



©FAO

CATALYSING INVESTMENTS AND ACTIONS TO ENHANCE RESILIENCE AGAINST SAND AND DUST STORMS IN AGRICULTURE

August 2023

SDGs:



Countries: Algeria, China, the Islamic Republic of Iran, Kuwait and Mongolia

Project Code: TCP/INT/3802

FAO Contribution: USD 500 000

Duration: 15 September 2020-15 December 2022

Contact Info: FAO Headquarters – Land and Water Division
land-water@fao.org

Implementing Partners

Centre for Policy Research (CPR); International Center for Agricultural Research in the Dry Areas (ICARDA); International Center for Biosaline Agriculture (ICBA); Ministry of Agriculture and Rural Development of Algeria; Ministry of Agriculture and Rural Affairs of the People's Republic of China; Ministry of Agriculture-Jahad of the Islamic Republic of Iran; Ministry of Environment of Iraq; Public Authority of Agricultural Affairs and Fish Resources of Kuwait; Ministry of Food, Agriculture and Light Industry of Mongolia.

Beneficiaries

Staff of government institutions and vulnerable farmers in the targeted countries affected by sand and dust storms.

Country Programming Framework (CPF) Outputs

Region of Near East and North Africa

- Regional Priority Area C: Sustainable Management of Natural Resources 18.
- Regional Priority Area E: Preparedness for, and Response to, Food and Agriculture Emergencies.

Region of Asia and the Pacific

- Improving capacity to respond to food and agricultural threats and emergencies.
- Enhancing equitable, productive and sustainable natural resource management and utilization.

Algeria

- Government Priority 2: Improved natural resource management.
- CPF 2014–2017 Output 2.2: Protection and sustainable management of soils.

China

- Government Priority 1: Fostering sustainable and climate resilient agricultural development.
- CPF 2016–2020 Output 1.2 Revitalization of ecosystem and biodiversity.
- Output 1.3. Resilience to climate change risks.

The Islamic Republic of Iran

- Government Priority Area 1: Environmentally Sustainable and Climate-Smart Agriculture.
- CPF Output 1.1: Plans and frameworks for sustainable soil and water resources management further developed.
- Government Priority Area 3: Inclusive and Resilient Rural Development.
- CPF Output 3.3: Disaster risk reduction strategies in the agricultural sector and coordinated responses frameworks further developed.

Iraq

- Government Priority area 1: Resilience and restoration of agricultural livelihoods in regained areas of Iraq
- CPF Output 1.1: Plans and assessments to promote agricultural recovery, resilient livelihoods, and economic diversification in regained areas developed.
- Government Priority area 2: Restoration of degraded agricultural land and higher productivity of water resources in agriculture.
- CPF Output 2.5: Plans and strategies developed for sustainable management of natural resources, including forest, land, fisheries and water.
- CPF Output 2.6: Capacities of stakeholders to introduce sustainable natural resources management practices in degraded areas of Iraq strengthened.

Kuwait

- Kuwait Vision 2035 Pillar 5: Sustainable Living Environment.

Mongolia

- Government Priority Area 3: Promotion of sustainable natural resource management as techniques for adaptation, mitigation and management for the impacts of climate change.
- CPF 2012-2018 Outcome 3.1: Enhanced national FNS (Food and Nutrition Security) capacities for disaster risk reduction (DRR) preparedness and early warning.
- Outcome 3.5: Enhanced resilience of the livestock sector to climate change impacts.



BACKGROUND

Sand and dust storms (SDS) have become increasingly frequent and severe due to factors such as land use changes and climate variability and change. These storms have substantial transboundary impacts, affecting various aspects of the environment, climate, health, agriculture, livelihoods and the socioeconomic well-being of individuals. These effects are particularly pronounced in arid and semi-arid regions where sand and dust storms (SDS) can pose significant threats to economic development.

