Sustainable management of natural resources in Kenya and Tanzania: A gender approach

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Abstract

In the frame of the research reciprocal effects between the encouragement of gender issues and measures for a sustainable management and conservation of natural resources have been resp. will be examined by means of selected rural smallholdings within four project areas in Kenya and Tanzania – hereby focussing on ‚successful' female farmers, applying an approach as interdisciplinary and integral as possible. Apart from the fact that ecological conditions as well as socio-economic living conditions have been stabilized and improved through different activities, the analysis of first investigations shows that these smallholders are functioning as motors and important knowledge careers. Consequently, an intensified encouragement of ‚successful' female farmers will support the implementation and dissemination of project measures. Furthermore, the same effects are to be expected through an enhanced integration of ‚open-minded' male farmers in project activities. Additionally, their participation will lead to the enhancement of the empowerment of rural female farmers and thus to gender equality.

Keywords: Gender; sustainability; natural resources; East-Africa

Background

In the face of the depletion of natural resources through human activities and simultaneous a constantly increasing demand for land in the East-African countries Kenya and Tanzania strategies have

Eroded landscape around Mt. Meru, Tanzania

to be worked out and operationalized to solve this urgent problem (BARROW, 1996; MUGABE & CLARK, 1998). Within this context, gender aspects play a significant role: The decrease of natural resources shows dramatic consequences mainly for female smallholders, as it is predominantly them being in charge of the production of subsistence crops, whereas the male small-scale farmers are mainly engaged in cash crop cultivation. Development projects commonly overlooked these different land-use practices with the effect that agricultural inputs and resources often only reached the male and not the female farmers. The participation of female farmers renders more difficult in view of the fact that they almost do not dispose of capital and time as well as they only have limited or no access to land. Moreover, they are often subject to socio-cultural restrictions (BRYCESON, 1995; WILLIAMS, 1996; BLUME, 1998, 2000; FAO, 1998).

Women wielding the hoe in Kenya

Still, these gender-related aspects are not addressed appropriately within project approaches. Their neglection is one of the bottlenecks for a sustainable resource management on the local level. Over and above that, not taking the above named aspects into consideration causes far-reaching consequences – in the end for the well-being of the whole global community and natural environment.

Aims and objectives

In the frame of the research reciprocal effects between the encouragement of gender issues and measures for a sustainable management of natural resources in four projects in Tanzania and Kenya shall be exa-

mined by means of selected rural (female-headed) smallholdings. The aim is to

- list, compare and rate the different strategies/techniques (biological and physical soil conservation measures, water- & energy management, agricultural aspects, etc.) with regard to **potentials and problems**,
- evaluate the **effects of the conservation activities** on the socio-economic living conditions of the smallholder families (and their environment),
- investigate the **'spin-off'/'trickle-down-effects**' of the 'successful' female farmers on their socio-economic and ecological environment,
- evolve a **catalogue/guideline** for the improvement of existing concepts resp. for the implementation of new projects,
- contribute to **knowledge exchange and -dissemination** and
- contribute to **new approaches of field-research**.

Methods and materials

(On-farm-)research is to be carried out within two project areas in Tanzania and two project areas in Kenya). In total 24 rural smallholdings shall be analysed (six farms in each project area). The selection criteria for the households in each project area are

- location in a high/mid potential area (three households) and in a low potential area (three households),
- implementation of measures with distinct positive ecological (and economical) effects,
- the women should be in contact with a women's or/and a mixed group,
- at least one household per zone/area should be female-headed.

Data have been resp. will be obtained through applying the method of **action research/participating observation** during a stay of 4 - 7 days on each farm, using a **question guideline**. Furthermore, basic data have been resp. will be collected through making **drafts** from each farm.

Moreover, interviews shall be conducted with **experts** from different organizations and institutions by means of a **questionnaire**.

The research comprises a **combined analysis across three levels/scales**: Local, regional and international level/scale. One of the key concerns of this study is a careful consideration of different socio-cultural, economical, ecological and political aspects, and of the linkages between these inter-related aspects (see Fig. 1).

