



**EXPLORATION OF COMMUNITY INNOVATION SYSTEM:
BRIDGING THE INNOVATION DIVIDE BETWEEN FORMAL
AND INFORMAL SECTORS**

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Executive summary

The purpose of the project reported here is twofold: 1) to assess how community and regional innovation systems have been responding to societal challenges confronting rural South Africans, and 2) to evaluate how the two systems are aligned with each other for increased societal impact. The specific objectives of the study were to:

- Investigate if community and regional innovation systems exist in South Africa;
- Explore how such systems respond to both economic and societal challenges; and
- Establish if there are linkages between the different systems with the aim of encouraging active participation by local rural communities.

The study findings are:

1. That Social innovations which form *community* innovation systems do exist and are able to respond to societal challenges confronting South Africans. This is a result of the initiatives of many role-players and their activities in the social innovation landscape. However, much of these activities have been ineffective in uplifting poor communities because of several underlying challenges such as lack of resources, lack of co-ordination, poor understanding of innovation by stakeholders, among other things. Furthermore, community innovation systems are notably informal and do not enjoy much national visibility, a factor which blurs the focus, particularly of government and the private sector, and consequently limits access to resources.

2. That *regional* innovation systems do not seem functional.

While it is encouraging that the South African government is committed to ensuring that innovations contribute to both economic growth and social development at national, provincial (*regional*) and local (*community*) levels, establishment of *regional* innovation systems has been slow to implement as they are still at a conceptual stage. There is a need for the creation and clear articulation of linkages between *community* and *regional* innovation systems, which are essential for facilitating access to social innovations by poor communities. These linkages may require a strong emphasis on the coordination and creation of partnerships in which intermediaries and local communities are active participants, not just passive recipients.

Recommendations:

The following recommendations emanate from the study, which warrant urgent attention by government and other stakeholders involved:

- Regional and community innovation systems should be based on the respective socio-economic strengths identified for each region;
- The positive effects of initiatives such as those of COFISA should receive special attention and that the Department of Science and Technology should determine how such initiatives could be taken further;
- The establishment of partnerships of all important stakeholders, which include communities and social entrepreneurs, should be facilitated and encouraged, so as to ensure coordination of their activities;
- Funds should be sourced from local and international funding instruments for seed funding to assist with getting social innovations to rural communities;
- Conditions should be created that enable the upscaling, dissemination and promotion of the adoption and wider use of existing innovations;
- Replicable social innovation models should be upscaled for increased societal impact; and
- Social innovations should be profiled throughout the country to create awareness.

Section 1

1.1 Introduction

While a number of definitions of innovation are readily available in the literature, most of those have been conventionally restricted to technological innovation. For the purposes of this study, the emphasis is on social innovation (within the context of *regional* and *community* innovation) which is defined as any broad-based innovation (formal/informal, technological/non-technological) that is social both in its ends and means in terms of existing and new ideas, products, services, processes and models that meet more effectively social needs on a sustainable basis. This refers to new or improved ideas that resolve existing social, cultural, economic and environmental challenges for the benefit of people and planet. In simpler terms, social innovation is any innovative idea that works for the public good.

The use of community innovation models is seen as a practice that can encourage open and inclusive sharing of knowledge, expertise and experiences to meet common goals intended to address a diversity of societal challenges. The influence of community innovation models may come through social contacts. Closely networked communities, or communities of practice (CoP), are a powerful foundation for social interaction.¹ The generation of new ideas that trigger innovation is likely to be facilitated by the diversity and breadth of different community experiences². Collaboration through partnerships amongst innovative communities can facilitate the flow and exchange of beneficial social innovation, best practices and worthwhile lessons to adopt.^{3,4}

The purpose of the project reported here is two-fold: 1) to assess how *community* and *regional* innovation systems, in different parts of the country, have been responding to societal challenges confronting South Africa, and 2) to evaluate how these systems are aligned with each other for increased societal impact. The specific objectives of the study were to:

- Investigate if *community* and *regional* innovation systems exist in South Africa;
- Explore whether and how such systems respond to both economic and societal challenges; and

¹Smith, P.A.C. & Coakes, E. (2006). Gaining the competitive edge: Communities of innovation. The Leadership Alliance Inc. and Westminster Business School, Universidad Central de Chile. TLA Inc. & UoWT Publishers.

² ibid

³ Lesser, E.L., & Fontaine, M.A. (2004). Overcoming knowledge barriers with communities of practice: Lesson learnt through practical experience. In *Knowledge networks: Innovation through communities of practice*. P. Hildreth, C. Kimble (Eds.).

⁴ Commission of the European Communities. (2009). Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Reviewing community innovation policy in a changing world. Brussels.

* regional in this case may refer to local provinces or continental regions, e.g. the SADC region

- Establish if there are linkages between the different *community* and *regional* systems examined, with the aim of encouraging active participation by local communities.

The innovation system comprises a number of elements. It is the relationship between these elements that leads to the production, diffusion and use of new and economically useful knowledge.^{5,6}

This report is structured as follows. Section 1 gives a brief coverage of the National System of Innovation (NSI). Section 2 presents insight into the regional and community innovation systems; Section 3 provides conclusions and recommendations.

⁵ Edquist, C. (1997). *Systems of innovation: Technologies, institutions and organizations*. London, Pinter.

⁶ Lundvall, B. (ed.) (1992). *National systems of innovation; towards a theory of innovation and interactive learning*, London, Pinter.

Section 2

2.1 The South African National System of Innovation (SANSI)

As set out in the White Paper on Science and Technology,⁷ the South African National System of Innovation (SANSI), which is alternatively referred to as the NSI, consists of government departments with respective agencies; Science, Engineering and Technology Institutions (SETIs); business; state corporations; the higher education sector; and non-governmental organizations. The NSI was established to promote a future vision of South Africa where all people will:

- enjoy an improved and sustainable quality of life, and
- participate in a competitive economy.

For this vision to be realized there is a need to ensure the creative use and efficient management of innovation. The following should therefore be done:

- establish an efficient, well coordinated and integrated system of broad-based (technological and non-technological) social innovations;
- forge collaborative partnerships with all stakeholders;
- ensure that resources and expertise from the engineering disciplines, the natural and environmental sciences, the health sector, and the humanities and social sciences are utilized for problem-solving in a multidisciplinary manner;
- ensure that stakeholders, especially those who were formerly marginalized, are part of a more inclusive and consultative approach to policy decision-making and resource allocation for science and technology (S&T) activities; and
- provide improved support for all kinds of innovations that are fundamental to sustainable economic growth, employment creation, underpinning equity through redress, and social development.

To this end, the NSI has difficulty in ensuring the creative use and efficient management of broad-based innovations. This is partly attributed to the series of obstacles which are linked to the linear nature of the NSI, as outlined in Figure 1. These include the poor coordination of innovation activities, the lack of partnerships by all stakeholders including intermediaries, and absence of clear government involvement.^{8,9} This model

⁷ DACST, (1996). The White Paper on Science and Technology. Department of Arts, Culture, Science and Technology. Pretoria.

⁸ NACI, (2011). Round-table discussion on replication of broad-based innovations with social impact: Proceedings. National Advisory Council on Innovation, Pretoria.

⁹ NACI, (2010). Status of government poverty reduction programmes: Focus on DST's social impact programme. National Advisory Council on Innovation, Pretoria.

does not formally recognize social innovation in practice and does not include a bottom-up participatory approach that requires communities to participate actively.

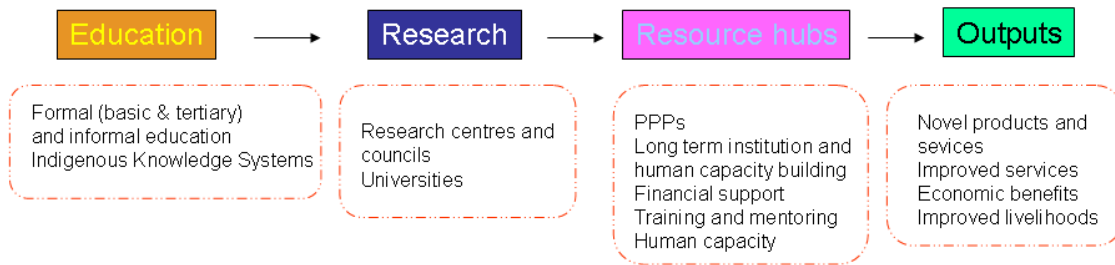


Figure 1: Schematic representation of the key components involved in the National System of Innovation.