The agriculture sector is significantly influenced by SDS, as it is both a contributor to and impacted by the phenomenon. In response, during the Fourteenth Session of the Conference of the Parties of the United Nations Convention to Combat Desertification (UNCCD) in 2019, a new imperative for addressing SDS was established. As a key member of the newly formed Coalition on Combating SDS, the Food and Agriculture Organization of the United Nations (FAO) has taken the role of chairing the Coalition since July 2020, succeeding the United Nations Environment Programme (UNEP), to lead global efforts to tackle SDS within the agricultural context. Against this backdrop, this project aimed to enhance the resilience of agriculture-dependent communities to SDS. Furthermore, the project focused on increasing and strengthening knowledge surrounding SDS sources and their implications on agriculture, as well as promoting sustainable land use practices, primarily focusing on countries that are both major contributors to and victims of dust emissions, including Algeria, China, the Islamic Republic of Iran, Iraq, Kuwait and Mongolia. These countries, located within the SDS "risk belt" (also known as the "dust belt"), face potential threats to sustainable development and food security without immediate action. The project's outcomes contributed to the design of a broader interregional large SDS programme on agriculture with targeted funding sources, supported by the United Nations Coalition on Combating Sand and Dust Storms and potential partners, such as the Green Climate Fund and the Global Environment Facility.

IMPACT

The project provided technical support and training, as well as sharing of knowledge and awareness raising, to representatives from countries affected by SDS to enhance their resilience and climate adaptability. Ultimately, the project contributed to the realization of SDG 15: Life on Land, specifically Target 15.3, which champions the restoration of degraded land and soils. The project also contributed to SDG 1: No Poverty, as evidenced by its alignment with Target 1.5 of enhancing the resilience of impoverished and vulnerable communities. Moreover, the project contributed to SDG 2 (End hunger, achieve food security and improved nutrition and promote sustainable agriculture), SDG 11 (Make cities and human settlements inclusive, safe, resilient and sustainable) and SDG 13 (Take urgent action to combat climate change and its impacts).

ACHIEVEMENT OF RESULTS

The project's envisioned outcome to establish a comprehensive initiative to proactively combat SDS in agriculture was successfully realized. The project actively advocated for the integration of SDS considerations into national disaster risk management policies and practices. It managed to undertake risk, vulnerability and capacity assessments, develop SDS contingency planning and Standard Operating Procedures (SOPs) for agriculture in pilot districts within three partner countries. These efforts laid the foundation for scaling up these plans and SOPs through the planned large-scale SDS programme in areas identified as high-risk sources and deposition zones.

The groundwork for a large-scale programme to address SDS in agriculture was meticulously laid, with a view to funding and implementation. At the time of reporting, the creation of an expansive initiative to tackle SDS in agriculture was made ready for country-level commitments, with the initiative's full realization relying on the commitment to resource mobilization. This was fed by the finalization of the compilation of a SDS guide detailing high-impact, context-specific practices and interventions for mitigating SDS sources and impacts on the agricultural sector, and its publication is forthcoming. The project achievement was also enabled through interactions with pertinent national stakeholders, which increased contributions from both international and national consultants, as well as from the three research centres/service providers. To this end, the formulation of the programme document was achieved in collaboration with participating countries and partners. Ongoing endeavours continue to be directed towards mobilizing resources and the identification of potential resource partners and country allies. The project concept note was presented across a range of international and regional platforms, including the UNCCD COP-15 event's SDS Day and an international workshop held in Jeddah, Saudi Arabia in June 2022.





IMPLEMENTATION OF WORK PLAN AND BUDGET

The implementation of the project encountered certain challenges due to the restrictions imposed on travel during the COVID-19 pandemic, along with the implementation of curfews. These circumstances notably impacted the project's timeline, causing delays in the accomplishment of several activities. The constraints posed by the COVID-19 pandemic meant stakeholder consultation meetings could not be carried out as originally envisaged. In some instances, even with an extended timeframe, certain activities proved unfeasible to execute, particularly those involving country and field visits. Consequently, consultations at national, district and local levels were limited in certain countries. However, the project adapted by leveraging virtual platforms for specific activities, such as the initially planned face-to-face meetings and workshops. Yet, the final project workshop took place in person in Abu Dhabi, United Arab Emirates, from 3 to 5 October 2022.

In terms of budgetary implementation, the budget was used efficiently to achieve the targets, and some adjustments were required to navigate the challenges posed by the COVID-19 restrictions. The project team's ability to adapt to changing circumstances and its utilization of flexible measures played a crucial role in ensuring effective implementation.

