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Enabling poor rural people
to overcome poverty

President's report on a proposed grant under the global/regional grants window to a CGIAR-supported international centre

Note to Executive Board representatives

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For: Approval

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Annex

International Water Management Institute (IWMI): Safe Nutrient, Water and Energy Recovery: Developing a Business Case

Abbreviations and acronyms

AfDB	African Development Bank
AWF	African Water Facility
CGIAR	Consultative Group on International Agricultural Research
IWMI	International Water Management Institute
RUAF	Resource Centre on Urban Agriculture and Food Security

Recommendation for approval

The Executive Board is invited to approve the recommendation for a grant under the global/regional grants window to a CGIAR-supported international centre as contained in paragraph 7.

President's report on a proposed grant under the global/regional grants window to a CGIAR-supported international centre

I submit the following report and recommendation on a proposed grant for agricultural research and training to a Consultative Group on International Agricultural Research (CGIAR)-supported international centre in the amount of US\$650,000.

Part I – Introduction

1. This report recommends the provision of IFAD support to the research and training programme of the following CGIAR-supported international centre: International Water Management Institute (IWMI).
2. The document of the grant for approval by the Executive Board is contained in the annex to this report:

International Water Management Institute (IWMI): Safe Nutrient, Water and Energy Recovery: Developing a Business Case
3. The objectives and content of the applied research programme are in line with the evolving strategic objectives of IFAD and the IFAD Policy for Grant Financing.
4. The overarching strategic goal that drives the revised grant policy, which was approved by the Executive Board in December 2009, is to promote successful and/or innovative approaches and technologies together with enabling policies and institutions that will support agricultural and rural development, empowering poor rural women and men in developing countries to achieve higher incomes and improved food security.
5. The policy aims to achieve the following outputs: (a) innovative activities promoted and innovative technologies and approaches developed in support of IFAD's target group; (b) awareness, advocacy and policy dialogue on issues of importance to poor rural people promoted by, and on behalf of, this target group; (c) capacity of partner institutions strengthened to deliver a range of services in support of poor rural people; and (d) lesson learning, knowledge management and dissemination of information on issues related to rural poverty reduction promoted among stakeholders within and across regions.
6. The proposed programme supports the outputs of the revised grant policy by:
 - (a) addressing the linkages between producers and consumers;
 - (b) raising awareness on food safety at the producer, consumer and municipal levels;
 - (c) supporting municipal health authorities in engaging in food safety issues; and
 - (d) explicitly fostering learning partnerships in the context of this programme by creating a platform to actively facilitate the sharing of information and experiences among selected key stakeholders from public and private sector, policymakers, researchers and beneficiaries.

Part II – Recommendation

7. 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 Safe Nutrient, Water and Energy Recovery: Developing a Business Case, shall make a grant not exceeding six hundred and fifty thousand United States dollars (US\$650,000) to the International Water Management Institute (IWMI) for a two-and-a-half-year programme 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

International Water Management Institute (IWMI): Safe Nutrient, Water and Energy Recovery: Developing a Business Case

I. Background

1. Recovering water, nutrients and energy from otherwise wasted resources is a high priority objective where resources for agricultural production are limited or are being depleted as a result of climate change, diminishing global phosphorus reserves and rising fertilizer prices. With global drivers creating a strong geographical disconnection between areas of food production and food consumption, there is a growing need to reuse nutrients from agricultural and domestic waste in order to restore local nutrient loops. These drivers are also affecting the water cycle by increasing the demand for fresh water and marginal quality water. As 95 per cent of wasted water and food residues is composed of nutrients, water and organic matter that have monetary value, there are various economically interesting options for resource recovery.
2. The new CGIAR Consortium Research Program 5 (Durable Solutions to Water Scarcity and Land Degradation) led by IWMI has a specific subprogramme on resource recovery. Its overarching objective is to increase the scale and viability of the safe and productive reuse of water, nutrients and energy from liquid and solid waste streams to enhance food security and livelihoods. Emphasis is placed on: (i) cost recovery from reuse (e.g. via biogas production) to attract emerging entrepreneurs and public-private partnerships; and (ii) the mitigation of possible risks for the environment and human health.

