sell a portion of their rations in order to raise income for other essentials, which means that food aid is a widely traded commodity with some traders now only operating in this market. The government recently instituted several major economic reforms including gradual removal of fuel subsidies and increased VAT taxes. The removal of the fuel subsidies is of the greatest concern, as this will sharply increase the cost of living, transport, and agricultural production.

take care of their own food and nutrition needs. To date, 180,000 women have been trained in income generation activities and agricultural production. In 2012, Ministry of Welfare and Social Security are engaged with WFP in the SAFE project running in Darfur.

³⁰ According to the On the Hoof Livestock Trade in Darfur, Feinstein International Center, Tufts University, September 2012.

51. There is a growing concern over soaring prices in Darfur, due to significant shortfalls in supply because of disrupted inflows of grain from central Sudan, and exceptionally high local demand from neighboring areas in east Chad. Markets in Darfur have reported the highest grain prices in Sudan for the last two months. In North Darfur, sorghum prices (90 kg) were SDG 230 and SDG 271 in April and May 2012, respectively, representing an 18% increase. In an attempt to control grain prices, the local government in West Darfur set measurements to restrict out-flows of grain and released subsidized grain. However, food prices remain well above average, particularly in Darfur, due to significant shortfalls in supply caused by poor local production and disrupted trade flows from central Sudan. Markets in Darfur have reported the highest grain prices in Sudan for the last two months³¹. However, due to the expectations of a good harvest season in this year, sorghum prices are 19% below August 2012 prices, but 35% higher compared to September 2011. Decrease in groundnut prices are 20% below August 2012 prices and 7% below September 2011. Goat prices are 6% higher compared to August 2012 and 22% above same time last year prices (OCHA, September 2012).
52. Most cereal markets in Darfur are not well-functioning because farmers in Darfur cultivate cereal for subsistence purposes; only small quantities are gradually sold on markets. In addition to the relatively low production of cereal across the traditional agricultural sector, slow releases of cereal by farmers seem to be one of the main reasons why wholesale traders in Darfur, unlike wholesalers in central Sudan, maintain low stock levels. In the previous years, continuous flows of considerable quantities of food-aid sorghum to Darfur seemed to create an image of availability among farmers; hence accelerating early release of local produces even if the total production was low. Unlike cereal market, local oil markets are relatively well- functioning. Many farmers cultivate groundnut as their main cash crop. Consequently, many traditional and modern oil mills operate around the main production/consumption regions. However, this business faces many constraints as production fluctuations, taxes, and poor infrastructure. In general, the disruption to trade and supply chain started with the start of Darfur conflict and has gradually got worse. Some of the main trade obstacles are:
- Displacement of producers and traders and accordingly traditional trading pattern have been disrupted,
 - Insecurity problems restricting movements of people and commodities through many rural areas,
 - Frequent checkpoints, random payments of informal taxes and some additional ‘protection’ payments
53. ***Gum arabic and Market Value-Chain***, Darfur is an important *gum arabic* producing region, typically accounting for 10% to 15% of Sudan’s non-oil export value. The annual average value of *gum arabic* exports has been approximately \$50 million, but it has exceeded \$100 million in the past (World Bank 2011). About 15% of Sudan’s production of *gum arabic* comes from Darfur, mostly produced in South Darfur. The World Bank conducted a study in 2011, which focused on the role of *gum arabic* ecosystems in South Darfur to reduce the degradation of natural resources, mitigate climate change, and generate sustainable livelihoods and reduction of conflict over natural resources. In this regard, a proposal on *gum arabic* production at the cost of US\$ 1.12 million submitted to donor funding to establish 25 pilot *gum arabic* production farms, managed by well-trained IDPs for replication to other areas. The structure of marketing costs for *gum arabic* is quite different from the structure for other crops and livestock where transport costs are dominant. Marketing value chain for *gum arabic* from Nyala to Port Sudan shows the high proportion of taxes in total marketing costs (45%) which is a far higher proportion than is incurred during marketing of other agricultural products in Sudan. Another feature associated with marketing in Darfur is the high cost of transportation of sheep from Nyala because transport system is arduous for animals causing high death rates and considerable weight losses while transporting. High transport cost dominates the value chains.

³¹ According to the FEWSNET Sudan Periodic Newsletter of June 2012

54. ***Environmental Degradation***, Environmental pressure is an important underlying cause of the current conflict in Darfur. In some cases, it exacerbated since 2003. The continued pressure on land has resulted in severe degradation and environmental damage through removal of forests aggravating drought and reduced soil fertility. In Darfur, people harvest more than thousand hectares of forests for fuel wood and construction purposes. There is no plan for replanting and replacing the harvested trees due to such the soil become exposed to the elements such as wind and rain, resulting in severe soil erosion. The failure to establish a secure basis for smallholder productivity growth has the most severe implications for a region based on agriculture - and which already suffers from the most precarious food security.
55. Furthermore, large-scale population displacement has led to the concentrations of people causing environmental degradation, where vegetation rapidly exhausted with pressure on water resources. Restrictions on livestock migrations has further contributed to localized concentrations of livestock, causing over-grazing and acute pressures on water resources. The trade in firewood and grass for fodder is a hot issue in areas hosting large numbers of IDPs. In several areas, firewood collection has long represented a major threat to IDPs from violent attacks. The trade is lucrative and in some areas controlled by certain groups, thus parties to the conflict control access to these vital natural resources. Competition for pasture and water by nomadic herders and settled agricultural producers is an important problem. Prior to conflict there were eleven animal routes, which were designated as passages for nomads to pass through farmers' plots during their movements from south to north in the rainy seasons, and from north to south during the dry season. The Darfur local nomadic leaders and the settled farmers agreed upon this arrangement in the early 1950s. Due to the deteriorating environmental conditions, the cattle movements from south to north is limited, and also many animal grazing areas has turned into cultivation of crops, especially groundnuts and sesame, as sources of cash for the farmers.
56. ***Darfur Development Schemes/Projects***, During pre-conflict era, some notable rural development projects implemented in Darfur to promote sustainable food security and rural development. Implementation of these projects contributed to lasting support for development at a grassroots level through encouraging the growth and development of a vibrant rural society in Darfur that focused on development, participatory approaches, pluralism and supported democratic values. However, due to the consequences of conflicts these projects suffered depletion to meet demands from lucrative deliverables and severely hit the livelihoods of the people. Furthermore, it contributed to the decline of the livestock population, and reduction in ground cover in hillsides, widespread soil erosion, and reduced water retention in aquifers. These projects are currently dysfunctional though they had a visible impact on sustainable rural development during pre-conflict. The workshop participants felt the need for revitalizing these projects through external support and technical assistance. Following are the snapshots of some of these projects:
- ***Jabel Marrah Rural Development Project***, this project implemented in 1967 aimed to provide services to 7400 farm families. The project interventions included agricultural extension, adaptive research, community development, agricultural input, rural roads, training, monitoring and evaluation. The farmers were able to increase their agricultural productivity through improved farm practices. The project created several feeder roads and small-scale irrigation system, and trained 5,000 farmers. Due to declining of project funds in 1994, a new Rural Development Corporation emerged to support the project.
 - ***Western Savannah Development Project***, The Western Savannah Development Corporation enacted in 1978 with funds from IDA, ODA, and Saudi Fund for Development and the Government of Sudan (GOS) amounting to 26 million dollars for the first phase, which ended in 1984. Phase II started in 1986 funded by IDA, IFAD, ODA and GOS with an allocation of 46 million dollars. The project covered an area of 135 square km within South Darfur State, and aimed at unlocking the economic potential and improving the welfare of the people through enhancing supply and security of food and water. It also promoted soil and water conservation techniques and protection to natural resources from degradation.

Specifically, the project aimed at increasing grain production and improving livestock farming and soil and water management.

- *Umm Kaddada Area Development Scheme*, This scheme started in 1988. It was one of the several area development schemes implemented by both GOS and UNDP, aiming at increasing the capacity of the poor to sustain livelihoods through self organisation, access to micro-credit, agricultural services and inputs and the increased capacity of the poor to sustain their livelihoods. The project covered 51 villages targeting a total population of 80,000 beneficiaries. The expanded area of the project targeted 149,000 indigenous population and 37,000 IDPs in 5 villages. In general, the project laid the basis for a workable integrated development model, and it succeeded in mobilization of village populations in different institutional set up.

57. ***Rehabilitation and Construction of Physical Infrastructure related to Agriculture and Livestock***,

A functioning physical infrastructure is a pre-requisite for sustained economic development, growth, and poverty reduction. The depth and diversity of the physical infrastructure influences not only the pattern of growth, but lack of it prevents access to health and education, trade liberalisation and access to local, regional, and international markets. The salient feature of Darfur is the poor transport infrastructure in terms of roads and communication services, thus question raised is how to improve the rural infrastructure since isolation is a major cause of poverty in Darfur. Although, roads, bridges, railways, airports and electricity necessitate prioritization of infrastructure development – using as many dual-purpose facilities as possible, however, a sustainable infrastructure related to agriculture and livestock improvement is a high demand of Darfur people. The region's, key physical infrastructure priorities in agriculture include construction, repair, maintenance and upgrading of the feeder road network; water catchments resources and irrigation system management; establishment of vocational and training centers, locality-based extension resources centers, research laboratories, cold storages, food grain warehouses, sub-agricultural research stations, standard food and processing markets, seed germplasm banks. In livestock, sector priorities include slaughterhouses, tanneries, and standard markets that create forward and backward linkages to agriculture and livelihoods.

58. ***Accessing Rural Credit and Microfinance***, Access to rural credit and microfinance in Darfur is extremely low in comparison with other parts of Sudan, which have been constraining farmer's economic ambitions. West Darfur, for example, had only five properly functioning bank branches in 2006 but these banks are more or less disburse loans for high commercial purpose, not targeting pro-poor farmer's needs. On the other hand, Micro Finance Institutions (MFI) at the grass root level is even scarcer. This level can pronounce impact on the lives of small farmers and livestock keepers including household women. Such micro financing will contribute in boosting livelihoods activities for those small farmers who are involved in poultry restocking, bee keeping and homestead farming, food processing, petty agricultural trading and others. In North and South Darfur, for example, bank-based microfinance services in 2009 estimated to have met just one percent of total market demand. It is therefore an important priority to establish an effective microfinance network in Darfur by introducing MFIs through public-private-partnership so that these institutions become accessible to the borrowers, particularly to conflict-affected farmers.

59. ***Value Addition in Input and Output Marketing Chains***, Lack of markets and poor marketing infrastructure act as an additional cause to retardation of the agricultural sector in Darfur. For instance, the high costs of production and marketing have had devastating negative effects on the net income of farmers. Besides the high formal and informal taxation, higher grade inputs or even higher levels of inputs through credit, the costs of marketing such as transport, protection through insecure areas, and numerous formal and informal taxes resulted in high marketing margins and hence net benefits to primary producers in Darfur are heavily discounted. As a result, quality and safety standards of crop and livestock commodities in the local and international markets raise many questions.

