

Agriculture and Education: Agricultural Education as an Adaptation to Food Insecurity in Malawi

Steven Engler^{1,*}, Michael M. Kretzer²

¹Institute for Advanced Study in the Humanities, 45359 Essen, Germany

²Center for international Development and Environmental Research, 35390 Gießen, Germany

*Corresponding Authors: Steven.Engler@kwi-nrw.de

Copyright © 2014 Horizon Research Publishing All rights reserved.

Abstract This paper deals with the education system of Malawi with a specific focus on agriculture courses. The role of agricultural education as a form of adaptation to food insecurity will be the underlying basis for this publication. Historical backgrounds will underline the significance of agricultural training to avoid food insecurity. The nutritional condition of learners has a significant influence on their educational performance, just as well as the general circumstances influence individual education in Malawi. Many obstacles like insufficient material, untrained or hardly trained teachers, management at schools, teacher-learner ratio and many others issues hardly enable a meaningful education in Malawi. Therefore, this paper enriches the debate on early child education and future food security.

Keywords Malawi, Food Insecurity, Resilience, Agriculture, Education System

1. Introduction

The world food problem is one of the greatest challenges for mankind. According to the “Food and Agricultural Organization of the United Nations” [1], the “World Food Programme” (WFP), the “International Fund for Agricultural Development” (IFAD) and the Global Hunger Index [12] around 850 million people were undernourished globally in 2013 [2,3]. Even though the numbers show a slightly declining trend since 2010, almost 1/8 of the global population still faces hunger. In developing countries the problem is even more severe with 14.9% of the population being undernourished. In Sub-Saharan Africa 26.8% of the people suffer from chronic malnutrition [2].

In regions with reoccurring famines, food security is one of the ultimate goals for the population. According to the World Summit on Food Security [4], food security “exists when all people, at all times, have physical, social and

economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. The four pillars of food security are availability, access, utilization and stability. The nutritional dimension is integral to the concept of food security”.

While the terms availability and access are self-explanatory, utilization and stability need further clarification. Utilization

“is commonly understood as the way the body makes the most of various nutrients in the food. Sufficient energy and nutrient intake by individuals is the result of good care and feeding practices, food preparation, diversity of the diet and intra-household distribution of food. Combined with good biological utilization of food consumed, this determines the nutritional status of individuals” [5].

Stability refers to the other three dimension of food security. Therefore, food security only exists if availability, access and utilization are assured over a certain time [5]. In addition to the general “guidelines” of the FAO we have suggested to include the concepts of (1) vulnerability and (2) resilience into the debate on food security [6] because they provide an opportunity for a holistic analysis.

(1) The “Intergovernmental Panel on Climate Change” [7], defines vulnerability

“as the propensity or predisposition to be adversely affected. Such predisposition constitutes an internal characteristic of the affected element. In the field of disaster risk, this includes the characteristics of a person or group and their situation that influences their capacity to anticipate, cope with, resist, and recover from the adverse effects of physical events”.

Further “Vulnerability is a result of diverse historical, social, economic, political, cultural, institutional, natural resource, and environmental conditions and processes” [7]. According to Engler [6,8,9] and Engler et al. [10] education is one of the most significant factors in the vulnerability debate on food insecurity and famine.

(2) In contrast to vulnerability, the resilience concept

focuses more on the capacities to react of the affected people. According to Füssel [11] “resilience focuses on the ability of the system to maintain its basic functions and return to the original state after a perturbation”. In the context of food (in)security the Global Hunger Index [12] divides the resilient concept into three sub-phases: the absorptive, the adaptive and the transformative capacities [12, p.21]. The three sub-phases differ because of different impact intensities, different response intensities and due to a time factor. That means absorptive/coping capacities are rather related to short term actions, while the transformative capacities are related to long-term changes. Thus, transformative capacity describes a process in which a (food) system will be completely reformed. The authors perceive changes in the education system and in the curriculum in the direction of agricultural school subjects as a transformative way in reaching the goal of long-term food security.

Therefore, this paper entirely emphasis on this aspect of food security. The remainder is organised as follows: The methodology will follow in section two. In section three of this paper the authors describe and analyse the history of food insecurity and famine in Malawi. Section four focuses on the education system and its changes in the direction of agricultural school commitments. The paper ends with conclusions.

