



SNV : Using data technology to scale impact

At SNV we are committed to achieving impact at scale and information technology plays a crucial role in this endeavour. The increasing availability and affordability of smartphones and cloud-based open source software solutions makes gathering, analysing and disseminating real-time data easier than ever. Better data facilitates a better understanding of contexts, leading to more informed and quicker decisions and consequently, to better and sustainable results.

We encourage projects to use electronic data collection and management tools for planning, monitoring, evaluation and learning. This saves time and delivers more reliable data that can easily be analysed along different dimensions. By consistently generating and using both diagnostic and results data, we fast track projects and scale our impact in agriculture, energy and water, sanitation & hygiene.

Data technologies also help us to be transparent and make our work and results available to funders and stakeholders. This is particularly important in results-based finance arrangements. As of 1 January 2016, we have committed to reporting to the IATI (International Aid Transparency Initiative) standard for DGIS and DfID funded projects with a budget of over €250,000.

To facilitate cutting-edge data use in our projects, we embarked on a partnership with Akvo – a not-for-profit foundation that creates open source, internet and mobile software and sensors to help make international development more effective, transparent and collaborative. Through this partnership, we use low-cost mobile applications in a range of SNV products and programmes and have developed new applications tailored to specific products and needs.

Data can be collected by using hardware like:

Smartphones: for efficient data collection in the field and end-user access to information.

Sensors, test strips and other pocket-sized hardware attachments in combination with smartphones: for easy measurement of physical parameters such as water depth and quality; emissions and air quality; soil quality.

Drones and satellite technology: for remote sensing data collection (eg. to analyse land use and status of catchments or large areas of farmland).

Data can be collected, stored or visualised with software like:

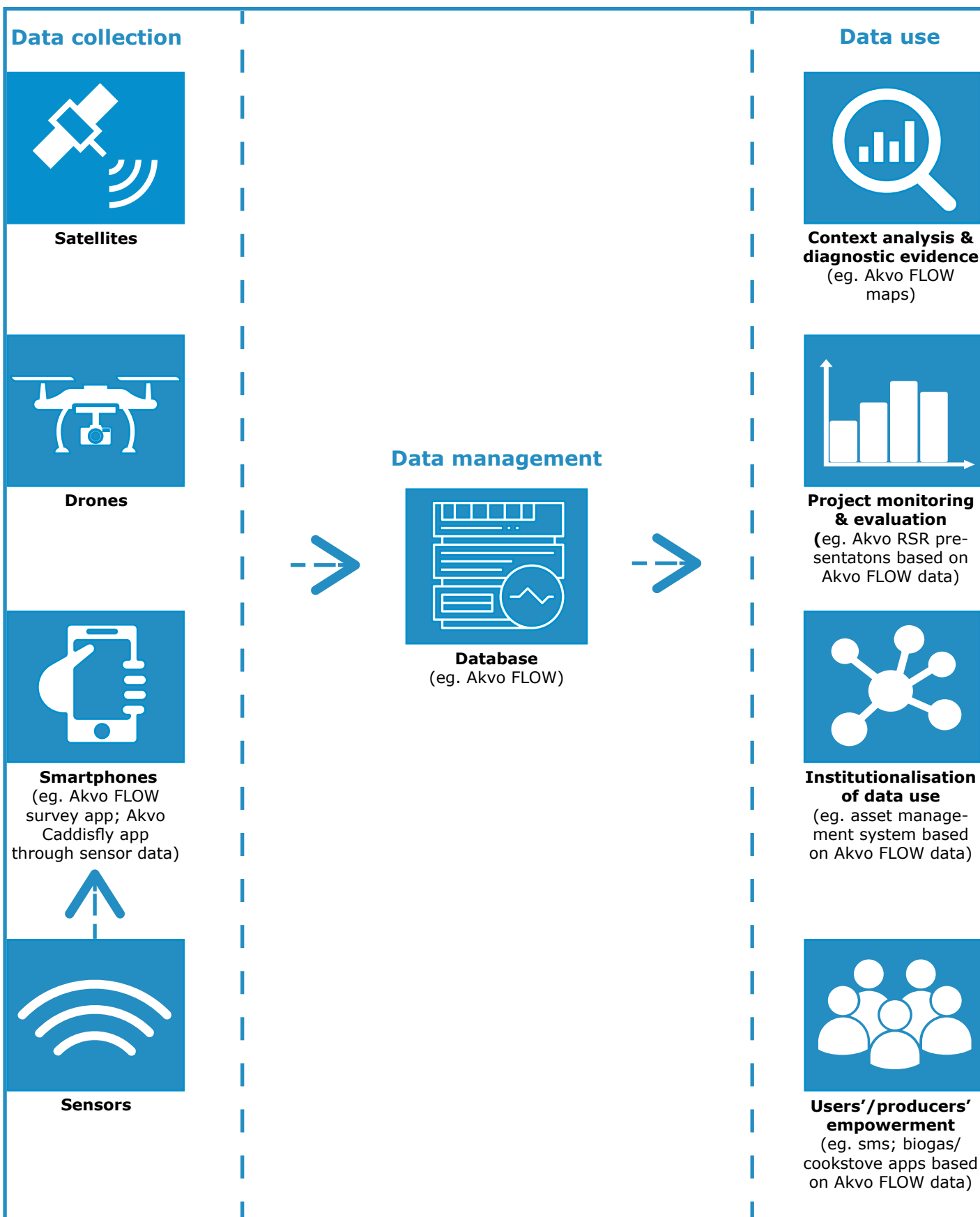
Akvo FLOW: multi-language tool that enables users to easily collect geographically referenced data through mobile-based questionnaires, store the data and manage it in an effective way. Akvo FLOW comes with a dashboard for data visualisation. Based on FLOW, we have developed a biogas and a cookstove survey app and have designed monitoring and evaluation dashboards for a range of projects