60. There is a growing need for value addition in agriculture and livestock production, as a strategy to increase profits from higher prices and volumes of sales. Examples of value addition include conversion of milk into cheese and cereal grains processed into poultry feeds. Since these commodities are perishable, their shelf life will improve through processing and thus, can reach more people, which may have an impact on nutrition. Policy issues affect value addition, therefore there is a need for deliberate action in policy, through affirmative action, to create jobs and increase income to farmers. Different technologies will be required for value added products for local market, regional and international. To improve on the agriculture and livestock value addition in input and output marketing chains, the following broad sub-themes were identified:
- Developing innovative technologies for value addition,
 - Improving efficiency and value addition in the input and output markets through policies and institutional arrangement, and
 - Improve utilisation of innovations to enhance market opportunities.
61. ***NRM and Gender Mainstreaming***, Darfur women are the least empowered and politically disadvantaged as voice by many women in several occasions. This is more precarious in the sense of unequal participation of men and women in community-based decision-making. The situation remains a challenge and a difficult goal to achieve, especially in the contexts of safeguarding their natural resources. To protect their natural resources, rural women and men must be empowered to participate in decisions that affect their needs and vulnerabilities. Rights to land and access to resources in Darfur founded on the *Hakura* system grounded in customary institutional arrangements exercised and legitimated through the power of tribal leaders. Despite the importance of land to women, their land rights significantly discriminated against in customary laws. The lack of women representation in customary institutions reflects exclusion of Darfur women from property and land ownership on gender grounds; as a result, they have limited access to credit and public resources.
62. Despite numerous efforts to mainstream gender particularly in agriculture and natural resource, there is a tendency of male field staff frequently contacting and delivering extension information on NRM to male farmers who most of the time do not share these information with their wives. This affects households cope better with the impacts of managing and conserving natural resources particularly in a post-conflict environment. It is therefore important to promote awareness campaigns about gender relations and the importance of equal participation of women and men households in the context of natural resource management. Mainstreaming gender in natural resource management projects will:
- Foster equal participation of women and men in restoration of ecosystem, soil and land productivity and equal sharing of benefits;
 - Ensure that women's needs as well as men's needs for services on NRM are taken into account; and
 - Ensure women's economic empowerment, through equal access to (i) the NRM labour and other markets and (ii) the opportunity to create enterprises directly or indirectly related to NRM investments and development such as biomass production, brick making, mixed crop-livestock farming, manure production, agro-forestry nurseries, pasture seed production, etc.

4. THEMATIC INTERVENTIONS

63. The following table shows programme thematic and sub-thematic areas of intervention in Darfur. These themes and sub-themes ranked and recommended as strategic priorities during the stakeholders' workshop for strategy development and priority setting. Each thematic area of intervention and its sub-themes will contribute to the attainment of the main three programme level strategic results leading to the attainment of the programme purpose. The three thematic areas of interventions are agriculture, livestock and rural livelihoods. The programme thematic areas and sub-themes also express a strong commitment to impact on the strategic positioning for development in greater Darfur region.

Table-7: Programme Thematic and Sub-thematic Areas of Intervention

Programme thematic areas of intervention	Sub-thematic areas of intervention
AGRICULTURE	
1. Facilitating the design of policies, regulatory instruments, and institutional arrangements for improving sub-sector performance	1.1. Harmonizing legislation and taxation regulations on crop agriculture, trade, and market information 1.2. Promoting different forms of agricultural cooperation and regulatory instruments
2. Improving physical infrastructure for agricultural production and growth	2. 1. Mobilizing resources towards development of physical infrastructure and providing support services
3. Providing effective micro-finance for productivity, value addition and profitability	3. 1. Broadening microfinance base to cover a wide range of farmers
4. Improving crop production and productivity through sustainable management practices	4. 1. Strengthening Agricultural Extension System
	4.2. Increasing adoption of crop diversification and suitable technology transfer
	4.3. Enhancing plant protection, quarantine and residue management
5. Enhancing capacity for agricultural research, training and development	5.1. Training and Capacity Building in Research
	5.2. Agricultural Research and Development
6. Promoting agricultural marketing and value-chains	6.1. Promoted Value chain in food security and livelihoods development
7. Supporting natural resource-based conflict transformation for agrarian (rural) communities	7.1. Strengthening community-based institutions for peace-building, conflict resolution and recovery planning
LIVESTOCK	
8. Facilitating the design of policies, regulatory instruments, and institutional arrangements for improving livestock sector performance	8.1. Harmonized legislation and taxation regulations on livestock trade, market information and pasture production
9. Improving physical infrastructure for livestock and natural resource productivity and growth	9.1. Mobilized resources towards development of livestock physical infrastructure
10. Providing effective livestock micro-finance for productivity, value addition and profitability	10.1. Broadened microfinance base to cover a wide range of livestock keepers
11. Supporting and improving livestock health & production through improving extension and vet services, water points and pasture management	11.1. Improved livestock health and production for better livelihoods
	11.2. Improved community delivery system of veterinary services
12. Enhancing capacity for livestock research and training	12.1. Implementation and coordination of livestock training and research protocol
	12.2. Livestock Research and Development
13. Promoting livestock marketing and value-chains	13.1. Promoted value chain in livestock products development
14. Supporting natural resource-based conflict transformation for rural communities	14.1. Strengthened community-based institutions for peace-building, conflict resolution and recovery planning
15. Synchronizing NRM with livestock to optimize environmental benefits	15.1. Promoting natural resource management awareness, policies and environmental impact

Programme thematic areas of intervention	Sub-thematic areas of intervention
RURAL LIVELIHOODS	
16. Promoting livelihoods diversification through development of agricultural value-chains and agribusiness opportunities	16.1. Promote and improve livelihoods diversification for income generation and employment opportunities
17.. Improving the infrastructure in relation to agribusiness	17.1. Improving the productive capacity of MSMEs through adoption of new technologies
18. Providing effective micro-finance for productivity, value addition and profitability	18.1. Provide timely finance for a wide range of small to medium agribusiness enterprising
19. Facilitating the design of policies, regulatory instruments, and institutional arrangements for improving agribusiness performance	19.1. Policy and institutional concerns adopted for improvement of agribusiness environment
20. Enhancing capacity for agribusiness research and training	20.1. Promoting research and development and training of gender to improve agribusiness
	20.2. Improving capacity of agribusiness entrepreneurs and related government employees for improving agribusiness and rural livelihoods
21. Promoting agricultural and livestock marketing and value-chains	21.1. Promoting agricultural marketing, value-chains, quality & safety standards and agribusiness opportunities
22. NRM and other cross cutting issues with agribusiness to optimize environmental benefits	22.1. Synchronizing NRM and other cross cutting issues with agribusiness

5. RISKS IN FOOD SECURITY AND LIVELIHOODS DEVELOPMENT

64. Risks include probable either deterioration of the security situation caused by rebel movements or criminal attacks by unknown elements could hamper implementation of any development program or project. In addition, natural hazards as recent floods will have a negative impact on access to the affected areas and will temporarily slow down the pace of project implementation. Moreover, droughts and the outbreaks of pest and diseases are another hindrance to development of agriculture, be it crop or livestock.
65. On the other hand, conflicts related to access and use of communal natural resources appears to be potential problems. However, farming systems are diverse and complex and comprised of crops, horticulture and livestock, which vary across states at varying intensity and distribution. Reliance on rain-fed farming leaves the population vulnerable to drought, as was starkly shown.
66. The current global economic crises may restrict the levels of funding. Emerging circumstances can also change the funding modalities in a manner that may affect the smooth implementation of intended projects.
67. Some outputs or thematic areas of the programme address policy and institutional arrangements in the political domains of Darfur region. The risk is that despite the agreement on the regional priorities, lack of commitment by various stakeholders including regional government might compromise the success of proposed projects.

6. RESULTS FRAMEWORK

(a) AGRICULTURE component							
Objectives	Performance Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	Darfur State (ND/ SD/ ED/CD/ WD) ³²	Costing US \$	Timeframe	
						FA	ST
A) Facilitating the design of policies, regulatory instruments, and institutional arrangements for improving sub-sector performance	1. Harmonizing legislation and taxation regulations on crop agriculture, trade, and market information 1.1 Simplifying agricultural trade policy and regulations <i>Baseline 0</i> <i>Targets: 1.1.1 & 1.1.2 harmonized by end 2013</i> 1.2 Eliminating multiple tax collection on intra-regional crops/ commodity trade <i>Baseline 0</i> <i>Target s: 1.2.1 & 1.1.2 be harmonized by end 2013</i> 1.3 Reforming agricultural marketing policy <i>Baseline 0</i> <i>Target achieved by end of 2013</i> 1.4 Providing well-functioning crop market information systems <i>Baseline: FAO SIFSLA³⁴ North</i> <i>Target: achieved by end 2014 Z</i> 1.5 Reforming and/or formulating Agricultural Extension policy at regional level by end 2013	1.1.1 Technical and policy support to government for harmonizing existing tax and tariff regulations formulated	TA, project	5 States	200,000	x	x
		1.1.2 Agricultural trade policy instrumented and liberalized	TA, project	5 States	150,000	x	x
		1.2.1 Multiple tax collection on crops and other outputs at locality points reduced or eliminated	TA, Project	5 States	100,000	x	x
		1.3.1 Through participation of government, private sector and civil society organizations, agricultural marketing system strengthened	TA, project	5 States	250,000	x	x
		1.4.1 Stakeholders' consultative workshop on market information and trade at state(s)' level implemented	TA, Project	5 States	100,000	x	x
		1.5.1 Formulation of agricultural extension policies through modifications and realignment of strategies adopted	TA/Policy: One policy program	5 States	220,000	x	x

(a) AGRICULTURE component

Objectives	Performance Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	Darfur State (ND/ SD/ ED/CD/ WD) ³²	Costing US \$	Timeframe	
						FA	ST
	2. Promoting different forms of agricultural cooperation and regulatory instruments 2.1 Improving legislation and creation of community-based organizations (CBOs) including cooperative approaches <i>Baseline 0</i> <i>Target: achieved by mid 2014</i> 2.2 Introducing crop insurance for farmers to help manage their farm production risk over the production year <i>Baseline 0</i> <i>Target: achieved by end of 2014</i>	2.1.1 Through regulatory cooperation and policy standardization/ mechanisms of supporting CBOs (rural cooperatives, farmers' organizations, women associations, etc) established	TA, Program	5 States	350,000	x	x
		2.1.2 An approach of Institutional Economics Theory (NIE) and its applicability to the cooperative organizational formation initiated	TA, project	5 States	70,000		x
		2.2.1 Crop insurance policy within the State agricultural regulatory system institutionalized	TA, program	5 States	200,000	x	x
		Sub total cost for facilitating the design of policies, regulatory instruments, and institutional arrangements				1,640,000	
B) Improving physical agricultural infrastructure	2. Mobilizing resources towards development of physical infrastructure and providing support services 2.1 Promoting household water harvesting schemes and small-scale community dams for supplementary irrigation <i>Targets: 2.1.1: 500 HHWHS demos(5states)</i> <i>2.1.2: As per 5 Yr Plan</i> <i>2.1.3: As per 5 Yr Plan</i> 2.2 Establishing feeder roads linking markets, schools and agricultural centers <i>Baseline 5 Yr Plan</i>	2.1.1 Number of 500 HHWHS (household water Harvesting Structures) demonstrations established	TA, program	5 States	1,250,000	x	x
		2.1.2 Small-scale irrigation dams established.	TA, program	5 States	25,000,000	x	x
		2.1.3 Number of community water catchments, water reservoirs, streams established/ or rehabilitated	TA, program	5 States	10,000,000	x	x
		2.2.1 Rural feeder roads (470 km) linking resource centers and markets constructed/ rehabilitated (attached 5 Yr Plan)	TA, program	5 States	169,000,000	x	x
		2.2.2 Maintenance of rural feeder roads on a regular basis maintained	TA, program	5 States	312,000	x	x
		2.3.1 Cold storages for vegetable, seeds	TA, program	5 States	2,500,000	x	x

