OUTCOME EVALUATION IN THE PRACTICE OF ENVIRONMENT AND ENERGY OUTCOME EVALUATION, UNDP SUDAN UNDER CPD 2013-2017

Final report

JANUARY 30, 2018

LILIT V. MELIKYAN

Contents

LIST OF FIGURES

LIST OF TABLES

LIST OF BOXES

Acknowledgments

The consultant wishes to express her sincere gratitude to the individuals interviewed for this report. In particular, the consultant wishes to express her gratitude to the UNDP Sudan management team, the project managers, as well as the representatives of the Government, nongovernmental organizations, private businesses and farmers, who dedicated their time and provided the valuable information, without which the current report would not have been possible.

Disclaimer

The content of this report is the sole responsibility of the consultant and can in no way be taken to reflect the views of the United Nations Development Programme, authorities in Kazakhstan nor those of any other party. All effort has been made to ensure that the information given here is correct, and any factual error that may appear is unintended and is the sole responsibility of the consultant.

Profile of the consultant

This outcome evaluation was performed by an international consultant, Ms. Lilit V Melikyan. She has 20+ years of professional experience in international development with a focus on infrastructure projects including energy efficiency, renewables, climate change and energy utilities. Contact details: Email: lilit.melikyan@yahoo.co.uk, Tel: +440-7715623321

ABBREVIATIONS

APR	Annual Progress Report
ABS	Access to benefit Sharing
AIACC	Assessment of Impacts and Adaptation to Climate Change in Multiple Sectors and Regions
AfDB	African Development Programme
BCPR	Bureau for Crisis Prevention and Recovery (UNDP)
CO	Country office
CCA	Climate change adaptation
CBO	Community Based Organizations
CBS	Central Bank of Sudan
CDD	Civil Defense Department
CIDA	Canadian International Development Agency
CDM	Clean Development Mechanism
CP	Country Programme
CRF	Climate Risk Finance
CPAP	Country Programme Action Plan
CBD	Convention on Biological Diversity
CPD	Country Programme Document (UNDP)
CBO	Community Based Organization
CTA	Chief Technical Advisor
CHIRP	Climate Hazards Group InfraRed Precipitation with Stations
CMC	community management committees
DAC	Development Assistance Committee (OECD)
DDPD	Doha Document for Peace in Darfur
DDS	Development Strategy
DRR	Disaster Risk Reduction
DRM	Disaster Risk Management
DLDD	Disaster Loss and Damage Database (DLDD
DRA	Darfur Regional Authority
EECC	Environment, Energy and Climate Change portfolio (UNDP Sudan)
EE	Energy Efficiency
ESMF	Environmental Social Management Framework
EW	Early Warning
EU	European Union
FAO	Food and Agriculture Organization
FaST	Foundational and Short-Term activities
FNC	Forest National Corporation
FiT	Feed in Tariff (FiT).
FNC	Forest National Corporation
FCPF	Forest Carbon Partnership Facility
GEF	Global Environment Facility
GDP	of Gross Domestic Product
GGWI	Great Green Wall Initiative
GCF	Green Climate Fund
GHG	Greenhouse Gases
HCENR	Higher Council for Environment and Natural Resources
HDR	Human Development Report
HAC	Humanitarian Aid Commission
INDC	Intended Nationally Determined Contributions
IWRM	Integrated Water Resources Management
IDP	Internally Displaced Persons
IDB	Islamic Development Bank
IPP	Independent Power Producer
IFAD	International Fund for Agricultural Development (IFAD)
I-PRSP	Interim Poverty Reduction Strategy Paper
IFC	International Finance Corporation
INC	Initial National Communication
KII	Key informant interview
LCDF	Least Developed Countries Fund
LCDS	Low Carbon Development Strategy
MTR	Midterm review
MWRIE	Ministry of Water Resources Irrigation and Electricity
MEFPD	Ministry of Environment, Forestry and Physical Development
MARFR	Ministry of Animal Resources, Fisheries and Range (MoARFR)
MIC	Ministry of International Cooperation
MoF	Ministry of Finance
MoA	Ministry of Agriculture
MDG	Millennium Development Goal
M&E	Monitoring and Evaluation

MRV	Measurement, Reporting and Verification
NGO	Nongovernmental organization
NCCD	National Council for Civil Defense
NAMA	Nationally Appropriate Mitigation Actions
NCCC	National Climate Change Committee
NAPA	National Adaptation Programme of Action
NAP	National Adaptation Plan
NBSAP	National Biodiversity Strategy and Action Plan
NRM	Natural Resources Management
OE	Outcome Evaluation
O&M	Operation and management
OECD	Organization for Economic Cooperation and Development
PSP	private sector participation
PV	Photovoltaic
PA	Protected Area
PPA	Power Purchase Agreement
PPP	Public Private Partnership
PIR	Project Implementation Report
PB	Project Board
PTC	Project Technical Committee
QFFD	Qatar Fund for Development
REDD	Reducing emissions from deforestation and forest degradation
R-PP	Readiness Preparation Proposal
RE	Renewable Energy
REMP	Renewable Energy Master Plan
RSSA	Remote Sensing and Seismology Authority
RTA	Regional Technical Adviser
RPA	Range and Pasture Administration
RRF	Results and Resources Framework
SDG	Sustainable Development Goals
SMA	Sudan Meteorological Authority
SESA	Strategic Environmental and Social Assessment
SHS	Solar Home Systems
SWHS	Small Water Harvesting Schemes
SSNRMP	Sudan Sustainable Natural Resources Management project
SNC	Second National Communication
SAWAP	Sahel and West Africa Program
SSNRMP	Sudan Sustainable Natural Resources Management project (WB),
SEC	State Councils for Environment and Natural Resources
SLWM	sustainable land and water management
SMA	Sudan Meteorological Authority
TOR	Terms of Reference
TNC	Third National Communication
TNA	Technology Needs Assessment
TOC	Theory of change
UNDP	United Nations Development Program
UNDAF	United Nations Development Assistance Framework
UNCT	United Nations Country team
UN	United Nations
UNEP	United Nations Environmental Programme
UNIDO	United Nations Industrial Development Organization
UNISDR	UN Office for Disaster Risk Reduction
UNFCCC	United Nations Framework Convention on Climate Change
UNDF	United Nations Darfur Fund
UNCT	United Nations Country Team
VDC	Village Development Committees
VAT	Value Added Tax
WB	World Bank
WFP	World Food Programme
WCGA	Wildlife Conservation General Administration (WCGA)
WII	Weather Insurance Index
WMC	Water Management Committee.

EXECUTIVE SUMMARY

The expected result under Outcome 2 of the Country Programme Document (CPD) of United Nations Development Programme (UNDP) in Sudan 2013-17 is: "***Populations vulnerable to environmental risks and climate change become more resilient and relevant institutions are more effective in the management of natural resources***". There are three CPD outputs: (a) needy communities to climate change and climatic risks adapted comprehensive sets of adaptation measures; (b) investment in green energy and access by needy communities to sustainable energy improve; and (c) environmental governance policies and regulatory frameworks for enabling better natural resources and risk management developed. The ***overall objective of this Outcome Evaluation*** is to assess how UNDP's programme results contributed, together with the assistance of partners, to the achievement of Outcome 2.

The ***purpose of the proposed evaluation is to measure UNDP's contribution to the outcome*** outlined above, ***with a view to fine-tune the current UNDP energy, environment and climate change (EECC) programme, providing the most optimal portfolio balance and structure for the next programmatic cycle***. With this regard, the Outcome Evaluation is also expected to show what has been and what has not been achieved, what the reasons for success or underperformance are, and what improvements could be recommended for the next round of programmatic activities, with a particular focus on the role of UNDP in assisting Sudan in its development agenda. The evaluation follows Organization for Economic Cooperation and Development (OECD) Development Assistance Committee (DAC) and UNDP evaluation criteria.

The portfolio includes the following projects

- "National Biodiversity Strategy and Action Plan 2015 -2020";
- "Promoting Low Carbon Development";
- "National Disaster Risk Management (DRM) Programme in Sudan *("Disaster Risk Reduction (DRR) project")*;
- "Implementing Priority Adaptation Measures to Build Resilience of Rainfed Farmer and Pastoral Communities of Sudan, Especially Women Headed Households to the Adverse Impacts of Climate Change" *("National Adaptation" project)*;
- "Strengthening human resources, legal frameworks and institutional capacities to implement the Nagoya Protocol";
- "Climate risk finance for sustainable and climate resilient rain-fed farming and pastoral systems – Sudan*" ("CRF project")*;
- "Enabling Activities for the preparation for the Sudan Third National Communication (TNC) and First Biennial Update Report to the United Nations Framework Convention on Climate Change" *("TNCBUR project")*;
- "Photovoltaic (PV) pump systems for irrigation" *("Solar Pumps" project)*;
- "Darfur Solar Electrification Project under Darfur Development Strategy (DDS)" *("DDS rural energy" project)*; and
- Promoting Utility-Scale Power Generation from Wind Energy *("Wind Power" project)*

RELEVANCE

The portfolio is very relevant for the country needs given Sudan's high vulnerability to climate change and disasters, ample solar potential and the vital importance of agriculture for the livelihoods of the people (especially for the poor). Given that Sudan is just coming out of 19 years- long sanctions, and the country does not as yet have many opportunities for funding projects addressing the needs in climate change adaptation, renewable energy (RE), energy efficiency (EE) and Disaster Risk Reduction (DRR), UNDP's potential to raise funds (e.g. from the Global Environment Facility (GEF), but also others) is highly relevant and valued by the Government, along with its highly regarded implementation capacity. These factors have

made UNDP Sudan a trusted partner for the Government. UNDP's implementation capacity derives from the many years of uninterrupted experience working in the country; ability to implement projects in the most challenging parts of the country, and the potential to utilize the agency-wide learning from other countries, which have successfully addressed similar challenges. The portfolio has undergone changes recently, in line with the changes within UNDP globally, making it more relevant in terms of the global development agenda: this is in particular the case in reference to merging the livelihoods and climate change adaptation portfolio. This in line with Sustainable Development Goals (SDG) agenda, which has identified SDG 5 (Gender Equality), SDG 7 (Affordable and clean energy), SDG 13 (Climate Action), SDG 14 and 15 (life below water and on land) and SDG 17 (Partnerships), Sudan has not developed its SDG targets as yet, but the recent Mainstreaming, Acceleration and Policy Support (MAPS) mission in Sudan identified three potential accelerators: increasing agricultural productivity; advancing gender equality; and reducing conflicts. The portfolio is very relevant for these too.

The composition of portfolio is also relevant. It builds on the achievements in the past, whereby with UNDP Support the Government developed a RE Masterplan (2005), and National Adaptation Programme of Action (2007) and implemented several adaptation projects. With the current portfolio this work was taken to a new level, expanded, with more focus on mainstreaming and strengthened links with the peacebuilding portfolio. The portfolio represents a good mix of upstream (policies and regulations) and downstream level (implementation) work, with the two informing each other. With this portfolio, the first steps were made towards commercialization of RE solutions (solar water pumps in particular) and small-scale water harvesting systems.

The Results and Resources Framework (RRF) could have been more reflective of the outcome level results: The RRF framework for the next programming period (2018-2021), while an improvement over the one from the CPD 2013-2017, still falls short in capturing important outcome level indicators. It is recommended that more indicators are tracked even if not in the approved RRF.

EFFECTIVENESS

UNDP Sudan has made a significant contribution towards the desired outcome. It came in the form of:

- **improvements in the policy and regulatory field related to climate change** (with the development of the Nationally Appropriate Mitigation Actions (NAMA) framework, 2nd National Communication (SNC to United Nations Framework Convention on Climate Change (UNFCCC), contribution to the development of United Nations Programme on Reducing Emissions from Deforestation and Forest Degradation (UNREDD+) Readiness Plan, and an update of National Biodiversity Strategy and Action Plan (2015); ***renewable energy*** (with the development of the drafts (with the Cabinet of Ministers at the time of this evaluation) of Grid Code for the interconnection of variable RE sources; Feed in Tariff (FiT); a standardized Power Purchase Agreement (PPA); and Independent Power Producers (IPP) Act for investors in wind energy projects and ***disaster risk reduction*** (with the DRR Strategy). ***With this, the 1st out of 3 Outcome 2 targets of at least 5 policies with sound action plans in place was met;***
- **implementation projects** with climate adaptation measures: ***reaching 4960 residents*** in 4 states; replacing ***diesel with solar powered water pumps in irrigation*** (with a potential to reach 1440 farmers in the Northern state) ***and solar powered electricity systems in social service centers in Darfur*** (64 villages***). With this, the 2nd out of three Outcome indicators, on "At least 50 communities receiving RE based services was met;***
- **first steps towards commercializing solar photovoltaics (PV) in irrigation** with the plans to establish a Solar PV Fund, and also with the plans to stimulate microfinance for small scale water harvesting schemes. This work needs to be enhanced with a special attention on the affordability of the novel measures/schemes in RE and rainwater harvesting to the poor and efforts to support improved governance enhanced; and
- **enhancement of the existing meteorological Early Warning (EW) system in the country** by strengthening the technical capacities of the National Council for Civil Defense (NCCD) and the Stare

Meteorological Authority (SMA). ***The indicator of "at least 5 EW systems in place (including flood and drought preparedness systems) was not met however:*** such a system exists only in Khartoum state now. The main reason for this was that the DRR project was expected to be full size project about US$2.27 million., but the funding materialized was around US$300K,

Important linkages were made between the EECC portfolio and other portfolios, namely *the Peace and Stabilization* (with a number of projects there including elements on improved Natural Resource Management (NRM), poverty reduction and livelihoods) and *governance portfolio* (with local development plans). It is recommended that these linkages are enhanced.

EFFICIENCY

UNDP in Sudan EECC portfolio has mobilized US$31.6 during the period: a very impressive number, and important given that many other agencies are only starting their operations in Sudan. There is some concern however, that this might affect the efficiency of the implementation of the programs once funded, given that the staff numbers for the team at UNDP have not increased and the institutional capacity of the counterparts, but It is affected by high turnover: risk monitoring is an area where the team could do better, along with more thorough preparatory stage at the start of the projects. These factors need to be addressed in the next programming period given that the portfolio is likely to continue to increase. Institutional set up among the partner government agencies is having some impact on the efficiency of the implementation of the projects too. This is related to fragmentation (especially in relation to the agencies overseeing energy sector), low supervisory capacity (in the case of the Higher Council for Environment and Natural Resources (HCENR); narrow circle of agencies that UNDP engages with centrally (for adaptation projects), weak coordination mechanism under (NCCD) and overall weak coordination between central and state level. The circle of the institutions with which UNDP engages directly *at the central level* under this portfolio in the field of environment needs to be enhanced, to include, in particular the Ministry of Agriculture. As for energy, it would be beneficial for UNDP together with the Government to explore the options of a platform which will bring all the energy related institutions together.

UNDP has strong partnership relations with many agencies present in Sudan, both UN and other (e.g. African Development Bank (AfDB) and Department for International Development (DFID) of the United Kingdom (UK). This is most visible in Darfur where UNDP is leading the coordination efforts. Under this portfolio in Darfur UNDP implements the Darfur Development Strategy (DDS) Rural Energy project, to which UNIDO contributes to by training course on Operation and Management (O&M) of solar powered technology; based on the experiences of this joint programme, UNDP is now developing a proposal to the Green Climate Fund (GCF) on Climate Change and Health Sector, under new CPD. Outside Darfur however, there is only one joint projects in the portfolio (with United Nations Environmental Programme (UNEP)/UNDP/UNWOMEN on "*Promoting gender responsive approaches to natural resources management for peace building in Al Rahad, North Kordofan*"). There could be more synergy building with other agencies, especially since their engagement in Sudan intensifies (European Union (EU), the World Bank (WB), GIZ, bilateral donors, like Netherlands, etc.). While UNDP engages with many institutions, and plays an important role in achieving United Nations Development Assistance Framework (UNDAF) goals, sharing of in-depth information about the results achieved from the projects with them and wider circle of stakeholders could also be enhanced, going beyond posting wen stories.

SUSTAINABILITY

With more than seven policies and more than three regulatory instruments the UNDP EECC portfolio has contributed to the improvement of the enabling environment for the promotion of RE and innovative adaptation measures in agriculture. This is a factor supporting sustainability potential of the implementation projects, but the financially challenging situation of the country and inefficiencies in public administration are having an impact on the scale of the replication/mainstreaming of the piloted measures as part of the implementation of these policies and strategies. As for the implementation projects, most of them have strong sustainability prospects, given they are genuinely demand -driven. For example, given that the solar

powered water pumps (which are present in a number of projects) save significant amounts of money for the users of increasingly expensive diesel fuel, indicates that these will be valued by the users (both farmers and social institutions) and cared for. The "*National Adaptation*" project stands as a particularly good example of mainstreaming, catalytic role and sustainability and replication prospects. While state agencies benefitted not only from the training but also from technical capacity strengthening with databases, maps, and weather monitoring equipment, the needs in human capacity building are still vast, and an even stronger emphasis is needed for both public sector and private sector experts.

IMPACT

Stronger institutions. The policies and strategies supported by UNDP are strengthening the partner institutions by improving the regulatory environment that they operate in. The new regulations in RE are setting the foundation for the increase in private sector participation in RE. UNDP has also helped the Government in making the initial steps towards commercialization of RE technologies and Small Water Harvesting Schemes: while there are some risks, there is a potential that banks and microfinance institutions will start lending for these schemes. By training many specialists across the portfolio, UNDP has contributed the human resources of the partner institutions - public and private. The funds raised by UNDP, have enabled the government institutions to test approaches and then adopt policies with these measures mainstreamed. While the state budget is strained it is plausible to assume that there will be some allocation of public funds for scaling up the piloted and tested measures: this is already happening with the *National Adaptation* project.

Environmental Impact: with three projects- Grid-connected wind energy, Solar pumps and DDS Rural Energy - there is a potential for the emission reduction at around 2.5 million tCO_2, saving over US$7.2 million on diesel fuel. Plus, diesel pumps, are often contaminating water with chemicals and affecting the surrounding vegetation.

Livelihoods and resilience. UNDP has contributed to improved livelihoods of 4960 households with the *National Adaptation* project, through the promotion of the adoption by them of innovative adaptation measures (by households or collectively): 97 percent of them reported on their perception of enhanced resilience. The beneficiaries of the Solar Pump project, once the project is completed, are likely to demonstrate similar trends in terms of increased yields.

Improved social services/potential for health outcomes. DDS Rural Energy project is reaching large number of beneficiaries with various interventions (64000 households planned), who would, *inter alia,* potentially benefit from the expected improvements in the services of the social institutions. Plus, used by farmers, solar water pumps are a safer option in comparison to hafeers and hand-dug wells, with, often polluted water, with adverse impact on health. In contrast, solar water pumps are cleaner, as the water is extracted from a deeper level.

Peacebuilding and gender Outcomes. For the environmental projects to have also a peacebuilding outcome, they have to tackle governing and managing natural resources and the environment and building local capacities, along with promoting peace at policies' level and ensuring synergies across the projects. UNDP portfolio (e.g. Community Security and Stabilization Programme) ticks all the boxes and have shown to promote durable peace. To enhance the impact along the Humanitarian- peace- development nexus, more needs to be done in terms of sharing information across agencies, and more broadly, tackling organizational silos with integrated approaches. As for gender, it was addressed with mainstreaming in policies and with gender responsive adaptation strategies, providing insights into the types of resources and partnerships needed at local and national levels. In the case of the *National Adaptation* project, gender responsive adaptation approaches provided insights into the types of resources and partnerships needed at local and national levels for success: it has resulted, inter alia, in women's empowerment and the revival of their solidarity networks. In many villages, women have the greatest burden, as they are responsible for household chores and fetching water: the scarcity of water leads them to travel long distances on foot to fetch water. The installation of the pumps leads to water being extracted faster, saving

time for women, as well as ensuring more water, with more reliable supply, and so more opportunities for better hygiene and small businesses. And finally, while the joint UNEP, UNDP and UNWOMEN project on "Promoting gender responsive approaches to natural resources management for peace building in Al Rahad, North Kordofan" has not produced the final data yet, the anecdotal evidence shows that it already contributed to reducing tensions in the community.

LESSONS LEARNED

The following points summarize the lessons learned from the review of the portfolio of the projects

1. Strong position as the trusted partner for the Government and access to vertical funds in the environment, where some of the other international organizations with strong focus energy and environment are not yet active in Sudan, has given UNDP Sudan a unique opportunity to help the country in pursuing sustainable development- an opportunity that needs to be used strategically, ensuring smooth implementation, in partnerships with and capacitating of the government agencies;
2. The successful implementation of the *National Adaptation* project has underlined the importance of country ownership and effective institutional arrangements. The co-financing provided by the Government and its development partners provided a good example of how such ownership can lead to strong institutional arrangements and effective project governance. This relies on the commitment, and financial sustainability of the co-financing institution- Federal and State Ministries of Agriculture;
3. The importance of strong adaptive management was highlighted by the *National Adaptation* project: the team applied it to revise the logframe to make it more effective in managing the project. This is a very important step in successful UNDP-GEF projects. Equally important is the careful design of the baselines of the projects, so that at the end data allows to not only report against the formal indicators, but also against the development objectives of the projects more broadly;
4. Addressing gender with planned measures and gender responsive adaptation strategies, providing insights into the types of resources and partnerships needed at local and national levels for success can lend impressive results: The *National Adaptation* project documented empowering women-headed households and reinstated women's solidarity networks;
5. Specific attention to documenting and disseminating learning, helps replications and mainstreaming and should be mandatory: The *National Adaptation* project is a successful case to replicate;
6. Physical infrastructure projects come with unforeseen challenges, which can be beyond the control of the project itself (as was the case with the Wind Power Project). The same is true for the projects which are very innovative, with expected active participation of the private sector (as was the case with the CRF project). The importance of closer monitoring of risks becomes paramount. This applies to all: Project Boards, Project Managers, UNDP and counterpart institutions;
7. Interaction workshops conducted by the Project Management Units (PMUs) should be comprehensive and Communication and Coordination Plans need to be developed at the beginning of the projects. Failure to ensure these might impact the implementation of the projects rather significantly; and
8. For demonstration projects, the demonstration is what stakeholders are looking out for. Failure to recognize the importance of this, as a vital ingredient – a proof of concept- when promoting innovative concepts, risks undermining the value of the concepts (this risk is present in the case of the Wind Power project).

RECOMMENDATIONS

1. Ensure that the fast growth of the EECC portfolio is commensurate with the staff capacity at UNDP, together with more stringent practices for risk monitoring and preparatory work under the projects' inception phase;

2. If more funding becomes available consider initiating activities along the following thematic areas: (a) Comprehensive program to improve the enabling environment for the RE and EE; (b) Enhancing the initial steps made and/or planned in support for the commercialization of RE/ EE and small-scale water harvesting technologies; (c) Support the development of the Multi-hazard EW system in Sudan: and (d) Waste to Energy- one of the priorities under Sudan Intended Nationally Determined Contributions INDC;
3. Enhance the linkages of the EECC portfolio with (i) the Stabilization portfolio under the Humanitarian-Development-Peace nexus (in particular, addressing the constraints of maintaining large concentrated populations in a dryland environment): and (ii) the "Inclusive governance and the Rule of Law" portfolio (in particular, assessing the merits of replicating (a) the UNDP-supported local development plans in South Kordofan and the east that improved public expenditure management, and increased participation of local communities in planning and implementation; and (b) the experience from the "Strengthening Land Management for Peaceful Co-existence in Darfur" project implemented by UNDP/UN HABITAT/ FAO);
4. Ensure that all the policies and projects addressing climate change/clean energy and DRR recognize gendered impacts**,** providing women with access to resources, and enabling opportunities for them to participate in mitigation and adaptation processes;
5. Improve the systems for Monitoring, Evaluation and Learning as reflected in the RRF and beyond;
6. Enhance sharing information with broader circles of stakeholders;
7. Enhance the support for the current project management of the "Solar Pumps" project in the part related to the establishment of the PV Fund to ensure that its design is adequate (institutional structure, financial plan) and measures to ensure lending is affordable for the poor are in place;
8. Given that the Climate Risk Finance (CRF) project needs a major overhaul, assign an international Chief Technical Adviser (CTA) for 6 months to ensure that the project is brought back on track, with the roles and responsibilities under the Weather Insurance scheme clarified and the system (re)operationalized adequately, based on the recommendations of the recent Midterm Review; and
9. Improve the institutional cooperation and enhance capacity building in the context of projects implementation. In particular, (a) for adaptation projects it is advised that the circle of institutions is enlarged to include, in particular Ministry of Environment, Forestry and Physical Development (MEFPD) and importantly, the Ministry of Agriculture at the central level; and (b) in relation to energy projects, potentially support the establishment of a Working Group/ Council on RE/EE given that the mandate of the current Ministry is limited to Electricity to include representatives of other Ministries and Agencies.

1. INTRODUCTION

1.1 COUNTRY CONTEXT

The Republic of the Sudan (hereafter referred to as Sudan) is Africa's third largest country, with a surface area of 1,886,068 km² and a population estimated at almost 42 million in 2017.[1] The country has a low human development index (HDI) of 0.49[2]. The poverty rate is 36.1 per cent,[3] with 25.2 per cent in extreme poverty. South Kordufan and West and Central Darfur are the poorest states, with 67 per cent, 64.1 per cent and 67.2 per cent poverty incidence respectively (12.2 per cent in Northern State on the other end of the spectrum). The main determinants of poverty in Sudan include: conflicts and a dependence on oil, which has resulted in the neglect of its agriculture and livestock sectors, as well as of alternative sources of energy until recently; the unequal distribution of fiscal resources and access to natural resources; governance failures, as reflected in poor policy credibility and implementation; and inadequate incentives for private sector participation (PSP) and investment.

Sudan sits at the crossroads of Sub-Saharan Africa and the Middle East. Although mostly desert, it has fertile land, mountains, and livestock. Away from oil, agriculture and livestock are essential to Sudan's economic diversification and could contribute to medium-term macroeconomic stability. These sectors presently contribute approximately 35–40 per cent of Gross Domestic Product (GDP), but could contribute significantly more with greater investment and better governance. Sudan now recognizes the need for greater attention to agriculture and livestock, as reflected in its Interim Poverty Reduction Strategy Paper (I-PRSP) and the Five-year Program for Economic Reforms (2014). Improving access to clean energy and climate change adaptation (CCA) are key to this, and so is better disaster risk preparedness.

The country has been beset by conflict for most of its independent history. Under the terms of a peace agreement in 2005, its southern states seceded, forming the Republic of South Sudan in 2011.The secession of South Sudan induced multiple economic shocks, resulting in slow economic growth, high debt and consumer price inflation. After South Sudan descended into civil war in 2013, its conflict continues to put pressure on Sudan, with about 460,000 people having sought safety with it, according to the United Nations. Plus, the famine in South Sudan in mid-2017 caused a greater influx of refugees into Sudan as well. Armed conflict in Sudan's westernmost region of Darfur has subsided but many parts of the region remain precarious because of the proliferation of arms and banditry. Efforts to settle another conflict in South Kordofan and Blue Nile remain deadlocked.

Comprehensive US sanctions on Sudan, levied in 1997 and expanded in 2006, were eased in January 2017 and lifted in October 2017 after 9 months of monitoring. This helps Sudan to achieve its development potential, which underpins the Government´s 2030 vision,[4] aimed at achieving the Sustainable Development Goals (SDGs). Greater capacities, transparency, accountability and inclusiveness in planning, allocation and management of resources are key components of reforms.

1.2. UNDP SUDAN COUNTRY PROGRAM 2013-2017

UNDP Sudan's Country Programme (CP) for 2013-16 (extended for one more year till the end of 2017) focuses on conflict sensitive development- with such crosscutting principles as gender and youth

[1] Central Bureau of Statistics, 2017 projection
[2] National Human Development Report, 2016.
[3] Dissemination of the Sudan Household budget and Poverty Survey, November 29th 2017. PowerPoint presentation, received from UNDP Sudan
[4] Twenty-five-year national strategy, 2007-2031.

empowerment, environmental protection, and a human rights based-approach- pursued through four complementary portfolios:

1. Poverty Reduction, Inclusive Growth and Sustainable Livelihoods;
2. Inclusive governance and the Rule of Law;
3. Social Cohesion, Peace Consolidation and Peace Dividends; and
4. Environment, Energy and Climate Change.

Environment, Energy and Climate Change (EECC hereafter) portfolio focuses on strengthening capacities at local, regional and national level, to manage and utilize natural resources in a sustainable way, to enhance resilience and adaptive capacity to long-term climate change, including variability impacts and to reduce the associated risk of natural disasters.

The expected result under Outcome 2 of UNDP Country Programme Document (CPD) 2013-17 is: "***Populations vulnerable to environmental risks and climate change become more resilient and relevant institutions are more effective in the management of natural resources***". There are three CPD outputs:

- Needy communities to climate change and climatic risks, adapted comprehensive sets of adaptation measures;
- Investment in green energy and access by needy communities to sustainable energy improve; and
- Environmental governance policies and regulatory frameworks for enabling better natural resources and risk management developed

1.3. THE OBJECTIVE OF THE EVALUATION

The ***overall objective of this outcome evaluation (OE)*** is to assess how UNDP's programme results contributed, together with the assistance of partners, to the achievement of the Outcome 2.

The ***purpose of the proposed evaluation is to measure UNDP's contribution to the outcome*** outlined above ***with a view to fine-tune the current UNDP environment programme, providing the most optimal portfolio balance and structure for the next programmatic cycle***. With this regard, the Outcome Evaluation is also expected to show what has been and what has not been achieved, what the reasons for success or underperformance are and what improvements could be recommended for use in the next round of programmatic activities, with a particular focus on the role of UNDP in assisting Sudan in its development agenda. The purpose of this evaluation in more detail, according to the Terms of Reference (TOR, see Annex a.1), is as follows:

- Review the achievements made during the CPD 2013-2017 and take stock of lessons learned and challenges. This includes outcome progress, programme management, coordination arrangement;
- Identify challenges, lessons learned, evidence-based findings on results, effectiveness, efficiency, and sustainability. Provide analysis of any deviations, reasons, mitigation measures any internal or external factors affected the outcome achievement;
- Review UNDP comparative advantage and added value, what worked and what did not;
- Elaborate conclusions and provide recommendations on: how to expand UNDP cooperation with related stakeholders; on UNDP work sustainability, and linkages with national priorities; and
- Provide recommendations to inform the programmes in the next programme cycle, taking into account that the information will be used by UNDP Sudan, as well as the key national counterparts and Implementing Partners.

This evaluation is expected to help UNDP to draw the lessons learnt, and use it to build up a more efficient strategy for the next UNDP Country Programme Action Plan (CPAP) and CPD and United Nations Development Assistance Framework (UNDAF) 2017-2021. The rest of the report follows the following outline:

- Chapter 2 describes the Scope of the Evaluation;
- Chapter 3 describes the evaluation framework;
- Chapter 4 describes the findings organized along the five evaluation criteria: relevance (4.1) Effectiveness (4.2); Efficiency (4.3), Sustainability (4.4.) and Impact (4.5);
- Chapter 5 sums up the Conclusions;
- Chapter 6 describes the lessons learned; and
- Chapter 7 concludes with recommendations

2. THE SCOPE OF THE OUTCOME EVALUATION

Table 1 lists all the projects under the portfolio and proposals together with their status and size: 4 projects have been accomplished, 6 projects are on-going (hence 10 projects under current portfolio), with 9 projects are still in the soft and hard pipeline. The 10 accomplished and ongoing projects are:

1) "National Biodiversity Strategy and Action Plan 2015 -2020", referred to as ***National Biodiversity Strategy*** in this report;
2) "Promoting Low Carbon Development", referred to as "**L*ow Carbon Development project*** in this report;
3) "National Disaster Risk Management (DRM) Programme in Sudan", referred to as ***DRR project*** in this report;
4) Promoting Utility-Scale Power Generation from Wind Energy, referred to as "***Wind Power***" project in this report
5) "Implementing Priority Adaptation Measures to Build Resilience of Rainfed Farmer and Pastoral Communities of Sudan, Especially Women Headed Households to the Adverse Impacts of Climate Change", referred to as ***National Adaptation*** project in this report;
6) "Strengthening human resources, legal frameworks and institutional capacities to implement the Nagoya Protocol", referred to as ***Global Biodiversity Access to Benefit Sharing (ABS) project*** in this report;
7) "Climate risk finance for sustainable and climate resilient rain-fed farming and pastoral systems – Sudan", referred to as ***CRF project*** in this report;
8) "Enabling Activities for the preparation for the Sudan Third National Communication (TNC) and First Biennial Update Report to the United Nations Framework Convention on Climate Change", referred to as ***TNCBUR project*** in this report; and
9) "Photovoltaic (PV) pump systems for irrigation", referred to as ***Solar Pumps project*** in this report, and
10) "Darfur Solar Electrification Project under Darfur Development Strategy (DDS)", referred to as ***DDS rural energy project*** in this report.