II. Rationale and relevance to IFAD

3. The rationale for the proposed programme lies in the following:
 - From the perspective of food security, food safety and poverty reduction, agricultural, agro-industrial and domestic waste products offer an endless stream of highly valuable resources for agricultural production that are more reliable and easily available in many regions than other water and nutrient sources. If managed safely, these resources can improve rural livelihoods.
 - From the perspective of waste management, reuse offers public and private entrepreneurs viable business development options for offsetting or recovering costs, or for earning a profit.
 - From the environmental perspective, the productive reuse of waste resources can be considered as a crucial and lasting ecosystem service preceding and complementing technical treatment options and preventing pollution.
 - From the system perspective, recycling is a central component of natural resources management, and critical for all non- or slowly-renewable resources. This is particularly pertinent in light of the looming phosphorus, water and energy crises.
4. The programme will therefore contribute to mainstreaming IFAD's strategic framework and objectives into national and international research agendas and to brokering knowledge generated by such research to selected decision-makers at the national level and in international financial institutions. The programme supports the first IFAD strategic objective, which places emphasis on improved natural resource management and conservation practices, especially secure access to land and water; and the second, which focuses on improved agricultural technologies and effective production services. In order to make sustainable

progress against these objectives in challenging situations such as the programme context, specific approaches are needed.

5. The proposed support will work at the following levels:
 - Corporate: IFAD is strongly committed to promoting innovation, public-private partnerships, resource brokering, and empowerment across its activities. The proposed grant will further these efforts through innovative approaches to make better use of information, increase water security and empower different end-users and inform policy dialogue processes, such as country strategic opportunities programme preparation.
 - Operations: Direct supervision has now been introduced in the majority of IFAD operations. This grant seeks to empower its development partners, especially farmers, to participate in more transparent negotiations. Experience gained during grant implementation will strengthen partners' performance and may prove useful in the design of new IFAD operations.
6. IFAD's contribution is crucial to the success of the grant as the programme's private-sector approach to good science is still relatively new to IWMI, and also to the CGIAR.

III. The proposed programme

7. The overall goal of the programme is to provide producers and consumers with the best business case options in recovering nutrients, water and energy from agricultural and domestic waste for food security and food safety.
8. The target group consists of emerging entrepreneurs and their support programmes along the value chain, while the beneficiaries will be poor rural and peri-urban stakeholders, in particular women, with access to fresh – but often contaminated – irrigated produce in the selected countries. These stakeholders include: street vendors, intermediaries, providers of vegetables and fish, smallholders and producers using irrigation (usually first generation migrants from rural to peri-urban and urban areas) and, indirectly, food health inspectors and regulators.
9. At least six to eight target countries will be selected for initial screening. Based on this desk study, four to five of the most promising country locations with several identified business models will be selected for in-depth studies. These will be linked with local organizations and institutional platforms of existing or past programmes to support local entrepreneur capacity and promote food safety.
10. Among the preselected countries are:
 - Ghana (linked to a reuse project currently being launched by the African Development Bank/African Water Facility [AfDB/AWF], several existing stakeholder platforms supported by the IWMI office and network in Accra, the Regional Cassava Processing and Marketing Initiative, and the IFAD country programme).
 - Uganda (linked to a related proposal by the European Union and existing stakeholder platforms; links to the IFAD Vegetable Oil Development Project to be explored).
 - Bangladesh (linked to an existing stakeholder platform).
 - Botswana (linked to the IFAD-supported Agricultural Services Support Project).
 - India (linked to peri-urban projects by IWMI and the Resource Centre on Urban Agriculture and Food Security (RUAF) and supported by the IWMI-Hyderabad office and the related regional stakeholder network).

