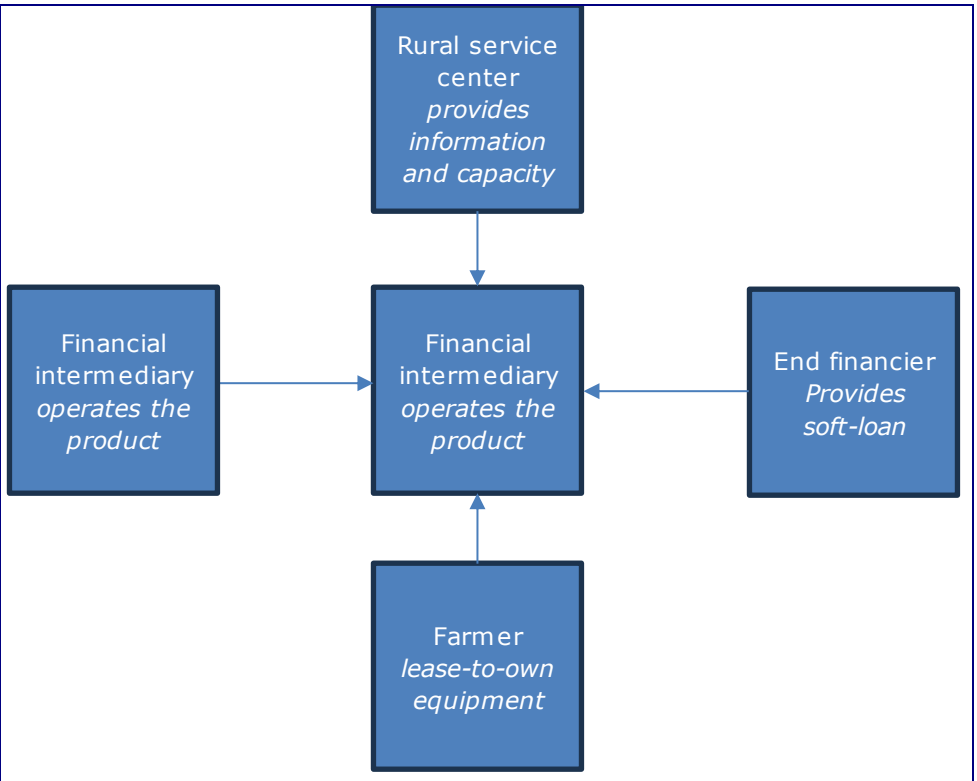
Rijksdienst voor Ondernemend Nederland

TERMS OF REFERENCE	
Country, State, City	Ghana's cocoa growing areas with a particular focus on the central region, Wassa East District, Afram Plains, Ajumako/Enyan/Essiam District
Project planning	Start date:01-01-2027 End date: 31-12-2028 Phase 1: research and development of the financial product; Phase 2: pilot the financial product; Phase 3: embed the financial product for further development;
Institutional setting	For the development of the financial product, the following actors can be brought together: **Financial intermediary** The financial intermediary will develop and roll-out the financial product. The financial intermediary will take the risk of purchasing the equipment from the input supplier and leasing it to the farmer. The financial intermediary will take a margin to operate the product sustainably. **Equipment supplier** An equipment supplier will be selected to provide the suitable irrigation scheme. The equipment supplier will also ensure maintenance and training to RSC's and/or farmers to ensure good operation of the equipment. **Cocoa farmer** The cocoa farmer will lease-to-own the irrigation system. Moreover, they will commit to implementing sustainable practices. This will result in increased cocoa production. **End financier** In first instance, RVO will act as the end financier, providing the funds to purchase 5 irrigation systems. In the model, the financial intermediary has to find a local financier willing to provide a (low) interest loan on the scheme, assuming that there is insufficient cash-flow. **Rural Service Center** The RSC provides information to the financial intermediary about farmers that are eligible for the scheme. Criteria for the eligibility will relate to foreseen financial- as well as environmental sustainability, and motivation The RSC will conduct feasibility studies for the financial intermediary and/or obtain training from the equipment supplier to maintain the system. The scheme might look as below:

	
Project background and problem analysis	Ghana remains the world's second-largest cocoa producer, generating $2.2 billion in annual foreign exchange and supporting approximately 800,000 smallholder farming households across eight cocoa-growing regions. Yet beneath this economic significance lies a productivity crisis that threatens both farmer livelihoods and national economic sustainability. For the past decade, national average cocoa productivity has stagnated at 400-500 kg per hectare. According to the Business development for irrigation in Ghanaian cocoa sector study, commissioned by RVO, attainable yields of 1,700-2,500 kg per hectare are achievable under irrigated conditions combined with good agricultural practices. This represents a 65-80% unrealized productivity gap far exceeding typical agricultural performance disparities. The study indicates that during field assessments, farmers consistently documented physiological stress during the dry season (November-March): leaf shedding, flower abortion, and cherelle wilting. The 2024 season exemplified this crisis, when below-normal rainfall and high temperatures caused cocoa flowers to fail setting fruit at normal rates. When asked about production constraints, farmers uniformly identified water scarcity as their primary challenge during critical growth periods. The challenge is not merely drought but increasing rainfall variability. While annual rainfall volumes remain historically normal in many zones, temporal distribution has become erratic: delayed rain onset forces farmers to postpone seedling transplanting (slowing farm renewal), mid-season dry spells coincide with critical fruit development stages, and shortened relief periods compress maintenance windows. Critically, seedling survival rates have collapsed to 50% during drought years, compared to 94% under irrigation. COCOBOD and Ghana's Cocoa Research Institute recognize that climate adaptation through irrigation is no longer optional—it is strategically essential. Despite widespread recognition among farmers, cooperatives, and COCOBOD that irrigation is necessary, actual adoption remains near zero (<0.5% of