These 7 projects which are under the focus of this outcome evaluation are highlighted in Table 1 (2 accomplished and 5 ongoing): the remaining 3 projects (2 competed[5] and 1 ongoing) are reviewed as well, (but not in depth), since it is essential for this kind of outcome evaluations, with an accent on contributions and complementarities between various projects and factors towards the desired Outcome.

[5] There are in fact 3 completed projects since the "*Sudan NAPA Follow-up Project: Implementing NAPA Priority Interventions to Build Resilience in the Agriculture and Water Sectors to the Adverse Impacts of Climate Change in Sudan*" ended in 2015 and not -as planned -in 2013

Table 1: EECC Portfolio of the projects and proposals and details on 7 projects under focus

		Focus	Project and Output	Type	Evaluation	Main counterparts
Accomplished	1		National Biodiversity Strategy (Output 2.3)	Enabling project and policy document		
	2		Low Carbon development (Output 2.2)	Enabling project and policy document		
	3	1	DRR Project (Output 2.3)	Full size project	no evaluation	• National Council for Civil Defense (NCCD)
	4	2	National Adaptation (Output 2.2)	Full size project	Project was in 2 parts; there are 2 Terminal evaluation reports,	• Ministry of Environment, Forestry and Physical Development (MEFPD) • Higher Council for Environment and Natural Resources (HCENR) • Ministry of International Cooperation (MIC) • Federal Ministry of Agriculture (MoA) • Technical Committees (TC)
Ongoing	1		Global Biodiversity-ABS (Output 2.1)	Enabling project and policy document		
	2	3	Climate Risk Finance (output 2.1)	Full size project	MTR available	• HCENR • Agricultural Bank of Sudan • Sudan Meteorological Authority (SMA)
	3	4	3rd National Communication (output 2.3)	Enabling project and policy document		• HCENR • MEFPD
	4	5	Wind Energy (Output 2.2)	Full size project	MTR available	• National Energy Research Centre • Ministry of Water Resources, Irrigation and Electricity (MWRIE) • MIC • Sudanese Thermal Power Co. • National Electricity Corporation
	5	6	Solar Pump (Output 2.2)	Full size project		• MWRIE • Central Bank • Ministry of Finance (MoF)
	6	7	DDS rural energy (Output 2.2)	Full size project		• UNIDO, Darfur Regional Authority (DRA), MWRIE, National Energy Research Center (NERC)
Proposal stage	1		Protected Area GEF6	Full size project proposal		
	2		Nubian Water	Full size project proposal		
	3		Integrated Water Resources	Full size project proposal		
	4		Transparency project	Enabling project proposal and policy document		
	5		Green Climate Fund (GCF) CCA Agriculture	Full size project proposal		
	6		GCF CCA CC & Health	Full size project proposal		
	7		GCF Readiness project	Enabling project proposal and policy document		
	8		GEF6 Rural Energy Efficiency	Full size project proposal		
	9		Solar for IDPs	Full size project proposal		

Error! Not a valid bookmark self-reference. describes UNDP Sudan CPAP 2013- 2016 Results and Resources Framework (RRF) for Outcome 2 with its Indicators: the Outcome is evaluated, in part, (see Methodology, Section 3.3.1) against these indicators. No indicators are identified for Outputs in the RRF: these could, however, be extracted from the formulation of targets in the RRF (see Table 3 adapted with UNDP Sudan CPAP 2013- 2016 RRF for Outcome 2): these are also referred to as part of evaluating the "effectiveness" of UNDP Sudan's contribution to Outcome 2.

Table 2: Outcome 2 Indicators, baselines and targets

Outcome 2: Populations vulnerable to environmental risks and climate change become more resilient and relevant institutions are more effective in the management of natural resources			
	Indicator	Baseline	Targets
1	Number of environmental strategies with sound action plans for implementation in place	One strategy in place with action plan piloted climate change adaptation measures	Five strategies with concrete action plans in place
2	Number of communities with access to alternative sources of renewable energy-based services	Limited access to renewable energy	50 communities
3	Number of states with functioning early warning systems, including flood and drought preparedness systems	0 states	Five states

Table 3: Annual targets for 3 Outputs of Outcome 2 of UNDP Sudan CPD 2013-2017 from the RRF

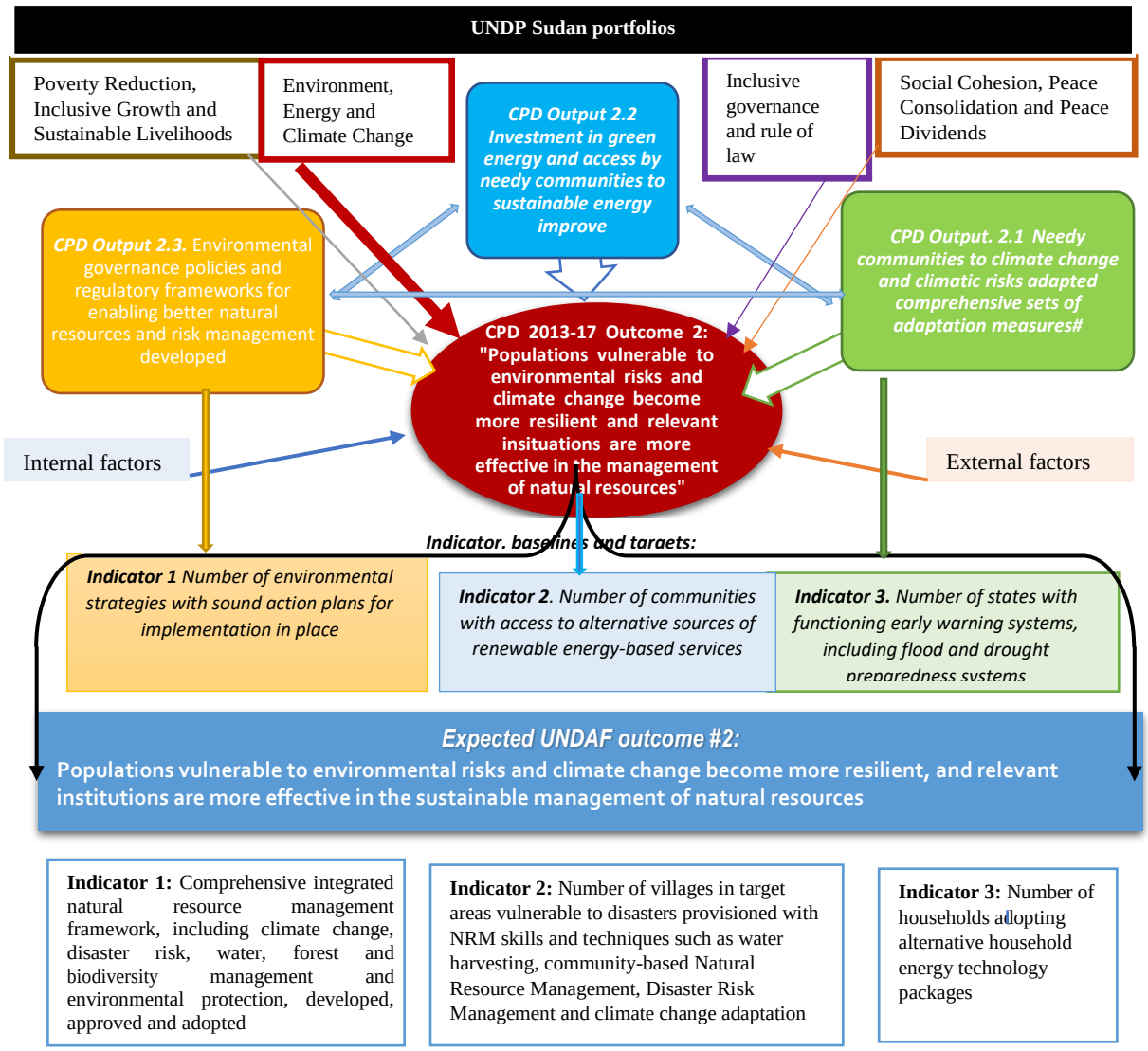
Outputs	Annual targets from the RRF		
	2013	2014	**2015 / 2016**
Output 1: Needy communities to climate change and climatic risks adapted comprehensive sets of adaptation measures.	• Piloting more NAPA interventions in 50 communities • Full-fledged project proposal developed and resources mobilized	• Successful pilots up-scaled in four states. At least three knowledge products printed • MF services to 50 pastoral and farming communities have access to (proposal) at national level microfinance services • At least one Joint Project with UNEP on Integrated Water Resources Management is developed	• Successful pilots up-scaled in four states. At least three knowledge products printed • MF services to 50 pastoral and farming communities have access to (proposal) at national level microfinance services • At least one Joint Project with UNEP on Integrated Water Resources Management is developed
Output 2: Investment in green energy and access by needy communities to sustainable energy improved	• A Framework National Appropriate Mitigation Action (NAMA) for climate change developed	• Regulatory and policy frameworks conducive to renewable energy investment developed and adopted • 50 communities adopted clean energy systems	• Regulatory and policy frameworks conducive to renewable energy investment developed and adopted • 50 communities adopted clean energy systems
Output 3: Environmental governance policies and regulatory frameworks for enabling better natural resources and risk management developed.	• Key decision makers from at least 10 ministries informed on opportunities for transition to green economy • 5th National Biodiversity report developed	• National NBSAP updated and finalized • National disaster risk management plan finalized and disseminated to government	• National NBSAP updated and finalized • National disaster risk management plan finalized and disseminated to government

UNDP Sudan Outcome 2 is also an integral part of *UNDAF Sudan Pillar 1: Poverty Reduction; Inclusive Growth and Sustainable Livelihoods*, which is one of the pillars under the Sudan UNDAF 2013-2016 with its Outcome 2 formulation the same as for CPD. While this Outcome evaluation evaluates Outcome 2 against its own 3 indicators, UNDAF Outcome 2 indicators are kept in perspective (especially for the joint projects) to make connections with UNDAF. Outcome 2 has three indicators:

- *Indicator1*: Comprehensive integrated natural resource management framework, including climate change, disaster risk, water, forest and biodiversity management and environmental protection, developed, approved and adopted;
- *Indicator 2:* Number of villages in target areas vulnerable to disasters provisioned with NRM, skills and techniques such as water harvesting, community-based NRM, DRM and CCA; and
- *Indicator 3*: Number of households adopting alternative household energy technology packages.

Figure 1 describes the interrelations between these various concepts and the logic of Outcome Evaluation.

Figure 1: Output- Outcome linkages for Outcome 2 as a basis for Outcome evalaution



3. EVALUATION APPROACH AND METHODOLOGY

3.2. EVALUATION CRITERIA AND QUESTIONS

The evaluation is organized according to the standard (UNDP and Organization for Economic Cooperation and Development (OECD) Development Assistance Framework (DAC)) set of evaluation criteria of relevance, effectiveness, efficiency, impact, and sustainability. In analyzing the performance along these criteria, the report examines *inter alia*, linkages with other programme areas/projects in UNDP Sudan portfolio, as well as partnerships with other national institutions, non-governmental organizations (NGOs), United Nations (UN) agencies, private sector and development partners. While assessing the performance, the evaluation identifies various factors that can explain the performance. The key evaluation questions are listed in
Table 4 below. This agreed -upon with UNDP Sudan list includes, but expands on the list presented in the TOR.

Table 4: Evaluation questions

criteria	Evaluation question
Relevance	• Is the outcome and associated project relevant, appropriate and strategic to the national goals and the UNDP mandate? • Are the UNDP outputs relevant to the outcome? • What are the distinctive characteristics and features of UNDP's environment programme and how it has shaped UNDP's relevance as a reliable partner? • Was UNDP's partnership strategy appropriate and effective? • Where interventions conducted multilevel (environment, organization, individual) but coherent with strong logical and strategic linkages? • How string were the approaches in ensuring sustainable results? • Are the monitoring and evaluation indicator appropriate to link these outputs to the outcome, or is there a need to approve the outcome?
Effectiveness	• Where the actions to achieve the outputs effective and leading to desired outcomes? • What progress toward the outcomes has been made? What were the challenges and innovative approaches? • What are the prospects for achieving the outcome with the indicated inputs and within the indicated time frame? • What are the main factors (positive/negative) within and beyond UNDP's interventions that affected or are affecting the achievement of the outcome? How has these factors limited or facilitated progress towards the outcome? • What was the extent of UNDP's contribution to mainstreaming the Outcome's targets in the national programmes? • To what extent has UNDP contributed to the national partners' capacity development, advocacy on environmental issues and climate change related policymaking? • To what extent did UNDP support positive changes in terms of gender equality and were there any unintended effects?
Efficiency	• Where the actions to achieve the outputs and outcomes efficient? • Are UNDP's management structure and working methods appropriate and effective in achieving this outcome? • How UNDP practices, policies, decisions, constraints and capabilities affect the performance of the Portfolio. • What could be improve in terms of time and resource allocations to manage the portfolio? • Was UNDP efficient in engagement and coordination among the stakeholders? • Was UNDP efficient in utilizing synergies and leveraging with other programmes in Sudan and among UNCT programming and implementation?
Impact	• Are the outcome and outputs leading to the benefits beyond the life of the project?

criteria	Evaluation question
Potential for Sustainability	• What are the prospects that UNDP's proposed contributions to the achievement of the outcome will be sustained? • How strong is the level of ownership and capacity to maintain and manage development in the outcome on the part of national stakeholders? • How successful is UNDP in establishing mechanisms to ensure sustainability of the policymaking interventions? • How viable are partnership strategies in relation to sustaining and replicating outcomes? • Was the Environment portfolio used to its best to support national stakeholders in climate change related agenda in a long-term perspective?
Lessons Learned	• What are the lessons learnt, best practices and related innovative ideas and approaches in relation to the management and implementation of activities?
Recommendations	• What corrective actions should UNDP take with regards to the management of the programme, its continuity and orientations? • What adjustments should UNDP make in its partnership arrangements, resource mobilization strategies, working methods and/or management structures to ensure that the Energy and Climate Change related portfolio fully achieves its outcomes in the next UNDAF 2016-2020 period? • What should be done to strengthen the rights-based approaches and mainstreaming gender? • Which findings may have relevance for eventual adjustments and /or future programing?

3.3. EVALUATION METHODOLOGY

3.3.1. Evaluation methods

The outcome evaluation follows the guidance and methodology provided in the UNDP Handbook on Planning, Monitoring and Evaluating for Development Results.[6] The Monitoring & Evaluation (M&E) plan for this outcome is part of the UNDP Sudan CPAP 2013-2017 RRF. The key stakeholders in achieving the outcome include: Higher Council for Environment and Natural Resources (HCENR); the Ministry of Water Resources, Irrigation and Electricity (MWRIE) and the National Council for Civil Defense (NCCD).

Traingulation is used to verify the information gathered from the document review and the interviews. It involves developing the reliability of the findings through multiple data sources of information, bringing as much evidence as possible into play from different perspectives in the assessment of hypotheses and assumptions, namely through: perceptions of different users (solicited via interviews); document review and field validation. In the assessments of the outcomes an attempt is made to attribute the results to the program when feasible: when not feasible, **contribution analysis** is used.[7]

3.3.2. Data sources and collection methods

The sources of information are listed in **Table 5** below. The ***evaluation matrix*** is presented in **Annex a.4.** It is a tool to map and reference in planning and conducting an evaluation, useful for summarizing and visually presenting the evaluation design and methodology for discussions with stakeholders. It details evaluation questions and the data sources, data collection and analysis tools appropriate for each data source.

[6] http://web.undp.org/evaluation/evaluations/handbook/english/documents/pme-handbook.pdf
[7] based on John Mayne, "Addressing Attribution Through Contribution Analysis: Using Performance Measures Sensibly', The Canadian Journal of Program Evaluation Vol. 16 No. 1 Canadian Evaluation Society, 2001

Annex a.5 presents the ***evaluation questions mapped against the types of the interviews***. This served as a ***template for a Guide for Key Informant interview***s (KII). In total 36 interviews were conducted. All relevant data is disaggregated (by sex, age and location) where possible.

The framework proposed by White (2005) served as a basis (with modifications as appropriate) for ***sustainability analysis***:[8] it looks into several aspects of sustainability, including, programmatic, financial, human resources, and technological.

Table 5: Sources of information

Desk Review	• **UNDAF and the CPD/CPAP** for a description of the intended outcome, the baseline for the outcome and the indicators and benchmarks used, coupled with the information from the CO gathered through monitoring and reporting on the outcome. This will help to define whether change has taken place. • **Relevant analytical documents,** including the UN progress reports: the current status of and degree of change in the outcomes will be assessed against the Country Analysis and the baselines for the outcome and the indicators and benchmarks used in relation to UNDAF, CPD and CPAP, relevant project/program documents, progress and monitoring reports of projects/programs, and third-party reports. • **Relevant project reports**. The project reports include the annual reports, respective project documents, Terminal and Mid Term evaluation reports, Annual Progress Report (APR)/Project Implementation Report (PIR), project budget revisions, project files, • **National strategic and legal documents,** Sudan National Adaptation Programme of Action (NAPA), NCs, National Biodiversity Strategy and Action Plan (NBSAP), National Adaptation Plan, 25-year strategy, SDG Reports. **Sudan UNDP CPAP 2013- 2016 Government Policy Support Matrix** presented in **Annex a.2** is a very useful resource for this. • 3rd party reports • News releases from the web • Other documents
Interviews with Key Informants and Players	• **UNDP Sudan Staff, Project staff, Chief Technical Advisor (CTA), Regional Technical Advisor (RTA)**, 16 • **Central Government level:** Minister of Environment, Forests and Physical Development; Higher Council for Environment and Natural Resources, Ministry of Water Resources and Electricity, Ministry of International Cooperation, National Council for Civil Defence, and State Meteorological Service, 7 • **State level:** Head of the Selection Committee for the farmers in Dongola -1 • **NGOs:** Sudanese Red Crescent Society -1 • **Academia and research centres:** National Energy Research Center; Agricultural Research Cooperation and 2 lecturers 4 • **International partners:** World Bank (WB); African Development Bank (AfDB); United Nations Environmental Programme (UNEP); and United Nations Industrial Development Organization (UNIDO) - 5 • **Private Sector representatives-** 3 (2 representatives from the energy sector and 1- insurance) • **Farmers -3**
Field visits	• selected sites in Dongola (see Annex a.5 for the schedule)

3.3.3. Limitations

Only one trip outside Khartoum took place, partly a result of the security situation in the country. So only a limited number of project stakeholders outside Khartoum were interviewed in person. All measures were put in place to mitigate this limitation, e.g. with skype and telephone interviews and extensive desk review, including third party reports.

There are only 2 projects completed out of 7: ideally there should be a higher number for such outcome evaluations. There are 2 Mid-Term Reviews (MTRs) for 2 ongoing projects (CRF and Wind Energy). For 4 projects, one of which completed, (on DRR) and 3 ongoing (DSS Rural Energy, Solar Pumps, and

[8] H. White, "Challenges in evaluating development effectiveness', IDS Working Paper 242, Institute of Development Studies, Brighton, UK, March 2005

TNCBUR), there are no evaluation reports available, hence there was a challenge to gather the evidence during the trip and not only rely on internal self -reports: to mitigate, a special focus was placed on conducting sufficient number of interviews for these projects and third- party reports.

There is some discrepancy across the program documents in terms of the results framework:[9] these were clarified during the field mission.

4. EVALUATION FINDINGS

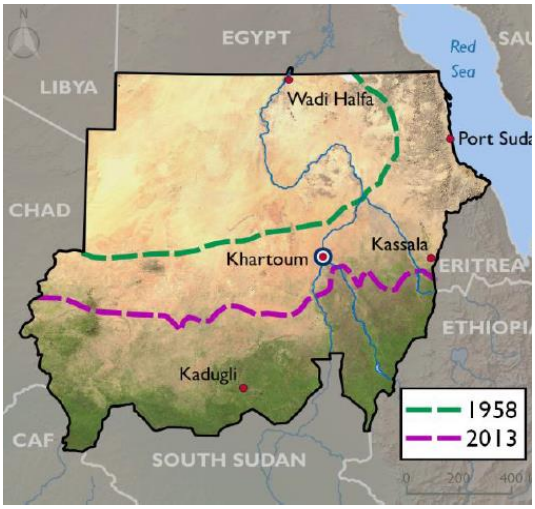
4.1. RELEVANCE

4.1.1. Relevance for the country needs

Adaptation

Sudan, as an African least developed country is extremely vulnerable to the adverse impacts of climate change. Its vulnerability is an outcome of the interaction between climatic and non-climatic factors. Studies have indicated temperature increase, rainfall variability, southwards movement of isohyets, increase of frequency of drought and floods and sea level rise as the climatic factors causing vulnerability. The country is also facing a number of non-climatic factors, which aggravate its vulnerability such as poverty, lack of income diversity and mismanagement of resources. Studies conducted by the HCENR (Initial National Communication (INC, 2003), Assessment of Impacts and Adaptation to Climate Change in Multiple Sectors and Regions (AIACC), NAPA, National Adaptation Plan (NAP), Second National Communication (SNC)) on Sudan's vulnerability to climate change, identified the water, agriculture, coastal zone and health sectors as the most vulnerable. In Sudan, climate change represents a reality and a burden impeding the achievement of food security and sustainable development:[10]

Figure 2: Expansion of desert in Sudan over time



Source: USAID (2016): "Climate change risk profile": Factsheet

- Annual precipitation decreased between 10 mm and 30 mm per decade from 1960 to 2009;
- Mean Temperature increased by 0.2 - 0.4 °C per decade from 1960 to 2009;
- Desert belt moved southwards (see **Figure 2**);
- Due to water stresses 20 percent of cultivated area not harvested; and
- Cropping intensity less than 30 percent and increase in fallow land.

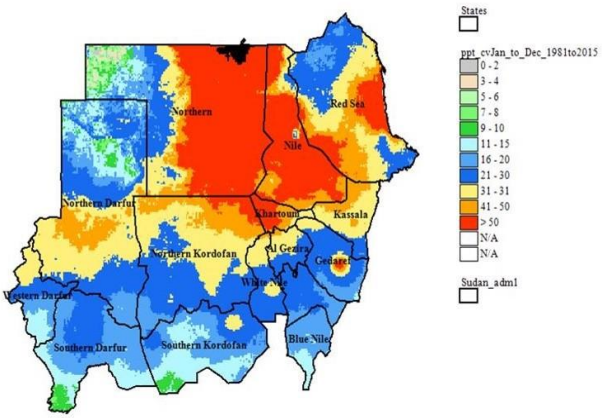
[9] (1) the RRF in "Country Programme Action Plan Between the Government of the Republic of Sudan And the United Nations Development Programme 2013-2016"has a different framework for Outcome 2 Outcomes and Outputs. This could be an older document, but these discrepancies will need to be clarified before the field trip. (2) Similarly, there are different formulations for Outcome 2 indicators in some of the documents, e.g. in the "Project Document for the Project Title: Enabling Activities for the preparation for the Sudan Third National Communication and First Biennial Update Report to the United Nations Framework Convention on Climate Change" on page 25 it says "Country Programme Outcome Indicators: Capacities of national and sub-national authorities and communities for effective environmental governance, natural and renewable resources management and climate change strengthened".

[10] Zakieldeen A, and Elhassan N.G. (2015):" Climate Change Impacts, Vulnerability and Adaptation in Sudan", Zakieldeen et al., Sudan Academy of Sciences Journal-Special Issue (Climate Change), Vol. 11, 2015, 217-233; ISSN 1816-8272 Copyright © 2015 SAPDH

According to UNDP/HCENR estimates 70 percent of Sudan population are affected by climate change trends. The forecasts for the climate change impact are grim, if unmitigated e.g.:

- 30 percent Nile River flow to decrease in next 40 years;
- By 2060 temperature to increase 1.1 – 2.1 C during January (WFP/Met Office (2016))[11]mentions that there is an agreement now on a substantial warming trend of between 1.5°C and 3°C across the country);
- Numbers of flash floods to increase;
- 10-20 cm sea level rise in Red Sea area; and
- 0.5 percent decreased of annual rainfall (NB: according to WFP/Met Office (2016) there is no clear projected trend in mean annual rainfall for Sudan. Projections for the average change in rainfall across the models are small and span both increases and decreases, with most models indicating an increase, and the year-to-year variability in rainfall exceeds any climate change signal (see **Figure 3**).

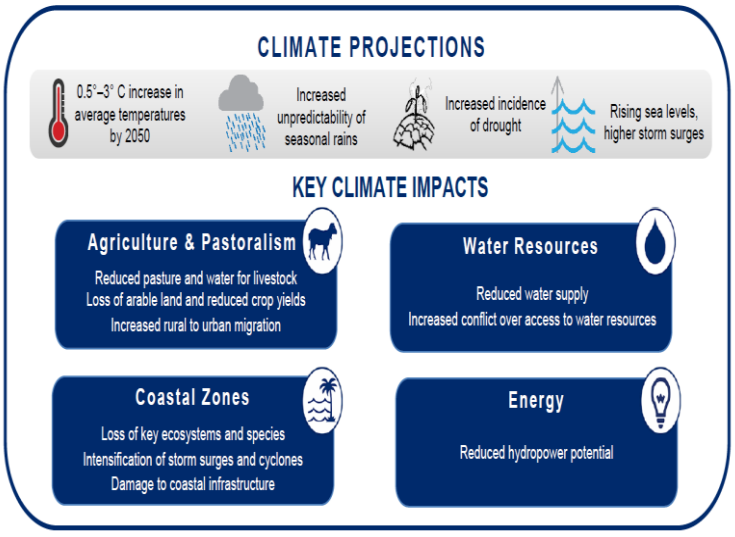
Figure 3: Coefficient of Variation of Annual Rainfall for 1981-2015 from observed data blended with CHIRPS*



*Source: Sudan Meteorological Authority (2015): "The Role of Sudan Meteorological Authority in Weather and climate Early Warning in Sudan" by Abuelgasim Ibrahim Idriss Musa; * CHIRP: Climate Hazards Group InfraRed Precipitation with Stations*

Climate change is having devastating impact on agriculture (see **Figure 4**), which is the main (with the potential to be even more important) source of livelihoods for the population, as discussed in Section 1.1. As expressed in the new national climate plan (Intended Nationally Determined Contributions (INDC)), climate change and more frequent and severe droughts pose serious risks to sustaining poverty reduction and broader development goals. In Sudan, about 65 percent of the population are heavily reliant on agriculture employing up to 80 percent of the labor force and, accounting for around one third of the GDP and livestock for their employment and livelihoods. Those employed in agriculture are the poorest and most often food insecure. Agriculture is also predominantly rain-fed in Sudan, which means there is an inherent sensitivity to rainfall amounts and timings.

Figure 4 Climate Impacts in Sudan



Source: USAID (2016): "Climate change risk profile": Factsheet

Issues of deforestation, overgrazing, soil erosion and desertification due to improper management of environment sector are threatening these livelihoods[12]. The effects

[11] WFP/Met Office (2016):" Food Security and Climate Change Assessment: Sudan"; C-ADAPT, Climate Resilience for Food Security series

[12] Three scenarios of climate change were explored, based on the projections from three different climate models that span the spread of the wider model range. The three scenarios indicate that climate change will mean higher temperatures, reductions in water availability and continued year-

of climate change are increasingly apparent, with more severe droughts, reduced food and water security, expansion of drylands and generation of climate-induced migration. Climate change and increased level of resource insecurity are also creating risks for achieving peace and preventing the onset of new conflicts.[13] According to a recent WFP (2016) study, adaptation measures should focus on reducing sensitivity, improving resilience to variability and extremes, and improving heat tolerance and water efficiency in agricultural production.[14]

Hence, climate change a key factor in the future of Sudan's economy, livelihoods, and food security.[15]

Renewable energy (RE) and Energy Efficiency (EE).

The WB has recently introduced a ranking (RISE- Regulatory Indicators for Sustainable Energy) for RE and EE for the countries. **Box 1** describes these for Sub Saharan Africa (SSA) and Sudan separately. Sudan has a low score with 25. Sudan is rich in wind and solar potential, but lacks the capacity and investments to fully benefit from these resources. As noted by the INDC, in addition to risks from climate change, Sudan also stands to gain from the global shift to a more low-carbon, sustainable energy future. The low score reflects the underdeveloped enabling environment (as yet) for RE/EE. The lack of access to sustainable energy has a profound impact on human development, with over 63 percent of Sudan's population lacking access to electricity, and 80 percent reliant on traditional fuels for cooking.

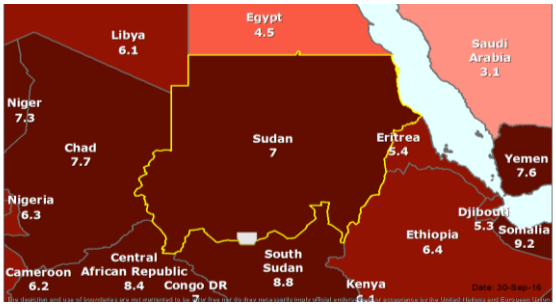
There are strong interdependencies in water-energy-food security nexus. Farming practices have reduced the arable soil, and have caused desertification to spread. Continuous deforestation due to logging of firewood further increase these effects and lead to severe land degradation. Moreover, the loss of riverine forests increases siltation of reservoirs that reduces their holding capacity and their use for agriculture as well as energy production. In addition, climatic phenomena like the El Nino warming impact Sudan's heavily rain dependent food security. Serious concerns for the future of water security in Sudan are raised due to the changing water use of the upstream countries, as well as by the constant water pollution due to the absence of treatment facilities.[16]

The ability of Sudan to succeed in its development pathway in the 21st century will in many ways hinge on its ability to craft a new low-carbon, climate-resilient form of development. This can help manage growing risks from climate change to poverty reduction, peace and security, and set Sudan on the road to emerge as a future leader in Africa's renewable energy market[17].

Disaster Risk Management (DRM)

UN Office for Disaster Risk Reduction (UNISDR) Risk inform index ranks risks as very high for Sudan (see **Figure 5**).