FOLLOW-UP FOR GOVERNMENT ATTENTION

The culmination of this project was the development of a comprehensive large-scale programme aimed at proactively addressing SDS in agriculture and scaling up the efforts initiated under the interregional TCP. This programme is poised to enhance the resilience of agricultural communities against the detrimental impacts of SDS on their livelihoods. In this regard, the project has meticulously delineated a set of well-defined follow-up actions within the context of this comprehensive programme. Further action is necessary to initiate resource mobilization discussions with FAO's regional/subregional and country offices, as well as with specific resource partners at national, regional and global scales. This engagement will be essential to refining the draft programme document according to the strategic and funding priorities of potential resource partners.

SUSTAINABILITY

1. Capacity development

The project demonstrated notable advancements in generating policy briefs that address SDS from an agricultural standpoint within project countries and regions. These policy briefs serve as a foundation for the development of pertinent risk-informed policies, plans and strategies at various levels aimed at ensuring sustainability.

Furthermore, the project's close collaboration with government ministries significantly fortified these partnerships, with a trajectory extending beyond the project duration. The engagement of these ministries throughout the project life cycle contributed to their ownership of project outcomes, ensuring a sustainable foundation for future actions. Furthermore, the project has effectively fostered partnerships between the participating countries, regional and international organizations and research institutions.

2. Gender equality

Throughout the project's activities, consideration was given to meeting the distinct needs and priorities of both women and men beneficiaries and stakeholders. The project demonstrated a steadfast commitment to ensuring equitable benefits for women and men. This was notably observed during the conduct of online virtual workshops, which effectively ensured accessible engagement for all stakeholders. Furthermore, the project's emphasis on knowledge sharing and awareness-raising workshops created opportunities for both women and men to contribute to and benefit from.

3. Environmental sustainability

The project's performance in mainstreaming environmental sustainability was evidenced by increased awareness regarding the substantial adverse impacts of SDS on the agricultural sector, as well as the available agricultural solutions that can be taken to mitigate these impacts. This encompassed both technical risk-informed strategies and policy-level interventions.



4. Technological sustainability

The project's approach to technological sustainability was evidenced by the project's introduction of a searchable Excel database featuring over 150 adaptable good practices aimed at mitigating the effects of SDS in both source and impact areas. This diverse compilation of technologies caters to various contexts and will be made available online. Moreover, the project's contributions to the development of local knowledge, capacity and good practices were significant. National-level stakeholders, including government personnel, benefited from enhanced knowledge and strengthened capacities, facilitated through in-depth consultations. Although constrained by COVID-19-related travel restrictions, similar efforts were directed towards local-level stakeholders. As for the stakeholders' and beneficiaries' ability to independently pursue project activities without further technical assistance, the institutions involved varied in their capacity, depending on the specific country context. While some institutions may require varying degrees of ongoing support, further efforts are anticipated to raise awareness and facilitate the engagement of farmers and herders in the pursuits of the larger-scale programme.

5. Economic sustainability

While no additional financial resources have been allocated or mobilized yet, the comprehensive large-scale SDS in agriculture programme document is ready to be shared with diverse resource partners, potentially paving the way for future funding sources to support the initiative. As for the affordability of the products and services developed by the project, effort was made to ensure accessibility to beneficiaries and stakeholders. For example, when identifying and selecting farm-level disaster risk reduction practices to mitigate the adverse impacts of SDS in agriculture, the project prioritized affordability and replicability.



