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Abstract

The article explores the key findings from a qualitative longitudinal study that observed the implementation and assessed the potential of the school garden intervention in a project designed to reduce the worst forms of child labour in eight school communities in North and South Kivu, Democratic Republic of Congo by cultivating crops that can be utilised to reduce the necessity of child labour to support households' economy. The study generated findings on how to improve the relevance, community ownership, and sustainability of the school gardens intervention to contribute to a reduction in the prevalence of child labour in at-risk communities.

Keywords: modern slavery, worst forms of child labour, conflict-affected countries, school meals, school gardens, child labour

1. Introduction and background

1.1 Background on the Partnership Against Child Exploitation (PACE)

The Partnership Against Child Exploitation (PACE) is a consortium of non-Governmental, academic, media, and private sector organisations working together to implement an programme funded by the United Kingdom (UK) government that seeks to identify and test effective approaches to prevent and reduce the worst forms of child labour (WFCL) defined by the International Labour Organisation (ILO) convention n. 182 as “*all practices that include the use of children in slavery, forced labour, trafficking, debt bondage, serfdom, prostitution, pornography, forced or compulsory recruitment for armed conflict, and all forms of work that are likely to harm the safety, health or morals of children.*”¹ PACE’s objective is to innovate, study, and produce evidence on effective ways to address child labour across four main areas of work. PACE project implementation officially started in October 2019 and is due to end in September 2022.

Given that poverty is well understood to be a primary driver of child labour and that the worst forms can force children into unsafe working conditions to support their families, one focal area of PACE is supporting children and their families to access suitable alternatives to the WFCL. In fragile and conflict-affected contexts such as the Democratic Republic of Congo (DRC), chronic poverty and acute shocks, including displacement, frequently impact households’ income as well as children’s access to education and other basic rights. PACE is therefore implementing a range of interventions designed to address the root causes of the phenomenon, including developing alternative livelihoods to alleviate households’ reliance on child labour and supporting children to access quality education and vocational training opportunities as alternatives to the WFCL.

The specific intervention on which this article focuses is school gardens through which communities are supported to establish productive school gardens that provide food for school canteens and participating households. The school garden pilot activity has been implemented in eight schools across two geographic areas of the DRC: three schools in Masisi territory, North Kivu Province, and five in Walungu territory, South Kivu Province. The article aims to analyse how school gardens implemented by international NGOs working in collaboration with community groups can contribute to reducing the worst forms of child labour in fragile contexts. School gardens were included in the project’s theory of change based on a situation analysis that indicated that the need for parents or caregivers to put their children to work often served as a barrier to attending school as did costs associated with attending school. The introduction of school gardens was designed to support the provision of free school meals that were expected to create an incentive for attending school, to reduce households’ burden of spending on food, and to bring children into a protective educational environment.

¹ ILO, “Convention No. 182 - Worst Forms of Child Labour Convention,” (1999). https://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C182

Moreover, by actively engaging parents and caregivers in the establishment and management of the gardens, the activity is intended to create an opportunity to engage with parents, caregivers, teachers, and school directors to discuss parenting, child rights and child labour issues at community level.

1.2 Context: child labour in North and South Kivu provinces in DRC

Within the conflict-affected Kivu provinces, Masisi and Walungu territories are notable for the presence of extractive activities including mining of wolframite, gold, cassiterite, and coltan. Both locations are also similarly characterised by the influence of several armed groups that are often involved in controlling mining sites.^{2,3} As a result, of the complex socio-economic situation, mining activities and armed groups are often associated with a high prevalence in the WFCL. These factors also prevent the most vulnerable households from accessing land which further contributes to perpetuating conflict, poverty, and food insecurity.

In both North and South Kivu, the population has been affected by repeated cycles of displacement, and many households are therefore confronted with insecure livelihoods and vulnerable socio-economic circumstances which translate to high levels of food insecurity, poor nutrition, low income, high unemployment, and limited access to social services and protection.⁴ Each of these compounding factors increases the risk of children becoming engaged in the WFCL. Younger children, girls, and those with disabilities as well as other marginalised groups are additionally vulnerable to the risk of child labour.⁵

The challenging socio-economic situation of many households in Masisi and Walungu forces families to resort to coping mechanisms that risk detrimental effects to child development, protection, and wellbeing. Participating in child labour as a mean to generate additional income to meet basic needs is a significant and widespread coping mechanisms in the region. Children are hired daily in casual jobs that involve walking unaccompanied long distances and frequently require carrying heavy loads, handling risky equipment, and working in conditions hazardous for their health and safety. Children work as street vendors or cattle herders and spend long periods of time unsupervised with merchandise or a herd to attend to, and often, protect from risk of theft. The proliferation of mining sites requiring cheap, unskilled labour has engaged a

² Jason Stearns, and Christoph Vogel, “The Landscape of Armed Groups in the Eastern Congo”, Congo Research Group, 2015, <http://congoresearchgroup.org/wp-content/uploads/2015/11/CRG-Armed-Groups-in-the-Congo.pdf>

³ IPIS, “Maps of conflict minerals in Eastern DRC”, (2020), accessed June 15, 2021, <https://ipisresearch.be/publication/map-conflict-minerals-eastern-drc-a0-posters/>

⁴ Integrated Food Security Phase Classification, “Democratic Republic of the Congo (DRC): Acute Food Insecurity Situation February - July 2021 and Projection for August - December 2021”, accessed on 15 June 2021, <http://www.ipcinfo.org/ipc-country-analysis/details-map/en/c/1154108/?iso3=COD>.

