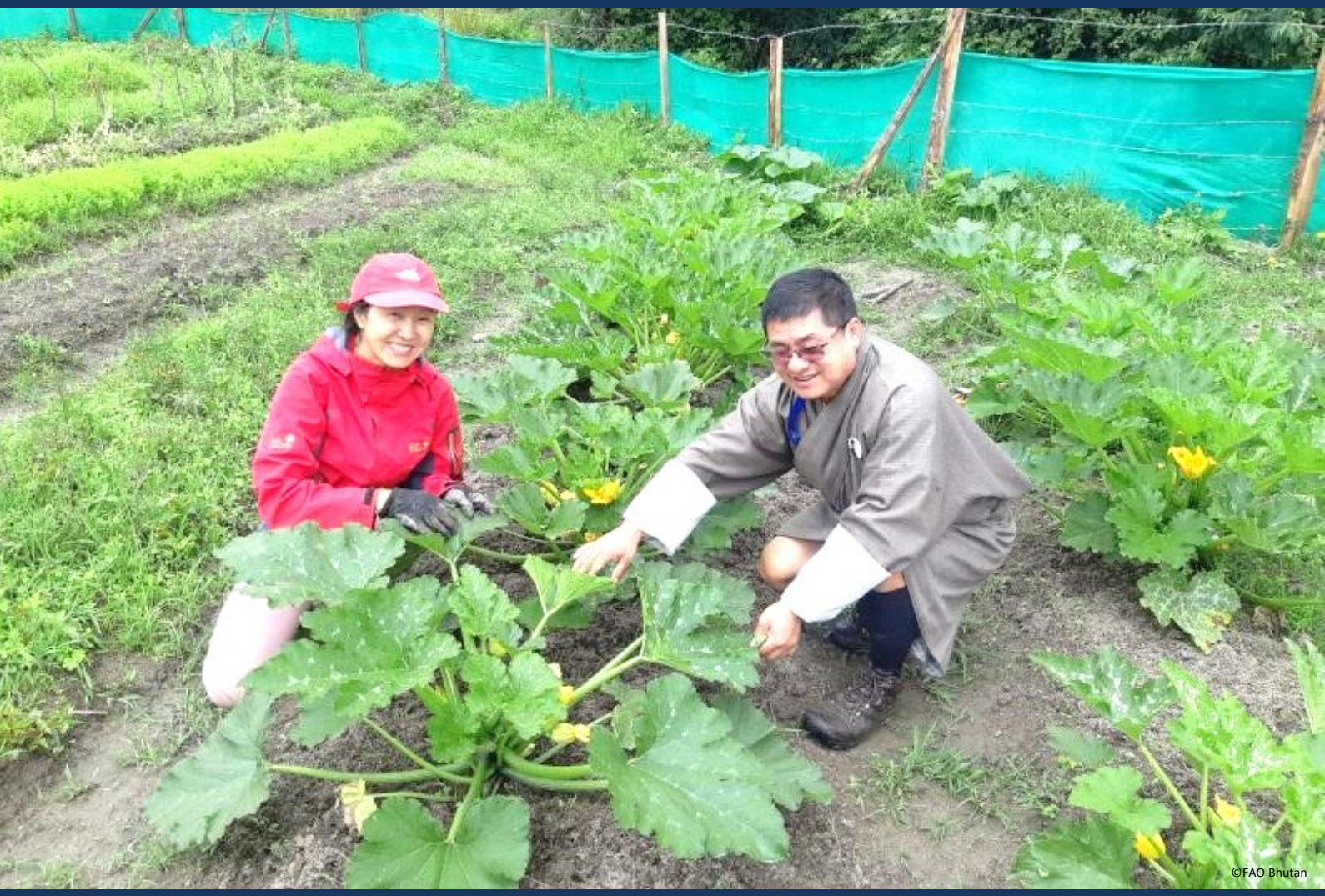
Food and Agriculture Organization of the United Nations



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STRENGTHENED EVIDENCE-BASED DECISION-MAKING AND MONITORING OF PROGRESS TOWARDS THE SUSTAINABLE DEVELOPMENT GOALS THROUGH IMPROVED NATIONAL CAPACITIES

March 2023

SDGs:	
Countries:	Bhutan, India, Indonesia, Lao People's Democratic Republic, Papua New Guinea, Thailand and Timor-Leste
Project Code:	TCP/RAS/3709
FAO Contribution:	USD 500 000
Duration:	1 November 2019-31 December 2021
Contact Info:	FAO Regional Office for Asia and the Pacific FAO-RAP@fao.org

Implementing Partners

Geoinformatics Centre (GIC) of the Asian Institute of Technology (AIT), National Statistics Bureau (NSB), Bhutan.