2.2 Regional innovation systems

Like many developing countries, South Africa has been greatly handicapped by a lack of adequate STI indicators.¹⁰ Before the establishment of the Cooperation Framework on Innovation Systems between Finland and South Africa (COFISA), South Africa enjoyed a variety of both formal and informal innovations. However, these innovations were introduced and conducted in “silos” and were not formally coordinated. Moreover, the social divide in South Africa, even in the post-apartheid era, has also contributed to the introduction of isolated innovations and development activities. In recent times, various initiatives have been undertaken to measure innovation in South Africa, such as the African Science, Technology and Innovation Indicators Initiative (ASTII), the Centre for Science, Technology and Innovation Indicators (CeSTII) within the Human Science Research Council (HSRC), and NACI’s Indicators Reference Group (IRG), amongst others, which explore and gauge innovation activities to inform policy. However, these initiatives focus mainly on science and technology-orientated innovations and overlook the impact of informal innovations on the lives of poor communities in particular.

COFISA has established the groundwork for formalizing and encouraging coordination of innovation activities, especially by merging both technological and non-technological innovations with emphasis on establishing an efficient regional innovation system. As a result, COFISA, in collaboration with the Department of Science and Technology (DST), introduced the concept of innovation to actors in some of the provinces in order to create awareness and an understanding of what innovation was all about¹¹. The establishment of COFISA was therefore motivated by the role of the cooperation in innovation for development, where communities and all other stakeholders will

¹⁰ NEPAD, (2010). NEPAD Planning and Coordinating Agency. African Innovation Outlook: Executive Summary.

¹¹ James, T (ed.), (2010). Enhancing innovation in South Africa: The COFISA experience

cooperate to ensure that innovations not only enhance economic growth but also respond effectively to societal challenges. COFISA started in 2006 as a pilot project, and came to an end in 2010. Currently the state of regional or provincial innovation is centred on COFISA's recommendations and interventions by DST, which should build on the initiatives, set in train by COFISA.

COFISA's primary undertaking within the NSI was to work towards the development of Science Parks and Living Labs (research platforms which integrate active participation of end-users), and to assist in establishing a regional innovation system. COFISA's focus was on education, the environment, job creation, SMME development, and the promotion of humanitarian rights and democracy. With these as guidelines, COFISA sought to address how policies could be implemented by making use of knowledge generated by the components of the NSI into practical (innovative) solutions such as new products and services that can be commercialized. It strived to provide useful lessons on how the NSI could be strengthened to ensure increased beneficiation and economic growth.

COFISA's focus was narrowed down to regional or provincial level, and mainly operational in three provinces, namely Gauteng, the Eastern Cape (EC) and the Western Cape (WC). Noteworthy progress has been made in the following areas:

- The use of foresight (future technologies) at a community level, mainly in the rural areas. Knowledge and Innovation for Rural Development (KIRD) programme was used as a foresight scenario;
- Creation of regional innovation forums including drafting provincial innovation strategies of Gauteng, Limpopo and the Western Cape.^{12,13}
- Development of Science Parks for the commercialization of research outputs.

COFISA's ongoing programme, which includes provincial initiatives such as a pilot science park in East London, has been launched together with the East London Industrial Development Zone (ELIDZ) and several universities. In addition, the Nelson Mandela Metropolitan University (NMMU) in Port Elizabeth is conducting research on the possibility of a science park in the city. COFISA has also been closely engaged in the Limpopo Integrated Innovation Initiative (LIIS).

In the Western Cape, the focus was on sectoral and cluster analysis using foresight techniques and other methods. The Living Labs and open innovation (a strategic concept which allows sharing and distribution of knowledge) approaches were also explored, with particular reference to the Restructured Labs (R-Labs) which focused on urban

¹² Cartwright, A. Gastrow, M., Lorentzen, J. and Robinson, S., (2009). Limpopo Integrated Innovation Strategy (LIIS): A report prepared for the Limpopo Provincial Government and the Department of Science and Technology.

¹³ Gauteng Innovation Strategy, EXCO Submission 30/09/2010. Gauteng Provincial Government, Department of Economic Development

social challenges such as drug abuse and gangsterism, and retraining young people for new occupations that address social issues and lead to their rehabilitation in society. COFISA also contributed to setting up the management structure for the Siyakhula Living Lab (a rural living-lab concept), which aims to introduce open innovation to rural communities. Some of the benefits so derived included awareness of the innovation concept and increased collaboration, and evolution of *regional* innovation systems. The challenge, though, has been the lack of continuous facilitation to strengthen further collaboration and partnerships.

The following section gives a brief coverage of the Gauteng, Limpopo, Western Cape and Eastern Cape regional innovation strategies.

2.2.1 Current state of the Regional Innovation System

2.2.1.1 Economic strengths of South Africa's provinces

South Africa is a developing country comprising nine provinces. Comparative socio-economic analysis at provincial level shows the unique strengths of each province, and indicates the type and size of the contributions the provinces make to the South African gross domestic product (GDP) (see Figure 2). South Africa has a resource intensive economy, with a diversity of natural resources which contribute remarkably to our economic growth through mining, agricultural activities, manufacturing and other services. It is therefore imperative that the regional innovation strategies should be based on these strengths and relative advantages. If properly nurtured, the socio-economic strengths of this country will lead to sustainable economic growth and social development.

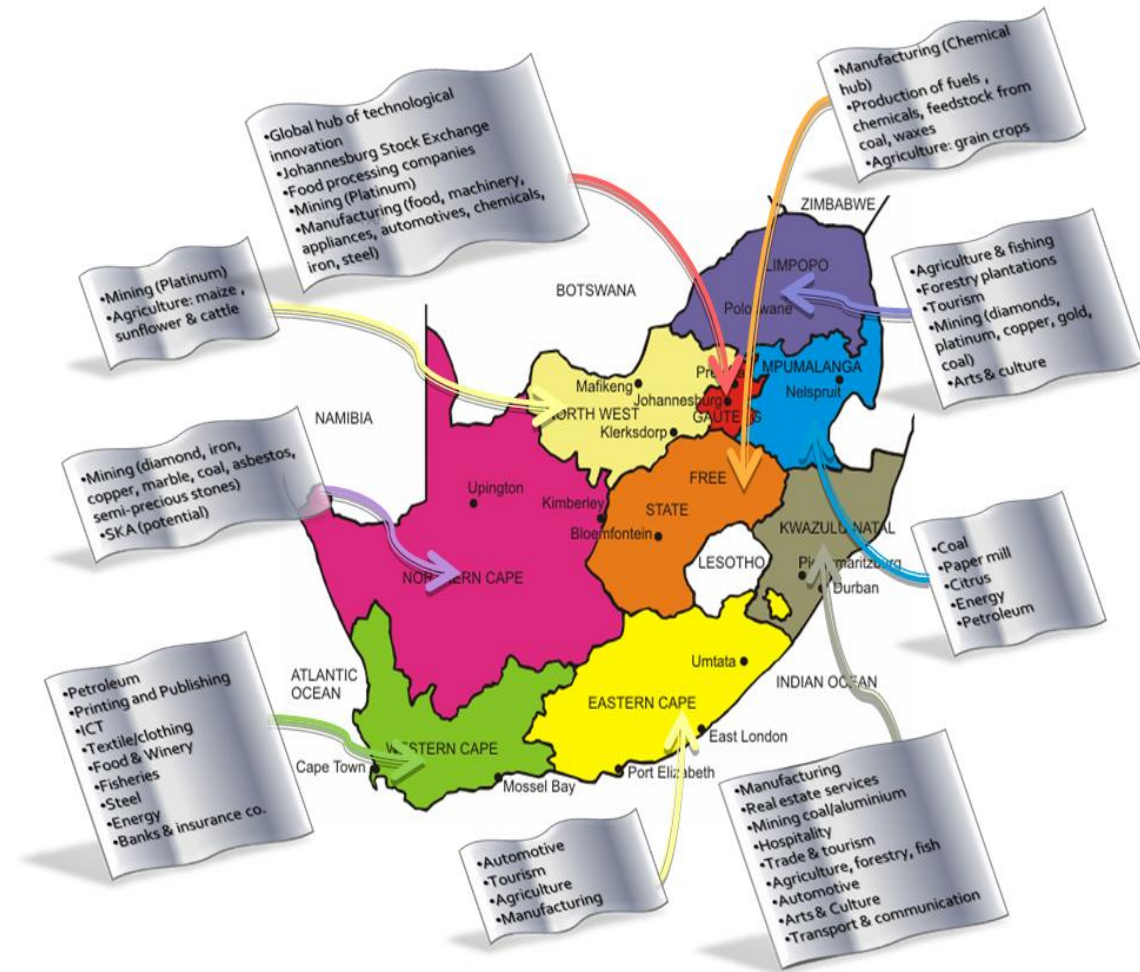


Figure 2: South Africa’s economic strengths reflected in each of the nine provinces.