(a) AGRICULTURE component

Objectives	Performance Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	Darfur State (ND/ SD/ ED/CD/ WD) ³²	Costing US \$	Timeframe	
						FA	ST
		and other farm products constructed					
	2.2.1: average 470 km/state for 5 yrs (total 2350 km for 5 states) 2.2.2: 2%/annum	2.3.2 Agricultural Extension Resource cum Farmers Training Centers at locality level established	TA, program	5 States	10,000,000	x	x
	2.3 Establishing agricultural extension/ resource centers cum Farmers Training Centre in all 5 states Baseline= 0	2.3.3 Locality Agricultural Office (s) complex building constructed/renovated	TA, program	5 States	10,000,000	x	x
	2.3.1 Targets: 5medium-large size cold refrigeration complex, 1 unit per state	2.3.4 Number of 25 govt. managed food grain warehouses established	TA, program	5 States	2,500,000	x	x
	2.3.2 80 units (1 unit/ locality of 5 states)	2.3.5 Vehicles and motor-cycles for field experts and extension agents provided	TA, program	5 States	3,000,000		
	2.3.3 80 units/5state	2.4.1 Sub-agricultural research station established	TA, program	5 States	3,000,000	x	x
	2.3.4 5 units/state	2.4.2 Agricultural land (100 ha) for research trials, fenced and developed	TA, program	5 States	2,500,000	x	x
	2.3.5 80 vehicles and 80 motor-cycles	2.5.1 Market monitoring system developed	TA,	5 States	75,000	x	x
	2.4 Establishing 5 sub-agriculture research station for on-farm participatory technology development Baseline-0	2.5.2 Standard vegetable and agro- processed food markets constructed or rehabilitated	TA, program	5 States	2,500,000	x	x
	Target: 2.4.1 5/state	2.6.1 Agricultural Training & Vocational Institutes (AVTI) in five Darfur states established and functional	TA, program	3 States	32,000,000	x	x
	2.4.2 5 (100 ha)/state	2.6.2 AVTI Teachers quarters established	TA, program	5 States	3,000,000	x	x
	2.5 Establishing standard rural agricultural market place at strategic areas(meeting international standards) Baseline-0	2.7.1 State level Soil Testing laboratory established	TA, Program	5 States	1,500,000	x	x
	Targets:2.5.1 one/state	2.7.2 Number of 5 static/mobile soil laboratories sanctioned and operational	TA, Program	5 States	2,250,000	x	x
	2.5.2. 5/state	2.7.3 Three seed germplasm bank at states' level established and operational	TA, Program	3 States	2,500,000	x	x
	2.6 Student enrolment in 2 yrs agriculture extension diploma program in new Agricultural & Vocational Training Institutes (AVTI) in five Darfur states Baseline=0						
	Target:2.6.1 1 unit/state						

(a) AGRICULTURE component

Objectives	Performance Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	Darfur State (ND/ SD/ ED/CD/ WD) ³²	Costing US \$	Timeframe	
						FA	ST
	2.6.2 1 residential units/state 2.7 Establishing germplasm seed banks sources and high level soil testing laboratories <i>Target: 5 institutes in the region</i> 2.7.1: 5 units each cost 500,000 2.7.2: 5 units each cost 500,000 2.7.3. 5 units be achieved by end of 2014						
Sub- total costs for improving physical infrastructure for agricultural production and growth					282,887,000		
C) Providing effective micro-finance for productivity, value addition and profitability	3. Broadened microfinance base to cover a wide range of small scale farmers 3.1 Facilitating Micro-Finance Institutions (MFIs) for timely loan disbursement to borrower farmers <i>Targets: 3.1.1, 3.1.2, 3.1.3: mobilization and awareness workshops, seminars, etc.)</i> 3.1.2: mobilization and awareness fees 3.2 Increasing awareness of savings among loan borrowers <i>Baseline 0</i> <i>Target</i> 3.2.1: mobilization and awareness 3.2.2: 50 Solidarity groups/state 3.2.3: mobilization and awareness 3.2.4.5,000 borrowers/state 3.2.5: 50 VSLA/state 3.3 Conduct training in both technical and management skills <i>Baseline=0</i>	3.1.1 Expansion of MFIs operation in strategic localities promoted	Program	5 States	100,000	x	
		3.1.2 Traditional MFIs fulfilling government regulations registered	Program	5 States	100,000	x	
		3.1.3 Formulation of easy understandable credit norms and disbursement modalities developed	Project, policy advocacy	5 States	100,000	x	
		3.2.1 Specialized Savings and Family banks granting non-refundable loans to poor farmers expanded and supported	Project, policy advocacy	5 States	20,000,000	x	
		3.2.2 Number of 250 solidarity groups among borrowers formed	Project, policy advocacy	5 States	100,000	x	
		3.2.3 Initial social capital from solidarity groups built	Project, policy advocacy	5 States	250,000	x	
		3.2.4 Access to credit by acting as guarantors of bank/MFI loans or acting as an advocacy/pressure group facilitated	Project, policy advocacy	5 States	25,000,000	x	
		3.2.5 Number of 250 Village Savings Loan Association (VSLA) formed	Project, policy advocacy	5 States	150,000	x	x

(a) AGRICULTURE component

Objectives	Performance Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	Darfur State (ND/ SD/ ED/CD/ WD) ³²	Costing US \$	Timeframe	
						FA	ST
	<i>Targets</i> 3.3.1: 500 lead borrowers as TOT/state 3.3.2: TBD ³⁵	3.3.1. 25,000 borrowers on utilization of loans and savings trained	TA, project	5 States	250,000	x	x
		3.3.2. Number of MFIs staff trained on business development skills	TA, Project	5 States	100,000	x	x
Subtotal costs for Providing effective micro-finance for productivity, value addition and profitability					46,150,000		
D) Improving crop production and productivity through sustainable management practices	4. Strengthening Public Sector Agricultural Extension System 4.1. Formulation of State Agriculture Extension Policy Guidelines by State Ministry of Agriculture (SMOA) <i>Baseline: Five Yrs Plan 2012/2016</i> 4.2. Reforming the agricultural extension unit (AEU) of SMOA <i>Baseline Five Yrs Plan 2012/2016</i> <i>Target: completed by the end 2013</i> 4.3. Improvement in agricultural extension subject matter knowledge of SMOA's extension personnel <i>Baseline: 0</i> <i>Target: 4.3.1: 5 training workshops/state for 50 Extension staff/state(total 250 staff)</i> 4.4. Farm broadcasting programs through state radio stations <i>Baseline-0</i> <i>Target: 4.4.1: 3 new annex building constructed in radio station compound</i> 4.4.2: Audio-visual material and other	4.1.1 New approach of "Participatory Agricultural Extension" institutionalized	TA/Policy program	5 States	500,000	x	x
		4.1.2 Stakeholders coordinating body (Farmers, Research, Extension Advisory Council) established and operationalized	TA/Policy program	5 States	375,000	x	x
		4.2.1 Human resources/ staffing pattern of AEU of SMOA reorganized	TA/Policy project	5 States	90,000	x	
		4.2.2 Procurement to support AEU (computers, vehicles, furniture, equipments, etc) provided	TA, programs	5 States	1,250,000	x	x
		4.3.1 Number of SMOA's agricultural personnel trained on the subject matter	TA, program	5 States	100,000		
		4.4.1 Farm Broadcasting units/broadcasting rooms/offices in state radio stations established	TA, program	3 States S, N, W	360,000	x	x
		4.4.2 Technical and material support to radio stations provided	TA, program	3 Sates S, N, W	200,000	x	x
		4.5.1 Number of 25 Farmers Field Schools (FFS) per state established and operational	TA, program	5 States	500,000	x	x
		4.5.2 Number of 2500 farmers/yr at	Program, project	5 States	400,000	x	x

³⁵ TBD stands for To Be Decided, which means the state authority will decide the number of trainee participants based on the project budget

(a) AGRICULTURE component

Objectives	Performance Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	Darfur State (ND/ SD/ ED/CD/ WD) ³²	Costing US \$	Timeframe	
						FA	ST
	<i>equipment for farm-broadcasting program one hr/day (30 m am, 30 m pm)</i>	FFS trained					
		4.5.3 Number of 10 Farmers Focus Groups (FFG) for household water harvesting schemes in each state established	TA, program	5 States	500,000	x	x
	4.5. Establishing Farmers Field Schools (FFS) at farm level <i>Baseline-0</i> <i>Targets: 4.5.1: 25 FFS/state established by end 2013</i> <i>4.5.2: 2500 Farmers trained /state/yr</i> <i>4.5.3: 10 FFG in each state established by the end of 2013 (total 50 FFGs in Darfur)</i> <i>4.5.4: Field extension agents will be based in each administrative units of all localities. Total number of FEA is TBA</i>	4.5.4 Number of Field Extension Agents (FEA) hired in 5 states	TA, program	5 States	1,500,000		
		5.1.1: New package, agro-silvo-pastoral system, introduced	TA, program	5 States	1,500,000	x	x
		5.2.1: 60,000 hectares area under main oil crops (groundnut, sesame, sunflowers) cultivation expanded	Program	5 States	12,000,000	x	x
		5.3.1: 12,000 hectares area under horticultural crops (vegetable and fruits) production expanded	Program	5 States	3,200,000	x	x
	5. Increased adoption of crop diversification and suitable technology transfer 5.1. New package of farming system to all categories of farmers <i>Baseline: World Bank study (SD) indicators (2011)</i> <i>Target: 10% of area grown</i> 5.2. Oil crops area expansion <i>Baseline</i> <i>Target: 15% increase in current area</i> 5.3. Area expansion under horticultural crops and rejuvenation of medicinal plants	5.3.2: 10,000 hectares area under traditional herbal plants (e.g. <i>senemaka cassia actufolia</i>) production rejuvenated	Program	5 States	2,000,000	x	x
		5.4.1 Through mechanized farming 25,000 hectares area under food crops	Program	5 States	65,000,000	x	x

(a) AGRICULTURE component

Objectives	Performance Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	Darfur State (ND/ SD/ ED/CD/ WD) ³⁶	Costing US \$	Timeframe	
						FA	ST
	Baseline=0 <i>Target: 10% increase in current area</i>	(sorghum, millet, wheat, maize, and cow peas) cultivation increased ³⁶ .					
	5.4. Expansion of food crops area <i>Baseline</i>	5.5.1 Number of 100 horticultural base nurseries established and operational	Program	5 States	375,000		x
	<i>Target: 10% increase in area</i>	5.6.1 600 tons of improved cultivars of crops seeds procured and distributed	TA, Program	5 States	375,000	x	x
	5.5. Establishing horticultural base nurseries at locality level <i>Baseline=0</i>	5.6.2 Agricultural implements such as animal drought (traction), threshers (mechanical and pedal type), farm tools, pesticides sprayers, irrigation tools and treadle pumps procured and distributed to IDPs, returnees and host farmers	TA, Program, projects	5 States	10,500,000	x	x
	<i>Target: 20 nurseries/state</i>	5.7.1 Number of household storage demonstration established	TA, Program	5 States	300,000		x
	5.6 Providing agricultural inputs package to small farmers <i>Baseline</i>	5.7.2 Number of 75 demonstrations on suitable food processing conducted	TA, program	5 States	500,000	x	x
	<i>Target1:600 ton improved seeds distributed/yr</i>	5.7.3 Number of 75 community-seed bank created	TA, program	5 States	500,000	x	x
	<i>Target2: 75,000 farmers(various tools and equipment)</i>	5.7.3 Number of 25 producer associations/cooperatives established	TA, program	5 States	500,000	x	x
	5.7 Promoting post-harvest technologies and markets (see marketing and livelihoods part) <i>Targets:5.7.1:15 demonstrations/ state</i>	5.7.4 Number of 15 Producer-market linkage established	TA, program	5 States	400,000	x	x
	<i>5.7.2:15 demonstrations/ state</i>	6.1.1 Number of 25 IPM demonstration blocks established	TA, program	5 States	100, 000	x	x
	<i>5.7.3: 5 producer associations/ state</i>	6.2.1 Regular pest surveillance (Percentage of samples tested against target) and monitoring conducted	TA, program	5 States	200,000	x	x
	<i>5.7.4: 5 market linkage associations/ state</i>						
	6. Enhanced plant protection, quarantine and residue management						
	6.1 Popularizing Integrated Pest Management Approach (IPM) to farmers						

³⁶ The amount of USD 65,000,000 has been projected for encouraging commercial farming to increase 25,000 hectare area under rapid food crop cultivation in 5 Darfur states. The said amount will be disbursed as production credit to commercial farmers through commercial banks or other lead bank.

