



# **International Innovations Adaptable to South African Context**

**NATIONAL ADVISORY COUNCIL ON INNOVATION**

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## **Background**

The Innovation for Development (INNO4DEV) sub-committee of the National Advisory Council on Innovation (NACI) commissioned an in-house study on international initiatives whose main purpose is to uplift needy rural communities out of poverty and unemployment. To this end, we scanned the literature to identify successful projects and programmes whose effectiveness depends on

- Innovative technology and products together with the right kind of social and economic support for the intended beneficiaries
- Operations and activities that could be easily adapted and implemented under South African conditions
- Outcomes that would improve the lives of, in particular, our poorest citizens by providing jobs and increasing food security.

## **International innovations of note for poverty alleviation and their relevance for South Africa**

NACI identified three well-established international innovations that illustrate the principle of “social innovation for development” and that, if implemented as intended in South Africa, could benefit rural lives.

These initiatives are the multi-national ProLinnova Participatory Innovation for Development (PID), the Japanese One-Village One-Product (OVOP) principle, and the Indian Honey-Bee Network (HBN). Each initiative is based on bottom-up participation and management, as well as locally available labour, resources and cultural values, with the injection of technical and advisory skills from outside.

The reasons for selecting these three models are as follows:

- The countries that introduced and developed them also provide support such as mentorship, capacity-building guidance, access to local and international markets and business funding.
- The wide application of these models around the world, especially in Africa and Asia, suggests that they could also be adapted successfully to South African conditions.
- PID, HBN and OVOP are not new to southern Africa. The former DST Ministers, Dr Ben Ngubane and Mr Mosibudi Mangena were familiar with the HBN and OVOP, respectively. The OVOP principle is currently being implemented in iLembe, uMkhanyakude, uThungulu and uMgungundlovu districts of KwaZulu-Natal by the Provincial Department of Economic Development and Tourism. Malawi has also adopted OVOP on a small-scale. The PID principle has been rolled out by ProLinnova-South Africa in Limpopo, Mpumalanga, North West and KwaZulu-Natal provinces.

**Conclusions**

- The PID, OVOP, and HBN models are likely to be applicable to South African context.
- Consideration will have to be given to specific aspects of the innovations that would need to be amended or adapted for feasible implementation in South Africa.
- Consultation should take place with the KZN Department of Economic Development and Tourism, which has begun to implement OVOP, as well as with those agencies responsible for the same programme in Malawi.
- Consultation should also take place with ProLinnova-South Africa to determine the feasibility of rolling out and implementing the PID model at a community level in terms of challenges, capacity and cost.
- The adaptation of these models to suit our conditions would complement DST poverty reduction programmes aimed at producing and promoting social innovations.

**ADDENDA**

- A. Employment and food security in the developing world and the concept of Participatory Innovation Development (common to many programmes)
- B. Three international poverty alleviation models applicable in South Africa
  - I. ProLinnova-International
  - II. One-Village One-Product (OVOP)
  - III. Honey-Bee Network

## **ADDENDUM A**

### **EMPLOYMENT AND FOOD SECURITY IN THE DEVELOPING WORLD AND THE CONCEPT OF PARTICIPATORY INNOVATION DEVELOPMENT (COMMON IN MANY PROGRAMMES)**

The dominant concern of the governments of poor countries throughout the world, but especially in Africa and Asia, is unemployment and lack of food security, which keep hundreds of millions of their populations in abject poverty. This situation has arisen because these countries suffer from political ineptitude and corruption, lack of access to markets, high rates of illiteracy, ignorance of the technology that could empower their people, and an inability to exploit their resources in a sustainable way. By contrast, the rich world has easy access to technical knowledge and the wealth it needs to buy resources, so the gap between rich and poor keeps growing, not least in South Africa. One way to close this gap between the haves and the have-nots is through innovation for development.

Innovations for development\* are intended to address poverty and unemployment by adding economic and / or social value to the lives of grassroots or rural communities. Broadly speaking, we can distinguish three types of rural innovation: those from rural areas aimed at applications elsewhere (such as organic food); innovations for rural areas that have originated elsewhere (e.g. Geographic Information Systems and cell phones); and innovations that are universal in nature, but which have had a strong impact on rural life (e.g. the Internet). Rural demands can drive innovation in cities (as with GIS); and likewise urban demand can drive innovation in rural areas (e.g. quality food driven by supermarket specifications). Innovation can also be stimulated at the interface between urban and rural supply and demand (for example, refrigerated trucks).