⁵ Elizabeth Presler-Marshall and Nicola Jones, “The devil is in the detail Why a gender- and adolescent-specific lens is essential to accelerate progress in eradicating child exploitation. Gender and Adolescence: Global Evidence, (2018), <https://www.basw.co.uk/system/files/resources/GAGE%20Child%20Exploitation%2012082018.pdf>.

significant number of children in dangerous and harmful mining activities. In the targeted areas, the WFCL also include association with armed groups, which includes “children recruited or used by an armed force or armed group in any capacity”, and exploitation in prostitution, which refers to the exchange of sex for money, gifts, or material goods.⁶

1.3 Existing evidence from similar programmes and the integration of school gardens and school feeding

In fragile settings, shocks to food systems are common, and the current COVID-19 pandemic has brought additional disruptions to these systems.^{7,8} Child labour is a frequently observed coping mechanism for families in situations of food insecurity; therefore, projects aiming at strengthening food security also have the added benefit of fighting child labour. Yet, according to a recent report using school feeding to address social issues such as child labour is a relatively new approach with limited evidence of impact to date.^{9,10}

Studies exploring the impact of school feeding systems on the use of children’s time have found mixed results.¹¹ For instance, in Burkina Faso, Kazianga and colleagues found that there was no evidence of school feeding activity significantly affecting child labour while take-home rations conditional on enrolment did.¹² Aurino and colleagues studying a large-scale government-led school feeding program in Ghana, reported that in-school meals did not significantly affect children’s participation in farming or productive work, but reduced their participation in household chores by 20 minutes a day on average.¹³ A report by Food and Agriculture

⁶ UNICEF, “the Paris principles. Principles and guidelines on children Associated with armed forces or armed groups”, February 2007, <https://www.unicef.org/mali/media/1561/file/ParisPrinciples.pdf>.

⁷ World Food Program, “Food systems in Fragile settings: Identifying gaps and opportunities to support access to improved diets”, Fill the Nutrient Gap, (July 2020), <https://docs.wfp.org/api/documents/WFP-0000118080/download/>.

⁸ Christophe Béné, “Resilience of local food systems and links to food security – A review of some important concepts in the context of COVID-19 and other shocks”, *Food Security*, volume 12, pages 805–822 (2020).

⁹ FAO, “Social protection and child labour”, (2020), <http://www.fao.org/3/ca9485en/CA9485EN.pdf>.

¹⁰ FAO, “Social protection and child labour”.2020, <https://www.fao.org/3/ca9485en/CA9485EN.pdf>

¹¹ We have focused this literature review on school feeding programs generally as the PACE project design involves school gardens that aliment school feeding programs. The literature on school gardens alone is extremely limited.

¹² Harounan Kazianga, Damien de Walque and Harold Alderman, “Educational and child labour impacts of two Food-for-Education Schemes: evidence from a randomised trial in Rural Burkina Faso”. *Journal of African Economies*, 21(5), 723-760, (2012).

¹³ Elisabetta Aurino, Jean-Pierre Tranchant, Amadou Sekou Diallo and Aulo Gelli, “School Feeding or General Food Distribution? Quasi-Experimental Evidence on the Educational Impacts of Emergency Food Assistance during Conflict in Mali”. Innocenti Working Papers no. 2018-04. Innocenti, Florence, UNICEF Office of Research, (2018), <https://www.unicef-irc.org/publications/956-school-feeding-or-general-food-distribution-quasiexperimental-evidence-on-the-educational.html>.

Organisation (FAO) suggested that preliminary findings from case studies in Bangladesh, Egypt and Zambia showed a positive impact of school feeding programs in reducing child labour.¹⁴ Another report by FAO alluded to positive effects of the Cocoa Life programme encouraging communities to implement school feeding systems supported by school gardens in Ghana.¹⁵ Records show improved enrolment during the implementation stages and a reduced number of children engaged in farm activities. Conversely, Aurino et al. in Mali, found that provision of school meals reduced the time spent on farming or on productive tasks by almost a month for girls.¹⁶

As stated in FAO (2020a), “The lack of school attendance among child labourers feeds a poverty cycle leading to youth unemployment and an unproductive agriculture sector.”¹⁷ School feeding systems could have the potential to retain child labourers at school, and even teach them agricultural skills. The McGovern-Dole Food for Education and Child Nutrition Programme systematic review and meta-analysis summarises the state of existing evidence on the positive impact of school feeding on educational outcomes, both in terms of enrolment, “*indicating that school feeding serves as an incentive to get children into school and help keep them there*” with benefits found to be stronger for girls than for boys.¹⁸

School feeding systems can also impact learning achievements of children. Colombini evaluated a programme in Guyana aiming to improve school participation by providing a meal three days a week and complementary activities. The study found out that children were better able to focus and had better exam results following the implementation of the programme.¹⁹ School feeding indeed has a proven positive impact also on learning achievement and cognitive function.²⁰

¹⁴ FAO, “Social protection and child labour”, 2020, <https://www.fao.org/3/ca9485en/CA9485EN.pdf>

¹⁵ FAO, “How can agricultural policies and strategies help to end child labour in agriculture?”, Global Forum on Food Security and Nutrition, report on activities No. 165, (2020).

¹⁶ Aurino, Tranchant, Diallo and Gelli, “School Feeding or General Food Distribution? Quasi-Experimental Evidence on the Educational Impacts of Emergency Food Assistance during Conflict in Mali”.

¹⁷ FAO, “Social protection and child labour”.

¹⁸ Bechir Rassas, Edgar Ariza-Nino and Katia Peterson, “School Feeding and Educational Outcomes in Developing Countries: A Systematic Review and Meta-Analysis”, The McGovern-Dole International Food for Education and Child Nutrition Program, US Department of Agriculture (USDA), (2020). This finding is also confirmed by Powell and colleagues and Aurino and colleagues, the latter of whom documented how “school feeding led to increases in enrolment by 11 percentage points and to about an additional half-year of completed schooling.”

