

Integrity of indigenous knowledge systems in natural resource management: the case of the arid and semi-arid Baringo herders of Kenya

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Introduction Ineffective management of natural resources in arid and semi-arid lands (ASALs), resulting in resource depletion, rapid loss of biodiversity and environmental degradation, is of great concern globally. The Baringo herders in the ASALs of Kenya have been branded as perpetrators of this vice, with the blame placed particularly on their traditional livestock management, utilising indigenous knowledge systems (IKS). These IKS involve livestock mobility and maximisation, and have been regarded as being outdated and inefficient in meeting the challenges and demands for environmental conservation and sustainable management of the natural resources. A common reaction of the government has been to advocate modern interventions that are based on exogenous knowledge systems (EKS), involving sedentary livestock raising and destocking. These EKS are, however, not performing as well as expected, since they are not adapted to the ASALs ecological conditions and the herders' socio-economic and cultural situations (Aboud *et al* 1997; Makenzi, 2003). This study empirically explored the above propositions, in order to test the integrity of the IKS, in relation to EKS and the herders' levels of education.

Materials and methods An *ex post facto* study in the form of a sociological survey was used to interview 300 randomly sampled herders in six administrative divisions of Baringo District. A structured questionnaire was completed with household heads, soliciting empirical information to assess the influences of the two knowledge systems (individually and in combination), on the levels of natural resource management (NRM) efforts and relationships with the educational levels of the herders. Multiple regression analysis was used to determine the influences, as indicated by the beta regression coefficient (β) values.

Results As shown in the relationship path model (Figure 1), the strongest influence on the levels of NRM was from the use of both IKS and EKS in combination ($\beta=0.43$), while the weakest was from the use ITK only ($\beta=0.09$). This latter effect was not statistically significant. Educational levels seemed to exert a strong direct influence on the levels of NRM ($\beta=0.33$), which increased significantly when the influence was indirect, through the use of ETK only ($\beta=0.41$), and through use of both ITK and ETK ($\beta=0.43$).

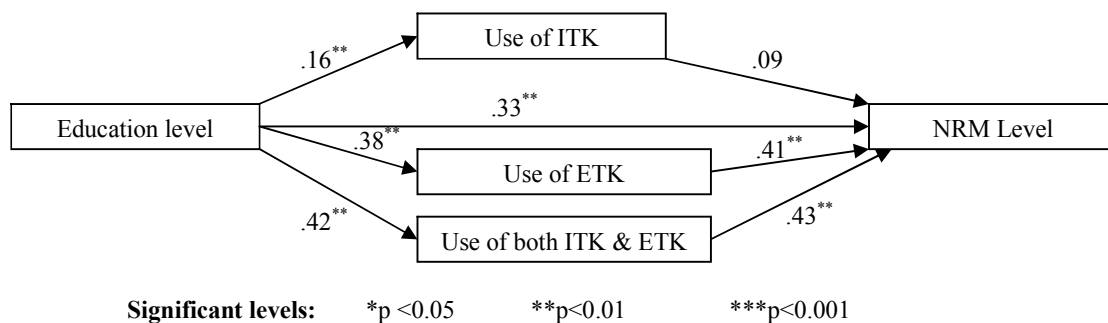


Figure 1 Relationship path model showing regression coefficients, beta (β)

Conclusions These results support the proposition that use of modern, scientific ETK enhances the level of NRM and production, but the influence will be even greater if the ETK is used in combination with the IKS. However, to ensure high levels of NRM levels among the herders, the educational levels need to be high. Hence, educating the operators and managers of the natural resources, in this case, the herders and extension agents, is basic to effective NRM and improved livestock production and conservation.

References

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