DOCUMENTS AND OUTREACH PRODUCTS

- **Ahmadzai, H. 2021.** *The impact of sand and dust storms on agriculture in Iraq.* Unpublished report commissioned from International Center for Biosaline Agriculture by FAO. Rome. 18pp.
- **Ahmadzai, H., Malhotra, A. & Habash, S. 2021.** *Knowledge Base for Sand and Dust Planning in Agriculture.* Unpublished report commissioned from International Center for Biosaline Agriculture by FAO. Rome. 48 pp.
- **Ahmadzai, H., Malhotra, A. & Tutundjian S. 2021.** *Assessing the Impact of Sand and Dust Storm on Agriculture: Empirical Evidence from Mongolia.* Unpublished report commissioned from International Center for Biosaline Agriculture by FAO. Rome. 19 pp.
- **Ahmed, Z. 2022.** *Risk, vulnerability, capacity assessments and contingency plan of sand and dust storm impacts on agriculture in Kati'a Region, Iraq.* Unpublished report commissioned by FAO. Rome. 81 pp.
- **Darvishi Boloorani, A. 2023.** *Contingency planning process for catalysing investments and actions to enhance resilience against sand and dust storms in agriculture in the Islamic Republic of Iran.* Rome, FAO. Forthcoming.
- **Enkh-Amgalan, A. 2021.** *Final report, sand and dust storm national consultant from Mongolia.* Unpublished report commissioned by FAO. Rome. 44 pp.
- **FAO. 2022.** *GREENING LANDSCAPES: Combating sand and dust storms (SDS) to enhance sustainable agri-food systems, livelihood resilience and ecosystem restoration.* Unpublished draft programme document. Rome.
- **FAO. 2022.** *Organization of the SDS Day during the UNCCD COP-15 on 16 May 2022.* <http://www.riopavilion.org/unccd-cop15-sand-storms-day/>.
- **FAO. 2022.** *Sand and Dust Storms.* Webpage. <https://www.fao.org/land-water/land/sds/en/>.
- **FAO. 2022.** *Sand and dust storms (SDS): A transboundary issue of growing concern.* Fact sheet. 4 pp. <https://www.fao.org/3/cc0109en/cc0109en.pdf>.
- **FAO. 2022.** *Sand and dust storms (SDS): A transboundary issue of growing concern.* Video. https://www.youtube.com/watch?v=RS_oJcqn1vo
- **FAO. 2022.** *The United Nations Coalition on Combating Sand and Dust Storms.* Webpage. <https://www.fao.org/land-water/land/sds/sds-coalition/en/>.
- **FAO. 2022.** *UN Coalition on Combating Sand and Dust Storms (SDS).* Flyer. 2 pp. <https://www.fao.org/3/cc0116en/cc0116en.pdf>.
- **FAO. 2023.** *Agriculture and sand and dust storms: a guide to mitigation, adaptation, policy and risk management measures.* Rome. Forthcoming.
- **FAO. 2023.** *Preparing for sand and dust storm Contingency Planning with herding communities: a case study of Mongolia.* Rome. Forthcoming.
- **ICARDA. 2021.** *Weakening the blows of sand and dust storms through better land management.* Social media post. <https://www.icarda.org/media/blog/weakening-blows-sand-and-dust-storms-through-better-land-management>.