- Viet Nam (supported by IWMI-Viet Nam office working on biogas recovery from agricultural waste).
 - China (linked to IWMI-RUAF and the Sustainable Water Management Improves Tomorrow's Cities' Health (SWITCH) networks and the RUAF office and stakeholder platform in Beijing as well as IFAD projects related to biogas).
11. Linkages with the respective IFAD country programmes working in related fields will be proactively pursued; cases where IFAD projects support resource recovery also in other countries will be considered in the initial review (see appendix, activity 1.1). Several contacts are already being established.
 12. The programme will be of a two-and-a-half-year duration and comprise four main components or "work packages" (WPs):
 - WP1: Review and documentation
 - WP2: Case study analysis in collaboration with the respective stakeholder platforms
 - WP3: Guideline development
 - WP4: Prepare for scaling up.

IV. Expected outputs and benefits

13. The following outputs and outcome are foreseen:
 - A catalogue of about 20 promising business models for the safe reuse of nutrients, energy and water in agriculture distributed to all learning alliances in the programme countries and online.
 - An assessment of health and environmental risks and risk management activity options per business model.
 - A methodology and framework for reviewing business cases, including financial, environmental, economic and health safety aspects.
 - Cost-recovery options through safe waste reuse and related capacity-building promoted in selected development programmes.
14. The expected outcome from the programme is increased institutional and public knowledge on economically interesting and safe options for (and the extent of) water, organic matter, nutrient and energy recovery from various waste streams.
15. This should lead in the programme countries and beyond to an increase in development initiatives to promote business models linking resource recovery and food security.
16. The long-term goal is for national policies to increasingly support this closed-loop concept, which increases the resilience of the agricultural sector to climate change, water scarcity, and fluctuating energy and fertilizer prices.
17. Small farmers will benefit by being better able to manage their natural resource base and provide their crops, livestock or fish with the required resources. With alternative water and nutrient sources on the market, farmers can optimize their farm profits by having more reliable access to water and nutrients. Farmers and farm managers will also be able to reduce their input costs as recovered resources are usually cheaper than industry-supplied commodities.
18. A significant benefit for all stakeholders along the food value chain will be reduced exposure to raw or inadequately treated waste, which affects food safety. The application of recommended reuse models will greatly reduce the risk of diarrheal disease among farmers, traders and consumers along the "farm-to-fork" pathway.

V. Implementation arrangements

19. The programme will be managed by IWMI, which will establish a multidisciplinary programme team, involving partners and researchers in its regional offices in Africa and in Asia and at its headquarters in Sri Lanka. As the implementing agency, IWMI will execute the programme and work together with local research and extension service-providers, in addition to IFAD partners and staff. IWMI is the main contractor for the programme and is responsible for administrative and financial management. IWMI will appoint a programme leader and, at the national level, it will seek close linkages with business schools to: (i) better understand options and constraints for local entrepreneurs; and (ii) feed the results straight back into local education and capacity-building.

VI. Indicative programme costs and financing

20. The proposed programme will be implemented over two and a half years and will have a total cost of US\$650,000. The programme will be financed by IFAD (US\$650,000), with matching contributions from other sources. Matching funds in support of the programme and its outputs will be provided by IWMI.
21. Matching contributions in terms of staff time and operations will come e.g. from a AfDB/AWF project which is about to start in Ghana in support of designing a reuse approach on wastewater. Other contributions will come from the CGIAR Consortium Research Program 5 which will be provided mainly by IWMI through ongoing and planned project activities and will be primarily in the form of staff time. The results of the projects mentioned will serve as inputs for the proposed programme, in particular: literature survey, assessments of storage types, methodologies for opportunities and constraints analysis, and investment scenarios.

Summary of budget and financing plan (Thousands of United States dollars)

<i>Type of expenditure</i>	<i>IFAD</i>	<i>Cofinancing^a</i>
Human resources	142.65	340
Travel – international	66.00	0
Operations at national level, e.g. learning alliances	347.04	0
Knowledge management	30.26	0
Overheads	64.05	0
Total	650.00	340

^a Matching funds by IWMI.

