Access to water to reduce child labor in rural areas. A technological innovation contribution to family agriculture

Executive Summary

Context

Child labor is a global problem. According to estimates, 160 million children work; 70% (112 million) in the agricultural sector. In the Americas, 8.2 million children work, and 48,7% start in agriculture early in their lives.
Child labor is physically, mentally, socially, and morally prejudicial since it violates children and adolescents' rights. Besides, child labor exposes children to risks and, in many instances, negatively affects schooling, leisure, and rest.

In Argentina, child labor is forbidden by Law 26390, and the rights of children and adolescents are protected by Law 26061 and Decree 1117/2016. Under the legislation in force, child labor means any work where children under 16 participate.
In 2016 and 2017, the Ministry of Labor, Employment and Social Security conducted the Children and Adolescents Activities Survey[1] that provided a diagnosis for implementing a comprehensive approach based on an innovative methodology that allowed listening to the voice of protagonists.

Child labor affects 10% of all children between 5 and 15 years of age and 31% of adolescents between 16 and 17 years old. In rural areas, these figures double: 19.8% of children aged 5 to 15 perform at least one productive activity, either for the market, self-consumption and/or an intensive household chore.
Out of the 760,000 children that work, 206,635 (27%) do so in rural areas.

Furthermore, the Identification Model of Child Labor Risk[2] allows registering the risk of child labor and adolescent work. The dimensions that show a higher impact on risk are school non-attendance and the informality of household heads' occupations.
Rural areas present a higher risk due to the bad quality of basic services and more unfavorable conditions for adults to find decent work.
Child labor incidence in any of its forms is higher in rural areas than in urban areas. These may be exclusive, shared or overlapping activities.

[1] https://trabajo.gob.ar/estadisticas/eanna/informe.asp
[2] https://www.ilo.org/buenosaires/publicaciones/empleo/WCMS_730334/lang--es/index.htm

In any of its forms child labor incidence shows substantial differences by sex. Boys participate in most market and self-consumption activities (9.6% and 12.7%), and girls are responsible for intensive household chores (9.4%).
Different studies alert the possible increase in child labor due to the social and economic crisis derived from the COVID-19 pandemic. Everything seems to show that child labor and forced labor tend to worsen.

Access to water is a human right and, as such, is fundamental for agricultural production, nutrition, and human health; it is decisive to achieve equal, sustainable, and productive rural economies.
In rural areas, there is a high percentage of people under 15 performing tasks essential for access to water, which is time-consuming and impacts on health.
Safe water provision requires multiple activities: carrying, collecting, and cleaning containers, cleaning storing areas, filtering.
It is usually considered part of the household chores; therefore, women are more likely to do it but tend to ask for their children's support.
It may happen that children accompanies their mother in these activities because there are no children care facilities where they can stay.
In many cases, there is evidence that it jeopardizes school attendance since children lack the time or are very tired.
An investigation by the National Institute of Agricultural Technology (INTA) and the National Institute of Industrial Technology (INTI) estimates that these tasks may require up to six hours every day.

Institutional framework

INTA is a decentralized, self-governed body of the Argentine State. Regarding the development and promotion of comprehensive water management technologies, INTA has the Technological Research and Development Center for Family Farming (CIPAF), the Water Access, Use, Re-Use, and Management for Multiple Purposes national project, and the Extension System that covers all the country.
Besides, INTA has established the Gender, Childhood and Adolescence Platform in the Argentine Agricultural and Agro-industrial System.
Therefore, addressing child labor is part of the agenda that is being built thanks to the INTA-ILO Agreement: the OFFSIDE Project for the eradication of child labor and the promotion of rural decent work.

For the past thirty years, INTA has been carrying out the ProHuerta Program, a food security policy for vulnerable families funded by the National Ministry of Social Development.
Between 2016 and 2019, the Program incorporated the ProHuerta Special Projects that focuses on projects using diverse water catchment, supply, storing, and distribution systems for multiple uses (domestic consumption, animal production and irrigation).
Besides, in 2019, the Rural Water Cisterns Special Program was implemented: 2,397 cisterns were built. INTA and others support and teach this technology to collect and store rainwater. Social organizations working in the field were involved: social movements that represents small-scale farmers, locals and family farmers, NGOs, neighborhood clubs and associations, women groups and churches. Municipal governments and commissions, the Secretary of Family Farming and the Secretary of Employment of the Ministry of Labor, Employment and Social Security became strategic partners.

Objectives

This study, funded by the OFFSIDE Project of the International Labor Organization, intends to contribute to ILO's Centenary Declaration for the Future of Work and is aimed at eliminating forced labor and child labor, promoting decent work for all, and encouraging the transition from informal to the formal economy, placing due emphasis on rural areas.
It also contributes to the 2030 Sustainable Development Goal number 8: Decent Work and Economic Growth, particularly in calling for an end to child labor in all its forms.

