

# Institutional strengthening of the agricultural innovation system

## Abstract

The agricultural innovation system of Surinam is plagued by many shortcomings, which hinder the identification, implementation and coordination of agricultural innovation activities. This project tries to address some of the key bottlenecks, but in no way, can tackle them all. It aims to: (a) introduce a project planning and M&E culture within ODLOAV (outputs 1); (b) provide support to the newly established National Agricultural Innovation Board (output 2); (c) establish a modern media unit at the agricultural extension division of LVV (output 3); (d) train staff (output 4); and (e) improve the handling and storage of pesticides by LVV, ADRON and other project participants.

## Introduction

Surinam has a rather weak agricultural innovation system plagued by a series of shortcomings, including: (a) A staff composition that is very much out balance – very few qualified professional staff, but large numbers of poorly educated support staff; (b) Weak coordination and collaboration within the system – between the different research entities (resulting in unnecessary duplication of effort), but also between research and extension; (c) A physical research infrastructure that is too large for the current size of research staff; (d) Lack of focus on results due to the absence of a project culture; and (e) An extension service that is in dear need of modernization.

In addition, the very limited size of the (agricultural) economy limits the range of innovation opportunities that can be pursued profitably. Most plant and animal breeding is very much outside the range of possible profitable interventions. Except for rice, genetic improvement has to be imported from elsewhere. Adapting and fine-tuning imported technologies to local conditions only pays off if there is a sufficiently large domain of application. Small economies tend to invest relatively more in agricultural R&D, but not reaping more benefits as they lack economies of scale and scope.

## Background

The key actors in the agricultural research and extension system of Suriname are:

- (1) Agricultural Research Department, LVV: crop research;
- (2) Agricultural Department, LVV: crop extension;
- (3) Animal Husbandry Department, LVV: livestock extension and some livestock research;
- (4) Fisheries Department, LVV: some extension;
- (5) 'Anne van Dijk' Rice Research Organization (ADRON): rice research (including a little bit of post-harvest research) and some extension;
- (6) Center for Agricultural Research in Suriname (CELOS), 'Anton de Kom' University of Suriname: crop and (agro-)forestry research; and
- (7) Agricultural Production Division of the Faculty of Technical Sciences, 'Anton de Kom' University of Suriname (ADEKUS): crop, livestock, aquaculture, and some post-harvest research.

A national agricultural innovation strategy was released by LVV in December 2013, which proposes the establishment of a national agricultural innovation board to enhance the overall coordination of the system. This board has been established only very recently (June 2016) and had its first meeting on July, 21<sup>st</sup>, 2016. The strategy also proposes the development of a national human resources plan and a national infrastructure plan for the agricultural innovation system. Both plans were drafted in 2015 and are waiting for final approval.

Other key elements of the national agricultural innovation strategy are: (a) the introduction of a project mode of operation; (b) more multi-partner projects, involving both research and extension; (c) the reorganization of agricultural extension; and (d) the strengthening of international linkages.

## Interventions to date

Implementation of the agricultural innovation strategy adopted in 2013 has been slow. The national agricultural innovation board has only very recently been installed and still has to take up its proper role. During the past five years, the position of director of ODLOAV has been vacant for more than half of the time.

ODLOAV has also made very little progress in terms of switching to a project mode of operation. Staff members have been trained in project proposal writing, but still have very little hands-on experience in writing good proposals and in project management and implementation. Until now the project mode of operation has only been adhered to when there is external funding. The same approach has not been applied yet to activities funded by own resources. The latter requires a fundamental change in how activities are planned, executed and reported internally within ODLOAV. The same can be said for ODL and the other sub-directorates.

The Agricultural Innovation Strategy (2013) proposes the project mode of operation to be gradually implemented over time. Initially, the selection of project proposals will be responsibility of the management teams of the various sub-directorates. “But as of 2016, however, the selection of innovation projects will be organized more competitively and transparently by introducing a selection process that involves external reviewers<sup>1</sup>, which is managed by the sub-directorates. Moreover, now a staged selection process will be introduced whereby a pre-selection of project ideas (2 pages maximum) is made by each sub-directorate before full project proposals are being requested. This pre-selection should keep project development and selection costs at bay and make sure that project proposals are in line with the overall innovation priorities of LVV.”<sup>2</sup> In addition, the Agricultural Innovation Strategy proposes the establishment of a specific project management unit within LVV in order to facilitate the implementation of the “portfolio of agricultural innovation projects”, handling tasks such as the project selection process, project budgeting and administration, and M&E.