2. Methodology

The foundation of this article is an intensive literature review and document analysis of curricula and policy documents. Above that a short field study was conducted in Mzimba district in the Northern region of Malawi in July 2014. The main aim of this trip was to undertake semi-structured interviews with secondary school teachers and curriculum advisors from the Department of Education [13]. Therefore an interview-guide was developed. The questions asked covered the general education situation and the specific situation for the subject agriculture.. Additionally, the classrooms were observed and, where existent, also the school gardens. The interview with the Senior Education Methods Advisor was conducted at Mzuzu University campus. All interviews were done by the authors..As all interviews were done in one region and with secondary school teachers, the results of these interviews cannot be seen as representative for Malawi as a whole. This is rather a case study of Mzimba District, which reflects the situation at the selected schools within this district.

3. Historical Background of Food Insecurity and Famines in Malawi

Food insecurity is (unfortunately) a reoccurring facet of Malawi’s agricultural history. Repeatedly, the maize harvest has been directly or indirectly connected to food insecurity

and (sometimes) to subsequent famines¹. In the rural framework the effective production of maize and thus a sufficient food availability and access (for more information on food availability and access see Sen [14]) is also heavily bound to rainfall patterns due to various reasons, such as a lack of irrigation technologies, market disintegration, etc. [16]. Even though the overall number of famine or food insecurity-affected people in Malawi is not very high (related to the small population of Malawi), it is a relevant aspect of everyday life. Malawi’s economy is shaped by its primary sector. Thus, the agricultural cycle heavily influences all social and cultural spheres [17].

Malawi has been struck by famine periodically. However, some of the famine and food insecurity incidents stand out, namely the Nyasaland famine of 1863, 1918-1924, 1949 and the recent famines in Malawi (e.g. 2002). For example, in 1949 a severe drought led to a famine that is still the subject of stories told in Malawi. In her book “The story of an African famine”, Vaughan [18] shows that during the important rainfall season between November 1948 and March 1949 the amount of rainfall was reduced by half compared to average years. In January 1949 there was no rainfall at all in some regions.

Makolo munapita [Our dead fathers]
 Tatani ife wanu wanu? [What have we done?]
 Tikhulukireni chonde! chonde!
 [Forgive us, please, please!]
 Timvereni ife chifundo [Have mercy on us,]
 Kodi mukufuna tife? [Do you want us to die?]
 Tinizani mvula [Please, send us rain.]
 Song sung to call for rain [18]

However, declining or lacking rainfall was only one driver in 1949. Failing markets and distribution problems also contributed to the severe situation. In 2002, for example, Malawi was hit by a famine caused by “production failure, information constraints, a depleted food reserve, import bottlenecks, unaffordable high food prices” [19]. Even though the mortality rate was low and just between 1000 and 3000 people, the impact on society was significant [19]. For example, malnutrition rates of children and elderly were very high.

Since 2002, Malawi’s food security is often being described as “favourable” [20,21]. However, in 2005 and 2012 Malawi again faced major food crises, which affected numerous people. Due to humanitarian assistance (food aid and financial transfer), political changes, etc. the death rate still remained relatively low.

One aspect that could transfer Malawi into a country with higher food security in the long run may be connected to a change in educational training.

4. Obstacles for the Education System

¹ “An extreme scarcity of food or a drop in exchange entitlements in a certain region over a multi-year period that threatens the way of life of the already-vulnerable resident population and frequently leads to a higher mortality rate”. [8]

As it was said in the previous sections and as Makombe et al. [16] predict in their policy paper on Malawi, higher education or extended agricultural training in school increases food security. Firstly, it is necessary to have an overall brief look at the general structure of the recent Malawian education system. Malawi uses an 8-4-4 pattern of education, whereby the primary level itself is divided again into three sublevels (infant, junior and senior) and the secondary level as well into two (junior and senior). After eight years of primary education the passing of the Primary School Leaving Certificate Examination (PSLCE) allows the student to enrol at secondary schools. As Malawi consists of a very young population (roughly 60% are under 19 years) [15] and the majority of learners never attend secondary school, this chapter highlights mainly primary school and thereafter gives an overview of the following education levels. Up to today, roughly 40% of the Malawian population are within school-age, which is the highest percentage in whole southern Africa [15]. In 1875 the first primary school was opened by the Free Church of Scotland in Cape Maclear in Southern Malawi. At the beginning of the Malawian education system, like elsewhere in Africa, the main focus was on literacy so that the population was able to read (e.g. the bible) and write. It took up to 1940 until secondary education was introduced with the establishment of Blantyre Secondary School. With the opening of the University of Malawi in 1965 the tertiary sector of education was introduced. From 1988 onwards, a quota system ensured that an equal number of students from each district of Malawi was guaranteed access. Through a high court decision this quota selection system was overturned, and just shortly from 2009 till 2012 again implemented, until it was finally abolished [23]. Until today the two Malawian universities cannot accommodate the demand so that less than 50% of potential students can enroll. This affects Malawi's whole future economic potential because a more qualified workforce could be available. Apart from the two universities mentioned above there are a few colleges in Malawi, too. The Bunda College of Agriculture in Blantyre is so far the only one specialized in agriculture. Overall there is a very huge decrease in enrolment for the subject of agriculture at tertiary level, so that less than 400 students are currently enrolled in Malawi [24].

