SILK FROM MOPANI WORMS: INNOVATION AT WORK

New techniques in harvesting and producing wild silk can yield huge benefits for rural communities. One example is the Ganyesa Wild Silk enterprise in North West. Using this enterprise as a case study, ***Kgabo Ramoroka*** and ***Peter Jacobs*** illustrate the advantages of rural innovation networks.

The African wild silk moth, scientifically known as *Gonometa postica*, produces natural silken fibres of exceptional quality. The cocoons of African wild silk moths are abundant in some parts of the North West, Northern Cape and Limpopo provinces of South Africa, as well as in Namibia, Botswana and Zimbabwe.

In Ganyesa, a rural town in Kagisano-Molopo in North West, the potential of the lifecycle of the African wild silk moth has been recognised through a community project that harvests and processes the silk produced from the moth's hatched cocoons. The cocoons are collected, cleaned and degummed to produce yarn.

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The cleaning process helps remove the ruminants of the pupae while the degumming process includes hand spinning, hand weaving, sewing and dyeing the yarn. Before the establishment of a degumming plant in Ganyesa Wild Silk enterprise, local people relied on indigenous methods to spin yarn from the cocoons. However, these methods were found to be inefficient and highly time-consuming, resulting in low yarn productions.

Natural fibres produced from wild silk can be used to manufacture exciting new fabrics and luxury items such as wedding dresses and other garments. Wild silk products are environmentally friendly and their production does not compromise biodiversity in any way as the fibres are produced from hatched cocoons.

Why a wild silk innovation network?

To improve productivity, the Ganyesa Wild Silk enterprise partnered with a local innovation network. As a result, production methods were improved, output volumes were scaled up, new buildings were erected and a degumming plant was installed.

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The degumming plant was constructed in a new building, and comprised a series of machines used to perform different tasks, including producing silver web from the silk , spinning single ply yarn (using spinning machines), packaging single ply yarn (using assembler winder) and other functions.

The wild silk innovation network also helped the Ganyesa Wild Silk enterprise employ a management and operation structure. The enterprise further benefited from the training offered to its management personnel as well as to the local people to improve their skills in harvesting the pupal cocoons of the African silk moth.

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The wild silk local innovation network is composed of various 'actors' who play crucial roles in boosting the innovation capabilities of the silk enterprise through providing start-up funding and access to resources, training and enterprise co-ordination and management expertise.

These actors include the Council for Scientific and Industrial Research (CSIR); the Department of Trade and Industry; the North West Department of Economic Development and Tourism; the Northern Cape Department of Economic Affairs; the Small Enterprise Development

Silk slivers spun from the cocoons of the African wild silk moth

Agency; the Department of Agriculture and Rural Development; the Dr Ruth Segomotsi Mompati District Municipality and Kagisano-Molopo Local Municipality; local communities, ward councillors and members of ward committees; and the Tlou le Tau and Ba Ga Mariba tribal authorities. Each innovation party has a specific role:

- The Port Elizabeth CSIR's textile technology division was responsible for the implementation of technologies to harvest, clean and degum the wild silk cocoons. This unit also trained local people in cocoon harvesting. The CSIR was selected as the co-ordinator and lead institution in the operation and management of the project.
- The government departments supported the initial set up of the wild silk enterprise through funding. Other departments offered extension support and necessary advice on production and operation.
- The district and local municipalities contribute in offering basic sanitation services, such as water provision and waste removal.
- The tribal authorities manage and control the fields, and allow the local people to harvest cocoons in the communal fields under their leadership. They also play a role in encouraging the formation of community co-operatives that will be trained in the collection and harvesting of hatched cocoons in the veld, which will then be sold to the Ganyesa Wild Silk enterprise as part of the strategy to scale up the enterprise.
- Communities harvest the cocoons.

The Ganyesa Wild Silk enterprise is currently not registered as a legal business, and its silk is only available in small local markets. A proposal was recently put forward to escalate the enterprise's operations, increase its production output and expand to larger markets to facilitate greater commercialisation in an effort to improve the living standards of local communities.

Conclusion

There is growing consensus that formal and informal innovation networks improve the sharing of knowledge and technological and non-technological innovations among local rural enterprises. Innovative capabilities thrive in cohesive innovation networks among public enterprises, private enterprises, non-profit organisations, local authorities and creative individuals in marginalised areas. This wild silk case clearly illustrates how the Ganyesa Wild Silk enterprise benefited from the local network of innovators, with some of the actors coming from outside the boundaries of the district.

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Innovation networks provide a platform for enterprises to exploit the unique competencies and resources of other enterprises in the network. They also help members of the network reduce the costs of looking for and accessing information and resources. Perhaps more generally, this example calls for collaboration into local innovation networks as a strategy to improve the capabilities of rural enterprises in innovation. ■

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End note: The case study forms part of a Department of Science and Technology-funded project for mapping innovation activities in rural areas. In 2012, the HSRC was contracted by DST to design, develop and pilot-test a Rural Innovation Assessment Toolbox (RIAT).