Given the noted delays in implementing the project mode of operation by the sub-directorates, no steps have been taken yet towards: (a) establishing an agricultural innovation project management unit; and (b) introducing a more transparent and competitive selection process. The complicating factor is that both proposed mechanisms are supposed to work across different sub-directorates, which leaves them somewhat hanging with the question ‘Who is responsible for their establishment and management?’.

A national human resources plan and a national infrastructure plan for the national agricultural innovation system have been drafted in 2015, but not approved yet. During the drafting of the plans, ambitions had to be lowered considerably considering the emerging financial crisis. Nevertheless, the HR plan indicates a recruitment need between now and 2020 of 6 researchers with a PhD, 19 with an MSc, and 2 with a BSc. In the case of research technicians and extension staff, there is a great need for recruiting HBO level staff (+41). At the same time, the projected, aggregate demand for staff with an MBO degree or lower is negative. Based on these recruitment-need figures, one can conclude that there is very much a mismatch between supply and demand of staff.

The innovation projects under the loan can, if needed, invest in upgrading the educational qualifications of staff while on the job. This would work for staff upgrading from an MBO to an HBO degree or from a BSc to an MSc as these courses are offered in Surinam on a part-time basis. For an

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<sup>1</sup> These external reviewers should be impartial as much as possible. This may be difficult in Suriname as the pool of experts to rely upon is rather small. Foreign reviewers should be mobilized when impartiality is a serious issue.

<sup>2</sup> Ministry of Agriculture, Animal Husbandry and Fisheries (LVV). September 2013. *The National Agricultural Innovation Strategy of the Republic of Suriname*. Paramaribo: LVV.

innovation project under the loan to fund a PhD degree would be quite difficult, unless the dissertation research is clearly contributing to the outputs and outcomes of the project.

The infrastructure and capital goods investment needs of the national agricultural innovation system for the years 2016-2020 have been estimated at US\$ 13.2 million. Some further rationalization of investment is possible, but US\$ 10 million (or US\$ 2 million/year) seems to be a realistic, bottom-line figure. The budget of the Research and Technology Transfer Component of the Program Loan is far too small to absorb all these investment needs and hence must be selective. Some small investments in infrastructure and capital goods have been included in the different agricultural innovation projects, but these have been strictly tight to specified outputs and outcomes of those projects. In addition, the Component will make a major investment in the completion of ODLOAV's cluster laboratory on the condition that the government covers the civil construction costs.

A reorganization plan for agricultural extension under ODL has been drafted and approved by LVV. Implementation is politically rather sensitive as it will require a substantial downsizing of staff. To do so, it is first necessary to introduce the use of modern media as a more effective method to transfer information to farmers at lower costs than the current, labour-intensive farm visit method which reaches only a low percentage of farmers. Once that is in place, downsizing of staff may become more opportune.

## Project justification

This project aims to support the smooth implementation of the agricultural innovation projects under the loan and at the same time strengthen the institutional capacity to operate more in a project mode in general. The introduction of eventually more transparency and competitiveness in the selection of agricultural innovation projects, as proposed by the Agricultural Innovation Strategy will not be covered by the current project, but will be piloted by the 'Small Projects' Funding Window.

## Project objectives

Main objective (i.e., goal): Effectiveness of the national agricultural innovation system enhanced

Intermediate objectives (i.e., outcomes):

1. Smooth and effective implementation of results-oriented agricultural innovation projects
2. Coordination and collaboration within the agricultural innovation system improved
3. Increased use of modern media by the extension services
4. Safe handling and storage of pesticides by LVV, ADRON, and other organizations involved in agricultural innovation projects.

## Project outputs and activities

Project outputs and activities are summarized in table 1. Output 1 targets ODLOAV, output 2 the National Agricultural Innovation Board (NAIB), output 3 the modern media unit to be established at the Agricultural Extension Division of ODL, output 4 ODLOAV, ODL and ADRON, and output 5 LVV at large and ADRON.

Support to the NAIB (Output 2) is in line with the national agricultural innovation strategy, which argues for a board to be established and play an important role in the overall coordination of

national agricultural innovation system as well as monitoring the implementation of the agricultural innovation strategy.

