



INNOVATIVE SOLUTIONS TO COMBAT FOOD INSECURITY AND SUSTAIN LIVELIHOODS DURING THE DIFFICULT TIMES OF THE COVID-19 PANDEMIC

BACKGROUND

A successful collaboration between the Institute of Natural Resources NPC (INR) and the United Nations Development Programme (UNDP) in South Africa yielded exceptional results and positive impact on many livelihoods during the devastating times of the COVID-19 pandemic. Through the collaboration, between October and December 2020, UNDP and the INR implemented food security interventions in poor communities across the rural and peri-urban areas of KwaZulu Natal province.

INTRODUCTION

The impacts brought by the COVID-19 hard lockdown exacerbated the historical challenges of unemployment, poverty and inequality experienced in urban, peri-urban and rural communities of South Africa. Food prices skyrocketed while most people who were “breadwinners” lost their jobs. In dealing with these challenges; the project introduced three innovative vegetable production technologies (Keyhole garden, Tower garden and a Trench bed with a simple drip irrigation system) in order to improve

access to fresh produce. The use of grey water (water from bathing or washing clothes or dishes) to irrigate the vegetable gardens was explored as an option for communities with irrigation water. The vegetable gardens were complemented with one of three options for providing a source of animal protein - either three commercial egg-laying hens, five indigenous dual-purpose Boschveld chickens, or a pair of New Zealand white meat rabbits. This work was implemented in 11 project sites with 138 beneficiary households.

Keyhole garden



Elevated surface makes gardens easier to manage

Tower garden



Recycles organic material which retains water and supplies nutrients

Trench bed



Benefits of the garden structures

Uses local materials and waste to construct garden

Allows safe use of grey water

THE MONITORING AND EVALUATION PROCESS

Six months post-implementation, a study was conducted to monitor and evaluate the impacts of all the interventions focussing on household food security, nutrition, income generation/financial savings, skills development, social cohesion, and COVID-19 resilience. The monitoring and evaluation (M&E) process sought to consolidate the lessons, challenges, successes, and areas of improvement to guide the future development of similar projects.

OBSERVATIONS FROM THE M&E PROCESS

Vegetable production component

INR and UNDP found that the overall retention rate for the household garden structures was 82%. The retention rate was a measure of the percentage of beneficiary households that had at least one active garden when they were visited in October 2021. In addition to this, 81% of all the garden structures that had been installed through the project were still in use. These results indicate that even after the project implementation, the beneficiaries continued to have access to healthy vegetables, ultimately translating to improved food security and household nutrition.

Sum and percentage of households and garden structures still active during the M&E process, per project site

Site	Number of Households	Number of active households (at least 1 active garden)	Percentage of households with at least 1 active garden (November 2021)	Number of gardens installed	Number of garden structures active	Percentage of active gardens
Richmond	16	13	81	24	20	83
Ixopo	15	10	67	31	18	58
Madiba	12	11	92	15	14	93
Trustfeed	10	10	100	18	17	94
Sweetwaters	8	6	75	13	11	85
Gezibuso	14	13	93	20	18	90
Bulwer	12	11	92	23	21	91
Cato Manor	11	10	91	13	12	92
Bergville	26	18	69	36	27	75
Hammarsdale	1	1	100	1	1	100
Impendle	14	11	79	24	18	75
TOTAL	139	114	82	218	177	81

The unique designs of the garden structures, especially the keyhole and tower gardens, were found to be attractive. The quality of produce growing from these gardens was noticeable and that drew the attention of neighbours.

Use of grey water to supplement irrigation

Grey water use was a new practice for most participants. Due to the negative perceptions surrounding grey water use, and because the majority of participating households had access to piped water, many did not make use of grey water recycling.



Households received equipment for using grey water



The spirit of ubuntu prevails in communities

Many households opted to donate their surplus produce to neighbours rather than sell it, contributing to social cohesion in these communities. The transfer of information between some project participants and neighbours, typically on how to construct the gardens, also indicated the same effect. For example, at the Indaleni project site, the local facilitator Mr Mzo Mndali, assisted the Richmond Day Care Centre with constructing their own tower and trench gardens.