Beneficiaries

Government ministries, national statistics offices, academia, regional and international organizations, and all those concerned with the measurement, monitoring, management and analysis of agriculture data for the SDGs.

Country Programming Framework (CPF) Outputs

India CPF (Updated 2018): Output 1.3: Continuous agricultural policy measurement, monitoring and analysis in India based on a well-established, country-owned and robust policy analysis and monitoring systems producing regularly updated analyses to inform government decisions at central and state levels.

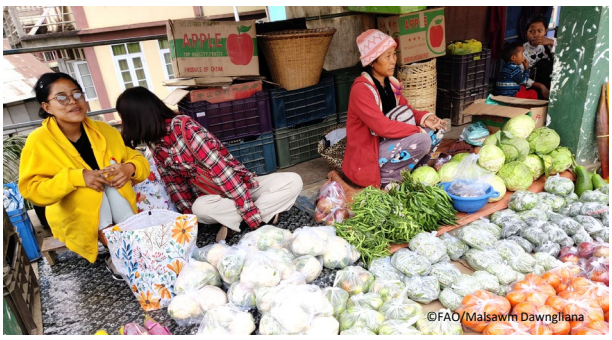
Indonesia UNDPF (2016-2020): Outcome 4: Improved governance and equitable access to justice for all, through improved statistics and data management.

Lao People's Democratic Republic CPF (2016-2021): Output 3.2: Decision-support tools for agriculture and natural resources management developed using Geographic Information Systems (GIS) based on international data standards and national data sets.

Papua New Guinea CPF (2018-2022): Output 2.1.1: Enhanced coordination among stakeholders and partners and improved dissemination of food security information with improved preparedness and response to disasters and diseases.

Thailand United Nations Partnership Framework (2018-2021): Output 3.3: Strengthened capacities for Climate Change Adaptation and Mitigation and Disaster Risk Reduction (DRR) through support for evidence-based National Adaptation Planning and DRR in the agriculture sector.

Timor-Leste CPF (2015-2018, extended to 2019): Outcome 2.1: Increased quantity and quality of data, statistics and information for management of agriculture (crops, livestock and fisheries) sector and achievement of the Zero Hunger Action Plan for a Hunger and Malnutrition Free Timor-Leste 2025 goals. Output 2.1.2: Regularly updated and published data and statistics on agriculture and food and related sectors.



BACKGROUND

Three years after the adoption in 2015 of the 2030 Agenda for Sustainable Development by all United Nations Member States, significant data and capacity gaps remained with regard to the indicators designed to inform policy decisions and measure progress towards the Sustainable Development Goals. By December 2018, only 144 of the total 232 SDG indicators, and only 13 of the 21 indicators under FAO custodianship, had been published on the SDG global database. The absence of SDG data results in a major gap in the evidence base required to allow countries and development partners to assess the progress made towards achieving Agenda 2030's goals. There is an enormous need for capacity development at national level to ensure that countries can produce and report on SDG indicators. However, capacity development itself is not enough to ensure the implementation of activities to collect data and generate SDG indicators in a cost-effective and sustainable manner, nor is it sufficient to improve the use of existing data or improve data access. The use of new Big Data sources provides an opportunity for countries to produce more timely statistics, including SDG indicators. Countries such as Lao People's Democratic Republic, Papua New Guinea and Thailand have built human capacity in the use of GIS and Big Data, but these capacities have yet to be used to generate regular statistics to monitor the impacts of climate change and disasters on progress towards the SDGs. The aim of the project was to help the participating countries to integrate existing GIS expertise in order to address their SDG indicator gaps. As such, the project would focus on the use of cost-effective methods and the digitization of existing data sources to improve data collection, use and access. This would be achieved through the use of: new information and communication technologies; new Big Data sources such as Earth Observation (EO) data; the digitization of paper-based village records; and improved access to and use of data through the anonymization and dissemination of microdata.