Akvo Caddisfly: app used to quickly analyse physical and chemical parameters in groundwater, soil, air etc based on sensor information or photographs. For example, to measure the pH of water, a test strip is dipped into the water and then positioned on a colour calibration card and photographed with a smartphone. The Caddisfly app interprets the colour of the test strip and calculates the test result.

Akvo RSR (Really-Simple-Reporting): versatile tool that offers a platform to share general project information and updates, can be used to document monitoring and evaluation frameworks, is fully compliant with the IATI open data standard and has reporting functionalities. Akvo RSR reporting can be based on Akvo FLOW data.

Depending on project requirements, we combine these technologies with other programmes and tools.

How do the technologies work together?



Why we use data technology in our projects

Context analysis & diagnostic evidence

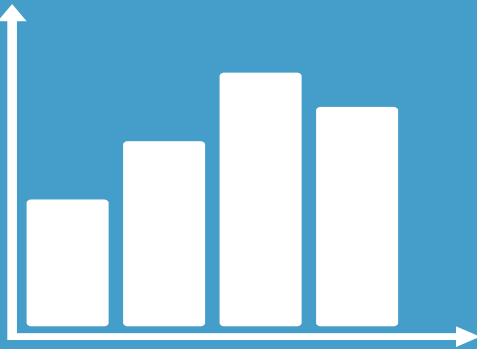
What for: Continuous insight into end-user situation and service provider performance.

Provides: High level, aggregated visualisation (on maps) or broken down by various categories (eg by user category, area, provider etc).

Fosters: Detailed understanding of environments, trends and possible solutions.



Project monitoring & evaluation



What for: Regular monitoring of key project parameters.

Provides: Detailed sense of project progress and links with context analysis.

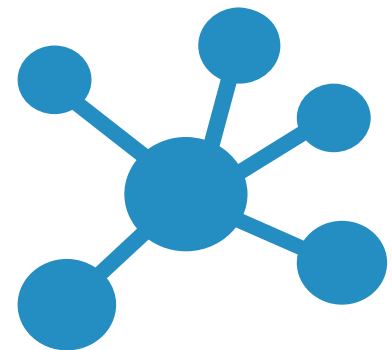
Enables: Highly informed and responsive project management as well as factual basis for results-based financing.

Institutionalisation of data use

What for: Development of ongoing data and asset management systems for a sector or sub-sector.

Provides: Intelligence on sector trends and underlying factors.

Capacitates: Governments, businesses and civil actors to improve their decisions and maximise their efforts.



Users'/producers' empowerment

What for: Access to real-time data on key services, products, prices, market linkages, etc.

Provides: Reliable and timely information regarding critical issues.

Empowers: Users, producers and other value chain actors to optimise their decisions, maximise benefits and address performance issues.