(a) AGRICULTURE component

Objectives	Performance Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	Darfur State (ND/ SD/ ED/CD/ WD) ³²	Costing US \$	Timeframe	
						FA	ST
	under Farmers Field Schools <i>Baseline</i> <i>Target. 25 Demos. blocks/state</i>	6.3.1 Plant protection airstrips rehabilitated and maintained	TA, project	3 states	750,000	x	x
	6.2 Conducting regular pest surveillance to assess pest and disease situation <i>Baseline</i> <i>Target. Samples from 5% of area grown/state</i>	6.3.2 Agro-chemicals as buffer stock to meet emergency pest control (<i>quelea-quelea</i> , locust, etc) procured	TA, program	3 States ND, SD, WD	1,500,000	x	x
		6.3.3 Warehouses for buffer stock agro-chemicals established	TA, program	3 States ND,SD, WD	1,000,000	x	x
	6.3 Rehabilitating/ or maintenance of airstrips for emergency plant protection including buffer stock of agro-chemicals <i>Baseline</i> <i>Target. 6.3.1: 3 airstrips in 3 states</i> <i>6.3.2: 300 metric tons agro-chemicals (each state 100 metric tons) reserved for emergency pest control</i> <i>6.3.3: 3 Agro-chemicals ware houses (1 unit each state)</i>	6.4.1 Agricultural Quarantine (AQ) stations at neighboring country borders of Darfur region established	TA, program	4 Sates ED, WD, ND, SD	400,000	x	x
	6.4 Establishing Plant Quarantine (PQ) stations at border check-points <i>Baseline</i> <i>Target: 6.4.1: one PQ/border state</i>					x	x
Subtotal costs for Improving crop production and productivity through sustainable management practices					106,775,000		
E) Enhancing capacity for agricultural research and training	7. Implementation and coordination linkage of agricultural training and research protocols Agricultural Capacity Training	7.1.1 Number of 250 extension personnel of SMOA trained (local and foreign) including higher education	TA, program	5 States	2,250,000	x	x
		7.1.2 Variety of extension education and training materials produced	TA, program	5 States	150,000	x	x
		7.1.3 Training needs assessment entire sector conducted	TA, program	5 States	100,000	x	x

(a) AGRICULTURE component

Objectives	Performance Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	Darfur State (ND/ SD/ ED/CD/ WD) ³²	Costing US \$	Timeframe	
						FA	ST
<p>officials, subject-matter specialists <i>Baseline: 5 Yrs Plan</i> <i>Target: 7.1.1, 7.1.2, 7.1.3, 7.1.4 (as per actual need assessment)</i></p> <p>7.2 Training of farmers on basic operation of agricultural implements and maintenance including business management such as irrigation and rain-water collection, household water harvesting structures, catchments treatments, natural resource management, post-harvest technology, farm machineries, agribusiness value chains, agro-processing and storage, and marketing, costing in all 5 states <i>Baseline=0</i> <i>Target: 40,000 farmers trained in 5 states</i></p> <p>7.3 Training of selected contact farmers on production technologies (improved food crop and vegetable cultivation practices, seed production technologies, conservation agriculture, integrated pest management, etc. <i>Baseline=0</i> <i>Target: 10,000 small vulnerable HH farmers</i></p> <p>7.4 Conducting TOT- Training of Trainers course on Farmer Field School Methodology to introduce new approaches that require new skills to trainers,</p>	7.1.4 Regional Master Training Plan related to agriculture, livestock and rural livelihoods produced	TA, Program	5 States	250,000	x	x	
	7.2.1 Number of 40,000 farmers trained in various subject matter	TA, Program	5 States	2,500,000	x	x	
	7.3.1 Number of 10,000 marginal and small farmers trained in various subject matter as listed in item 7.3	TA, Program	5 States	700,000	x	x	
	7.4.1 Number of 50 Training of Trainers (TOT) trained	TA, Program for 50 TOTs	5 States	100,000	x	x	
	7.4.1 "Training Manual" on Farmers Field School designed and produced	TA, Program	5 States	120,000	x	x	
	7.5.1 Standard information management tools to support effective coordination and communication in SMOA established	TA, Program	5 States	275,000	x	x	
	7.5.2 Human resource practices, skills, tools and feedback mechanism at all administrative level improved	TA, Program	5 States	300,000	x	x	
	7.5.3 Through cluster coordination line ministries and inter-agency cooperation strengthened	TA, Program	5 States	200,000	x	x	
	7.5.4 Integrated institutional platform at municipality level strengthened	TA, Program	5 States	200,000	x	x	
	7.5.5 Organizational function, structure, systems and outputs of SMOA and SMOAR strengthened	TA, Program	5 States	200,000	x	x	
7.5.6 Work methods, expansion of physical environment and hard/software situation of line ministries	TA, Program	5 States	200,000	x	x		

(a) AGRICULTURE component

Objectives	Performance Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	Darfur State (ND/ SD/ ED/CD/ WD) ³²	Costing US \$	Timeframe	
						FA	ST
	facilitators and institution but leads to a common vision and common methodology for moving into new areas of extension and education <i>Baseline=0</i> <i>Target: 50 TOTs in 5 states</i> 7.5 Building human capacity of staff of line ministries at state, locality and administrative unit levels <i>Baseline=0</i> <i>Target as per needs assessment</i>	improved					
		7.5.7 State strategic plan for improving production systems in cooperation with NGOs developed	TA, Program	5 States	150,000	x	x
		7.5.8 State food security resource information system developed and operational	TA, Program	5 States	350,000	x	x
	<u>Agricultural Research</u> 7.6 Introducing community-driven participatory research programs <i>Baseline=0</i> <i>Target achieved end 2013</i> 7.7 Improving the capacities of agricultural research centers/ institutes <i>Baseline</i> <i>Target of 7.7.1, 7.7.2, 7.7.3, 7.7.4 and 7.7.5 achieved by end of 2014</i> 7.8 Design and implement best practices in on-farm crop management and optimal use of inputs <i>Baseline</i> <i>Target: achieved by the end of 2014</i> 7.9 Assist SMOA in establishment of research-extension-farmer linkage mechanism <i>Baseline 0,</i>	7.6.1 Research-farmer linkage established at farm level	TA, Program	5 States	200,000	x	x
		7.6.2 Participatory technology developed (PTD) trials conducted	TA, Program	5 States	500,000	x	x
		7.7.1 Capacity Gap Analysis conducted	TA, Program	5 States	200,000	x	x
		7.7.2 Training (local and abroad) and higher education for researchers on specific skill gap provided	TA, Program	5 States	2,500,000	x	x
		7.7.3 In-country and regional countries exchange visits/conferences/workshops organized and implemented	TA, Program	5 States	220,000	x	x
		7.7.4 Labs equipment/reagents provided	TA, Program	5 States	1,000,000	x	x
		7.7.5 Reference material provided	TA, Program	5 States	250,000	x	x
7.8.1 Innovative research experiments with indigenous knowledge conducted		TA, Program	5 States	500,000	x	x	
7.9.1 State Extension Research Farmer Advisory Council (SERFAC) established		TA, Program	5 States	500,000	x	x	

(a) AGRICULTURE component

Objectives	Performance Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	Darfur State (ND/ SD/ ED/CD/ WD) ³²	Costing US \$	Timeframe	
						FA	ST
	<i>Target:7.9.1: 5 SERFEC established in 5 states (1 unit each state)</i>	7.9.2 Operational guidelines for SERFAC produced	TA, Program	5 States	50,000	x	x
	<i>7.9.2: 3 month consultancy assignment to produce SERFAC manual, achieved by end of 2014</i>	7.10.1 Soil erosion & land degradation and enhancing soil moisture regime prevented through area development	TA, Program	5 States	500,000	x	x
	<i>7.10 Enhancing Soil health and promotion of resource conservation technology</i>	7.10.2 Number of 5 Soil moisture conservation structures established	TA, Program	5 States	250,000	x	x
	<i>Target</i>	7.10.3 Quality of organic manure, bio-fertilizers and fertilizers controlled by testing number of samples	TA, Program	5 States	25,000	x	x
	<i>7.10.1:achieved by 2014</i>	7.11.1 Collection, characterization and conservation for germplasm genetic resources conducted	TA, Program	5 States	200,000	x	x
	<i>7.10.2: 5 or many structure established (1 unit in each state)</i>	7.11.2 Germplasm/ genetic resources bank / established	TA, Program	5 States	1, 500,000	x	x
	<i>7.10.3: 5/state each cost 5000</i>	7.11.3 Propagation of 250 metric tons certified seeds (drought resistant seeds and planting material :millet, sorghum, sesame Roselle, groundnuts) expanded	TA, Program	5 States	300,000	x	x
	<i>7.11 Enhancing community seed production system through germplasm banks</i>	7.11.4 Propagation of 250 metric tons certified seeds of pulses and other oil crops seeds expanded	TA, Program	5 States	250,000	x	x
	<i>Baseline</i>	7.11.5 Certified seeds to farmers for multiplication/propagation (Foundation seeds) delivered	TA, Program	5 States	100,000	x	x
	<i>Target achieved by end of 2014</i>	7.11.6 Private seed enterprises for promotion of improved seed enhanced	TA, Policy	5 states	500,000	x	x
					17,590,000		

Sub-total costs for enhancing capacity for agricultural research and training

(a) AGRICULTURE component

Objectives	Performance Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	Darfur State (ND/ SD/ ED/CD/ WD) ³²	Costing US \$	Timeframe	
						FA	ST
F) Promoting agricultural marketing and value-chains	8. Promoted value chains in food security and livelihoods development	8.1.1 Chain mapping workshop, with participation of representatives from all groups involved in the process, organized	TA, program	5 States	125,000	x	x
	8.1 Conducting analysis to determine strengths and weaknesses of value chain <i>Baseline=0</i> <i>Target 10 workshops, 2 in each state</i>	8.2.1 Rural-urban linkages for value chains established	TA, program	5 States	200,000	x	x
	8.2 Promoting value chain through fostering rural-urban linkages <i>Baseline 0</i> <i>Target: 5 market linkage associations/ state</i>	8.3.1 Through exchange visits and interactions between producer groups and urban markets and industries facilitated	TA, program	5 States	250,000	x	x
	8.3 Facilitating interactions of producer groups with urban markets and industries to better respond to consumer needs and exploit value addition opportunities <i>Baseline 0</i> <i>Target 25persons/state</i>	8.4.1 Investment in rural marketing infrastructure (resources reallocation from urban to rural areas) promoted	TA, program	5 States	500,000	x	x
	8.4 Providing a business enabling environment for the private sector to perform efficiently. <i>Baseline 0</i> <i>Target 25candidates/state</i>	8.5.1 Locally purchase of farm commodities supported	TA, program	5 States	250,000	x	x
	8.5 Reducing farm production and marketing costs by reducing excessive tax and duties on traded commodities (crops and livestock) <i>Baseline 0</i> <i>Target achieved end 2013</i>	8.5.2 Local capacity for marketing agricultural products strengthened	TA, program	5 States	240,000	x	x
	8.6 Improving value addition to food and	8.6.1 Awareness campaigns on subject matter conducted	TA, program	5 States	150,000	x	x
		8.7.1 Appropriate selection of value chain commodity appraised	TA, program	5 States	500,000	x	x
		8.7.2 Linking farmers to markets improved	TA, program	5 States	200,000	x	x
		8.7.3 Through FBOs farm product testing and demonstration conducted	TA, program	5 States	100,000	x	x
		8.7.4 Number of 500 farmers trained on enterprise development and marketing	TA, program	5 States	250,000	x	x
		8.7.5 Number of 500 producers trained in cooperative management and micro-	TA, program	5 States	250,000	x	x