IMPACT

The project has helped to improve partnerships between national statistics offices, ministries of agriculture, and other stakeholders with expertise in the relevant new technologies, including GIS experts and departments in other ministries, academic institutions, and international and regional organizations. The project has complemented other projects and programmes involved in building capacity regarding the SDG indicators through the use of the cost-effective methods introduced. Integrating Big Data with traditional survey and census data has also enabled users to analyse and monitor, *inter alia*, the impact of natural disasters on different types of farmers and the effects of climate change on female-headed agriculture households.

ACHIEVEMENT OF RESULTS

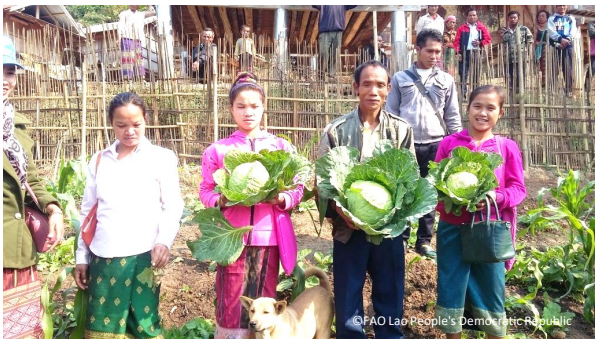
The project outcome was strengthened capacities to design and monitor cost-effective evidence-based agriculture and food security programmes and policies in order to produce statistics related to food and agriculture, and the SDG indicators. In order to achieve this, new cost-effective approaches were piloted in countries to address known data gaps in SDG indicators and national officials were trained to use new technologies to collect data and improve data access. The project had five outputs. Under Output 1, national officials were trained to use GIS/EO data to collect and disseminate agriculture and disaster statistics, including SDG indicators. The project, in partnership with AIT, explored the use of EO data to process, analyse, validate and improve cropland and crop-type maps using open-source software. Activities included the compilation of guidelines and procedures, the pilot testing of procedures in target countries, and training development. Under Output 2, the capacity of national and local officials to use existing local area administrative data to collect and compile SDG gender and agriculture land ownership indicators was developed. Activities focused on supporting the NSB, Bhutan, to conduct a study to validate the area in Bhutan under apple orchard cultivation. Technical assistance was provided to identify apple orchard areas using EO data and to validate the resulting estimates in the field. As a result of this assistance, Bhutan's NSB completed this activity and published a report with its findings. Under Output 3, the capacity of officials to introduce process innovations and incorporate SDG indicators into existing national indicator frameworks and data collection programmes was strengthened.

Under Output 4, national officials' capacity to improve statistical data management, and produce and disseminate anonymized and open microdata, was built. Training and technical assistance were delivered remotely to Bhutan and Timor-Leste to anonymize microdata from their recent agriculture censuses in 2019. Output 5 regarded the strengthening of capacity of national officials to monitor and assess the impacts of climate change and disasters on the SDGs, on smallholders and on food security, through more timely and relevant statistics using Big Data. A subset of the Bhutan 2019 Renewable Natural Resources Census microdata was prepared for dissemination, along with guidelines for microdata anonymization. The latter were shared with government officials from Bhutan, Cambodia, Indonesia, Nepal and Timor-Leste, to assist them in planning for microdata anonymization in upcoming surveys and censuses.

IMPLEMENTATION OF WORK PLAN AND BUDGET

Throughout the project, activities were significantly impacted by travel and social distancing restrictions imposed in response to the COVID-19 pandemic. Although activities were moved into virtual mode whenever feasible, this required additional time and resources. In-person technical assistance was largely impossible and, despite the delivery of most activities (even with delays), some planned activities, such as the anonymization of microdata for the Bhutan and Timor-Leste agriculture censuses, could not be achieved at the level desired within the timeframe of the project. Similarly, several countries suffered constraints in implementing data collection; despite the inclusion of questionnaire content to compile SDG indicators, the data collection needed to undertake this was delayed. However, the project was able to secure marginal funds to support final indicator compilation in 2022, when pilot or survey data had been collected by the supported countries.

