

# A STRATEGY TOWARDS CONTRIBUTING TO HOUSEHOLD FOOD AND NUTRITION SECURITY: A CASE STUDY OF O.R TAMBO DISTRICT MUNICIPALITY IN SOUTH AFRICA

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## ABSTRACT

Ensuring food and nutrition security is a challenging under the increasing population pressure. Governments around the globe have been striving to achieve this goal phenomenon, but this has been difficult to achieve unless the government and communities choose to work together to find strategies towards household food and nutrition strategies. Therefore, the paper aims to raise awareness through research and innovation on how young school children contribute to food and nutrition security, climate change in their daily lives by understanding how their everyday actions are associated with nature, realizing greenhouse gases into the atmosphere. The paper further introduces the One Tree One Child project by the O.R Tambo District Municipality as a strategy towards contributing to household food and nutrition security, climate change and environmental conservation. The overall objective of the One Tree One Child Program is to make a valuable contribution to the improvement of global climate challenges for improved food security, livelihood and secure future generations in the district, using School Children as the primary drivers of the tree planting campaign. In this paper, a descriptive study design was used with both primary and secondary sources as a means of data collection. The study population consisted of School Children and the project coordinators from the randomly selected One Tree One Child Schools in the district. The findings of this paper reveal that there is a huge disconnection between children and nature and that the emergence of the One Tree One Child program had afforded opportunities to expose our children, students to the wonders of the natural world and helped to teach them of the inter-connectedness of all living things.

## 1. INTRODUCTION

According to Haq, Shahbaz, Abbas, *et al* (2022:1) Food and nutrition insecurity is one of the greatest problems faced by humanity due to limited resources and an increasing population, especially in developing and low-income countries. People residing in rural areas of developing countries will be more at risk of food and nutrition insecurity in the near future owing to climate change and uncertain economic conditions.

Hence, the study believes that climate change is now a disturbing issue globally and warnings about its negative effects on humanity are becoming evident to date. Like in most parts of the world, South Africa is experiencing extreme weather events including storms, floods, cyclones, hailstorms, heatwave and drought due to changes in rainfall patterns, increase in temperatures, sea-level rise, and a loss of biodiversity. Rural households in developing countries face a continual challenge in managing a complicated bundle of interrelated environmental, economic, social and health-related threats, stressors and shocks (Philip and Rayham, 2004:22). For example high poverty levels, higher population growth, and fast-paced development are straining natural resources and the ability of environments to match these changes. This exposes especially rural Africa at high risks of negative climate change effects, worsening the pathetic rural livelihood situation. In some areas of South Africa including the Eastern Cape province, woodland has been exhausted and some poorly managed by the exploding population. The United Nation on Climate Action, (2020) shares that climate change refers to long-term shifts in temperatures and weather patterns. These shifts may be natural, such as through variations in the solar cycle. But since the 1800s, human activities have been the main driver of climate change, primarily due to burning fossil fuels like coal, oil and gas.

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Burning fossil fuels generates greenhouse gas emissions that act like a blanket wrapped around the Earth, trapping the sun's heat and raising temperatures.

For example in South Africa, cutting trees and shrubs within the natural environment has worsened the situation. Whereas the 70% of rural population in the Eastern Cape Province rely on Small-scale subsistence agriculture as source of livelihood, its future is faced with high uncertainty, because South Africa is regarded a water-stressed country and less than 10% of the country receiving only 750 mm of rainfall per annum- regarded low compared to the world's minimum rainfall of 860 mm/annum (Hosu, 2015). According to Parliamentary Monitoring Group-SA (2009), the assessment of forest cover was carried out to develop and integrate plans related to forestry and agriculture. The group lamented the major cause of deforestation in the country as those related to increased demand for land for agricultural and residential purposes. Among strategies of reducing the negative impacts of climate change, afforestation was set aside at least 60,000 half of land in Eastern Cape for afforestation, and a budget was established planned for over 5 years. However, based on observations by the authors of this article, a vast land size in OR Tambo District Municipality (ORTDM) is faced with low vegetation cover and barely any tree. This exposes established infrastructure, houses, and school buildings to storms, which sweep of roofs and sometimes result in loss of human life. Destruction of school structures in such areas is seen as a huge loss not only to the school but also to the entire nation.

