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Investing in rural people

President's report on a proposed grant under the global and regional grants window to Vlaamse Instelling voor Technologisch Onderzoek for Earth Observation Technologies for Well-informed Decisions in Transforming Smallholder Agriculture in West and Central Africa

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For: Approval

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Earth Observation Technologies for Well-informed Decisions in Transforming
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Abbreviations and acronyms

EO	Earth observation
GIS	geographic information system
M&E	monitoring and evaluation
RS	remote sensing
VITO	Vlaamse Instelling voor Technologisch Onderzoek, Flemish Institute for Technological Research
WP	work package

Recommendation for approval

The Executive Board is invited to approve the recommendation for a proposed grant under the global and regional grants window to Vlaamse Instelling voor Technologisch Onderzoek for Earth Observation Technologies for Well-informed Decisions in Transforming Smallholder Agriculture in West and Central Africa as contained in paragraph 5.

President's report on a proposed grant under the global and regional grants window to Vlaamse Instelling voor Technologisch Onderzoek for Earth Observation Technologies for Well-informed Decisions in Transforming Smallholder Agriculture in West and Central Africa

Part I – Introduction

1. This report recommends the provision of an IFAD grant of US\$1.5 million under the global and regional grants window to Vlaamse Instelling voor Technologisch Onderzoek (VITO) (Flemish Institute for Technological Research) for Earth Observation Technologies for Well-informed Decisions in Transforming Smallholder Agriculture in West and Central Africa. The grant proposal document is contained in the annex to this report.
2. The goal of IFAD grants is to broaden and add value to the support provided to smallholder farming and rural transformation, thereby contributing to rural poverty eradication, sustainable agricultural development and global food security and nutrition. In order to achieve these goals, IFAD grants should adhere to three basic principles: (i) make a significant contribution to a global, regional or national public good related to IFAD's mandate; (ii) focus on interventions where grant financing has clear added value and a comparative advantage over regular loans; and (iii) not be used as a substitute for resources from IFAD's administrative budget.
3. The objectives of IFAD grant financing are to: (i) promote innovative, pro-poor approaches and technologies with the potential to be scaled up for greater impact; (ii) strengthen partners' institutional and policy capacities; (iii) enhance advocacy and policy engagement; and (iv) generate and share knowledge for development impact. Rural poor people and their organizations should be squarely positioned at the centre of each grant submission to fulfil IFAD's mandate to enable poor rural people to improve their food security and nutrition, raise their incomes and strengthen their resilience.
4. The proposed programme is in line with the goal and objectives of IFAD grant financing, as stated in the IFAD Grant Policy. It will contribute to the introduction of EO technologies and their application with smallholder farmers while building capacity in the target countries. This grant will improve decision making that can support rural transformation, contribute to national monitoring and evaluation (M&E) systems and provide useful tools for scaling up in country programming and regional initiatives.

Part II – Recommendation

5. I recommend that the Executive Board approve the proposed grant in terms of the following resolution:

RESOLVED: that the Fund, in order to finance, in part, the Earth Observation Technologies for Well-informed Decisions in Transforming Smallholder Agriculture in West and Central Africa, shall provide a grant not exceeding one million and five hundred thousand United States dollars (US\$1,500,000) to Vlaamse Instelling voor Technologisch Onderzoek for three years upon such terms and conditions as shall be substantially in accordance with the terms and conditions presented to the Executive Board herein.

Kanayo F. Nwanze
President

Earth Observation Technologies for Well-informed Decisions in Transforming Smallholder Agriculture in West and Central Africa

I. Background

1. Earth observation (EO) systems can now produce high-quality data at low cost, supporting decision-making and monitoring of poverty alleviation and climate-change adaptation efforts. A recent pilot project on EO for development planning and performance monitoring demonstrated that building the capacity of smallholders, project and government staff, and service providers is critical to effectively using EO technologies. This initiative builds upon these lessons to systematically introduce EO-based services for improved decision-making. An international consortium led by Vlaamse Instelling voor Technologisch Onderzoek (VITO) will champion the implementation of EO-based approaches in Cameroon, the Democratic Republic of the Congo, Ghana, Mali and Senegal to support the decision-making of smallholder farmers and government actors with tested, context-specific tools. The consortium, which was formed following a competitive selection process, also includes Geoville, Alterra and Sensonomic.

