

AIMS

The AIMS service

Overview through images

The **Asset Impact Monitoring from Space (AIMS)** is a high-tech, data-driven, service that uses satellite imagery and landscape monitoring techniques to demonstrate and evaluate the impact of asset creation and livelihood programmes. Launched as pilot project in 2017, it has experienced tremendous growth ever since and it is now a full-fledged service that has so far benefited **24 countries** from **6 Regional Bureaux**. The service is run by the Climate and Earth Observation (CIEO) unit of the Research, Assessment and Monitoring (RAM) division together with the Asset Creation, Livelihoods and Resilience (PROR-L) unit of the Programme division and its outcomes now represent one of the pillars of future evidence-based programming decisions.

In practice, AIMS supports **monitoring, advocacy** and **programme** activities:

MONITORING | Remote sensing imagery enables the detection and monitoring of assets' progress and maintenance over time, especially in remote areas that could also be affected by conflict (*Asset Detection Function*). On top of this, AIMS uses time series satellite vegetation data to assess the long term impacts of assets in a specific location (*Landscape Impact Assessment function*). For example, a comparison between 2018 and 2021 vegetation greenness in the Maradi region, southern Niger, shows

KEY STATISTICS
(2018–2023)



46,5K+
images analysed

77% (LCI)
very good

Landscape Contrast Indicator, 2022



3,000+
assets monitored



2
drone pilot missions

71% (ADI)
good

Asset Detection Indicator, 2022

how despite variable rainfall patterns, vegetation greenness has increased exponentially within the intervention site versus its surrounding areas. Due to the relevance of AIMS data for WFP's monitoring, two AIMS-specific indicators are now part of the *Corporate Results Framework (CRF)*.

ADVOCACY | AIMS has proved to be a formidable tool to showcase to existing and prospective donors and stakeholders some clear evidence of the results on the ground, feeding into publications and proposals.

PROGRAMME | Thanks to ongoing research and technical developments together with Soil Watch, a remote monitoring start up, new indicators are being developed to inform and improve planning and programming decisions on the ground. In particular, these new indicators would allow a) WFP to complement asset creation and livelihoods site prioritization with satellite data, b) provide soil quality monitoring, and c) supply quantitative data on carbon storage.

EVALUATION | AIMS is collaborating with WFP's Office of Evaluation in an effort to improve data analytics used in the evaluation of the asset creation activities carried out by WFP.

AIMS SERVICE DEVELOPMENTS

DATABRIDGES AND AMAZON WEB SERVICE

Infrastructure

EXPANDED ANALYTICAL AND AUTOMATED PROCESSES

Efficiency

STREAMLINED MODALITY TO DELIVER RESULTS

Effectiveness



**SUSTAINABLE
REPLICABLE
SCALABLE
RELIABLE**

Fig. A - BEFORE intervention - November 2016



Fig B. - AFTER intervention - August 2020



MALAWI FORESTRY/ PLANTING TREE

WHERE - Nsomo Village (Chickwawa, Ngabu)

START DATE - Dec 2017

END DATE - Dec 2017

ASSET CATEGORY - Forestry/Tree planting

ASSET TYPE - Community Woodlot

OUTCOMES - The decrease in soil erosion and the availability of timber and fuelwood are clear indicators of the successful implementation of the asset, as evidenced by the expansion of the woodlot area in the after scene.

Fig. C - BEFORE intervention - May 2017



Fig. D - AFTER intervention - January 2022



LEBANON SOIL AND WATER CONSERVATION

WHERE - Aita el Shaab Village (Bint Jbeil District, Nabatiye Governorate)

START DATE - Jan 2020

END DATE - Nov 2020

ASSET CATEGORY - Soil and water conservation

ASSET TYPE - Rehabilitation of an agricultural pond

OUTCOMES - The project aimed at rehabilitating an agricultural pond with a capacity of 7,500 cubic meters to ensure access to irrigation water. With an impact of over 90 ha of agricultural lands, the project benefits the population of Aita el Shaab Community. In fig. C, there is evidence of a degraded pond, while in fig. D, we can see that the asset has been deepened and rehabilitated, thereby confirming successful project implementation.

AFGHANISTAN IRRIGATION CANALS

WHERE - Amber Kol, Yaka Yoz Villages (Shortepa District, Balkh Province, North Region)

START DATE - Jul 2020

END DATE - Jan 2021

ASSET CATEGORY - Soil and water conservation

ASSET TYPE - Irrigation canal constructed

OUTCOMES - The main goal of the intervention is to extract water from the Amo River through the excavation of a 1.5 km canal, construction of manhole, retaining wall, water storage and installation of solar panel pillars, and to install a solar system energy water pump that will facilitate the water irrigation to 1000 hectares of agricultural land.