Figure 5 INFORM 2017 Risk Index for Sudan



	Value	Rank	Trend
INFORM	7.00	9	EQUAL
Hazard	7.40	16	EQUAL
Vulnerability	6.60	13	EQUAL
Coping Capacity	7.00	21	EQUAL

Source: https://www.preventionweb.net/countries/sdn/data/

to-year variability in a country highly sensitive to such changes. In all scenarios, there is the potential for increases in food insecurity across Sudan, with the scale of increase dependent on the scenario.; WFP/Met Office (2016):" Food Security and Climate Change Assessment: Sudan"; C-ADAPT, Climate Resilience for Food Security series

[13] UNDP Sudan (2017):" UNDP – Why Fighting Climate Change Matters", memo received from the UNDP Sudan

[14] WFP/Met Office (2016):" Food Security and Climate Change Assessment: Sudan"; C-ADAPT, Climate Resilience for Food Security series

[15] ibid

[16] Water, Energy, and Food Security Nexus: Sudan Country Profile 2016

[17] ibid

Box 1: RISE indicators for Sub Saharan Africa and Sudan

Figure 6: RISE ranking for Sudan

Figure 7 RISE rankings for SubSaharan Africa

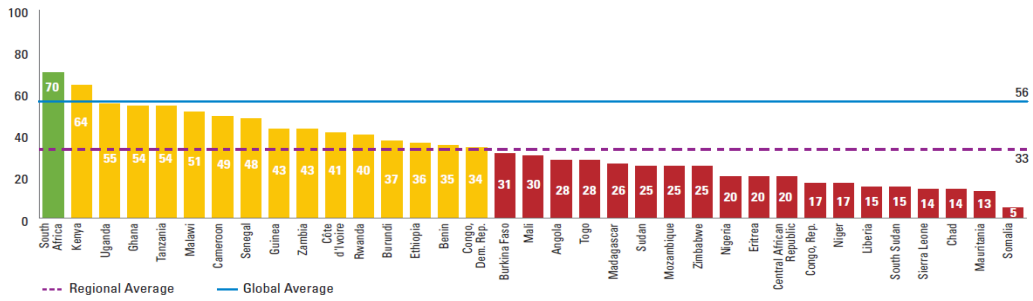
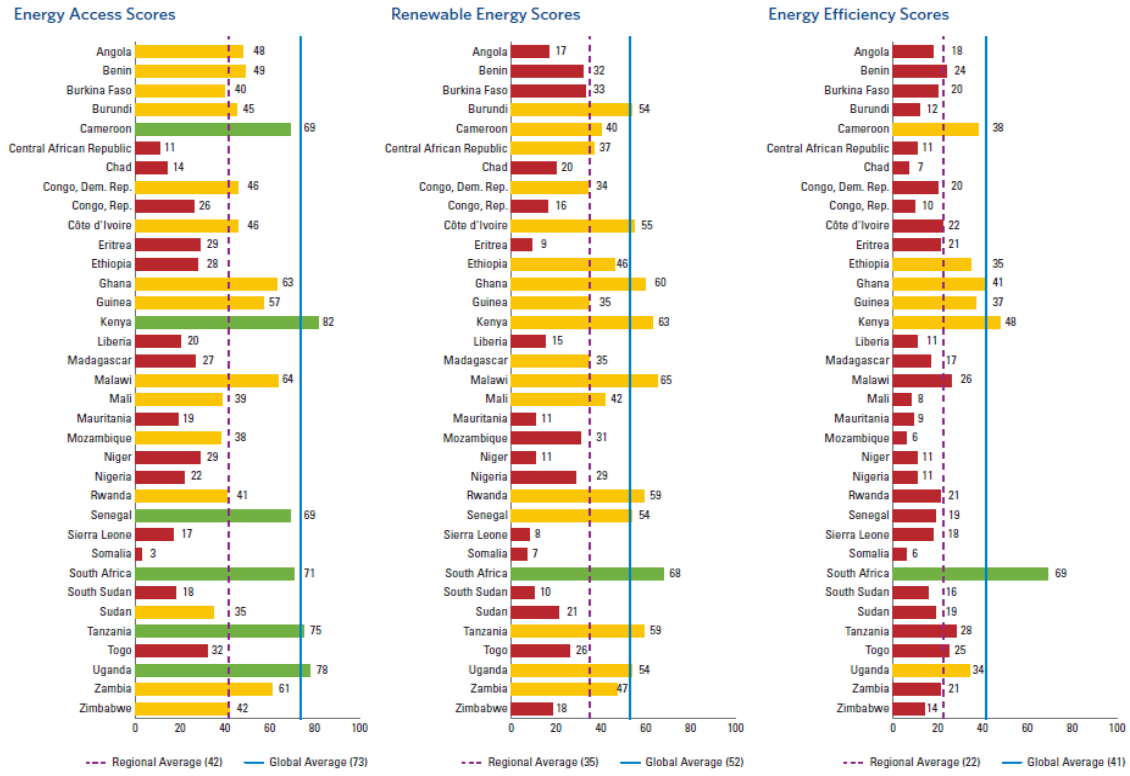


Figure 8:: RISE rankings for SubSaharan Africa by category



Source: http://rise.esmap.org/country/sudan

The disasters in Sudan are primarily hydro-meteorological in nature, which have a significant correlation with climate change and environmental management. Droughts and floods are two most common and widely experienced disasters in Sudan. These are followed by other hazards including desertification, soil erosion, sand-storms, pest-infestations, heat-waves, and landmines. In the years between 1940-2007 droughts has been the largest killer disaster in Sudan, with total fatalities of about 150,000, while affecting 23 million people in 7 drought events. This is followed by flooding with 22 events, killing 415 people and affecting about 7 million people, while epidemics killing about 10,384 people while affecting about 1985512 in 30 incidents[18].

Given this background UNDP EECC portfolio is highly relevant for the country needs. Also, this description shows the strong interdependence of environment, energy, DRR issues and between these and food security.

4.1.2. Strategic Positioning of UNDP Sudan

4.1.2.1. Relevance for the Government

Environmental protection has been embodied in various sector-based pieces of legislation passed by the Sudan government. To overcome the problems of conflicting and overlapping laws, the Environmental Protection Act of 2001 was established as umbrella legislation, emphasizing protection of the environment and its natural balance and the conservation of its component social and cultural elements in order to achieve sustainable development. It empowers the HCENR to coordinate the work of State Councils for Environment and Natural Resources (SEC), establish long term policies and to promote research and awareness. The strategy goals of Sudan's 25-year vision, as well as ongoing national policy processes have parallel aims to climate change adaptation (i.e. I-PRSP and rural development initiatives). The NAPA follow-up process was clearly embedded in baseline activities.[19]

The current portfolio built on the above, and NAPA in particular:

- The projects supported by UNDP are not simply in line with the Government policies (NAPA, INDC, NAMA, etc.) but helped and help to shape many of the very same policies related to energy, environment area and DRM/DRR (see Section 4.2.1);
- UNDP has helped the Government in developing rules and regulatory framework related to RE, helping to improve the enabling environment and PSP in energy sector, which is one of the key priorities of the Government; and
- UNDP has helped the Government also in mainstreaming climate change, energy and environment measures into national and state level development plans and actions (e.g. Sudan Five Year Development Plan (2012-2016) and The Twenty-Five--Year National Strategy 2007-2031);

UNDP is seen as a reliable partner for the Government of Sudan: this claim from UNDP documents was confirmed during the interviews with various stakeholders. UNDP has positioned itself as a go-to partner for this portfolio for the Government.

- With UNDP support Sudan has proactively joined and participated in multilateral environmental agreements, including the United Nations Framework Convention on Climate Change (UNFCCC), and has developed over the years a series of national strategies, policies and action plans on specific issues of climate mitigation and adaptation;
- UNDP Sudan helps the Government to progress along the SDGs. Sudan has not developed its SDG targets as yet, but during the *Mainstreaming, Acceleration and Policy Support* (MAPS) mission in Sudan, three potential accelerators were identified by the mission's team: increasing agricultural

[18] DRR Project Document
[19] http://www.wri.org/our-work/project/world-resources-report/climate-change-adaptation-and-decision-making-sudan

productivity; advancing gender equality; and reducing conflicts[20]. The projects under the EECC portfolio have direct relevance for these;

- UNDP has the largest RE portfolio currently in Sudan, since most of the other traditional international organizations active in promoting RE/EE are not yet active in Sudan (WB, International Finance Corporation (IFC, EU). As for the climate change projects, while there are projects supported by other agencies (WB, UNEP, UNIDO), UNDP's portfolio is one of the large ones, if not the largest, with the longest history in the country; often helping the others to design their interventions;
- With its access to vertical funds, UNDP has helped the Government to raise US$31.6 (see Section 4.3.1); and
- UNDP is one of the key -if not the key- partner agencies for the Government on which it relies in its efforts to strengthen the capacities of the public sector related to policy formulation and implementation.

The above is a good platform for a more concerted partnership with the Government and other stakeholders to achieve the goals of the new Paris Climate Agreement and the SDGs.

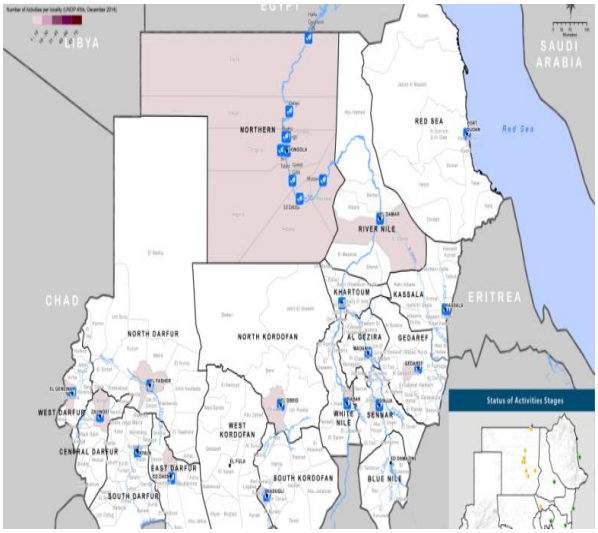
4.1.2.2. Partnership Strategy

UNDP has positioned itself strategically in relation to other agencies supporting the country in countering climate change impacts, promoting sustainable NRM and clean energy and DRM. Its role and accumulated experience are appreciated by others, both in terms of learning from the positive experiences and in terms of engaging with UNDP for the implementation of specific projects (e.g. AFDB plans a joint initiative with UNDP for the Solar for Health project).[21]

In a recent presentation[22] UNDP counts 28 development partners. While there is some ambiguity pertaining to the use of the notion "partnership,"[23] (this is not only the case of UNDP Sudan, but is an agency wide issue). UNDP has developed good and long-standing relations with several agencies (UN and other) and local institutions.

It is noteworthy that UNDP was trusted to lead the development of DDS, which then led to the engagement and distribution of roles between many development agencies. More specifically, UNDP is coordinating the SDG roll-out drive and has a leading role in the *New Way of Working* commitment reached at the 2016 World Humanitarian Summit. These efforts strengthen the country's transition from humanitarian assistance to recovery and sustainable development.

Figure 9 Geographical coverage by UNDP Sudan EECC portfolio



Source: UNDP Sudan

4.1.2.3. Implementation capacity

UNDP is well known across the globe for its implementation capacity and Sudan is no exception. In particular, in many countries, including in Sudan, often UNDP is the key agency among the international organizations implementing projects in the countries, focusing on the most challenging

[20] SDG MAPS Mission Sudan 11-15 December, Report
[21] https://www.afdb.org/en/news-and-events/the-afdb-and-undp-discuss-collaboration-on-increasing-energy-access-in-sudan-15456/
[22] UNDP Sudan presentation for DFID, 2017
[23] e.g. a research institution could be classified merely a contractor, and a funding agency – being just a funder

locations. This is particularly relevant in Sudan, given the large regional disparities, with a 26 per cent poverty rate in Khartoum state compared to 62.7 per cent in Darfur.[24] Currently the projects cover 111 villages in 12 states (see **Figure 9**), including long-term presence in the relatively neglected east and north and difficult-to-reach areas such as the 'three-areas'.[25] The unique *know- how* in terms of implementation capacity derives from its standing *vis- a -vis* the government, as a *partner of choice*, its position within the UN family, the working modalities and accumulated experience. UNDP Sudan brings the benefits accruing from the ability to apply regional approach to transnational issues: utilizing the learning from and the reach to UNDP's global presence. UNDP in many countries of the world and the region more narrowly implements often similar projects and the CO in Sudan benefits from the generated learning and applies this learning in the projects.

4.1.3. Relevance in terms of UNDP's mission and to UNDP

UNDP Sudan's EECC portfolio promotes UNDP's vision of helping countries achieve the simultaneous eradication of poverty and significant reduction of inequalities and exclusion, contributing to several outcomes, namely:

- ***Growth and development are inclusive and sustainable***, incorporating productive capacities that create employment and livelihoods for the poor and excluded;
- Countries are able to ***reduce the likelihood of conflict, and lower the risk of natural disasters, including from climate change***;
- ***Early recovery and rapid return to sustainable development pathways*** are achieved in post-conflict and post-disaster settings; and
- ***Development debates and actions at all levels prioritize poverty, inequality and exclusion***, consistent with UNDP engagement principles.

Table 6 describes the transformation of Outcome 2 from CPD 2013-2017 to CPD 2018-2022 in the part of the formulations of the Outcomes, and Outputs and focus areas. The changes reflect the global changes at UNDP strategy.

Table 6: Transformation of Outcome 2 from CPD 2013-2017 to CPD 2018-2022

CPD 2013-2017	CPD 2018-2021
Outcome formulation	
Populations vulnerable to environmental risks and climate change become more resilient and relevant in situations are more effective in the management of natural resources"	By 2021, people's resilience to consequences of climate change, environmental stresses and natural hazards is enhanced through strengthened institutions, policies, plans and programmes.
CPD Outputs	
o Needy communities to climate change and climatic risks adapted comprehensive sets of adaptation measures o Investment in green energy and access by needy communities to sustainable energy improve o Environmental governance policies and regulatory frameworks for enabling better natural resources and risk management developed	o Access to clean energy for the poor enhanced. o Community Livelihoods adapted to climate change. o Policies for sustainable use of natural resources supported.
Focus Areas	
a. Support for risk-informed, resilience-based development policies b. Sustainable use of natural resources c. Access to sustainable energy for poor and displaced communities d. Building climate and disaster resilient livelihoods	a. Development of strategic frameworks and policy support b. Building resilience of communities in the face of climate change c. Improved access, reliable and affordable energy for poor d. Sustainable management of natural resources

[24] Sudan National Baseline Household Survey, op. cit.
[25] Blue Nile, South Kordofan and Abyei.

In particular:

- There is a pronounced link between climate change and energy outcomes and livelihoods in 2018-2021 period;
- Access and affordability aspects of clean energy for the poor is highlighted;
- While the term "green" is not used in the new formulations, the concept of "sustainable use of natural resources" encompasses both aspects of "resource efficiency" and "environmental footprint (clean energy)"; and
- Resilience of communities (and not just policies) is prioritized.

Sudan presents an interesting case to analyze the links between conflicts and NRM and understand what works (and works best) and what does not. Learning from Sudan has featured in a number of publications, but more could be done to deliver credible evidence,[26] with more rigorous and innovative M&E approaches could be utilized (see Section 4.1.5).

4.1.4. Relevance of composition of the portfolio

4.1.4.1. Upstream and downstream mix

The EECC portfolio represents a good mix of both upstream (policy, regulations, strategies, laws) and downstream level activities (implementation level). Moreover, there are also activities targeting the intermediary services, e.g. insurance (CRF project).

4.1.4.2. Focus areas

Under the CPD 2013-17 UNDP Sudan's EECC portfolio focused on the 4 thematic areas

SUPPORT FOR RISK-INFORMED, RESILIENCE-BASED DEVELOPMENT POLICIES

UNDP provided policy advice to Sudan on ways to formulate national development policies that integrate a host of ecological risks (i.e. biodiversity, climate change, disaster risks, etc.) and mainstream resilience - based approaches for achieving the MDG/SDGs. The focus was on ways to achieve risk-based, resilience - based approaches to address the complexity of risks from climate change and ecological fragility. UNDP promoted the inclusion of ***climate adaptation measures*** in national and state development plans, ***climate risk analysis*** and ***advocacy to scale-up climate finance, combat climate risks to food and water insecurity, mitigate social vulnerability, and natural resources-based conflict***. Special emphasis was given to gender sensitive data and statistics that strengthen disaggregated national and regional data pertinent to climate change.

BUILDING CLIMATE AND DISASTER RESILIENT LIVELIHOODS

UNDP implemented a ***series of climate change adaptation measures*** in agricultural systems and measures aimed at strengthening policy environment related to DRR, including. floods and droughts. These activities are believed to help improve meteorological Early Warning (EW) system. At the same time, UNDP promoted productive capacities to reduce vulnerabilities to climate change impact of smallholder farmers and pastoralists. In addition, UNDP conducted efforts to integrate climate risks into initiatives meant to support recovery of internally displaced persons IDPs in the context of climate change adaptation.

ACCESS TO SUSTAINABLE ENERGY FOR POOR AND DISPLACED COMMUNITIES

UNDP Sudan supported an "***energy plus" approach*** to expanding energy access for the poor. This includes on the use of *RE* for productive purposes that bring tangible benefits to households and

[26] Robbie Watts, Case Study on Sudan for IDS led "Climate Change in Difficult Environments Learning Cycle of the Learning Hub.", 2011

communities and the use of solar energy for social services such as health and education, as well as for irrigation for poor farmers. The use of solar energy solutions is also believed to help in meeting the basic needs of those displaced by and recovering from conflict: there is a submitted proposal which will be implemented in the next programming period subject to funding. UNDP supported enabling policy environment that reduces the risk for large scale investments by public and private sectors into solar and wind sectors.

SUSTAINABLE USE OF NATURAL RESOURCES.

Sustainable use of natural resources has been promoted both through the CC Adaptation projects and RE. Funding is secured for the project promoting shared use of the Nubian groundwater system. As for the Integrated Water Resource Management (IWRM) strategy, there is a proposal submitted to LDCF. Under "*Protected Area Management and ecotourism"* UNDP supported measures that build the resilience of land, natural resources and ecosystem services. This includes capacities for management and protection of biodiversity including in national Protected Areas and promotion of integrated ecosystem management that reduces threats to biodiversity, mitigates land degradation, sustains ecosystem services and improves people's livelihoods.

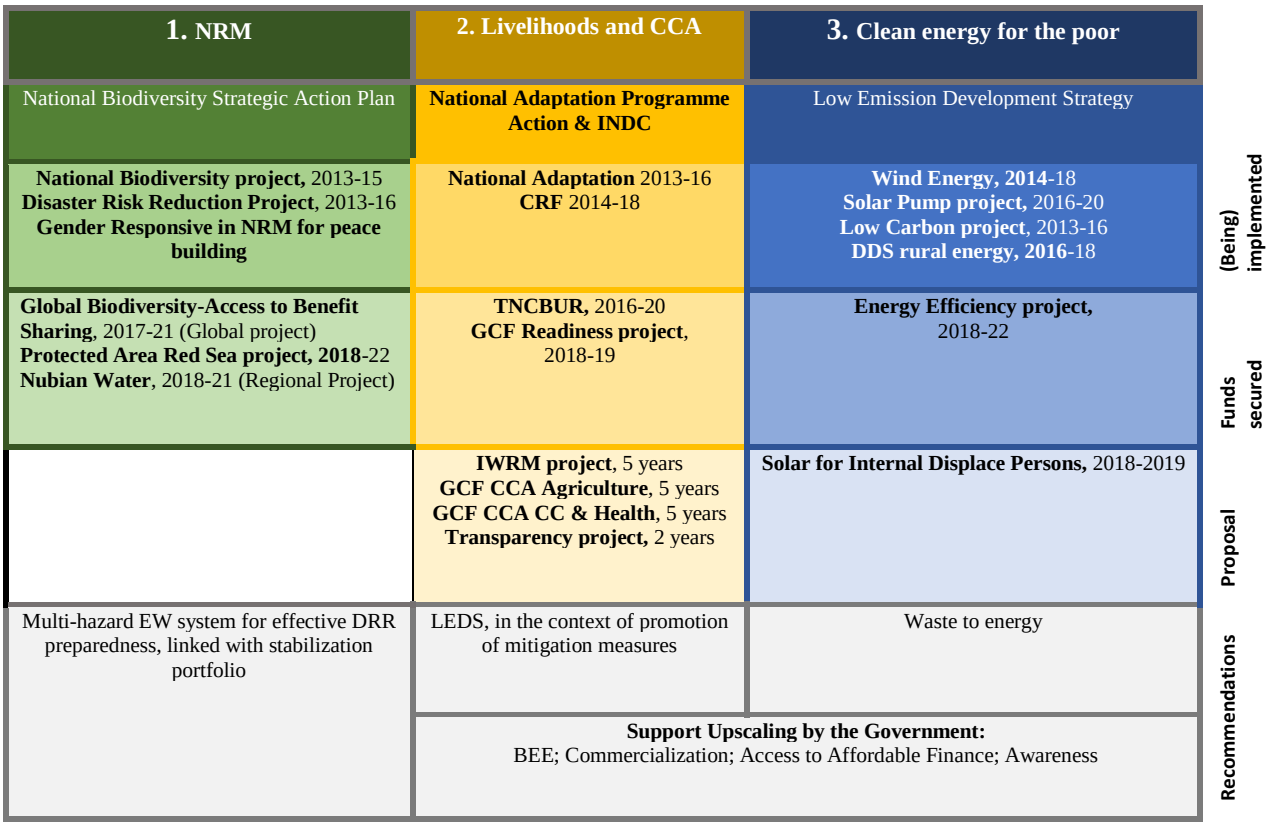
Table 7 describes The projects in the portfolio and proposals mapped against the CPD outputs

Table 7: The projects in the portfolio and proposals mapped against the CPD outputs

Period	Environment and NRM	Climate Change Adaptation	Renewable Energy
Under CPD 2013-17	1. **National Biodiversity project**, 0.27M$, 2013-15 2. **Disaster Risk Reduction Project**, 0.45M$, 2013-16 **3. Gender Responsive in NRM for peace building**	1. **National Adaptation project,** 2.8M$, 2013-16 2. **Climate Risk Finance**, 6.3 M$, 2014-18	1. **Wind Energy**, 3.53M$, 2014-18 2. **Solar Pump project**, 4.5M$, 2016-20 3. **Low Carbon project,** 0.2M$, 2013-16 4. **DDS rural energy,** 5.7M$, 2016-18
Fund is secured, implementation period is from 2016/17/18 to 2021/22	1. **Global Biodiversity-Access to Benefit Sharing**, 12M$, 2017-21 (Global project and fund is secured: Out of the total amount, allocation for Sudan is 0.35M$) 2. **Protected Area Red Sea project,** 4.8M$, 2018-22 3. **Nubian Water,** 3.99M$, 2018-21 (Regional Project participating 4 countries and fund is secured: Out of the total amount, allocation for Sudan is about 1M$)	1. **3rd National Communication**, 1.35M$, 2016-20 2. **GCF Readiness project,** 0.4M$, 2018-19	1. **Energy Efficiency project,** 2.2M$, 2018-22
Fund is not secured, project document has been developed, technically cleared by RTAs and submitted to the donors		1. **Integrated Water Resources Management project,** 10.20 M$, project duration is for 5 years 2. **GCF CCA Agriculture**, 38 M$, project duration is for 5 years 3. **GCF CCA CC & Health,** 28 M$, project duration is for 5 years 4. Transparency project, 0.85M$, project duration is for 2 years	1. **Solar for Internal Displaced Persons**, 0.90 M$, 2018-2019

These 4 focus areas (and the projects under these, especially if all the submitted proposals are funded) form an overall coherent picture, where various components support each other, but there is an important caveat: the projects portfolio has been growing fast while the UNDP EECC team has been the same in size (other portfolios experienced reductions due to UNDP restructuring in the recent years). And so, there are concerns related to the capacity to oversee the implementation of this growing portfolio (see also, the Section 4.3.2) Efficiency): this concern is shared by several key interviewees for this evaluation (see Chapter 7, Recommendation 1). Having said that there are several areas/issues recommended to be tackled, which are not included in the current portfolio of projects and proposals, or are included to limited degree (see **Error! Reference source not found.**)

Figure 10: Schematic description of the portfolio of projects and proposals and additional potential areas under UNDP Sudan Ennergy and Environment portfolio



These suggested areas/issues include (see respective Sections in Chapter 4.2.. This list is also summarized in Chapter 7 on Recommendations; see **Recommendation 2**):

- ***Comprehensive efforts to improve the enabling environment for the RE and EE***. While there are certain efforts under several projects (e.g. to address customs duty related barrier under the Solar Pumps project), improving regulatory framework for Independent Power Producer (IPPs) under the Wind Power Project, etc.), numerous interviewees for this evaluation highlighted that there is a need for a comprehensive review of the enabling environment around RE and EE and addressing

the gaps. The WB is currently undertaking such study which could serve as a basis for the formulation of the activities in support of the Government's efforts to address the barriers;[27]

- ***Support for the Commercialization of RE/ EE and small- scale water harvesting technologies.***

  RE: Currently, access to financing for solar energy applications is limited in Sudan. Banks prefer to give loans for projects with low-risk profiles and tenors of less than five years, which is not the case with most solar projects. The Government does not provide loan guarantees or other financial incentives that will reduce the risk associated with solar energy projects. While most banks in Sudan have microfinance schemes in place, solar energy applications do not currently qualify. In addition, banks for the most part lack the capacity to evaluate the feasibility of loans for the installation of solar PV equipment. In its INDC report, Sudan presented its intention to invest in several renewable energies with ambitious targets.[28]An effective commercialization strategy will help to meet these ambitious targets. Reports from independent experts support this conclusion.[29] The work started under the Solar Pumps project with the upcoming establishment of the Solar PV Fund must be carefully monitored and enhanced to ensure that affordable loans are available for the households/farmers wishing to establish such systems. Despite Sudan's limited past experience with non-hydro renewable energy, there is a growing trend towards increasing the use of solar energy in remote areas, with existing rural electrification solar PV projects amounting to approximately 2 MW in total.[30] Indeed, more needs to be done for the awareness raising.[31] But that's not enough. Given the importance of the agricultural sector to the overall economy, reducing the cost of energy, particularly for small farmers, will be a major driver of economic growth (UNDP 2015).[32] So, there is a momentum, since in addition, the increase in diesel prices has improved the attractiveness of solar energy. Conducting sector-specific market assessments and showcasing pilot projects and success stories can raise awareness and build trust for actors across the value chain. Ensuring training to government and financial institutions to improve their capacity for assessing project feasibility can be pivotal to fast-track loan approval. The National Center for Energy Research (NERC) could be a potential hub for training on renewable energy applications, whose role should be strengthened;[33]

  Small- scale water harvesting technologies. Similar arguments apply to small scale water harvesting technologies. Financial service providers (banks, microfinance institutions, and insurance companies) are discouraged from lending to farmers and livestock owners. As a result, smallholder rain-fed farmers and pastoralists have very limited access to finance and better opportunities to improve their production. This has prevented investments in land preparation, the ability to have climate-resilient production practices (e.g., rainwater harvesting) and has kept many families (especially single female headed households) in continuous cycles of poverty and food insecurity (http://www.cgap.org/blog/innovations-islamic-microfinance-small-farmers-sudan). Consequently, farmers and pastoralists have had trouble entering markets, have poor access to inputs and lack critical agricultural/livestock advisory- and extension services. There are currently

[27] UNDP Sudan had a similar project with GEF funding - 'Barrier Removal for PV Market Penetration in Semi-Urban Sudan' project in 2003-2005

[28] (a) Solar PV energy: 1000 MW (on - and off - grid) to be installed in different states within Sudan Solar CSP technology: (b) 100 MW (grid connected) to be installed especially in the northern part of Sudan; (c) Solar rural electrification through installation of 1.1 million Solar Home Systems (SHSs) up to 2030

[29] See for example ElZubeir A.O., 2016. Solar Energy in Northern State (Sudan): Current State and prospects. Research. Journal of Modern Energy. Vol.2, No.5.;

[30] Sudanese Ministry of Oil. (2014). The Tenth Arab Energy Conference. Abu Dhabi.

[31] ElZubeir A.O., 2016. Solar Energy in Northern State (Sudan): Current State and prospects. Research.
Journal of Modern Energy. Vol.2, No.5. p. 31-37.; Omer, A.M., 2015. Evaluation of sustainable development and environmentally friendly energy systems: case of Sudan. E3 Journal of Environmental Research and Management. Vol. 6(3). p.237-261.

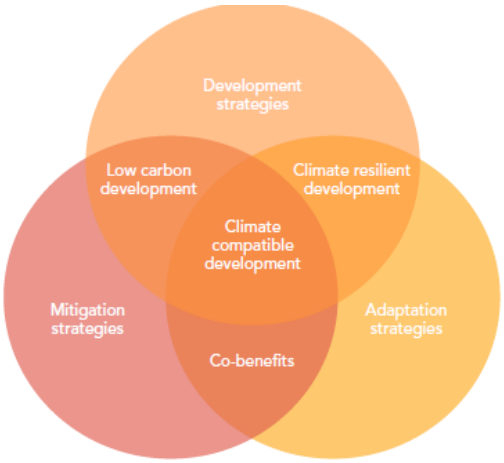
[32] United Nations Development Programme. (2015). Promoting the use of electric water pumps for irrigation in Sudan.

[33] UNDP RCREEE (92016): "Diesel to Solar Transformation Accelerating Achievement of SDG 7 on Sustainable Energy: Assessing Untapped Solar Potential in Existing Off-grid Systems in the Arab Region"

no Microfinance products geared specifically towards them in terms of flexible payment schedules and reasonable collateral requirements. CRF project was supposed to kick start it[34]. This will be in line with (a) INDC plan to introduce a revolving micro-credit fund to support implementation of small water harvesting projects (page 14); and (b) the Sudan's *Agricultural Revival Programme*, which aims to achieve the development of the Agricultural sector by enabling small farmers in all farming subsectors to access micro-credit services to finance the adoption of appropriate technology packages and inputs. It also supports the "Strategy for the Development and Expansion of the Microfinance Sector in Sudan", launched by the Central Bank of Sudan in 2007. This should be accompanied ***by wide scale promotion of water efficient and heat tolerance technologies in agriculture, in particular, promoting rain harvesting technologies widely*** (e.g. by supporting the Agricultural Extension network to utilize the mobile telephone network for that). The WB is currently undertaking a Study into the Financial Inclusion in Agriculture[35]: when completed this could be used to enhance the work aimed at commercialization of small water harvesting systems. See Chapter 7, **Recommendation 2b;**

- ***Waste to Energy.*** Sudan intends to pursue implementing low carbon development interventions in three sectors of energy, forestry and waste, in line with Sudan's national development priorities, objectives and circumstances (INDC, page 4). In part of "Waste to energy" 80 MW (grid connected) is planned for several intended sites as part of the planned measures under the "Integration of renewable energy in the power system" as part of the "Zero Waste Concept". UNDP could help develop the first steps/concepts.
- ***Multi-hazard Early Warning (EW) system:*** Sudan currently does not have a multi-hazard EW system and this has been identified as a priority by a number of interviewees;[36] and
- ***Low Emission Development Strategy***: UNDP assisted Sudan as part of small project to prepare a project proposal for the preparation of a low carbon and resilient development strategy, however this was still not funded for implementation and it requires to be further developed and updated given the development took place since Paris conference in 2015. Overall, ***more attention is needed to Climate change mitigation,*** given the (a) high need for Sudan to develop its energy sector and improve access to energy particularly to the many poor people who lack it and accordingly lack many of the basic serves that require energy; and also (b) because land use is the most important sector for rural and community development in Sudan because almost all the livelihood systems in rural Sudan (more than 70percent of the population) depends directly of land-use sector, therefore it is high priority for Sudan (necessitating a the implementation of a large mitigation programme in the land use sector). Sudan, being one of the most vulnerable and among the LDC countries, is also pushing for more serious and effective global response to the increasing risk of climate change and therefore

Figure 11 Climate-compatible development strategy



Source: adapted from Zadek, 2009, and informal communication with staff from the UK Department for International Development

[34] UNDP (2017):" Report of the Mid-term Review Mission - Climate Risk Finance for Sustainable and Climate Resilient Rain-fed Farming and Pastoral Systems", November, 2017, by Dr. Arun Rijal and Mr. Ahmed Hanafi
[35] Interview with the WB in Sudan
[36] Based on interviews with SMA, and sector experts

has every motivation to develop into a more resilience and low carbon path, and therefore is planning to develop a low emission and climate resilient development plan (see Figure **11**).

So, the challenge is how to reconcile the two recommendations, i.e. to cover – if funding becomes available- the suggested areas, while at the same time aim at more focused portfolio commensurate with the management capacity of UNDP Sudan EECC team. There are no easy answers, but there needs to be better prioritization and strategic approach. For example, according to UNDP Sudan CPD 2018-2021, it plans:

- to scale up its successful adaptation measures from 4 to 13 states to build resilience to climate change and disaster risks in the agriculture and water sectors (including improved seed varieties and new measures for water harvesting, which will accelerate productivity, increase income and improve livelihoods of the most vulnerable (para 21, page 6). First, monitoring of these geographically drastically expanded activities might be challenging given the staffing of the team in the CO (even if there is an additional M&E staff hired specifically for this). And secondly, the scaling up is best to be left to the Government while UNDP could support (a) commercialization and (b) replication by the public sector; and
- to invest in value-chain market development for cash crops, such as groundnut, sesame and sorghum, in partnership with the Food and Agriculture Organization of the United Nations (FAO) and World Food Programme (WFP)" (para 22 page 6). While development of value chains is important, it is also very resource intensive, and hence, again, it might be not commensurate with the staffing capacity.

4.1.4.3. Linkages with other portfolios

UNDP has made specific effort to ensure integrated approach in its programming across the portfolios. These linkages are discussed below with recommendations (see Chapter 7, Recommendation 3), with a focus on the approaches *per se*, while the actual implementation outcomes are discussed in Chapter 4.2.

With "Social Cohesion, Peace Consolidation and Peace Dividends" portfolio

UNDP contributed to stabilization in Sudan by supporting local peace agreements in the previous two cycles in the east, the border states of the south and Darfur, and by engaging in reintegration of ex-combatants[37], local conflict resolution, and livelihood generation for women and youth at-risk. UNDP portfolio features the understanding of the need to address the long-term development needs of IDPs and host communities, through durable solutions, based on the ***humanitarian-development-peace nexus*** and through improved coordination with the highest authorities of the state[38].