Results-based logical framework

	Objectives-hierarchy	Objectively verifiable indicators	Means of verification	Assumptions
Goal	To provide best business case options to producers and consumers by recovering nutrients, water and energy from agriculture and domestic waste for food security and food safety	<ul style="list-style-type: none"> • Business models shared with relevant stakeholders, reviewed by experts to verify appropriateness and tested by producers/consumers. 	<ul style="list-style-type: none"> • Business models online available • Project reports, meeting minutes and media reports. • Review documents. • Client satisfaction profiles 	
Objectives	<ol style="list-style-type: none"> 1. Concerned stakeholders have identified pathways for making business cases more replicable, scalable, and sustainable 2. National, regional and local stakeholder platforms (agricultural and/or sanitation) strengthened by extending their interest in and knowledge of safe reuse as a business. 3. Donors, government departments and/or private sector formulate initiatives or programs incorporating project results. 	<ul style="list-style-type: none"> • Consultation documents from stakeholder platforms and individual meetings; donor round-tables; on-line dialogue. • Conference proceedings, media reports, responses from stakeholders • Survey of changes in stakeholders' knowledge, attitudes and skills (KAS) 	<ul style="list-style-type: none"> • Database and metadata available on IWMI's data portal • Catalogue of business cases on programme website. • Meeting minutes; stakeholder comments on on-line sharepoint. • Reports on cases; Programme website; Slide decks shared; Documentary; Newspaper clippings. 	<ul style="list-style-type: none"> • Willingness of MSMEs to share information (can be facilitated through trust and incentives via upscaling analysis) • Stakeholders are willing to attend meetings (can be facilitated via authority involvement). • Data on waste characteristics available. (If not, we will rely on literature assuming worse case scenarios to be on safe side.)
Outputs	<ol style="list-style-type: none"> 1. A catalogue of about 20 promising business models for the safe reuse of nutrients, energy and water in agriculture distributed to all learning alliances in the project countries and online. 2. An assessment of health and environmental risks and risk management activity options per business model. 3. A methodology and framework for reviewing business cases, including financial, environmental, economic and health safety aspects 4. Cost recovery options through safe waste reuse and related capacity building promoted in selected development programmes 	<ul style="list-style-type: none"> • Catalogue of business models • Database of all MSMEs cases investigated. • Risk analysis checkpoints per business model • Project involvement and capacity building recorded. • Methodology and framework published. • Relevant agencies cite results and/or request materials, training support, key notes or joint proposals 	<ul style="list-style-type: none"> • On-line downloads tracked • Request and citation records. • Capacity building records • Programs or proposal documents. 	<p>Business models must be available for review. Scoping suggests that this is the case.</p> <p>Stakeholders must be receptive to new ideas about the use of waste. Previous projects suggest that this is the case.</p>
Key Activities	<ol style="list-style-type: none"> 1.1 Country and regional desk review of business cases and projects 1.2 Identification of national partners, platforms and key stakeholders 1.3 Inception workshops with key stakeholders 2.1 National level reviews of reuse cases, projects and practices 2.2 Analysis of replicability and scalability barriers, particularities and opportunities for identified examples 2.3 Documentation of identified business models, their potential limitations and related capacity building of platforms 3.1 Compilation of guidelines for analysis of business cases 4.1 Exchange results with MSME associations and decision makers for feedback and support for out- and up-scaling, including donors' sessions and roundtables at conferences 4.2 Build capacities of stakeholders and write proposals for scaling up promising models, identify at least one major potential investor 	<p>MEANS:</p> <p>Expert team for project execution in place</p> <p>Project management in place</p> <p>National IWMI offices aware</p> <p>National and international partner networks available</p> <p>Supplementing projects have started</p> <p>Matching funds available</p>	<p>Progress reports</p> <p>Online milestone control</p> <p>Evaluation reports</p> <p>Partner contracts</p> <p>Minutes of workshops</p> <p>Programme outputs</p> <p>Programme website updates</p>	