Best practice suggests that innovation for development should focus on the appropriate scaling up of existing innovations (i.e. effective adaptation of innovations to suit the local context) as well as on successful exploitation of new ideas or concepts that have the potential to be transformed into formal innovations. Such innovations are best taken up by organizations whose primary objectives have social rather than economic leanings. There is now abundant evidence to show that, by taking advantage of technical know-how, participatory innovation development (PID) – with local communities and outside experts working together to achieve their common goals – can be an effective solution to the problems of both unemployment and food shortages. PID needs to be properly implemented on a large enough scale, and political will is essential for success.

#### **Participatory Innovation Development**

The term ‘participatory innovation development’ applies broadly to a diverse series of multidisciplinary interventions whose primary purpose is to uplift impoverished communities and groups around the world. Coined by the instigators of ProLinnova (see below for further information), the principles of PID have been put into practice, one way or another, in many other programmes. The concept itself is still in a formative stage; it evolves with experience, and has been particularly effective in agricultural research and development (R&D).

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\* The term ‘innovation for development’ is defined by the DST as the formal and informal, technological and non-technological innovations introduced to improve quality of life in poor communities. ‘Social innovation’ in this context refers to the range of new ideas, products and processes taken on by these communities to provide a means for the transformation of society to improve living conditions (Dagnino et al., 2006; NESTA, 2008).

At the heart of PID is the creation and implementation of enabling mechanisms to bridge the gap between indigenous and scientific knowledge, using local resources, skills and labour in novel and more efficient ways to improve the quality of life of the rural poor in particular. In this environment, the emphasis is on food security and job creation where both are in short supply. The key agents are small farmers, whose contribution to their communities can be increased by working alongside development agents, extension officers, researchers and others who are able to give encouragement and guidance as to innovative ways of, for example, growing crops, and marketing their products to produce income, usually with the benefits of scientific knowledge. In this way, local groups and communities cease to be merely the passive recipients and beneficiaries of external aid, and are given the chance to become more innovative and self-sufficient in the way they conduct their lives.

The desired outcomes of PID may be technical or socio-economic in nature. For example, it may lead to:

- More productive farming techniques and management practices, which are appropriate for local conditions
- More efficient ways of growing and marketing agricultural produce
- Formal documentation of successful practices and experiences – recording how they were planned, implemented and evaluated – that can serve as a stimulus and model for people elsewhere.

### **Partnerships for effective implementation**

A wide range of participants are typically engaged in the PID process, and their composition depends on each particular case. For example, it may be necessary in some circumstances to include an engineer, in others a marketing consultant, in yet others a person with expertise in animal husbandry or a representative of government. Typically, the following stakeholders could be involved in partnerships: science research councils (e.g. in South Africa, the Agricultural Research Council), government and provincial departments (e.g. of agriculture, tourism, or of environmental affairs), NGOs, the private sector, academic research institutes, philanthropic funding bodies, and agricultural marketing boards.

It is important that all stakeholders recognize the need to create an environment that is conducive to innovative behaviour. A supportive policy environment is just one aspect of the broader set of conditions required. The setting as a whole must encourage and support originality at a grassroots level.

Various support programmes around the world illustrate PID in practice, even though, in some cases, they may not be described using this specific term. Three models that NACI believes to be worth considering are described in Addendum B.

### **Further reading**

Dagnino, R., Dias, R., Fonseca, R., Serafim, M., Tait, M., Novaes, H., Silva, R., Bagattolli, C. (2006). *Social Technology: An idea, an intent*.

Mahroum, S., Atterton, J., Ward, N., Williams, A.M., Naylor, R., Hindle, R., & Rowe, F. (2007). *Rural innovation*. NESTA Policy and Research Unit, U.K.

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[www.nesta.org.uk](http://www.nesta.org.uk)

## **ADDENDUM B**

### **THREE INTERNATIONAL INNOVATION MODELS**

#### **I. ProLinnova-International – Member states model**

##### **Introduction**

ProLinnova (Promoting Local Innovation) was conceived in 1999 as an imaginative and flexible way to support farmers – mainly in deprived rural areas – with the aim of increasing their incomes and boosting food security. This aim is achieved by introducing novel agricultural practices, expanding the range of traditional farm products, exploiting available natural resources, and marketing the outcomes, all of which benefits from innovative management schemes and R&D ideas introduced from non-traditional quarters. So successful has the concept become that it is now practised in some 20 countries, most of them in Africa and Asia. Most recently it has given rise to programmes in South America and even on some Pacific islands (see [www.prolinnova.net](http://www.prolinnova.net)).