Some in-person technical assistance activities were not possible because of COVID-19 restrictions, as mentioned above. However, the project secured additional funds to undertake final face-to-face technical assistance meetings in 2022.



Follow-up for government attention

It is recommended that government counterpart staff who benefited from training under the project continue to lead the implementation of follow-up activities. Big Data and EO data should be used to generate disaster statistics, enable the regular production of indicators and generate a data series able to inform evidence-based research and policy and programme development and analysis. The participating governments should make every effort to provide an appropriate operational budget for follow-up activities, and should actively engage donors or development partner agencies to support the replication and up-scaling of the activities identified and piloted as priorities under the project, as well as to assign the technical staff needed to lead their implementation.

Sustainability

1. Capacity development

With regard to SDG indicators, an extensive approach to virtual training led to the development of hands-on compilation guides for farm-based indicators and their adaptation to specific countries. Because of the time and costs associated with the guidelines, and changes in 2022 of some indicators, the manuals were revised and need to be finalized and approved for publication. For EO-based crop statistics, significant work is still needed to put national policy frameworks in place as these require agreements between ministries of agriculture and national statistics offices. Work led by FAO and the United Nations Economic and Social Commission for Asia and the Pacific (UN-ESCAP) will help to do this in future years.

The production of agricultural and food statistics, including SDG indicators, is an ongoing activity of governments. To the extent that technical assistance is required by countries, FAO has a mandate to provide methodological and how-to guidelines, and to enable countries to become increasingly self-sufficient. Project strategy thus focused on building capacity and expertise, reducing reliance on FAO project funds, and establishing fora in which trained government officials can share their experiences with other countries. A measure of success is that, in Nepal, trained government officials were hired by FAO to provide technical assistance to other countries.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2. Gender equality

Indicators that were focused on women or that could be sex-disaggregated met the needs and priorities of women. Women were included in training to ensure better representation and enhanced the capacity of female government statisticians. Some beneficiary countries were better able to assign female staff to receive training and build capacity than others. This was largely owing to the availability and baseline skills of existing staff. It was noted that Bhutan, Indonesia and Mongolia have such capacities, and that these countries assigned an equal, or greater, number of women to the project activities.

3. Environmental sustainability

Environmental risks were low. In practice, the use by the project of new technologies and data sources (e.g. EO data sources) reduced the need to use cars for the transport of enumerators, while the adoption of virtual training almost eliminated air travel.

4. Human Rights-based Approach (HRBA) – in particular Right to Food and Decent Work

Human rights issues were not directly addressed by the project.

5. Technological sustainability

Virtual platforms, such as Zoom, Teams and WhatsApp, were employed extensively in this project. The use of EO-based crop statistics also represents a significant shift from in-person data collection. In the context of COVID-19 constraints, this use of technology was both necessary and appropriate.

Project beneficiaries significantly improved their knowledge of SDG indicators, data anonymization procedures and good practices as a result of the project. Knowledge of EO-based crop statistics is still being built, as this is a significant area of work. Coordination between GIS expertise and statistical expertise was undertaken for the first time in the region.

With regard to several SDG indicators, some stakeholders have become trainers themselves; for other indicators, the level of further technical assistance to be provided has been reduced. Some SDG indicators revised their methodologies completely in 2022, requiring the revision of training materials and the delivery of further assistance. Assistance will also be needed for EO-based crop statistics, as the methodologies, technologies and data are constantly evolving.

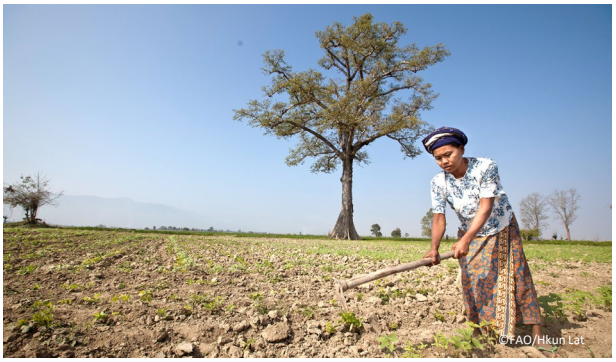
6. Economic sustainability

FAO provided funding to continue with the development of SDG indicator manuals, as well as for in-person and virtual expert group meetings to share and advance knowledge and data. Another regional project formulation was approved to further EO-based crop statistics work for countries with specific needs, to improve GIS-based dissemination to inform programmes such as One Country One Commodity and the Hand-in-Hand Initiative (HIHI), to support targeted SDG indicators, and to improve overall access to and dissemination of agriculture survey and census data. Partners (e.g. UN-ESCAP) have also approached FAO to continue providing assistance on EO-based crop statistics, and to leverage additional partners such as the United Kingdom Office of National Statistics and new donors. Funds were also provided to help the statistics team develop questionnaire modules and metadata that could be used and adapted by national governments.

