

Reducing the costs of landscape restoration by using invasive alien plant biomass for bioenergy

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ABSTRACT:

South Africa's natural resources are severely impacted by invasive alien plants (IAPs). As water is a scarce resource, the national Working for Water (WfW) program was established in 1995 to restore landscapes by eradicating IAPs. Since then, considerable progress has been made with about three million hectares cleared. However, the costs of doing so have been substantial and the overall area invaded has increased while new species have become invasive. Focusing on terrestrial woody IAPs, this study reviews the extent of IAPs as well as efforts to eradicate them, and identifies value-adding opportunities to use the cleared IAP biomass for reducing the costs of landscape restoration. Since bioenergy is suited to a large portion of the biomass, and energy powers socio-economic growth and development, this opportunity was explored in detail, with a focus on generating electricity. Bioenergy businesses struggle to be financially feasible due to the significant costs to access, harvest, and secure the widely distributed and varied IAP biomass. The costs of eradicating IAPs can be substantially offset by the potential benefits from using IAP biomass for producing bioenergy and biomaterial, as well as from a wide range of ecosystem services from the restored landscapes. Incorporating the values of these benefits into the business case for clearing IAPs can accelerate and upscale landscape restoration programs, while creating jobs in the environmental goods and services sector, and facilitating the transition to a Green economy.