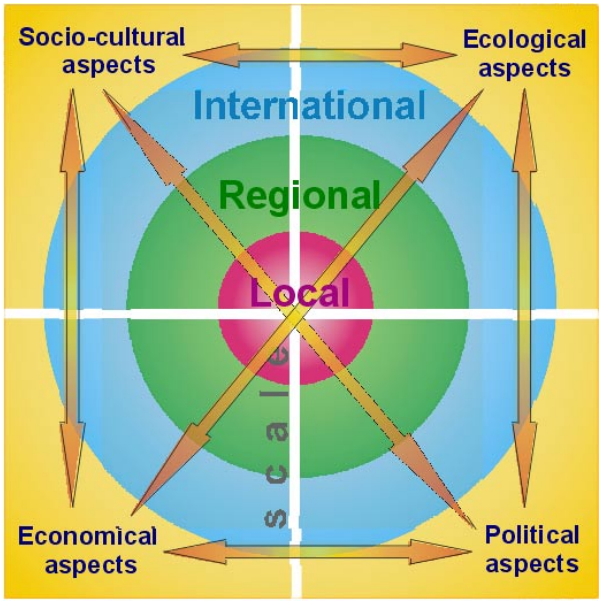

Fig. 1: Overview concerning methodical aspects and levels of a gender-based farm-analysis with regard to sustainable resource management in Kenya and Tanzania

Some results concerning ecological and socio-economic aspects

The analysis of the first field research (investigations in 12 rural smallholdings in two project areas in Machakos District, Kenya and Arumeru District, Tanzania) shows that ecological as well as socio-economic conditions have been stabilized and improved through different techniques. In this connection, the degree of the improvement is correlated to the interaction of different factors like e.g. climate, financial and time (→ labour) resources; the last named factors are in turn related to the marital status, etc. (see also Fig. 3).

- **Ecological conditions → soil erosion:** Due to the implementation of several soil conservation measures partly severe soil erosion phenomena like deep gullies stated on nine farms in both low and high/ medium potential areas in both countries have been solved (on five farms) respectively reduced (on four farms) to an extent of less than 5 % of the land under cultivation. The different activities carried out are

demonstrated in Fig. 2. The absence of soil conservation measures (except retention/infiltration ditches) on farm 3T-l has to be put down to the inclination – the farm area is absolutely flat – and not to unfavourable socio-economic conditions (see Fig. 3). This example shows the neccessity of taking all factors into account.