II. Rationale and relevance to IFAD

2. Increasing the use of EO data in IFAD's grants and investments is in line with IFAD's strategies and grant policy. It also contributes to: (i) mainstreaming climate and environment in IFAD's work; and (ii) the increased use of EO and geographic information systems (GIS) to improve project targeting and monitoring.
3. The programme is linked with the IFAD's Strategic Framework 2011-2015, which focuses on engagement around natural resources, biodiversity, climate change adaptation and mitigation. To this end, it: (i) promotes the use of technologies that facilitate innovation, learning and scaling up; (ii) supports better results measurement; and (iii) contributes to rural transformation by providing decision-making tools that directly empower smallholders in the target countries.
4. In addition, the programme is aligned with IFAD's thematic priorities and national rural transformation agendas in West and Central Africa by: (i) focusing on sustainable natural resource management; (ii) utilizing emerging technology to support poverty alleviation; and (iii) building strong relationships with field-level programmes.
5. IFAD country offices and projects will be involved in needs assessments and prioritization of activities to be included in each country's work plans and budgets. These projects currently include:
 - (i) Cameroon – Commodity Value-chain Development Support Project and Youth Agro-pastoral Entrepreneurship Promotion Programme;
 - (ii) Democratic Republic of the Congo – Integrated Agricultural Rehabilitation Programme in Maniema Province and Kinshasa Food Supply Centre Support Programme;
 - (iii) Ghana – Rural Enterprises Programme and Ghana Agricultural Sector Investment Programme;
 - (iv) Mali – Fostering Agricultural Productivity Project and Rural Youth Vocational Training Employment and Entrepreneurship Support; and
 - (v) Senegal – Support to Agricultural Development and Rural Entrepreneurship Programme, and Agricultural Value Chains Support Project Extension.

III. The proposed programme

6. The overall goal of the programme is to improve smallholder farmers' decision-making based on accessible and reliable EO products in West and Central Africa. The programme's objectives are to: (i) improve knowledge of factors affecting smallholder farming (e.g. changes in land use and land cover, agricultural production, environment and climate); and (ii) strengthen the capacity of IFAD-supported programmes and national stakeholders in the use of EO, GIS and remote sensing (RS) for the design, implementation and monitoring of activities.
7. The target group for decision-making tools and services includes 30,000 poor rural smallholder farmers, with a focus on women and youth. Collaboration with IFAD country officers and projects in the five target countries will guarantee that the right beneficiaries are targeted. Approximately 50 project and government staff members, and representatives of farmer and civil-society organizations will be targeted for capacity-building.
8. The three-year programme will comprise:
 - (i) Knowledge management: This component involves delivering EO and GIS-based information solutions along with licence-free software tools to facilitate decision-making in the target countries.
 - (ii) Capacity-building: Comprehensive consultations and fit-for-purpose training activities will facilitate the access, use and application of EO and GIS technologies to strengthen observational and monitoring capacities, transfer skills and provide support to enable end user-driven sustainability.
 - (iii) Project management and communication: This component involves all activities related to project coordination, management and M&E among consortium members, country offices and their projects, and other partners.

IV. Expected outputs and benefits

9. The expected outputs include the following work package (WPs):
 - WP 1 – Project management: VITO will be the grant recipient and manager of the consortium, with all related fiduciary responsibilities. VITO and Sensonomic, a consortium member, will establish a technical management team to coordinate activities with the consortium and IFAD.
 - WP 2 – Stocktaking: Using a participatory approach, the consortium member Alterra will evaluate current use, needs and solutions for each country, target group and project through workshops and desktop studies. The analysis will enable the consortium, in collaboration with IFAD and end users, to rank priorities and tasks. The selected priorities, tasks and solutions will create the basis for WPs 3, 4 and 5.
 - WP 3 – Static EO-derived products: The static EO-derived production will generate baseline information. It will be led by GeoVille, a consortium member, and will include: (i) assembling and pre-processing existing data; (ii) developing selected EO products; and (iii) producing thematic digital map data for areas of interest. GeoVille will employ Landsat-8 (historic) and Sentinel 2 data to produce the new EO products.
 - WP 4 – Dynamic EO-derived products: VITO uses several techniques and tools to transform time series RS data into products that monitor agriculture over time. VITO will link to tools developed by Alterra on crop yield modelling with those developed by GeoVille on the water observation and information system. This WP will mainly utilize Proba-V 100m data, which will be an in-kind contribution to the programme.