Support to the establishment of a modern media unit at the extension service (Output 3) is in line with the agricultural extension reorganization plan approved earlier this year by LVV.

Support to staff capacity building (output 4) is largely in line with the National Human Resources Plan for the National Agricultural Innovation System, which pleads for a substantial upgrade of the formal qualifications of research and extension staff. The specialist courses for researchers are very much driven by the content of the different innovation projects.

**Table 1: Project outputs and activities**

<b>Outputs</b>	<b>Activities</b>
1. Implementation of agricultural innovation projects facilitated	1.1 Develop a project implementation protocol, including M&E guidelines 1.2 Establish a project bureau within ODLOAV and cover its operational costs 1.3 Train project managers and senior project staff at ODLOAV, ODL and ADRON in project management and implementation
2. The National Agricultural Innovation Board operational	2.1 Provide operational support to the board 2.2 Organize, per sub-sector, bi-annual consultations with the private sector 2.3 Build the capacity of the board
3. Modern media unit established and operational	3.1 Recruitment and appointment of staff by the extension division of ODL 3.2 Train staff in modern media technology and methods 3.3 Acquire office furniture and modern media equipment 3.4 Develop and maintain an agricultural extension website 3.5 Organize internet connectivity 3.6 Provide extension offices with computer displays for farmers
4. Agricultural innovation staff capacity strengthened	4.1 Upgrade 3 BSc researchers to MSc level 4.2 Upgrade 5 research technicians to HBO level 4.3 Upgrade 10 extension staff to HBO level 4.4 Researchers take specialized courses (mostly on-line) in support of their project activities 4.5 Organize in-house training courses for research and/or extension staff
5. Pesticide management facilities retrofitted or new facilities installed and management practices improved	5.1 Equip LVV/ADRON pesticide applicators with personal protective equipment (PPE) 5.2 Retrofit existing pesticide storage facilities or purchase of new pre-fabricated storage buildings/cabinets 5.3 Train pesticide applicators

## Project results

See results matrix below.

## Results matrix

Project objective	Enhanced effectiveness of the agricultural innovation system							
Outcome indicators	Base	Year 1	Year 2	Year 3	Year 4	Year 5	Target	Means of verification
<i>Smooth and effective implementation of results-oriented agricultural innovation projects</i>								
Indicator 1: Innovation projects implemented on time	0	90%	90%	100%	100%	100%	100%	M&E reports
<i>Coordination and collaboration within the agricultural innovation system improved</i>								
Indicator 1: Number of new joint projects/initiatives other than those financed by IDB	0	1	1	2	2	2	8	Summary reports / documents
<i>Increased use of modern media by extension services</i>								
Indicator 1: Number of extension website visitors	0	0	2000	5000	8000	10000	20000	Internet statistics
Indicator 2: Number of downloads of information brochures and publications	0	0	250	500	1000	1500	2000	Internet statistics
<i>Safe handling and storage of pesticides by LVV, ADRON and other institutions involved in the projects</i>								
Indicator 1: Staff handling pesticides well aware of safety risks and safety measures	NA	50%		75%		100%	100%	Interviews and site visits by the environmental consultant to be hired by the PEU and the LVV Pesticide Division
Output indicators	Base	Year 1	Year 2	Year 3	Year 4	Year 5	Target	Means of verification
<i>1. Implementation of agricultural innovation projects facilitated</i>								
Indicator 1: Project bureau at ODLOAV established and staff recruited	0	1	1	1	1	1	1	1. Project bureau staff in position.
Indicator 2: Project implementation and M&E protocol	0	1					1	1. Protocol document
Indicator 3: Project managers and senior project staff trained in project management (including planning and M&E)	0	30					30	1. Attendance list training; 2. Evaluation training; 3. Training materials used Comment: training not only for ODLOAV project staff, but also ODL and ADRON
<i>2. The National Agricultural Innovation Board operational</i>								
Indicator 1: Board has met at least 6 times a year	0	6	6	6	6	6	30	1. Minutes board meetings