This research aims to inquire about the impact of new technologies that provide access to water in terms of time consumption, on family production units and understand their potential contribution to preventing and reducing child labor in agriculture.

Four specific goals were set: 1) Identify the different activities each family member engages in, and the time devoted to them. 2) Understand the operation, quality, and quantity of water produced, the adoption, maintenance tasks, and the family management of technologies. 3) Discuss the impact of implementing the new technology and assess the time dedicated by children, adolescents, and adult women in the family unit, including the potential consequences of the COVID-19 pandemic. 4) Recommend strategies, policies and actions to prevent and eliminate child labor and protect adolescent work in agriculture in relation to productive innovation projects.

The Study

This is a descriptive, quali and quantitative study from a cross-cutting perspective of a target population of 75 family farmers with children and adolescents that participated in technical innovation projects aimed at improving access to water, based on a pre-set sample framework.

First, using a quantitative strategy, the study identifies the time family members dedicate to the different productive and reproductive activities; then, it focuses on the operation of the implemented technology, including quality and volume of the water produced, adoption of maintenance tasks and technology management.

Second, the study reveals the changes in the family work organization process and the impact of technologies on the activities performed by children and adolescents, selected from a non-probabilistic and purposeful sampling. The sample properly represents the different macro-regions of the ProHuerta Program by respecting the right proportions of projects implemented in their territories. Furthermore, there was a similar proportion based on the results of their relative risk of child labor.
The different water uses were also adequately represented: 60% of the projects target multiple uses of the resource through the implemented technology or system, and 83% include domestic use. Last, the sample includes the different types of technology available in the macro-regions.

Data were gathered from structured surveys, interviews, plus physical, chemical, and microbiological water tests. The surveying team included 94 INTA technicians specially trained to understand the problem and the application of the instruments.
The team surveyed 187 households distributed across the provinces

Characteristics of the family productive units

Following the categories established in the Agricultura National Census, the survey attempted to characterize the productive unit: most of the 187 cases surveyed are sole proprietors; there were some community proprietors undivided estates, occupants with a permit, occupants in fact; specific characteristics were recognized in the different macro-regions.
57% of the families surveyed have 20 hectares or less; heterogeneity is wide among the macro regions.

Rainwater harvesting and water gutters are present in any kind of land tenure, which correlates with the number of rooftop collection systems with downspouts and pipes or

hoses. On the other hand, groundwater and electro pumps are common in individual or community properties, undivided estates and rented land.

22% of the households declare that at least one of their members identifies as part of an indigenous people, mainly in the Northeast and Northwest macro-regions.

Most family members perform some tasks in the property: 61% carry out physical tasks, and half, are in charge of household chores. The list continues with commercialization tasks, administrative tasks, and volunteer community work.
From those who declare performing physical 55% are men and, 45% women. Commercialization is more in the hands of men (57%) than of women (43%). Household chores are performed mainly by women (61%), as well as administrative tasks (54%). Volunteer community work is the responsibility of both men and women.

Education

93% of children and adolescents attend classes at some school; 4.3% do not attend now but did before.
78% that attend basic level classes travel a minimum of 5 km to reach school, and the remaining, more than 5 km. These percentages invert in the mid-level. 75% take less than 30 minutes to reach school; most of them walk to school.
Families mentioned the bad roads as a limiting factor for children to go to school.

Out of the children that dropped out of school, 24% are aged 13 to 15; 76% are adolescents aged 16 and 17, mostly women. All of them are engaged in child labor.

Child labor

Out of the 396 children and adolescents aged 5 to 17 that stated they had at least once worked outside the property, 29% are from 5 to 12 years old; 32% between 13 and 15 and the remaining 38%, adolescents aged 16 and 17; more than half had worked the week before the survey. 87% of those who had ever worked are men.

The average number of hours that children dedicate to productive activities for the market is 0.4 hours, to activities for self-consumption, 2.2 hours and domestic chores, 6.5 hours.

52.8% of the surveyed children aged 5 to 15 perform at least one productive activity. Breaking down by type of activity, 14% of boys and girls carry out activities for the market; 41% for self-consumption, and 26% for intensive household chores.

Breaking down by age, percentages drop from boys and girls aged 5 to 12 and increase for boys and girls aged 13 to 15. As to the number of children aged 5 to 12 performing at least one productive activity, their percentage is 47%. Those aged 13 to 15, 69%.

By gender, 17% of boys and 10% of girls perform productive activities for the market; 53% of boys and 32% of girls do so for self-consumption, and 23.2% of boys and 28.6% of girls carry out intensive household chores.

82% of adolescents is responsible for at least one productive activity. Adolescents participate more in activities for self-consumption, followed by intensive household chores and third, in activities for the market. More women participate in household chores (58%) than in activities for the market (45%) and self-consumption (42%) when compared with men.