- WP 5 – Dynamic EO information systems development: The EO data from WPs 3 and 4 are in a form that is too complex for practical use by rural farmers. Therefore, the consortium will develop more appropriate systems for EO information. This may include transferring EO and weather data via mobile phone text messaging and other systems.
- WP 6 – Dissemination: Using both existing web portals and those in development, data will be disseminated as the consortium's in-kind contribution to the programme. Input data will likely constitute a continuous stream of time series data from Sentinel 2, supported by Landsat and Proba-V distribution data. All data will be license-free and publically available. The end-user products will be in formats that ensure community involvement and control over the mapping process and the use of information. This will be ensured by participatory mapping techniques that: enable communities to articulate and use spatial knowledge; assist in land-use planning and decisions regarding resource management; and allow communities to record and archive knowledge. Learning notes will be produced and disseminated to scale up the best practices.
- WP 7 – Capacity-building: Capacity will be built through technical and application-oriented workshops, including: multilevel case workshops and a final evaluation workshop. The workshops will be complemented by learning materials to support trainees after training is completed. Capacity-building efforts will target local communities and smallholder farmers, with a focus on women and youth to ensure their participation in developing and using the data.
- WP 8 – Sustainability: The consortium will investigate how Sentinel and other EO data can be used to streamline: M&E processes; inputs into social, environmental and climate assessment procedures, and country strategic opportunities programmes (COSOPS); Results and Impact Management System indicators; and baseline assessments in the target countries. The consortium will also train and support African agricultural organizations employing EO information products for improved decision-making and resource mobilization. The consortium will assist in setting up EO and GIS networks in the five target countries, and capturing lessons learned. These efforts will be conducted with IFAD country offices, project staff and other stakeholders.

V. Implementation arrangements

10. VITO leads the consortium and will be the IFAD grant recipient. VITO will enter into sub-agreements with Geoville, Alterra and Sensonomic, which will be responsible for the deliverables highlighted in the WPs above according to the conditions defined in the grant agreement. A programme management team will be established at VITO's headquarters with three senior staff. VITO will provide the programme coordinator and the contract, finance and accounting manager. Sensonomic will provide the technical manager, who will lead all the WPs. The programme management team will liaise with IFAD and programme partners.
11. Once the grant agreement is signed, VITO will directly receive the IFAD grant in a dedicated account. IFAD will conduct a prior review of all significant sub-agreements and VITO will disburse funds for programme activities according to the conditions of the sub-agreements. VITO will also ensure that the grant resources are used in accordance with the provisions of the grant agreement and are fully accounted for in line with a detailed programme of work and budget, which will be approved by IFAD after validation by each of the five country offices or projects. National institutions specializing in EO and GIS, and farmer and civil society

organizations will be selected as implementing partners following consultations with the five country offices or projects.

12. All procurement of goods and services related to programme activities will be carried out in accordance with IFAD's project procurement guidelines.
13. VITO shall maintain separate records and financial accounts prepared in accordance with internationally recognized standards for this grant; and shall ensure that the entire project implementation period is covered by audit. The audited financial statements will include all transactions, including transactions with sub-recipients. The recipient shall have its institutional accounts audited every year by independent auditors acceptable to IFAD in accordance with the International Audit Standards. It shall deliver to IFAD a copy of its audited financial statements, which shall include specific reference to the grant, within six months after the end of the recipient's fiscal year. The recipient shall ensure that within its audited financial statements, or separately, an audit opinion letter on the statements of expenditure submitted to IFAD during the fiscal year is completed by its independent auditor.
14. IFAD will closely supervise the project and technical backstopping missions from IFAD are envisaged. At least one supervision mission will be conducted per year to one of the target countries and other implementation support missions will be planned to coincide with country-specific investment missions. VITO will ensure regular monitoring of programme progress, including financial monitoring.
15. A knowledge management work plan will be prepared with the five country offices or projects to ensure consistency and capture lessons learned. The consortium will work closely with IFAD to ensure that knowledge products and lessons learned are regularly shared as public goods.