According to Times live (2011) website dated 06<sup>th</sup> February, under the headline "End of Mud Schools in Eastern Cape", the reporter indicated that there were several schools constructed with mud and these could hardly survive storms. All these natural disasters have contributed to low food production, high poverty levels, and increased government expenditures, and hence the poor quality of life especially in rural OR Tambo District Municipality. In quest to contribute to the improvement of quality of life more especially to food and nutrition security among rural communities, the O.R. Tambo DM initiated the "One Tree One Child" Project to promote tree planting campaign for commercial wood production, poles and pulp production, to curb the negative attributes of climate change, and fruit production, medicinal for both selling and household consumption.

## **2. FOOD SECURITY IN SOUTH AFRICA**

According to the Department of Social Development and Department of Agriculture, and Department of Forestry, Fisheries and Environment (2013:10), Food Security in South Africa showed that in relation to the affordability, availability and quality of food, the country is ranked 40th out of 105 countries, with an aggregate score of 61% nutritional standards in South Africa and food safety standards. According to (Stats SA, 2017) revealed that while South Africa is food secure at national level, the country is still food insecure at household level, as not all households have access to adequate food. Almost 20% of South African households had inadequate or severe inadequate access to food in 2017. This differs by province, population group of household head and by household size.

## **3. THE NEED FOR A FOOD SECURITY POLICY**

The Department of Social Development and Department of Agriculture, Forestry and Fisheries (2013), state that there are three reasons why a Food and Nutrition Security Policy is urgently needed in South Africa. First, of these is the need for a common definition and measures on Food and Nutrition Security. There are a number of conceptual interpretations and definitions of Food Security, which are used by key stakeholders, including government, the international community, research institutions and civil society. A Food and Nutrition Security Policy is therefore needed to specify the key elements and scope of the concept, and to establish a common understanding, which can be owned by all. Second, Food and Nutrition Security is a complex issue characterised by inter-disciplinary approaches. This National Policy on Food Security and Nutrition seeks to provide an overarching guiding framework to maximise synergy between the different strategies and programmes of government and civil society. Third, as a member of the Southern African Development Community (SADC), South Africa contributes substantially to Regional Food and Nutrition Security, and needs to play a leadership role in this regard. This Policy thus will create a platform to understand the parameters and boundaries of our international obligations.

However, South Africa still faces serious food security challenges, like the inadequate safety nets and food emergency management systems to provide for all those who are unable to meet their immediate food needs or to mitigate the impact of natural and non-natural disasters on food security;

## **4. LEGISLATION AND POLICY BACKGROUND**

According to the Department of Social Development and Department of Agriculture, Forestry and Fisheries (2013), in 2002, Cabinet approved the national Integrated Food Security Strategy (IFSS) in order to streamline,

harmonize and integrate the diverse food security programmes. Some successes have been recorded in different priority areas of the Strategy, and South Africa is presently able to boast national food sufficiency through a combination of own production and food imports. The General Household Survey (GHS) has also indicated that the food access index has been improving, and the incidence of hunger declining. Further to this the Constitution of the Republic of South Africa, upholds the principle of protecting the lives of the vulnerable groups. This is emphasised on Section 27(1) (b) of the Constitution which states that everyone has a right to access to sufficient food and water, whereas Section 153(a) of the Constitution confers municipalities with the developmental duties of which among others include promoting the social and economic development of their communities. Various pieces of legislation attempt to promote and protect the lives of the poor through food and nutrition security and environmental conservation. These pieces of legislation include the South African Integrated Food Security Strategy of 2002 and the National Development Plan.

The Government of South Africa, through the National Development Plan, committed itself to eradicate poverty and inequality among South Africans by 2030, thus food security is among the point of focus. In pursuing the NDP vision as well as fulfilling its constitutional mandate, the O.R Tambo District Municipality adopted and One Tree One Child program as one of its greatest strategies towards contributing to household and nutrition security. Specifically, was initiated by the office of the Honourable Executive Mayor as the way to get closer to the people they serve. According to the Report (2014), (2015) on the ten schools, under One Tree One Child Pilot study the program aimed at making a valuable contribution to the improvement of global climate challenges for improved food security, livelihood and secure future generations in the district.

The South African Integrated food security strategy of 2002 noted specific challenges about food security including weak institutional support and disaster management systems and inadequate and unstable household food production. The One Tree One Child Program is seen both as a food security and as disaster risk reduction strategy. It is entrenched in the Integrated Development Plan (IDP) of the O.R Tambo District Municipality as a poverty relief program and is guided by the Service Delivery and Budget Implementation Plan (SDBIP), which state that the municipality must strive to distribute 400 fruit trees to 400 households every quarter of the financial year amounting to a total of 1600 fruit trees being distributed per financial year.