¹⁹ Jane Colombini, “Good practices in tackling child labour through education: Selected examples from the IPEC TACKLE project, Geneva, International Labour Organisation (ILO), 2013, https://www.ilo.org/ipecc/Informationresources/WCMS_IPEC_PUB_22956/lang--en/index.htm.

²⁰ This is confirmed by Chakraborty and Jayaraman, Jacoby, Cueto and Pollitt, Simeon, and Grantham-McGregor, Nkhoma and colleagues.

Other proven impacts of school feeding include positive outcomes on children's health and physical development.^{21,22} Also, according to Jennings and Bamkole, the collective cultivation and management of a common plot of land by parents or caregivers, teachers, and students enables them to establish new social connections and, over the time, to develop a bond of mutual trust and solidarity and increased social capital.²³

Finally, in line with PACE's approach, Rassas and colleagues support the idea that school feeding activities may be more effective in combination with other activities to support quality education and be a valuable measure contributing to achieving a more effective education system.²⁴ Altogether, the literature on school feeding programs does support their use as a means to prevent and to reduce the WFCL; with our own study, we sought to understand if school gardens that aliment school feeding programmes can also contribute to similar results.

1.4 Implementation

The study period started in January 2020 and ran until August 2020. The Non-Governmental Organisations (NGOs) established three school gardens in North Kivu and five in South Kivu. The long-term goal of the implementation in North Kivu was to produce enough vegetables to support a sustainable school feeding system, and therefore a canteen was included from the beginning into the design of the project. In South Kivu, the school gardens were intended as a *"platform for learning"*, and a support for *"better nutrition by feeding and inspiring children to eat healthy food, teach them gardening and improve their retention at school"*, and a canteen was not included in the initial plans. Land was either lent to the school, rented by the NGO or already available at the school. The size of the land used for the school gardens, therefore, differed therefore depending on availability, budget, and objectives of the garden.

In each project location, the NGOs established one school garden committee, formed of 10 to 15 caregivers, school staff, and community members responsible for leading the management of the garden. They were initially supposed to supervise and coordinate the work done on the garden with the help of other community members and parents or caregivers with the

²¹ Sarah Adelman, Daniel O Gilligan, Joseph Konde-Lule, Harold Alderman, "School Feeding Reduces Anemia Prevalence in Adolescent Girls and Other Vulnerable Household Members in a Cluster Randomized Controlled Trial in Uganda", *The Journal of Nutrition*, 149(4): 659–666, (2019).

²² Kazianga, de Walque and Alderman, "Educational and child labour impacts of two Food-for-Education Schemes: evidence from a randomised trial in Rural Burkina Faso".

²³ Viniece Jennings and Omoshalewa Bamkole, "The Relationship between Social Cohesion and Urban Green Space: An Avenue for Health Promotion", *International Journal of Environmental Research and Public Health*. 2019;16(3):452. Published 2019 Feb 4, (2019) doi: <https://doi.org/10.3390/ijerph16030452>. These findings resonate with previous work from Kingsley and Townsend, Espejo and colleagues, and Jennings and Bamkole.

²⁴ Rassas, Ariza-Nino and Peterson, "School Feeding and Educational Outcomes in Developing Countries: A Systematic Review and Meta-Analysis".

NGOs playing a sometimes facilitating and sometimes more directive role in decision making. Additional labour was recruited during key phases of the agricultural cycle using project funding. In each site, an agronomist was recruited by the NGOs to provide technical oversight to the project, to conduct training, and monitor the gardens' situation. Inputs such as seeds, plant protection products, and fertiliser were provided by the NGOs along with tools.

The table below summarizes the main aspects of the implementation of the activity in both locations.

IMPLEMENTATION OVERVIEW	North Kivu - 3 gardens in 3 schools	South Kivu - 5 gardens in 5 schools
Goal/long-term vision	Focus on maximum possible quantity food production through the gardens to support a sustainable school meals system to foster school enrolment and attendance	Gardens as “platform for learning” and a support for “better nutrition by feeding and inspiring children to eat healthy food, teach them gardening and improve their retention at school

<p>School selection criteria (not always fully respected in both location)</p>	<ol style="list-style-type: none"> 1. Accessibility of school via roads and telephone networks. 2. Accessibility of water (i.e., water must be close to the school garden for maintenance work, such as watering). 3. Dynamism and motivation of the actors involved for the school garden activities (e.g. director, teachers, the parents' committee [Comité des Parents d'Elèves, or COPA] and the school management committee [Comité de Gestion, or COGES]). 4. Availability of a large, cultivable, and cost-free area for school garden activities to be conducted close to the school. 5. Proximity of the garden to vulnerable children who are victims of the worst forms of child labour in the school to be selected. 6. Officially recognised, publicly accessible schools. 7. In the case of religious schools being selected, a diversity of religions. 	<ol style="list-style-type: none"> 1. The school is in one of the 10 villages supported in the project and accessible (roads and telephone network), safely 2. The school has access to water i.e., water must be close to the school garden for maintenance work such as watering. 3. Dynamism of the school actors i.e., Director, teachers, COPA (parent committee) and COGES (Management committee) for the school garden activities. 4. Availability of a cultivable and free area for school garden activities 5. Availability of organic fertilisers made by the direct or indirect beneficiaries 6. Proximity to vulnerable children who are victims of the WFCL in the school 7. Public school with state accreditation 8. The school has infrastructure capable of reintegrating a considerable number of children 9. The school must be in partnership with the project for the reintegration of vulnerable children without cost or payment of school fees.
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School canteens support (infrastructure, utensils, and cooking equipment)	Planned support to establish or refurbish school canteen for meals preparation	Canteen initially not included in activity design and planning
Access to land	Either lent by the school, rented by the NGO or already available at the school, size of land differed therefore depending on availability or budget	
School garden committees	Established and formed by parents, school staff and community members to lead the work on the garden (10 to 15 members) NGO playing a facilitating role in decision making perceived as more participatory	Established and formed by parents, school staff and community members to lead the work on the garden (15 members) NGO taking active part in the decision-making process, perceived as more directive
Training and technical support	One agronomist conducts training on agricultural techniques and regular monitoring visits.	
Human resources	Additional manpower was recruited during key phases of the agricultural cycle.	
Agricultural inputs:	Provided by the NGO tools, seeds, phytosanitary products, and fertiliser	