Several papers on Sudan mention that in Sudan climate change often exacerbates community-based conflicts caused by poor NRM policies and harmful practices, such as deforestation, overgrazing and soil erosion, given that most rural households are dependent on pastoral and rain-fed practices[39], with desertification an increasing threat.[40] Today, these issues form an important part of the SDGs. The focus on environmental governance, climate change, and peacebuilding is an opportunity to reconsider the compartmentalized approach to peacebuilding and instead make use of the synergies that integrated approaches offer.[41]

[37] UNDAF evaluation, 2013-2016.
[38] Sudan multi-year humanitarian strategy, 2017-2019
[39] World Bank Sudan Overview.
[40] National adaptation programme of action report, 2015.
[41] peacebuilding is understood as broad concept that includes early warning, conflict prevention, peacemaking and efforts to strengthen governance and state-building. Such a broad understanding of peacebuilding is close to the concept of "sustaining peace" that was introduced by the recently adopted UN resolution 2282. "Sustaining peace" provides an opportunity to overcome the linear understanding of conflict that lies at the core of the 1992 Agenda for Peace and that has been governing the way the UN and its member states have organized conflict resolution. Although it is well known that conflicts do not develop in linear ways, the tools to address conflict – such as prevention, peacekeeping, mediation or peacebuilding

Environmental degradation, natural resources, and climate change have been part of the debate on peace and security at least since the publication of the Report of the World Commission on Environment and Development, known as the Brundtland Report, in 1987, which described environmental stress as a source of armed conflict,[42] and UNDP's milestone Human Development Report (HDR) in 1994, which introduced the concept of human security (including environmental security). The evidence from various important studies assessing how questions related to natural resources and other environmental factors can become opportunities for peacebuilding (understood as "sustaining peace)[43] available to date suggests that

- ***the link between the environment and issues pertaining to peace and security, remains controversial with complex causal relationships***. On the one hand, there are studies that suggest that armed conflicts affect the environment. The impact can be *direct* through environmental degradation, *indirect* through environmentally unsustainable coping strategies, or i*nstitutional* when armed conflicts lead to the collapse of governance mechanisms and institutions that manage the exploitation of natural resources or protect the environment.[44] On the other hand, there is an ongoing debate over the influence of environmental factors on armed conflict and to what extent environmental factors contribute to the outbreak of violence[45], how they sustain and fuel conflict dynamics, and how they affect peace making and peacebuilding;[46]
- ***Environmental governance can become a peacebuilding tool in its own right, but needs to be conflict sensitive itself***. The focus should be on ***Environmental peacebuilding,*** i.e. governing and managing natural resources and the environment to support durable peace. The focus on environmental governance, climate change, and peacebuilding is an opportunity to reconsider the compartmentalized approach to peacebuilding and instead make use of the synergies that integrated approaches offer.[47] This requires: (a) thinking about local capacities, and not only laws and regulations; and (b) in policy development, placing the emphasis on political processes and actors at all levels of governance;
- ***The programming focus should be on identifying synergies between environmental policies and peacebuilding through adaptive, flexible approaches in project design and implementation*;**
- ***Gender mainstreamed approach to NRM in peacebuilding*** should be a means to improve gender equality, enhance women's participation in political processes, increase their ownership and open up for economic opportunities; and

– have been organized in institutional silos. As a result, the UN's approach is often characterized by compartmentalized strategies and fragmented interventions, in which peacebuilding has been relegated to be a post-conflict activity, rather than an inherently political process that spans prevention, mediation, conflict management, and resolution.

[42] This Section borrows heavily from Folke Bernadotte Academy (2016): "Environmental Governance, Climate Change and Peacebuilding: International Expert Forum (IEF)", FBA Brief 06/2016

[43] Environmental Cooperation for Peacebuilding, http://bit.ly/1XzlgJs. From 2008 to 2015, the UNEP's "Environmental Cooperation for Peacebuilding" has undertaken a major effort investigating the link between the environment, natural resources, and climate change with peace o

[44] See, for example, Dan Smith and Janani Vivekananda, A Climate of Conflict: The Links between Climate Change, Peace and War (London: International Alert, 2007).

[45] A major report from UNEP in 2007 argued that environmental issues such as land degradation, deforestation and climate change are threatening the prospects of long-term peace and food security in Sudan. It has been contested on several grounds. UK Aid/IDS (2012): "Climate, Environment and Security in Sudan

[46] See, for example, Nils Petter Gleditsch, "Wither the Weather? Climate Change and Conflict," Journal of Peace Research 49, No. 1 (2012), as well as other articles in this journal issue. Also, see Idean Salehyan, "Climate Change and Conflict: Making sense of disparate findings," Political Geography 43, No. (1) 5 (2014) and Halvard Buhaug, "Climate Not to Blame for African Civil Wars," Proceedings of the National Academy of Sciences of the United States of America 107, No. 36 (2010).

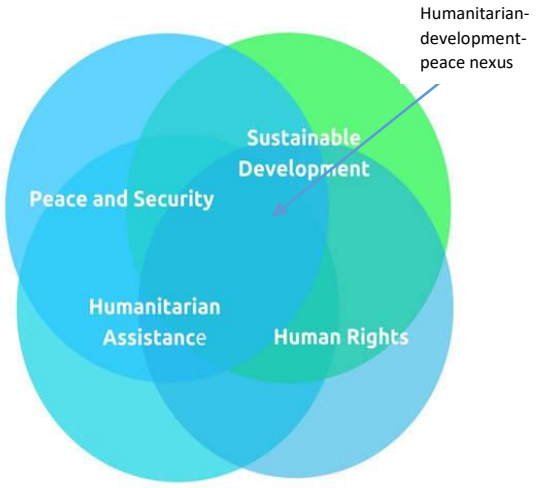
[47] peacebuilding is understood as broad concept that includes early warning, conflict prevention, peacemaking and efforts to strengthen governance and state-building. Such a broad understanding of peacebuilding is close to the concept of "sustaining peace" that was introduced by the recently adopted UN resolution 2282. "Sustaining peace" provides an opportunity to overcome the linear understanding of conflict that lies at the core of the 1992 Agenda for Peace and that has been governing the way the UN and its member states have organized conflict resolution. Although it is well known that conflicts do not develop in linear ways, the tools to address conflict – such as prevention, peacekeeping, mediation or peacebuilding – have been organized in institutional silos. As a result, the UN's approach is often characterized by compartmentalized strategies and fragmented interventions, in which peacebuilding has been relegated to be a post-conflict activity, rather than an inherently political process that spans prevention, mediation, conflict management, and resolution.

- ***Organizational silos in governments and international institution should be tackled*** with thorough strategic partnerships and integrated approaches which itself will require a more adaptable approach in terms of funding and project design.

The review of UNDP's "*Social Cohesion, Peace Consolidation and Peace Dividends*" portfolio demonstrates that there are good links with the *EECC* portfolio, mostly in line with the recommendations from the global evidence, listed above. In particular, the "**Community security and stabilization programme (C2SP)"** aims at stabilizing communities at risk of being drawn into violent conflicts through identification and documentation of vulnerabilities; supporting environmentally friendly and sustainable livelihoods, socioeconomic infrastructure, peacebuilding and social component (gender equity and small arms and light we peons control), etc. Here, not only environmental safeguards are incorporated in all stages of interventions, but several community led initiatives were supported, included solar water pumps, working closely with community management committees (CMCs). It is essentially operationalizing the Humanitarian- peace- Development nexus (see Figure **12**) and already demonstrating a potential to lead to reduced incidence of conflicts, see **Box 12**.

It is planned to enhance the work along the humanitarian-development-peace nexus under the next CPD; for that, as the interviews for this evaluation revealed, there is a need for better integrated planning (including better information sharing) among the development agencies (see Section 4.3.4 and **Recommendation 6** in Chapter 7).

Figure 12: Humanitarian-development-peace nexus



https://www.unitedinstitutions.org/the-big-picture.html

Without effective adaptation and DRR measures, smallholder farmers and pastoralists will continue to migrate to the towns, increasing stress on cities. Lack of access to electricity and clean energy services is another poverty driver. The transition from an exclusively rights-based approach in humanitarian programming to a more sustainable development approach that takes account of the real constraints of maintaining large concentrated populations in a dryland environment is to be better addressed given the rapidly expanding peri-urban settlements (protracted IDP presence) and the radical shifting patterns of rural population Sudan as a whole. See **Recommendation 3a** in Chapter 7).

With "Poverty Reduction, Inclusive Growth and Sustainable Livelihoods" portfolio

SDG agenda (a) identifies two major SDGs as drivers and enablers of achieving other sustainable development goals, namely, goal number 6 and 7 on water and energy respectively (with the two goals interlinked); and (b) calls for a more integrated approach to manage the inter-connected social, economic and environmental risks. In other words, making development 'climate-risk informed' and 'ecologically-resilient' is at the core of SDG implementation agenda. The review of the portfolio on "*Poverty Reduction, Inclusive Growth and Sustainable Livelihoods*" [48] on UNDP Sudan website shows no specific links with the EECC portfolio, except perhaps the contribution to NHDR.

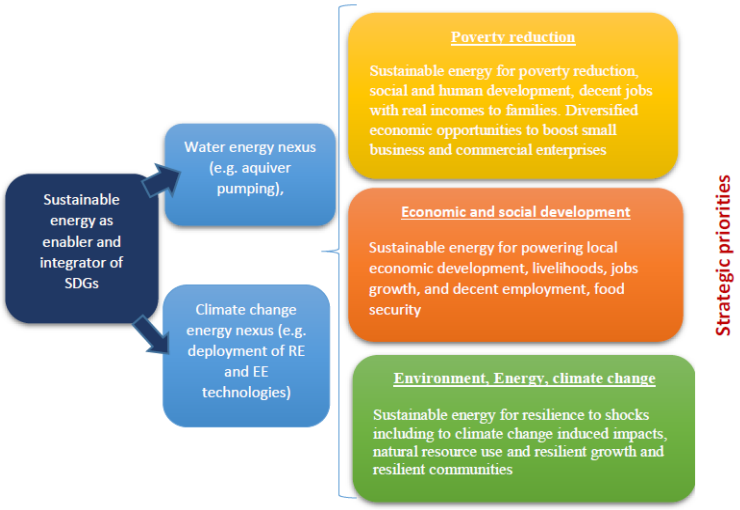
[48] Based on the description of projects under that portfolio featured on UNDP Sudan website

Based on a UNDP study on commodities, which concluded that the main challenges to developing inclusive value chains are climate change and lack of access to affordable energy[49]. UNDP plans to promote further productive capacities and reduce vulnerabilities to climate change impact of small holder farmers and pastoralists under CPD 2018-2021 (para 21). In particular, UNDP plans to *root its poverty reduction work in its efforts to support adaptation to climate change, employment and equitable access to natural resources in rural areas, in line with SDGs 1, 2, 5, 7, 10 and 13"*. In this context, UNDP Sudan plans, as mentioned earlier, to invest in value-chain market development for cash crops such as groundnut, sesame and sorghum, in partnership with the FAO and the WFP. Should the lifting of sanctions hold, UNDP plans also to strongly engage the private sector to improve access to services for the rural poor, including microfinance. So stronger links are planned for CPD 2018-2021.

The projects under the current EECC portfolio contribute to improving livelihoods, by providing durable solution to the farmers. This has been acknowledged also by "Great Green Wall" (GGW) initiative[50]:

- Sudan regions in the proposed "Great Green Wall" (GGW) zone face unprecedented challenges of climate change and disasters, increasing and unmet demand for energy, water and natural resources and growing fragility of the ecosystem. The compounded nature of the challenge requires monumental undertaking to restore ecosystem services at a threshold that could support human development. Such an undertaking will require innovations in the way development is delivered;

Figure 13 : UNDP Sudan Strategic Framework for Programming- Durable sustainable energy solutions as an integrator and enabler of achieving SDGs at the great green wall zone



Source: UNDP Sudan internal document

- Durable sustainable energy solutions promise to act as enablers and integrators of achieving SDGs in the GGW zone in Sudan because of their linkages to water and climate change mitigation and adaptation responses and their critical role in making communities able to protect their lives and livelihoods from the impacts of climate change and ecological disruption. Durable energy solutions contribute to mitigate the drivers of climate change through more sustainable use of energy, revamping of ecosystems and building resilience of ecosystem and communities;
- UNDP Sudan's proposed framework for programming (see **Figure 13)** is an overarching vision for combating poverty and vulnerability along the GGW belt and scaling up durable renewable energy solutions by GGW by supporting the Government of Sudan implement supportive and related actions including but not limited to: the Paris Agreement and National NDC climate strategies; climate-resilient livelihoods and food security programmes, ecosystems and water management

[49] World Bank Sudan Overview.
[50] UNDP Sudan document shared by GGWI

plans; and community resilience via integrated landscape management, promoting energy access for the poor, accelerating energy efficiency in key economic activities

The links between the 2 portfolios should, *inter alia*, ensure that the poorest benefit from the improvements that are becoming visible – including with UNDP support – due to more availability of the renewable energy- based services and improved availability of water for irrigation and water use efficiency.

With "Inclusive governance and the Rule of Law" portfolio

Since the 1990s, Sudan has embarked on decentralization reforms to optimize basic service delivery and strengthen accountability at the subnational level. Results remain limited, however, because fiscal decentralization has not engendered more balanced distribution of resources to address disparities across states and reduce poverty gaps.[51] A case in point is inadequate access to the formal justice system, which perpetuates vulnerability among civilians, especially at the periphery. Additionally, there is low awareness of the rule of law and human rights[52]. This makes the promotion of good governance in NRM particularly challenging, but also very important. In particular (see Chapter 7, **Recommendation 3b**), the following 2 projects should be assessed and in case they prove to be provide successful models, replicated: (a) UNDP-supported local development plans in South Kordofan to improve public expenditure management;[53] and (b) "*Strengthening Land Management for Peaceful Co-existence in Darfur*" project implemented by UNDP together with UN HABITAT and FAO.

Addressing gender dimension

In Sudan, mainstreaming gender perspectives in EE policies is an approach followed by the Government with UNDP Support. There are positive cases where the mainstreaming was also at the level of implementation by the Government. For example, as part of Sudan's mitigation activities in the forest sector, gender issues are considered in all activities of forest management, mainly in the projects under the climate change such as REDD+, low-carbon development, and Gum Arabic production[54]. Also, it is a clear component of the institutional arrangements for the implementation of Sudan's TNC under the UNFCCC, Sudan's Technology Needs Assessment (TNA), REDD+, and the NAMA

Box 2 " Promoting gender responsive approaches to natural resources management for peace building in Al Rahad, North Kordofan".

The Project location (Al Rahad) is beset by climate related environmental degradation and increased conflict over natural resources. The project builds on the UNDP's The Community Security and Stabilization Programme (C2SP), which has developed committees in all areas of intervention with membership drawn from different tribes, traditional leaders, youth, and others.

The committee is well-known in Al Rahad, local leaders endorse it, and it makes decisions on issues that matter to the community. However, women's representation in committees such as these is small, and the scope of their engagement is limited

The joint project aims not only to expand the number of participating women in the Community Management Committee, but also to incorporate their perspectives in peacebuilding efforts. This is particularly important for women in pastoralist communities, as they have at times been vocal advocates. The progress so far included

- Linked El Rahad conflict resolution center with the community management committee.
- Involved CRC members in CMC and peacebuilding interventions, prioritizing representation of women (local and IDPs)
- Capacity building training for CMC/CRC members - for conflict forecast, mitigation, and management in coordination with traditional leaders, locality authorities and state government
- Documentation of results and lessons learned
- Data collection will include the use of tools such as perception surveys
- Develop programme guidelines and tools replication in other areas of the country, continent and globally

Source: UNDP Sudan website and project presentation

[51] Revenue mobilization and collection at subnational levels in Darfur states, UNDP report, 2015.
[52] Report, Independent expert o
n the situation of human rights in Sudan, 2016
[53] Impact of improving local governance capabilities in public budgeting and service delivery in Kassala State, Sudan, UNDP and Ministry of Finance, 2016; Final report of the governance and rule of law Programme, UNDP, Sudan, 2009-2013.
[54] The Forest National Corporation (FNC), a para-state institution in Sudan that is responsible for forest management and forest conservation, supports women in their forest activities by organizing them in gum Arabic associations, and ensuring their ownership of gum gardens

Framework. These approaches are gender-sensitive approach in a broad sense however, as there is no gender-based budgeting as yet. [55]

Policies that purport to be gender-neutral are, inherently, discriminatory because they fail to take into consideration the different ways in which men and women experience the effects of climate change, as well as how they adapt[56]. States should develop policies to address climate change that recognize gendered impacts, provide women with access to resources, and enable opportunities for them to participate in mitigation and adaptation processes. Therefore, there is a need to create, fund, and implement national Climate Change Gender Action Plans (ccGAPs) that are gender-sensitive and gender-responsive, and create workshops for stakeholders to network and coordinate action around incorporating women in climate change mitigation and adaptation processes. Among other measures, there is a need to support gender-responsive budgeting in most of the sectors that can contribute to mitigation action (see Chapter 7, **Recommendation 4**)[57]

Equitable and sustainable natural resource governance has gender implications. Women carry out the bulk of the work on small farms, making them highly vulnerable to economic losses resulting from natural hazards. In post-conflict settings, women are often particularly dependent on access to natural resources for their livelihoods: In Sudan, although gender-disaggregated data is limited, conflict has disproportionally affected women and increased their vulnerability to exploitation[58]. Moreover, armed conflict often challenges traditional gender roles, resulting in women adopting roles in NRM traditionally regarded as male sectors. Both the vulnerability of women and changing gender roles in relation to environmental issues need to be taken into account in peacebuilding processes so that gender-related inequalities associated with, for instance, access and right to land are not exacerbated. A gender mainstreamed approach to natural resource management in peacebuilding can thus serve as a means to improve gender equality, enhance women's participation in political processes, increase their ownership and open up for economic opportunities[59].

Mainstreaming gender in the projects under the EECC portfolio under CPD 2013-2017 reveals a somewhat mined story. Under the "*National Adaptation*", project gender was addressed specifically with planned measures with gender responsive adaptation strategies, providing insights into the types of resources and partnerships needed at local and national levels for success (see **Box 11**). Under the CRF project, gender perspectives were included in the *Vulnerability and Adaptation* component. Similarly, the Wind Power project ensured adequate representation of women in all the training events. This cannot be said about all the projects, however: in the Solar Pumps project, in its recent PIR, while it is noted that there were some women who had expressed an interest in the purchase of solar water pumps, no further details are provided. Similarly, based on the rather brief internal report on the DDS Rural Energy project, there were no specific activities to address gender dimension; see Chapter 7, Recommendation 4).

Specific initiatives in the nexus of gender/NRM: UNDP Sudan's portfolio features also specific initiatives and projects promoting women's role in NRM and CCA, most notably the Joint Project. The project aims to strengthen the capacity and the structure of target communities to manage natural resources and address conflict over natural resources in a gender responsive manner. This is achieved through assisting communities to benefit from Gum Arabic production and contributing to acacia forest rehabilitation through a conflict and gender sensitive approach. A community structure on NRM was set up to conduct *Community*

[55] Submission by Angola on behalf of the Least Developed Countries: Views on gender-responsive climate policy with a focus on mitigation action and technology development and transfer

[56] Georgetown Institute for Women, Peace and Security (2015); "Women and Climate Change: Impact and Agency in Human Rights, Security, and Economic Development

[57] ibid

[58] Gender approach to the Darfur development strategy, UN-Women, Sudan, 2015.

[59] UNEP, Women and Natural Resources. Unlocking the Peacebuilding Potential (UNEP, 2013).

Environmental Action Planning (CEAP). The CEAP includes the component on strengthening women's role in peacebuilding and NRM and provide trainings to beneficiaries in improved practices on acacia tree cultivation and Gum Arabic production (see **Box 2**)

4.1.5. Relevance of the M&E framework

It is recommended that UNDP Sudan developed Theory of Change (ToC) for each outcome, including for Outcome 2. **Figure 14** presents the suggested stylized results chain for Outcome 2 with suggested indicators

The RRF for CPD 2013-2017 is hardly adequate, given that:

a) indicators are mostly at the Output level, e.g. "*number of communities reached*". The need to capture more outcome level indicators was acknowledged by the M&E team during the interviews. The potential indicators should include *inter alia*: (i) emission reduction; (ii) value for fuel saving (ii) number of households and institutions (separately) with access to and use of (separately) clean energy in project areas; number of households with increased yields (and % increase), number of households/farmers with increased disposable income/profit; number of jobs created; etc.
b) non-energy adaptation measures, e.g. water harvesting, are not captured by the indicators;
c) there is at least 1 indicator which is not SMART[60] ("sound policies")

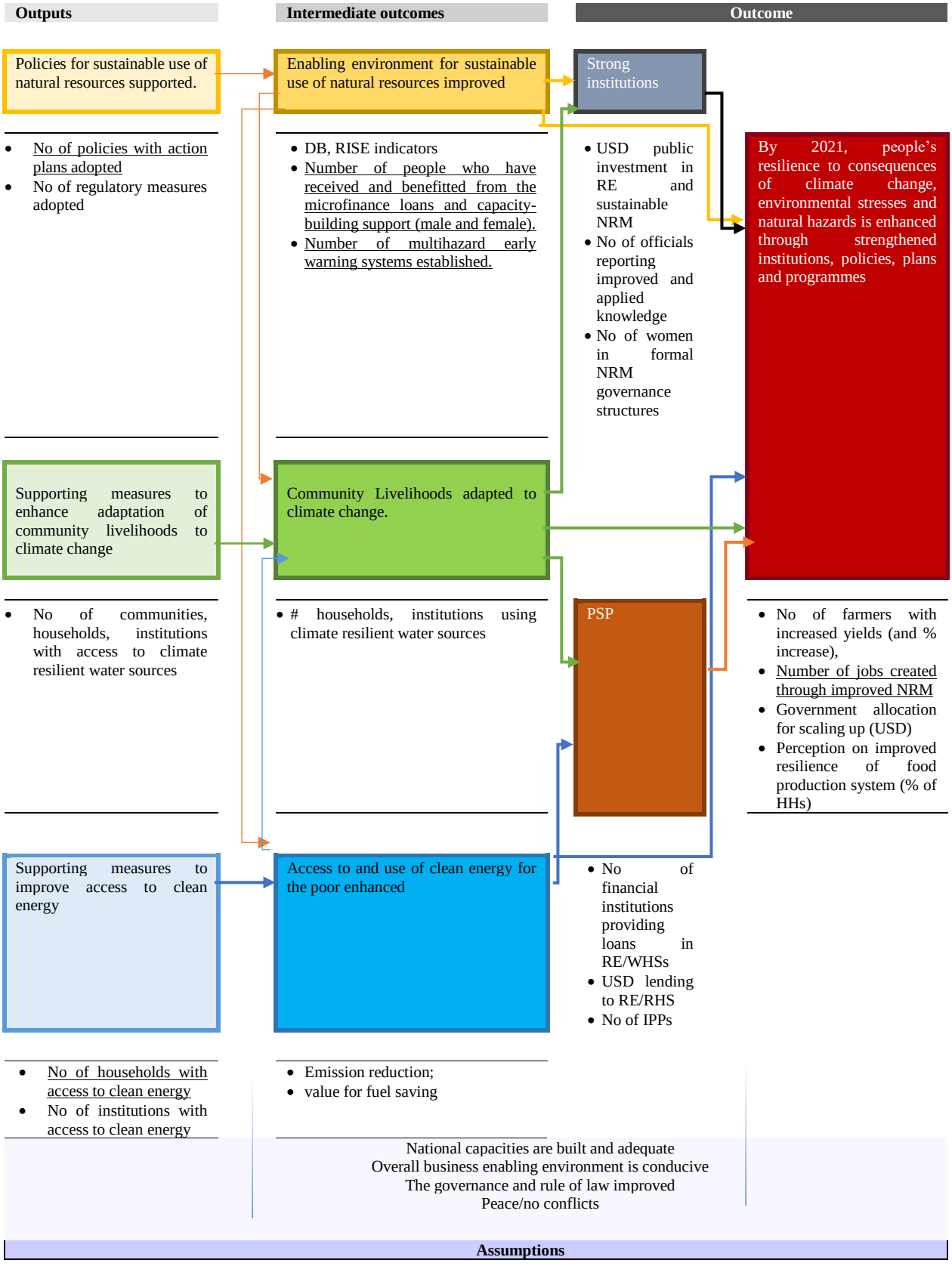
The M&E framework for Outcome 2 from the RRF for CPD 2018-2021 is better in the sense of capturing outcome level indicators. There are still issues however, e.g. (a) one of the indicators for the RRF suggests counting livelihoods (not a SMART indicator); (b) the key GHG reduction outcomes are not captured and (c) the RE in the institutions is not captured. In **Figure 14**, the suggested indicators which correspond to the indicators from the RRF are underlined (although the exact wording is not captured due to space limits).

There are several overarching recommendations below (also in Chapter 7, **Recommendation 5**):

- ***Ensure that indicators are SMART***;
- ***Use innovative measures capturing outcomes***. This could be demonstrated by making another important point about not confusing "access" and "use". New infrastructure and services, while improving access might not necessarily result in increased use, due to, e.g. affordability constraints; inconvenient locations; frequent breakdowns, availability of cheaper, even if worse, alternatives; etc. It is important to track both. With simple technological innovations it would be often possible to track the use of novel solutions provided;
- ***Exercise great care in designing the baseline studies for the projects***. A number of interviewees for this evaluation have raised concerns that often the baseline studies are far from what would be desired in terms of answering the important questions about the projects achieving (or not) the objectives. The baseline studies should go beyond the limited formal indicators and capture the objectives more broadly; and
- ***Pilots need to be assessed before upscaling***, which is often overlooked.

[60] Specific, measurable, attainable, relevant and time-bound

Figure 14: Stylized TOC for Outcome 2



4.2. EFFECTIVENESS

4.2.1. Environmental governance policies and regulatory frameworks for enabling better natural resources and risk management developed

Sudan ratified the UNFCCC in 1993 and Kyoto Protocol in 2005 demonstrating its strong commitment to international cooperation against climate change. Since then Sudan has undertaken a number of very important steps towards integrating its climate change and development objectives. Prior to 2013, UNDP supported the Government of Sudan to develop (a) its National CDM Strategy (2010-2011), which created interest in carbon financed projects; (b) NAPA (2007), which served as a basis for many projects supported by UNDP (including the *National Adaptation* project), as well as other agencies and informed the Government development plans; (c) NBSAP (2002); (c) RE Masterplan (2005); etc. These formed a basis to build on together with the evidence from the large number of implementation projects.

Under the CPD 2013-2017 UNDP interventions expanded the work on policies further. UNDP supported more than 5 policies. The question is on which ones would qualify as accomplishments given the formulation of the indicator, which leaves room for interpretation: apart from the use of the word "sound", it is also unclear how to interpret "Action Plan", i.e. with funding allocations, or not necessarily. Given this ambiguity, this indicator is to be interpreted somewhat broadly. It is also not very clear what could qualify as "strategy". Given that the indicator takes the existence of NAPA as a baseline (one strategy existing), the expectation was that 4 more strategies will be adopted during 2013-2017. ***With this precautions in mind, the target is met, with the following:***

Box 3: Outcome indicator 1

Indicator 1 Number of environmental strategies with sound action plans for implementation in place
Baseline: One strategy in place with action plan piloted climate change adaptation measures.
Target: Five strategies with concrete action

1. ***SNC report*** (2013)[61]; Currently UNDP supports HCENR in implementing an enabling process, involving all relevant national stakeholders, to strengthen technical and institutional capacities and prepare and submit Sudan's TNC and first Biennial Update Report (TNCBUR) to the UNFCCC (since August 2016). Already, considerable progress has been achieved in the project implementation. Already, National GHGs Inventory Teams from 10 relevant institutions were established and a 20-members' team was established to participate in the Vulnerability and Adaption Assessment;
2. ***UNREDD[62] Readiness Plan:*** UNDP together with FAO and UNEP contributed to the preparation of Sudan's R-PP (REDD Readiness Preparation Proposal) which was approved in 2014, making Sudan a participant to the Forest Carbon Partnership Facility (FCPF), and thus, eligible for readiness support to implement most parts of its R-PP.[63] Sudan is considering the REDD+ mechanism to be a priority area for development in the management of forest resources and rangeland in the country. Since the emergence of the REDD+ mechanism at the UNFCCC 11th Conference of the Parties (COP) in Montreal, 2005, the REDD+ mechanism has evolved to a state where the Government of Sudan considered it feasible for implementation its National REDD+ Programme. Through a multi-stakeholder (UNDP, FAO, UNEP, WB and others) targeted support in 2014-2015 the country capacity on technical aspects of REDD+ was built. This laid the

[61] Sudan prepared and submitted its Initial National Communication in 2003. In accordance with Article 4, paragraph 1 and Article 12, paragraph 1 of the United Nations Framework Convention on Climate Change (UNFCCC), Sudan is committed to prepare and submit National Communication (NCs), containing national GHGs inventory, measures taken to mitigate and adapt to climate change, general description of steps taken or envisaged to implement the Convention and any other information considered relative to achieving the objective of the convention.
[62] Reducing emissions from deforestation and forest degradation)
[63] Forest Carbon Partnership Facility (FCPF) Readiness Fund (2017):" Mid-Term Progress Reporting- The Republic of Sudan", 9 February 2017

foundation for more sustainable management of its land and forest, to enable Sudan to benefit from possible future systems of international payments for ecosystem services for REDD+'

3. **NBSAP 2015-2020** (2015). Sudan developed the first NBSAP in 2002. Sudan is a Party to the Convention on Biological Diversity (CBD), which calls upon all Parties not only to develop, but also to update in a timely manner national biodiversity strategy and action plan for conservation and sustainable use of biological diversity. The 2015 version provided the framework for taking actions by the different stakeholders in biodiversity, including the people themselves, for achieving the three objectives of the CBD, namely conservation of biodiversity, sustainable use of its components, and fair and equitable sharing of benefits arising out of their use and to fulfill the global Biodiversity Vision, of living in harmony with nature; and
4. ***SUDAN-NAMA Framework (2015):*** Given that the development of a Low Carbon Development Strategy (LCDS) is recommended to be linked with a comprehensive NAMA framework (thus achieving various synergies and making NAMA identification the bottom up process of elaborating the LCDS), the framework provides information about emission characteristics and reduction potentials of the Sudanese economy, describes the elements of a Sudanese NAMA Framework, such as institutional set up, Measurement, Reporting and Verification (MRV) system and NAMA identification process. For the latter a set of 40 NAMAs has been evaluated and ranked according to the evaluation. Under the "Wind Power" Project, a ***Feed-in Tariff (FiT) NAMA for RE was developed*** (see later in this Section): its draft was submitted for the approval to the Cabinet of Ministers at the time of this evaluation, while the project was already at NAMA Board;

Additionally, UNDP supported the development of:

- ***National DRR Strategy for Sudan***. While it is not supported with a comprehensive action plan, this was an important milestone as the first ever DRR strategy for the country. With UNDP support also, an assessment was produced (starting from Kassala city (as one of the cities that mostly affected by the seasonal flood of El Gash River) as a guide, to help and support government officials and decision makers in setting plans and building resilience of Sudanese communities to disasters, through the provision of basic information and necessary data; and
- ***INDC Sudan (2015).*** While this does not have a comprehensive Action Plan (and moreover-committed funding[64]), this was an important milestone for Sudan. It laid the ground for the follow up strategies and helps to attract support from potential donors.[65]

These policies have enabled the Government to access vertical funds with UNDP support: more than US$31.6 were accessed (see Table 8) during the 2013-2017 in spite of regardless of the difficulties in accessing development funds because of the sanction imposed on Sudan.

Sudan has been developed its NAP (with UNEP support) with the objective of building resilience and integrating adaptation into development planning at both state and sectoral levels. In the next programming period UNDP support for policies will continue. Already, there are approved projects (NB: this list does not include proposals) to support:

- Sudan's ratification of the Nagoya Protocol and its implementation, with the view to – in the long term - establishment of a comprehensive national legal, policy, regulatory and institutional framework and capacity for ABS, to activate the potential of the diverse genetic resources and traditional knowledge for generating economic benefits to the target country and key stakeholders;

[64] The international support required to implement the intended contribution in terms of finance, technology and capacity building, over a cycle of contributions of 5-10 years, amount to a total of 12.88 USD billions, of which 1.2 billion US$ for adaptation and 11.68 billion for mitigation.
[65] https://www.dabangasudan.org/en/relief-news/article/eu-ready-to-support-sudan-with-climate-change-ambassador

- Improving regional and national legal, policy and institutional frameworks for the integrated management of joint Nubian Sandstone Aquifer System (NSAS) resources; and
- The development of the legal, policy, institutional and land tenure frameworks allowing sustainable Protected Area (PA) co-management based on clearly defined and delineated zones within and around PAs. This will include revisions to and endorsement of the Wildlife Conservation General Administration (WCGA) (Wildlife Policy and the Wildlife Act) together with a National PA System Strategy and PA Expansion Plan.