Indicator 2: Bi-annual stakeholder consultations organized per sub-sector	0	2	1	2	1	3	9	1. Meeting reports
<i>3. Modern media unit established and operational</i>								
Indicator 1: Extension website up and regularly updated	0	1	1	1	1	1	1	1. Extension website
Indicator 2: Staff trained in modern media	0	2					2	1. Enrolment information / copy of certificate or diploma obtained
<i>4. Agricultural innovation staff capacity strengthened</i>								
Indicator 1: Staff enrolled in part-time degree courses	0	18	18	18	18	18	18	1. Progress reports
Indicator 2: Research staff trained in specialized courses	0	10	8	0	0	0	18	1. Study certificates (or any other form of proof that the course was successfully completed)
Indicator 3: Research staff trained in statistical analysis	0	16	0	0	0	0	16	1. Attendance list training 2. Evaluation training 3. Training materials used
Indicator 4: Extension staff trained in extension and communication techniques	0	30	0	0	0	0	30	1. Attendance list training 2. Evaluation training 3. Training materials used
Indicator 5: Research/extension staff trained in (bio) pesticides spraying techniques	0	10	0	0	0	0	10	1. Attendance list training 2. Evaluation training 3. Training materials used
Indicator 6: Research staff trained in scientific writing	0	0	20	0	0	0	20	1. Attendance list training 2. Evaluation training 3. Training materials used
<i>5. Pesticide management facilities retrofitted or new facilities installed and management practices improved</i>								
Indicator 1: Sufficient PPE available	0	1	1	1	1	1	1	1. Inspection by the environmental consultant to be hired by the PEU and the LVV Pesticide Division
Indicator 2: All pesticide storage facilities up to standard <sup>3</sup>	50%	50%	70%	80%	100%	100%	100%	1. Inspection by the environmental consultant to be hired by the PEU and the LVV Pesticide Division

<sup>3</sup> The International Code of Conduct on Pesticide Management (FAO & WHO)

Indicator 3: Staff trained in handling pesticides safely	0	0	30	30	0	0	60	1. Attendance list training 2. Evaluation training 3. Training materials used
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## Project implementation

The director of ODLOAV will lead this project, in close collaboration with the director of ODL (multi-media component), the director of ADRON (staff capacity building in project management and implementation), the chairperson of the National Agricultural Innovation Board (operation of the Board), and the Pesticide Division of ODLOAV (pesticide management facility).

Table 2 provides a summary of the project implementation time table.

**Table 2: Project time table**

Output/Activity	Year 1				Year 2						
	i	ii	iii	iv	i	ii	iii	iv	3	4	5
<b>1. Implementation of agricultural innovation projects facilitated</b>											
1.1 Develop a project implementation protocol, including M&E guidelines											
1.2 Establish a project bureau within ODLOAV and cover its operational costs											
1.3 Train project managers and senior project staff in project management and implementation											
<b>2. The National Agricultural Innovation Board operational</b>											
2.1 Provide operational support to the board											
2.2 Organize, per sub-sector, bi-annual consultations with the private sector											
2.3 Build the capacity of the board											
<b>3. Modern media unit established and operational</b>											
3.1 Recruitment and appointment of staff											
3.2 Train staff in modern media technology and methods											
3.3 Acquire office furniture, modern media equipment and vehicle											
3.4 Develop and maintain an agricultural extension website											
3.5 Organize internet connectivity											
3.6 Provide extension offices with computer displays for farmers											
<b>4. Agricultural innovation staff capacity strengthened</b>											
4.1 Upgrade 3 BSc researchers to MSc level											
4.2 Upgrade 5 research technicians to HBO level											
4.3 Upgrade 10 extension staff to HBO level											
4.4 Researchers take specialized courses in support of their project activities											
4.5 Organize in-house training courses for research and/or extension staff											
<b>5. Pesticide management facilities retrofitted or new facilities installed and management practices improved</b>											
5.1 Equip LVV/ADRON pesticide applicators with personal protective equipment (PPE)											
5.2 Retrofit existing pesticide storage facilities or purchase of new pre-fabricated storage buildings/cabinets											
5.3 Train pesticide applicators											

## Project partners

Direct project partners are ODLOAV, ODL, ADRON and the National Agricultural Innovation Board. Through the Board also the private sector, CELOS and ADEKUS will be project partners.

PTC and ADEKUS will be important partners in terms of providing staff members the opportunity to upgrade their educational qualifications.

## Project budget

In table 3 a summary of the project budget is provided per output. The general project cost budget line covers the project management costs of this particular project.

The overall budget for this project is estimated at US\$ 778,450, of which US\$ 697,200 will be financed by the IDB loan and US\$ 81,250 by LVV (i.e., staff salaries). More detailed budgets are available in Excel format and will be made available as an annex.