Our experience

Sustainable Sanitation & Hygiene for All (SSH4A)

Monitoring access to sanitation is often done through paper-based systems, designed and implemented by government bodies. This can be a tedious exercise if you have to cover 150 questions per household and also include pictures as evidence. And all the more so when the exercise needs to be done for thousands of households across a range of countries. This is where Akvo FLOW comes in. In the DFID-funded €28 million SSH4A project (aiming to improve sanitation for 2 million people), the mobile-based surveying system has enabled us to efficiently conduct four rounds of surveys with around 17,000 households in eight countries and has given us real-time information on sanitation access, quality of installation, and socio-economic household characteristics. Real-time access helps us monitor the quality of the data being submitted but more importantly, it provides us with an up-to-date picture of progress, including wealth-disaggregated categorisation of beneficiaries, provider outreach and quality. Through Akvo FLOW, we can also effectively and efficiently run our reports for external verification and results-based finance.



Water quality testing on a mobile phone

Traditional water quality testing equipment is hard to use in the field, and lab-based tests are expensive and cause delays. Resulting data is generally difficult to share or access, making it hard for authorities to respond in case of anomalies and for communities to stay informed about water quality issues. The use of smartphone technology can positively impact the transfer and accessibility of water quality data, making results accessible in real time and scaling very affordable. By using a smartphone, the Caddisfly app and pocket-sized hardware attachments, we can conduct reliable tests on water samples. And by combining Caddisfly with Akvo FLOW, we can connect the water quality data to geographic information system data, and map it for online sharing. This leads to lower test costs as well as faster and better action. Caddisfly has been used in Kenya, India, Burkina Faso, the Netherlands, Ethiopia, Tanzania and Mali.



Urban water management through real-time data

In many cities, managers of piped water supply systems lack the tools and equipment to monitor system performance and, as a result, do not have the information base to improve it. Similarly, regulators have difficulty fulfilling their regulatory role due to lack of data. To improve the management and monitoring of small piped systems in Burkina Faso and make the process more cost-effective, we have used Akvo FLOW in combination with Caddisfly and sensor technology. Collected data can be displayed in various ways, eg by showing the functionality status of water points on maps. The information collected can be used to: improve the technical management component of the pipe system, leading to better overall system performance; improve customer management and engagement, making the administrative side of the water supply service more efficient and increasing customer satisfaction; improve non-revenue water management; improve the water production efficiency.



Our experience

New data collection and management system for biogas programmes

Through the Biogas Programme in Vietnam, we have developed an SNV-branded biogas app for domestic data collection, connected to an online dashboard. Quality controllers collect technical and household data, photographs of the systems and GPS coordinates. The collected data is then directly available in the online dashboard. Compared to a paper-based data collection process, the app reduces processing speed by months, creating fast feedback loops. Impact results are identified in a quicker way, costs of data collection are decreased and fraud prevention becomes much easier due to the immediate accessibility of the data during field visits. Thanks to its success, the project might be rolled out as a nation-wide system.



Improved data collection and verification for solar programmes

Akvo FLOW was used for the Results-Based Financing (RBF) Solar project in rural Tanzania. RBF means that payment of financial incentives to suppliers of solar products is contingent upon verification by an independent authority. Using Akvo Flow for this verification process led to a less time consuming and more precise way of collecting data; adding photographs and GPS coordinates of solar systems helped build real-time proof of deliverables. Map-based reports indicated the extension of solar suppliers into rural areas as well as zones where more companies needed to be triggered.