All documentation and how-to guidelines on SDG indicators are shared for free and will go through an FAO clearance process before being published online. Papers on EO-based crop statistics will also be provided free of charge following all appropriate FAO clearances. The main challenge faced by countries with regard to EO-based crop statistics is free or inexpensive access to high resolution images. This has already improved significantly as increasingly high-resolution images are being made available for free by the National Aeronautics and Space Administration and the European Space Agency.

Documents and outreach products

- **GIC-AIT.** (forthcoming). *Earth Observation Applications to Produce the SDG Indicators/Statistics*.
- **GIC-AIT.** (forthcoming). *Disseminating Spatial Data for Public Use: Methods and Challenges*.
- **GIC-AIT.** (forthcoming). *Use of Earth Observation Data for Crop Statistics: Sentinel-2 Agriculture System (Sen2Agri)*.
- **GIC-AIT.** (forthcoming). *Technologies to Collect Ground Truth Data for Generation of Agriculture Statistics*.
- **GIC-AIT.** (forthcoming). *Field Report to Banphot Phisai District, Nakhon Sawan Province, Thailand*.
- **GIC-AIT.** (forthcoming). *Thailand Cropland Mapping Using Earth Observation Data with Sen2Agri and Google Earth Engine*.
- **GIC-AIT.** (forthcoming). *Crop Damage and Loss Assessment for Select Crops Using Earth Observation Imagery*.
- **GIC-AIT.** (forthcoming). *Collecting and Disseminating Ground Truth Data for Generation of Agriculture Statistics*.
- **GIC-AIT.** *Thailand Ground Truth Data for Generation of Agriculture Statistics*. https://data.mendeley.com/drafts/xcyfctdg4v.
- **NSB.** 2022. *2021 Area under Apple Cultivation (2021 AuAC-GIS) through the Use of GIS/Remote Sensing (RS) Technology*. NSB, Bhutan. 16 May 2022. 41 pp. https://www.nsb.gov.bt/wp-content/uploads/dlm_uploads/2022/05/Report.pdf?fbclid=IwAR2Uc4JMUSMmjICUyX2Up7N9GiQ9p2mprRngVi-3ZpCTSnGs12jxEQWt46Q