**Table 3: Project budget**

Output	Fund	Year 1	Year 2	Year 3	Year 4	Year 5	Total
		(US\$)					
1. Implementation of agricultural innovation projects facilitated	IDB	19,700	2,000	2,000	2,000	2,000	27,700
	LVV	13,650	13,650	13,650	13,650	13,650	68,250
2. The National Agricultural Innovation Board operational	IDB	9,500	4,500	4,500	3,500	5,500	27,500
	LVV	0	0	0	0	0	0
3. Modern media unit established and operational	IDB	90,800	25,050	25,050	25,050	25,050	191,000
	LVV	0	0	0	0	0	0
4. Agricultural innovation staff capacity strengthened	IDB	90,000	38,000	21,000	21,000	21,000	201,000
	LVV	0	0	0	0	0	0
5. Pesticide management facilities retrofitted or new facilities installed and management practices improved	IDB	79,000	111,500	51,500	4,000	4,000	250,000
	LVV	0	0	0	0	0	0
6. General project costs	IDB	0	0	0	0	0	0
	LVV	2,600	2,600	2,600	2,600	2,600	13,000
<b>Total</b>	<b>IDB</b>	289,000	181,050	104,050	55,550	57,550	697,200
	<b>LVV</b>	16,250	16,250	16,250	16,250	16,250	81,250
	<b>Total</b>	305,250	197,300	120,300	71,800	73,800	778,450

## Human Resources

The human resources needed to implement this project (and not budgeted elsewhere) include: (a) the staffing of the project bureau at ODLOAV with a full-time professional staff member with a higher educational qualification in charge of project development, planning, and M&E plus a part-time administrative staff member (with mid-level education) as support; and (b) the project manager for this project.

**Table 4: Human resources**

Activity	Staff	Year 1	Year 2	Year 3	Year 4	Year 5
		(days)				
1.3 Establish project bureau within ODLOAV and provide for its operation	Professional staff – HL	210	210	210	210	210
	Administrative staff – ML	105	105	105	105	105
Project management	Project manager – HL	52	52	52	52	52

## Capital items

Table 5 summarizes the main capital items that will be purchased for the execution of the project. The single biggest investment is that of a pickup (US\$ 25,000) for the multimedia unit. In addition, a significant reservation has been made to improve pesticide storage facilities.

**Table 5: Capital items that will be acquired for the project**

Activity	Capital item	Price	Year				
			1	2	3	4	5
1.3 Establishment and operation of project bureau within ODLOAV	Computer + software	1,500	1				
3.2 Office furniture & modern media equipment	Office tables	250	4				
3.2 Office furniture & modern media equipment	Office chairs	100	4				
3.2 Office furniture & modern media equipment	File cabinets	200	3				
3.2 Office furniture & modern media equipment	Printer/photocopier	250	1				
3.2 Office furniture & modern media equipment	Extension cords	100					
3.2 Office furniture & modern media equipment	Photo + video camera Canon 5i/6i	1,500	2				
3.2 Office furniture & modern media equipment	Audio equipment	250	2				
3.2 Office furniture & modern media equipment	PC + software	2,500	2				
3.2 Office furniture & modern media equipment	Lap tops	700	2				
3.2 Office furniture & modern media equipment	Video Editing software	500	1				
3.2 Office furniture & modern media equipment	External hard drive	500	1				
3.2 Office furniture & modern media equipment	Flasher	100	1				
3.3 Transport	Pick up (Izusu D Max)	25,000	1				
3.4 Extension offices linked up to the Internet	Computer display for farmers	800	28				
5.2 Retrofitting existing pesticide storage facilities or purchase of new pre-fabricated storage buildings/cabinets	Not specified	215,000		x	x	x	

## Service contracts

Table 6 provides an overview of the services that must be contracted as part of the implementation of the project.

**Table 6: Service contracts**

Activit	Service contract	Cost	Date of acquisition				
			Year 1	Year 2	Year 3	Year 4	Year 5
1.2	Contract training 'project managers and senior staff'	4,200	X				
2.3	Contract capacity building NAIB	5,000	X				
4.5	Contract training course in statistical analysis	8,000	X				
	Contract training course in extension and communication	15,000	X				
	Contract training course in (bio)pesticides spraying techniques	2,000	X				
	Contract training course in scientific writing	10,000		X			
5.3	Contract pesticide applicator training	15,000		X	X		