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"Management of land use systems for enhanced food security: conflicts, controversies and resolutions"

Pastoral Landuse Systems and Sustainability in a High-Tech World

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Abstract

Pastoralism is a landuse system where livestock use natural vegetation in marginal areas that are too dry, too high, too steep or too infertile for cropping. To achieve food security with increasing human population, such non-arable areas where people are accustomed to producing food under unpredictable conditions will become increasingly important.

Many "modern" high-tech interventions supposed to increase production in marginal areas bring only short-term improvements and waste scarce resources like water and non-renewable resources like fossil fuels and other inputs. A widespread belief in high-tech "solutions" overlooks that animal agriculture is being practised in "problematic" areas by making the most of the natural limitations: making efficient use of vegetation and water with few external inputs to produce high-protein food from plants that humans cannot consume.

The high-tech interventions not only deplete nonrenewable resources; they also destroy pastoralist livelihoods and threaten the future of pastoralism. Donor and government support is given especially for irrigated cropping in lowland valleys: areas that pastoralists need at critical times of the year to be able to maintain their production system and use the drier areas at other times. This breaks a vital link in the annual production cycle.

Investors' interests in short-term gains collide with interests of people who have used the areas for generations and have the knowledge and skills to continue doing so. They have proven to be highly adaptive to change in climatic, economic and political conditions, especially due to their mobility. Yet pastoralism has not remained the same for generations. Pastoralists have embraced modern technologies that improve their production and marketing, using e.g. veterinary drugs; trucks to move animals to pastures or markets; and mobile phones to inform themselves about weather, security and disease conditions along different routes and about markets. Some pastoralists are involved in insurance schemes according to satellite-based assessment of vegetative cover.

We examine evidence of how African pastoralists are adapting to change and explore the question: which forms of modern technology make food production sustainable in the drylands?

Keywords: Food security, landuse, modernisation, natural resource management, nonrenewable resources, pastoralism, sustainability, technology

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