The RRF indicator does not capture the part of the Output formulation on "***regulatory frameworks***": UNDP has helped to register significant progress, with the development of the **drafts** (at the time of this evaluation they were submitted to the Government by the MWRIE to the Cabinet for approval**)** of the following regulatory instruments under the "Wind Power" project:

- ***Grid Code for the interconnection of variable RE sources;***
- ***Feed in Tariff (FiT).*** The latter is one of the key NAMAs. The introduction of FiT aims to overcome the barriers that limit access to the finance required to fund large capital expenditure RE projects in Sudan, spurring more investment in RE, and could be expected to have a significant transformational potential for RE and the energy sector in general. The provision of attractive, long-term RE FiTs will provide the financial visibility and assurance to financiers to invest in RE technology, making it commercially attractive. In addition, ensuring FiTs for a guaranteed length of time will provide private investors the predictability required to raise the necessary capital and to better manage their financial cash flows;
- A ***standardized Power Purchase Agreement (PPA);*** and
- ***Independent Power Producers (IPP) Act for investors in wind energy projects***

The Renewable Energy Master Plan (REMP), prepared under the UNDP-GEF 'Barrier Removal for PV Market Penetration in Semi-Urban Sudan' project in 2005 is the foundation document to which these regulations now contribute; it was updated in 2013 by the MWRIE in 2013, but does not detail specific regulatory mechanisms for the promotion of sustainable energy.[66] Also, the country does not have a Public Private Partnership (PPP) Law, which the Government (the MWRIE) identified as a priority in the interviews for this evaluation. The policy reforms and harmonisation of legislation to enable a private sector driven wind energy market was highly lauded by stakeholders and highlighted multiple times during the interviews for this Outcome evaluation. Besides, under the "Wind Power" project, an Environmental Impact Assessment (EIA) for Red Sea project was completed along with a study on the effect of wind turbines on Migratory Soaring Birds in Dongola (site for the pilot project) and along the Red Sea. These are remarkable achievements, as they set a precedent: such critical studies need to be completed ahead of any installations on the ground, especially along the Red Sea coast- an important flyway for the soaring birds.

In the next programming period UNDP support for the regulatory framework related to energy will continue: already, with an approved project on EE, the work on the development of standards, enforcement of regulations supporting energy efficient products (together with building the institutional framework capable of maintaining steady market development) is about to commence (NB: this list includes only the approved projects).

[66] http://www.reegle.info/policy-and-regulatory-overviews/SD

4.2.2. Investment in green energy and access by needy communities to sustainable energy improve

The same issue with the formulation of the indicator, mentioned with regards to the 1st indicator, is present in the case of the indicator for this Output as well: the notion of "community" is subject to interpretation, i.e. not clear whether this is about the number of villages or localities. It has been agreed with UNDP that this will be interpreted as "villages". ***With that assumption, the target is met,*** with more than 92 villages covered with RE based services, In particular:

- Under the DDS Rural Energy project, by the end of the project (June 2018) a total of 64 villages (social services) will be equipped with various solar powered systems (lighting sets, pumps, etc.);[67]
- Under the Solar Pumps project, 28 pumps (at the demonstration phase) will be installed in 7 localities (with each locality comprising more than 1 village); the completion of this phase is expected soon;
- Under the project on "*National Adaptation*" (which worked in 41 villages in 6 States) 5 wells were rehabilitated in North Kurdufan state, fitting them with solar pumps and 15 solar pumps were introduced in River Nile state;
- One village received a solar powered water point under the "Gender Responsive in NRM for Peace Building" project; and
- 8 localities received solar water pumps under the C2SP Project

Box 4: Outcome indicator 2

Indicator 2. Number of communities with access to alternative sources of renewable energy-based services
Baseline: Limited access to renewable energy.
Target: 50 communities

The formulation of the output highlights the factor of "needy" communities. Again, this is not a precise enough wording, since if the focus is on the poor, then it is better to use "poor" as poverty is captured by statistical data (NB: this was improved in the RRF of CPD 2018-2021). Assuming that this is about the poor households, it is important to understand the outcome in terms of the accessibility and affordability of the RE-based services for the poor, even though this is not captured by the indicator precisely.

The ***DDS Rural energy project*** is a large-scale effort in Darfur aiming at extending the daily life of community service facilities (hospitals, locality offices, women centres, community centres, police stations, school) by the installation of solar lighting sets and solar pumps. This project contributes to DDS Objective 3, namely "increased access to electricity services". UNIDO contributes with training and technical assistance for local communities and businesses to handle after-sale activities, e.g. installation, operation, maintenance and provision of spare parts. Under the DDS project, where the solar systems were provided to the social institutions (e.g. health clinics) the project has and will increase further the access to and use of RE based services by the poor (given the very high poverty rate in Darfur, it is safe to assume that the poor will be the majority of the customers of

Box 5: Solar pumps project-feedback from the farmers from demonstration phase

1st farmer	"I *have 10 feddans and have to pay almost 10000 SDG per season …. Pay 10000 USD in 4 years repayment would be fine*"
2nd farmer	"I *knew about technology in general, but the project helped him to understand it better*. I *can pay with cash- don't need a loan…. I want to get not 1 but 2 pumps, as I have another plot"*
3rd farmer	"*One day people from the Committee came and said they chose my farm as one of the test cases. it was like a gift from Allah…The solar pump has helped me to increase the farm from 6 feddan to 10 feddan. Also, I now had summer crops. will need to see the profits first, but interested to buy the pump. A 6-year repayment would have been better. Lots of visitors to see the pump, they come and see and then register*"

Source: interviews during the field trip to Dongola by the evaluator in December 2017



[67] 6 villages short of the planned 70

the social service providers/health centers). Here it would have been important to show the impact on the health care for these poor, e.g. by tracking the budgets freed up by ditching diesel by the health clinics, which they can now use to expand their services/reach more people (see Section 4.1.5 for discussion). It is recommended that the possibility of assessing these effects is looked into as part of the final evaluation of this project along with the assessment of the perceptions of the households about the benefits of different improvements they received. This project has led now to 2 new potential projects, namely: (a) "Solar in Health" (potentially involving also AfDB) and (b) "Solar for IDPs";

The Solar Pumps project is a potential breakthrough for the agricultural sector in Sudan, being the first step toward commercialization of the provision of solar water pumps to the farmers using the banking system, incorporating, *inter alia*, an interesting demonstration model. *Improving access by the poor to solar powered water pumps* is one of the goals of the project- to be achieved by establishing the Solar PV Fund, At the time of this Outcome evaluation, only the ***first phase of the project was (almost) completed*** with 28 farmers in Northern State receiving the pumps for demonstration purposes: the ability to pay for these pumps in 1-year time was one of the selection criteria of these farmers and so these are not poor farmers. Based on the interviews conducted with 3 farmers (see Error! Reference source not found.), t hey are likely to be able to pay around US$8700 within 4 years (the cost per pump cited during the interviews with the project manager: i.e. applying a 13 percent subsidy[68] to the US$10K cost)[69].

Under the 2nd component of the project, the plan is to **establish a solar PV fund** with the intention to support those who cannot afford paying the initial cost of the solar pump. Around 1440 solar water pumps are envisioned in the State. The financial concept of the Fund and terms of the loans were being discussed at the time of writing of this evaluation report[70] (see **Box 6**) with the options for the use of financing under the planned Solar PV Fund, hence no definite conclusions could be reached at this stage. Based on the available information, 10 banks have agreed to join the Fund and provide loans with 12 percent interest rate. This would be considered as very high in many countries of the world for RE products. It must be mentioned also that until the Fund is actually established, the risks remain of it actually materializing as mentioned by the CTA of the project in the latest PIR ("…. *The Government may fail to subsidize the programme or the Banks may require an interest rate too high to make the project attractive…. Notwithstanding the speedy approval of the PV fund, its configuration has been left to the Central Bank, and there is no clear indication of when the fund will be operational*").

While it is clear that the subsidies and exemptions would help in reducing the costs to the farmers, and that smaller units would cost less than the 8700 USD, despite the intention to ensure that farmers pay only the cost currently spent on purchase of diesel fuel, there is a risk that the loans will not be affordable for the poor in the poorer localities. ***This concern, based on the interviews from the trip to Dongola, is shared by the project's own report*** on the "*Proposal for Developing a Financial Mechanism of the National Fund for the Solar Pumps in the Northern State, Sudan*" (prepared by Newtech Consultancy Group", 11/2017), which mentions that[71] farmers Wadi Halfa locality may find difficult repaying their loans (and so they need

[68] GEF offered a grant of USD 4,365,753 for this project. Out of the total grant, an amount of USD 2,695,852 was allocated for buying, distributing and installing 28 PV solar pumps to selected farmers in the first year of the project and to continue supporting the finance of 1,440 solar pumps in the State. In this respect, GEF provided a subsidy to the cost of the loan service and profit repayments of the farmers. The subsidy starts by deducting 13 percent of the cost of the loan in the first year and to decrease subsidy by 2percent yearly until it reaches 7 percent in year 4.

[69] The cost of buying the 28 pumps is about USD 322,303 composed of 11 pumps of size 5 inches 9 (termed as Nile pumps), 5 pumps of size 3 inches (termed as Mattara pumps) and 12 pumps of size 29.5 inches (termed as Borehole pumps

[70] In 2015, the Central Bank of Sudan together with another seven Banks in the Northern State expressed their preliminary service charges to join in establishing the National Fund for the PV Solar Pumps in the Northern State. However, the establishment of the Bank consortium has not crystallized yet due to several queries raised by the Banks. The Central Bank of Sudan demanded to see the feasibility study of the project first before deciding on action. It also asked the Project Management to provide a vision for the structure and mechanism of operation for the proposed consortium

[71] The farmers' ability to pay their loans has been examined within three scenarios: the commercial loans, microfinance loans and the electricity microfinance loans, with a subsidy of 50 percent to be borne by the MoF and the State Government. The repayment period is assumed to be 4 years for the commercial loans and to range between 4 and 7 years in case of the microfinance loans. The respective costs of finance are 12 percent for the commercial loans and 9 percent in the case of the microfinance loans. The estimation of the ability of the farmers to repay their loans were based on selecting the average minimum net profit obtained by the surveyed farmers in the seven localities and subject them to the test of loan

to revise their crop mix and cropping practices) while the farmers from the Delgo locality could find difficulty in paying the loans in general; the study also reports a "conservative response expected from the small farmers being reluctant to buy the pumps with loans from the banking system". ***The concerns are reflected also on a number of 3rd part reports***, indicating that there are risks to affordability of solar pumps under the current regulatory regime.[72]

While, there are many landless people who depend on their labor working in farms and the solar PV water pumps, by expanding the time of cultivation (all through the year) make more work available for them all the year, and this is also an avenue of the positive impact of the project on the poor, it is ***desirable to ensure the affordability of the loans for the poor*** (since this was the idea behind the Fund). To reduce this risk, **it is recommended that** (the recommendations below are also summarized in the Chapter 7. **Recommendations; 2b**):

Box 6. Options for the use of financing under the planned Solar PV Fund

The Consortium is to be established in consultation with potential participating Banks at headquarters level in Khartoum and then transferred for execution in the Northern State. The total estimated fund needed for financing the solar pumps is estimated at US$14.9 million in addition to an estimated US$2.5 million to be provided by the Ministry of Finance (MoF) to exempt the imports of the Solar pumps from the Value Added Tax (VAT) and other custom duties (The UNDP/GEF Project assumed the MoF budget of US$3 million). The participating Banks are expected to supply US$2 million each, and the Consortium can benefit from any surplus money released from the GEF US$2.69. The released money could be a sum of USD 2.68 million as the loan will be offered under microfinance loan terms. The remaining amount of the GEF grant estimated at US$ 2,685,907 can be used

- to finance 259 pumps out of the 1,440 pumps throughout the 4 years. The Banks have to provide US$12,261,708 to buy the remaining 1,181 pumps to total to the 1,440 pumps. Thus, both GEF and the Banks will supply US$ 14,947,625 to purchase the 1,440 pumps; or
- after deducting the subsidies, could be recycled the repayments back into the Fund. The GEF grant will enable buying 259 pumps in the first year plus few others during the remaining 4 years of the loan period. On the other hand, the Banks will provide the needed loans to complete the purchases of the pumps up to 1440.

In both scenarios, the microfinance loan type is used based on 9 percent service and profit margin with repayment of the loan in 4 years. It is noted that using the microfinance – electricity type loan terms each provides a subsidy 50% to be offered by the MoF and the State government of the Northern State, will double the contribution of both GEF and the Banks funding.

Source: "Proposal for Developing a Financial Mechanism of the National Fund for the Solar Pumps in

- UNDP follows through with the recommendation by the State Ministry of Agriculture to introduce a financial subsidy by the Government to support the promotion of the solar pump in the State.[73] According to Newtech (2017) this will entail: MoF subsidizing 25 percent of the solar pump price, the State government - another 25 percent and the farmer paying the remaining 50 percent;
- UNDP advocates the Government for it to adopt other incentives promoting RE discussed earlier (e.g. adopt wider range of tax incentives (on the top of the existing VAT exemption), exemptions from customs duties (while this is in place it does not cover imports of some spare parts); direct subsidies; etc.).
- UNDP ensures that the Fund would give loans to farmers' cooperatives (this will require working with the banks to work out the issues with the collateral and alike). No cases are known for such loans as yet, based on the information available.[74]. This will be in line with the Sudan's Agricultural

credibility. The results of the analyses showed that all farmers using Nile Pumps in the five localities of Merowe, Debba, Golid, Dongola and Buragaig can repay their commercial loans in 4 years. However, the farmers in Delgo and Wadi Halfa localities may find difficulty in repaying their loans. They need to revise their crop mix and cropping practices. From the data on the estimated potential capacity of farmers in the selected localities by type of pumps used it appears that while farmers would be able to pay their loans under different types of farming sites, in Delgo locality farmers would find difficulty in paying the loans in general.

[72] Coxford B and Rizig M. (no date): "Is photovoltaic power a cost-effective energy solution for rural peoples in Western Sudan?", Musadag El Zein and the Department of Earth Sciences, Uppsala University (2017)

[73] "Proposal for Developing a Financial Mechanism of the National Fund for the Solar Pumps in the Northern State, Sudan" (prepared by Newtech Consultancy Group". 11/2017),

[74] IFAD has been assisting the Agriculture Bank of Sudan Microfinance Initiative to provide nano-finance loans and savings to rural women cooperatives since 2010. Connecting Farmers to Market project is another baseline initiative involving micro-insurance and microfinance development. Similarly, Shiekan Insurance and Reinsurance Co. Ltd. Have implemented insurance products for small holder rain-fed farmers and pastoralist since 2002.

Revival Programme, which aims to achieve the development of the agricultural sector by enabling small farmers in all farming subsectors to access micro-credit services to finance the adoption of appropriate technology packages and inputs. It also supports the "*Strategy for the Development and Expansion of the Microfinance Sector in Sudan*", launched by the Central Bank of Sudan in 2007;

- Given the high risks of unexpected increases in the prices of the solar pumps, tied with the exchange rate policies of the central Bank of Sudan, it is recommended to explore the options of attracting AfDB and/or Islamic Development Bank (IDB) to the Fund, to provide risk sharing with the participating banks. AfDB already has such a scheme with the Youth Agribusiness Centers, but not in the Northern State.
- UNDP to use its microfinance program in Darfur (see **Box 7**) to test the model of lending to associations for solar pumps (and other solar powered machinery). Also, the International Fund for Agricultural Development (IFAD) is supporting. an insurance scheme (related to microfinance) accessible to all banks to mitigate risks associated with the absence of collateral for Community Based Organizations (CBOs) [the Microfinance Unit of the Central Bank of Sudan (CBS) has partnered with IFAD, the IDB, UNDP and WFP]: this scheme should also be looked into to be used for the RE;[75];
- Great care should be exercised in establishing the financial structure and the legal forms of the Fund, so as to enable it to receive grants and loans. As mentioned, at the time of writing this evaluation report, the options for the proposed Fund structure were being discussed: Newtech (2017) suggests a 2-level structure: National and State level[76]. Given also the importance of the measures to ensure the affordability of the loans, it is recommended that the current project management is supported by an experienced consultant, with similar experience from a comparable country; see Chapter 7. **Recommendation 7**. This is line with the recommendation from the PIR that "*… more emphasis must be placed on the financial mechanism, its nature and implementation";*
- UNDP to enhance the information campaign, to counter the conservative response expected from the small farmers being reluctant to buy the pumps with loans from the Banking system as reported by Newtech (2017);
- UNDP to carry out training for the Bank loan officers, given that according to Newtech (2017) the Banks prefer to carry out own cost benefit analysis of the solar pump in the Northern State; and
- UNDP to work with the Banks to ensure that Banks are persuaded that in the case of farming activities which is highly seasonal, they must change their repayment expectations to fit with farmer activities, i.e. at the end of the harvest season[77].
- ***The Fund could be potentially expanded to cover solar fruit driers, solar greenhouses, solar chargers, solar air/space heaters, etc. In the future the Solar PV Fund could be transformed into RE/EE Support Fund.*** As noted in the MTR of the Wind power project, while the Dongola wind farm will be owned and operated by MWRIE, in the long term, the future wind farms (including the planned wind farms on the Red Sea) are intended to be privately owned and operated as IPP projects, provided the appropriate legislation, guidelines, regulations and experience are in place to support their development as such. For this to be successful there needs to be (a) consideration of

[75] IFAD (2013):" Republic of the Sudan Country strategic opportunities programme"

[76] (a) at the National level, a steering committee including the boards of directors, the Project management supported with the legal advisor, technical, administrative and financial teams and coordinates with the Banks consortium at headquarters in Khartoum; and (b) at the State level, the State MoA (supported with technical, administrative and financial teams), coordinates with the Bank consortium at branches level

[77] Farmers can grow both summer and winter crops in addition to perennial crops. However, the choice of the summer crops may be limited and unrewarding especially if they were produced for feeding the farm animals and meeting certain food needs of the household. Given these reasons farmers can only repay their debts at the end of the harvest season. Since farmers are focusing more on growing winter crops than summer crops they will be comfortable in paying yearly at the end of the two seasons.

the requirements for differentiated support for IPPs are promoted.; and (b) combining technologies that have private investment value/potential, with risk reducing measures (like credit or local renewable energy parts manufacturing) that creates an environment for IPPs to experiment and adapt in a way that enhances their adopting of wind energy. For this project to contribute to a long-term solution, these packages of support and the learning derived from the testing should then be costed and scaled-up, either through leveraging private sector scale up investments through adoption by the national-scale renewable energy development programmes or through emerging renewable energy finance mechanisms. The experience of the financial mechanism for solar powered irrigation pumps – if successful- would then be an example to follow. To effectively influence the large national scale-up programme's efforts will require field level interaction to build a strong evidence base of effectiveness in bringing RE benefits. According to the MTR for the Wind Power Project, only if the above is achieved the project will achieve its deliberate focus of redressing energy access inequality and energy poverty alleviation through the NRM potential. The same could be said for the Solar PV Fund.

Box 7: UNDP Microfinance program in Darfur under DLRP

Current status	Targets
In the absence of the planned Apex (NB: Apex is a second-tier or wholesale organization that channels funding (grants, loans, guarantees) to multiple microfinance institutions (MFIs); provided with or without supporting technical services), which is delayed, a bottom up approach was adopted, working directly with 5 NGOs (Oxfam America, ZOA, VFS Germany, Danish Refugee Council and UMCOR). Whilst it is possible that some groups may opt for solar solutions to power, energy and irrigation, none has requested for such as of now. When such proposals are brought up, the project will positively assess feasibility and profitability for funding (even though the current lending is at 30000 SDG max). Currently the project is embarking with the associations on the linkage to other financial institutions after official registration and opening bank accounts, so that in the future, associations are empowered to negotiate loans for bigger projects outside this projects by virtue of the established relationships. we are currently ensuring synergy among all the DDS projects including MF and Solar by implementing both projects at the same locations. While currently the DDS support solar systems for public institutions. The cost to setup up solar systems e.g. irrigation etc. are high compared to the current grants window fund micro-capital facilities, it is recommended that in the second round, when more money would be allocated to fund larger projects for associations, lending to the associations for solar pumps and other solar technology (solar driers, etc.) is tested.	↓ Greater Darfur Microfinance Apex established and now received ↓ License to operate from Government ↓ Capacity building for Apex, MFIs and Agents planned for 2018 ↓ Standard Microfinance Training Modules being designed through ↓ Red-R and COOPI; Training to start in January by same; ↓ Information campaigns on Microfinance reached 14,674 people; ↓ About 300 functional associations established; 60% already ↓ formally registered by Ministry of Social Affairs; ↓ Some 3,645 people within above groups have received ↓ microfinance support in the form of savings and grants schemes. ↓ Plans on the way to establish Microfinance hubs at Business ↓ Development Centers ↓ Study on the use of Mobiles System for Microfinance delivery ↓ completed by Consultant. ↓ Next steps are setup the IT system and receive grant applications. ↓ Project linked to ALP, Solar and Value Chain projects

Source: Project presentation for the Darfur Livelihoods and Recovery Programme (DLRP) Board Meeting, 18 December, 2017, Khartoum

The indicator for this Output does not cover the part of the output on "***Investment in green energy***": in this part the formulation is also unclear as to the invest by which stakeholder is meant (the Government, UNDP, private sector, farmers, etc.). It would be useful for UNDP to track the investment by the Government (central and state level).

4.2.3. Needy communities to climate change and climatic risks adapted comprehensive sets of adaptation measures

The indicator for this Output is about early warning systems, while it is only one fraction of what the Output calls for: there is a mismatch between the formulation of the Output and the Indicator.

It is better to start with what the Output mostly calls for, namely ***adoption of adaptation measures***. The "*National Adaptation*" project worked in 41 villages in 6 States. The project increased adaptive capacity of 4960 households in the four targeted areas (46 percent female headed households), This was achieved by widespread adoption of climate smart agriculture (crop and livestock production technologies) that led to a 40 to 50 percent increase in yield of major crops supported by increased access to markets, with 98 percent of the beneficiaries reporting that their yield has increased by more than 20 percent (54 percent female)[78]

Box 8: Outcome indicator 3

Indicator: Number of states with functioning early warning systems, including flood and drought preparedness systems
Baseline: 0 states.
Target: Five states

This Evaluation report does not cover the proposals. But in this case an exception would be best placed: A maximum concession GCF grant is requested to implement urgent risk-reducing activities for communities throughout Sudan that are highly vulnerable to impacts from climate variability and climate change. Many of the proposed interventions aim to enhance public goods – communal rangelands for livestock grazing, village-level water supply, and decentralized irrigation systems – while other interventions aim to increase the adaptive capacity of households that are most vulnerable to climate change by introducing climate smart agriculture practices such as drought-resistant seed varieties, vegetable gardens for women-headed households, and livestock nutrition and disease prevention programmes. These interventions are linked to the three strategic components of the project, namely improved resilience of food production systems, improved access to water, and strengthened capacity. The ***project targets the very vulnerable and poor, for whom there is little scope to pay for the interventions*** (beyond the operation and maintenance costs for minor repairs that are partly borne by the community-based organizations). There is no short or medium-term prospect of private sector investment in the infrastructure for such public goods through community-managed models.[79]. GCF funding is deemed to be essential for the government to overcome their inability to advance climate-adaptive measures to increase the resilience of smallholder farmer and pastoralist communities to current and future climate change impacts.

While the argument above is convincing with regards to the extremely poor, and in the light of the urgent need, it is important to support commercialization that will also reach the poor, including by working with community based organizations, as was argued in Section 4.1.4.2, As mentioned in that Section CRF project was supposed to kick start this with the following planned: (a) at least 3 flexible Microfinance products developed which are geared towards the needs of rain-fed farmers and pastoralists and (b) One micro-finance policy developed mandating the adoption of adaptation technologies for microfinance products tailored to rain-fed farmers and pastoralists. However due to delays, at the time of conducting this Outcome Evaluation: the Study for designing flexible loan products for pilot states initiated; the loan testing, delivery to farmers and pastoralists was not initiated yet; and the micro-financing policies were not developed yet (only some initial steps were made at the time of the evaluation).[80]

As for the **indicator, the target is not met*:*** only 1 state (Khartoum) has an EW system which encompasses flood and drought preparedness[81]. There were external and internal reasons behind this, in particular:

[78] UNDP (2017): Terminal Evaluation of the "Implementing Priority Adaptation Measures to Build Resilience of Rainfed Farmer and Pastoral Communities of Sudan, Especially Women Headed Households to the Adverse Impacts of Climate Change" Project by Veronica Nyawira Muthui and Magda Osman

[79] As a low-income country where public and external debt ratios remain high, and where most of the external debt is in arrears, Sudan is projected to remain in debt distress for the foreseeable future, rendering prohibitive the required Government of Sudan (GoS) investments to build resilience to climate change in these rural communities

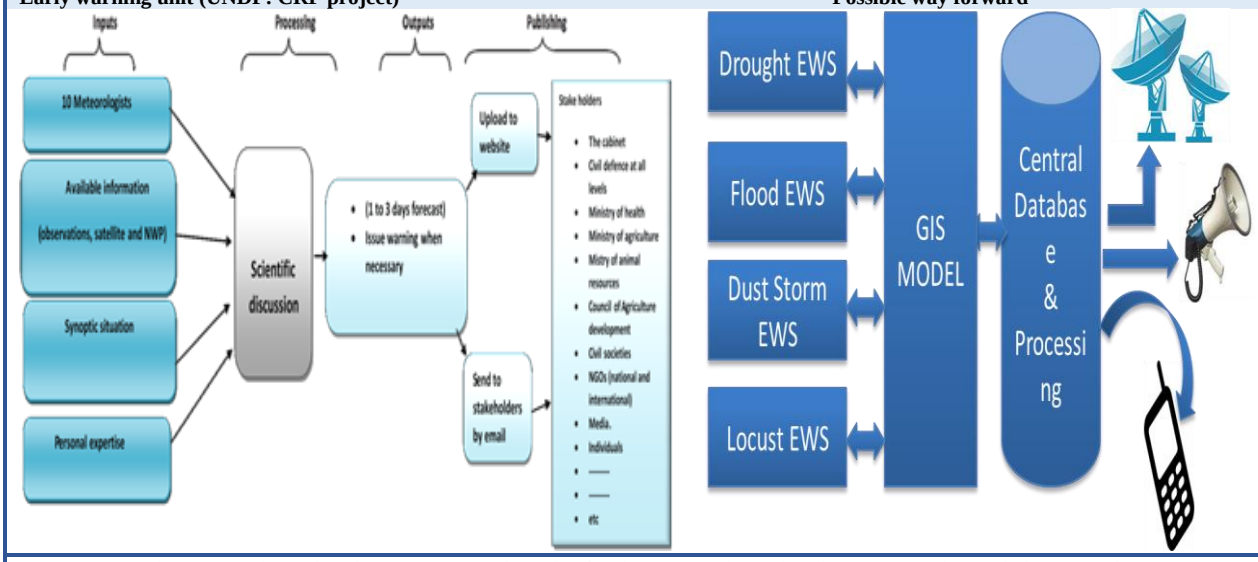
[80] UNDP (2017): Terminal Evaluation of the "Implementing Priority Adaptation Measures to Build Resilience of Rainfed Farmer and Pastoral Communities of Sudan, Especially Women Headed Households to the Adverse Impacts of Climate Change" Project by Veronica Nyawira Muthui and Magda Osman

[81] Together with the UNISDR, Arab League and Swiss Development Agency "a disaster risk reduction strategy has been developed for Khartoum State" under the resilience cities initiative. http://www.sd.undp.org/content/sudan/en/home/presscenter/speeches/2016/10/13/international-day-for-disaster-reduction.html

- ***the fact that the DRR project was expected to be a full-size project (over US$2.27mln), but ended with US$3100K; as a result, the scope of the project was significantly scaled down*** (while the Outcome indicator stayed the same). As part of the project UNDP helped to enhance the capacities of the Sudan Meteorological Authority (SMA) (see **Box 9**), in terms of meteorological EW, which the SMA enhanced further with its own means;
- ***given the underperformance of the CRF project at midterm, as evidenced by the MTR[82]***. It is the 3rd project to contribute to this Output (and indicator), with 3 components (1) Institutional framework and capacity for sustainable climate observation and early warning; (2) Capacities to design and deploy Weather Index Insurance (WII) to address residual risk and promote long term adaptation; and (3) Financial service provision for farmers and pastoralists to increase adaptive capacity of rural livelihoods. So far, the project has (a) helped to enhance SMA capacities further with the establishment of automatic weather stations and 162 rain gauges; (b) trained farmers to measure rainfall and report to local meteorology station; and (c) helped develop WII package (approved by the Insurance Advisory Authority) and implemented among more than 1000 farmers. However, most of the midterm results are not be achieved, and even the ones cited above are problematic (no clarity in the roles, in particular). According to the MTR, the CRF Project is well designed but implementation was not well-managed (see the Section 4.3.2 under Efficiency). Whether in the remaining period (or after a potential extension), the project will achieve its goal and enhance the institutional framework and capacity for sustainable climate observation and early warning, remains to be seen (see Chapter 7, **Recommendation 9.b**)

Box 9: UNDP Supported improvement in SMA

Early warning unit (UNDP: CRF project) **Possible way forward**



*Source: Sudan Meteorological Authority (2015): "The Role of Sudan Meteorological Authority in Weather and climate Early Warning in Sudan" by Abuelgasim Ibrahim Idriss Musa; * CHIRP: Climate Hazards Group InfraRed Precipitation with Stations*

Currently SMA produces: Pentad and Decadal Bulletins, Monthly weather Bulletin, climate normal; Monthly and Seasonal Agro-Meteorological Monitoring Bulletins and products; daily, 3 days, 5 days and Seasonal forecasts; Climate information products (with different analytical tools), etc. (all based on 1 to 3 hours observations). Integrating SMA's EW unit and other early warning into a national Multi-Hazard early warning system is of vital importance: this opinion from SMA was shared among many agencies, including

[82] UNDP (2017):" Report of the Mid-term Review Mission - Climate Risk Finance for Sustainable and Climate Resilient Rain-fed Farming and Pastoral Systems", November, 2017, by Dr. Arun Rijal and Mr. Ahmed Hanafi

NCCD, as well as independent experts (see Chapter 7 **Recommendation 2c**). The DRR project. despite its small size delivered also (a) a Disaster Loss and Damage Database (DLDD), using DesInventar methodology[83] with a Preliminary Analysis report for 2005-2015, which is not in use by the NCCD currently; and (b) a Sample "Comprehensive synthesis report" (for Kassala) to help the Government officials and decision makers in setting plans and building resilience of Sudanese communities to disasters, through the provision of basic information and necessary data:[84] there is no evidence that this template is being used by NCCD either. Putting these into use and the Multihazard EW system are vital for Sudan's effective DRR preparedness to enable meeting the Seven Global Targets of Sendai Framework for DRR.[85] There is a significant overlap with the stabilization portfolio, as unmitigated climate and disaster risks are a key factor behind internal migration and potential conflicts over the resources. As mentioned in Section 4.1.4.3, there is a room to address this nexus (potentially as part of a larger project on Multihazard EW system, when funding is available),

It should be mentioned that under the newly starting "Protected Area Management in Red Sea Sate project 10 percent of total land area will be protected as National Park: this is also a contribution towards this Output.

4.3. EFFICIENCY

4.3.1. Resource Mobilization

UNDP Sudan has achieved impressive results in leveraging small core resources by UNDP to help the government in mobilizing vertical funds and technical support to design projects. Through this support, the total mobilized resources (in US$) is around US$31.6 mln, with the contribution from the national sources (in cash and in kind) around US$304.5 mln. UNDP's own contribution was around US$3.12 mln (see Table 8)

The projects ranges are from small (US$ 0.2M) to full size projects (US$ 6M). Currently the funding is provided by UNDP TRAC, Bureau for Crisis Prevention and Recovery (BCPR), and Global Environmental Facility (GEF), Least Developed Countries Fund (LDCF).