2. Research question

To strengthen the existing evidence on the use of school gardens to foster increased school enrolment and participation and contribute to tackling the WFCL in fragile settings, the following research question is examined: “How can school gardens implemented by international NGOs working in collaboration with community groups contribute to reducing the worst forms of child labour in fragile contexts?”

More specifically, the following sub-questions are analysed: What factors are or are not likely to impact school gardens’ ability to contribute to reducing the worst forms of child labour? What did we learn about implementing school gardens in a fragile and conflict affected context through this pilot learning?

The study sought to capture the implementation challenges and successes through the words of all parties involved and the evolution of stakeholders’ views on the project as it progressed.

3. Methodology

PACE began implementing the school garden activity in December 2019. Following training developed by the lead researcher and close supervision throughout the data collection, a group of PACE research assistants led five data collection rounds and ran 48 in-depth interviews in North Kivu and 47 in South Kivu, with key informants involved in the project implementation between January and August 2020.

The key informants were leaders of the local community, members of the community directly involved in the implementation of the project, and NGOs staff members. These interviews were conducted in either French or the local language of each territory and transcribed in French.²⁵ The research assistants also undertook structured observations of the project start-up, training, and implementation and documented field notes.

The PACE research lead undertook structured qualitative analysis, including the development of a codebook through inductive coding and applications of these codes to the dataset by two separate researchers to ensure the validity of the coding. The lead researcher reviewed the coded transcripts multiple times to determine key findings and recommendations.

4. Findings and recommendations

The overall goal of this study is to contribute to a better understanding of how school gardens can contribute to reducing the WFCL in fragile contexts. Based on the available data it is possible to outline findings in three key areas: relevance, community ownership and motivation and intervention sustainability.

4.1 Findings on the relevance of school gardens to addressing child labour.

Findings in this section explore the relevance of school gardens in the specific context of North and South Kivu and focus on the importance of clarifying early into project implementation the intended use of the harvests produced by the gardens. It also questions a secondary impact of the school garden activity on improving household-level food security.

In the PACE baseline studies ²⁶, in both North and South Kivu, households in which children were engaged in WFCL reported low income and a significant majority also indicated that they experienced food insecurity in the previous six months. Households reported having to reduce the frequency of meals or reduce the portion size (95.9% in North Kivu, and 97.9 in South Kivu). They reported having to go an entire day without eating (86.7% and 95.7%

²⁵ Translations provided in this article have been provided by the research team, some members of which are bilingual.

²⁶ PACE website, accessed on 15 June 2021.

respectively), and they reported having to borrow food or money from friends to buy necessary food (90.3% and 93.5% respectively). These findings are consistent with the most recent Integrated Food Security Phase Classification (IPC) analysis currently describing Masisi, North Kivu as being at level 3 (crisis) out of 5 and projecting Walungu, South Kivu to reach the same level in the August to December 2021 period²⁷.

Both in North and South Kivu, child labourers interviewed displayed low levels of school enrolment, 22% in North Kivu and 42.3% in South Kivu. The main factor that would help them go back to school, as cited by more than 80% of out-of-school children surveyed, was financial support. In North Kivu, community members identified food insecurity as a key driver of school dropout. Therefore, it was hoped that the school gardens would also encourage stronger attendance at school and reduce dropout rates, as indicated by these two parents in the following quotes²⁸:

The other change for our children is that when they came home from school and they could not find anything to eat, it [i.e., this inability to find food at home] encouraged them to wander around the neighbourhood, but with the new school canteen system that will be implemented soon, it will considerably reduce school dropouts. (Parent, March) Sometimes in our area, we see a lack of good education due to the famine, but with this school garden programme that will provide food for our children, it will help motivate them to love school more.²⁹ (Parent, March)

1) The importance of clarifying plans for harvest use. School garden harvests can be managed in at least three ways: they can be used for meals through a school canteen, be sold on the local market to earn an income for the school, or the ones in charge can decide to distribute the harvest directly to parents, caregivers, or children in need. In all the observed schools, a school garden committee was established and trained to care for the garden. Committee members were working in the garden several times per week and were in close contact with the NGOs that trained and equipped them with necessary agricultural inputs. Then the school garden committee, with the support of the NGOs, would decide how to best utilise the harvest.

In situations where the school garden was not associated with a school canteen, the school committee could either sell the harvest on the local market or distribute the crops to vulnerable children's households, so children could benefit from the garden either by receiving a ration from the harvest or having their school fees and school material paid thanks to crops' sale

²⁷ IPC, "Democratic Republic of the Congo (DRC): Acute Food Insecurity Situation February - July 2021 and Projection for August - December 2021".

²⁸ Please note that all the quotes included in this article have been translated to English from the original language by the research team.

²⁹ "Famine" here is the colloquial term used by one of the interviewees to describe the high prevalence of acute and chronic food insecurity in the area. At the date of writing this paper there are no official sources supporting the presence of famine as defined by international standards in any of the DRC provinces.

profit. For example, in one of the schools in South Kivu, the school was able to cover exam fees of 60 students at the end of the harvest.