(a) AGRICULTURE component

Objectives	Performance Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	Darfur State (ND/ SD/ ED/CD/ WD) ³²	Costing US \$	Timeframe	
						FA	ST
	non-food products via processing, appropriate packaging and packing <i>Baseline 0</i> <i>Target 2 campaigns /state</i> 8.7 Improving farm commodity value chain of agriculture and livestock commodities <i>Baseline 0</i> <i>Target 10 farms/state</i> 8.8 Mainstreaming quality and safety standards for farm products in local and international markets <i>Baseline 0</i> <i>Target 2 workshops per state and achieved by end 2013</i> 8.9 Increasing commercializ-ation of targeted commodities <i>Baseline 0</i> <i>Target 3 workshops/state</i> 8.10 A feasibility study for establishing a Bourse for gum Arabic trade and other commodity <i>Baseline 0</i> <i>Target: 5 studies in 5 states completed in 6 months</i>	enterprise development					
		8.7.6 Number of 500 farmers trained on post-harvest handling and value addition	TA, program	5 States	150,000	x	x
		8.7.7 Number of 50 farmers trained on leadership skills and group dynamics	TA, program	5 States	15,000	x	x
		8.8 Awareness campaigns on quality and safety standards conducted	TA, program		200,000	x	x
Sub- total costs for Promoting agricultural marketing and value-chains					3,380,000		
G) Supporting natural resource-based	9. Strengthening community-based institutions for peace-building, conflict resolution and recovery planning	9.1.1 Community-level reconciliation and sharing of natural resources enhanced	Program	5 states	250,000	x	
		9.1.2 Number of (10) peace-building	Program	5 states	75,000	x	x

(a) AGRICULTURE component

Objectives	Performance Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	Darfur State (ND/ SD/ ED/CD/ WD) ³²	Costing US \$	Timeframe	
						FA	ST
conflict transformation for agrarian (rural) communities	9.1 Strengthening capacity of customary institutions in peace building, civil governance and conflict mitigation <i>Baseline=0</i> <i>Target:</i> 9.1.1: achieved by the end of 2012 9.1.2: 10 workshops (each state 2 units) 9.1.3: Through WFP food-for-work approach water rehabilitated in 5 states 9.2 Improving capacity of Forest National Corporation in 5 states 9.2.1: Through training, partnership planning, cluster coordination and provision of material and ICT support 9.3 Improving environment restoration and protection through fire lines establishment <i>Baseline=0</i> <i>Targets: achieved by the end of 2015</i> 9.3.1: Over 5 years 5 million forest seedlings (each state 1 million seedlings) 9.3.2: 1000 farm women (each state 200 women) trained on fuel-efficiency stoves 9.3.3; 50 community forest association (10 unit in each state) established 9.3.4: 1000 km (each state 200 km) fire lines established 9.3.5 New agro-food crop demonstration undertaken in 5 states 9.3.6 Training and field demonstration of	workshops on NRM organized					
		9.1.3 500 Community-managed water points rehabilitated/constructed	Program	5 states	500,000	x	x
		9.2.1 Capacity of National Forestry Corporation (FNC) of SMOA enhanced	TA, Program	5 states	1,500,000	x	x
		9.3.1: Number of 5 million forest seedlings produced and distributed	Project	5 states	500,000	x	x
		9.3.2 Number of (1000) participants trained on fuel-efficiency stoves, environmental management and community level peace-initiatives	Program	5 states	100,000	x	x
		9.3.3 Community forest associations promoted	Project	5 states	100,000	x	x
		9.3.4 Fire lines for natural resource protection established	Project	5 states	900,000	x	x
		9.3.4: Productivity of specific mixed crop-livestock systems raised	TA, Program	5 states	125,000	x	x
		9.3.5 Expansion of food production system facilitated	TA, Program	5 states	150,000	x	x
		9.3.6 Sustainable livestock manure management system (to control environmental losses and contaminant spreading) developed and implemented	TA, Program	5 states	250,000	x	x
		9.3.7 Measures to implement more efficient use of biomass promoted	TA, Program	5 states	250,000	x	x
		9.3.8 Environmental monitoring and evaluation systems including risk assessment conducted	TA, Program	5 states	100,000	x	x
		9.3.9 Analysis of satellite images, GIS,	TA, Program	5 states	100,000	x	x

(a) AGRICULTURE component

Objectives	Performance Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	Darfur State (ND/ SD/ ED/CD/ WD) ³²	Costing US \$	Timeframe	
						FA	ST
	<i>manure management established at household level 9.3.7, 9.3.8, 9.3.9, 9.3.10, achieved by the end of 2014 9.3.11: 10 learning workshops (each state 3 workshops) organized on the subject matter 9.3.12: Cost for excavation tools for hafirs Rehabilitation in 5 states (each state US\$ 100 budgeted) 9.3.13 and 9.3.14 achieved by the end of 2014</i>	database developed					
		9.3.10 Livestock Early Warning system established and institutionalized	TA, Program	5 states	500,000	x	x
		9.3.11 Number of (10) learning workshops (on fire lines, carbon sequestration, rangeland protection, maintenance of soil fertility, micro-climate amelioration, bio-diversity preservation) conducted	TA, Program	5 states	150,000	x	x
		9.3.12 Through food-for-work resources (distribution of pasture seeds, labours for land preparation, fire lines, fencing) mobilized	Program	5 states	500,000	x	x
		9.3.13 Rangeland improvement research trials initiated	Program	5 states	150,000	x	x
		9.3.14 Comprehensive and cohesive strategies for environmental protection developed	TA, Program	5 states	75,000	x	x
		<i>Sub- total costs for supporting natural resource-based conflict transformation for agrarian (rural) communities</i>					6,275,000
Total cost for Agriculture component					464,797,000		

(b) LIVESTOCK component

Objectives	Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	Name States	Costing US \$	Timeframe ³⁷	
						FA	ST
A) Facilitating the design of policies, regulatory instruments, and institutional arrangements for improving livestock sector performance	1. Harmonized legislation and taxation regulations on livestock trade, market information and pasture production 1.1 Simplifying livestock trade rules, procedures and regulations <i>Baseline 0</i> <i>Target s: 1.1.1 & 1.1.2) harmonized by end 2013</i> 1.2 Eliminating multiple tax collection (<i>Gut an tax</i>) on intra-regional livestock trade <i>Target s: 1.2.1 & 1.1.2) harmonized by end 2013</i> 1.3 Reducing high transportation and handling costs of cross-border trade <i>Baseline 0</i> <i>Target achieved by end of 2013</i> 1.4 Providing well-functioning market information systems <i>Baseline: FAO SIFSIA North</i> <i>Target: achieved by end 2014</i> 1.5 Developing and enforcing legislation and communal laws for regulations of pasture production <i>Baseline 0</i> <i>Target: achieved by end 2013</i>	1.1.1 Technical and policy support to government provided on reforming existing livestock tariff and regulations	TA, project	5 States	200,000	x	x
		1.1.2 Livestock trade policy harmonized	TA, project	5 States	150,000	x	x
		1.2.1 Multiple tax collection (<i>Gut an</i>) at locality points reduced or eliminated	TA, Project	5 States	100,000	x	x
		1.3.1 Through policy dialogue high transportation and handling cost of cross-border trade minimized	TA, project	5 States	250,000	x	x
		1.4.1 Consultative workshop on market information and trade at state level involving stakeholders, CBOs and livestock keepers organized	TA, Project	5 States	100,000	x	x
		1.5.1 Community police services towards forest and communal rangelands strengthened	TA, Project	5 States	150,000	x	
		1.5.2 Logistics support to <i>Community Police (Guard)</i> provided.	TA, Project	5 States	750,000	x	x
		2.1.2 By-laws for operation of livestock CBOs produced	TA, project	5 States	70,000		
		2.2.1 Livestock insurance policy in the state regulatory system institutionalized and operational	TA, program	5 States	200,000	x	x
Sub- total costs for facilitating the design of policies, regulatory instruments, and institutional arrangements for improving livestock sector performance					1,970,000		

³⁷ Timeframe **FA** – refers to Foundational Activities that need to start within 6-months (targeting community surveys, skill enhancement, etc.) as they are crucial to recovery preparation. **ST** - refers to a Short-Term activities that is be implemented and completed within 24 months, and **LT** - refers to a Long-Term activities to be implemented during the agreed framework of 6 years.

(b) LIVESTOCK component

Objectives	Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	Name States	Costing US \$	Timeframe ³⁷	
						FA	ST
B) Improving physical infrastructure for livestock and natural resource productivity and growth	2. Mobilize resources towards development of livestock physical infrastructure 2.1 Promoting livestock water supply/provision schemes <i>Targets:</i> 2.1.1: 5 Yrs Plan 2.1.2: 5 Yr Plan(125hafiers) 2.2 Establishing livestock veterinary services and resource centers <i>Baseline 5 Yrs Plan</i> 2.2.1: 5 Yrs Plan 2.3 Establishing livestock processing service centres in the 5 states <i>Baseline 0</i> <i>Target: 2.3.1 25 slaughter houses</i> 2.3.2 Five tannery factories 2.4 Establishing standard livestock market place at strategic areas(international specifications) 2.4.1 one/state 2.4.2. 20/state	2.1.1 Structural layout for livestock water yards, water points/reservoirs, designed and established	TA, program	5 States	14,000,000	x	x
		2.1.2 Number of community hafiers, water ponds and tributaries established	TA, program	5 States	30,000,000	x	x
		2.1.3 Livestock water supply system on regular basis maintained	TA, program	5 States	550,000	x	x
		2.2.1 livestock veterinary hospitals/clinics and research centers designed and established	TA, program	5 States	75,000,000	x	x
		2.3.1 Animal slaughter houses established	TA, program	5 States	4,500,000	x	x
		2.3.2 Livestock tannery factories established	TA, program	5 States	625,000	x	x
		2.4.1 Standard livestock markets established	TA, program	5 States	3,000,000	x	x
		2.4.2 rural livestock markets established or rehabilitated	TA, program	5 States	1,100,000	x	x
Improving physical infrastructure for livestock (and natural resource (NR) productivity and growth					128,775,000		
C) Providing effective livestock micro-financing for productivity, value addition and profitability	3. Broadened microfinance base to cover a wide range of livestock keepers 3.1 Facilitating Micro-Finance Institutions (MFIs) for timely loan disbursement to borrowers (producers and livestock herders) <i>Targets: 3.1.1: mobilization and awareness workshops, seminars, etc.</i> 3.1.2: mobilization/ awareness fees 3.2 Increasing awareness of savings among loan borrowers <i>Baseline=0</i>	3.1.1 Expansion of MFIs operation in strategic localities promoted	Program	5 States	200,000	x	
		3.1.2 Traditional MFIs fulfilling government regulations registered	Program	5 States	200,000	x	
		3.1.2 Easy credit norms and disbursement modalities formulated and developed	Project, policy advocacy	5 States	100,000	x	
		3.1.3 Specialized Savings and Family banks granting non-refundable loans to poor livestock keepers supported	Project, policy advocacy	5 States	10,000,000	x	
		3.1.4 Number of solidarity groups	Project, policy	5 States	100,000	x	