## **5. ONE TREE ONE CHILD PROJECT**

One Tree One Child project was visualized by the Executive Mayor of O.R. Tambo District Municipality as an innovative way of making a positive and sustainable contribution towards local schools, climate change, and the environment, later it was developed into a project concept document to look for funds to assist the communities and schools, working hand in hand with the school principals, educators, learners as the primary drivers of this concept and the School governing bodies (SGBs), school administrators, involving chiefs, Councillors, Forest field officers, Commercial afforestation companies, environmental staffs, Local Economic Development officers, Local Municipal Councils and the Department of Education to utilize the existing opportunities such as land and consider school gardens, afforestation and greening projects within their school and Community.

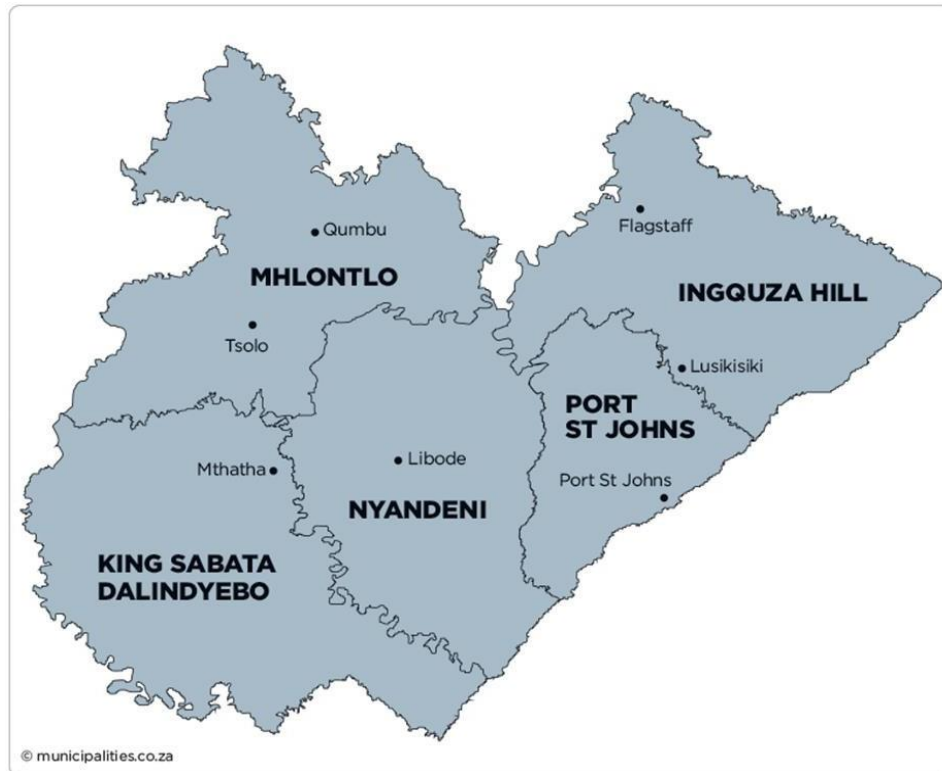
The program was established in 2014 to fight against poverty and its associated evils, environmental issues and to restore the much needed endangered, degraded species in the district by providing fruit trees to households and planting indigenous trees at schools, old age homes and streets. The program target school children and schools as its primary drivers and beneficiaries.

## **6. LOCATION AND IMPLEMENTATION OF THE ONE TREE ONE CHILD PROJECT**

The O.R. Tambo District Municipality is located in the eastern half of the Eastern Cape being one among the six district municipalities in the province. The O.R Tambo District is a rural district, characterized by high levels of unemployment and hugely poverty-stricken, thus the District deemed it prudent that the Executive Mayor should champion a program that addresses The One Tree one Child program is implemented throughout the O.R Tambo district, with both primary and secondary schools being the primary beneficiaries.

The O.R Tambo District municipality is made up of five local municipalities, namely, Nyandeni LM, Port St Johns LM, Ingquza Hill LM, Mhlontlo LM, and King Sabata Dalindyebo LM

Figure 1.1 below provides a picture of the ORTDM while figure 1.2 is a list of schools that have benefited from the program since its inception in 2014.



**Figure 1.1: O.R Tambo District Municipality Map (Source: Municipal Maps, 2019)**

When piloting the program, ten schools were selected in the 5 Local Municipalities that make-up OR Tambo District Municipality. Six schools benefited from the project in 2014 and the last four schools were completed in March 2015 and ten new schools were considered and selected. Since then, the program has enrolled thirty-four schools extracted across the five local municipalities in the O.R Tambo District. All these schools had undergone the three stages of the program.