Yet in the absence of canteens, it was observed that the committees mostly decided to share the vegetables among members themselves, especially when the yield was small. Therefore, one finding is the need for a clear plan in place for the use of garden harvests so that the gains from the garden do not accumulate only to those who have the most time to invest in the project rather than contributing to reducing community vulnerability.

Having a clear plan in place early into project implementation on how to manage the harvest therefore seems a prerequisite to ensure that the garden contributes to mitigating the food insecurity situation affecting children and to motivating the most vulnerable ones to remain at school instead of working. As mentioned above, selling the crop on the market, and using the money to cover children's school fees was a way of tackling some of the barriers to children's enrolment. Findings from the study also suggest that the establishment of a canteen associated with the gardens and providing school meals to all children at school was a relevant option to encourage enrolment and attendance. As illustrated by the testimony of a school director below, with sufficient initial investment feeding all school children is considered a desirable, and realistic goal:

For example, as I know the interest or the impact of the canteen on the functioning of the school, if we could have the means to have the seeds, we could cultivate a large area to have enough food for all [location anonymised] students. (School director, July)

In the interview below a parent links working in a mine, one of the WFCL, to support their household to the lack of sufficient food at home and consider the school canteen an effective way to relieve some pressure from the household economic situation. The parent supports the idea that this intervention is not only relevant but essential in supporting their children to remain in school and prevent their engagement in detrimental forms of work:

Given the situation we are going through, I think that assistance to the children is essential. Therefore, NGO's decision to grant a school canteen to our children will allow us to redirect them towards schools to the detriment of the mining sites. Because the main cause of the presence of our children in these places is only in search of small money to pay for food or help feed their family. (Parent, March)

2) Potential additional benefits from school gardens: enhanced household food security?

When asked whether the project has changed anything for them, most children interviewed reported that their parents or caregivers had either started or improved their garden at home and could sell the vegetables they harvested. Caregivers participating in the activities in the garden indeed learned new knowledge on agricultural techniques, and those with land could therefore apply this to their own fields. In some instances, as illustrated by the below testimony, this

knowledge transfer improved productivity at home in a way that relaxed part of the economic pressure that families were going through.

When I went to school in the past, I was regularly chased out because of money [i.e., family could not pay school fees]. Also, when mom learned [this new activity], I began to see her grow eggplants at home that she sells at each harvest. Until today, she continues in the business. We study; we are not worried at school anymore. (Girl, 16, June)

School gardens are spaces to share learning and develop new skills and, in a context where parents or caregivers own land, could potentially have a positive impact on private land productivity, and consequently on food security. Yet in fragile settings like the Kivus, that potential cannot be fully exploited because of two major issues: lack of land and widespread insecurity. In a situation where the access to land is a complex and conflictual matter, only a limited number of parents can cultivate land for themselves. These parents might not be from the families that are the most in need, and their children the most at risk of engaging in hazardous or worst forms of child labour.

The analysed data support the idea that school gardens can be a relevant activity to contribute to protect children from child labour if the use of the harvest is well designed to serve children at risk of or enrolled in child labour. Moreover, while for the subgroup of caregivers involved in the garden cultivation and having a private plot, school gardens can contribute to enhanced agricultural production in their private plots, thus strengthening these households' food security; this positive outcome, however, does not address the needs of the most vulnerable children whose families typically do not own land.

4.2 Findings on factors that influence community buy-in, ownership and motivation.

The second set of findings of this study relates to community engagement and ownership of the project, and it explores how design and implementation choices affected community buy-in and motivation. It also analyses the risks of relying on a small team that might end up working more than is reasonable to support the garden. The first dimension explored is motivation, a key factor to ensure continuous engagement by all the key community actors involved in the school garden. The second is community expectations and their influence over key stakeholders' engagement in the activity. The third is the role of the opportunity cost of cultivating a common plot for collective benefits of all school children, which subtracts time from pursuing other opportunities which provide more immediate and tangible economic benefits for an individual's household.

In fragile and conflict-affected contexts, interventions are likely to be more sustainable and relevant if NGOs have processes to engage with, listen to, and build ideas in collaboration

with communities.³⁰ The school garden intervention we studied relied heavily on the school garden committees that took an active part in managing and implementing the activity with support from the NGOs and the school directors.

They [members of the school garden committee] recognised that the success of this project would rely heavily on the community's investment in it. (NGO Staff)

The data collected shed light on the expectations and motivations of the various actors involved. We present below findings around factors that enhance, or hinder community members' buy in and motivation.

Schools board and caregivers' motivation. Schools were selected for inclusion in the school garden pilot according to a range of criteria. One criterion was interest and enthusiasm for the initiative and school staff's motivation to reduce child labour in the area. Where that criterion was respected, schools' directors and teachers supported the programme and engaged throughout the implementation more consistently than in schools with less motivated boards. Some school directors were regularly involved in the school gardens, working the fields together with the parents. The quote below illustrates how this behaviour can be inspirational for some of the parents.

The lead [of the school garden committee] left his own activities aside to help these children so that all parents would know that others had sacrificed themselves. (Parent, July)

Findings show that belonging to a group is a key motivation factor among school garden committee members. The positive group dynamic among the participants seemed to be a motivator of the members of the school garden committee, resulting in a feeling of belonging to a community. Members generally reported a strong collaborative environment between participants, who can see each other as friends, celebrate each other for "*courage and bravery*" and share a common "*sense of responsibility*". The quote below illustrates the bonding aspects of the garden and suggests that this exercise may also enable group members to overcome pre-existing class barriers.