2.2.1.2 Gauteng Innovation Strategy

The Gauteng Innovation Strategy seeks to accelerate innovation in all its forms, in order to bolster and support the broader strategic objectives of employment creation, and sustainable social and economic development.¹⁴ The strategy is aimed at promoting, supporting and encouraging innovation in all spheres of society within the province, and recognizes the importance of three characteristics of innovation. These are: 1) a broader concept of innovation (i.e. beyond scientific and technological innovations), 2) the potential of open innovation, and 3) the value of innovation transfers. The strategy allows members of society to play an active role in innovation, thereby ensuring that society is ultimately responsible for meeting the demands for innovation.

The implementation of the strategy is expected to yield the following outcomes:

¹⁴ Department of Economic Development, (2010). Gauteng Innovation Strategy, EXCO Submission, Gauteng Provincial Government, Department of Economic Development.

- A more efficient use of resources in delivering various strategies and policies adopted by the provincial government;
- The creation of new and valuable knowledge relevant to the social and economic priorities identified in other policy and strategy documents; and
- Support for the shift towards an advanced, knowledge-based economy by creating appropriate functions and infrastructure.

Key objectives of the provincial innovation strategy are:

- To improve the competitiveness of the Gauteng economy through identified strategic sectors, and
- To improve the efficiency of the provincial government in delivering services.

The strategy aims to integrate all kinds of innovations, which include social, public service and open innovations. It also emphasizes the need to involve members of society as active participants and to allow support for the demands of citizens, and the ability of the government to deliver on its mandates. The Gauteng Innovation Strategy appears to be addressing some of the shortfalls of the National System of Innovation. If it is implemented in the way that has been proposed, the strategy should achieve the anticipated outcomes listed above. Satisfactory as this may seem, however, it is difficult to be assured that the effect of this strategy will filter down to needy poor communities. This is because the strategy does not clearly articulate how it is linked to communities at a local level.

2.2.1.3 Limpopo Integrated Innovation Strategy

The Limpopo Integrated Innovation Strategy (LIIS) comprises firms (the formal economy), the informal economy, government, academic institutions, science councils, and non-profit organizations. It plans to make existing agencies the champions of innovation. The formal economy consists primarily of the private sector and government services and provides funding instruments to the academic institutions in exchange for skills and knowledge sharing. The informal economy, which is mainly community-based, provides human capacity (personnel) while also being positioned to diffuse technologies originating from other components of the system to the end users. The government acts as the main funding and coordinating body for all the stakeholders in the system.¹⁵

The strategy intends to exploit public resources in order to strengthen existing innovations or to bring them to regions where they are not yet established. There are also indications of the presence and implementation of numerous successful innovations within sectors such as agriculture (high-yielding cultivars, irrigation, “fertilizer trees”) and mining. However, dissemination and facilitation of their adoption by society’s most marginalized members have become a huge challenge as some

¹⁵ Cartwright, A. Gastrow, M., Lorentzen, J. and Robinson, S. (2009). Limpopo Integrated Innovation Strategy (LIIS): A report prepared for the Limpopo Provincial Government and the Department of Science and Technology.

community members do not even know what innovation is. Therefore, the strategy emphasizes the need to involve a large number of stakeholders including intermediaries such as NGOs and community-based organizations (CBOs).

Key focus areas of the strategy are:

- Overcoming the relative lack of skilled participants;
- Providing access to markets;
- Expanding renewable energy resources;
- Connecting indigenous knowledge systems (IKS) with markets, e.g. organic farming;
- Increasing investment in innovation-driven markets and existing innovation agencies or intermediaries rather than in new institutions; and
- Improving collaboration and partnerships between state, business, communities and academic institutions including international cooperation and strategic partnerships.

Furthermore, the strategy seeks to engage in the following activities:

- Conducting campaigns to showcase the importance of innovation;
- Showcasing examples of successful innovations to share lessons;
- Mainstreaming innovation into public policy; and
- Inspiring inter-provincial learning networks to strengthen regional innovation systems within the NSI

Some of the impediments to the Limpopo Regional Innovation System that have been identified are as follows:

- Limpopo is generally an under-resourced province;
- Government is poorly equipped to support and coordinate the innovation system;
- The province's "remoteness" from the country's commercial centres;
- Poor academic and educational performance levels (school pass rates are consistently below the national aggregates) including insufficient R&D capacity; as a result, academic institutions are most likely to be active in the dissemination of knowledge rather than in developing new technologies);
- Infrastructural constraints such as limited access to electricity, water, and the information and communications technology (ICT), etc.;
- A relative inability of grassroots communities to adopt innovation ;
- Compared to Gauteng and the Western Cape, the formal innovation activities in Limpopo are marginal and insufficient to drive the regional innovation system;
- Limited collaboration and partnerships among the stakeholders; and
- When benchmarked against other regional and international competitors., Limpopo is thus less competitive in terms of innovation and absorptive capacity;

2.2.1.4 Western Cape Innovation Strategy

The Western Cape (WC) Innovation Strategy was not ready for public dissemination at the time the study reported here was concluded. However, a teleconference was arranged with the team responsible for drafting the innovation strategy, which comprised of representatives from the Technology Innovation Agency (TIA) and the WC regional innovation forum.

Most of the work on the development of the strategy has already been completed. However, the consultation phase with the relevant stakeholders is still ongoing.

The strategy has focused on maintaining the balance between the top-down and bottom-up participatory approach, and emphasis has been placed on the need:

- To create models for innovation sustainability;
- For strong leadership, or champions that will drive and coordinate broad-based innovation;
- To develop and define innovation in the South African context;
- To promote collaboration both at regional and national levels (this may be in the form of iconic systems such as Science Parks);
- To develop a National Innovation Strategy that will also acknowledge the cultural diversity and values of our country;
- To diversify the economic markets through a novel manufacturing sector using social innovation;
- To build knowledge capacity, not only through academic qualifications but in a form that also includes existing indigenous knowledge; and
- To balance the social and technological elements of innovation.

Challenges identified with the WC Innovation Strategy are as follows:

- The strategy seems to be more centralized in Cape Town and excludes most of the other parts of the region, especially the underdeveloped areas;
- The focus is mainly on technological innovation, particularly in the urban areas of Cape Town; and includes IT technology, design and marketing, and the green economy (responding to climate change);
- The strategy does not harness the cultural diversity of the Western Cape;
- There is only weak alignment of innovation with society at large in the Western Cape; societal challenges such as the racial divide and informal settlements in particular are addressed in an inadequately manner;
- Little attention seems to have been paid to the agricultural and eco-tourism sectors, which are the main employers of many poor communities.

2.2.1.5 Eastern Cape Regional Innovation Strategy

The Nelson Mandela Metropolitan University (NMMU) was contracted by the DST to start the process of developing a Regional Innovation Forum in the Eastern Cape.¹⁶ This is one of the DST's initiatives to build an effective NSI through the creation of strong provincial and/or regional innovation systems (RIS) that foster greater economic growth at a regional level. The aim of the strategy is to strengthen collaboration and cooperation amongst universities, research institutions and industry, as well as government at a regional level.