The project benefits the population of Amber Kol and Yaka Yoz Villages.

The image from 2019 (Fig. E) shows a land with some irrigation channels and little agricultural activity. In 2021 (Fig. F) the presence of the gridded features across the intervention area and the solar panels confirm that the project was successfully implemented.



Fig. E - BEFORE Intervention - Jan 2019



Fig. F - AFTER Intervention - Sep 2021



Fig. G - BEFORE Intervention - January 2018



Fig. H - AFTER Intervention - February 2020



SIERRA LEONE SOIL AND WATER CONSERVATION

WHERE - Kumala Site 1 (Kalian District, Konaidugu Province)

START DATE - 2019

END DATE - 2019

ASSET CATEGORY - Soil and water conservation

ASSET TYPE - Inland Valley Swamp (IVS)

Fig. G and Fig. H depict the before and after stages of the implementation of an inland valley swap – it is clearly possible to identify the linear physical grid structures and the central water channel in the 2020 satellite imagery.

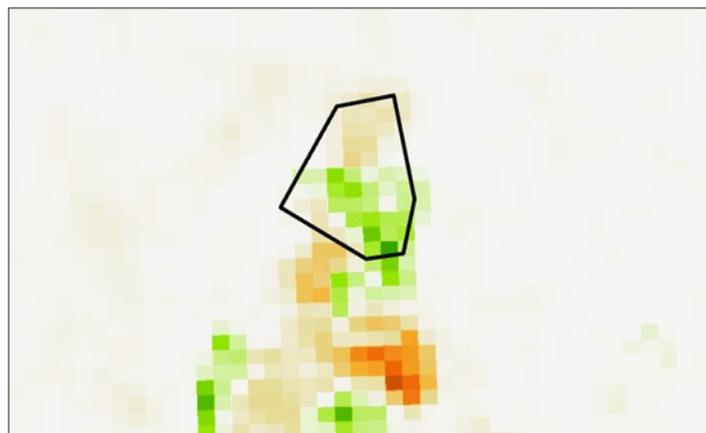


Inland valley swamp at ground level. *Image source:* WFP Sierra Leone Country Office, 2021

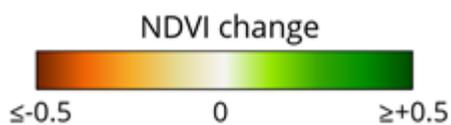
Fig. I - BEFORE intervention - July 2020



Fig. J - AFTER intervention - August 2021



NDVI difference between 2019 and 2022 (Jun-Sep)



AFGHANISTAN

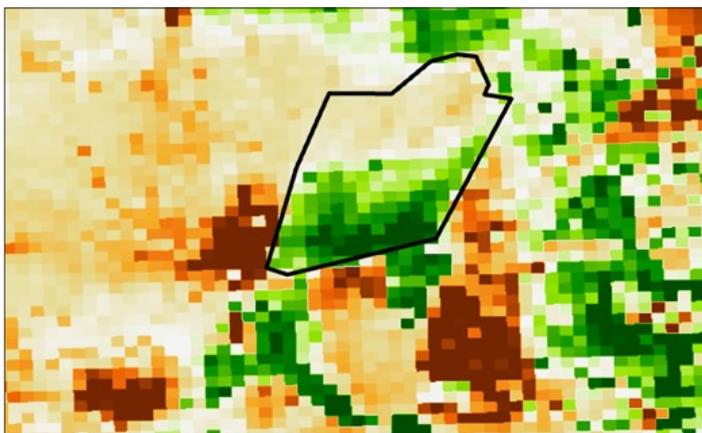
Tirin Kot district, Uruzgan province

The development of the asset site (5 ha) can be seen by looking at the 2020 and 2022 images. By comparing satellite images of the same location taken during the dry seasons of 2013 (pre-intervention) and 2022 (post-intervention), it is possible to identify areas where vegetation has improved (shown in green) and areas that have deteriorated (shown in red). Within the site, a significant increase in vegetation conditions was observed extending to approx. 1.5 ha. This indicates that the project has had a positive impact on the health of the vegetation in the area.