We meet in the courtyard; we begin to cultivate by talking and discussing. We exchange about the news. Whoever has information, he shares it with others.... All of us work; there is no chief. If it is the hoe or the machete, it is the same thing. It is all of us for an

³⁰ Michael Wessel, "What Are We Learning About Protecting Children in the Community? An inter-agency review of the evidence on community-based child protection mechanisms in humanitarian and development settings", Save the Children, (2019).

activity including the manager. You can come and see him; you will find him dressed up for the field. (School garden committee member, June)

The above statements indicate that, if well implemented, this activity has potential benefits that go beyond the provision of daily meals and act as an incentive to draw the school community together. School gardens represent an opportunity for community aggregation, echoing additional literature that shows that such programmes can break down barriers and provide people with a shared goal for the community and therefore contribute to increase participants' social capital.³¹

This collaborative atmosphere can be fostered by implementing NGOs both to motivate caregivers and to ensure additional community-wide outcomes by supporting committees' team building, facilitating joint decision making and sharing of agricultural tools.

The ultimate objective of the project was an important motivation factor. Caregivers demonstrated an understanding of the activity objectives, and some declared being motivated at the idea that children will be receiving meals. Most of them expressed enthusiasm and motivation to contribute:

We parents, we are well informed that we will not receive anything immediately from this harvest, and we know that what we are doing is so that our children can have access to food. Perhaps in the long term, when the project will be well established, there will be other advantages that we are not currently aware of. Anything my child receives, I receive indirectly. (Parent, May)

The existing caregivers and committee members' motivation can be reinforced by complementary interventions around parenting and child protection. As a matter of fact, in North Kivu, PACE involved parents or caregivers from the school garden committee in the training on positive parenting techniques, and many respondents reported that having been trained on positive parenting helped them find motivation to work for their children. Additional non-financial measures that interviewees suggested to strengthen the collaboration within the committees were providing agricultural, business, and soft skills training as parents expressed strong appreciation for being able to access technical training.

Transparency. In an area where most households have difficulties to satisfy their basic needs and where NGOs have been operating for a long time with a variety of projects providing direct support, the announcement of an agricultural intervention supported by an NGO in a school can trigger high expectations beyond the scope of the project.

³¹ Muhammad Bello Ibrahim, Salim Hassan and Demba Sanyang, "Social Capital in Agricultural Community Development: A Review", *Journal of Agriculture and Veterinary Science (IOSR-JAVS)* e-ISSN: 2319-2380, p-ISSN: 2319-2372. Volume 10, Issue 7 Ver. I (July 2017), PP 07-10. DOI: <https://doi.org/10.9790/2380-1007010710>, (2017).

Some school garden committee members initially expected more direct benefits from the garden, such as a share of the crops to allow them to feed the family and even sell the surplus to generate a small income. Other anticipated benefits included agricultural skills building, wherein families would be able to cultivate land on their own.

After the harvest, my production will be subdivided in two parts: one part will be used to feed my children and another part will go to the market to be sold. This money will allow me to buy either a goat, a sheep, or chickens, and from there I can start breeding. (Parent, March)

In some places where these initial expectations were not aligned with what the project could realistically provide, parents and caregivers often disengaged when they later understood that they would not get actual direct benefit. This fact suggests the need for a higher level of transparency and explanations at the early phase of the project implementation.

The risk of unreasonable sacrifices. Taking care of a garden involves continuous efforts in the long run, and, in some phases of the cultivation cycle, long and tiring work. The project locations being rural areas, community members knew the types of effort that agricultural work would require. Some, as illustrated in the quote below, declared they were aware of the difficulty and ready to face it. The quote below also suggests that success lies in the active participation of the entire community.

Today's meeting was to announce the coming of this food security project and to form a committee to manage and oversee these activities. The task will be very heavy, but in the long run we will need the participation of everyone for good success. (Parent, March)

In the organisation of the agricultural work planned by one of the NGOs, the school garden committee members were responsible for the garden, but additional parents were asked to join and help them when needed. In an area where many parents already worked long hours to provide for their household, the additional volunteer work required by the school gardens meant giving up time to engage in much needed income-generating opportunities. This opportunity cost of engaging in the garden is illustrated by the below quote by a parent.

So that this project advances strongly, see that we are five people here out of 17. Many of us have deserted; they got tired on the way. When you know that you can cultivate for another person so that he pays you 3000 francs [~1.50 USD] while if you come here, your children will sleep without eating, it is easy for some to deceive even by saying that they are sick. But going to cultivate for others to earn money, why? It's to get food. (Parent, July)

The initially planned process, in which parents would participate in the garden cultivation for no payment, was therefore confronted with the reality of the area where some families, already in a situation of food insecurity, could not realistically volunteer to work in the garden.

If we make them come, we will make them starve. (NGO staff, June)

In addition, when parents participated intermittently in the garden, they would benefit from less training, would not participate in the joint decision-making, and might not feel as fully part of the group as the members of the school garden committees did. Most members of the school garden committees mentioned that parents were hard to mobilize and not used to working on a voluntary basis. All reported having to convince parents to work more; many reported having to offer something in exchange for their labour (mostly promise a share of the harvest to those parents), and on rare occasions, members of the school garden committees even reported being insulted by disappointed parents.

It is hard to see that the parents are beginning to be angry at me. They were the ones who had cultivated, but none of them got their share. These insults that I'm starting to get, which I don't appreciate, might result in that tomorrow I might not [see] the parents participating in the activities as planned because there is no interest for them. (School garden committee member, June)

Therefore, in many of the schools studied, the school garden committee members performed most of the work by themselves without involving additional parents or caregivers. Their initial motivation was therefore confronted with the difficulty and sacrifices that working in the garden represented. This loss of motivation was observed in almost all schools and is a threat to the sustainability of the committee's engagement and thus to the overall activity.