The DST's Draft Regional Innovation Systems Framework calls for the establishment of a Regional Innovation Forum that will:

- Facilitate RIS strategic planning;
- Promote networking among RIS stakeholders within the province;
- Coordinate innovation programmes and initiatives within the province;
- Create awareness of innovation in the province; and
- Act as a gateway to innovation programmes and initiatives.

The Eastern Cape baseline study¹⁷ is intended to support the establishment of a regional innovation strategy. It is hoped that such a strategy will address persisting unemployment, poverty and the large part of the population currently excluded from the formal economy. Some of the weaknesses identified for this purpose in the province include a low level of investment in R&D and innovation, lack of a regional innovation fund and incentive schemes, and a lack of capacity in government to stimulate and coordinate innovation. The province has some opportunities such as the support for regional innovation by COFISA and the DST. The strengths to achieve the desired objectives include the existence of universities and national research centres and the presence of public research institutions. The threats mentioned in the baseline study are the loss of skilled personnel to other provinces and the unsuccessful implementation of regional development plans by national government. The innovation strategy to be developed is expected to address most of the threats and weaknesses identified in the baseline study.

¹⁶ Department of Science and Technology, (2011). Managing the establishment and activities of the Eastern Cape Regional Innovation Forum (DST/CON 161/2009).

¹⁷ ECSECC, (2010). The Eastern Cape R&D and innovation system study: Baseline study.

2.2.1.6 KwaZulu-Natal Growth and Development Strategy

The provincial government of KwaZulu-Natal (KZN) has done well in the development of its policy framework which harnesses social and economic development in the region. Some of the key strategies which are aimed to guide development and economic growth of the province include the following:

- The KZN Investment Strategy
- The KZN Export Strategy
- The KZN Industrial Strategy
- SMME Development Strategy and
- The KZN Cooperative Strategy

In addition, KZN has positioned itself well as an economic vibrant province, and its gross domestic product (GDP) is the second largest in the country, after Gauteng. This is attributed to a wealth of industrial activities which take place in the province, notably Richards Bay Industrial Development Zone; King Shaka International Airport; and Durban, Richards Bay and Dube Trade Ports. These are aimed at attracting both international and local investments while creating significant and sustainable employment opportunities in manufacturing, export-based and Agroprocessing industries.

Furthermore, KZN consists of a series of higher education institutions (HEIs) such as the University of KwaZulu-Natal, Mangosuthu Technikon, Durban University of Technology and 9 FET colleges across the province. However, lack of co-ordination between these institutions and the industry continues to hamper the potential of the knowledge economy and establishment of innovation hubs in the province.

There are overwhelming industrial activities that contribute to economic growth in the province. At a local municipality level, there is also Gijima KZN Local Economic Development programme tasked with supporting projects that could assist disadvantaged communities to improve their lives through economic activities. However, there is little emphasis on harnessing existing innovation for social good. For example, the Mariannhill's landfill project in Pinetown outside Durban, generate electricity from methane gas which services more than 3000 households. This is one of the successful innovative models that warrant upscaling and replication for increased social impact.

2.3. Community Innovation System (CIS)

There are various community-based innovation initiatives in South Africa. These initiatives and activities formulate a community innovation system (CIS) (although not formally recognized), which comprises broad-based innovations geared to respond to societal challenges confronting poor communities. The government, the Community-based Organization (CBO), non-governmental organizations (NGOs) such as ProLinnova (which stands for Promoting Local Innovation), and various social entrepreneurs which are promoted by organizations such as Impumelelo Social Innovation Centre, undertake some of the initiatives. There are many organizations and entities that are involved in the community innovation system (see Appendix 1) and a large number of replicable social innovations have been piloted locally and abroad (see Appendices 2–4). For example, a workshop held by the National Advisory Council on Innovation (see NACI)¹⁸ revealed several replicable social innovations that showed the potential for addressing societal challenges in South Africa. However, the lack of replication and absence of profiling of successful social innovations have severely limited their impact. The underlying causes of the lack of their wider application were attributed to poor scalability, little involvement of intermediaries, too few partnerships and collaboration as well as limited government’s involvement. It is possible that such Impediments to the adoption of social innovation will lead to a “community innovation system chasm” as portrayed in Figure 3.

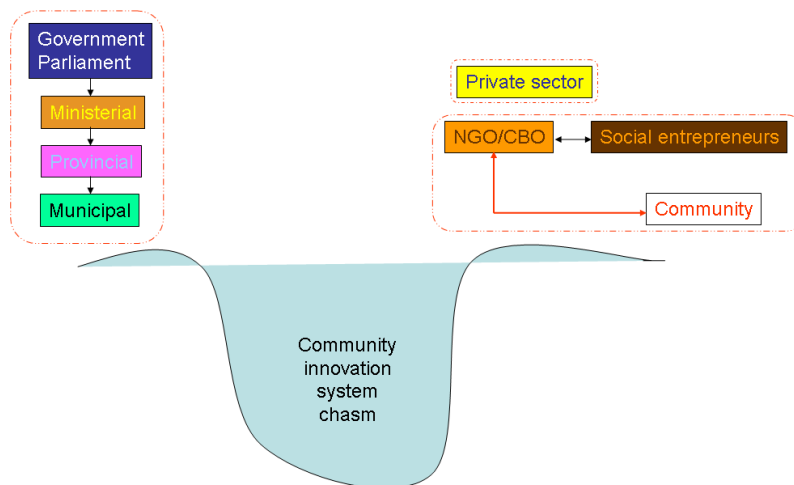


Figure 3: A schematic representation of the “community innovation system chasm” that arises from the fragmentation of efforts of the stakeholders.

¹⁸ NACI, (2011). Round-table discussion on replication of broad-based innovations with social impact: Proceedings. National Advisory Council on Innovation, Pretoria.

Other barriers that hinder the scalability of existing social innovations are listed below¹⁹:

- Lack of entrepreneurial and management skills;
- Insufficient financial and human capital;
- Insufficient leveraging of science and technology capacity to improve the lives of the poor;
- Markets for technologies designed to alleviate poverty characterized by low financial returns on investment (ROI), insufficient incentives and high risk;
- The role of innovation, involving science and technology, often overlooked during the development process and not mentioned in poverty reduction strategy papers (PRSPs);
- Developing countries may not afford, adopt and apply new technological innovations;
- Shortage of funding to extend beneficial technologies to the poor is a serious constraint; and
- Existing innovative solutions not readily used or accepted by the communities they are intended to serve.

Section 3

3.1 Conclusion

The findings in this report reveal that community innovation systems exist and are able in principle to respond to societal challenges confronting South Africa. There are many role players in the social innovation landscape who undertake numerous activities involving social innovation. However, most of these have on the whole been ineffective in uplifting poor communities. The underlying causes are as follows:

- The informal nature of community innovation systems and their intended social innovations;
- Fragmented capacities (of resources, infrastructure and intermediaries) for profiling, replication and upscaling of successful social innovation models;
- Markets for social innovations designed to impact on poverty are characterized by low financial returns on investment, insufficient incentives and high risk;
- Lack of continuous facilitation to strengthen collaboration and partnerships among role players involved in the social innovation landscape;
- Lack of champions to promote and extend existing social innovation initiatives;

¹⁹ NACI, (2011). Development of social indicators to track the impact of broad-based innovations on quality of life of South Africans. National Advisory Council on Innovation, Pretoria.

- The role of innovation often overlooked during the development process and not mentioned in poverty reduction strategies;
- Poor adoption or absorption of innovations at a local level due to attitude, lack of capacity, buy-in (trust) and complexity of innovation;
- Insufficient involvement of government; and

There is little or no evidence, however, to demonstrate the existence of regional innovation systems. What is encouraging, though, is that the South African government is committed, through the DST, to ensure that innovations contribute to both economic growth and social development at national, provincial and local levels. This commitment has led to the following:

- The introduction of COFISA's initiatives to establish regional and community innovation systems that will maximize the influence of technologies or innovations on economic growth (by commercializing research outputs) and social development at a local level; and
- Gauteng, Limpopo, the Western Cape and the Eastern Cape have developed or are in the process of developing their provincial innovation strategies to create linkages between regional and community innovation systems. Linkages will facilitate the introduction of open innovation to rural communities and the easier transfer of technologies.