(b) LIVESTOCK component

Objectives	Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	Name States	Costing US \$	Timeframe ³⁷	
						FA	ST
	<i>Target: TBD</i> 3.3 Training in both technical and management skills <i>Baseline 0</i> <i>Target: TBD</i>	among livestock entrepreneurs borrowers formed	advocacy				
		3.1.5 Initial social capital from solidarity groups built	Project, policy advocacy	5 States	100,000	x	
		3.1.6 Access to credit by acting as guarantors of bank/MFI loans facilitated	Project, policy advocacy	5 States	25,000,000	x	
		3.2.1 Village Savings Loan Association (VSLA) for livestock business formed	Project, policy advocacy	5 States	100,000	x	x
		3.3.1 Number of borrowers trained on utilization of loans and savings	TA, project	5 States	100,000	x	x
		3.3.2 Number of MFIs staff on livestock related business development skills trained	TA, Project	5 States	100,000	x	x
Providing effective livestock micro-financing for productivity, value addition and profitability					36,000,000		
D) Supporting and improving livestock health and production through improving extension and veterinary services, water points and pasture management	4. Improved livestock health and production for better livelihoods 4.1 Providing extension service and husbandry management techniques <i>Baseline 0</i> <i>Target: achieved by end 2013</i> 4.2 Increasing pasture and fodder production utilisation and restoration <i>Baseline 0</i> <i>Target: achieved by end 2015</i> 4.3 Avoiding anti-nutritive factors in feedstuffs (tree fodders those contain anti-nutritive factors like tannins) that reduce productivity <i>Baseline 0</i> <i>Target: achieved by end 2015/16</i> 4.4 Promoting feed mills for 75,000 livestock	4.1.1 Livestock extension unit (LEU) of SMOAR upgraded through policy adoption	Project 4.1.1	5 States	50,000	x	x
		4.1.2 Extension and livestock husbandry subject matter knowledge of SMOAR's extension personnel improved	Project 4.1.2	5 States	100,000	x	x
		4.1.3 Crop-livestock information provision at village level integrated	Project 4.1.3	5 States	100,000	x	x
		4.1.4 Material support (reference material, computers, vehicles, furniture, lab equipments, etc) provided	Project 4.1.4	5 States	450,000	x	x
		4.2.1 Number of livestock fodder banks established	Project 4.2.1	5 States	300,000	x	x
		4.2.2 Livestock feeding enhanced	Project 4.2.2	5 States	200, 000	x	x
		4.2.3 Degraded Pasture lands	Program 4.2.3	5 States	500,000	x	x

(b) LIVESTOCK component

Objectives	Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	Name States	Costing US \$	Timeframe ³⁷	
						FA	ST
	keepers to benefit from availability of concentrated feed (it also minimizes conflicts) <i>Baseline</i> <i>Target: 75,000 herders</i> 4.5 Strengthening the efficiency of poultry, small livestock and fisheries <i>Baseline 0</i> <i>Target: achieved by end 2014</i> 4.6 Creating local associations and community-based buck stations to facilitate livestock farmers to undertake breeding programmes to improve their goat flocks <i>Baseline 0</i> <i>Target: achieved by end 2014</i>	rehabilitated through seed collection and broadcasting					
		4.2.4 Livestock enclosures and nurseries and construction of fire lines established	Program 4.2.4	5 States	750,000	x	x
		4.3.1 High-yielding plant species of high quality feeding promoted	Program 4.3.1	5 States	150,000	x	x
		4.4.1 Animal feed security through establishment of feed mills promoted	Program 4.4.1	5 States	500,000	x	x
		4.5.1 Small-scale fattening programme for cattle, goats, ewes initiated	Program 4.5.1	5 States	1,000,000	x	x
		4.6.1 Local associations and community-based stations for goat breeding established	Program 4.6.1	5 States	100,000	x	x
		5. Improved community delivery system of veterinary services	5.1.1 5,000,000 animals vaccinated on annual basis	Program	5 States	4,000,000	x
	5.1 Improving veterinary care for livestock producers <i>Baseline 0</i> <i>Target 5,000,000 units vaccinated</i>	5.1.2 50 Private Veterinary clinics established	Program	5 States	250,000	x	x
		5.1.3 2000 Community Animal Health Workers (CAHWs) trained	Program	5 States	200,000	x	x
		5.1.4 90 livestock extension agents trained over 5 years	Program	5 States	250,000	x	x
		5.1.5 15 mobile veterinary clinics established in 5 states	Project	5 States	3,000,000	x	x
		5.1.6 Effective registration processes, enforcement of legislation and quality testing ensured	Project	5 States	250,000	x	x
		5.1.7 Animal vaccine production at Nyala Veterinary Laboratory (SMOAR) in South Darfur improved	TA, Program	South Darfur	5,000,000	x	x
		5.1.8 Revolving Drug Funds (RDF) for livestock keepers to access drugs established			500,000	x	x

(b) LIVESTOCK component

Objectives	Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	Name States	Costing US \$	Timeframe ³⁷		
						FA	ST	
<i>Sub-total for supporting and improving livestock health and production through improving extension and veterinary services, water points and pasture management</i>					18,825,000			
E) Enhancing capacity for livestock research and training	6. Implementation and coordination linkage of livestock training and research protocol Livestock Capacity Training 6.1 Training of Community Animal Health Workers (CAHW) on basic veterinary services and production technologies <i>Baseline 5 Yrs plan</i> <i>Target 1000 CAHW trained in 5 yrs</i> 6.2 Participatory training to livestock keepers on improved meat, dairy and poultry production, basic animal health, animal housing, processing and storage facilities <i>Baseline</i> <i>Target : 25 workshops/yr</i> 6.3 Institutional training to relevant line ministries and local NGOs <i>Baseline</i> <i>Target 50 participant/ workshops/ yr/5 state</i> 6.4 Training to nomads on basic animal health services and production <i>Baseline</i> <i>Target 500 beneficiaries</i> 6.5 Train to beneficiaries on forage production, feed processing and treatment technologies <i>Baseline</i> <i>Target: 500 beneficiaries</i>	6.1.1 Number of CAHWs trained on subject matter	TA, Program	5 States	100,000	x	x	
		6.2.1 State level Master Training Programme for livestock keepers designed	TA, Program	5 States	200,000	x	x	
		6.2.2 15,000 livestock keepers trained through participatory approaches (over 5 yrs)	TA, Program	5 States	1,000,000	x	x	
		6.3.1 50 participants from SMOA, SMOAR, NGOs trained on subject matter	TA, Program	5 States	25,000	x	x	
		6.4.1 Number of nomads trained on the subject matter		5 States	250,000	x	x	
		Livestock Development Research	6.6.1.Ten Artificial Insemination (AI) units for the different livestock species established (cattle, goats, ewes, horses, poultry, etc)	TA, program	5 States	5,000,000	x	x
		6.6 Improving research in livestock breeding, rangeland and pasture management <i>Baseline 0</i> <i>Targets: 6.6.1. Two AI units/state for different</i>	6.6.2. Capacity of livestock breeding		5 States	150,000	x	x

(b) LIVESTOCK component

Objectives	Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	Name States	Costing US \$	Timeframe ³⁷	
						FA	ST
	livestock kinds over 5 yrs 6.6.2 Improving lab facilities, research tools and access to information system 6.6.3. Full set of equipment	and research institutions developed through provision of equipment					
Sub totals costs for enhancing capacity for livestock research and training					6,725,000		
F) Promoting livestock marketing and value-chains	7. Promoted value chain in livestock products and development 7.1 Conducting value chain analysis to determine strengths and weaknesses of the livestock value chains <i>Baseline 0</i> <i>Target 10 workshops, 2 in each state</i> 7.2 Promoting value chain through fostering rural-urban linkages <i>Baseline 0</i> <i>Target: 5 market linkage associations/ state</i> 7.3 Facilitating interactions of producer groups with urban markets and industries to better respond to consumer needs and exploit value addition opportunities <i>Baseline 0</i> <i>Target 25persons/state</i> 7.4 Providing a business enabling environment for the private sector to perform efficiently. <i>Baseline 0</i> <i>Target 25candidates/state</i> 7.5 Reducing livestock production and marketing costs by reducing excessive tariff on trade commodities <i>Baseline 0</i> <i>Target: achieved by the end 2013</i> 7.6 Improving value addition to food and non- food products through processing, appropriate packaging and packing	7.1.1 Chain mapping workshop, with participation of representatives from all groups involved in the process, organized and implemented	TA, program	5 States	200,000	x	x
		7.2.1 Rural-urban linkages for value chains established	TA, program	5 States	250,000	x	x
		7.3.1 Through exchange visits, foreign and in country training and interactions between producer groups and urban markets and industries facilitated	TA, program	5 States	1,000,000	x	x
		7.4.1 Investment in rural marketing infrastructure (resources reallocation from urban to rural areas) promoted	TA, program	5 States	400,000	x	x
		7.5.1 Locally purchase of farm commodities supported	TA, program	5 States	250,000	x	x
		7.5.2 Local capacity for marketing agricultural products strengthened	TA, program	5 States	240,000	x	x
		7.6.1 Awareness campaigns on subject matter conducted	TA, program	5 States	150,000	x	x
		7.7.1 Appropriate selection of value chain commodity appraised	TA, program	5 States	500,000	x	x
		7.7.2 Linking farmers to markets	TA, program	5 States	200,000	x	x
		7.7.3 Through CBOs farm product testing and demonstration conducted	TA, program	5 States	100,000	x	x
		7.7.4 500 herders trained on enterprise development and marketing	TA, program	5 States	250,000	x	x
		7.7.5 Number of 500 producers	TA, program	5 States	250,000	x	x

(b) LIVESTOCK component

Objectives	Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	Name States	Costing US \$	Timeframe ³⁷		
						FA	ST	
	<i>Baseline 0</i> <i>Target: 2 campaigns /state</i> 7.7 Improving farm commodity value chain of livestock commodities <i>Baseline 0</i> <i>Target 10 farms/state</i>	trained in cooperative management and micro-enterprise development						
	7.8 Mainstreaming quality and safety standards for farm products in local and international markets <i>Baseline 0</i> <i>Target 2 workshops per state and achieved by end 2013</i>	7.7.6 Number of 500 herders trained on post-harvest handling and value addition	TA, program	5 States	150,000	x	x	
	7.9 Increasing commercialization of targeted commodities <i>Baseline 0</i> <i>Target 3 workshops/state</i>	7.7.7 Number of 50 herders trained on leadership skills and group dynamics	TA, program	5 States	15,000	x	x	
	7.10 Feasibility study for establishing a Bourse for gum Arabic trade and other commodity <i>Baseline 0</i> <i>Target: 5 studies in 5 states completed in 6 months</i>	7.8 Awareness campaigns on quality and safety standards conducted	TA, program	5 States	200,000	x	x	
	Sub- total costs for promoting livestock marketing and value-chains					4,155,000		
G) Supporting natural resource-based conflict transformation for rural communities	8. Strengthened community-based institutions for peace-building, conflict resolution and recovery planning	8.1.1 Community-level reconciliation and sharing of natural resources enhanced	Program	5 states	250,000	x		
		8.1 Strengthening capacity of customary institutions in peace building, civil governance and conflict mitigation <i>Baseline 0</i> <i>Target 10 workshops</i>	8.1.2 Number (10) of peace-building workshops on NRM organized	Program	5 states	75,000	x	x
		8.2 Improving environment restoration and protection <i>Baseline-0</i>	8.1.3 Number of Community-managed water points rehabilitated or constructed	Program	5 states	500,000	x	x
			8.2.1 Capacity of National Forestry Corporation (FNC) of SMOA enhanced	TA, Program	5 states	350,000	x	x