We even did the ploughing and the sowing in rainfall, but we sacrificed ourselves body and soul to finish. (Committee member, May)

[The committee leader] really gave it his all; he gave up his activities. Unfortunately, it is a sacrifice, and we don't know what salary he will be paid. Everything he did before, he left for the garden. He has good will. (Committee member, July)

To summarise, while school garden requires full community buy-in and support to be well organized and functioning interventions, they cannot be productive, sustainable, and effective in fighting child labour if parents are spending extensive unpaid hours working in the garden. Indeed, if they cannot provide for their own families because of volunteering to work in the gardens, then their children might be pushed into work to compensate.

4.3. Findings on enablers and barriers to sustainability

In a fragile context like the Kivus in the DRC, the population's susceptibility to economic shocks is likely to mean that children can only reintegrate school fully if a school feeding programme is working continuously. In line with other findings from the literature such as Bundy and colleagues, we consider that school gardens should tend to economic sustainability.³² Studying this activity in its early phase of development allowed the research team and PACE to understand the threats and key steps toward enhanced outcomes and sustainability.

Selecting the land and the crops. Schools were selected in areas where child labour and school dropout were an issue. One important criterion when selecting schools was that enough land had to be available and accessible, meaning close to the school and the village with access to water for irrigation. In one of the two locations where the canteen was planned from the beginning, the land dimension requirements were estimated based on the potential yield in the area and the number of children in the school.

The project found that engaging the community in identifying the land and crop selection helped support an effective implementation.

[NGO] involved the community through the discussions carried out through the focus group technique that involved the community of all different age groups.... We ourselves established the criteria and conditions for choosing the schools where the project will be carried out.... [NGO] consulted with the community about everything, and we are the ones who are carrying out the activities ourselves. (Local leader, March)

In some project locations where the school did not have land of its own, the land for the gardens was either lent to the school or had to be rented. In such instances, the school garden committee found an agreement with landowners. While our data do not provide information on all agreements, we know some were informal oral agreements, for example when a nearby parish lent some land to one of the schools under study. These informal agreements could potentially be a threat to sustainability.

Another key factor to consider beside land extension is also land quality. In one of the two provinces, in many interviews the land was described as infertile, and in one school, poor quality soil was mentioned by parents as a reason for poor soybean yield. In locations where land was not fertile, many respondents mentioned having difficulty accessing fertilisers because, as it is often the case in areas affected by prolonged conflict, markets are not fully functional; therefore, artificial fertilisers are expensive, and natural fertilisers are scarce. The below quote by a school garden committee member illustrates that point and suggests the need for additional investment.

³² Bundy, Burbano, Grosh, Jukes and Drake, "Rethinking School Feeding: Social Safety Nets, Child Development, and the Education Sector, the World Bank".

Our soil is no longer fertile. It is necessary to improve the soil. Local improvement is done with manure that comes from livestock, which we do not have. There is a need to increase animal husbandry. If the authorities and the NGO staff can help us with small farms that can allow us to have fertiliser, that can increase the production and allow the children to stay in school and make sure that all these needs are met. (School garden committee member)

Participants and NGO insisted on the importance of providing children with a balanced diet through daily meals, suggesting that crop selection was an important point of sustainability. In some schools the committee therefore selected a variety of crops to plant. In others, few crops were planted with the idea that part of the yield would be sold on the market and others would be bought to diversify. Among the various gardens observed, the most successful started with a few types of crops that are commonly grown in the area, with the objective of developing knowledge and techniques for these specific crops and to diversify in successive agricultural cycles. The quantity of vegetables harvested varied based on size of land but also on which crop was planted, some proving more productive than others.

Training and technical support. The NGOs leading the school garden interventions engaged an agronomist as part of the team both in South Kivu and North Kivu to provide expert guidance on agricultural techniques and management, to increase the productivity of the garden, and to train and support participants on advanced agricultural skills and good practices.

While the local communities of North and South Kivu are widely engaged in agriculture, participants reportedly valued the expertise and guidance brought by the agronomist. Several participants expressed an interest in learning more on advanced agricultural techniques. One of the school garden committee members quoted below valued both the training and ongoing support received:

A: We had an agronomist who showed people how to cultivate, how to plant, how to distance the seedlings, how to place the pots. We had been given medicines [phytosanitary products] and shown how to use them.

Q: Did this agronomist follow up?

A: Yes, he monitored the evolution of the seeds and seedlings.

Q: After how long did he come by?

A: He participated in every activity. If it was the period when the crops were being planted, he had to come by to make sure that the standards he had given were respected. And besides, we had bought ropes to allow the agronomist to measure the distance between the different crops. (School director, July)

While valuing training received by the agronomist on specific aspects of agriculture that the committee did not master, respondents also expressed the need to be continuously supported, suggesting once more that sustainability is a long process and that developing participants' skills also requires time, as illustrated by the quote below by a school director.

Apart from seed support, [the NGO] can help us in the accompaniment of the agronomist. The agronomist can accompany us in the techniques of growing, giving advice. The agronomists master the growing seasons of each crop. I was afraid because the sun was hitting too hard, but an agronomist told me that it was going to rain soon. And after two days, the rain had fallen and had watered the potatoes during the right period. The big obstacle I fear is putting the crops in place during the incorrect growing season. Because that can cause the crops to be damaged. If the crops are damaged, it is a big loss. That is why the accompaniment of the agronomist can be important so that he can guide us. Even if we do not have the money to pay for it. (School director, July)

Analysed data confirmed that the inclusion of a qualified agronomist has the double advantage of improving the productivity of the school garden while strengthening the capacity of the school garden committees to manage the initiative more effectively.