The EU has allocated 8.5 million Euro for initiatives that strengthen the local communities' resilience to climate change shocks as well as improve the capacity of local authorities and stakeholders to prevent and address climate change in a sustainable way: the areas will include North Darfur, Kassala, River Nile state, and the Northern State where rising temperatures, decreasing rainfall, fluctuations in the River Nile, and increased wind speeds have resulted in lower crop yields, reduced livestock production, increased river bank erosion, and land degradation[86] EU has already funded the projects under crisis prevention and recovery unit at UNDP Sudan. With EU, as well as other international organizations engaging with Sudan more, more funding might soon become available including for UNDP: it is important to have a prioritized, balanced and manageable portfolio in perspective.

[83] DesInventar: is a methodology to build Disaster Inventories as part of the Risk Mitigation Process

[84] The latter contains data and information related to floods focusing on River Gash (flood profile, historical data on the river discharge); delineation and description the main land cover/ land use in Kassala City and its surroundings (buildings, infrastructure, agriculture--- etc.); information regarding the physical vulnerability of the city to flood hazard (building type, material …etc.); simulation of flood risks and maps of flood risk for Kassala city at different return periods (modeling flood risk); and tools and methods for the collection, storage and processing of geo-spatial data, the dissemination and use of these data and of services based on these data.

[85] http://www.unisdr.org/we/coordinate/sendai-framework

Table 8: Resource mobilizatio by UNDP

Thematic Area	Period	Name of the project	Total budget (US$ mln)	UNDP (US$ mln)	Raised, non-UN (US$mln)	Co-financing (US$mln)
Environment and NRM	CPD 2013-17	1. National Biodiversity project, 2013-15	0.27		0.27 GEF	
		2. Disaster Risk Reduction Project, 2013-16	0.45	0.26 0.19 BCPR		
		3. Gender Responsive in NRM for peace building	0.32	0.32		
	Funds secured,	4. Global Biodiversity-Access to Benefit Sharing 2017-21 (Global project 12M$)	0.35		0.35 GEF	0.70
		5. Protected Area Red Sea project, 2018-22	28.9[87]	0.5	4.6 GEF	23.8[88]
		6. Nubian Water, 2018-21 (Regional Project participating 4 countries and fund is secured: 3.99M$,)	1.0		1.0 GEF	22.3
Climate Change Adaptation	CPD 2013-17	1. National Adaptation project, 2013-16	2.8		2.8 FATDC[89]	
		2. Climate Risk Finance, 2014-18	24.5	0.60	5.7 LCDF/GEF	18.2[90]
		3. 3rd National Communication, 2016-20	1.35		0.85 GEF	0.5
	Funds secured	4. GCF Readiness project, 2018-19	0.4,		0.4 GCF	
Renewable Energy	CPD 2013-17	1. Wind Energy, 2014-18	217.53		3.53 GEF	214.0
		2. Solar Pump project, 2016-20	24.7	0.55	4.5 GEF	19.6[91]
		3. Low Carbon project, 2013-16	0.4	0.2	0.2 GEF	
		4. DDS rural energy, 2016-18	5.7		5.7 Qatar	
	Funs secured	5. Energy Efficiency project, 2018-22	7.56	0.5[92]	1.7 GEF	5.36[93]
Total				**3.12**	**31.6**	**304.5**

Source: UNDP Sudan documents

4.3.2. Delivering on time and resource allocations to manage the portfolio

The projects under the portfolio fared differently in terms of delivering on time. The Wind Power project is proceeding close to the original plan, apart from the baseline wind farm which is heavily delayed. Significant delays are experienced in the current DDS Rural Energy project (for external and internal reasons): the original project duration was extended for 6 months until July of 2018, and even that is likely to be not enough to complete all the intended deliverables on time.[94] This variability of performance suggests that for the projects which experience adverse developments the processes for reacting on time could be better. The vast majority of the interviewees for this evaluation as well as document review indicate that ***risk monitoring needs to be improved ensuring timely response.*** For example:

- The Terminal Evaluation of the **"National Adaptation"** project points to "*Need to improve the analysis of assumptions and risks to ensure that preconditions are not stated as assumptions. Also*

[87] includes PIF and PPG funds
[88] HCENR- US$2 mln, Wildlife Conservation General Administration, US$8 mln in kind and US$8 mln in cash, Red Sea State Government – US$1 mln, Range Department US$ 3.72mln, Agricultural Research Corporation 0 US$0.5 mln
[89] Foreign Affairs, Trade and Development Canada
[90] Government (in kind) US$15.0 mln and private banks US$3.2mln
[91] MWRIE -US$1.5 mln, HCENR- US$0.5 mln, Ministry of Petroleum – US$0.2mln, Ministry of Finance and National Economy – US$3.0 mln, Ministry of Agriculture, Animal Resources and Irrigation, North State – US$ 0.15 mln; Sudanese financial institutions (Al Nile, Al Shamal Islamic, Baraka, Family, Farmer's Commercial, Savings and Social Development, Sudanese Islamic) – US$14.0 mln, and NERC US$0.25 mln
[92] including PIF and PPG preparation
[93] MWRIE – US$1.0 mln, ERA- US$1.0 mln, Sudanese Standards and Metrology Organization (SSMO) – US$2,77 mln, Sudanese Electricity Distribution Company (SEDC) – US$0.2mln, Sudanese Thermal Power Generation Company (STPG)- US$0.2 mln, Merowe Dam Electricity Company (MDEC) – US$0.2 mln
[94] Interview with the Program Manager

need to improve the monitoring of risks and assumptions during project implementation and to use adaptive management to address any challenges related to the two.";

- The MTR for the **"Wind power"** project, mentions that even though here the fact that the wind farm is not built as yet is related to the capacity of the Government to raise funds, the alternative scenarios, e.g. a wind farm with a lower capacity could have been agreed on sooner (NB: such an agreement was reached only recently). According to the MTR: "*The institutional capacity across the feedback loop from monitoring and evaluation technical aspects requires strengthening. …. The capacity of having this discussion and a resolution taken on it at the Project Board (PB), project's Technical Committee (PTC) levels has seemed to be missing and requires urgent attention…. [There is evidence of] a lack of capacity for adaptive management, planning and implementation were cited as capacity barriers*."
- According to the MTR, the **CRF** Project is well designed but implementation was not well-managed: "*Project monitoring from UNDP, Project Board and PMU was found weak. UNDP had responsibility on the quality assurance and other relevant project implementation support (identification and recruitment of project and programme personnel, procurement of goods and services, administration of GEF financial contributions and provision of other technical and administrative supports). The implementing partner was expected to be responsible and accountable for managing the project. But due to communication and coordination problem these expected roles were not observed";*
- With regards to **DDS Rural Energy** project, while the dissolution of DRA in 2016,[95] together with high turn-over of Governors, Ministers and senior staff in the Darfur states, lack of qualified service providers, as well as the delays of fund release for the second and third tranches[96] had affected al the projects under DSS including this one, DDS Rural Energy project experienced delays also for internal reasons, namely: (a) an underestimation of the staffing needs (there was only 1 person until recently); and (b) the need to update the assessments carried out by NERC, since they appeared to be incomplete.

The way the projects' inception phases are conducted should be improved too: at least in the case of 3 projects the insufficient inception phase had resulted in delays:

- In the case of the **Solar Water Pumps** project the establishment of the Banks' consortium has not crystallized yet due to several queries raised by the Banks, which then led to CBS demanding to see (a) the feasibility study of the project and (b) the vision for the structure and mechanism of operation for the proposed consortium (which was not drafted earlier);
- Under the **DDS solar energy** project there was insufficient understanding reached with NERC as to the level of depth of the assessment carried out. necessitating return visits to the cites to fill the gaps;
- According to the MTR of the **CRF** project, "*There was a lack of proper understanding about the different activities, their linkages and proper sequences communication and cooperation between partners further amplified the problems",* and "*The Project's adaptive management was weak, because the very brief inception workshop (of only two hours), …limited thorough revision and analysis of each and every activities, indicators, means of verification, first annual work plan, roles and responsibilities, decision making structures, reporting, communication, conflict resolution mechanism, ToR of all staffs, risks and assumptions;"* and

[95] all programmes/projects funded by the UNDF are in support of, and strictly aligned with the priorities of the GoS and the former DRA, as described in the Project document, ensuring full national ownership. necessary changes and reforms to people-centred land title system including the restoration of land rights to their owners and initiating land rights disputes systems and mechanisms. Darfur referendum, held in April 2016, resulted in 5 separate states, the dissolution of the DRA and the delay in forming of the specialized. This was the main challenge facing the implementation of many of the projects in Darfur,

[96] UNDF Annual Report 2016

- Even in the "**National Adaptation"** project, according to the Terminal evaluation report, it is not clear how were the partnership arranges decided upon ("*whether the partnership arrangements were properly identified and roles and responsibilities negotiated prior to project approval*".

The discussion above clearly indicates that the risk analysis and monitoring as well as attention allocated to inception phase need to improve (see Chapter 7, **Recommendation 1)**

4.3.3. Utilizing synergies and leveraging with other programmes in Sudan

There are only 2 joint projects in the portfolio. One of them, the DDS Rural Energy, is joint with UNIDO where UNIDO has a separate, educational component. There is a good coordination among the UN and other agencies, providing assistance aimed at achieving the goals of the DDS, in Darfur: the UNDF - a multi-donor trust fund, was established in 2015 to support the efficient implementation of key components of the DDS in pursuit of the overall objective of the Doha Document for Peace in Darfur (DDPD) "to support the transition from humanitarian assistance to recovery and development". The UNDF supports 12 Foundational and Short-Term activities (FaST), by 13 UN agencies and entities, in partnership with the Government of Sudan, supported by Qatar Fund for Development (QFFD) with US$88.5 million **(see Table 9**). The projects officially started in February 2016.

Outside Darfur there is only one joint project, the one UNEP and UNWOMEN on "*Promoting gender responsive approaches to natural resources management for peace building in Al Rahad, North Kordofan*, There is a good cooperation with FAO and WB in the context of UNREDD readiness. There seems to be also good coordination with IFAD (Microfinance in Darfur) and WFP. And while there is no joint program with AfDB as yet under this portfolio, there is good cooperation and information sharing.

Given UNDP's coordinating role in UNCT, ***more synergies could be expected with specialized agencies like UNEP.*** With UNEP there were more joint projects under the previous CPD related to energy and environment portfolio, but, according to UNEP (2013)[97], "*the quadrangular jurisdiction between UNEP HQ in Nairobi, DEPI (PCDMB) in Geneva, UNDP Khartoum and the country office was at best inefficient and, in some cases, directly obstructive to the programme, resulting in some long delays in procurement and financial disbursement, and associated reputational damage*." Currently. there is only a project office of UNEP (rather than an agency office): this is potentially one of the reasons for the lack of a more active synergizing. The UNEP implements "ADAPT!" project funded by UKaid, seeking to improve environmental governance and build the resilience of the Sudanese people to climate change – especially in parts of the country most vulnerable to the effects of environmental degradation[98]. There seems to be a room for important synergies between the UNDP EECC portfolio and this project, especially related to the nexus with Governance/rule of law.

Similarly, more synergies could have been/could be built with the projects, implemented by the WB, IFAD and other agencies listed in

[97] UNEP (2013):" Republic of the Sudan Country Programme Evaluation" by Jon Bennett (Team Leader), Abu El Gasim Amir Abu Diek and Ali Jammaa Abdalla

[98] The project seeks to ensure science-based decision and policy-making, and strengthen institutions, capacities and coordination to improve NRM and CCA. It has three priority areas: (a) integration of best practice on climate and environmental issues into project delivery through improved project design, technical assistance and joint programming; (b) deepening and broadening the knowledge and evidence base to promote climate smart planning through analysis such as a 'State of the Environment' report; surveys of groundwater resources; and climate modelling; and (c) improved policy processes and strategic planning, including by leveraging finance to implement and multiply best practices (e.g. engaging with international climate negotiations and supporting Sudan to take forward its Conference of the Parties (COP)21 INDC commitment, attracting global climate funds to support adaptation, and reviewing policies such as the Agricultural Strategy and Poverty Reduction Strategy in view of climate change projections)

Based in the feedback received in several strategic interviews, UNDP could do better in awareness raising about its projects across the board – among the national and international partners, utilizing not only the internet resources but also through presentations. See Chapter 7, See **Recommendation 6**

Table 10**.** There are also international NGOs, e.g. Practical action,[99] which are not covered in the table. In the CPD 2018-2021, UNDP Sudan plans to (a) enhance its partnerships with bilateral donors, regional organizations, and multilateral and national banks, (b) leverage resources for programme cost-sharing, including new sources of finance such as the Green Climate Fund (GCF); and (c) promote joint programme with other UN agencies (UNIDO, UNEP, FAO) to leverage the breadth and depth of the UN's intellectual and technical expertise and reduce transaction costs.

Table 9 The 12 FaST activities, lead agencies and partners

		Lead	UN Partners
	Pillar 1: Governance, Justice and Reconciliation		
1	Promote Reconciliation and Coexistence for Sustainable Peace in Darfur	UNDP	UN WOMEN
2	Darfur Community Based Reintegration and Stabilization Programme (DDR Programme)	UNDP	UN WOMEN UNFPA
3	Strengthening Land Management for Peaceful Co-existence in Darfur	UNDP	UN HABBOTAT, FAO
	Pillar 2: Reconstruction		
4	Rehabilitation of Access roads and crossing points	UNOPS	UN_ ILO
5	Construction of Public Facilities and Housing in Return Sites and Urban Settings	UNHABITAT	
6	increased Access to and Use of Sustainable Water, Sanitation, and Hygiene Services in Darfur	UNICEF	IOM, UNEP, WHO
7	Darfur Solar Electrification Project	UNDP	UNIDO
8	Upgrading and Rehabilitating Health Facilities, and Basic Health Services in Return Sites	WHO	UN-HABITAT UNFPA, UNICEF
9	Promotion of Sustainable Return and Reintegration of IDPs and Refugees in Darfur	UNDP	UNHCR
10	Accelerated Learning Programme (ALP) and improved access to employment opportunities for out-of- school children and youth	UNICEF	UNDP
	Pillar 3: Economic Recovery		
11	Microfinance for Young and Poor Producers in Rural Areas in Darfur	UNDP	UN-ILO
12	Recovery of Livelihoods of Vulnerable Farming and Pastoral Communities in Darfur	FAO	UNOPS

Source: UNDF Annual Report 2016

Based in the feedback received in several strategic interviews, UNDP could do better in awareness raising about its projects across the board – among the national and international partners, utilizing not only the internet resources but also through presentations. See Chapter 7, See **Recommendation 6**

Table 10: Description of projects in support of CCA by agency

Agency	Description of projects in support of CCA by agency
WB	WB is implementing a large project on adaptation, the **WB implements also *Sudan Sustainable Natural Resources Management project (SSNRMP)***, as part of the Sahel and West Africa Program (SAWAP) - which supports the Great Green Wall Initiative (GGWI) - approved by the GEF Council in May 2011, supports the implementation of a country-driven vision of integrated NRM for sustainable and climate-resilient development

[99] https://practicalaction.org/climate-change-22

Agency	Description of projects in support of CCA by agency
	in twelve countries in West Africa and the Sahel. Additionally, the project builds on the TerrAfrica Platform[100] for sustainable land and water management (SLWM)
IFAD	Since 2013, the portfolio includes six projects: the Butana Integrated Rural Development Project; the Revitalizing the Sudan Gum Arabic Production and Marketing (RSGAMP) Project; the Rural Access Project; the Seed Development Project; the Supporting Small-scale Traditional Rainfed Producers in Sinnar State Project; and the Western Sudan Resources Management Programme. (WSRMP). Ongoing country grants include support to the development of a national strategy for the rainfed sector, scaling up of rural microfinance by the Agricultural Bank of Sudan, and restructuring of community-level sanduqs (credit and saving groups) of Al Garrah. There is also a new project on carbon sequestration, financed by GEF
EU	EU supports the Wadi El Kou Catchment Management project in North Darfur, that showcases a unique platform for institutions and communities to establish well-informed decisions regarding high risk natural resources, such as water. The EU and many of its member states further support the Nile Basin Initiative, the regional partnership which aims to achieve sustainable socio-economic development through the equitable utilisation and benefit from the common water resources[101].
GIZ	As part of a trilateral project between Sudan, Intergovernmental Authority on Development (IGAD)and the German Federal Ministry for Economic Cooperation and Development, GIZ is supporting reducing land degradation in selected locations in Kassala and Gedaref by constructing water terraces. Working with local communities, the project aims at improving the management of the scarce water resources[102].
Netherlands	is supporting initiatives to make more efficient use of the limited water supplies in eastern Sudan[103]
UKAid	The UK allocated GBP10 million to support Sudan to better understand and integrate climate and environment issues into programmes, plans and policies. This recognises the importance of the environment and natural resources to people's livelihoods and to the economy, and the risks due to a changing climate in Sudan. The UK has also allocated GBP27 million to support rural communities in the east and west of Sudan to better adapt to climate risks by improving their access to and management of water resources[104]

Source: compilation from various sources

4.3.4. Engagement and coordination among the stakeholders

The institutional landscape for the Outcome is described below for the three thematic areas: environment, energy and DRR

ENVIRONMENT.

Federal level ministries and specialized agencies include the ***Ministry of Environment, Forestry and Physical Development (MEFPD)*** and the ***Ministry of Animal Resources, Fisheries and Range (MARFR)*** as the main ones with the key roles in policy formulation, planning and monitoring of progress in the sector development, research and extension services for agriculture, livestock, forestry, fisheries, pastures and overall natural resources protection, conservation and development. A number of research centers are associated with various ministries, related to agriculture; animal resources; wildlife; and forestry. Key agencies include:

- ***HCENR***, with a mandate to coordinate and advise on making effective policies, laws, plans and institutions that solve problems of natural resources degradation in Sudan. It is affiliated to the MEFPD, and represents Sudan as a focal point for most of the global environmental conventions,

[100]TerrAfrica is an African-driven global partnership program to scale up sustainable land and water management across sectors in over 23 Sub-Saharan countries, by reinforcing investments, institutions and information at country and regional levels. The project will benefit from the collaborative approach and regional multi-sector partnership that is in place under the platform and which all the participant countries, including Sudan, are implementing. By building on this integrated programmatic approach, each country can benefit from lessons learned in various projects and programs

[101] ibid

[102] ibid

[103] https://www.dabangasudan.org/en/relief-news/article/eu-ready-to-support-sudan-with-climate-change-ambassador

[104] Ibid

e.g. UNFCCC and is leading the coordination of the climate change process in Sudan, which involved wide range of national institutions as well as state level institutions. The Climate Change unit within HCENR, coordinates among all related institutions and has formulated a number of technical teams of national experts on GHGs inventory, mitigation, vulnerability and adaptation assessment. The National Climate Change Committee (NCCC) represents 17 institutions relevant to climate change

- The ***Forest National Corporation (FNC),*** a semi-autonomous institution under the MEFPD, with the responsibility of coordinating the forestry sector, formulating and following up the implementation of policies, planning and undertaking administrative tasks for forests and woodland management; and
- The ***Range and Pasture Administration (RPA)***, a decentralized authority under MARFR, with responsibility for planning, conservation and development of rangeland programs, protection of angelands against bushfires, rehabilitation of degraded rangelands and execution of national and internationally assisted projects.

There is some ***ambiguity of the mandates between the MEFPD and HCENR***. But ***understaffing of HCENR*** is a larger challenge for the UNDP EECC portfolio as number of projects is large and HCENR has only 6 staff. It should also be noted that the ***Ministry of Agriculture has an important role to play***, since the upscaling and replication with linkages to farm production is under that Ministry. It is important for UNDP to work with wider circle of national institutions, and in particular, with the Ministry of Agriculture at central level (see Chapter 7, **Recommendation 9a**), since it is the mandate of this Ministry will allow for the most effective mainstreaming and replication of innovative measures piloted by UNDP. The "*National Adaptation*" project led not only to many replications by other development agencies, and some elements were included in the 5year Strategic Plan and four State level draft policies were developed and the extension network trained; this was greatly facilitated by the involvement of the MoA at the state level. These achievements, based on the interviews could have been even more impressive, if the replication was put on a more systematic footing under the auspices of the MoA at the central level

RENEWABLE ENERGY AND ENERGY EFFICIENCY.

Institutionally, the energy sector, suffers from fragmentation with the Ministry of Water Resource and Electricity (MWRIE), the Ministry of Oil, Ministry of Science and Technology and MEFPD, all having mandates to tackle issues related to the development and dissemination of RE technologies without clear borderlines of mandates: this has resulted in duplicated efforts.[105] In ***relation to RE there is a room for an Energy Council*** (something that existed before), since currently the mandate of the Ministry of Electricity and Water, does not even cover all types of energy services (see Chapter 7, **Recommendation 9b**)

DISASTER RISK REDUCTION

NCCD includes agencies and institutes that are responsible of risk and disaster[106]. The main agencies are Civil Defense Department (CDD), Sudan Metrological Authority (SMA), Humanitarian Aid Commission (HAC), and Remote Sensing and Seismology Authority (RSSA). There are overlapping mandate issues between the NCCD and HAC.

Thus, the existing institutional framework is challenging and while UNDP, due to its standing, manages to navigate these challenges, they do have certain impact. The key challenges include: roles and mandates across different agencies and need to enhance coordination and information sharing.

[105] Project Initiation Plan (PIP) Project Title: Promoting Low Carbon Investment
[106] Civil Defense Department (CDD), MWRIE, Sudan Metrological Authority (SMA), Humanitarian Aid Commission (HAC), Ministry of Health (MOH), MoA, National NGOs, Civil society organizations, and UN Organizations.

Some of the key policies adopted at the central level in the recent years, at the state level are not yet adopted and the coordination between national and state level is not streamlined. Hence, policy and investment responses are fragmented and times inadequate. Federal, state and local Governments and their constituencies are overwhelmed by the scale and complexity of the problems confronting production and conservation landscapes.[107, 108] Coordination at national level, as well as between the central and state levels is weak. Commitment to participatory planning processes is also limited with a top-down approach being prevalent affecting the prospects for bottom-up policy settings and action.[109] For UNDP it is important to: consider carefully the capacity for implementation at the counterpart agencies, to reduce the risks, and with a forward-looking view- at building the capacity that would be retained. In the CPD 2018-2021, UNDP Sudan plans to do more in creating linkages between - State Governments[110i], ministries[111], academia[112], research institutions[113] and non-state actors.[114] This would be very important to enable reaching the more ambitious targets now set in the Paris Climate Agreement, the SDGs and Sudan's NDC.

4.4. POTENTIAL FOR SUSTAINABILITY AND SCALING UP

4.4.1. Programmatic and financial sustainability

National Ownership

Strong national ownership is key for sustainability, as was demonstrated by the *National Adaptation* project. Overall, the other projects also display national ownership, albeit to varying degree. It is affected by significant external factors and even within the same project various components fare differently. For example, under the Wind Power project, the strong national ownership was evident given the sheer number of new regulatory instruments adopted along with the establishment of the Unit on RE within the MWRIE, but the wind farm is yet not there, partly due to the fact the Government failed to find the financial resources for it and did not act fast in deciding to downscale, with the result that the project is failing to demonstrate the proof of concept. National ownership has so far been weaker in the case of the DRR project, where at least one of the project deliveries, the DesIinventar is not used by NCCD (despite the fact that it was handed over to NCCD and 7 staff members were trained), as well as the CRF project, which did not benefit so far from the required level of monitoring, scrutiny and needed expertise.

Policies and regulatory framework

The fact that the project supported quite a number of strategies, policies and regulations increases the likelihood of sustainability of the implementation -type of activities, but for the potential to materialize this needs to be backed by strong national ownership, effective implementation mechanisms and funding by the national sources and private sector, i.e. not relying on the donor funding only. ***In the case of CCA***, at the ***national*** level, the legal frameworks, policies, and governance structures and processes within which the projects operate are overall conducive for the prospects of the sustainability of projects' benefits. At the ***State level*** however, while the State governments have a high level of awareness of the importance of

[107] (i) lack of sufficient financial allocations; (ii) unclear and overlapping mandates of institutions responsible for various components of the rural landscape; (iii) insufficient technical capacity in these institutions; (iv) insufficient knowledge and updated data 5 to address such complex issues ; (v) absent or weak land-use planning; (vi) limited research capacity; (vii) weak regulatory compliance and enforcement; (viii) weak community involvement in prevention and restoration activities; (ix) insufficient attention to alternative livelihood issues; and (x) insufficient attention to transparent governance, corruption, and local participation. The different challenges are interwoven and require integrated solutions. The fragmentation of institutions, information, and incentives weakens the ability of Government institutions and the communities that they serve to address the issues in a strategic and integrated manner

[108] WB (2013) PAD "SUSTAINABLE NATURAL RESOURCES MANAGEMENT PROJECT@

[109] UNDP memo

[110] Darfur States, Gedarif, West Kordofan, Kassala, North, White Nile, Blue Nile and Red Sea

[111] Ministry of Finance and National Planning, Ministry of Environment and Physical Development, Ministry of Water Resources and Electricity

[112] Alfard University, University of Khartoum, Agriculture Research Institution, National Energy Research Council

[113] Agriculture Research Institution, National Energy Research Council

[114] Sudanese Environmental Conservation Society, CBOs, CSOs

mainstreaming climate risks into productive systems and formulate draft State level climate change policies, these are often not approved and/or implemented. ***In the case of RE***, with the regulations developed under the Wind Power Project, the framework is catching up, but there needs to be a revision of the RE Masterplan. For both areas (CCA and RE), the enabling environment (tax, customs., subsidies) is still in the need of improvement. And ***as for DRR***, there is still a long way to go, as at the moment it is only the DRR strategy that has been adopted.

Effective implementation mechanisms to support the sustainability potential

For the policies to serve the intended role, they need to be backed up by effective implementation mechanisms. This is particularly challenging in Sudan given the decentralized structure of the Ministries. Several projects in the portfolio demonstrate successes in achieving that, e.g. the *National Adaptation* project (see **Box 10**) and the 3rd TNCBUR project. In the case of the DRR project, it is an opposite case, since, based on several strategic interviews, an effective coordination mechanism for the implementation of the DRR strategy under the NCCD is lacking. The Solar Pumps project has a good chance to ensure that the PV Fund becomes that very much needed effective implementation arrangement. While adaptation projects now have the support at the state level, the poor local-federal institutional coordination and the financial constrains faced by state level agencies is a barrier still. As an example, of the latter, while there is an appreciation of the role the agricultural extension network (Technical Committees (TCs)) play, they often have very little budget. Realizing that this is a barrier in awareness raising is acknowledged. More innovative solutions need to be found in supporting the extension network in reaching out to all the farmers, e.g. using mobile networks. See Chapter 7, **Recommendation 2b**

Box 10: the role of partnerships in prompting replication and scaling up under the "National Adaptation" project

Institutional framework and governance risks to sustainability: The project strengthened national and local institutions, creating new partnerships for addressing climate risks in agriculture. In particular the partnership between the HCENR, state ministries of Agriculture and Animal Resources, Forests National Corporation, Research Centres and Civil Society Organizations (CSOs) at the state level, Village Development Committees (VDCs) in four eco-zones, local NGOs and associations. These partnerships will continue to support and upscale the improved practices introduced by the project. Sustainability of these initiatives is further ensured via the development of 4 state level climate change policies (one for each district), whose drafts were developed and shared. Thus, not only have the project outcomes contributed to better preparations to cope with natural disasters, it has improved the understanding of the importance of climate change considerations and perception of preparedness amongst the beneficiary communities,

The project set up local institutions to support continuation of several initiatives such as revolving funds management committees. While these institutions are important, it is not clear if they have established to the point where they can survive without further support from the project. This factor is, however, counteracted by the fact, that, there is high level of ownership of the project initiative from communities and State government, hence there is likelihood that the State governments will continue to support them

Catalytic Role. The project was sufficiently catalytic for the following reasons:

- ***Scaling up –*** although the project is a scaling up initiative itself, it has contributed to the formulation of another and larger adaptation project currently being finalized for submission to the GCF. This will allow approaches developed through the project to be taken up in other States in the country. When the draft State policies on climate change are approved, mainstreaming climate risk into agriculture and livestock production is expected to be legally required in the 4 States that were part of the project;
- ***Replication:*** The project received additional funds from the French Embassy in Khartoum (USD $130,454) to extend solar energy to pump water for multipurpose uses in areas not originally covered by the project in the state of Gedarif. UNDP has also submitted a concept note to the Canadian Embassy in Khartoum in the amount of USD $500,000 to scale up the project activities to other areas not part of the LDCF upscaling project. FAO liaised with project team of South Darfour State to support Animal production component; in Gedarif State Sudanese Environmental Conservation Society and the project team working in same village (Wad Hassan) where were supporting each other.
- ***Demonstration:*** the project has established many demonstration sites in the project pilot area which have been used as learning sites by all those involved in the project, through exchange/site/study tours. In addition, project information has been successfully disseminated through the various reports such as project annual reports and technical publications, notably, one on mainstreaming gender and the Cook Book on climate smart recipes; and
- ***Catalytic role:*** As the project engaged in knowledge transfer (i.e., dissemination of lessons through project result documents, training workshops, information exchange, a national and regional forum, etc). The project contributed to two key publications which have been disseminated globally. They are: a) Filling Buckets, Fuelling Change: Ensuring Gender-Responsive Climate Change Adaptation; b) Adaptive Farms, Resilient Tables.

Source: UNDP (2017): Terminal Evaluation of the "Implementing Priority Adaptation Measures to Build Resilience of Rainfed Farmer and Pastoral Communities of Sudan, Especially Women Headed Households to the Adverse Impacts of Climate Change" Project

Financial sustainability

Financing climate action remains a major hurdle, especially in Sudan, which is experiencing significant macroeconomic challenges/high state debt, translating into difficulties for the Government to provide the required co- funding (as was the case for the Wind Power project, for example). In these circumstances the viability of partnerships and stronger engagement with other donor agencies become even more important (see Section 4.3.3), along with attracting private investment (where UNDP's Wind project has made very important steps to facilitate) and mainstreaming into Government programs. The latter has happened somewhat sporadically in the case of the "*National Adaptation*" project: the interviews demonstrated that the engagement with the MoAs at the states' level has resulted in the Government 5-year Plan including some of the innovative adaptation measures. This however could have been done more systematically, if the federal level MoA was engaged as a partner for the project. In the case of DDS Rural Energy project while it is prudent to expect that there will be budgetary allocations for the maintenance of the installed solar pumps, it is even more important to advocate the inclusion in the budget of resources to scale up the practice.

Financial sustainability assumes affordability of the provided services; otherwise the services will be underutilized, with corresponding implications for sustainability. In this regard, as discussed earlier, it

would be important to ensure the affordability of the loans from the planned Solar PV Pump; the same would be true for the planned in INDC microfinance programs for water harvesting schemes.

4.4.2. Human resources

All the projects include training and other capacity building elements. UNDP has already contributed significantly to building national capacities at all levels. However, the gaps in the national capacities are vast – as communicated during many interviews for this evaluation and as documented in various reports both by UNDP and third parties. The lack of training and capacity development plans, human resource capacity gaps, and mechanisms for oversight, accountability and quality control are all important barriers. The need to do more to enhance the capacities of national partners to reach the more ambitious targets now set in the Paris Climate Agreement, the SDGs and Sudan's INDC is well recognized, including by UNDP Sudan.[115]

UNDP has been and is playing a key role in building the capacity of the national experts by engaging with them in various projects, including, *inter alia,* by often using the National Implementation Modality (NIM) in many of its projects. In the next programming period, provided funding is made available (Proposal is submitted) UNDP has planned to implement with HCENR a project aimed at capacity building/helping to increase the transparency ("Transparency project") of HCNER. But more is needed in terms of the capacity building of MEFPD, along with HCENR (as is highlighted also in Sudan NAMA profile[116]), see Chapter 7. **Recommendation 9a**

Whilst some stakeholders have greater capacity in certain elements than others - and UNDP builds on these strengths where possible – a further continuous process of capacity building across the projects' cycle is still needed. This is highlighted, for example, in the MTR of the Wind Power project, with a recommendation that some specific technical trainings are needed (e.g. on contracting, interconnection agreements, FiT negotiations, etc.); it also highlights the importance of mentoring support to build problem solving confidence and the ability to work out solutions in a systematic, decisive and consultative way.

Given that the first steps are being made towards commercialization of RE as well as small scale water harvesting systems, it is important to build the capacity of the loans officers of the participating banks related to the appraisal of applications,

And finally, while for each project, where there is a provision of equipment (solar pumps) representatives from the local communities are being trained to maintain and operate, given the desire to scale up and the plans to commercialize, this could be done on a more systematic basis working with vocational institutions.