ACHIEVEMENT OF RESULTS - LOGICAL FRAMEWORK

Expected Impact	**National governments develop more effective policies and programmes to achieve Zero Hunger, leaving nobody behind, using timely and cost-effective statistical evidence, including use of real-time Big Data sources**		
Outcome	Strengthened capacities to better design and monitor cost-effective evidence-based agriculture and food security programmes and policies to produce statistics related to food and agriculture and the SDG indicators		
	Indicator	Capacity to produce and openly disseminate cost-effective agriculture and related SDG indicators and information enhanced.	
	Baseline	SDG data gaps exist in all countries; use of Big Data/satellite images and village records to generate agriculture statistics and related SDGs is limited; and data is often fragmented and/or not accessible by users.	
	End Target	New cost-effective approaches piloted in countries to address known data gaps in SDG indicators; national officials trained to use new technologies to collect data and improve data access.	
	Comments and follow-up action to be taken	Procedures and guidelines were compiled on the use of Big Data/satellite imagery to compile agriculture and disaster-related statistics including those on crop area, and the improved use of ground truth data to support improved EO estimates.	
Output 1	Strengthened technical capacity of national officials to use GIS/Earth Observation data to better collect and disseminate agriculture and disaster statistics, including SDG indicators		
	Indicators	Target	Achieved
	Satellite imagery processed and agricultural statistics generated for pilot area by national officials.	Three pilot tests conducted in selected countries and data/results published.	Yes
Baseline	No pilot tests conducted in select countries.		
Comments	FAO, in partnership with AIT, explored the use of EO data to process, analyse, validate and improve cropland and crop-type maps using open-source software, including Sen2Agri and OpenForis platforms. These activities included the compilation of guidelines and procedures, the pilot testing of the procedures in target countries, and the development of training for national officials.		
Activity 1.1	Identify, assess and document existing national sources of GIS/satellite images and their appropriateness for generating agriculture and disaster statistics (Lao People's Democratic Republic, Papua New Guinea, Thailand)		
	Achieved	Yes	
	Comments	A literature review to identify, assess and document a set of agriculture and disaster statistics that could be compiled from EO data, including statistics related to crop area and yield, disaster and environmental statistics related to agriculture and forest area. This literature review fed into subsequent activities at the national level to identify, assess and document existing national sources of GIS/satellite images.	
Activity 1.2	Provide guidance and technical assistance to enable government officials to pilot use of existing GIS/images to estimate crop areas and generate disaster statistics		
	Achieved	Yes	
	Comments	Guidelines and procedures were developed for the collection and analysis of ground truth data points as an input towards estimating crop areas. These guidelines included topics on data collection tools (OpenForis), sampling design and selection, questionnaire design and data analysis. The guidelines were presented during a series of technical meetings from 28 November to 2 December 2022 at AIT, with participants from Bhutan, Indonesia, Mongolia, Sri Lanka, Thailand and Timor-Leste.	
Activity 1.3	Prepare consolidated report on pilots, assessments and proposed disaster statistics		
	Achieved	Yes	
	Comments	Guidelines and procedures were developed for the collection and analysis of ground truth data points as an input towards estimating crop areas. These guidelines included topics on data collection tools (OpenForis), sampling design and selection, questionnaire design and data analysis. The guidelines were presented during a series of technical meetings from 28 November to 2 December 2022 at AIT, with participants from Bhutan, Indonesia, Mongolia, Sri Lanka, Thailand and Timor-Leste.	

Activity 1.4	Conduct training workshops to share knowledge, validate results of pilots/assessments, discuss proposed disaster statistics and ensure implementation at national level		
	Achieved	Yes	
	Comments	Technical meetings from 28 November to 2 December 2022 at AIT included a two-day session on "Ground truth data tools for agricultural statistics" with participants from Bhutan, Indonesia, Mongolia, Sri Lanka, Thailand and Timor-Leste. At this session, AIT experts shared experiences on the pilot field study conducted in Thailand and brought together experts from Indonesia, Sri Lanka and Thailand, who also shared their experiences in using ground truth data for agriculture and crop mapping.	
Output 2	Strengthened technical capacity of national and local officials to use existing local area administrative data to collect and compile SDG gender and agriculture land ownership indicators		
	Indicators	Target	Achieved
	Number of local area agriculture and related SDG indicators produced using village records.	Five.	Partially
Baseline	0		
Comments	Activities focused on supporting the NSB, Bhutan, to conduct a study to validate the agriculture area in Bhutan under apple orchard cultivation. Technical assistance was provided to the Agriculture Statistics Division in the NSB to identify apple orchard areas using EO data and to validate the resulting estimates in the field using a tablet-based application. As a result of this assistance, the NSB completed this activity and published a report with its findings.		
Activity 2.1	Assess and document contents of village records to identify common and core agriculture data and potential indicators, including sex-disaggregated statistics and gender SDGs (Bhutan)		
	Achieved	Yes	
	Comments	At project inception, it was envisaged that activities in Bhutan would focus on the development of a digitized agricultural reporting system at gewog level that would report on multiple agricultural domains at regular intervals. After further discussions with the Agriculture Statistics Division, NSB, it was requested that activities be re-focused on developing a system to help validate agricultural area using EO data and tools using GIS.	
Activity 2.2	Provide technical assistance to government officials to design and test digital administrative village-record system		
	Achieved	Yes	
	Comments	Technical assistance was provided to the Agriculture Statistics Division to design and test a workflow to identify the agriculture area under apple orchards using EO data and GIS tools, utilizing mobile tablet computers to help to validate the estimated area.	
Activity 2.3	Pilot digitization of village records and integration with other data sources, such as agriculture surveys and censuses; produce pilot database and metadata		
	Achieved	Yes	
	Comments	The Agriculture Statistics Division digitized all apple orchard areas, using EO data through desk work, and validated their estimates through field activities to validate the estimated area using GIS tools on mobile tablet computers. The results of the activity will support the government in the identification of areas where assistance could be provided to support apple orchard farmers and government investment in this key high-value-added commodity.	
Activity 2.4	Conduct a national workshop to share knowledge and training on digitization process and results database		
	Achieved	Yes	
	Comments	Results of the study "2021 Area under Apple Cultivation (2021 AuAC-GiS) through the use of GiS/RS technology" were published by the NSB, Bhutan, with technical assistance by FAO. Results of the study were presented by the Agricultural Statistics Division Team, National Bureau of Statistics of Bhutan during a regional training event on Ground Truth Data Tools for Agricultural Statistics on 30 November 2022.	