The intensive household chores more frequently found among the surveyed children and adolescents were cleaning, doing the dishes or the laundry, tidying up the house, collecting firewood, taking care of siblings or any other person, do the shopping, cooking, ironing, fixing devices, mowing the lawn and collecting water. On the other hand, outside household and care activities, the most frequent productive activities were milking, taking care of farm animals or animals for consumption, growing, and harvesting agricultural products, fruits, and vegetables for family consumption.

The interviews allowed detecting two significant characteristics of the productive activities children perform. First, children are always in the company of or close to an adult family member. Second, these activities are considered to be part of a learning process.

The seasons of the year have a definite influence, and the different productive cycles impact the time devoted to productive activities in every family group, especially among children.
Besides, the impact of the COVID-19 pandemic is present every time: the lack of in-person classes at school, the limited capacity to move to urban centers, and the hygiene protocols in commercial activities were referred.

Water fetching and self-consumption activities

The activities that interest the most in this study are collecting water, fetching firewood, cleaning, washing, and taking care of siblings. As to collecting water and fetching

firewood, participation drops as adolescence arrives (25.5% and 58.8%, respectively) and is higher among those aged 13 to 15 (38.6% and 62.5%, respectively). On the contrary, household chores and care activities increased among adolescents: 66% look after their siblings, and 78% are responsible for cleaning the house and laundry.

Out of the total of children and adolescents surveyed, 25% collect water, and more than half did so in the week before the survey belong to the 5 to 12 interval and distribution is similar between genders.

Furthermore, children carried out other productive activities: 45% helped with the growing and harvesting of agricultural products, fruits or vegetables for family consumption; 11% also helped in the growing and harvesting of agricultural products, fruits and vegetables for sale; 79% also helped with the cleaning and dishwashing, the laundry or tidying up the house. On the other hand, 15% worked less than an hour of their lives outside the property. This average is 2.7 points higher than the children general average who have worked once in their lives.

The study did a similar analysis of activities such as collecting firewood; cleaning and doing the dishes or the laundry, tidying up the house, and looking after siblings or someone else. However, more girls than boys participate in activities linked to house cleaning. The difference is not so important when looking after people is considered.

The impact of access to water technologies

The research has shown a clear contrast before and after the technologies implementation to provide access to water and the multiple use of the resource. Before, only 17% of households had tap water in the house, the percentage increased to 53%.

Before implementing the technology, 34% of the households surveyed had access to water only outside the property. This number dropped to zero, allowing families to reduce or eliminate the time devoted to have access to water. Those households that already had water in the property before, currently have water in the house.

Fetching water now requires fewer hours (five a week, on average); it was necessary in 132 households but now, only in 26. Tasks related to technologies management and repair are still required: 42% state that families still need to devote time to cleaning and conditioning the containers. The fact that the need to perform these tasks persists depends on the technology implemented (cistern and well), which operation demands repairs.

Fetching water responsibility on children and adolescents decreased from 26.5% to 11.5%.

The water containers handling, repairing, cleaning and conditioning duties are relatively low, 3.8% and 12.5%, respectively, though not less worrying, even when these tasks are carried out in the company of adults.

95% of the 185 households surveyed said that technology implementation facilitates household chores; 85% stated they could give new uses to their available water.
The new and most relevant uses relate to household chores are feeding, laundry and personal hygiene. And, to a lesser extent, productive uses, such as irrigation, livestock rearing and house cleaning.

The families mentioned that their health, personal and home hygiene have improved in their interviews. They also mentioned that their income increased because they were spending less on fetching water. Mention was also made to the possibility of new recreational activities for children.

The study included water analysis, 14% were apt for domestic use; 63% were not unless sanitized. 53% of the sampled households does not treat (disinfect) the water before using it; 21% does some treatment, and the remaining 26% did not provide any information. This shows the need still exists to strengthen the generation of new knowledge on sanitization and to train families to adopt technologies and management practices to ensure their access to safe water.
Livestock water use was sampled, and all proved to comply with health standards. A significant part of the sampled households uses water for irrigation, with low salt content.

Recommendations

Most recommendations outline the importance of installing and improving water technologies, providing services (housing, health, electricity, public transport and roads, and telecommunications), and the need to have the infrastructure and technology (machinery and tools) to work in agriculture.

Besides, some answers focus on the need of giving children better education and recreation opportunities, training and work to adults, and more funding for community projects.

The study showed that rural families can have access to water for different uses at low cost if the proper technologies are implemented.

As the three types of determinants for child labor in rural areas: institutional, cultural and socio-economic, are interconnected, it`s necessary to design recommendations and develop policies, strategies and actions to prevent and eradicate child labor, protect adolescent work in agriculture based on the implementation of comprehensive and inter-institutional projects.

A role of accompaniment and public management is necessary to ensure that these situations of vulnerability of the rights of children and families do not go unnoticed or are naturalized.

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