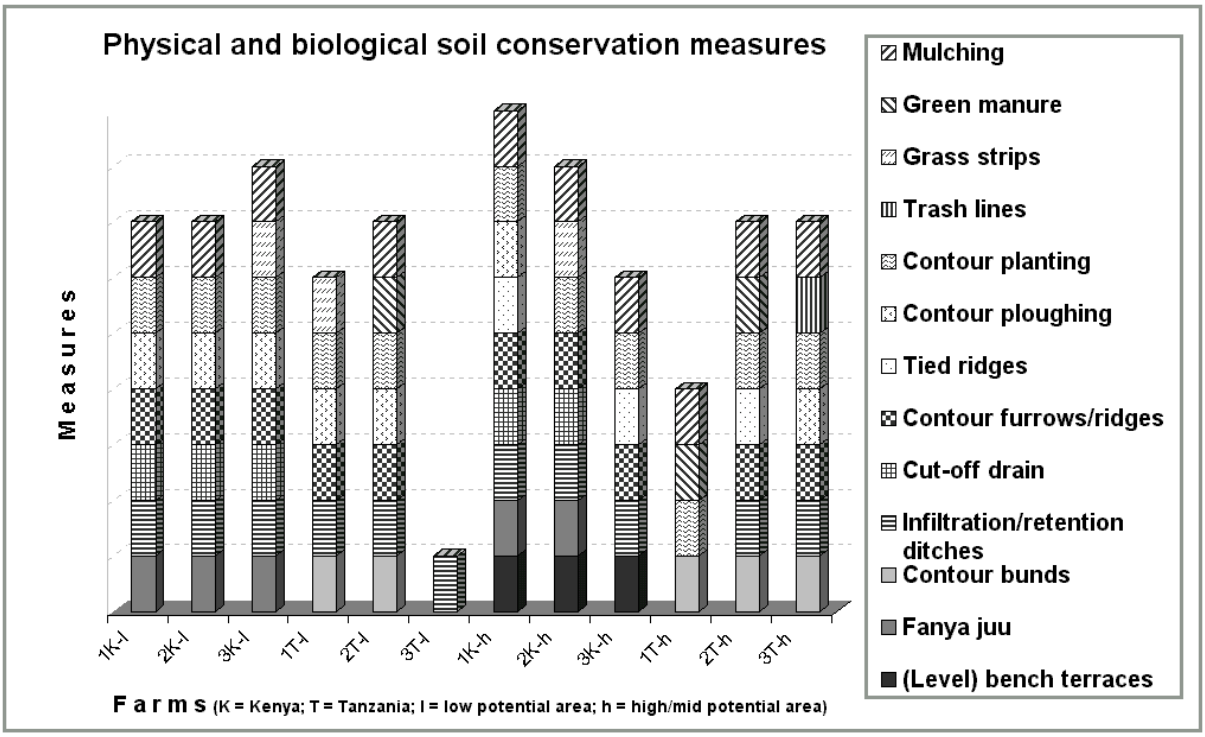

Fig. 2: Physical and biological soil conservation measures implemented

- **Fuelwood supply:** 11 households use fuelwood deriving from their own farms, whereby eight households can rely on their own firewood. Hereby, the degree of self-reliance can – amongst other factors – be connected with the use of improved cooking stoves: three of the four farmers who additionally have to collect/buy firewood still use the traditional stove (three stones); seven farmers use an improved cooking stove (see Fig. 3).
- **Water availability:** Seven farmers out of ten who were suffering from water shortages have constructed a watertank.
- **Food security:** Six households – amongst them all farms in the high potential areas in Tanzania – don't have food/fodder shortages at all, three household face irregular shortages in exceptional situations like in the years 1997/'98 with heavy rains, followed by a drought. Three

farmers who are suffering from regular food/fodder shortages are singles; additionally, the farmers are affected by severe delays resp. the complete failure of especially the short rains.

Fig. 3 shows the ranking of different aspects with regard to the farmers. It is obvious that the women with in total the most unfavourable conditions are the ones without a husband, living under unstable ecological conditions (also farmer 2K-h, due to the changing of rainfall patterns).

Subject \ Farms	1K -l	2K -l	3K -l	1T -l	2T -l	3T -l	1K -h	2K -h	3K -h	1T -h	2T -h	3T -h
Land / family-size - relation	4	2	4	2	3	1	4	2	4	3	4	4
Cattle	3	2	3	2	3	3	4	1	2	3	2	4
Income	2	3	4	1	2	1	4	2	3	3	1	4
State of land (soil erosion)	3	3	2	2	4	3	4	2	3	4	4	3
Food/fodder supply	2	4	4	1	4	1	4	1	2	4	4	4
Fuelwood supply (own)	4	2	4	4	4	0	4	4	4	2	4	2
Improved cooking stove	0	4	4	4	4	0	4	4	4	0	0	0
Water supply	3	3	3	2	2	2	3	2	3	4	4	3
Labour support (family)	3	2	4	3	3	2	4	1	1	1	1	3
Support through husband*	3	4	4	0	4	0	4	0	0	4	0	3
Labourers	3	3	4	0	0	0	4	0	2	0	3	4
Women's group – position**	4	3	4	2	4	4	4	3	4	4	3	4
Mixed group – position**	0	0	0	2	0	0	0	0	0	0	2	4
Church group – position**	2	4	4	0	3	2	4	4	2	4	2	2
Education – school***	4	4	4	2	2	2	2	4	3	2	2	2
Vocational training	0	4	4	0	0	0	0	4	4	4	0	0

Legend:

not/none	0
bad/low/few	1
sufficient/standard	2
good	3
very good/high number	4

K = Kenya; **T =** Tanzania; **l =** low potential area
h = high/mid potential area

* money and/or labour: No = **0**; little, unregularly = **1**; sufficient = **2**; good = **3**; very good = **4**

** No = **0**; member **= 2**; secretary, treasurer **= 3**; chairlady = **4**

*** None **= 0**; primary partly = **1**; primary = **2**; secon-dary partly = **3**; secondary = **4**

Fig.3: Ranking with regard to different aspects

Furthermore, ‚successful' female smallholders are functioning as important **knowledge careers** and **motors** within the context of the management and conservation of natural resources; other positive trickle-

down effects on their social surrounding (group members, relatives, friends, neighbours) through various activities have been ascertained:

- **Taking responsibility** within women's groups (two are members, three are holding a position as a secretary, seven are chairladies), church groups (five are members, one is a secretary, and five are chairladies) or mixed groups (three women). Some women are even engaged in several different women's groups.
- **Offering help** in form of **financial support** (e.g. through *harambee* = self-help), **food/fodder, tools**, **seeds**, **seedlings**, **(fuel)wood**, **land** (e.g. for group activities or for **grazing** cattle), **place to stay** for single women with their children.
- **Medical treatment (herbal medicine)**: Some of the women (and their husbands, too) are known as traditional ‚healers'; most of the clients are single women.
- **Knowledge dissemination**, which means not only teaching group-members about methods within the context of sustainable resource management (tree plantings, terracing, organic farming, lifestock keeping, foddergrasses/-plants, traditional food and medical plants, organic farming, construction of improved cooking stoves and water tanks, etc.), but friends, relatives and neighbours, too. Some even receive study tours and are engaged in knowledge exchange with farmers as well as people from different organisations and institutions from other regions, countries and even from oversea.
- Some are working as **adult teachers**, teaching e.g. writing and reading (traditional language, Kisuaheli and English) but also other subjects like home economics, handicraft, health care, etc.

Recommendations concerning physical and biological measures

- **Awareness-creation** with regard to and intensified **propagation of indigenous trees and shrubs** (e.g. *Sesbania sesban*): On the farms, exotic tree/shrub species are planted almost twice as much as indigenous ones, and the exotic tree *Grevillea robusta* is the only tree found on every farm with additionally a relative high number of individuals.

Meanwhile, it is widely accepted, that many fast-growing, exotic tree species are likely to be short-lived within the development context (DE GROOT et. al. 1992), especially with regard to negative side-effects (high water requirement, allelopathy, etc.) like known from different exotic tree species (e.g. *Eucalyptus ssp.* or *Cupressus lusitanica*) or the decrease of indigenous species, leading to an impoverishment of biodiversity (BARROW 1996, WIEGARD & JUTZI 1998).

It turned out that medical purposes are besides firewood the most important use aspect of indigenous trees/shrubs. From the twelve female farmers visited ten have a partly profound knowledge concerning local medical plants. The widespread knowledge and use of herbal medicine serves the benefit that people don't have to rely on expensive modern medical treatments; consequently, their propagation supports the self-relience of the communities within the sector of health care. Where dispensaries and/or hospitals are out of reach for the population, herbal medicine is the only available source for achieving treatments. Over and above that, medicine made from herbs and plants has no side-effects. Additionally, many plants form an important contribution in the frame of veterinary treatment (KOKWARO 1993, MUGABE & CLARK, 1998).

- Support of **group and on-farm tree management/nurseries**.
- Intensification of awareness-creation with regard to methods in the field of **organic farming** as it is cost saving & environmental friendly, especially increased propagation of **mixed cropping** and **green manuring** as well as improvement of **composting** (only one farmer in Tanzania propagates the utilization of organic manure only).
- Intensed propagation of **foddergrasses/-plants,** especially in the Kenyan project area.
- Intensed propagation of **traditional food crops**.
- Intensification of the implementation of **water harvesting methods** (three farmers suffering from water shortages don't have a watertank).
- Intensification of the introduction of **improved cooking stoves** (five farmers still use the traditional stove).

Conclusions and outlook

Further investigations will be carried out concerning the thesis, based on this study, that

Women and men in a group-meeting in Kenya

- **‚successful' female farmers** are holding a key position within the context of knowledge dissemination concerning a sustainable natural resources management. It is to be expected that an intensified encouragement of these farmers will lead to an enhanced implementation of project measures and thus to an improvement of the environment and the living conditions - not only of the respective families but through ‚multiplicator-effects' (e.g. group activities) of the whole community (BLUME 2000).

- an intensified encouragement and integration of **‚open-minded' men** → e.g. in gender trainings will lead to the enhancement of a successful implementation of soil conservation measures. Additionally, their participation will support the empowerment of women through creating gender awareness and a basis for gender equality.

Both sexes have to be addressed and involved in projects through appropriate project concepts and their translation into action (workshops, seminars, trainings, etc.), if an actual success of measures in the frame of the conservation and sustainable management of natural resources shall be achieved.

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