4.5. IMPACT

The discussion in this Section follows the stylized TOC in Figure 14

Stronger institutions

With more than 7 policies (5 of these with Action plans) and more than 3 regulatory instruments the UNDP EECC portfolio has contributed to the improvement of the enabling environment for the promotion of RE and innovative adaptation measures in agriculture. The regulatory instruments set the foundation for the increase in PSP in RE. With this portfolio UNDP has also helped the Government in making the initial steps towards commercialization of RE technologies and Small Water Harvesting

[115] UNDP Sudan (2017):" UNDP – Why Fighting Climate Change Matters", memo received from the UNDP Sudan
[116] NAMA Profile # 6, Seeking Support for Implementation (NAMA Registry ID: NS-121); Development of a Feed-in Tariff NAMA for Renewable Energy. July 2015

Schemes (SWHS), While there are some risks, there is a potential that banks and microfinance institutions will start lending under such schemes. The risks are less in the case of the Solar PV Fund, the establishment of which was imminent at the time of writing this report. As for microfinance for SWHSs this was supposed to be started with the CRF project, but there are significant delays and the risks of not materializing are substantial.

By training many public officials across the portfolio, UNDP has contributed to strengthening of public institutions. [It is recommended that the RRF contains an aggregate indicator on the total number of public officials as well as experts, trained (gender disaggregated]

UNDP has helped the Government to raise US$31.6 from global and regional funds, which is another avenue of contributing to stronger institutions. This has enabled the Government to test approaches and then adopt policies with these measures mainstreamed. While the state budget is strained, it is plausible to assume that there will be some allocation of public funds for scaling up the piloted and tested measures. [It is recommended that the UNDP RRF tracks government spending/public investment in RE/SWHSs]

Environmental Impact

The RRF indicators do not cover emission reduction and the value of the conventional fuel saved. These are very important outcome level indicators, which are normally reported by UNDP as part of RRFs, partly because the data is already available from the donor reports (given that many of the projects are funded by GEF, and these are reported to GEF). A recent presentation obtained from the UNDP Sudan features estimates for these indicators, as described in **Table 11**. With 3 projects listed, the total estimated emission reduction will be around 2.5 million tCO_2, saving over US$7,2mln on diesel fuel. Besides, diesel pumps, which when used for water extraction, are often contaminating water with chemicals and affecting the surrounding vegetation: their replacement removes this environmental challenge,

Table 11: Estimated Emission reduction (tCO2) per project life and the Value of conventional fuel saved (US$)

UNDP Projects	Emission reduction (tCO_2) per project life	Value of conventional fuel saved (US$)
Grid-connected wind energy	734,200	762,379
Solar pumps	829,440	4,702,320
Darfur solar electrification	973,600	1,755,800
Total	2,537,240	7,220,499

Source: adapted from UNDP Sudan presentation on "Environment, Energy and Climate Change" from March1, 2017

Livelihoods [117]

UNDP has contributed to improved livelihoods of 4960 households in 4 states, who adopted innovative adaptation measures, individually or collectively. Indicators capturing improved livelihoods are not systematically tracked in the RRF. There is data from the *National adaptation* project -cited. 98 percent of these households experienced 40 to 50 percent increase in yield (against a target of 25 percent). ***The beneficiaries of the Solar Pump project are likely to demonstrate similar trends in terms of increased yields-*** at least in the part of 28 farmers in the demonstration part. Based on field visits they are expected to have more disposable income due to elimination of the costs of diesel and cultivating more land; the pro-poor impact, however will depend, as mentioned, on the availability of affordable finance. And lastly, no

[117] A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living: a livelihood is sustainable which can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long term." http://www.humanecologyreview.org/pastissues/her131/knutsson.pdf

project has tracked job creation, but this would be an important indicator to track (already in the RRF of CPD 2018-2021)

Resilience

UNDP has contributed to drastic increase in the perception of improved resilience of food production systems among the 4,960 households in 4 states. According to the Terminal evaluation of the "*National Adaptation*" project, 97 percent of the beneficiaries reporting a very high level of perception on improved resilience of food production system due to project intervention. ***Beneficiaries of the Solar Pump project are likely to demonstrate similar trends***, given that they will have more and more reliable water supply, at least in the part of 28 farmers in the demonstration part. The *National Adaptation* project is the only project in the portfolio where this indicator is tracked: it is recommended that this indicator is tracked in the next programming phase. Even if this is not captured in the baseline surveys it is possible to reconstruct the baselines in the final surveys.

Improves social services/potential for health outcomes

DDS Rural energy project is reaching large number of beneficiaries with various interventions (70000 households as planned, but the figure will be revised down somewhat), ***who would, inter alia, potentially benefit from the expected improvements in the services of the social institutions.*** Impact in terms of better social services do not seem to be captured. With the survey of the institutions UNDP should capture: (a) savings in the budgets and (b) perceptions of the customers related to improved services, etc.

Solar water pumps have a potential to demonstrate "health" impact by as well: they are a safer option in comparison to hafeers and hand-dug wells, which are often contaminated (with humans and animals sharing water from the same hafeers) with undesirable health outcomes. In contrast, solar water pumps are cleaner as the water is extracted from a deeper level, keeping it clean.

Gender Outcomes

Under the "*National Adaptation*" project, gender was addressed with planned measures with gender responsive adaptation strategies, providing insights into the types of resources and partnerships needed at local and national levels for success (see **Box 11**). This has led to ***transforming social norms in food production with women, especially through empowering women headed households and reinstated women's solidarity networks in 4 states.*** The project has seen ***increased participation of women in planning and decision-making bodies governing access and use of natural resources*** in addition to providing livelihoods opportunities[118]. [These outcomes could be better captured with indicators, e.g.

[118] UNDP (2017):" Filling Buckets, Fueling Change: Ensuring Gender-Responsive Climate Change Adaptation- Learning from the Canada-UNDP Climate Change Adaptation Facility"

percent of women formally represented in NRM governance structures; and number of women -headed households investing in adaptation measures],

In the case of the joint UNEP/UNDP/UNWOMEN project on "*Promoting gender responsive approaches to natural resources management for peace building in Al Rahad, North Kordofan"*, while final data is not available yet, there is anecdotal evidence that the Project has seen increased participation of women in planning and decision-making bodies governing access and use of natural resources in addition to providing livelihoods opportunities.

Box 11 : Gender in "National Adaptation" project

Gender was addressed specifically with planned measures with gender responsive adaptation strategies, providing insights into the types of resources and partnerships needed at local and national levels for success. For example,

- realizing that effective control over productive resources and incomes without depending on those owned and controlled by their fathers, husbands or sons, is a precondition for women to build their adaptive capacity and that the need for women's control over land needs to be addressed the project focused on collective access; promoted women's control over financial resources, e.g. through community-based revolving funds called Sandug; targeted women-headed households with limited access to land and productive resources (in Sudan, such households, which constitute up to 50 percent in some parts of the country);
- Realizing that there are important differences in educational levels and in the proportion of women-headed households across the four selected states, the project teams developed customized strategies to work in the four regions, with realistic targets and differentiated approaches for increasing women's participation in decision-making;
- Given that tending home gardens is largely a female practice, the project supported women in expanding their role in food production by growing food that improves family nutrition and/or generates profit they can control.

As a result, the project contributed to transforming social norms in food production, and reinstated women's solidarity networks

UNDP (2017):" Filling Buckets, Fuelling Change: Ensuring Gender-Responsive Climate Change Adaptation- Learning from the Canada-UNDP Climate Change Adaptation Facility"

Solar water pumps are proving to have gender -related outcome also. In many villages women have the greatest burden, as they are responsible for household chores and fetching water. The scarcity of water leads them to travel long distances on foot to fetch water. The installation of the pumps leads to water being extracted faster, saving time for women, and improving health outcomes.

Peacebuilding outcomes

By improving governance structures, and enhancing ***local capacities*** *(coupled with purely* political processes-related work), **and *identifying synergies between environmental and peacebuilding measures through adaptive, flexible approaches*** in project design and implementation, several projects under "Peacebuilding and Stabilization" portfolio are showing reduction on tensions in the communities , especially related to the access to natural resources; this is the case, for example, with the CRSP project in Darfur, see Error! R eference source not found. (also, potentially other interventions in Darfur and Kordofan). To enhance this emerging impact, there is a need to tackle better the

Box 12 Renewable Energy Serves as a Peacebuilding Catalyst in Sudan,

With contribution of Canada, Japan, Italy and Spain towards C government, NGOs and implementing partners has installed solar Nile Sate, Um Dukhon in Central Darfur and Tandalti in West Kordofan, Abu Jebayha and Abu Kershola in West Kordofan and 200,000 people from 8 localities have benefited from a steady interaction between tribes and contributes to the reduction of conflicts.

Farmers in Tandalti were content as they got a consistent supply of water from the pump for irrigat as the pipeline extended 1000 meters to cover the plots starting from the pump. The supply of wa centered on poultry. However, the pressure on water resources increased in El Gari due to a la 13,000. As a mitigation measure, the efficient solar pumps are able to provide water for all. T managed by WMCs (Water Management Committees). The WMC decides fees for the water implementing partners, the rural water corporation and the local administration for maintenar corporation who are the caretakers and the security guard at the pump. The WMC keeps asid Kaltoma Jakoon, an IDP woman from El Gari recounted her tiresome experience in fetching w relatives to fetch water, and they lost two-thirds of the day in collecting water. Previously her f community and they were nervous of their encounters with animal herders. Kaltoma stated that h lodged in their village

In Hay Elmak, the WMC provided free water to vulnerable families, reduced water charges for school and mosque. The head of the WMC highlighted that daily profits ranged between 600-800 constructing classrooms in the school, supporting the youth center, operating literacy classes and

Kaltoma Jakoon, an IDP woman from El Gari recounted her tiresome experience in fetching w relatives to fetch water, and they lost two-thirds of the day in collecting water. Previously her f community and they were nervous of their encounters with animal herders. Kaltoma stated that h lodged in their village

http://www.sd.undp.org/content/sudan/en/home/presscenter/articles/2017/06/18/renewable-energy-serves

organizational silos between the donor agencies with thorough strategic partnerships and integrated approaches which will require a more adaptable approach in terms of projects' design (see Chapter 7. Recommendation 4). ***The link between the environment and issues pertaining to peace and security, however, remains controversial and complex, and if this is planned to be tracked it has to be done with highly rigorous methodologies.***

5. CONCLUSIONS

UNDP Sudan has made a significant contribution towards the desired outcome of *"**Populations vulnerable to environmental risks and climate change becoming more resilient** and relevant **institutions are more effective in the management of natural resources**"*. This contribution came in the form of:

- ✓ improvements of the policy (related to CCA and DRR) and regulatory (RE) fields;
- ✓ demonstration projects related to CCA (with small water harvesting systems and alike); and replacing diesel with solar power in irrigation (with solar water pumps) and in the social sector institutions (in Darfur, with Solar powers electric lighting systems as well as pumps). These projects reached or have potential to reach over 69400 people[119]), who experience less costs in their farms with higher yields, which makes them (over 90 percent of them in the case of the *National Adaptation* project) perceive their livelihoods as resilient less likely to engage in conflicts related to the access to natural resources. The projects demonstrated that with correct gender sensitive approaches it is possible to achieve impressive outcomes for women: in the case of the *National Adaptation* project, these approaches led to empowering women headed households and reinstating women's solidarity networks in 4 states. This work could be further enhanced with more emphasis on women's participation in NRM governance in other projects as well as mainstreaming it in policies to be applied nationwide;
- ✓ made first steps towards commercialization of (a) solar PV in irrigation with the plans to establish a solar PV Fund, and (b) small water harvesting schemes, with the plans to stimulate microfinance' and
- ✓ enhanced the existing meteorological EW system in the country.

The important linkages between the EECC portfolio and the Peace and Stabilization (with a number of projects there including elements on improved NRM), and governance (with local development plans). Portfolios. These linkages need to be enhanced (as is planned), with a special attention to affordability of the novel measures/schemes in RE and rainwater harvesting to the poor and efforts to support improved governance enhanced. These successes have reinforced UNDP's standing as the partners of choice for the Government.

In some areas, the expectations were not met (e.g., in relation to EW systems) or there are concerns that will not be met (with Weather Insurance scheme). This is both for external reasons (with the expected large funding for DRR not materialized) and internal reasons (in the case of the CRF project). The drastic expansion of the portfolio, in some cases has come at the cost of risk monitoring sometimes not being at the desired level given the constraints at the number of staff as well as supervisory capacity of the counterparts. These factors need to be addressed in the next programming period given that the portfolio is likely to continue to increase. While UNDP engages with many institutions, and plays an important role in achieving UNDAF goals, the synergies with partner UN agencies could be enhanced. The latter point does not apply to the programs in Darfur where there are many joint projects already. Sharing of in-depth information about the results achieved from the projects with them and wider circle of stakeholders could also be enhanced going beyond posting web stories.

[119] Estimated as: around 60000 under the DDS Solar Energy project, 1400 under the Solar Pumps Project and 4000 under the National Adaptation project

The circle of the institutions with which UNDP engages directly at the central level under this portfolio in the field of environment needs to be enlarged, including inter alia, the Ministry of Agriculture at the central level to enhance the potential of systematic replication and mainstreaming of the innovative schemes, piloted by the projects.

UNDP has significantly contributed to capacity building of the public sector officials, as well as other stakeholders, with many training measures and tools implemented and provided in the framework of the projects. But the extent of the capacity gap is still vast and the efforts will need to be enhanced.

In the next programming period UNDP Sudan together with the Government expect to enhance the portfolio. All the planned projects are very relevant for Sudan. Moreover, if additional funding becomes available there are a few other important areas to tackle, but care is needed to ensure that capacities to monitor the implementation adequately are there. The RRF framework for the next programming period, while an improvement over the one from the CPD 2013-2017, still falls short in capturing important outcome level indicators and it is recommended that more indicators are tracked even if not along the indicators from the approved RRF.

6. LESSONS LEARNT

The following points summarize the lessons learned from the review of the portfolio of the projects

1. Strong position as the trusted partner for the Government and access to vertical funds in the environment, where some of the other international organizations with strong focus energy and environment are not yet active in Sudan, has given UNDP Sudan a unique opportunity to help the country in pursuing sustainable development- an opportunity that needs to be used strategically, ensuring smooth implementation, in partnerships with and capacitating of the government agencies
2. The successful implementation of the *National Adaptation* project has underlined the importance of country ownership and effective institutional arrangements. The co-financing provided by the Government and its development partners provided a good example of how such ownership can lead to strong institutional arrangements and effective project governance. This relies on the commitment, institutional and financial sustainability of the co-financing institution, as in the case of Federal and State Ministries of Agriculture;
3. The importance of strong adaptive management was highlighted by the *National Adaptation* project: the team applied it to revise the logframe to make it more effective in managing the project. This is a very important step in successful UNDP-GEF projects that unfortunately, does not happen in many projects. Equally important is the careful design of the baselines of the projects so that at the end data will allow to not only report against the formal indicators but also against the development objectives of the projects more broadly;
4. Addressing gender with planned measures and gender responsive adaptation strategies, providing insights into the types of resources and partnerships needed at local and national levels for success can lend impressive results: *National Adaptation* project documented empowering women headed households and reinstated women's solidarity networks;
5. Specific attention to documenting and disseminating learning helps replications and mainstreaming and should be a mandatory part of the projects: the *National Adaptation* project lends a successful case;
6. Physical infrastructure projects come with unforeseen challenges which can be beyond the control of the project itself (as in the case of the Wind Power Project), yet hamper progress in terms of delivery of the projects intended objective(s). The same is true for the projects which are very

innovative in nature, with expected active participation of the private sector (e.g. in the case of the CRF). The importance of closer monitoring of risks becomes paramount. This applies to all: Project Board, Project Manager, technical committees, UNDP and the counterparts;

7. Thorough Interaction workshops conducted by the PMUs involving all partners to discuss all activities so that no confusion remains and there is good understanding among all the partners and PMU staff of the concepts and priority actions are of paramount importance. The same goes for having Communication and coordination plans at the beginning of the projects. Failure to ensure these might impact the implementation of the projects rather significantly; and

8. For demonstration projects, the demonstration is what stakeholders are looking out for. The importance of this, as a vital ingredient – a proof of concept- when promoting innovative concepts is hard to overstate: failure to treat this as a highest priority risks undermining the value of the concepts.

7. RECOMMENDATIONS

GENERAL RECOMMENDATIONS

1. ***Ensure that the fast growth of the EECC portfolio is commensurate with the staff capacity at UNDP, together with more stringent practices for risk monitoring and preparatory work under the projects' inception phase.*** This is important to alleviate the concerns about monitoring of risks during the implementation;
2. ***Potential additional thematic areas:*** If more funding becomes available consider initiating activities along the following thematic areas:
    a. ***Comprehensive program to improve the enabling environment for the RE and EE.*** While there are activities (e.g. to address customs duty related barrier under the Solar PV Fund), as well as important changes achieved already (several improving regulatory framework for IPPs under the Wind Power Project), there is a need for a comprehensive approach to the improvement of the enabling environment for RE and EE, starting from National Renewable Action Plans (NREAP)/update of the RE Masterplan, design of stimulus (tax exemptions, state guarantees/risk sharing, etc.). World Bank is current study on could serve as a basis for the formulation of the activities in support of the Government's efforts to address the barriers;[120]
    b. ***Enhancing the initial steps made and/or planned in support for the commercialization of RE/ EE and small-scale water harvesting technologies***. The work started under the Solar Pumps project with the upcoming establishment of the Solar PV Fund must be carefully monitored and enhanced to ensure that affordable loans are available for the households/farmers wishing to establish such systems. Similarly, support the plans from INDC to introduce a revolving micro-credit fund to support implementation of small water harvesting projects;
    c. ***Support the development of operationalization of a Multi-hazard EW system***; and
    d. ***Waste to Energy,*** given that it is one of the priorities under Sudan INDC, under the "Integration of renewable energy in the power system" as part of the "Zero Waste Concept", initiate a support program for the Government to make the necessary first steps in that direction.
3. ***Enhance the linkages with:***
    a. ***the Stabilization portfolio under the Humanitarian-Development-Peace nexus.*** In particular, the constraints of maintaining large concentrated populations in a dryland

[120] UNDP Sudan had a similar project with GEF funding - 'Barrier Removal for PV Market Penetration in Semi-Urban Sudan' project in 2003-2005

environment is to be better addressed along the given the rapidly expanding peri-urban settlements (protracted IDP presence) and the radical shifting patterns of rural population Sudan as a whole; and

   b. ***the "Inclusive governance and the Rule of Law"*** *portfolio. In particular, assess the merits of replicating (a)* UNDP-supported local development plans in South Kordofan and the east that improved public expenditure management, and increased participation of local communities in planning and implementation; and (b) experience from the "Strengthening Land Management for Peaceful Co-existence in Darfur" project implemented by UNDP together with UN HABITAT and FAO.

4. ***Ensure that all the policies addressing climate change/clean energy and DRR recognize gendered impacts, provide women with access to resources, and enable opportunities for them to participate in mitigation and adaptation processes***. This includes, inter alia: (a) analyzing levels of vulnerability, resilience, and autonomy of men and women when confronted with different threats; (b) developing ccGAPs that are gender-sensitive and gender-responsive, gender responsive DRR Action plan; and policies and plans that promote/ensure equal access, control, and distribution of benefits for men and women; and (c) measures that promote women's participation in governance structures around NRM;

5. ***Improve the systems for Monitoring, Evaluation and Learning (MEL***). In particular:
   - Develop ToC for each outcome, including for Outcome 2 which will then guide the choice of an improved set of outcome indicators. In addition:
   - Ensure that indicators are SMART;
   - Use innovative measures capturing outcomes (including smart technologies)
   - Track not only "access" but also "use" of newly provided infrastructure/services;
   - Exercise great care in designing the baseline studies for the projects, to ensure that they will later allow not only tracking the formal indicators but also answering the important questions about the projects achieving (or not) the objectives;
   - Ensure that pilots are assessed before upscaling; and
   - Ensure that the lessons from each project are well documented and shared

6. ***Enhance sharing information with broader circles of stakeholders***, going beyond web-based stories and updates (with workshops, events, etc.): this will become even more important as the focus on *Humanitarian-Development-Peace nexus* gains momentum. Better utilize synergies with other agencies, including UN agencies, international NGOs, etc.

SPECIFIC RECOMMENDATIONS

7. ***Enhance the support for the current project management of the "Solar Pumps" project in the part related to the establishment of the PV Fund to ensure that its design is adequate*** (institutional structure, financial plan, measures to ensure that lending is affordable for the poor, etc.,). The Solar PV Fund planned in the framework of the Solar Water Pumps for Irrigation project could be in the future enhanced to become a Renewable Energy and Energy Efficiency Fund (REEEF): the design should keep this in the perspective;

8. ***Given that the CRF Project needs a major overhaul, it is recommended that an international CTA is hired for the next 6 months to ensure that the project is brought back on track***, with the roles and responsibilities under the WII scheme clarified and the system is (re)operationalized adequately based on the recommendations of the recent MTR;

9. ***Improve the institutional cooperation in the context of project implementation and enlarge and enhance the scope of capacity building.*** In particular,

a. ***for adaption projects it is advised that the circle of institutions is enlarged*** to include, in particular Ministry of Environment, and importantly, the Ministry of Agriculture at the central level, as this will facilitate scaling of the proven-to be-successful piloted innovative adaptation measures by the Government. In this context support capacity building of the agricultural extension network on all states, with, potentially innovative measure using mobile network to disseminate information and knowledge products; and

b. ***in relation to energy projects, potentially support establishment of a Working Group on RE/EE*** given that the mandate of the current Ministry is limited to Electricity to include representatives of other Ministries and Agencies.

ANNEXES

1. Annex 1: Terms of Reference

Terms of Reference
Environment and Energy Outcome Evaluation, UNDP Sudan
Under CPD 2013-2017

1. Background and Context

UNDP Sudan developed a programme for 2013-16 and extended one more year till the end of 2017. The programme focused on conflict sensitive way to create an enabling environment for long term conflict prevention across all sectors of society and provided crosscutting principles such as gender and youth empowerment, environment-sensitivity, and a human rights based-approach. The programme pursued through four complementary portfolios: 1) Poverty Reduction, Inclusive Growth and Sustainable Livelihoods; 2) Inclusive governance and the Rule of Law; 3) Social Cohesion, Peace Consolidation and Peace Dividends and 4) Environment, Energy and Climate Change.

Environment and Energy portfolio focused on strengthening capacities at local, regional and national level to manage and utilize natural resources in a sustainable way, to enhance resilience and adaptive capacity to long-term climate change including variability impacts and to reduce the associated risk of natural disasters. Under the CPD 2013-17, UNDP Sudan implemented the following thematic area:

1. Support for risk-informed, resilience-based development policies

UNDP provided policy advice to Sudan on ways to formulate national development policies that integrate a host of ecological risks (i.e. biodiversity, climate change, disaster risks, etc) and mainstream resilience-based approaches for achieving the MDG/SDGs. The focus would be on ways to achieve risk-based, resilience-based approaches to address the complexity of risks from climate change and ecological fragility. UNDP implemented climate adaptation measures in national and state development plans, climate risk analysis and advocacy to scale-up climate finance, combat climate risks to food and water insecurity, mitigate social vulnerability, and natural resources-based conflict. Special emphasis was given to gender sensitive data and statistics that strengthen desegregated national and regional data pertinent to climate change.

2. Sustainable use of natural resources

As climate impacts expand, natural assets (such as land, water and forests) and ecosystem services are becoming more fragile and less able to cope with rising demands. Greater fragility of ecosystems will exacerbate social vulnerability and amplify the risk of conflict around shared water, land and other natural resources. Therefore, UNDP Sudan covered the following thematic areas:

a. Integrated Water Resources Management: This component addressed IWRM and related climate risks, in selected areas including regional cooperation (i.e. shared use of the Nubian groundwater system and micro watershed management scheme), and reinforcing technical and operational capacities within Sudan to manage water resources sustainably and enhancing productive capacities in a context of reducing water security owing to climate change.

b. Protected Area Management and ecotourism: UNDP supported measures that build the resilience of land, natural resources and ecosystem services. This includes capacities for management and protection of biodiversity including in national Protected Areas and promote integrated ecosystem management that reduces threats to biodiversity, mitigates land degradation, sustains ecosystem services and improves people's livelihoods.

3. Building climate and disaster resilient livelihoods

UNDP implemented a series of climate change adaptation measures in agriculture systems and strengthening institutional arrangements in disaster risk reduction (i.e. floods and droughts). These activities help improve capacities of households and communities, civil society and local and national institutions to established systems for early warning, climate and disaster risk management, improved resilience and adaptive capacity of communities and institutions. At the same time, UNDP promoted productive capacities and reduce vulnerabilities to climate change impact of small holder farmers and pastoralists. In addition, UNDP conducted efforts to integrate climate risks into initiatives meant to support recovery of internally displaced persons under climate change adaptation area.

4. Access to sustainable energy for poor and displaced communities

UNDP Sudan supported an "energy plus" approach to expanding energy access for the poor. This includes a focus on scaling up uses of renewable energy for productive purposes that bring tangible benefits to households and communities across a range of MDGs/SDGs and the use of solar energy for social services such as health and education, as well as for irrigation for poor farmers. The use of solar energy solutions also helps meeting the basic needs of those displaced by and recovering from conflict. UNDP supported enabling policy environments that reduce the risk for large scale investments by public and private sectors into solar and wind sectors, to support innovation in energy solutions that bring benefits to goals of social empowerment and poverty reduction, and to build the institutional and community institutions and capacities to set and achieve sustainable energy targets.

The projects ranges are from enabling (USD 0.2M) to full size project (USD 6M), and some of them are still ongoing. Currently the funding is provided by UNDP TRAC, BCPR, and GEF, LDCF and the project portfolio. Key implementing partners are Higher Council for Environment and Natural Resources, Ministry of Water Resources Irrigation and Electricity and National Council for Civil Defense.

5. Evaluation Purpose

The purpose of this evaluation is as follow:

- Review the achievements made during the CPD 2013-2017 and take stock of lessons learned and challenges. This includes outcome progress, programme management, coordination arrangement, identify challenges, lessons learned, evidence-based findings, conclusions and recommendations on results, effectiveness, efficiency, sustainability.

- Provide analysis of any deviations, reasons, mitigation measures any internal or external factors affected the outcome achievement.

- Review UNDP comparative advantage and added value, what worked and what did not and how to expand UNDP cooperation with related stakeholders. In addition,

    a. Provide recommendations on UNDP work sustainability, linkages with national priorities and how to continue in the next cycle and
    b. to receive recommendations to inform the programmes in the next programme cycle. The information will be used by UNDP Sudan as well as the key national counterparts and Implementing Partners

6. Portfolio overview

The CPD Outcome analysis through the thematic areas, including key challenges and UNDP approach, linkages to national priorities, etc.

The analysis at outcome level to consider the following

- Is the outcome and associated project relevant, appropriate and strategic to the national goals and the UNDP mandate?
- Where the actions to achieve the outputs and outcomes effective and efficient?
- Where their multi-level interventions conducted (environment, organization, individual) how many?
- Is the outcome and outputs leading to the benefits beyond the life of the project?
- Which findings may have relevance for eventual adjustments and /or future programing?
- To what extent did UNDP support positive changes in terms of gender equality and were there any unintended effects?
- What is the current status and prospects for achieving the outcome with the indicated inputs and within the indicated time frame?
- What are the main factors (positive/negative) within and beyond UNDP's interventions that affected or are affecting the achievement of the outcome? How has these factors limited or facilitated progress towards the outcome?
- Were UNDP's proposed contributions to the achievement of the outcome appropriate, sufficient, effective and sustainable?
- Are UNDP's management structure and working methods appropriate and affective in achieving this outcome?
- What are the key outputs that have been produced by UNDP to contribute to the outcome?
- Are the UNDP outputs relevant to the outcome?
- Are the monitory and evaluation indicator appropriate to link these outputs to the outcome, or is there a need to approve the outcome?

7. Evaluation Scope and Objectives

The outcome to be covered in this evaluation is the Environment, Energy and Natural Resources Management outcome of UNDP Sudan CPD 2013-17 Outcome 2: "Populations vulnerable to environmental risks and climate change become more resilient and relevant institutions are more effective in the management of natural resources". There has three CPD outputs and these are:
2.1 Needy communities to climate change and climatic risks adapted comprehensive sets of adaptation measures
2.2: Investment in green energy and access by needy communities to sustainable energy improved
2.3: Environmental governance policies and regulatory frameworks for enabling better natural resources and risk management developed

Two projects have been accomplished, five projects are on-going, with 7projects are still in the soft and hard pipeline.
The evaluation should take into account the aspects of project effectiveness, efficiency, relevance, timeliness, impact, sustainability, and linkages with other programme areas/projects in UNDP Sudan, as well as partnership with national counterparts including government and CSOs, as well as UNCT, international donor community and academic groups. The evaluation should also recommend untapped partner groups and the potential resource mobilization partners. In addition, this evaluation must address how the intervention sought to strengthen the application of the rights-based approach and mainstreaming gender in development efforts.

The evaluator shall consider the following:

- Review, evaluate projects under this Portfolio and its achievements, effectiveness, relevance, efficiency, impact, timeliness, and sustainability
- Meet and discuss with relevant project team, UNDP and relevant; stakeholders the project results, impacts and challenges
- Propose recommendation and corrective actions to UNDP regards to the management of the programme, its continuity and orientations
- Level of incurred changes; enabling environment, organizational and or individual change
- UNDP strategic positioning on achieving the outcomes
- Relevance of the outcomes and outputs
- Sustainability Partnership strategy, where there is ownership and capacity to maintain and manage development in the outcome

8. Evaluation Questions

This evaluation should aim to answer the following questions,

- Was stated outcome achieved?
- What progress toward the outcomes has been made?
- What factors have contributed to achieving or not achieving intended outcomes?
- To what extent has UNDP outputs and assistance contributed to outcomes?
- Has the UNDP partnership strategy been appropriate and effective?
- What factors contributed to effectiveness or ineffectiveness?

* Evaluation questions could be refined in consultation with the evaluation consultant.

9. Methodology

This evaluation will be conducted by intensive documentation reviews, and stakeholder meetings. The M&E plan for this outcome is part of the UNDP Sudan Country Programme Action Plan (CPAP) 2013-2017 Results and Resources Framework (RRF). The key stakeholders in achieving the outcome include: Higher Council for Environment and Natural Resources; Ministry of Water Resources Irrigation and Electricity; and National Council for Civil Defense.

During the outcome evaluation, the evaluator is expected to apply the following approaches for data collection and analysis:

- Desk review of relevant documents: Project documents, Monthly reports
- Discussion with senior management and program staff of UNDP country office
- Briefing and debriefing sessions with UNDP, government, as well as with other stakeholders
- Interview with partners and stakeholders
- Field visits to select project sites and discussion with project teams
- Consultation meetings

10. Evaluation Products (Deliverables)

The key evaluation deliverables include: a work plan with timeframe, documented records of all interviews and observations after the inception report. First draft with PPT to present the findings. Final evaluation report after reflecting UNDP and relevant stakeholders' comments.