“For historical reasons, educational attainment also varies by region, with higher levels continuing to be evident in the North, where missionaries initially established formal schooling in the late 19th century” [24].

There have been major educational challenges and policy initiatives since the democratic elections of 1994. The Policy and Investment Framework (PIF) of January 2001 summarized the key political initiatives and aims of the Malawian education system. [25]

Within the Constitution of Malawi under Chapter IV, Section 25 the right to education is mentioned, whereby “primary education shall consist of at least five years of education” (Constitution of Malawi 1998). After the

Jomtien World Conference on Education in 1990, the Dakar Convention on education (1991) and the Ouagadougou Conference on education (1993) Malawi was one of the first countries in Africa to respond to the “Education For All” (EFA) call. Thus, in 1994 Malawi introduced the Free Primary Education (FPE)², which led to an immense increase in the enrolment (of around 60% from 1,9 million to 2,9 million learners), because the winning United Democratic Front (UDF) had no specific plan how to abolish school fees and abolished them all with the start of the new school year³. The consequence was that there were only four months to plan the implementation of FPE after the election. All in all it was a pure political decision, especially with regard to the implementation of FPE and promises made by the government; the UDF government was under pressure to fulfil these provisions. In this context, the introduction of FPE brought immediate political gains and one of the electoral pledges, even the most visible (and easy) one was fulfilled [27]. The above mentioned sharp increase in enrolment rates had dramatic consequences. Even though the government tried to anticipate the increase with the recruitment of approximately 20.000 untrained teachers, the whole situation remained chaotic.

“[The government] gave them a semblance of initial orientation, and deployed them to schools. But the system was clearly overwhelmed. Class sizes swelled into the hundreds. That first year of FPE, and for several years afterwards, it was common to see football pitches covered with hundreds of students sitting in rows, ostensibly attending school” [28].

The Malawian government tried to meet this increasing demand fast and at low costs, which is why they introduced the Malawi Integrated In-service Teacher Education Programme (MIITEP). The aim of MIITEP was to address secondary school leavers and train them with a mixed-mode college and a school-based programme over a 24 months period, while they already taught at school [29].

“The paradox, however, in Malawi is that illiteracy has been decreasing over the years but only in percentage terms. It has been steadily worsening in absolute terms” [30].

As a consequence, the education system faced significant challenges to ensure a meaningful education with regards to teacher supply and training, classroom size, classroom materials, general infrastructure (buildings, sanitation etc.) and the overall quality of teaching. All these factors contribute to the generally poor performance of the Malawian education system. Even the government spending on education amounts to a very high proportion of the overall budget. Just around 10% of it is spent on refurbishment of physical conditions of the schools, whereby 90% is used for paying remuneration for teachers

2 The introduction of FPE in Malawi was also seen as the most visible and important change to reflect the democratization process in Post-Banda Malawi [26]

3 The Malawi Congress Party (MCP), which had been ruling before, preferred a phased approach to abolish school fees step by step to be able to train enough teachers for the increasing demand.

[31]. To face this impressive increase in enrollment the Malawian government implemented an integrated in-service teacher education programme (MIITEP) through which around 18,000 teachers were trained [33]. The high teacher demand is furthermore challenged by a high attrition rate of around 10% due to teacher resignation, death (mainly through HIV/AIDS) or a transfer of teachers to non-teaching posts [31]4. This was also highlighted during the interviews as one of the main challenges for the future. There are many young teachers at Malawian schools at the moment, but many of them are not staying very long within the education system. They rather use their current teaching post as a stepping-stone towards some other employment opportunity.

“The education system in Malawi is still under tremendous pressure to accommodate the greater number of pupils and to provide appropriate resources.” [34].