ACHIEVEMENT OF RESULTS - LOGICAL FRAMEWORK

Expected Impact	Enhanced resilience of agriculture-dependent communities to Sand and Dust Storms (SDS)		
Outcome	A large-scale programme to proactively address SDS in agriculture is ready for implementation		
	Indicator	Interregional programme is formulated and submitted.	
	Baseline	0	
	End Target	Interregional programme is formulated and submitted.	
Comments and follow-up action to be taken	The programme document was drafted, with participation of the project's countries and partners, but still lacks specific country commitments despite the governments remaining committed to the process. Follow-up is required on resource mobilization with FAO regional/subregional and country offices and selected resource partners at regional and global levels before fine-tuning the draft programme document in line with resource partners' interests and funding priorities.		
Output 1	Knowledge base for SDS planning in agriculture consolidated		
	Indicators	Target	Achieved
	Set of priority intervention areas and practices identified.	One published SDS Guide.	Yes
Baseline	0		
Comments	The SDS Guide of high-impact, context-specific practices and interventions to reduce SDS sources and impacts on the agricultural sector was completed with a publication date to be set.		
Activity 1.1	Better understanding the nature of SDS impacts on agricultural subsectors, and consolidation of impact data, to support better informed decision making for proactive impact mitigation in the agriculture subsectors		
	Achieved	Yes	
	Comments	Review of agriculture as a source of SDS and impacts of SDS on agricultural production incorporated in the SDS Guide. This included additional information from countries and service providers (ICARDA, ICBA, CPR [Centre for Policy Research, Mongolia]) with research commissioned under this project.	
Activity 1.2	Compilation of source and impact mitigation technologies		
	Achieved	Yes	
	Comments	A searchable Excel database of over 150 good practices was compiled.	
Activity 1.3	Knowledge exchange and awareness raising		
	Achieved	Yes	
	Comments	A virtual interregional multistakeholder knowledge exchange and awareness-raising workshop was convened on 30 and 31 March 2021.	
Activity 1.4	Compilation of a compendium of SDS source and impact mitigation interventions at both policy and farm-level		
	Achieved	Yes	
	Comments	An SDS Guide of high-impact, context-specific practices and interventions to reduce SDS source and impacts on the agricultural sector was successfully compiled, including the upscaling potential of interventions for uptake within planned large-scale SDS programme. The SDS Guide also includes policy guidance and examples as well as a searchable Excel database of more than 150 good practices.	
Output 2	SDS risk reduction strategies for agricultural sectors in selected countries identified		
	Indicators	Target	Achieved
	SDS risk reduction strategies formulated.	3	Yes
Baseline	0		
Comments	Face-to-face interactions with relevant national stakeholders were hampered during the formulation process by restrictions introduced during the COVID-19 pandemic. However, this was managed by virtual meetings and more inputs from international and national consultants.		
Activity 2.1	Vulnerability, risk and capacity assessments		
	Achieved	Yes	
	Comments	Risk, vulnerability and capacity assessments were conducted for the Islamic Republic of Iran, Iraq and Mongolia, which included desk research, consultations with stakeholders at national and district levels and the establishment of risk and vulnerability assessment models (i.e. livestock for Mongolia and crops and rangelands for the Islamic Republic of Iran and Iraq).	

Activity 2.2	SDS contingency planning and Standard Operating Procedures (SOPs) for agriculture		
	Achieved	Yes	
Comments	SDS contingency planning and SOPs for agriculture were undertaken for the Islamic Republic of Iran, Iraq and Mongolia. Given the COVID-19 pandemic, there were some constraints regarding the organization of stakeholder consultations at national, district and local levels in these countries. As a result, a contingency plan and SOPs were prepared for Mongolia, titled "Preparing for sand and dust storm contingency planning with herding communities: A case study of Mongolia", and two comprehensive reports, "Contingency planning process for catalysing investments and actions to enhance resilience against sand and dust storms in agriculture in the Islamic Republic of Iran" and "Risk, vulnerability, capacity assessments and contingency plan of sand and dust storm impacts on agriculture in Kati'a Region, Iraq", which document the SDS contingency planning processes. Recommended action plans were developed for the Islamic Republic of Iran and Iraq, respectively.		
Output 3	A programme document formulated for well-targeted high-impact interventions at inter-regional and national levels		
	Indicators	Target	Achieved
	Programme document formulated and potential donors identified.	One programme document.	Yes
Baseline	0		
Comments	The programme document was formulated, with participation of countries and partners. Potential resource partners and country partners were identified. Efforts are ongoing to foster resource mobilization. The project concept note was presented in various international and regional fora including the UNCCD COP-15 during the SDS Day and an international workshop in Saudi Arabia.		
Activity 3.1	Programme formulation preparation missions		
	Achieved	No	
Comments	Country missions due to be undertaken by the lead technical unit, supported by the international SDS expert and the retired expert, to conduct a series of bilateral stakeholder consultations with national SDS focal points and other partners were impossible due to travel restrictions during the COVID-19 pandemic.		
Activity 3.2	Multi-stakeholder regional workshop		
	Achieved	Yes	
Comments	The final interregional multistakeholder project workshop was convened in person in Abu Dhabi, United Arab Emirates, from 3 to 5 October 2022, where the project findings and results were presented and validated, including the development of the Theory of Change for the establishment of a large-scale SDS in agriculture programme document.		
Activity 3.3	Formulation of programme document		
	Achieved	Yes	
Comments	A programme document entitled "Greening landscapes: Combating sand and dust storms (SDS) to enhance sustainable agrifood systems, livelihood resilience and ecosystem restoration" was formulated.		

Partnerships and Outreach

For more information, please contact: Reporting@fao.org

Food and Agriculture Organization of the United Nations

Viale delle Terme di Caracalla

00153 Rome, Italy