Output 3	Strengthened technical capacity of officials to introduce process innovations and incorporate SDG indicators into existing national indicator frameworks and data collection programmes (including existing surveys, censuses and administrative data)		
	Indicators	Target	Achieved
	Number of SDG indicators under FAO incorporated in national indicator framework and existing data collection programmes.	15	Yes
Baseline	0		
Comments	The main impediment was the global COVID-19 pandemic, and the travel and social distancing constraints introduced to contain it. In response to these constraints, the Lead Technical Officer moved the project consultants and activities increasingly to virtual mode. However, delays in national government data collection inevitably led to delays in finalizing the data collection needed to produce final statistics.		
Activity 3.1	Establish working group with key government stakeholders in India and Indonesia to strengthen alignment of national and SDG indicator frameworks		
	Achieved	Yes	
	Comments	See general comment above related to the impact of COVID-19 constraints. All training that could be achieved was implemented; new how-to manuals on approaches were prepared to enable virtual support; and a Letter of Agreement (LoA) was issued in India to enable local technical assistance in order to circumvent international travel constraints.	
Activity 3.2	Technical assistance to national statistics offices in assessing existing data sources (surveys, censuses, administrative data, etc.) to produce SDG indicators under FAO custodianship; to develop cost-effective strategy to collect and compile SDG indicators; and to ensure that national indicator frameworks incorporate and produce SDG indicators		
	Achieved	Yes	
	Comments	See general comment above related to the impact of COVID-19 constraints. All training that could be achieved was implemented; new how-to manuals on approaches were prepared to enable virtual support; and funds were secured to provide additional technical assistance as soon as governments had completed national data collection (bearing in mind that the level of technical assistance requested by government beneficiaries was significantly reduced by this project).	
Activity 3.3	Develop and document a proposal to improve the collection and compilation of data on agriculture and SDG indicators, including proposed government structure and cost-effective approaches to collecting/using data from existing surveys, censuses and administrative sources. Document process and progress as a how-to case study		
	Achieved	Yes	
	Comments	Draft how-to documents were developed under the project. Because of changes in international methodologies in 2022, these will be modified and submitted for FAO clearance in 2023.	
Output 4	Strengthened technical capacity of national officials to improve statistical data management, and produce and disseminate anonymized and open microdata		
	Indicators	Target	Achieved
	Number of countries with anonymized microdata made available in open formats.	Two.	Partially
Baseline	0		
Comments	Training and technical assistance were delivered remotely to Bhutan and Timor-Leste to anonymize microdata from their recent agriculture censuses in 2019. Because of the COVID-19 travel restrictions and the much higher travel costs during the period of the project, it was not feasible to arrange for travel for the final two-week intensive period required to finalize and disseminate the anonymized microdata.		
Activity 4.1	Technical workshop on data management, open data concepts and licences, and microdata anonymization tools and methods (Bhutan, Timor-Leste)		
	Achieved	Yes	
	Comments	In-person regional training on microdata anonymization included participants from Bhutan, Indonesia, Mongolia, Sri Lanka, Thailand and Timor-Leste. The training comprised sessions on data management and open data, and covered select tools and methods used for microdata anonymization.	
Activity 4.2	Technical assistance to national officials to implement improved data management, undertake microdata anonymization and develop open data formats, licences and terms of use.		
	Achieved	Partially	
	Comments	Ongoing COVID-19 travel restrictions delayed in-person training and this was converted to higher-level virtual training, which provided methodological frameworks for microdata anonymization, but was insufficient to implement the statistical techniques.	