In order to improve the situation the Ministry of Education, Science and Technology (MoEST) introduced the Draft National School Textbook policy in 2006 with the aim to give every learner one textbook for each core subject. A study from the SACMEQ about the quality of education in Malawi evaluated the implementation of that policy next to other indicators for quality education. In 2007, just 24% had sole use of a mathematics textbook in grade 6, whereby in 2000 the percentage was considerably higher with 57%. In comparison, in the other SACMEQ countries the percentage was with 41% significantly higher [35]. All in all in 2008 around 30 learners shared a text book in mathematics and even up to 200 learners shared a text book in science or agriculture [33]. The situation at the researched schools was much better as described above. In the main subjects (e.g. English and Mathematics) two to four learners shared a textbook and in agriculture around ten learners were sharing a textbook. As in nearly all African education systems there is a gap between the urban and rural areas. Although the enrollment for primary education has been successfully increased in Malawi, the enrollment for secondary schools is very low (around 17% of an age cohort) and out of this small number just around 30% pass the Malawi School Certificate of Education (MSCE). Even though the largest increases were in the disadvantaged rural areas, the rural/urban, income and gender disparities could still not be eliminated [36,37]. Therefore, the main aim of the MoEST is to improve the access, quality, equity, relevance and efficiency of the education system. This highlights the high challenges the Malawian education system faces [34]. Additionally, a huge percentage of learners are overage due to a delayed school enrollment. In this context a UNESCO [38] report states critically:

“In Malawi 91% of children have been in school at some time, but only 31% reach grade 5. [...] In other words, the education system often connects with the child but not at

the intended age or for the intended duration.” [38].

Other studies also underlined the close connection between the nutritional situation of a household and the school performance. Improving the nutrition of young children would have a significant effect on the output of the Malawian education system, because it “would improve school readiness, lower the age of enrolment, and possibly improve learning” [37]. The same effect is imaginable vice versa.

To improve the outcomes of the education system the MoEST has developed the National Education Sector Plan (2007 – 2016) with a specific focus on the improvement of infrastructure, supply of teaching and learning materials, capacity building and management reforms [39]. As the Malawian government sees education as a catalyst for socio-economic development and for empowering the poor, it is essential for the MoEST to guarantee a meaningful education. Therefore, education is said to have eight main goals whereby practical skills are among these. Furthermore, one aim of the learning area social science is to “create in the learner an awareness of the dependence of Malawi’s economy on agriculture”. Hereinafter the curriculum mentions more details for the primary school syllabus. Under the heading ‘economic development and environmental management’ skills the learner should:

- 21. Develop a positive attitude towards manual work
- 24. Understand the role of agriculture in Malawi’s economy
- 30. Develop an awareness of the dangers of environmental degradation
- 31. Use various methods for conserving Malawi’s natural resources
- 32. Acquire appropriate practices on environmental resource utilization and management [39].

As mentioned earlier Malawi’s economy depends highly on agriculture. From July until December are the months with the main agricultural activity. Until 1994 the school year started in September, but with the new FPE approach the democratic government changed it to last from January until the beginning of November. The reason for that was to combine school activities with other daily (e.g. agricultural) duties of the pupils in order to reduce drop-out rates and high absenteeism quotes. Unfortunately, since 2009 the school year has been starting again in September. Many reasons motivated the government to take this decision. Firstly, the drought, which was one of the main drivers behind the change, was no longer prevalent. Secondly, the school calendar is now in line with the government’s financial year. Thirdly, and maybe most importantly, the parents are able to pay school fees or other school-related costs due to their selling of agricultural goods during that time. Nevertheless, in the majority of SADC countries the school year starts in January [35]. With the Primary Curriculum and Assessment Reform (PCAR) a new curriculum was introduced by 2003. In the infant phase (Grade 1 – 3) it names four learning areas: literacy, numeracy, social and natural sciences and expressive arts.

4 Within the National Education Sector Plan the MoEST wants to reduce it to 5% until 2016 [32]

From the 1st of September 2014 the Secondary School Curriculum and Assessment Review (SSCAR) will be implemented. It will introduce eight learning areas: Four Science subjects (Mathematics, Physics, Chemistry and Biology), two Language subjects (Chichewa and English) and two Humanities subjects (History and Geography) as compulsory subjects. Additionally to these compulsory subjects there are plenty of non-compulsory courses. During the interviews all teachers expressed their disappointment about the fact that agriculture still is not given a compulsory status. All teachers interviewed mentioned that this is affecting the subject of agriculture very significantly, as students tend to concentrate more on their compulsory subjects. Additionally, the Senior Education Method Advisor underlined that the actual implementation of policies in the education system in Malawi represents the main obstacle. Hence, many schools may have school gardens, but sometimes they are used as personal gardens or are not taken care of at all. Therefore, he mentioned that more supervisors were necessary to improve the situation. In general, he criticized that the main focus within the Malawian education system was on passing rates. Contrary, it would be much more helpful to focus on how to put the acquired knowledge into practice. Earlier research from Ogunniyi in 1986 already highlighted the fact, that the achievement levels of science in many African countries are generally very low [40]. One of the main reasons for this situation is seen as being the dissonance between the way of teaching science as stated in many African curricula and traditional ways of learning rooted in the students, parents and a majority of teachers [41]. Regarding literacy, next to English and Chichewa, the dominant language in Malawi, local languages are also included⁵. In this context it is important to emphasize that language attitude and real daily language practice highly affects the implementation of language policy in Malawi and many other African countries [42]. Many authors have pointed out that the language of instruction is a very crucial variable affecting the achievement levels in science [Barngbose 1984, Eiselen 2002] as language is not just a pure instrument of communication but also helps with regard to the conceptualization of ideas and experiments. This language barrier was also seen as a major problem by the interviewed teachers, as the students must first master an alien language and then try to understand the content of the specific subject. It also affects the transfer of knowledge or access to important information which can be essential for agricultural cultivation. Within the learning areas social and natural science agriculture and environmental issues are included side by side with many others like health education, gender issues or HIV/AIDS. In the following phases (Junior and Senior) no major changes occur, apart from the fact that agriculture as part of the learning area