Adaptation strategies and innovations

While the project introduced fairly standard designs for the garden structures, M&E findings show that many households adapted their gardens to address challenges they experienced with livestock interference (e.g. birds, chickens, and cattle). For example, some constructed fences around their gardens and installed covers over the gardens to protect against livestock damage. Others mulched the surface of the gardens to prevent loss of soil moisture.



Perceptions about the gardens

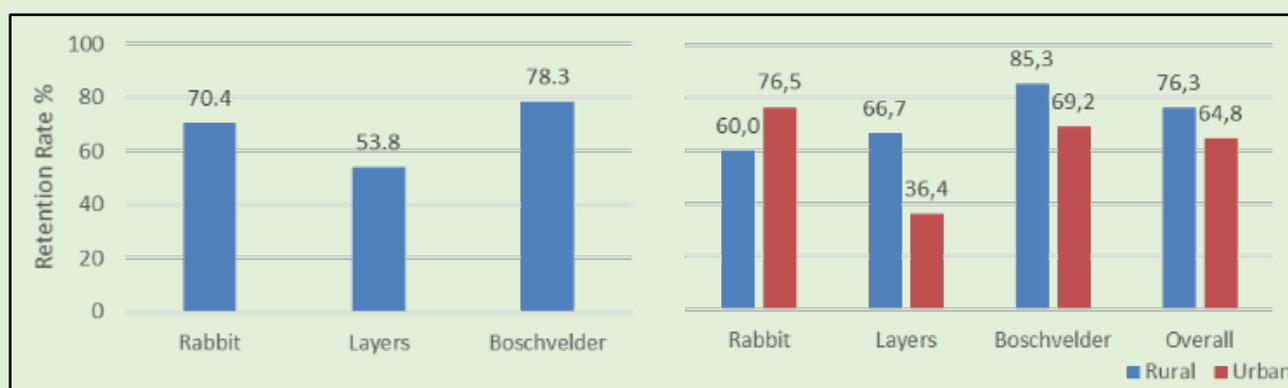
Through interviews with individual households, as well as focused group discussions, project beneficiaries shared their experience in constructing and sustaining the gardens. Some key views include:

- Most of the material used to fill the gardens and provide a substrate for growing the vegetables (e.g. tin cans, paper, cardboard, tree branches, crop residues, etc.) was easily accessible.
- Kraal manure was difficult to obtain in urban areas when compared to rural areas and in some cases, it had to be purchased.
- The garden structures were easier to manage than the traditional gardens – especially in terms of irrigating, weeding, tilling, and harvesting. The elevated nature of the tower and the keyhole gardens, and the ability to use hand tools made it easier to manage, especially for the elderly and for people with disabilities.
- Once constructed, beneficiaries found that the garden structures had minimal labour requirements, and were able to produce relatively larger amounts of food than the traditional garden systems.

Livestock and poultry component

While vegetables provide essential vitamins and minerals, proteins play a vital role in one's diet and therefore the project was also designed to provide a source of protein in the form of eggs and meat (rabbit or chicken). Households were allocated livestock based on their perceived ability to care for them beyond the project timeframe. For example, egg-laying hens only perform well if fed on a well-balanced diet and were thus only given to households that could potentially buy commercial layer feed. Most of the beneficiaries were unfamiliar with meat rabbits and thus rabbits were only supplied to households that expressed interest to try keeping them. Most households were provided with Boschveld chickens because most people are familiar with these chickens and the chickens can free-range and supplement their diets.

Participants preferred the dual-purpose Boschveld chickens over egg-laying chickens as these could be purposed for both eggs and meat. They were also fairly easy to manage, and this was reflected by the 78% retention rate that was observed. The need to provide a specific feed to laying hens discouraged participants to rear them and several households slaughtered the hens when their egg production declined due to poor nutrition. Despite rabbit farming being new for most project participants, retention rates were 60% and 76% in rural and urban project sites respectively.



Livestock retention by households for different livestock types (left) and considering the context of the project site - urban vs rural (right).

Adaptation strategies and innovations

Each household that received rabbits or poultry was provided with a wooden cage, feed and water dishes, and animal feed. The cages were built by local carpenters, which provided support to local businesses. When the households were visited during the M&E process, the cages had been modified while the beneficiaries had also developed methods of managing the livestock.

Innovation and adaptation of the gardens

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