Regional innovation strategies face several challenges, which include the following:

- i) They may be slow to implement, and therefore require a strict implementation timeline; and
- ii) They need to articulate how to link regional innovation with community innovation systems to facilitate access to innovations by poor communities. This articulation may require strong emphasis on the creation of partnerships in which intermediate and local communities are active participants, not just passive recipients.

3.2 Recommendations

The following recommendations emanate from this study, and they warrant urgent attention by government and other stakeholders involved:

- Regional and community innovation systems should be based on the respective socio-economic strengths identified for each region e.g. agriculture and agro-processing opportunity in Limpopo and Eastern Cape, wine making in the Western Cape);
- The positive effects of initiatives such as those of COFISA should receive special attention and that the Department of Science and Technology should determine how such initiatives could be taken further. There may be a need for DST to rethink if such can be done through support from TIA;
- The establishment of partnerships of all important stakeholders, which include communities (as active participants) and social entrepreneurs, should be facilitated and encouraged, so as to ensure coordination of their activities;
- Funds should be sourced from local (government's Development Finance Institutions [IDC, DBSA, National Empowerment Fund, etc]) and international (DfID, USAID, European Union) funding instruments for seed funding to assist with getting social innovations to rural communities;
- Conditions should be created to enable the upscaling, dissemination and promotion of the adoption and wider use of existing innovations. DBSA and IDC are likely to offer seed funding for this purpose;
- Replicable social innovation models should be upscaled for increased societal impact; and
- Social innovations should be profiled through awareness campaigns in all provinces.

Appendices

Appendix 1: Multi-stakeholder organizations involved in South Africa's social innovation landscape

South Africa is remarkably rich in communities and multi-stakeholder organizations involved in innovative social development programmes and initiatives. It is important that government invests in or provides incentives for these programmes. Government can provide an enabling environment whereas the business fraternity provides financial and technical support to motivate social entrepreneurs and NGOs to expand and extend their social innovation activities. In particular, the DST's Science and Technology for Social Impact programme could partner with these organizations to ensure development and efficiency of delivery, and consequently enhance social impact. Some of the organizations that support social entrepreneurs in South Africa are listed below.

South African Breweries KickStart Development Initiative

South African Breweries (SAB) launched its KickStart Enterprise Development Initiative as a poverty alleviation programme. It has subsequently become a platform to stimulate sustainable enterprise development. Specifically, KickStart promotes business awareness through training, supplying grants as start-up capital and providing post-training mentorship and assistance during the setting-up phase of the business. It is aimed at previously disadvantaged individuals aged between 18 and 35 years. More than 22 700 existing and budding entrepreneurs have already benefited from this initiative and more than 3200 businesses have been created.

Anglo-Zimele Enterprise Development Initiative

The Anglo-Zimele Enterprise Development Initiative which is driven by Anglo American Corporation has devised a highly effective business formula that is also being emulated by numerous other organizations throughout South Africa. The initiative supports about 688 profitable businesses and about 12 500 people who are now employed through these enterprises. The Anglo-Zimele Enterprise Development Initiative has become a catalyst for emerging black business, helping to address the historical inequalities of South Africa's past and meeting the legislative requirements that are aimed at uplifting and empowering disadvantaged communities.

Impumelelo Social Innovation Centre

Impumelelo Social Innovation Centre focuses on identifying and rewarding innovative initiatives undertaken by communities and / or individuals. Impumelelo offers competitive annual innovation awards which aim to contribute towards further development of identified projects and exposure to various local and international networks. Other services offered include research and policy analysis, and convening workshops aimed at encouraging the replication of innovative projects. One of their recognized projects is the Kuyasa CDM Project, which is based on low-cost housing. Practical case studies of their interventions at grassroots level can be found via their website (www.impumelelo.org.za) and in their annual magazine.

African Social Entrepreneurs Network

The African Social Entrepreneurs Network provides a platform for relevant stakeholders in the social entrepreneurial landscape in order to exchange ideas, to protect intellectual capacity and other tools needed for development.

Schwab Foundation for Social Entrepreneurship

The Schwab Foundation for Social Entrepreneurship identifies and supports the world's leading social entrepreneurs who are addressing their challenges in an innovative, sustainable and effective manner. It provides networking opportunities for the corporate, public, humanitarian and academic communities.

Ernst & Young Innovation Awards (Social Entrepreneur Award category)

Ernst & Young form partnerships with other organizations active in social entrepreneurship, such as the Schwab Foundation, to recognise and reward social entrepreneurs who, through innovation and development, are making a positive impact on South African society. Examples of their activities include the Social Entrepreneur Awards, which encourage such initiatives and also reward outstanding entrepreneurs for their contribution to society.

Shuttleworth Foundation

The Shuttleworth Foundation funds social innovators through a fellowship programme in the areas of education and technology, based on research and on the practical implementation of innovative ideas for social change. The Foundation provides financial support as well as technological, legal and administrative assistance through their rich network of social change agents. Examples of projects supported include Peer2Peer University (P2PU) and m4Lit (mobile phones for literacy). P2PU is a grassroots, open education project that recognises informal education through an “out of institution walls” education programme, whereas the m4Lit project makes use of mobile phones to encourage youth literacy in South Africa.

Gordon Institute of Business Science: Network for Social Entrepreneurs

The Gordon Institute of Business Science (GIBS): Network for Social Entrepreneurs (NSE) provides a platform for innovative and creative individuals or organizations that work towards the social upliftment of their communities. The NSE facilitates dialogue and creates debating opportunities for the stakeholders involved to engage with each other, share ideas and find solutions to the challenges at hand. It also equips social entrepreneurs, leaders and innovators with the necessary skills for sustainable initiatives. GIBS, in partnership with Ashoka, also recognises and rewards social entrepreneurs through the Southern African Social Entrepreneurship (SASE) awards. These awards are also aimed at providing alternative innovative solutions and the means of generating income, as well as providing mentoring, networking and other support structures.

Ashoka

Ashoka is an international organization founded by Bill Drayton. It supports the “Innovators for the public” concept as stated in its motto. Ashoka recognises and rewards social entrepreneurs through a fellowship programme that guarantees stipendiary support for an average of 3 years, to develop a selected project and share ideas with other stakeholders. The added benefits for Ashoka fellows include a lifetime global support network.

South African fellows of Ashoka include Adam Fraser from Vuvuzela, an organization that seeks to bring IT and education to rural communities, Lilian Masebenza from Mhani Gingi Social Entrepreneurial Networks, and Mandla Mentoer from Soweto Mountain of Hope (Somoho). Somoho is a youth-based organization that caters for a variety of projects involving art, the environment, sport and culture. They use waste materials for creative and innovative art work, and also promote environmental awareness through stage performances.

A4e South Africa

A4e South Africa is an international organization that makes use of innovative employment-creating programmes. A4e works with government, the private sector and needy communities to bridge the gap of service delivery, especially to marginalised communities. Among the services rendered are advice giving, training, skills development and providing employment opportunities, all aimed at transforming the lives of South Africans

Township Patterns

Township Patterns is an NGO founded by Nicole-Marie Iresch. Its business model is based on fair trade using raw materials and township flair to offer creative designs for the commercial market, thereby leading to job creation. They also encourage environmental awareness through the use of biodegradable materials.

Ikamva Labantu

Ikamva Labantu (which means the peoples future) is an NGO that assists affiliated CBOs with social development through its four core services, which are:

- Primary health interventions
- Education and skills development
- Food security and enterprise development
- Land and buildings

Ikamva Labantu develops socio-economic solutions by South Africans for South Africans, thereby creating a self-sufficient and sustainable social development environment.

Mhani Gingi Social Entrepreneurial Networks

The Mhani Gingi Social Entrepreneurial Networks focus on transforming indigenous models of stockvels into business models that are supported by various networks that promote business training and skills development.