science, technology and agriculture gets a higher proportion of the lessons per week [45]. One of the main practical activities in the learning area agriculture is the establishment of a vegetable garden at school premises. So the main outcome was to improve the practical knowledge about basic gardening in general and on how to garden vegetables in specific. In this context Mbewe [46] criticized that no skills were conveyed on how to cultivate maize gardens or other crop foods for example (p. 324).

In July 2008, the Ministry of Agriculture and Food Security (MoAFS) also mentioned the high importance and reciprocal relations between education and agriculture in general or food security in specific in its Agricultural Development Programme (ADP). In this context the MoAFS [47] highlights the importance of school gardens within the education system to improve nutrition security for Malawi in the future. The teaching of agriculture as a learning area or agricultural aspects within other learning areas also offers a lot of other opportunities for Malawian pupils. Within an educational setting they can also learn an ecologically sustainable way of agricultural production. As some of the famines showed, it is an interplay of the very widespread challenges of poverty, hunger, general lack of infrastructure, quality (and quantity) of the education system and environmental degradation, which has in total a significant effect on agricultural production. Since 1994 the focus has been much more on EFA and therefore on the pure enrolment rates, especially for lower grades at primary schools, and to a lesser extent on quality and meaningful education or the question whether education corresponds to citizens' needs.

“Many households face chronic food shortages and coping with food insecurity is the main priority for these households. In this situation, education is likely to rank low on the list of their immediate needs and priorities” [36].

Together with more open and learner-centered pedagogy especially the teaching of agricultural aspects has a huge potential to overcome above mentioned obstacles. As mentioned earlier, Malawi is an agriculturally shaped country, so that a focus on teaching agriculture connects school with the everyday life of the pupils in rural areas. This leads to a higher involvement and commitment of pupils and their parents and a kind of ownership of the educational process.

“Rather than teaching Western science [...] exclusively for the purpose of passing an exam, the Malawian educators in this project were immersed in writing and teaching lessons designed to engage children in learning Western science concepts within authentic contexts that connected to everyday life in the villages” [48].

The aim of this approach is to teach interdisciplinary so that literacy and numeracy can also be taught with this agricultural connection to everyday life. This can help to increase the number of students passing the PSLCE, who then can be enrolled at secondary schools to meet the increasing demand of skilled labour within the Malawian

⁵ Malawi has 16 languages, whereby three are used in the Malawian education system (English, Chichewa and (Chi)tumbuka). They represent the majority of speakers in Malawi. (Chi)yao with more than 2 million speakers is the only widely spoken language, which is not used at all in the Malawian education system [32]

labour market. If pupils see the benefit of high competencies in literacy and numeracy for their daily life then they are willing to put more effort into it [46]. A more learner-centred education can help improve the outcome of the Malawian education system and can be useful to develop a knowledge-based society which is not dependent only on its agricultural base. This would also increase food security by generating higher agricultural productivity with fewer workforces [50].

“[F]arming is inversely correlated with the level of education. 78 percent of active illiterates are farmers, against 10 percent of the active individuals holding a higher education degree. This underlines the role of education when implementing exit strategies from the agricultural sector” [33]

Different research, especially about local (rural) attitudes towards education, showed clearly a lot of scepticism in different societal spheres and different regions in Malawi [34]. Neither the parents or the community nor children saw any reason or material benefit in attending primary or secondary schools successfully. Additionally, the community feels uninvolved in the processes at schools. Despite the fact that since 1962 the Education Act introduced a School Management Committee (SMC) for every school, nothing much changed. Part of this SMC is meant to be formed by teachers, local politicians and parents, but up to today they hardly exist or even exist in theory only [51].