	cocoa area). Farmers report four major constraints to adapt irrigation practices: 1) Irrigation technology is practically unproven technology for cocoa farmers in Ghana. Farmers have not seen successful field implementation of irrigation and have not experienced peer feedback on operating irrigation systems and the business case/profitability of it. 2) Capacity and knowledge level on how to integrate and operate irrigation on farms is low at farmer and farm worker level. This creates risk in the ability to install and operate the system successfully. Installation should be done by the supplier to minimize faulty installation and damages. In addition, RSCs need to be trained in maintenance to increase locale embedding in the sector. 3) (Interviewed) Farmers have never made high investments on their cocoa farms and have not financed their investments for cocoa. The willingness for significant investments is a high risk for successful adoption. Cocoa farmers typically operate low-input systems generating annual net incomes of $1,500-$3,000. Yet irrigation systems require $17,000-$24,000 upfront investment equivalent to 5-8 years of annual farm income. Also, further risks are on the willingness for farmers to finance their investments, by for example loans. Uncertainty of success combined with high interest rates could lower adoption speed. 4) Maintenance of irrigation equipment. A COCOBOD pilot showcased increased yield one year after installing irrigation equipment, but 5 years down the line, most of the irrigation equipment used in this pilot had broken down due to maintenance issues. The agricultural financing ecosystem compounds this problem. While seasonal input credit flows exist through Licensed Buying Companies (LBCs) and government fertilizer schemes, no viable mechanism exists for durable capital asset financing in cocoa. Also, equipment suppliers explicitly stated they will not extend credit to individual farmers due to perceived credit risk and administrative burden. This project therefore seeks to develop a new financial product in the form of a lease-to-own construction for cocoa farmers. RVO will provide the means to pilot the product with at least five farmers. The pilot is developed around three phases: **Phase 1: Research and development (3 months)** This consists of conducting research into the most feasible financial construct and the actual development of the financial product. This might include the development of term sheets, underwriting criteria and a credit risk assessment. This phase will also ensure that the product is compliant with the Bank of Ghana regulations, cooperative law and agricultural lending frameworks. Agreements will be made with input from suppliers contracted by the Contractor that could provide the equipment based on local needs. Finally, this phase will also take into account the mitigating measures that are related to the environmental impact (on a landscape level) that the product might have, such as impact on groundwater tables, downstream users and climate resilience of trees that grow under irrigation. **Phase 2: Pilot the financial product (12 months)** This phase will mark the actual pilot of the product. In collaboration with local RSCs, an irrigation system is sold to at least 10 farmers. Farmers will be selected based on criteria set by the contracted organisation, but also taking into account sustainability practices. During this phase, operation of the irrigation scheme is tested, and repayment by farmers are tracked. Although we expect that the developed financial system will cover a longer tenure than twelve months this period should give sufficient time to understand the increase in production (2 harvest cycles) its associated risks and repayment capacity. This period should also give feedback on the usage and feasibility of the loan product.

	Phase 3: Embed the financial product (6 months +) If phase two is considered successful, phase 3 will be used to embed the financial product and further roll-out the product. This should entail the provision of financial means from cocoa buying companies / confectionary companies into the fund to purchase the irrigation systems in bulk.
Results	1. A financial product is developed for Ghanaian cocoa farmers with at least 5 acres of land under cultivation for irrigation; 2. A financial product is tested with at least 10 farmers; 3. A financial product is locally embedded adjusted and adjusted based on the pilot information and ready to be scaled.
Activities	The below activities are indicative. The service provider is expected to provide a more detailed explanation of the chosen activities in the quotation and to add the mitigating actions that are described in the risks table. Example activities with **Result 1: A financial product is developed for Ghanaian cocoa farmers with at least 5 acres of land under cultivation for irrigation** • Desk review of market study and previous developed products interviews with stakeholders (RSCs, farmers, local banks, government institutions, cocoa buyers); • Consult legal experts on the feasibility and alignment with local regulations; • Develop the indicators to measure the success of the financial product; • Obtain equipment financing terms, information from local banks etc. • Obtain buy in from Cocobod, cocoa buyers, RSCs, equipment suppliers; • Overview of the environmental and other risks and mitigation measures associated with irrigation or high investments. • Development of selection criteria for the selection of farmers for the pilot, taking into account amongst others financial and environmental risks; Example activities with **Result 2: A financial product is tested with at least 10 farmers**. • Selection of farmers based on input from stakeholders; • Selection of control farms; • Installation of irrigation systems with guidance from input supplier; • Training of input supplier for local operation and maintenance; • Signing of contracts and tracking pay-back to the financial service provider (the Contractor); • Monitor increase of production attributed to the usage of the irrigation system; Example activities with **Result 3: A financial product is locally embedded and adjusted based on the pilot information and ready to be scaled.** • Communicate findings and lessons learnt; • Organise farmer field days to showcase the irrigation scheme to other farmers, RSCs and stakeholders; Fundraise to pre-finance additional inputs with for example buyers.