Appendix 2: Examples of Impumelelo’s social innovation models²⁰

Innovation Cluster	Project	Social Impact	Sustainability	Replication
Health	Mothers2Mothers	Training and employing HIV-positive mothers to conduct support groups, provide counseling, and educate pregnant women about prevention of mother-to-child HIV transmission.	The project has secured funding for at least the next three years.	This project can be replicated in public health facilities.
	Etafeni Project	<ol style="list-style-type: none"> 1. Job-skills training and income-generation programme for HIV-positive mothers and caregivers. 2. Education (preschool and after-school care). 	The project has formed partnerships with the private sector, NGOs and government departments such as Health, Social Development, and Labour.	The project is in the process of being replicated in Vrygrond, Western Cape, and negotiations to extend it to Limpopo are ongoing.
	Ndlovu Care Group Rural Advancement Programme	The NCG empowers rural communities towards sustainable community health and community care; 350 people are employed through its various projects.	The project has received international recognition, and has successfully secured local and international donors for financial support.	This project can be replicated with sufficient funding, particularly in rural, underdeveloped communities that have poor access to service delivery.

²⁰ www.innovations.harvard.edu

Innovation Cluster	Project	Social Impact	Sustainability	Replication
Health	Phelophepa Health Care Train	The Phelophepa model employs highly qualified student interns from across South Africa and offers affordable primary health care to poor communities. The services offered include dental care, eye care, counseling, a psychology clinic, occupational therapy, pharmacy services and primary health-care training to communities. About 1.5 million people who could not normally afford or have access to health care services have been reached.	The Phelophepa Health Care Train is Transnet’s primary health care intervention, which has been operating since 1994. At least 45% of funding has been provided by the Transnet Foundation; the rest comes from external donors. The project has secured funding for at least the next three years and more donors are expected to be secured.	The Phelophepa model can be duplicated throughout the course of the year in all provinces and other African countries where health infrastructure is non-existent or inaccessible.
Safety and Security Sports and Recreation	City of Cape Town Violence Prevention through Urban Upgrading	Development of the Khayelitsha area in Cape Town through the construction of walkways, sports and recreation centres and parks, in order to reduce crime, and to improve the safety of residents in the area. The project contributes to crime reduction, capacity-building, social and economic development. The project also provides employment opportunities and skills training to local communities.	The City of Cape Town, in partnership with the German Development Bank has initiated and supports this project. More partners are needed to ensure its sustainability. A number of businesses have also been established and / or supported through this initiative.	Infrastructure development is a necessity for the well-being of every community. This project can be replicated in both rural and urban communities and should be prioritized as a feature of all municipal integrated development plans (IDPs)

Innovation Cluster	Project	Social Impact	Sustainability	Replication
Agriculture and Food Security	Harvest of Hope	<p>The project offers micro-farming training to poor communities. Farmers are able to produce enough food for subsistence and also to create employment. About 1500 micro-farmers have been signed-up.</p>	<p>The sustainability of the projects depends greatly on the dedication and hard work of trained and skilled farmers, provided they have access to the necessary infrastructure and arable land.</p>	<p>It is possible to replicate this model, but it will require substantial funding. The Land Bank, DAFF and DRDLR could partner in replicating this model, especially in the rural areas where there is sufficient land for agriculture.</p>
	Amadlelo Projects	<p>The projects make use of under- or unutilized redistributed farmland and develop it to its full potential while providing skills development and capacity-building. The project does not only benefit farmers, but also creates employment opportunities for community members and student graduates from Fort Hare University</p>	<p>The programme is economically viable, and some of the projects are already self-sustaining. Funding and support have been received from the Land Bank; Amadlelo, the National Empowerment Fund, DAFF, ECDC²¹, University of Fort Hare; Kula Development Facilitators and TGK Farming.</p>	<p>This programme can be replicated wherever there is land available for farming and other agricultural activities.</p>

²¹ Eastern Cape Development Corporation

<p>Social Welfare</p>	<p>NOAH (Nurturing Orphans of AIDS for Humanity)</p>	<p>NOAH provides training for local volunteers, who are then employed to assist AIDS orphans to access social grants and to undertake home-care visits. NOAH also offers day-care and after-care facilities, bereavement counseling and life-skills. So-called Arks are established as hubs for such activities. The Arks then operate as independent NGOs when NOAH exits.</p>	<p>The project has received financial support from government departments, including Social Development, Education, and Health. As a non-profit organization, the sustainability of the project depends critically on donor funding.</p>	<p>This model has already been replicated in the provinces of Gauteng, North West and KZN, where about 101 Arks have already been established.</p>
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Innovation Cluster	Project	Social Impact	Sustainability	Replication
Housing	SOHCO Amalinda Village	SOHCO is a social housing institution that provides affordable houses to those in the low-income bracket who may not qualify for government houses for the poor and bonds.	The project has received financial support from the Department of Housing, the Flemish government and the National Housing Finance Corporation. The development is now self-sustaining through rental income.	The project has already been replicated in Buffalo City (East London) and Durban. There are plans to continue the initiative in Cape Town as well, it can also be replicated anywhere in the country.
	Kuyasa Clean Development Mechanism	The Kuyasa project makes low-cost housing more energy and cost efficient through installation of solar water heaters, insulated ceilings and energy-efficient lighting. It consequently contributes to the reduction of carbon emissions and incidence of respiratory illnesses. Eighty-five people have received permanent employment, whereas 1742 community members attended non-accredited training.	Kuyasa has received funding from the government's Expanded Public Works Programme through the DEAT, the Provincial Department of Housing as well as technical support from private companies such as Genergy and Isoboard. The Southern Africa Enterprise Development Fund (SAEDF) has committed itself to underwriting any budget shortfall for at least 7 years.	The government has shown interest in this project, which can be successfully replicated by other municipalities in their low-income housing projects. The DST and CSIR could also add value in providing new technologies towards energy efficiency.

Innovation Cluster	Project	Social Impact	Sustainability	Replication
Environmental Affairs & Energy	Mariannahill Landfill Gas to Electricity Project	<p>The methane gas produced from the Mariannahill landfill site outside Durban is converted into electricity, which then services more than 3000 households. The landfill also has a plant rescue unit (PRUNIT), which has established a nursery for the storage and rehabilitation of indigenous vegetation. The PRUNIT generates R2 million per annum for the municipality.</p>	<p>The project is expected to be self-sustaining within two years and generate millions of rands through electricity sale revenue and carbon credits.</p>	<p>This project can be replicated by all municipalities and contribute to a 'Green Economy' while providing alternative energy sources to needy communities.</p>
	Them bani Handcraft Project	<p>The project provides employment opportunities and skills development by empowering women who face high levels of domestic violence due to financial dependence on their partners. It also contributes to the reduction of landfills through recycling of fibre-optic cables, sawdust and small blocks of wood from local manufacturers. The project now also employs males as a result of its growth and the nature of the work involved.</p>	<p>The project is highly sustainable as it is able to cover almost 90% of its costs through the sale of handcrafted products</p>	<p>This project is replicable, in urban and industrial areas in particular, where industrial waste can be recycled to make reusable products, some of which can be commercialized to generate income</p>

Appendix 3: Examples of COFISA’s community innovation models²²

Innovation Programme	Project objectives	Social Impact	Sustainability	Replication
Foresight	<ul style="list-style-type: none"> – Future thinking towards establishing regional and provincial innovation systems. – Introduce foresight tools and processes and encourage collaborative use of these tools by multi-sector and multidisciplinary networks towards possible future developments. 	<ul style="list-style-type: none"> – Foresight training to provincial co-coordinators – Full participation of community members in governance and the economy and transparent access to user-centric knowledge – Self-sustaining and pollution-free ecosystems (green futures) – A society with a knowledge-driven economy – Innovative societies. <p>Regional focus areas were:</p> <p>Eastern Cape: Bio-agriculture and algae farming, health innovation and industrial and environmental biotechnology.</p> <p>Western Cape: Waste, environmental and marine management, including alternative energy sources (e.g. plants).</p> <p>Gauteng: Biotechnology, diagnostics and therapeutics, wellness and disease prevention.</p>	<p>Sustainability depends on mutual participation by all stakeholders. Now that COFISA has ended, an intermediary agent, such as TIA, may be required to take on the facilitation role.</p>	<p>The foresight cycle is required for replication in all 9 provinces across the country. The network platforms and the lessons learned through COFISA could be instrumental in this process to avoid past mistakes and failures.</p>

²² James, T (ed.) 2010. Enhancing innovation in South Africa: The COFISA experience.