Initial funding to demonstrate the feasibility of this approach came from government sources in France and the Netherlands in particular, the World Bank, and charitable foundations (such as the Rockefeller and Ford foundations). ProLinnova is operationally decentralized and flexible, and the various country programmes set their own priorities based on local initiatives. The key instigators are local NGOs working mainly with farming communities. The fact that the autonomous projects belong to an international network means that they can call on support from fellow partners, from a ProLinnova Oversight Group with co-chairs in the United States and Kenya, and from an International Support Team that helps to arrange capacity-building activities (such as workshops), fund-raising and the communication of shared experiences. The network overall is coordinated by ETC EcoCulture in the Netherlands, and is partially funded by the Dutch Directorate General for International Cooperation (DGIS).

The outcomes of this process can be seen in the form of changes in growing, processing and marketing foodstuffs, exploiting natural resources in non-traditional ways, and even introducing new labour practices and community organization (e.g. for marketing purposes). In other words, the outcomes may be technical and socio-institutional in nature, including policy change at the local level. In the case of ProLinnova, emphasis is given to innovations of particular relevance to disadvantaged people such as the poor and marginalized, who, in many societies, include women and the young.

Multi-stakeholder partnerships are an integral part of ProLinnova. 'Stakeholders', in this context, are those who have an interest in improving livelihoods through local innovation in agriculture and natural-resource management. In addition to the primary participants consisting of men and women farmers, they include researchers, extension workers, educators, policy-makers, politicians, business people from the private sector, and consumers. The partnerships operate typically as a platform for periodic sharing and negotiation. This mechanism enables dialogue to take place as well as agreements around action to be taken. Moreover, the partnerships can be established at different levels throughout the network and for different purposes.



## **ProLinnova-South Africa**

The South African arm of ProLinnova was launched in 2004 and is coordinated by the Institute of Natural Resources (INR) in Pietermaritzburg (principal contacts: Brigid Letty [lettyb@ukzn.ac.za] and Anton Krone [antonkrone@wol.co.za]). The INR aims to build and strengthen partnerships among various other stakeholders involved in agricultural research and development in South Africa.

A National Steering Committee is responsible for the overall strategic direction of the South African network, with provincial task teams in Mpumalanga, KwaZulu-Natal (KZN) and Limpopo responsible for activities in their provinces. The committee and team members come from the Agricultural Research Council (ARC), the Department of Agriculture, Environmental Affairs and Rural Development, Rural Development and Land Administration, as well as NGOs and their networks such as Ecolink and PELUM (Participatory Ecological Land Use Management)–South Africa, and academic centres such as the Farmer Support Group at the University of KwaZulu-Natal and the Centre for Rural Community Empowerment at the University of Limpopo.

### **Sub-programmes of ProLinnova-South Africa**

Several sub-programmes build on the basic network activities, with the aim of piloting new approaches that can support or enhance PID. They include the following.

- The HIV/AIDS and Participatory Innovation Development (HAPID) project is investigating the role that local innovation and PID can play in terms of either preventing infection or overcoming the challenges associated with the virus.
- The Farmer Access to Innovation Resources (FAIR) project has involved the establishment of a local innovation support facility. A community-based organization screens applications for innovation or experimentation support and handles the funds.
- Farmer-led documentation is building the capacity of farmers and field workers to record their activities and innovations using cameras and video. It gives people the opportunity to express themselves directly rather than relying on outsiders to compile the records.

### **Progress with network establishment in South Africa**

Since the network was set up in 2004, its primary activities have involved establishing institutional structures, lobbying government departments, building capacity and collecting evidence of the impact of the ProLinnova principle. Some of the activities that have been undertaken include:

- Documenting cases of local innovation identified through PID workshops held in various provinces, leading to the publication of guidelines and resource manuals
- Holding a National Stakeholder Workshop on experiences in participatory R&D and joint action planning
- Creating national and regional multi-stakeholder platforms to share information about local innovations and to learn jointly about PID and its institutionalisation

- Creating awareness (for example through fairs, the mass media, publications, a newsletter, workshops and conferences) in order to promote and share the experiences of ProLinnova partners
- Engaging in dialogue with decision-makers in agricultural research, extension and education, to create institutional and policy environments for PID
- Capacity building of development practitioners, researchers and farmers in local innovation, PID and farmer-led joint experimentation
- Integration of the concepts of PID into curricula at tertiary institutions in an effort to mainstream these developmental approaches
- Bringing farmers, development agencies and academic researchers together to plan and implement joint experiments, starting with prioritised local innovations
- Implementing and guiding pilot PID initiatives in KZN, Limpopo and Mpumalanga
- Monitoring and evaluating these joint activities, their outcomes and consequences.