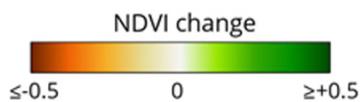
Fig. K - BEFORE intervention - September 2013



Fig. L - AFTER intervention - September 2021



NDVI difference between 2013 and 2021 (Jun-Sep)



AFGHANISTAN

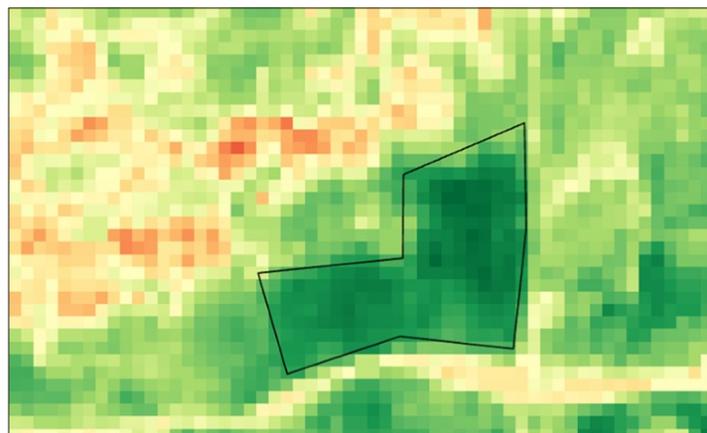
Wakhan district, Badakhshan province

The satellite imagery comparison between the dry seasons of 2013 (pre-intervention) and 2021 (post-intervention) allows us to assess changes in vegetation health at the project site. The difference in vegetation greenness provides a clearer view of the areas presenting improved vegetation conditions (green) and areas that have been degraded (red). The project site experienced an increase in vegetation cover, extending to approx. 7.3 ha, out of a total site area of 20 hectares. This indicates that the intervention has had a positive impact on the greenness and overall health of the vegetation in the project area.

Fig. M - BEFORE intervention - December 2015



Fig. N - AFTER intervention - October 2021



Forest woodlot, Chikwawa, Southern Region | Lat, long: 16.4 S, 34.9 E



MALAWI

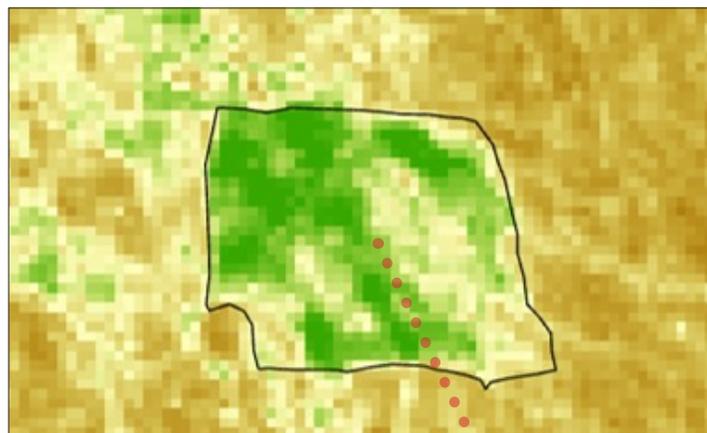
Chikwawa district, Southern region

The images show the change of vegetation conditions between the wet seasons in 2015 and 2019. Green indicates an improvement of the vegetation conditions, meanwhile red indicates a deterioration of the vegetative cover. Within the project area, a strong improvement of +0.9 can be identified. This demonstrates the success of the reforestation activities, as the implementation area shows stronger greening compared to the surrounding landscape.

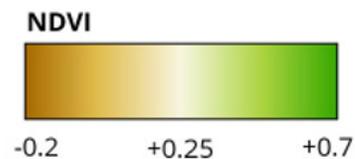
Fig. O - BEFORE intervention - June 2018



Fig. P - AFTER intervention - February 2022



Vegetation conditions during rainy season 2021



16 ha of vegetation observed within the intervention area.

NIGER

Gazaoua department, Maradi region

The intervention site showed vegetation greenness values higher than 0.5 on an area of approximately 4.5 ha in 2018, which expanded to 16 ha in 2021. This robust improvement in vegetation health conditions over several years, despite changing rainfall patterns, confirms the successful implementation of the intervention and its potential for long-term positive impact.

As shown in the vegetation greenness analysis covering the July-September 2021 rainy season, vegetation conditions substantially improved within the project site following the intervention. The vegetation showed a robust response to changing rainfall conditions at the site, while the surrounding area had less vegetation cover.