

# **THE ROLE OF PROVISIONING SERVICES IN HOUSEHOLDS' RESPONSE TO VULNERABILITY IN THE DRY FORESTS AND WOODLANDS OF SOUTHERN AFRICA WITH A FOCUS ON CLIMATE VARIABILITY AND CHANGE**

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Rural households in southern Africa's dry forests and woodlands are inherently vulnerable and are exposed to bio-physical, social and economic stressors. For many living in these countries, extreme livelihood insecurity and vulnerability persists, exacerbated by crises such as unstable economies, HIV/Aids, civil unrest, and biodiversity loss. Furthermore, the drylands, including large parts of southern Africa, are described as being particularly susceptible to a range of climate-related challenges which may adversely affect development goals and initiatives.

To manage vulnerability and maintain a sustainable livelihood, many households invest in a diversity of livelihood activities and assets, and many depend on the goods and services the surrounding ecosystems provide. Ecosystem services are the benefits people obtain from ecosystems. Provisioning services, a component of ecosystem services (together with regulating, cultural and supporting services), include food, fibre, fuel, water, and medicinal resources.



**Buffalo biltong, fish and birds as examples of “bushmeat” consumed by locals from their ecosystem.**

The contributions of these extend beyond the direct-use value, and include income-generation, indirect benefits and safety-net functions. This research set out to explore the role of provisioning services in households’ livelihoods, particularly in their response to vulnerability. Given that households often depend on the capacity of ecosystems to provide these services, ecosystem change may increase vulnerability. The risks are higher where natural-resource based systems support livelihoods and national development strategies that are sensitive to climate change and variability. This includes large portions of sub-Saharan Africa where rural households are already vulnerable to a wide range of stressors.

This research aims to contribute towards the growing dialogue on rural vulnerability in general and to climate variability and change in particular. The key aims include:

1. To understand vulnerability to multiple stressors (with a focus on climate related variability, change and shocks) amongst rural households;
2. To understand responses to multiple stressors (and the resultant vulnerability) with a focus on the role of provisioning services in helping households cope with climate related variability and change; and

3. To explore scenarios of future change, with a focus on climate change, and the potential role (strengths and weaknesses) of provisioning services in helping households adapt to such change in order to maintain a sustainable livelihood.



**Edible insects: Shield bugs, mopane worms and termites are insects consumed by locals**

The research was conducted in two villages in rural Venda, Limpopo Province, South Africa. The villages fall within different rainfall zones, with one receiving notably less annual rainfall than the other. This selection of study sites was intended to test how provisioning services, livelihood strategies and vulnerability might differ according to past, present and future climate changes. Both qualitative and quantitative data were collected. Methods included household and key informant interviews, with 170 households interviewed. Community workshops were conducted, and involved a compendium of participatory rural appraisal tools such as seasonal calendars, impact chains and community mapping.

Preliminary findings suggest that households rely on both off-farm and land-based livelihood strategies and that provisioning services make an important contribution to sustaining households on a regular basis. Households in both villages still rely on natural medicines. Fuelwood remains the primary source of energy in 97.6% of households, even though several households have access to electricity. Fuelwood also plays an important part in brick-making. Households rely on wood and various natural fibres (e.g. thatching grass, reeds, etc.) for the construction of their houses, fencing of fields and livestock enclosures, and other household items. Provisioning services make an important contribution to food security with 96% of

households reporting the consumption of wild foods, including wild edible herbs, fruit and bushmeat (including mammals, fish and insects).



Furthermore, households reported an increased reliance on these foods, during times of hardship. Although most households collect their water from communal taps, 32.9% and 34.1% still rely on rivers and springs respectively, for water. Households in both villages reported increasing difficulty in accessing key provisioning services such as fuelwood and water. Ecosystem change and loss may increase vulnerability, threatening sources of food, raw materials, water and medicine.

It is argued that the provisioning services concept can be used to support conservation and livelihood improvements, including helping households adapt to current hazards and future climate change. Together with the other ecosystem services, attention needs to be paid to the provisioning services in place, the current role they play and their potential role in helping rural households cope with climate variability and change.



**Water from rivers and springs**



**Natural medicine: Traditional healer surrounded by bags of medicinal plants & medicinal bark harvesting**