Empowering pastoralists and farmers through reliable and timely information

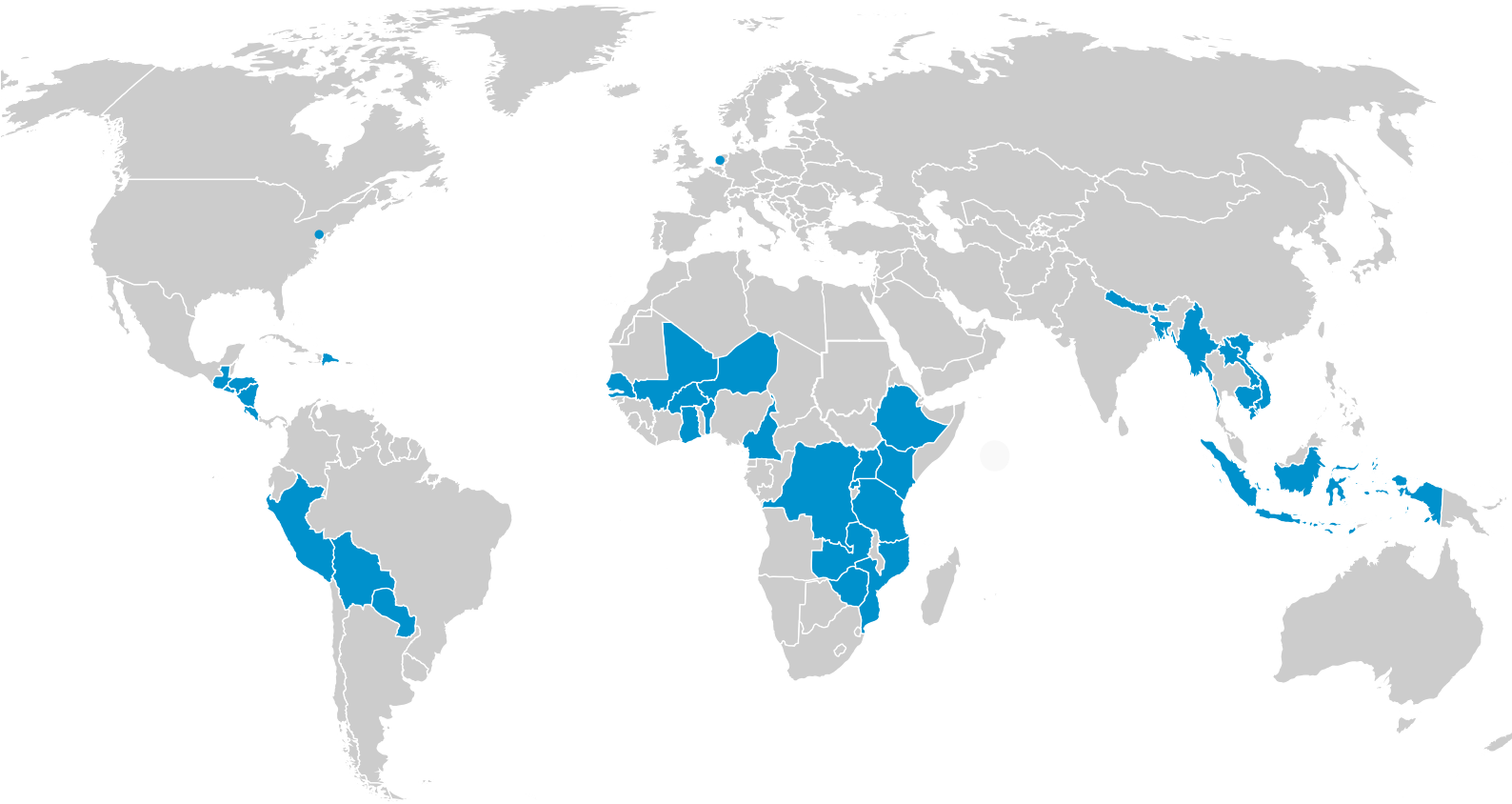
Through a mobile service based on geo-satellite data, pastoralists/farmers in Mali, Burkina Faso and Bangladesh can get timely, location-specific and reliable information on soil, water status, vegetation and weather patterns to improve their decisions on where to bring their herds. Subscribers do not need a smartphone; information is provided via text messages or phone calls. In Mali, under the Sustainable Technology Adaptation for Mali's Pastoralists (STAMP) project, the service helps climate-affected pastoralists with information on biomass and surface water availability, herd concentration and market prices for livestock and staple grains, all along the points of their transhumance routes. A similar approach is used in Burkina Faso for (agro-)pastoralists under the Mobile Data for Moving Herd Management (MODHEM) project and in Bangladesh, under the Intelligent Decision Support Systems (IDSS) for Farmers project. These projects are public-private Partnerships, implemented under the Geodata for Agriculture and Water (G4AW) Facility of the Netherlands Space Office (NSO).



Palm oil traceability: enriching field data with remote sensing data

To increase the sustainability of palm oil production in Indonesia, we use Akvo FLOW as a traceability system in the Indonesia Sustainable Palm Oil Programme. Large areas of land are monitored with high-resolution drone imagery. This remote sensing data is then integrated with plot production and farmer survey data and visualised on dashboards, allowing users to determine whether palm oil farms no longer encroach upon forests. Using this tool enables us to generate proof of sustainability at farm level.





SNV is a not-for-profit international development organisation, working in Agriculture, Renewable Energy, and Water, Sanitation & Hygiene. Founded in the Netherlands in 1965, we have built a long-term, local presence in more than 30 countries in Asia, Africa and Latin America.

Our global team of local and international advisors works with local partners to equip communities, businesses and organisations with the tools, knowledge and connections they need to increase their incomes and gain access to basic services – empowering them to break the cycle of poverty and guide their own development.

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