While the school gardens were elaborated by PACE with the clear objective to address the needs of children involved in child labour, in the schools observed, training of committee members and staff on child protection, safeguarding and sensibilization on child labour in schools was not systematic. While these trainings might not seem like a prerequisite to develop an effective school feeding system, being trained on child protection and safeguarding is a paramount for anyone involved in work with or around children.

Anticipating costs and long-term support. This study explored the type of costs that such a garden must support. Some could be anticipated, such as cost of inputs, plant protection products, tools and tool replacements, and additional labour when required by the agricultural cycle as previously mentioned. Where a canteen was established, the project also ensured the cost of building or renovating a place to cook and the cost of buying and replacing cooking equipment. Based on the data collected, it appears that in future projects, some funds need to be allocated to an emergency fund that can cover unexpected costs, such as damages caused by natural events (excessive rain, flooding, draught) or manmade damages caused by theft or vandalism.

As an example, during the time of the study, schools faced security issues, a problem that was not budgeted for by the NGO. In areas with high rates of criminality, weak rule of law and where a large part of the population lives in extreme poverty, whose situation worsened due to the COVID-19 impact, the risk of collective goods like the school gardens being targeted by

petty thefts is quite high. An agronomist from South Kivu, commented that with high level of food insecurity, “people do not know which way to turn” and “the victims are the gardens”; he reported that theft happened concurrently with the harvest, pressuring school garden committees and the NGO to harvest quickly and store the yield securely.

Therefore, a key area of concern to protect the school meals systems is protecting the crops from theft. One school director expressed the opinion that a guard is essential for this activity to prevent theft before harvest and must be budgeted for.

The other obstacle is theft. We have a guard who spends all night in these fields to guard the crops. This has a cost; we must pay for it. He comes at seven PM, and he starts to circulate in the field with a torch until 11pm. He will be able to return at three AM to circulate again in the field. (School director, July)

Until the gardens reach the required levels of production, organisations, and financial sustainability, covering all the costs mentioned above, these must be supported by the implementing partners.

The need for ongoing continuous support was confirmed by interviews with the committees and the parents at the end of the first harvest. Participants wondered if they would be supported in the next seasons and expressed doubt in their ability to pursue, “if the plants do not give the first time”, stating they “would not have the means to reach every third season”. In the below extract a parent expressed doubts regarding their ability to proceed without further support after only the first season. Even when the harvest had been successful in the first cycle, respondents from the school committees highlighted the need for seeds for the next agricultural round, both to continue and expand their agricultural production.

I wish [NGO] could help us during these three seasons. We do not ask them to support us forever but to support us in case of problems such as lack of seeds as we are still at the beginning of the project. For example, if we want to farm two hectares for potatoes and we only have 10 bags of seeds that can only support one hectare, [NGO] can help us with the other 10 bags so that we can farm all two hectares. (Parent, July)

5. Conclusion

The first set of findings suggest that school gardens can be relevant to addressing child labour only if the use of the harvest is well designed to serve children at risk of engaging in, or already engaged in child labour. In our study, school gardens that did not have such planning tended to benefit relatively better off caregivers who were able to commit a substantial amount of time volunteering in the garden and benefited personally from their participation. To reach more vulnerable children, school gardens should be connected to feeding programs that serve all the children of the school.

A garden of sufficient dimension to support a sustainable meals system requires effort, work, coordination, and supervision, and therefore the community must own the activity, in line with the technical guidelines promoted by FAO.³³ Findings highlight the importance of ensuring all stakeholders' expectations are aligned with the project plans and resources. Moreover, it is equally important to support the school garden committee to gradually take ownership of the project by ensuring sufficient time is spent on team building and that sufficient training is provided to everyone. Finally, to maintain engagement of participants over the long term, a clear and fair distribution of tasks, effective coordination mechanisms, and adequate financial support for labour-intensive phases of the agricultural cycle are essential to enabling community members, and parents, to regularly participate in the school gardens management without undermining their households' livelihoods and wellbeing. The findings also recommend starting a school garden initiative with a small agricultural production and then gradually but steadily expand over time.

As described in this paper, sustainability relies on community ownership and leadership by school staff and the school gardens committees. Even when access to land and financial sustainability is ensured, changes in school leadership and in the school, committees can undermine the long-term sustainability of the overall school meals systems as new members or new school directors might not be equally motivated and skilled in coordinating and leading the work of the school committees. Thus, while pursuing sustainability is engrained in this activity, implementing agencies should consider these additional factors when planning and implementing this approach, being aware of these risks and managing them appropriately. Unless local and national governments will ultimately take over the responsibility to ensure long-term sustainability of school meals systems and programmes, it is unlikely that an NGO-implemented project will succeed in establishing fully sustainable school feeding systems. Future research could include exploring how NGOs can work with governments to ensure sustainability and scale-up of school garden models. Another future area of learning involves children who have already dropped out of school: while providing children with school meals through a school garden model might prevent pupils from dropping out when economic shocks affecting their households, barriers to re-enrolment exist for those who have already dropped out. To address those, researchers and programmers should explore how school gardens could be complemented by other interventions, considering perhaps information campaigns in the workplace informing about the existence of school canteens, material support, and cash transfers to households that cannot afford school fees and related expenditures, and providing children who need it with accelerated learning classes, keeping in mind the additional barriers faced by girls. In sum, despite the promise of school garden models, future research should concentrate on how to make these models sustainable and how to make them work for a broader array of children, especially those most vulnerable to the worst forms of child labour.

³³ FAO, "Setting up and running a school garden", Technical Document, Rome, (2005), <http://www.fao.org/3/a0218e/a0218e.pdf>.

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