To overcome this situation the content of curricula specifically for primary schools must be relevant for the daily lives of communities. Therefore especially for rural areas the incorporation of agricultural aspects into every day school life can be very helpful. This could also help to reduce the still high numbers of illiterate pupils or pupils who have only an emergent or basic reading level. Agricultural contents may help to bridge the gap between learning to read in schools and the perceived benefit of that competency. Furthermore, higher literacy and numeracy competencies plus the learned theoretical knowledge and adapted skills regarding agricultural content help to improve agricultural efficiency. Therefore, it makes sense to focus not solely on European or US-American based science concepts, but to include the same portion of various indigenous science (agricultural) concepts, as they may be more significant and applicable in Malawi. In this context it was quite surprising that indigenous knowledge within the subject of agriculture is currently seen as a cause of existing problems and not as a solution. Only when it comes to food storage of different vegetables indigenous knowledge is referred to in lessons as the teachers pointed out. Additionally, the use of shifting cultivation is also taught, but due to a scarcity of arable land in Malawi this practice is no longer applicable. In the past the groundnut was used to

enrich the soil again, but today this practice is no longer much in use as the teachers mentioned.

In comparison, the teaching of science in Ghana's secondary schools is very much related to the relevant Ghanaian situation. Teachers in Ghana have the opportunity to implement an integrated culturally and locally relevant curriculum. Additionally, the science workbooks in Ghana include a variety of student activities relevant to their daily lives and help students to become responsible and sustainable citizens [45]. Also with regard to the teaching methods, many African countries tried to change the way of teaching within their curricula. Despite above mentioned obstacles and challenges in many African education systems, Nigeria introduced the Universal Basic Education (UBE) in 1999 in order to implement new teaching methods. The main aim was to open up more student-centered learning, more cross-cutting themes and to include indigenous knowledge concepts, in particular for teaching science [46].

Some of the teachers pointed out some potential reforms, which could help to overcome the current critical situation of agriculture as a subject. Many teachers mentioned the introduction of combining loans for successful students of agriculture. This would offer the students a chance to open their own agricultural business after passing the MSCE.

But on the other side many students do not have a very positive attitude towards agriculture at schools and agriculture in general, which is very problematic for an agro-based society and was claimed to be the most problematic obstacle by the teachers.

5. Conclusion

This paper suggests a very close linkage between agricultural situation and educational outcomes. As mentioned above, this linkage takes the form of a reciprocal relationship. If the food situation is insecure and food shortages are evident, the educational outcomes of learners suffer. In addition, education is not the first priority for the parents in such a situation. But even in a food-secure situation, education struggles to be a top priority for parents, as this paper has highlighted. Parents often do not see the (economic) benefits of their children getting an education. Due to these circumstances, education is often hardly sound or even comprehensive. To overcome these obstacles the content of curricula must be related to the daily lives of communities. A more regular and more intense use of agriculture as a learning area of its own and as a general topic in other learning areas within the Malawian education system has a twofold benefit: Firstly, education could be more closely linked to everyday life and the relevance and benefits of education would become more apparent to communities. Secondly, a better knowledge and enhanced skills regarding agricultural practices helps to improve agricultural yields. To be able to achieve these aims, collaboration between all stakeholders involved is necessary

6 „[T]he people in these communities did not see any real benefit in schooling. Their attitude seemed to be that they had managed so far without education, and therefore did not see its benefit for their children. Schooling for them had little credibility. (162).”

in order to ensure that the increased use of agricultural content and agriculture as a learning area has the envisaged outcomes. Overall, this may lead to higher food security in the future. In this context it is important to broaden the field study to all three regions of Malawi, covering many different districts in order to get some insight view of regional differences. In addition, further studies should include primary school teachers as well. A broader methodological approach would be helpful to find out more about the relationship between the agriculture and food education at schools and the food security in Malawi. For example, some textbook analysis or classroom observations might yield interesting results.

Acknowledgements

Thanks to the participating teachers at the involved schools in Mzimba district and to the Department of Education, Northern Education Division in Malawi for their support. Thanks to Jürg Luterbacher, Andreas Dittmann (both Justus-Liebig-University Giessen), and Danait Araia (Center for international Development and Environmental Research) for their help in bringing this study to fruition.