<table>
<tr><td rowspan="3">Activity 4.3</td><td colspan="3">Anonymized microdata published by countries, and how-to guidelines and case studies prepared and published based on country experience and results</td></tr>
<tr><td>Achieved</td><td colspan="2">Yes</td></tr>
<tr><td>Comments</td><td colspan="2">A subset of the Bhutan 2019 Renewable Natural Resources Census microdata was prepared for dissemination on the FAO HIHI Geospatial platform. Guidelines for microdata anonymization were also prepared and shared with government officials from Bhutan, Cambodia, Indonesia, Nepal and Timor-Leste, to assist them in planning for microdata anonymization in upcoming surveys and censuses.</td></tr>
<tr><td rowspan="3">Output 5</td><td colspan="3">Strengthened capacity of national officials to monitor and assess the impacts of climate change and disasters on the SDGs, including smallholders and on food security, through more timely and relevant statistics using Big Data</td></tr>
<tr><td>Indicators</td><td>Target</td><td>Achieved</td></tr>
<tr><td>Number of agriculture and disaster indicators piloted that could be produced regularly (monthly or more frequently) using satellite images.</td><td>Ten.</td><td>Yes</td></tr>
<tr><td>Baseline</td><td colspan="3">0</td></tr>
<tr><td>Comments</td><td colspan="3">In collaboration with GIC-AIT, guidelines were produced on “Crop damage and loss assessment for select crops using earth observation imagery”. The document outlines a methodology for assessing crop area inundated by floods for four crops (rice, sugarcane, maize and cassava) and the use of the methodology in the pilot area of Banphot Phisai, Nakhon Sawan, Thailand.</td></tr>
<tr><td rowspan="3">Activity 5.1</td><td colspan="3">Establish virtual working group with key government experts (Lao People’s Democratic Republic, Papua New Guinea, Thailand) and other stakeholders to identify potential Big Data sources at national level, and potential indicators/statistics, including crop area measures and disaster statistics consistent with the SDG indicator framework and the Sendai Framework for disaster statistics</td></tr>
<tr><td>Achieved</td><td colspan="2">Partially</td></tr>
<tr><td>Comments</td><td colspan="2">A virtual Expert Group Meeting (EGM) on the use of ground truth data for agricultural statistics was convened, bringing together experts in the region on furthering the use of big data/satellite imagery to produce agricultural statistics. Experts shared insights on country practices on the use of the technology, and contributed working papers on the subject, although these did not include disaster statistics. The EGM was organized under an LoA with GIC-AIT, based near Bangkok, Thailand, and funded by the project. Implementation of the EGM was delayed by ongoing COVID-19 restrictions, including restrictions that affected access by GIC staff to GIC offices, high powered computers, server and virtual meeting equipment.</td></tr>
<tr><td rowspan="3">Activity 5.2</td><td colspan="3">Pilot use of satellite images - both open source and high-resolution images - to produce timely agriculture and disaster statistics. Produce database, metadata and methodology guidelines, and assessment of alternative data sources</td></tr>
<tr><td>Achieved</td><td colspan="2">Yes</td></tr>
<tr><td>Comments</td><td colspan="2">A methodology to assess crop damage and loss was piloted in Banphot Phisai, Nakhon Sawan, Thailand. The methodology utilized open source and high-resolution software (Sen2Agri) to produce agricultural statistics, including crop-type maps, flood maps using radar satellite imagery, and the estimation of crop damage area using satellite-derived indicators.</td></tr>
<tr><td rowspan="3">Activity 5.3</td><td colspan="3">Conduct a regional workshop to share and discuss results and propose next steps at country level. Produce a regional publication to share country pilots and experiences, and recommendations</td></tr>
<tr><td>Achieved</td><td colspan="2">Yes</td></tr>
<tr><td>Comments</td><td colspan="2">Based on inputs from the EGM on ground truth data, a regional publication was compiled based on working papers submitted by its participants. The regional publication shares experiences in the region on the collection of ground truth data to support the validation of Big Data/satellite imagery sources at country level.</td></tr>
</table>

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

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