



**CLIMATE &
CLEAN AIR
COALITION**
TO REDUCE SHORT-LIVED
CLIMATE POLLUTANTS

a UNEP convened initiative

POLICY BRIEF

AGRICULTURE SECTOR

DIGITAL EXTENSION SERVICES FOR LIVESTOCK: DRIVING INVESTMENT FOR SUSTAINABILITY AND CLIMATE ACTION

Authors: Şeyda Özkan¹ & Gregory Kohler²



1 Livestock Climate Solutions, Livestock and Climate Change Expert
2 Climate and Clean Air Coalition Secretariat, Agriculture Expert

KEY MESSAGES

- 1 Reduce methane emissions intensity from livestock by improving production efficiency.**
- 2 Provide data to greenhouse gas (GHG) accounting tools**
- 3 Enhance capacity of decision makers to calculate GHG emissions and develop locally appropriate mitigation options.**

Digital Extension Services for Livestock (DSL) can enhance the value of existing extension services, facilitate incorporation of mitigation options into national climate targets, and further advance investment opportunities in the livestock sector.

BACKGROUND

The livestock sector is a significant contributor to methane (CH₄) emissions, a super pollutant with a global warming potential of about 27 and 80 times greater than carbon dioxide (CO₂) in trapping heat over 100 and 20 years, respectively¹. By improving livestock efficiency and management practices, DSL can support achievement of climate goals while boosting economic resilience and supporting livelihoods. This policy brief, based on the full report "[Role of digital \(extension\) services for livestock on tackling methane emissions](#)"², outlines the pivotal role of DSL in mitigating CH₄ emissions, while highlighting strategies that policy makers and the investment sector can pursue to foster implementation of DSL and accelerate climate action.



ROLE OF EXISTING DSL IN REDUCING METHANE EMISSIONS

- Improve production & reproduction efficiency:** DSL can offer better husbandry and feed optimization by providing data on feed intake and animal behavior e.g. precision feeding systems, ration balancing tools (e.g. GlobalFARP). They can also offer calendar alerts that can remind farmers to inseminate the animals, improving reproductive efficiency.
- Improved animal health via enhanced monitoring, disease prevention and access to treatment:** DSL can monitor animals for disease symptoms; provide a platform to educate farmers on types of diseases and potential treatment options; and connect farmers with veterinary services in their area (e.g. iCow).
- Offer climate and market information:** DSL can offer location-based information on weather, price and availability of pasture and water for pastoral communities (e.g. GARBAL and AfriScout). They can connect buyers and sellers, offering them a transparent market platform and enhancing the value of their products (e.g. mNomad).
- GHG accounting:** DSL improve GHG accounting in two ways: i) DSL provides essential data for GHG accounting tools, including data on feed intake, feed quality, animal health and reproduction status (e.g. iCow), and ii) DSL offer methane emissions calculations as a result of improved feeding (e.g. GlobalFARP) or life-cycle assessment-based calculations of all significant GHG emissions (e.g. GLEAM-i).

1 doi:10.1017/9781009157896.009

2 <https://www.ccacoalition.org/resources/ccac-teap-report-role-digital-extension-services-livestock-tackling-methane-emissions>

TYPES OF DSL

- **DSL as core service:** A DSL functions as a core service if it is the primary revenue source for the developer. They usually have lower development costs and may be developed using a combination of funding sources. Most of them tend to generate revenue through subscription models, although some license the product to businesses for use by farmers within their supply chains. The services can include supporting farmers with keeping track of important tasks (e.g. iCow sending alerts to farmers on the time of vaccination or insemination), enhancing farmer capacity to implement methane-abating practices, and building market linkages.
- **DSL with vertical mechanism:** These types of DSL provide users with data and information (e.g. extension apps) which increase the value of the company's primary core revenue-generating products within the same business. These DSL are often high-tech solutions, such as Lely's time for cows T4C management system that provides data from their core products—collars, milking robots and feeding robots. Vertical DSL may also facilitate the integration of the supply chain and often involve food processors and aggregators while also providing data to government agencies and insurance companies (e.g. mooON).

INVESTMENT OPPORTUNITIES

- **Public-private finance opportunities:** Financing mechanism where public development donors offer risk dispersal can have a considerable role in increasing private sector engagement. There is generally limited funding allocated specifically to DSL in national level investment projects by International Finance Institutions. Incorporating DSL into existing grants or loans may utilize or enhance its use.
- **Philanthropy:** Philanthropic endeavors have promise to build and improve on existing tools in the public domain, which enables faster and cheaper implementation from farmers (e.g. Global Methane Hub's support for GlobalFARP to better formulate feed rations and reduce methane emissions). As of now, philanthropic initiatives often do not finance start-ups, but support data collection tools that are functional. DSL can both scale productivity improvements in individual projects and improve data collection for project measurement and results verification.
- **Private Sector:** Many food processors work closely with farmers, providing valuable extension services to improve the reliability, quantity, and quality of the food within their supply chains. Collaboration between these processors and DSL developers can provide farmers with free or low-cost subscriptions to complement their existing extension services (e.g. vertical systems above). Other opportunities could include collaboration with philanthropic and academic initiatives to expand the applicability and value of existing DSL, such as GlobalFARP.



RECOMMENDATIONS FOR ACTION

- Create favorable policy frameworks that incorporate the role of digital tools to reduce methane emissions from the livestock sector
 - Foster collaboration and communication to share knowledge and scale up digital solutions
 - Support and incentivize extension services to facilitate the implementation and upscaling of digital services
- Invest in digital infrastructure, technology and development
 - Incorporate the development of digital solutions for livestock into national level investment projects, and align climate policies to leverage additional funding



FURTHER INFORMATION

- [Full report: Role of Digital \(Extension\) Services for Livestock on Tackling Methane Emissions](#)
- [CCAC Technology and Economic Assessment Panel \(TEAP\)](#)
- [About Climate and Clean Air Coalition](#)
- [CCAC Agriculture Hub](#)



Photo by Hybrid Theory/Adobe Stock



ABOUT THE CCAC

The UNEP-convened Climate and Clean Air Coalition (CCAC) is a voluntary partnership of more than 160 stakeholders including more than 80 country partners seeking to reduce methane and other short-lived climate pollutants (SLCP) to limit global warming to 1.5°C. Through its Trust Fund, the CCAC supports countries to reduce SLCP emissions across sectors by 2030, while advocating for elevated ambition and advancing the latest in policy-relevant science. Different funding windows exist, including for institutional strengthening, national planning, policies and regulation as well as sectoral transformation.

Following a decade of success in raising global methane ambition, the CCAC Secretariat is also providing secretariat functions to the Global Methane Pledge (GMP), a voluntary commitment of more than 150 countries to reduce global methane emissions by at least 30% by 2030 compared to 2020 levels.



CCAC SECRETARIAT
secretariat@ccacoalition.org

- @CCACoalition
- facebook.com/ccacoalition
- linkedin.com/company/ccacoalition
- ccacoalition.org