The PID pilot schemes run in the three provinces have involved:

- Testing indigenous ways of controlling crop pests
- Improving methods of keeping livestock, especially the small-scale rearing of chickens
- Testing and improving alternative methods of growing potatoes
- Investigating the use of local feed in raising dairy goats.

### **Applicability and adaptability of PID as a development approach**

ProLinnova's PID approach has enjoyed considerable success in many parts of the world, especially in increasing the economic return on farming. Related benefits include food processing, extending the shelf-life of agricultural products, accessing resources and technical information, and changing cultural practices for the better (for instance by involving men and women more equally). The model's adaptability has made it possible to reap its benefits in different countries.

## Challenges of implementing PID and suggestions for overcoming them

The obstacles encountered to date in South Africa and suggestions for addressing them are summarized in the table below.

Challenge	Suggestions
The design of practical experiments must be simple enough for farmers to understand and evaluate.	Academic researchers need to inform themselves of on-farm research results and interventions being used elsewhere in Africa.  Extension staff and fieldworkers need to become familiar with the basic principles of experimentation so that they can assist farmers in designing simple experiments.
Orthodox research groups have stringent requirements that their protocols must meet if they are to be approved for funding support. These criteria may not be relevant to farmer-led experiments, unless the outside researcher is the support agent and the farmer is responsible for the research.	Awareness creation and discussion with managers of research departments is necessary.  Compromise is required to ensure that basic research criteria are met while still allowing for farmers to drive and own the process.
Farmers, especially the rural poor, may need to earn additional income that takes them away from their home base. This reduces their availability to engage in PID-type activities.	It is desirable to work with groups rather than individuals so that the project can continue even if certain individuals are not always available to participate.  Preliminary discussions are essential so that farmers understand the duration and extent to which their commitment is required.
Uninterrupted extension support is not always provided for long enough to groups, because resources are not always available. This disrupts the research process that is under way.	Accurate budgeting and prioritization is essential to ensure uninterrupted support for experimentation/ PID processes.  All PID processes must be formally included within work programmes.
Intellectual property rights (IPR) need to be protected in circumstances where the innovations being developed have the potential for commercialization. This is not the case with all cases of innovation, and some may be freely shared if the holders of the knowledge have no objection.	The IPR issue must be addressed so that existing legislation is adhered to wherever relevant. This may require the registration of certain knowledge with CIPRO in order to protect the rights of the holders of the knowledge.

## Concluding remarks

The pilot projects that ProLinnova-South Africa has undertaken will need to be carefully monitored and evaluated to learn how new ideas can be transformed into income-generating opportunities to benefit rural South Africans. The model's emphasis on participative grassroots development, and the interface between urban/rural and traditional/scientific knowledge, appears to hold promise for designing practical solutions to transform rural society, in order to secure a better quality of life.

As in other countries, ProLinnova-South Africa's key concern in the agricultural sector is how to protect farmers' intellectual property rights and build on their competitive advantage, while encouraging them to

share experiences with others. At present, there is only limited information about the model's applicability to sectors of society other than the agrarian.

### **Further reading**

- Assefa, A. 2005. Challenges and prospects of *farmer innovation* in Ethiopia: What are innovation challenges for rural development? Workshop held in Rome, Italy.
- Critchley, W., Verburg, M., & van Veldhuizen, L. 2006. Facilitating multi-stakeholder partnerships: Lessons from ProLinnova based on contributions from partners in the ProLinnova Global Partnership Programme.
- Letty, B., Salomon, M., Serapelwane, T., & Verschoor, A. Forging links with R&D institutions to institutionalize PID: A mechanism adopted by ProLinnova South Africa. Innovation Africa Symposium, Uganda.
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- Rai, S. & Shrestha, P.K., 2006. Guidelines to participatory innovation development. ProLinnova Nepal Programme, Nepal.
- Wettasinha, C., Wongtschowski, M., & Water-Bayer, A., 2006. Recognising local innovation: Experiences of ProLinnova partners.

## **II. One-Village One-Product (OVOP): Japanese Model**

The One-Village One-Product (OVOP) initiative was launched 30 years ago in the Oita Prefecture of Japan, since when its geographical reach has expanded widely throughout the world with the active support of the Japanese government (the Ministry of Economy, Trade and Industry). The purpose of OVOP is to encourage communities in a particular area ('one village') to create competitive products (not necessarily just 'one product') called 'indigenous treasures', made from local materials using local wisdom and skills, which are then sold at home and even abroad. The concept has enjoyed particular success in Japan and has subsequently been adopted by countries elsewhere in Asia and Africa.