Innovation Programme	Project objectives	Social Impact	Sustainability	Replication
Knowledge and Innovation for Rural Development (KIRD)	<ul style="list-style-type: none"> – To compile a database of policies, strategies, initiative and activities with impact on rural development – To pilot Local Action Groups (LAGs) and – To identify priority interventions in partnership with communities 	<ul style="list-style-type: none"> – Capacity development and study visits of selected representatives to Finland to acquire knowledge of rural development systems <ul style="list-style-type: none"> – Knowledge sharing platforms – Development of integrated LED plan for Northern Keiskammahoek – Employment and development opportunities were created through LAG initiatives, which included support for small farmers, start-up for trout fishing business and wattle clearing, road maintenance and food security activities 	Funding has been secured for the 2010/11 phase, which includes partnerships with the Community Works Programme and Expanded Public Works Programme Phase II	Resources have been secured to replicate this model in other villages in the Eastern Cape. This initiative could also be adopted and implemented in other provinces towards rural development using a bottom-up participatory approach

Innovation Programme	Project objectives	Social Impact	Sustainability	Replication
Living Labs in Southern Africa (LLISA) network	<ul style="list-style-type: none"> – To enhance use of ICTs in rural development projects – To identify funding opportunities for rural R&D and social innovation – To identify and adopt best practices for local economic development 	<p>Establishment and development of the Living Labs as user-driven community ICT service platforms. These include:</p> <ul style="list-style-type: none"> – The Siyakhula²³ Living Lab (SLL) in Dwesa, Eastern Cape which offer services such as computer training of community members and rural school teachers, eCommerce, eGovernment and eHealth platforms. – Digital access centres were also located in schools and computers could be accessed by community members. A software factory is also under construction. – Reconstructed Living Labs (RLabs) in Athlone, Cape Town offers mobile debt counseling, HIV/AIDS and drug advice support, among other services. – The Limpopo Living Labs (based on the science and technology park concept) promises strong business development potential, which includes STI, incubation and entrepreneurship, while retaining intellectual capacity in the province, attracting and retaining investment, job creation, etc. 	<p>The Siyakhula project is being undertaken within the Telkom Centre of Excellence (CoE) in Developmental eCommerce, which is hosted by the Department of Computer Science at the University of Fort Hare in collaboration with Rhodes University.</p> <p>The RLabs are sustainable through the ongoing participation of the local community, academia (Cape Peninsula University of Technology), industry and government.</p> <p>The Limpopo Living Labs are being supported by the Limpopo Provincial Government through Trade and Investment Limpopo. Alternative funding institutions, such as Limpopo Economic Development Enterprise (LimDev) and Limpopo Business Support Agency (LIBSA) are also required to come on board to help sustain this project.</p>	<p>The living lab model can be replicated in both rural and urban areas according to local needs.</p>

²³ siyakhulall.org

Innovation Programme	Project objectives	Social Impact	Sustainability:	Replication
Science & Technology Parks (STPs)- Eastern Cape	Development of the East London Science and Technology Park, near the East London Industrial Development Zone, in partnership with the Eastern Cape Provincial Government, Walter Sisulu University (WSU), Nelson Mandela Metropolitan University (NMMU), University of Fort Hare and Rhodes University.	<ul style="list-style-type: none"> – Knowledge transfer – Skills development – Exploitation of commercially viable ideas from academic and research institutes – Provide platform for industrial R&D opportunities – Streamlining academic programs and industrial exposure for students and preparing them for the job market – Employment opportunities and economic growth in the province 	The idea has already received buy-in and commitment from the relevant stakeholders including the Departments of Economic Development and of Environmental Affairs, WSU, and NMMU. The resources for the pilot phase have already been secured and operations are envisaged to start by 2012.	This model is replicable in any environment with the necessary building blocks, such as academic institutions, industrial activity, and financial resources.
Science & Technology Parks (STPs)- Western Cape	Discussion and negotiations are in place to develop a Bellville Science Technology Park adjacent to the University of the Western Cape (UWC), particularly in the Transnet container depot near UWC. This will include partners from neighboring academic institutions, namely, the Cape Peninsular University of Technology, the University of Cape Town and the University of Stellenbosch, and other industries in the vicinity.	Same as above	The DST has awarded a grant to UWC for a joint feasibility study with the Cape Higher Education Consortium (CHEC). It is envisaged that the involvement of relevant political, business and academic enterprises will trigger many opportunities in the Western Cape	Same as above

Innovation Programme	Project objectives	Social Impact	Sustainability	Replication
Science & Technology^a Parks (STPs)- North West Science	The North West Science Park (NWSP) model seeks to integrate the technology supply chain while serving the Provincial Growth and Development Strategy (PGDS). It is also intended to serve as North West province's innovation hub where knowledge-intensive skills are transferred to new small businesses, as well as to established industry ²⁴ . This model is unique in that the science park is associated with North-West University in a rural setting, unlike other science parks, which will be located in urban and concentrated industrial zones.	The NWSP will incorporate an entrepreneurial centre to stimulate growth and job creation.	The DST has been instrumental in the development of initiatives to establish STPs, and has already funded the drawing up of business plans, feasibility studies, and other development programmes on behalf of the proposed STPs.	This model is replicable in any similar environment, such as Umtata. Perhaps the Eastern Cape government could consider a similar model for the O.R. Tambo District Municipality and take advantage of knowledge exchange opportunities involving WSU and surrounding FET colleges and exploit the natural resources of the region, especially in the tourism and agroprocessing sector, thereby creating employment opportunities while attracting and retaining intellectual capacity in the province.

It is important to note that the Manufacturing, Technology Transfer and Local Innovation Group of the DST has been active in stimulating provincial innovation systems. A Science Park Forum has been set up, which has contributed to the development of the National Science Park Strategy²⁵

²⁴ www.inw.org.za

²⁵ James, T (ed.) 2010. Enhancing innovation in South Africa: The COFISA experience.

Innovation Programme	Project objectives	Social Impact	Sustainability	Replication
<p>The Innovation Hub activator programme</p>	<p>The programme was developed in partnership with the Innovation Hub in Pretoria to promote multi-helix collaboration and to develop SMEs through research institutions, the public and the private sector partnerships in Gauteng.</p>	<p>Piloting of the Centre of Expertise (CoE) programme, which resulted in the development of projects such as:</p> <ul style="list-style-type: none"> – The Broadband for All project (Meraka Institute at the CSIR), which provides cheap broadband connectivity and wireless infrastructure to rural communities as well as encouraging entrepreneurial development in the process. – The Stimulating the Energy Innovation Market (an Eskom initiative) provides innovative hot water supply solutions, through traditional and mobile media, while educating the youth about energy saving – The Tshwane eHealth Living Lab Activator (TeLL) 	<p>Partnerships have been secured with Eskom, Vodacom, Sentech, GeoMed, the CSIR, and City of Tshwane, among others.</p>	<p>The model is replicable, although it requires the involvement of partners willing to provide funding, to support capacity development, to introduce a variety of technologies to communities, and to ensure a clear market focus for innovation activities.</p>

Appendix 4: International innovation projects adaptable to South African context

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, the literature was scanned to identify successful projects and programmes whose effectiveness depended 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 a number of well-established international innovation models that illustrate the principle of “social innovation for development” and that, if implemented as intended in South Africa, could benefit rural lives. These models include multi-national ProLinnova Participatory Innovation for Development (PID), the Japanese One-Village One-Product (OVOP) programme, and the Indian Honey-Bee Network (HBN) (see Table 1). Most initiatives are 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 singling out these three models are as follows (see items I – III for details):

- 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 the 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.

Employment and food security in the developing world and the concept of participatory innovation development

The dominant concerns of the governments of poor countries throughout the world, but especially in Africa and Asia, are 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).

*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 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.

International replicable innovation models

The study has revealed a wealth of international replicable innovation models which could be adapted in the South African context (Table 1). The first three innovation models (ProLinnova, One-Village-One-Product and Honey-Bee Network) are discussed in detail in the next Sections I - III.