REFERENCES

- [1] FOA. Global hunger declining, but still unacceptably high. International hunger targets difficult to reach, Online Available from www.fao.org/docrep/012/a1390e/a1390e00.pdf
- [2] FAO, WFP, IFAD. The state of food insecurity in the world. Economic growth is necessary but not sufficient to accelerate reduction of hunger and malnutrition. FAO, Rome. 2012
- [3] Feed the Future. Fact sheet: feed the future. Online Available from: <http://www.feedthefuture.gov/>
- [4] WSFS, Declaration of the world summit on food security, Online Available from http://www.fao.org/fileadmin/templates/wsfs/Summit/Docs/Final_Declaration/WSFS09_Declaration.pdf
- [5] FAO, An introduction to the basic concepts of food security, Online Available from <http://www.fao.org/docrep/013/a1936e/a1936e00.pdf>
- [6] S. Engler. Food (in)security and famine – Understanding the interconnection of vulnerability, perception of affected populations, and their adaptation capacities in times of food scarcity. Dissertation zur Erlangung des Doktorgrades, Justus-Liebig-Universität Gießen, 2013
- [7] Intergovernmental Panel on Climate Change. Managing the risk of extreme events and disasters to advance climate change adaptation. Cambridge University Press: Cambridge, 2012.
- [8] S. Engler. Developing a historically based Famine Vulnerability Analysis Model (FVAM) – An interdisciplinary approach. In: *Erdkunde - Archive for Scientific Geography*, 66, 2, pp. 157-172. 2012.
- [9] S. Engler. Hungersnot – Bekannte Theorien und neue Analysemodelle. In: D. Collet, A. Schanbacher, T. Lassen (eds.): *Handeln in Hungerkrisen. Neue Perspektiven auf soziale und klimatische Vulnerabilität*. Universitätsverlag Göttingen, Göttingen, 67-83. 2012.
- [10] S. Engler, F. Mauelshagen, J. Werner, J. Luterbacher. The Irish famine of 1740-41: famine vulnerability and „climate migration“. In: *Climate of the Past*, 9, 1161-1179. 2013
- [11] H.M. Füssel. Vulnerability: a generally applicable conceptual framework for climate change research. In: *Global Environmental Change*, 17, 155-167. 2007.
- [12] K. Grebmer, D. von Headey, T. Olofinbiyi, D. Wiesmann, H. Fritschel, S. Yin, Y. Yohannes, C. Foley, C. Oppeln, B. von Iseli, C. Béné, L. Haddad. 2013 Global Hunger Index. The challenge of hunger: Building resilience to achieve food and nutrition security. Online Available from <http://www.ifpri.org/sites/default/files/publications/ghi13.pdf>
- [13] S. Kvale. *Doing Interviews*. Sage Publications, London 2007.
- [14] A. Sen. *Poverty and famines. An essay on entitlement and deprivation*. Oxford University Press, Oxford. 1981.
- [15] National Statistical Office. Malawi. Demographic and Health Survey 2010. Zomba, 2011. Online available from: http://www.nso.malawi.mw/images/stories/data_on_line/demography/MDHS2010/MDHS2010%20report.pdf.
- [16] T. Makombe, P. Lewin., M. Fisher. The determinants of food insecurity in rural Malawi: Implications for agricultural policy. In: *IFPRI Policy Note*, 4, 1-4. 2010.
- [17] J. Harrigan. U-Turns and full circles: Two decades of agricultural reforms in Malawi 1981-2000. In: *World Development*, 31, 5, 847-863. 2003.
- [18] M. Vaughan. *The Story of an African Famine: Gender and Famine in Twentieth-Century Malawi*. Cambridge University Press, Cambridge. 1987.
- [19] S. Devereux. State of disaster. Causes, consequences & policy lessons from Malawi. In: *Action Aid*, June 2002.
- [20] Famine Early Warning System Network. Malawi food security outlook. October 2008 to March 2009. Online Available from: http://www.fews.net/sites/default/files/documents/reports/Malawi_outlook_2008_10.pdf
- [21] Famine Early Warning System Network. Malawi. Food security outlook update. Assistance is off to a slow start in some districts due to logistical challenges. Online Available from <http://www.fews.net/southern-africa/malawi/food-security-outlook-update/sat-2013-11-30>
- [22] World Bank Working Paper No. 182. *The Education System in Malawi*. Washington 2010, Online available from: http://siteresources.worldbank.org/EDUCATION/Resources/278200-1099079877269/Education_System_Malawi.pdf.
- [23] Southern African Regional Universities Association. *A profile of higher education in southern Africa*, Vol. 2: National perspectives, 43-48. 2012
- [24] G. Evans, P. Rose. Support for Democracy in Malawi: Does Schooling Matter? In: *World Development* 35, 5, 904 – 919. 2007.