Key deliverables:

- **Evaluation Inception Report.** An inception report should be prepared by the evaluator before going into the full-fledged evaluation exercise. It should detail the evaluators' understanding of what is being evaluated and why, showing how each evaluation question will be answered by way of: a) proposed methods, b) proposed sources of data, and c) data collection procedures. The inception report should include a proposed schedule of tasks, activities and deliverables. The inception report provides the programme unit and the evaluator with an opportunity to verify that they share the same understanding about the evaluation and clarify any misunderstanding at the outset.
- **Draft evaluation report.** The programme unit and key stakeholders in evaluation should review the draft evaluation report to ensure that the evaluation meets the required quality criteria. Following the evaluation report template and quality standards [provided by Annex 7 of the UNDP hand book for planning, monitoring and evaluation.
- (http://web.undp.org/evaluation/handbook/documents/english/pme-handbook.pdf)
- **Final Evaluation report**. This should include lessons learned and recommendations.
- **Evaluation brief and other knowledge products** or participation in knowledge sharing events

Expected Outputs and Deliverables Timeline:

Deliverables/ Outputs	Estimated Duration to Complete (days)	Target Due Dates	Review and Approvals Required
Desk review and Summary of reviewed documents	3	29 Oct 2017	Programme Specialist, Sustainable Livelihood Unit, UNDP Sudan
Evaluation Framework	1	02 Nov 2017	Programme Specialist, Sustainable Livelihood Unit, UNDP Sudan
Evaluation work plan	1	02 Nov 2017	Programme Specialist, Sustainable Livelihood Unit, UNDP Sudan
Meetings with stakeholders	2	06 Nov 2017	Programme Specialist, Sustainable Livelihood Unit, UNDP Sudan
Inception Report and Presentation	3	09 Nov 2017	Programme Specialist, Sustainable Livelihood Unit, UNDP Sudan
Field Visits/Data Collection	10	19 Nov 2017	Programme Specialist, Sustainable Livelihood Unit, UNDP Sudan
Summary of main findings	3	22 Nov 2017	Programme Specialist, Sustainable Livelihood Unit, UNDP Sudan
Presentation of main findings	1	23 Nov 2017	Programme Specialist, Sustainable Livelihood Unit, UNDP Sudan
Draft report	4	29 Nov 2017	Programme Specialist, Sustainable Livelihood Unit, UNDP Sudan
Final Report*	2	07 Dec 2017	Programme Specialist, Sustainable Livelihood Unit, UNDP Sudan

11. Evaluation Team Composition and Required Competencies

The evaluation will be conducted by one consultant. The consultant must have relevant experience in conducting the development project evaluations, preferably in environment and energy sector, and projects of similar sizes in UNDP, other UN agencies or international organizations. The experience should include applying various evaluation methodologies which are internationally recognized. The required knowledge includes substantive knowledge in environment and energy sector, as well as human right based approach and sustainable human development with strong gender sensitivity.

The assignment demand evaluators' independence from any organizations that have been involved in designing, executing or advising any aspect of the intervention that is the subject of the evaluation.

i. Qualifications:

a. Master degree or equivalent in environmental sciences, natural resource management or a related field
b. At least 10 years-experience in the assessment and evaluation of the implementation of projects and programmes
c. Demonstrated experience in assessment and evaluation of programmes within the UN system
d. Strong working knowledge of UNDP and its mandate, the civil society and working with government authorities
e. Extensive knowledge of results-based management evaluation, as well as participatory M&E methodologies and approaches,
f. Experience in applying SMART (S Specific; M Measurable; A Achievable; R Relevant; T Time-bound) indicators and reconstructing or validating baseline scenarios,
g. Excellent oral and written communication skills

ii. Corporate Competencies Functional Competencies:

- **Corporate Competencies**
  - Demonstrates integrity by modeling the UN's values and ethical standards;
  - Promotes the vision, mission, and strategic goals of UNDP;
  - Displays cultural, gender, religion, race, nationality and age sensitivity and adaptability;
  - Treats all people fairly without favoritism;
  - Ability to work with a multi-cultural and diverse team
- **Functional Competencies:**
  - Experience working in the Arab Region
  - Experience applying SMART indicators and reconstructing or validating baseline scenarios
  - Excellent communication skills with various partners including donors in English
  - Project evaluation/review experiences
  - Excellent communication skills;
  - Demonstrable analytical skills;
- **Language Requirements:**
  - Fluency in written and spoken English is essential

12. Evaluation Ethics

The evaluator should follow the principles outlined in the Ethical Guidelines for Evaluation (UNEG 2007)
and should address the principles in the design and implementation of the evaluation, including: Evaluation ethics and procedures to safeguard the rights and confidentiality of information providers: (e.g. measures to ensure compliance with legal codes governing, for example, provisions to collect and report data, particularly permissions needed to interview or obtain information about children and young people; provisions to store and maintain security of collected information; protocols to ensure anonymity, confidentiality, etc.).

13. Implementation Arrangements

The evaluator will be coordinated by the Programme Advisor of UNDP Sustainable Livelihood Unit, and report to UNDP Sudan Senior Management (RR, CD and DCD). The evaluator will use his/her own computer. A working space will be allocated to the evaluator. Meetings and necessary travel arrangement will be coordinated by the UNDP Sustainable Livelihood Unit. The final draft report will be presented at the de-briefing session with senior management and development partners. After incorporating the inputs from partners, the final report will be reviewed and signed off by the UNDP Sudan DCD or CD.

14. Cost

The cost will incur by NDP Sudan Sustainable Livelihood Unit.

TOR Annexes: Annexes can be used to provide additional detail about evaluation background and requirements to facilitate the work of evaluators. Some examples include:

- Intervention Logic Framework and Theory of Change: CPAP
- Key stakeholders and partners: key partners to be met include: Higher Council for Environment and Natural Resources, Ministry of Water Resources, Irrigation and Electricity, National Council for Civil Defense, Meteorological Department, NGOs, Community Based Organizations.
- Documents to be consulted: UNDAF, CPD, CPAP and project documents
- Relevant national strategy documents Sudan NAPA, NCs, NBSAP, NAP, 25-year strategy, SDG Reports
- Previous evaluations and assessments
- UNDP evaluation policy, UNEG norms and standards, and other policy documents.
- Required Format for the Inception Report http://web.undp.org/evaluation/handbook/documents/english/pme-handbook.pdf
- Evaluation Matrix (Suggested as a deliverable to be included in the Inception Report): The evaluation matrix is a tool that evaluators create as map and reference in planning and conducting an evaluation. It also serves as a useful tool for summarizing and visually presenting the evaluation design and methodology for discussions with stakeholders. It details evaluation questions that the evaluation will answer and the data sources, data collection and analysis tools or methods appropriate for each data source, and the standard or measure by which each question will be evaluated.

- Schedule of Tasks, Milestones and Deliverables: Based on the time frame present in the TOR, the evaluators present the detailed schedule.
- Required Format for the Evaluation Report: The final report must include, but not necessarily be limited to, the elements outlined in the quality criteria for evaluation reports (see Annex 2, 3 and 7 http://web.undp.org/evaluation/handbook/documents/english/pme-handbook.pdf
- Code of Conduct: UNDP programme units should request each member of the evaluation team to read carefully, understand and sign the *Code of Conduct for Evaluators in the UN System,* which may be made available as an attachment to the evaluation report.

Proposal:

- A letter of confirmation of interest and availability describing why the individual consider him/herself as the most suitable candidate for this assignment;
- Technical proposal and methodology explaining how he/she will approach and complete this assignment;
- Financial proposal presented in a Lump sum with all-inclusive fixed total contract price;
- The lump sum shall include all the cost components to enable the consultant's work, such as, the consultant's daily fee, travel, allowances, taxes, translations, communication, other as relevant. A breakdown of the lump sum is required;
- Completed and signed P11 form, if necessary the Consultant may supplement the P11 form with a personal CV including past experience in similar projects and at least 3 references.

Evaluation:

- The individual consultant will be evaluated based on the cumulative analysis methodology and the award of the contract will be made to the individual consultant whose offer has been evaluated and determined as:
- Responsive/compliant/acceptable, and
- Having received the highest score out of a pre-determined set of weighted technical and financial criteria specific to the solicitation:

  Technical Criteria weight: 70%;
  Financial Criteria weight: 30%.

The selection of consultants will be aimed at maximizing the overall "team" qualities in the following areas:

	Assessment Criteria	Maximum Obtainable Points	Weightage (%)	Evaluated Points Obtained by the Offerors		
				A	**B**	**C**
1	Strong technical knowledge in assessment and evaluation of programme or portfolio within the UN system	20	28.57%			
2	Technical knowledge of results-based management evaluation	20	28.57%			
3	Technical knowledge of participatory M&E methodologies	15	21.43%			
4	Strong technical experiences in SMART (S Specific; M Measurable; A Achievable; R Relevant; T Time-bound) indicators and reconstructing or validating	15	21.43%			
	TOTAL	70	100%			

- Only candidates obtaining a minimum of 70 % in their technical proposal would be considered for the Financial Evaluation.
- Please note that any CV/P11 not submitted with a technical and financial proposal will not be considered.

2. Annex 2: UNDP Sudan 2013-16 RRF & Government support matrix

Table 12: UNDP Sudan CPAP 2013- 2016 RRF for Outcome 2

Outcome 2: Populations vulnerable to environmental risks and climate change become more resilient and relevant institutions are more effective in the management of natural resources		
Indicators / Baselines / Targets: 1. Number of environmental strategies with sound action plans for implementation in place/ Baseline: One strategy in place with action plan piloted climate change adaptation measures/ Target: Five strategies with concrete action plans in place 2. Number of communities with access to alternative sources of renewable energy-based services /Baseline: Limited access to renewable energy /Target: 50 communities **3.** Number of states with functioning early warning systems, including flood and drought preparedness systems /Baseline: 0 states /Target: Five states		
Output 1: Needy communities to climate change and climatic risks adapted comprehensive sets of adaptation measures.	**Implementation Arrangements** □ Higher Council for Environment and Natural Resources (HCENR)	**Resources overview** Regular: USD 770,000 Non-Core: USD 5,000,000 Total Available: USD 5,770,000 Unfunded: USD 2,000,000
Annual Targets 2013	**Annual Targets 2014**	**Annual Targets 2015 / 2016**
• Piloting more NAPA interventions in 50 communities • Full-fledged project proposal developed and resources mobilized	• Successful pilots up-scaled in four states. At least three knowledge products printed • MF services to 50 pastoral and farming communities have access to (proposal) at national level microfinance services • At least one Joint Project with UNEP on Integrated Water Resources Management is developed	• Successful pilots up-scaled in four states. At least three knowledge products printed • MF services to 50 pastoral and farming communities have access to (proposal) at national level microfinance services • At least one Joint Project with UNEP on Integrated Water Resources Management is developed
Annual Resources 2013	**Annual Resources 2014**	**Resources 2015 / 2016**
Regular: USD 210,000 Non-Core: USD 1,500,000 Total Available: USD 1,710,000 Unfunded: USD 500,000	Regular: USD 200,000 Non-Core: USD 1500,000 Total Available: USD 1,700,000 Unfunded: USD 500,000	Regular: USD 360,000 Non-Core: USD 2,000,000 Total Available: USD 2,360,000 Unfunded: USD 1,000,000
Output 2: Investment in green energy and access by needy communities to sustainable energy improved.vi	**Implementation Arrangements** • Ministry of Water Resources and Electricity • Energy research Institute, Ministry of Science and Communication	**Resources overview** Regular: USD 410,000 Non-Core: USD 100,000 Total Available: USD 510,000 Unfunded: USD 1,800,000
Annual Targets 2013	**Annual Targets 2014**	**Annual Targets 2015 / 2016**
A Framework National Appropriate Mitigation Action (NAMA) for climate change developed	• Regulatory and policy frameworks conducive to renewable energy investment developed and adopted • 50 communities adopted clean energy systems	• Regulatory and policy frameworks conducive to renewable energy investment developed and adopted • 50 communities adopted clean energy systems
Annual Resources 2013	**Annual Resources 2014**	**Annual Resources 2015 / 2016**
Regular: USD 130,000 Non-Core: USD 100,000 Total Available: USD 230,000 Unfunded: USD 500,000	Regular: USD 100,000 Non-Core: 0 Total Available: USD 100,000 Unfunded: USD 500,000	Regular: USD 180,000 Non-Core: 0 Total Available: USD 180,000 Unfunded: USD 800,000
Output 3: Environmental governance policies and regulatory frameworks for enabling better natural resources and risk management developed.	**Implementation Arrangements** • Higher Council for Environment and Natural Resources (HCENR) • Federal Ministry of Health • Ministry of Environment, Forestry & Physical Development	**Resources overview** Regular: USD 372,000 Non-Core: USD 318,000 Total Available: USD 690,000 Unfunded: USD 1,798,000
Annual Targets 2013	**Annual Targets 2014**	**Annual Targets 2015 / 2016**
• Key decision makers from at least 10 ministries informed on opportunities for transition to green economy • 5th National Biodiversity report developed	• National NBSAP updated and finalized • National disaster risk management plan finalized and disseminated to government	• National NBSAP updated and finalized • National disaster risk management plan finalized and disseminated to government
Annual Resources 2013	**Annual Resources 2014**	**Annual Resources 2015 / 2016**
Regular: USD 111,000 Non-Core: USD 125,000 Total Available: USD 236,000 Unfunded: USD 500,000	Regular: USD 100,000 Non-Core: USD 125,000 Total Available: USD 225,000 Unfunded: USD 400,000	Regular: USD 161,000 Non-Core: USD 68,000 Total Available: USD 229,000 Unfunded: USD 898,000

Table 13 Sudan UNDP CPAP 2013- 2016 Government Policy Support Matrix

UNDAF OUTCOME 2: Populations vulnerable to environmental risks and climate change become more resilient, and relevant institutions are more effective in the sustainable management of natural resources

Focus Area 4. Environment, Energy and Natural Resource Management

CDP Output	Project/ Concept Note	Budget Estimate	Corresponding Government policy
2.1 Needy communities to climate change and climatic risks adapted comprehensive sets of adaptation measures	Building resilience for adaptation to climate change in the water and agricultural sectors in Sudan 2010 - 2014	USD 4,050,000	- National Strategic Plan 2012-2016, 3/13(Economy and Sustainable Development) - National Adaptation Programme of Action (NAPA), 2007
	Climate risk financing for sustainable rain-fed and pastoral systems in Sudan (2013 -2016)	USD 5,850,000	
	Integrated Water Resource Management (IWRM) approaches for adaption to climate change	TBD	
2.2: Investment in green energy and access by needy communities to sustainable energy improved	Promoting utility scale power generation form wind energy (2013-2017)	USD 4,000,000	- Draft National Energy Plan 2012-2031 and National CDM Strategy (June 2011)
	Promoting access to renewable energy (2014 -2016)	TBD	- Draft National Energy Plan 2012-2031 - Rural Electrification Study (Ministry of Electricity & Water Resources, 2012) - National CDM Strategy (June 2011)
	Promoting low carbon development (2013-2014)	USD 200,000	
2.3: Environmental governance policies and regulatory frameworks for enabling better natural resources and risk management developed	Support to green economy (2013)	USD 30,000	- National Strategic Plan 2012-2016, 3/13 (Economy and Sustainable Development);
	National disaster risk management programme in Sudan	USD 2,270,000	- National Implementation Plan for Combating Desertification, 2007
	Mainstreaming dry-land issues into national planning frameworks	USD 20,000	
	Support the Development of Environmental Management through capacity Building	TBD	- Environmental Management Plan 2009
	Updating the national biodiversity strategic action plan	USD 270,000	- National Strategic Plan 2012-2016, 3/13 (Economy and Sustainable Development); National Implementation Plan for Combating Desertification, 2007 - National biodiversity strategic action plan (2010)

3. Annex 3: Evaluation criteria with explanations

Criteria	Explanation
Relevance	• *Relevance for the Government Programs.* • *UN documents*: • *Strategic Positioning of UNDP*: Examine the distinctive characteristics and features of UNDP's environment programme and how it has shaped UNDP's relevance as a reliable partner. UNDP's position will be analyzed in terms of communication, i.e. how UNDP articulates the need for its presence in the country, how UNDP meets partner needs by offering specific, tailored services to these partners, how UNDP mobilizes resources for the benefit of the partners. A specific attention should be given to the UNDP's comparative advantages over other development organizations in Sudan. • *Partnership strategy:* Ascertain whether UNDP's partnership strategy (with nation al counterpart s including government and CSOs, as well as UNCT, international donor community and academic groups.) has been appropriate and effective. Specific attention should be given to how new partnerships were formed, level of stakeholders' participation and efficiency of the partnerships. Examine the partnership among the UN Agencies and other donor organizations in the relevant field. The Evaluation will also aim at validating the appropriateness and relevance of the Outcome to the country needs, hence enhancing development effectiveness and/or decision making on UNDP future role in environment. • *Relevance of the outcomes and outputs*
Effectiveness	▪ *Outcome status:* Determine whether there has been progress made towards achieving the targets in Outcome 3 and identify the challenges to the attainment thereof. Identify innovative approaches and to the Outcome. ▪ *Contribution to mainstreaming the Outcome's targets in the national programmes and national capacity building.* Extent of UNDP's contribution to mainstreaming the Outcome's targets in the national programmes. Extent of UNDP achievement in national partners' capacity development, advocacy on environmental issues and climate change related policymaking. ▪ *Extent of UNDP's effectiveness in producing results aligned with CPAP*. Level of incurred changes; enabling environment, organizational and or individual change. ▪ *Underlying factors:* Analyze the underlying factors that influenced UNDP contribution to the achievement of the outcomes through related project outputs, distinguishing the substantive design issues from the key implementation and/or management capacities and issues including the relevance and nature of outputs, degree of stakeholders' and partners' involvement in the completion of outputs, and implementation strategies employed by the projects and UNDP
Efficiency	▪ How UNDP practices, policies, decisions, constraints and capabilities affect the performance of the Portfolio. ▪ How much time, resources and effort it takes to manage the portfolio, what could be improved ▪ Extent of engagement and coordination among the stakeholders. ▪ Extent of synergies and leveraging with other programmes in Sudan ▪ Extent of synergies among UNCT programming and implementation.
Sustainability	▪ Extent of ownership and capacity to maintain and manage development in the outcome ▪ Extent to which UNDP established mechanisms ensure sustainability of the policymaking interventions ▪ Extent of the viability and effectiveness of partnership strategies in relation to the achievement of the outcomes. ▪ Effective use of Environment portfolio to support appropriate central authorities, local communities and civil society in climate change related agenda in a long-term perspective.
Impact	
Lessons Learnt	• Identify lessons learnt, best practices and related innovative ideas and approaches in relation to the management and implementation of activities. Lessons learnt is the critical aspect of the Outcome Evaluation as it will be use to design a better implementation strategy for the programmatic cycle.
Recommendations	• Recommendations on corrective actions to UNDP with regards to the management of the programme, its continuity and orientations. Recommendations on how UNDP should adjust its partnership arrangements, resource mobilization strategies, working methods and/or management structures to ensure that the Energy and Climate Change related portfolio fully achieves its outcomes in the next UNDAF 2016-2020 period. • The evaluation will also recommend untapped partner groups and the potential resource mobilization partners. In add it ion, this evaluation must address how the intervention sought to strengthen the app li cation of the rights-based approach and mainstreaming gender in development efforts

4. Annex 4: Evaluation Matrix

Criteria		Evaluation Question	Data Sources	Methodology
Relevance	1	Is the outcome and associated project relevant, appropriate and strategic to the national goals and the UNDP mandate?	National development programs and strategies of the Government of Sudan UNDP strategic document Sectoral strategies of the ministries, Program and project documents KIIs	Triangulation
	2	Are the UNDP outputs relevant to the outcome?	Program and project documents KIIs	Triangulation
	3	What are the distinctive characteristics and features of UNDP's environment programme and how it has shaped UNDP's relevance as a reliable partner?	Program and project documents KIIs	Triangulation
	4	Was UNDP's partnership strategy appropriate and effective?	Program and project documents 3rd party reports KIIs	Triangulation
	5	Where interventions conducted multilevel (environment, organization, individual) but coherent with strong logical and strategic linkages?	Program and project documents KIIs	Triangulation
	6	How strong were the approaches in ensuring sustainable results?	Program and project documents KIIs	Triangulation
	7	Are the monitoring and evaluation indicator appropriate to link these outputs to the outcome, or is there a need to approve the outcome?	Program and project documents KIIs	Triangulation
Effectiveness	8	Where the actions to achieve the outputs effective and leading to desired outcomes?	Program and project documents KIIs	Triangulation and Contribution Analysis
	9	What progress toward the outcomes has been made? What were the challenges and innovative approaches?	Program and project documents KIIs	Triangulation and Contribution Analysis
	10	What are the prospects for achieving the outcome with the indicated inputs and within the indicated time frame?	Program and project documents KIIs	Triangulation and Contribution Analysis
	11	What are the main factors (positive/negative) within and beyond UNDP's interventions that affected or are affecting the achievement of the outcome? How has these factors limited or facilitated progress towards the outcome?	Program and project documents KIIs	Triangulation and Contribution Analysis
	12	What was the extent of UNDP's contribution to mainstreaming the Outcome's targets in the national programmes?	National development programs and strategies of the Government of Sudan Program and project documents KIIs	Triangulation and Contribution Analysis

Criteria		Evaluation Question	Data Sources	Methodology
	13	To what extent has UNDP contributed to the national partners' capacity development, advocacy on environmental issues and climate change related policymaking?	National development programs and strategies of the Government of Sudan; Program and project documents; KIIs	Triangulation and Contribution Analysis
	14	To what extent did UNDP support positive changes in terms of gender equality and were there any unintended effects?	Program and project documents; KIIs	Triangulation and Contribution Analysis
Efficiency	15	Where the actions to achieve the outputs and outcomes efficient?	Program and project documents; KIIs	Triangulation
	16	Are UNDP's management structure and working methods appropriate and effective in achieving this outcome?	Program and project documents; KIIs	Triangulation
	17	How UNDP practices, policies, decisions, constraints and capabilities affect the performance of the Portfolio?	Program and project documents; KIIs	Triangulation
	18	What could be improve in terms of time and resource allocations to manage the portfolio?	Program and project documents; KIIs	Triangulation
	19	Was UNDP efficient in engagement and coordination among the stakeholders?	Program and project documents; KIIs	Triangulation
	20	Was UNDP efficient in utilizing synergies and leveraging with other programmes in Sudan and among UNCT programming and implementation?	Program and project documents; KIIs	Triangulation
Impact	21	Are the outcome and outputs leading to the benefits beyond the life of the project and impact the ultimate beneficiaries?	Program and project documents; KIIs	Triangulation
Potential for Sustainability	22	What are the prospects that UNDP's proposed contributions to the achievement of the outcome will be sustained?	Program and project documents; KIIs	Triangulation and sustainability analysis
	23	How strong is the level of ownership and capacity to maintain and manage development in the outcome on the part of national stakeholders?	Program and project documents; KIIs	Triangulation and sustainability analysis
	24	How successful is UNDP in establishing mechanisms to ensure sustainability of the policymaking interventions?	Program and project documents; KIIs	Triangulation and sustainability analysis
	25	How viable are partnership strategies in relation to sustaining and replicating outcomes?	Program and project documents; KIIs	Triangulation and sustainability analysis
	26	Has the Environment portfolio used to its best to support national stakeholders in climate change related agenda in a long-term perspective?	Program and project documents; KIIs	Triangulation and sustainability analysis
Lessons Learned	27	What are the lessons learnt, best practices and related innovative ideas and approaches in relation to the management and implementation of activities?	Program and project documents; KIIs	Triangulation
Recommendations	28	What corrective actions should UNDP take with regards to the management of the programme, its continuity and orientations?	Program and project documents; KIIs	Triangulation
	29	What adjustments should UNDP make in its partnership arrangements, resource mobilization strategies, working methods and/or management structures to ensure that the Energy and Climate Change related portfolio fully achieves its outcomes in the next UNDAF 2016-2020 period?	Program and project documents; KIIs	Triangulation
	30	What should be done to strengthen the rights-based approaches and mainstreaming gender?	Program and project documents; KIIs	Triangulation
	31	Which findings may have relevance for eventual adjustments and /or future programing?	Program and project documents; KIIs	Triangulation

5. Annex 4: Guide for the KIIs

Criteria		Evaluation Question	Stakeholders					
			UNDP	Other UN	Development partners	Central government	Local Government	NGOs
# Relevance	1	Is the outcome and associated project relevant, appropriate and strategic to the national goals and the UNDP mandate?						
	2	Are the UNDP outputs relevant to the outcome?						
	3	What are the distinctive characteristics and features of UNDP's environment programme and how it has shaped UNDP's relevance as a reliable partner?						
	4	Was UNDP's partnership strategy appropriate and effective?						
	5	Where interventions conducted multilevel (environment, organization, individual) but coherent with strong logical and strategic linkages?						
	6	How strong were the approaches in ensuring sustainable results?						
	7	Are the monitoring and evaluation indicator appropriate to link these outputs to the outcome, or is there a need to approve the outcome?						
Effectiveness	8	Where the actions to achieve the outputs effective and leading to desired outcomes?						
	9	What progress toward the outcomes has been made? What were the challenges and innovative approaches?						
	10	What are the prospects for achieving the outcome with the indicated inputs and within the indicated time frame?						
	11	What are the main factors (positive/negative) within and beyond UNDP's interventions that affected or are affecting the achievement of the outcome? How has these factors limited or facilitated progress towards the outcome?						
	12	What was the extent of UNDP's contribution to mainstreaming the Outcome's targets in the national programmes?						
	13	To what extent has UNDP contributed to the national partners' capacity development, advocacy on environmental issues and climate change related policymaking?						
	14	To what extent did UNDP support positive changes in terms of gender equality and were there any unintended effects?						
Efficiency	15	Where the actions to achieve the outputs and outcomes efficient?						
	16	Are UNDP's management structure and working methods appropriate and effective in achieving this						

Criteria		Evaluation Question	Stakeholders					
			UNDP	Other UN	Development partners	Central government	Local Government	NGOs
		outcome?						
	17	How UNDP practices, policies, decisions, constraints and capabilities affect the performance of the Portfolio?						
	18	What could be improve in terms of time and resource allocations to manage the portfolio?						
	19	Was UNDP efficient in engagement and coordination among the stakeholders?.						
	20	Was UNDP efficient in utilizing synergies and leveraging with other programmes in Sudan and among UNCT programming and implementation?						
Impact	21	Are the outcome and outputs leading to the benefits beyond the life of the project and impact the ultimate beneficiaries?						
Potential for Sustainability	22	What are the prospects that UNDP's proposed contributions to the achievement of the outcome will be sustained?						
	23	How strong is the level of ownership and capacity to maintain and manage development in the outcome on the part of national stakeholders?						
	24	How successful is UNDP in establishing mechanisms to ensure sustainability of the policymaking interventions?						
	25	How viable are partnership strategies in relation to sustaining and replicating outcomes?						
	26	Has the Environment portfolio used to its best to support national stakeholders in climate change related agenda in a long-term perspective?						
Lessons Learned	27	What are the lessons learnt, best practices and related innovative ideas and approaches in relation to the management and implementation of activities?						
Recommendations	28	What corrective actions should UNDP take with regards to the management of the programme, its continuity and orientations?						
	29	What adjustments should UNDP make in its partnership arrangements, resource mobilization strategies, working methods and/or management structures to ensure that the Energy and Climate Change related portfolio fully achieves its outcomes in the next UNDAF 2016-2020 period?						
	30	What should be done to strengthen the rights-based approaches and mainstreaming gender?						
	31	Which findings may have relevance for eventual adjustments and /or future programing?						

6. Annex 6: Schedule of Meetings

Mission Agenda

10-21 December 2017, Khartoum, Sudan

Date	Meeting	Venue	Participants	Status
Sun, 10-12-2017 17:00 hour	Arrival of mission member to Khartoum, Sudan	Corinthia Hotel, Sudan Nile st, Nile St, Khartoum 11042, Sudan Phone: +249 18 715 5555	Lilit	
Mon, 11-12-2017 09:00 – 09:45 hours 10:00 – 12:00 hours 13:00 – 16:30 hours	 Meeting with Senior Management Meeting with Sustainable Livelihood and M&E Unit (former Environment Energy and Climate Change team) Meeting with Secretary General Meeting with Project Teams: - Climate Risk Finance Project - Cross Capacity Building Project - GCF Project Preparation Team - Third National Communication Project - Access to Benefit Sharing Project - Protected Area Project	 UNDP Country Director Room Tutti Conference room Higher Council for Environment and Natural Resources (HCENR)	 Hideko, Lilit, Min, Hanan, Intisar, Nouralla, Lilit, Min, Hanan, Intisar, Nouralla, Shama, Ahmed and Nadia Lilit, Intisar and Secretary General Lilit, Intisar, project staff	
Tues, 12-12-2017 09:00 – 10:00 hours 10:00 – 12:00 hours 13:00 – 14:00 hour 1400-1500 hours 1500 – 1600 hours	 Meeting with Under Secretary (was replaced by a meeting with the Head of the International Relations department) Meeting with Project Teams: Solar Pump Project Wind Energy Project; Darfur Solar Project Team and National Energy Research Centre; Energy Efficiency Project Lunch Meeting at NERC Meeting with Agriculture Research Centre	 Ministry of Water Resource, Irrigation and Electricity (MWRIE) Renewable Energy Directorate Office NERC office UNDP	 Lilit, Nouralla, Intisar and Head of the International Relations department Lilit, Nouralla, Intisar and project team Lilit and Intisar Lilit and Intisar Lilit	
Wed 13-12-2017 09:00 – 10:00 hours 11:00 – 12:00 hours 12:00 – 13:00 hours 13:30 – 14:30 hours 14:30 – 15:30 hours	 Meeting with National Council for Civil Defense (NCCD) including University of Rabat Meeting with UNEP Lunch Meeting with UNIDO Meeting with the Manager of Darfur Solar Electrification project	 NCCD office UNEP office UNIDO office UNDP office	 Lilit, Intisar, project team and Prof. Ali Lilit, Robert Bekker (UNEP) and other UNEP staff Lilit, and Azrah and others (UNIDO) Lilit	

Thursday 14-12-2017 09:00 – 10:00 hours 11:00 – 12:00 hours 12:00 – 13:00 hours 13:00 – 14:00 hours 1400-14030 hour 15:00 – 16:00 hours	 Meeting with private sector (Solar Mann, Switch Solar, Al-Nelne insurance company,) Meeting with Communication Team (Knowledge Pieces and Reporting) Lunch time DDR Tel call with the DRR professor from the University of Rabat Skype with Regional Technical Advisors Stephen Gitonga (RE)	 UNDP Tutti conference room UNDP Tutti conference room DDR office UNDP Hotel	 Lilit, Intisar Lilit, Daniel and Nadia Lilit and Intisar Lilit Lilit	
Friday 15-12-2017	Self-preparation (weekend)			
Sat, 16-12-2017 07:00 – 12:00 hours 13:00 – 16:00 hours 18:00 – 19:00 hours	Weekend From Khartoum to Dongola Village (1) on the way to Dongola, From Dongola to village (1) and meeting with beneficiaries Dinner	By office car	Lilit, Intisar, and Solar Project Manager	
Sunday, 17-12-17 08:00 – 08:30 hours 09:00 – 12:00 hours 12:00 – 17:00 hours	 From Dongola to village (2) Meeting with beneficiaries in village (2) From village (2) to Khartoum			
Monday, 18-12-17 09:00 – 10:00 hours	Dr. Mohamed Yousif, Director of International Organizations, Meeting with International Cooperation	MIC office	Lilit	
Tue, 19-12-17 09:00 – 10:30 hours 1100-1200 hours 1200-1300 hours 1300-1400 hours 1430-1600 hours	 Dr. Ahmed Abdelkareem, Director SMA Mr. Mohamed Osman. World Bank Mr. Osman Jaafar, Sudanese Red Crescent Dr. Mohamed Abdelhameed, Ex- Manager DRR project Debriefing	 Sudanese Meteorological Authority World bank Sudanese Red Crescent UNDP UNDP	 Lilit, Intisar, SMA staff Lilit, Intisar, Mr. Osman, and The Project manager for the 2 CC projects Lilit	
Wednesday, 20-12-17 9:30 -10:00 hours 1000- 1130 hours 1200-1300 hours 1330-1400 hours 1430- 1530 hours 1530-1700	 Telephone interview with John, Darfur Microfinance Program Meeting with Nouralla and Sharma Mr. Yousif Eltahir, AFDB Meeting with the Procurement Unit Omer, UNDP Min, UNDP	 UNDP UNDP AFDB UNDP UNDP UNDP	 Lilit Lilit Lilit Lilit Lilit Lilit	
Thurs, 21-12-17 12:00 – 1300 hours 18:00 hours	 Meeting with GEF OFP Depart from Khartoum	 Ministry of Environment	 Lilit	

Expected Outputs of the Mission

Outputs	Lead Responsible Person
1. Meetings with stakeholders (Govt. agencies, CSOs, research and academic institutions, donors, focal points)	Lilit
2. Inception Report and Presentation	Lilit
3. Primary data collection and field visit to Dongola	Lilit
4. Summary of main findings and Presentation of main findings	Lilit

National Team

National Experts Name and contact	Designation	Role
Min Htut Yin min.htut.yin@undp.org +249912140179 Hanan Mutwakil hanan.mutwakil@undp.org +249912175640	Country Office, UNDP Team Leader Sustainable Livelihood Unit Country Office	Task manager and quality assurance
Intisar intisar.salih@undp.org +249912173502	Programme Analyst	Facilitator
Nouralla Bakheit Ahmed nouralla.ahmed@undp.org +249 926132226	Programme Analyst	Field trip coordinator

[i] Darfur States, Gedarif, West Kordofan, Kassala, North, White Nile, Blue Nile and Red Sea