Table 1. International Grassroots Innovation Networks (adapted from Smith *et al.* [2012])

Network/Institution	Description	Activities and geographical focus	Example Innovations
Prolinnova (Promoting Local Innovation) in ecologically oriented agriculture and natural resource management)	<p>Promotes local innovation in ecologically oriented agriculture and natural-resource management. It recognises indigenous knowledge and informal experimentation among farmers, forest dwellers, pastoralists, and fisherfolk. The intention is to develop methods, build capacity and scale up experiences.</p> <p>ProLinnova international also provides a platform from which participants can share innovative ideas that work in different affiliate developing countries. Such ideas have potential for adaptation in other countries.</p>	International: 16 country platforms in Africa and Asia, and a regional Andes platform	Farmer-led documentation using participatory video in Ghana; participatory innovation development for climate change adaptation in Nepal; linking innovation in agriculture and management of HIV/AIDS in Malawi; innovation in livestock-keeping by women in South Africa
Japanese One-Village-One-Product (OVOP)	The purpose of OVOP is to encourage communities to create competitive products made from local materials using local expertise and skills and ensure access to local and international markets.	International: Asia (Japan, Thailand) and Africa (Malawi, Uganda)	<p>Variety of value-added products. Malawi: Palm oil soap and cooking oil, tomato jam, mushroom, casava bread, soya milk, baobab jam and oil, casava flours, moringa oil, and others.</p> <p>Thailand: Fabric</p>

			(silk/cotton), baskets, ceramic and wooden products, and others.
Honey Bee Network	<p>The network brings together individuals and institutions collecting, documenting, and disseminating innovations and practices at the grassroots level.</p> <p>The network receives institutional support from the Society for Research and Initiatives for Sustainable Technologies and Institutions (SRISTI) and the National Innovation Foundation (NIF)</p>	<p>Asia – India</p> <p>It has documented over 100,000 ideas, local innovations and traditional knowledge practices. Members can join the twice-annual Shodh Yatra journey, visiting rural communities to identify and document unrecognised ingenuity.</p>	<p>Techniques for cultivating locally adapted traditional rice and fruit trees; labour/cost-saving machines e.g. for weaving sari cloth into low-cost sanitary napkins and processing bamboo; irrigation systems suited to local crops; gear trains for cycle rickshaws</p>
Technology for the Poor (Non-profit organizations) (www.technologyforthe poor.com)	<p>Its mission is to design, innovate and disseminate low cost appropriate technologies to less income countries throughout the world.</p>	<p>International: Africa, Asia, Middle East</p>	<p>1) Low cost construction using straw or other material such as papers, carpet padding as filler in wall cavities, plaster inside and outside of walls with mud or cement with sand mix, and paint walls with desired colour paint.</p> <p>2) Sail wind machine for water pumping and grinding grains.</p> <p>3) Pedal power device used for dual purpose bicycle e.g. transportation or pedal power mode.</p> <p>3) Vertical and container urban gardens.</p>
International Network on Appropriate Technology; and Annual International Conference	<p>It was developed to continue the work of annual conferences on</p>	<p>Africa, Global South and USA</p>	<p>Earth construction to meet urban housing needs in Africa; ICTs</p>

on Appropriate Technology	appropriate technology.	Five annual conferences since 2004	for crop improvement and access to markets
Asia-Pacific National Innovation Systems Online Resource Centre	It provides access to resources and information amassed through projects that promote national innovation policy and practice in Asia-Pacific countries. Includes the Directory on Green Grassroots Innovation and Traditional Knowledge, which encourages policymakers in academia and research and development (R&D) institutions to focus on grassroots innovation.	Asia-Pacific Field visits and six workshops held 2007–2008 in China, Philippines, Malaysia, Sri Lanka and India	Linked with Honey Bee Network (see below)
Grassroots Innovation Augmentation Network (GIAN)	A technology and business incubator of grassroots innovations and traditional knowledge, linked to the Honey Bee Network and the NIF.	Asia – India; six regions and many state-level incubators GIAN has set up incubation centres across India to bring innovations to market.	Camel bus; film projector; groundnut digger; trench digger
Traditional Knowledge Digital Library (TKDL)	It bridges the gap between traditional knowledge information in local languages and international patent examiners.	Asia – India Over 150 books on traditional medicine have been transcribed so far	Traditional Knowledge in Indian Systems of Medicine including Ayurveda, Unani, Siddha and Yoga
Centre of Science for Villages (CSV)	It links research scientists and rural communities through training and other initiatives.	Asia – India Over 100 staff and volunteers at three demonstration campuses	Rainwater harvesting; plant-based pesticides; honey bee apiary
China Innovation Network (CHIN) Tianjin University	A twin centre to SRISTI. Plans to establish an innovation scholarship and an international grassroots innovation	Asia – China; involves 54 universities from 30 provinces of China	Cycle-based hoe; simple lift to bring agricultural produce to a rooftop for drying

	and traditional knowledge registry.	Scouted about 6000 innovations	
The National Grassroots Innovation Databank – Malaysia	It provides institutional support in identifying, sustaining and scaling up Malaysia's grassroots innovations and traditional knowledge	Asia-Pacific – Malaysia 228 innovations listed	Preventing mosquito breeding in roof gutters; bioethanol produced from starch extracted from cassava
Practical Action	It uses technology to challenge poverty, working with communities on energy, agriculture, urban infrastructure, new technologies, and waste management	International; UK head office; offices in Bangladesh, East Africa, Latin America, Nepal, South Asia, Southern Africa and Sudan	Nanotechnology for water filtration; gravity ropeways for transporting produce to market in mountainous areas; cost-effective housing reconstruction post-tsunami
Social Technologies Network – Brazil (Red de Tecnologias Sociais)	It supports products and techniques developed cooperatively with communities. It has inspired other networks, such as Red TISA (see below).	900 member organisations from Latin America Annual Social Technology Prize builds a database of entrants and projects.	Potable water storage (cisternas); biogas digesters using cattle dung for home energy; seed fair for exchange of traditional varieties in rural Argentina and Paraguay
Network on Technologies for Social Inclusion – Argentina (Red de Tecnologías para la Inclusion Social de Argentina – Red TISA)	It helps create and exchange community and techno-scientific knowledge, and shares learning for inclusive and sustainable development.	Latin America – Argentina 90 institutions and projects	Cooperative recycling ventures; sugarcane harvesting machine for small-scale producers
Social Technologies Bank – Brazil (Fundacao Banco Tecnologias Sociais)	This database includes social technologies certified by the Social Technology Prize of the Bank of Brazil Foundation.	Latin America – Brazil Over 600 certified entries	Dryland horticulture and processing of cashew nuts and fruits into pulp; urban agroecology projects; water conservation and recycling
Uruguayan Center for Appropriate Technology	A non-profit organisation working closely with the Latin American Social Ecology Centre on energy, agroecology and medicinal plants.	Latin America – Uruguay	Low-cost sustainable energy production; knowledge maps of local and traditional medicinal plant uses

Grassroots Innovations – UK	It provides research-based insights into grassroots innovation processes.	UK; expanding to other countries	Has documented grassroots innovations in energy, food, housing and complementary currencies.
Massachusetts Institute of Technology (MIT) Grassroots Invention Group (GIG)	It develops low-cost personal computation and production technologies	USA 20 active projects	Prometheus, a Learning Independence Network being developed in Costa Rica; new approaches to teaching computer programming
D-Lab, MIT	It promotes appropriate, low-cost technologies for international development.	USA and International Hundreds of projects	Portable solar cooker; ceramic water filter; low cost, pedal-powered rickshaw lighting
Ashoka	Pioneered the term 'social entrepreneurs' for people solving pressing social needs, and changing society. The Ashoka Fellowship for social entrepreneurship, with over 2000 fellows, supports networking and learning to achieve social goals.	International; programmes in over 60 countries; 25 regional offices in Africa, the Americas, Asia, Europe the Middle East and North Africa.	Home-based nurse training in South Africa; youth involvement in community forest management in Peru; digital inclusion in Brazil

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 benefit from innovative management schemes and R&D ideas introduced from non-traditional quarters. So successful has the concept become that it is now practiced 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).

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 institutionalization
- 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 prioritized 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 Table 2 below.

Table 2. Some challenges and suggested interventions

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.

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.

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 networks) 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), 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 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.

Conclusions

- These models are likely to be applicable to the South African context.
- Consideration will have to be given to specific aspects of the innovations that could be 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 ProInnova-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 the DST poverty reduction programmes aimed at producing and promoting social innovations.

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