VI. Indicative programme costs and financing

16. The total programme cost is estimated at US\$3.54 million. IFAD will provide a grant of US\$1.5 million (representing 42.4 per cent of the total programme cost) and the consortium will contribute the remaining US\$2.04 million (57.6 per cent) as in-kind contributions.

Table 1
Costs by component and financier
(Thousands of United States dollars)

<i>Component</i>	<i>IFAD</i>	<i>Cofinancier</i>	<i>Total</i>
1. Knowledge management (EO, data generation and dissemination)	640	1 565	2 205
2. Capacity-building	560	290	850
3. Project management and communication	300	180	480
Total	1 500	2 039	3 539

Table 2
Costs by expenditure category and financier
(Thousands of United States dollars)

<i>Expenditure category</i>	<i>IFAD</i>	<i>Cofinancier</i>	<i>Total</i>
1. Consultancies	480	1 775	2 255
2. Operating costs	150	0	150
3. Training and workshops	560	264	824
4. Travel and allowances	160	0	160
5. Overhead and management fees	150	0	150
Total	1 500	2 039	3 539

Appendix: Results-based logical framework

	Objectives-hierarchy	Objectively verifiable indicators	Means of verification	Assumptions
Goal	Improve decision making in support of and by smallholder farmers in WCA based on accessible and reliable EO-based products and services	At least 30 000 smallholder farmers (disaggregated by sex and age) empowered and effectively using EO related services in their activities and decision making.	Project monitoring reports Final impact evaluation and grant completion report Supervision report and Grant Status Rating (GSR)	
Objectives	<p>Improve knowledge on factors affecting smallholder farming (use/land cover change, agricultural production and environmental/climate)</p> <p>Strengthen the capacity of IFAD-supported programmes and relevant national stakeholders in the use of EO and GIS/RS for their design, implementation and M & E activities</p>	<p>30000 smallholder farmers using adapted EO products</p> <p>30 project and government staff use EO-tools</p> <p>20 representatives of civil society organizations and key institutions capacitated to deploy EO-related tools..</p> <p>5 EO-GIS community of practice/network operational in each country.</p>	<p>Capacity building workshops</p> <p>Project monitoring or progress reports</p> <p>Final impact evaluation and grant completion report</p> <p>Report from EO –GIS networks</p> <p>Supervision report and Grant Status Rating (GSR)</p>	<p>Capacity of the rural community to adopt knowledge</p> <p>Difficulty in using products</p> <p>Regional and country political stability</p>
Outputs	<p>Delivery of dedicated EO and GIS-based information product solutions along with provision for licence-free software tools to facilitate local and national investment decision</p> <p>Implementation of comprehensive consultations and fit-for-purpose training activities to strengthen observational and monitoring capacity and train and provide support to enable end –user driven sustainability</p>	<p>100 farming communities use information made available during the project.</p> <p>At least 5 IFAD-funded projects in the region that make use of EO in their planning, monitoring and evaluation system.</p> <p>At least 10 governmental office report increased awareness and knowledge of land use and climate change:</p> <p>50 trained users with access to licence-free EO-GIS related data.</p>	<p>Training workshop reports</p> <p>Project monitoring or progress reports</p> <p>Report from EO –GIS networks</p> <p>Supervision report and Grant Status Rating (GSR)</p>	<p>Quality stream and delivery of EO data</p>
Key Activities	<p>Participatory stocktaking of country needs</p> <p>Generation of static and dynamic baseline and multi-temporal information</p> <p>Development of dynamic EO information system</p> <p>Conducting of technical and application training workshops</p>	<p>5 country specific EO-GIS needs assessment.</p> <p>Thematic digital baseline and multi-temporal maps produced (demand-driven)</p> <p>User-friendly information system developed (demand-driven)</p> <p>At least 5 webportals created with public access to project generated data and information</p> <p>At least 10 thematic and country training workshops undertaken</p>	<p>Country EO-GIS assessment report</p> <p>Training workshop reports progress reports</p> <p>Supervision report and Grant Status Rating (GSR)</p>	<p>Access to socio-economic data</p> <p>Access to EO data</p> <p>Access to in-situ data</p> <p>Access to GIS data</p> <p>Access to project knowledge and communication to establish workshops</p>