(b) LIVESTOCK component

Objectives	Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	Name States	Costing US \$	Timeframe ³⁷	
						FA	ST
	<i>Target: 8.2.1 10 workshop training 8.2.1 500 MT forage seeds (each state 100 metric tons) 8.2.3 1000 beneficiaries trained (each state 200 beneficiaries) 8.3 Improving environment restoration and protection through establishing fire lines Baseline 0 Target. activity ended by 2013</i>	8.2.2: 500 tons forage seed for multi-purpose produced and distributed	Project	5 states	500,000	x	x
		8.2.3 Number (1000) of participants trained on fuel-efficiency stoves, environmental management and community level peace-initiatives	Program	5 states	100,000	x	x
		8.3.1 Community forest associations promoted	Project	5 states	100,000	x	x
		8.3.2 Material for fire lines for natural resource protection supplied	Project	5 states	1000,000	x	x
		Sub totals costs for supporting natural resource-based conflict transformation for rural communities					2,875,000
H) Synchronizing NRM with agriculture and livestock to optimize environmental benefits	9. Promoting natural resource management awareness, policies and environmental impact 9.1 Developing strategies and promoting crop-livestock synergies and interactions <i>Baseline 0 Target 5 Yrs plan</i> 9.2 Promoting natural resource surveillance, planning and regulation to form the basis for sound and evidence-based NRM policies <i>Baseline 0 Target 5 Yrs plan</i> 9.3 Establishing Livestock Early Warning System and rangeland mapping (including database on rangeland resources and nomadic pastoral production systems) <i>Baseline 0 Target 5 Yrs plan</i> 9.4 Rehabilitating Rangelands and enclosures through community awareness and program initiatives 9.2.1 Analysis of satellite images,	9.1.1 Awareness raising campaigns on natural resource protection and conservation laws and regulations conducted	TA, Program	5 states	150,000	x	x
		9.1.2 Productivity of specific mixed crop-livestock systems raised	TA, Program	5 states	125,000	x	x
		9.1.3 Expansion of food production system facilitated	TA, Program	5 states	150,000	x	x
		9.1.4 Agro-silvo-pastoral farming system introduced and adopted (piloting +demo.)	TA, Program	5 states	3,000,000	x	x
		9.1.5 Sustainable livestock manure management system (to control environmental losses and contaminant spreading) developed and implemented	TA, Program	5 states	250,000	x	x
		9.1.6 Measures to implement more efficient use of biomass promoted	TA, Program	5 states	250,000	x	x
		9.1.7 Environmental monitoring and evaluation systems including risk assessment conducted	TA, Program	5 states	100,000	x	x
			TA, Program	5 states	100,000	x	x
			TA, Program	5 states	100,000	x	x

(b) LIVESTOCK component

Objectives	Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	Name States	Costing US \$	Timeframe ³⁷	
						FA	ST
	<i>Baseline:0</i> <i>Target: 9.4.1 10 workshops by 2014</i> <i>9.4.2 FFW achieved by 2014</i> 9.5 Conducting research trials for quality and quantity improvements in animal feed production <i>Baseline-0</i> <i>Target: 9.5.1 50 trials conducted</i> 9.6 Facilitating FNC in the development of comprehensive and cohesive strategies for environmental protection & use of natural resources <i>Baseline-0</i> <i>Target: achieved by end 2013</i>	GIS, database developed					
		9.3.1 Livestock Early Warning system established and institutionalized	TA, Program	5 states	500,000	x	x
		9.4.1 Number of (10) learning workshops (on fire lines, carbon sequestration, rangeland protection, maintenance of soil fertility, micro-climate amelioration, bio-diversity preservation) conducted	TA, Program	5 states	150,000	x	x
		9.4.2 Through food-for-work resources (distribution of pasture seeds, labours for land preparation, fire lines, fencing) mobilized and implemented	Program	5 states	500,000	x	x
		9.5.1 Rangeland improvement research trials initiated	Program	5 states	150,000	x	x
		9.6.1 Comprehensive and cohesive strategies for environmental protection developed	TA, Program	5 states	75,000	x	x
		<i>Sub- total costs for synchronizing NRM with agriculture and livestock to optimize environmental benefits</i>					5,500,000
Total cost for Livestock component					198,825,000		

(c) RURAL LIVELIHOODS component

Objectives	Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	States W/S/N/C E/ Darfur	Costing US \$	Sequenced Timeframe			
						FA	ST	LT	
A) Promoting livelihoods diversification through development of agricultural value-chains and agribusiness opportunities	1. Promote and improve livelihoods diversification for income generation and employment opportunities	1.1.1 Number of 500 HH Honey bees projects designed, developed and promoted	TA, program	5 states	500,000	x	x		
	1.1. Improving livelihoods productive safety nets via agro-based (IGA) Income Generating Activities (MSMEs) Micro, Small to Medium enterprises <i>Baseline for 1.1.1 through 1.1.3: 5 years plans (2011-16):</i> <i>Target: 1.1.1. Provision of Honey bees projects for 100 HH in each state</i> <i>Target 1.1.2. Provision of agro-based handicrafts projects for 5,000 HH in each state</i> <i>Target: 1.1.3. Provision of 10,000 Fruits and vegetables processing enterprises/ projects for each state</i>	1.1.2 Number of 25,000 agro-based handicraft projects designed, developed and promoted	TA, program	5 states	20,000,000	x	x		
		1.1.3 Number of 50,000 HH Fruits and vegetables processing enterprises designed, developed and promoted.	TA, program	5 states	50,000,000	x	x		
		1.2.1 Number of small poultry schemes/farms designed and supported	TA, program	5 states	10,000,000	x	x		
		1.2. Improving livelihoods productive capacity & safety nets based on livestock Income Generating Activities (MSMEs) <i>Baseline: 0</i> <i>Target: 1.2 .1 15,000 returnee HHs receives improved chicks with cages (each HHs 10 chicks with 3 months balanced poultry feeds)</i> <i>1.2.2: Target: 10,000 HHs (2000 HH/state with each HH having 5 ruminants)</i>	1.2.2 Number of HH rearing small ruminants for diary production supported and promoted	TA, program	5 states	10,000,000	x	x	
		1.3 Promote and improve livelihoods	1.3.1. Number of 750 small	Project	5 states	1,000,000	x	x	

³⁸ Timeframe **FA** – refers to Foundational Activities that need to start within 6-months (targeting community surveys, skill enhancement, etc.) as they are crucial to recovery preparation. **ST** - refers to a Short-Term activities that is be implemented and completed within 24 months, and **LT** - refers to a Long-Term activities to be implemented during the agreed framework of 6 years.

(c) RURAL LIVELIHOODS component

Objectives	Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	States W/S/N/C E/ Darfur	Costing US \$	Sequenced Timeframe		
						FA	ST	I
	diversification in agricultural production for employment and income generation. <i>Baseline for 1.3.1 through 1.3.2: 5 years plans (2011-16):</i> <i>Target: 1.3.1: Providing 750 treadle pumps to 750 HHs (each state 150 pumps)</i> <i>1.3.2: Providing 100 small solar pumps to 100 HHs (each state 20 solar pumps)</i>	motor pumps for vegetable and fruit production introduced and distributed						
		1.3.2. Number of 100 small solar operating pumps for vegetable and fruit production introduced and distributed	Project	5 states	100,000	x	x	
Subtotal costs for promoting livelihoods diversification					91,600,000			
B) Improving the infrastructure in relation to agribusiness	2. Improving the productive capacity of MSMEs through adoption of new technologies 2.1. Establishing pilot processing plants (fruits and vegetables processing) in 3 states of Darfur <i>Baseline: 2.1.1, 2.1.2 and 2.1.3 as per 5 Yrs Plan</i> <i>Target: achieved by end 2013/17</i> 2.2 Providing 500 poultry incubators to 500 returnee farmers (each state 100 incubators/hatchers) <i>Baseline: (5 yrs plan)</i> <i>Target: 2.2.1 100 incubators (egg hatchers) to each state/HH</i> 2.3 Establishing pilot grain stores <i>Baseline-0</i> <i>Target : 5,000 HH/state/5 yrs</i>	2.1.1. Number of 60 Pilot projects for sugarcane milling plants/ units designed and implemented	TA, project	WD, CD, SD	480,000	x	x	x
		2.1.2. Number of 120 Pilot projects for fruits processing	TA, project	5 states	960,000	x	x	x
		2.1.3. Number of 200 Pilot projects for vegetables drying/ processing designed and implemented	TA, project	5 states	1,600,000	x	x	x
		2.2.1 Number of 500 small egg hatchers as Pilot projects designed and implemented	TA, project	5 states	175,000		x	x
		2.3.1 Small to Medium village communal grain stores established	TA, project	W, C, S	2,000,000	x	x	x
Subtotal cost for improving the infrastructure in relation to agribusiness					5,215,000			

(c) RURAL LIVELIHOODS component

Objectives	Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	States W/S/N/C E/ Darfur	Costing US \$	Sequenced Timeframe		
						FA	ST	I
C) Providing effective micro-finance for productivity, value addition and profitability	3 Provide timely finance for a wide range of small to medium agribusiness enterprising 3.1.Supporting credit for 5000 MSMEs units (HH) <i>Baseline 0:</i> <i>Target: 5000 Households(HHs)</i>	3.1.1. number of 1000 micro-finance base cover a wide range of small scale farmers broadened and strengthened	3.1.1. TA, Program credit schemes for SME in agribusiness	5 states	7,500,000	FA		
		3.1.2. Microfinance schemes for small farmers facilitated, supported and availed	TA, Program credit schemes	5 states	17,000,000	x		
Providing effective micro-finance for productivity, value addition and profitability					24,500,000			
D) Facilitating the design of policies, regulatory instruments, and institutional arrangements for improving agribusiness performance	4. Policy and institutional concerns adopted for improvement agribusiness environment <i>4.1. Reform tax policy by removing duplication of taxes and duties imposed on MSMEs</i> <i>Base line 0:</i> <i>Target: achieved by the end 2013</i> <i>4.2. Improve institutional, organizational and technical capacities of related agribusiness associations</i> <i>Baseline-0</i> <i>Target: achieved by end 2014</i> <i>4.3: encourage private sector by endorsing and enforcing for sub sector legislations and laws for regulations</i> <i>Baseline 0</i> <i>Target: achieved by end 2014</i>	4.1. 1. Duplication of taxes and duties imposed on MSMEs removed or adjusted	TA/Policy	5 states	80,000	x		
		4.2.1. Institutional, organizational and technical capacities of related agribusiness associations improved	TA/policy	5 states	220,000	x		
		4.3.1.Private sector encouraged for providing services to agribusiness entrepreneurs	TA/policy	5 states	400,000	x	x	
Sub- total for design of policies, regulatory instruments, and institutional arrangements for improving agribusiness performance					700,000			
E) Enhancing capacity for	5 Promote research and development (R4D & R&D) and training of gender to improve performance of agribusiness	5.1.1 Baseline survey/ assessment for promoting MSMEs and small business	TA, program:	5 states	300,000	x	x	

(c) RURAL LIVELIHOODS component

Objectives	Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	States W/S/N/C E/ Darfur	Costing US \$	Sequenced Timeframe		
						FA	ST	I
agribusiness research and training	5.1 Conducting a baseline survey/ assessment of MSMEs resources in 5 states of Darfur for promoting private sector development. <i>Baseline-0</i> <i>Target: achieved by end 2013</i> 5.2. Training small business entrepreneurs in business development <i>Baseline =0</i> <i>Target: 5.2.1 15 workshops for five states</i> 5.3 Increase awareness of MSMEs business development <i>Baseline-0</i> <i>Target :5.3.1 one awareness campaigns in</i> <i>every state for improving and supporting</i> <i>research links to agro-based industries</i> 5.4. Provide and update information on current status of agribusiness <i>Baseline-0</i> <i>Target: 5.4.1 One hour radio broadcast per</i> <i>day</i> 5.5 Design scheme program to support research in agribusiness through 5 studies in main subject areas <i>Baseline-0</i> <i>Target: 5.5.1 achieved by end 2014</i>	designed and implemented						
		5.2.1. Number of 15 workshops held to train business entrepreneurs on basic business enterprise/ business management conducted	TA, program	5 states	200,000	x	x	x
		5.3.1. Community-awareness of business development increased	TA, program	5 states	200,000		x	x
		5.4.1 preparing and implementing 1 hour agribusiness news through broadcasting programs via state radio station/TV	TA, program	5 states	72,000		x	x
		5.5.1 Community-driven participatory research programs introduced	TA, program	5 states	100,000		x	x
		Sub- total costs for enhancing capacity for agribusiness research and training					872,000	
F) Building capacity of agribusiness entrepreneurs and related	6. improve capacity of agribusiness entrepreneurs and related structures for improving agribusiness and rural livelihoods 6.1. Organize gender specific training for beneficiaries at rural areas	6.1.1 Number of 25 gender specific training workshops on agro-processing and handicrafts organized	TA, program	5 states	400,000	x	x	
		6.2.1 Number of 15	TA, program	5 states	225,000	x	x	