- [25] Ministry of Education, Sports and Culture. Malawi Education Sector: Policy & Investment Framework (PIF), Lilongwe. 2001
Online Available from <http://www.uis.unesco.org/Library/Documents/oosc05-en.pdf>
- [26] N. Kendall. Education For All Meets Political Democratization: Free Primary Education and the Neoliberalization of the Malawian School and State. In: *Comparative Education Review*, 51, 3, 281-305. 2007
- [27] World Bank. Review of the Planning and Implementation of Free Primary Education in Malawi. In: *Abolishing School Fees in Africa. Lessons from Ethiopia, Ghana, Kenya, Malawi, and Mozambique*, 161 – 202. 2009.
- [28] J. DeStefano. Teacher Training and Deployment in Malawi. In: *Teacher Reforms around the world: Implementation and Outcomes*, Vol. 19, 77 – 97. 2013.
- [29] D. Kunje. The Malawi integrated in-service teacher education programme: an experiment with mixed-mode training. In: *International Journal of Educational Development*, 22, 305 – 320. 2002.
- [30] F.R. Mkandawire, D. Mulera. Malawi. In: Peterson, P., Baker, E. and McGaw, B. (eds.) *International Encyclopaedia of Education*, 3rd Edition, Amsterdam, 666-672. 2010.
- [31] P. D. G. Mtika. Teaching Practice as a component of teaching education in Malawi: an activity theory perspective. Dissertation zur Erlangung des Doktorgrades, University of Nottingham. 2008.
- [32] M.P. Lewis, F.S. Gary, D.F. Charles. *Ethnologue: Languages of the World, Malawi*, 17th edition. Dallas, Texas: SIL International. Online Available from: <http://www.ethnologue.com>.
- [33] V. Castel, M. Phiri, M. Stampini. Education and Employment in Malawi, Working Papers Series No. 110, African Development Bank, Tunis. 2010.
- [34] J. Chimombo. Changing patterns of access to basic education in Malawi: a story of a mixed bag? In: *Comparative Education*, 45, 2, 297-312. 2009.
- [35] SACMEQ – Southern and Eastern Africa Consortium for Monitoring Educational Quality. 2011.
- [36] E. Kadzamira, P. Rose. Can free primary education meet the needs of the poor? : Evidence from Malawi. In: *International Journal of Educational Development*, 23, 5, 501-516. 2003
- [37] P. Moyi. Household characteristics and delayed school enrolment in Malawi. In: *International Journal of Educational Development* 30, 3, 236-242. 2010.
- [38] United Nations Educational, Scientific and Cultural Organization. Children out of school: Measuring exclusion from primary education. UNESCO Institute for Statistics. 2013
- [39] Ministry of Education, Science and Technology, MoEST, National Education Sector Plan 2007 – 2016. A Statement, Lilongwe. 2007
- [40] M. B. Ogunniyi, M. B. Two decades of science education in Africa. In: *Science Education*, 70, 2, 111 - 122, 1986.
- [41] A. Peacock, Access to science learning for children in rural Africa. In: *International Journal of Science Education*, 17, 2, 149 - 166, 1995.
- [42] M. Kretzer, Michael. The Importance of Language Attitude Regarding First-Language-Based Education in South Africa. Case Study in Gauteng and North-West Province. In: *Facets of Linguistics. Proceedings of the 14th Norddeutsches Linguistisches Kolloquium 2013 in Halle (Saale)*, eds. Ammermann, A., Brock, A., Pflaeging, J., Schildhauer, P. (eds.). Frankfurt am Main u.a.: Peter Lang, 217-229. 2013
- [43] A. Bamgbose, Mother tongue medium and scholastic attainment in Nigeria. In: *Prospects*, 14, 1, 87 – 93, 1984.
- [44] R. Eiselen, The role of language proficiency in predicting first semester results at university. In: *ISEA*, 30, 3, 35 - 43, 2002.
- [45] United Nations Educational, Scientific and Cultural Organization. World Data on Education. Malawi, VII Ed. 2010/2011. Online Available from: <http://www.ibe.unesco.org>
- [46] S. M.-J. Mbeve. Rural Communities-Education Relationship in Developing Countries: The Case of Malawi, In: *International Education Journal*, 5, 3, 308 – 330. 2004.
- [47] MoAFS, Ministry of Agriculture and Food Security, 2008: 42).
- [48] G.E. Glasson, J.A. Frykholm, N.A. Mhango, A. D. Phiri. Understanding the earth systems of Malawi: Ecological sustainability, culture, and place-based education. In: *Science Education*, 90, 4, 660 – 680. 2006.
- [49] K.H. Perry. Primary school literacy in Southern Africa: African perspectives. In: *Comparative Education*, 44, 1, 57-73. 2008.
- [50] L. Chisholm, R. Leyendecker. Curriculum reform in post-1990s sub-Saharan Africa. In: *International Journal of Educational Development* 28, 195 – 205. 2008
- [51] E. Barnett. An analysis of community involvement in primary schools in Malawi. In: *International Journal of Educational Development* 33, 497 – 509. 2013