A special feature of the OVOP programme is that the Japanese government is prepared to send experts to give assistance where it is needed – with education and training, mounting demonstrations for marketing purposes, and offering business advice. At the heart of a successful programme are the selection and continuous improvement of unique products with real value, raising village people's awareness of and participation in OVOP to increase their incomes, and involving local and central government (with funding, and by introducing policies to promote capacity-building and nurture talent, for example).

## OVOP in practice

In **Japan**, some 58 cities, towns and villages making over 800 products have adopted the OVOP principle.

The **Malawian** OVOP programme, introduced in 2003, has supported some 46 projects involving 13 000 villagers. The mainly agricultural products have included dried vegetables, jams, spices and fruit juices. As Malawi is an easily accessible neighbor, it would be sensible to visit the country to view the progress it has made, lessons learned and the experiences gained from implementation.

[NOTE: A master's thesis by J.I. Chidumu reports on the first ever evaluation of one of these projects in Malawi, in which 80 villagers in the Thyolo district were studied by questionnaire in April 2006, 40 of whom were 'beneficiaries' and 40 were controls. The thesis does not describe the project in any detail, other than to mention that people (mostly farmers) joined the programme to gain access to credit facilities and markets on the back of training, but the questionnaire was used to uncover perceptions about the programme. The overwhelming conclusion was that OVOP was good for marketing and for providing access to technology (in particular for food storage and processing). It was felt that the programme "significantly helped" to increase incomes and food security.]

OVOP products are among **Thailand's** major exports, of which more than 76 000 have been registered as such including foods and beverages, clothes and domestic decorations.

**South Africa** has begun to adopt the model in KZN under the auspices of the provincial Department of Economic Development and Tourism in the iLembe, uMKhanyakude, uThungulu and uMgungundlovu districts. The concept was also known by the previous Minister Mosibudi Mangena, who "was in favour of it".

The OVOP model aligns well with the concept of 'innovation for development'. Japanese cooperatives such as JICA and JETRO are contactable, which means that difficulties faced by communities in up-scaling their innovations can be addressed and solved by the relevant training provided by these agencies.

### III. The Honey-Bee Network: Indian Model

The Honey-Bee Network was established some two decades ago as a means of connecting (via a network) the ideas and innovations (the "honey") created by the economically impoverished informal, and the knowledge-rich formal, sectors of Indian society. Initiated and run by a consortium of high-tech support organizations led by the Society for Research and Initiatives for Sustainable Technologies and Institutions (SRISTI, see [www.sristi.org](http://www.sristi.org)), the network has inspired emulation in more than 75 countries.

The consortium focuses on innovations that relate to: a) technologies that can be used by both sophisticated and impoverished individuals; b) indigenous institutions for natural-resource management; and c) education at the primary level in regions that are rich in biodiversity, but high in illiteracy.

In India the National Innovation Fund (NIF) database has registered more than 50 000 grassroots innovations, or records of items of traditional knowledge and practices, collected in the field via village-based kiosks from more than 400 districts in India. These innovations, which are designed to meet the needs of local communities, can now be accessed online. This easy accessibility allows for the sharing of ideas with other potential end users, including entrepreneurs and potential investors who may be interested in new business and new markets.

A spin-off of this activity is that the National Innovation Fund has created the Grassroots Innovations Augmentation Network (GIAN) to link entrepreneurs to the formal technical, financial and marketing sectors, in the hope of creating viable businesses out of the grassroots innovations. Moreover, the Indian Institute of Technology is just one higher education centre that uses the network as a source of student projects to improve on the performance of the inventions described in the database.

Indian entrepreneurs were encouraged by the Honey-Bee Network to design, patent and commercialize the following:

- A cheap washing-machine, which can be afforded by the poor
- A 'bicycle hoe' for tilling and weeding the soil, constructed of a moped engine and cheap bicycle parts
- A portable micro-windmill battery charger, which can generate enough power while being carried by an individual to charge cell phone or laptop batteries
- A pedal-operated washing-machine, which tumbles clothing in a sealed box without the need for electricity.

So far, some 29 technologies have been licensed since GIAN was launched. Several of the licensed innovations have already been taken up by entrepreneurs.

### **A South African connection**

The innovation model was known by the former Minister of Science and Technology, Dr Ben Ngubane. With the support from the DST, Dr Anil Gupta (leader of Honey-Bee Network) and his team promoted the model in Limpopo, but it is unclear what happened subsequently. It seems that the model has the potential to be adapted with relative ease to a South African context.