(c) RURAL LIVELIHOODS component

Objectives	Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	States W/S/N/C E/ Darfur	Costing US \$	Sequenced Timeframe		
						FA	ST	I
government employees for improving agribusiness and rural livelihoods	<i>Target: 5 gender specific training workshops for 300 women (60 each) on handicrafts and MSMEs in each state</i> <i>Baseline-0</i>	workshops for training staff and beneficiaries organized and implemented						
	<i>Target: 6.1.1 One gender training workshop organized per state/year</i> 6.2. Upgrade and improve institutional and human technical capacities for promoting MSMEs including 3 persons from 5 NGOs <i>Baseline-0</i>	6.3.1. Number of 25 workshops for training blacksmiths organized and implemented	TA, program	5 states	100,000	x	x	x
	<i>Target : 3 workshops for 5 relevant staff from 3 main ministries each (75+75=150 persons)</i> 6.3 Training of Blacksmiths in designing and manufacturing improved animal traction equipment and agricultural tools. <i>Baseline-0</i>	6.4.1. Number of 25 training workshops for agro-vet business entrepreneurship conducted	TA, program	5 states	100,000	x	x	x
	<i>Target: 6.3.1 50 blacksmiths trained in each state</i> 6.4. Conducting training for agro-vet business entrepreneurships <i>Baseline-0</i> <i>Target: 6.4.1 and 6.4.2 Five CBOs from each state given training on the subject matter over 5 years</i>	6.4.2. Training on business costing, marketing and promotion conducted	TA, program		300,000		x	x
Sub -total costs for Building capacity of agribusiness entrepreneurs and related government employees for improving agribusiness and rural livelihoods					1,125,000			
G) Promoting agribusiness marketing and value-chains	7. Promoting agricultural marketing, value-chains , quality & safety standards and agribusiness opportunities	7.1.1. Crop production and marketing costs on MSMEs business reduced	TA/program Policy	5 states	175,000	x	x	
		7.1. Reducing overall costs on business for	7.1.2. Value addition and value	TA. Program	5 states	400,000	x	x

(c) RURAL LIVELIHOODS component

Objectives	Indicators/ Priority Needs	Outputs	Instrument (TA, Policies, Projects, Programs, etc)	States W/S/N/C E/ Darfur	Costing US \$	Sequenced Timeframe		
						FA	ST	LT
	development target achieved by early 2014 <i>Baseline-0</i> <i>Target: 7.1.1 and 7.1.2 Achieved by the end of 2014</i>	chain to food and non-food products via processing, appropriate packaging and packing improved	policy:					
	7.2 Achieving quality & safety standards for promoting exports and agribusiness opportunities <i>Baseline-0</i> <i>Target: 7.2.1 Quality standards achieved by end of 2015</i>	7.2.1 Quality and safety standards for promoting exports and agribusiness opportunities achieved			400,000		x	x
Sub- total for promoting agricultural and livestock marketing and value-chains in agribusiness					975,000			
H) Synchronizing NRM and other cross cutting-issues with agribusiness to optimize environmental benefits	8. Synchronizing NRM and other cross-cutting issues with agribusiness 8.1 Conservation of environment through SMEs and other friendly measures <i>Baseline-0</i> <i>Target: 8.1.1 Five states of Darfur declared 50% not dependent on fuel wood and wood construction material by end of 2015</i> 8.1.2 25 Brick makers for each state are trained	8.1.1 Dependence on forest products for fuel wood, construction material and brick making reduced through promoting gas oven/stoves	TA program:	5 states	600,000	x	x	x
		8.1.2 Number of 125 brick makers trained	TA program:	5 states	900,000	x	x	x
Sub-total costs for Synchronizing NRM and other cross- cutting issues					1,500,000			
Total cost for Rural Livelihoods component					126,487,000			
GRAND TOTAL (Agriculture + Livestock + Rural Development component)					790,009,000			

* FA – refers to Foundational Activities that need to start within 6-months (targeting community surveys, skill enhancement etc.) as they are crucial to recovery preparation. ST - refers to Short-term activities that need implementation and completion within 24 months. LT - refers to long-term activities that are to be implemented during the agreed framework of 6 years

7. FOUNDATIONAL ACTIVITIES

Table-8: Foundational Activities for Darfur region (2013)

AGRICULTURE, LIVESTOCK AND RURAL LIVELIHOODS		
Objectives	Foundational activities	Cost in USD with percentage
1. Facilitating the design of policies, regulatory instruments, and institutional arrangements for improving sub-sector performance	1.1 Conduct feasibility studies, assessments and workshops for drafting, harmonizing legislation and regulations on agriculture, livestock, trade, and market information, improvement of agribusiness environment,	5% (212,000) of the total cost
	1.2 Stakeholders' consultative workshops for promoting agricultural regulatory instruments and policy advocacy	
2. Improving physical infrastructure for agricultural/agribusiness/livestock production and growth	2.1 Pre-feasibility studies, assessments, soil surveys and testing for development of physical infrastructure and providing support services 2.2 Surveys, assessments, verifications studies for improving the productive capacity of MSMEs through new technologies	1% (4.2m) of total costs 419 m
3. Providing effective micro-finance for productivity, value addition and profitability	3.1 Training of MFIs, organization of MFIs and banks, study on solidarity groups AND Village Savings Loan Association, development of guidelines and manuals, workshops and training	1% (1.1 m) of total costs 107m
4. Improving crop production and productivity through sustainable management practices	4.1 Formation of Farmers, Research, Extension Advisory Council, procurement to support AEU (computers, furniture, equipments) training workshops, designs and curriculum material for Farmers Field Schools	5% (300,000)
	4.2 Procurement and distribution of agricultural inputs for 5 states (crop seeds, farm tools, irrigation pumps and drip kits, pesticides sprayers, threshers, animal traction implements, etc)	50% (5 million)
	4.3 Pest surveillance, assessment surveys, studies, IPM demonstrations, chemicals and equipment procurement, workshops and training, etc.	5% (230,000)
5. Supporting and improving livestock health & production through improving extension and vet services, water points and pasture management	5.1 Material support (reference material, computers, furniture, lab equipments, etc) , training, workshop awareness, pasture seeds, formation of Local Associations and Community-based stations	5% (205,000)
	5.2 Conduct performance studies, evaluation, skills need assessment and develop further training materials for strengthening the CAHW and livestock extension agents, start registration processes and information systems, procure vaccinations and small tools, laboratory equipment, staff recruitment, develop guidelines & manuals	5% (723,000)
6. Promoting livelihoods diversification through development of agricultural value-chains and agribusiness opportunities	6.1 Conduct feasibility and market studies on MSMEs, formation of associations and SMEs unions, assessment and development of business protocols, training and workshops for promotion of MSMEs , and entrepreneurship awareness, chain-mapping workshops	1% (1 million) of total costs 102m
7. Enhancing capacity for agricultural/agribusiness and livestock research, training and development	7.1 Conduct performance analysis of existing agricultural and livestock research centers, feasibility studies on establishment of new 5 research stations in 5 states, regional soil laboratories and mobile lab units, workshops and conferences, coordination.	5% (1.4 m)
8. Supporting natural resource-based conflict transformation for agrarian (rural) communities and Synchronizing NRM with livestock to optimize environmental benefits	8.1 Conduct studies, assessments and organize training on NRM, start the process of establishing nurseries and procurement of forest seeds/ seedlings, procurement of supply materials to institutions for strategic planning , organize workshops and seminars, etc 8.2 Organize awareness campaigns on NRM for promoting natural resource management	5% (752,000)
Total cost to start foundational activities in 5 states		15.1 million

8. REFERENCES

- Abdalla, M.H. (2006). *Sudanese Chilled/Frozen Meat Competitiveness For The European Market: Impact Sectoral Studies*. Ministry of Animal Resources and Fisheries, General Administration of Planning and Livestock Economics Division of International Relations Department, Sudan.
- Aklilu, Y. (2006). *Livestock, Migration and Trade - War Affected Communities*. Darfur Early Recovery, UNDP Sudan, Khartoum.
- Anonymous (2011). *Donor Appeal Document*, the Darfur International Conference on Water for Sustainable Peace, Khartoum, June 2011.
- ASARECA (2010). *Transforming Livestock and Fisheries for Improved Livelihoods*, A Strategic Plan 2009-2016. Association for Strengthening Agricultural Research in Eastern and Central Africa, Entebbe, Uganda, April 2010
- Behnke, R. (2012). *The Economics of Pastoral Livestock Production and Its Contribution to the Wider Economy of Sudan*. Working Paper. Tufts FIC, Medford, MA and UNEP. June.
- Darfur Land Commission (2007). *Conceptual Framework*, Published by Transitional Darfur Regional Authority, Khartoum, Sudan, July 2007
- DJAM (2007). *Interim Findings of the Darfur Joint Assessment Mission*, Agricultural and Rural Development Cluster of the Darfur Joint Assessment Mission
- FAO (2012). *Seed System Security Assessment Report for Darfur Region*. An assessment report published by FAO Rome, January 2012.
- FAO-SIFSIA N (2012). *Quasi Crop and Food Supply Assessment Mission to Sudan*, FAO SIFSIA N special report, January 2012
- IRC (2012). *Fish Farming: Improving Livelihoods in Cote D'Ivoire*. A Concept Note prepared for Nova Fisheries by International Rescue Committee, United Kingdom, September 2012.
- Kingdom of Cambodia (2010). *National Strategic Development Plan Update 2009-2013*. Published by the Royal Government of Cambodia, 30 June 2010
- NCA Darfur Programme (2011). *Appeal Sudan - Darfur*. Norwegian Church Aid Darfur Programme ACT/CARITAS APPEAL SDN121-EA 30/2011
- NCA (2012) *Formative evaluation of the NCA emergency preparedness response sector in greater Darfur*. Darfur Programme NCA- DP-EPR (2008-2012). A Report prepared for Norwegian Church Aids by Eltighani Elamin, El Fadil Ahmed Ismail and Fadwa Hassan Ibrahim
- Noor, S. (2010). *Irrigation Extension Operational Manual for Use by Irrigation Development Agents in Amhara Region, Ethiopia*, Bureau of Agriculture, Amhara Region, Ethiopia, December 2010.
- OCHA (2012). *Sudan - UN and Partners Work Plan 2012*, Mid Year Review, published by Office for the Coordination of Humanitarian Affairs, Sudan, 2012
- UNDP (2011). *Western Darfur State Situation Analysis*, Produced by the West Darfur State Government and UNDP Sudan, May 2012
- UNEP (2012). *On the Hoof Livestock Trade in Darfur*, Feinstein International Center, Tufts University, September 2012.
- University of Peace (2004). *Environmental Degradation as a Cause of Conflict in Darfur*, Conference Proceedings, University for Peace, Africa Programme, Addis Ababa, Ethiopia, December 2004.
- WFP, UNICEF, FAO and CDC (2008). *Food Security and Nutrition Assessment of the Conflict-affected Population of Darfur, Sudan*. Final Report, June 2008.

World Bank (2011). *Sudan Post Conflict Recovery in Darfur. Rehabilitation of Gum arabic Ecosystems in South Darfur*, A study by World Bank (revised draft), August 2011

World Bank (2012). *Designing a Results Framework for Achieving Results: A How To Guide Independent Evaluation Group*. Strategy, Learning, and Communication International Bank for Reconstruction and Development, World Bank, Washington, DC

Young, H., A. Rahim, A. Mohammed, and M. Fitzpatrick. (2012). *Pastoralism and Pastoralists in Sudan. A Stakeholders Mapping and Survey*. Short Report. Tufts FIC, SOS Sahel Sudan, and UNEP