The program has three fundamental components which are; capacity building, distribution of fruit trees and planting of the indigenous trees. Key amongst these three components is capacity building where workshops are held on a quarterly basis in which all relevant stakeholders including children as the primary drivers of the project, traditional, religious and political leaders, teachers and parents are brought under one roof and are provided with theoretical and practical lessons relating to food security, project management, tree planting, and environmental conservation. According to Awopeso (2012:262), capacity building is a broad statement that encompasses two sets of beliefs. Firstly, it refers to actions that improve the effectiveness of individuals, organizations, networks or systems including organizational and financial stability, program service delivery program quality and growth. Secondly, capacity building is a long-term process that improves an individual, group, and organization’s ability to create a positive change and better improve performance results.

Table 1: Table below describes areas where the project has been so far implemented.

Local Municipality	Primary School	Junior Secondary	Senior Secondary	Other
KSD LM	Lapumikwezi SPS	Hlabatshana JSS	KwaNtshеле SSS	Empa older persons project

	Zimbane Valley SPS	Nkalane JSS	Menziwa SSS	
			Dudumayo SSS	
			Jongintaba SSS	
Mhlontlo LM		Thandanani JSS	Joubert Ludidi Comprehensive High School	Tsolo special School
		Tsolo Residence JSS	Somagunya SSS	
		Ncumbe JSS	Rueben Ntuli SSS	
Nyandeni LM	Dalisoka SPS	Ntaphane J.S.S	Dimanda SSS	Mzomtsha Youth Centre Child and Care
			Gxaba S.S.S	
			Smuts Ndamase SSS	
Ingquza LM Hill	Thabatha SPS	Ntabezwe JSS	Goso Forest Secondary school	
	Gwebinkumbi SPS		Langa SSS	
			Mqikela SSS	
PSJ LM		Goqwana JSS	Kwa-Msikwa SSS	
		Ndevu JSS	Toli SSS	
		Khwezi JSS	Mhlanganisweni SSS	

## 7. DESIGN AND METHODOLOGY

This study adopted a descriptive study design using both primary and secondary sources as a means of data collection. Focus groups and observations were utilized to collect data from the stratified randomly sampled participants, whereas quarterly and annual performance reports were utilized as secondary data sources.

Ten schools were selected in the 5 Local Municipalities that make-up O.R Tambo District Municipality. Six schools that benefited from the project in 2014 and the last four schools were completed in-depth information from learners.



Both quantitative research and qualitative research was conducted in the form of questionnaire with learners being the participants as they are the primary beneficiaries of the programme. Probability sampling through a random sampling technique and 115 in 15 schools across.

## 8. RESULTS

### FINDINGS ON THE IMPLEMENTATION OF THE ONE TREE ONE CHILD PROGRAM

One tree One child project as a strategy towards contributing to household food and nutrition security in O. R Tambo District Municipality has proven to be successful and contributed to climate change as well as greening the environment as stated in (2015) the Healthy Soils for a healthy life to agricultural production and global food security.

The Food and Agriculture Organisation of the UN (FAO, 2005) says that successful agricultural development projects promote food security, self-sufficiency and self-reliance (such as income generation from non-farm sources to purchase food), through greater community control of agriculture and food systems. Community gardens provide access to affordable, nutritious and diversified local food that can increase food intake, smooth consumption and represent savings, enabling households to purchase foods that they do not produce and other household essentials. However, production and access to this food depends on a number of entitlements for producing or acquiring food (FAO, 2005). These include access to productive natural resources: water, seeds and environmental services; diverse sources and kinds of knowledge (including traditional and indigenous knowledge).

According to Bonn. Quisumbing, AR, AR& Meinen-Dick, RS (2001) Community members have not only acquired knowledge on tree planting, but the programme has also empowered women to learn about the importance of crop diversification. Also, beneficiaries are able to generate income by selling the surplus and purchase other commodities necessary for living. The implementation of the program has further fostered close relations between schools and parents, and between parents and their children leading to increased participation of community members in school affairs. Climate change in their daily lives by understanding how their everyday actions are associated with nature, realizing greenhouse gases into the atmosphere according to UNICEF (2019) Environment and climate change.

Following numerous interactions and discussions with the beneficiaries of the program, numerous achievements have been noted. Out of these interactions, it has been noted that beneficiaries of this project do not only benefit from consumption, they also generate new knowledge and ideas on crop production and tree planting. Children have generated knowledge of agricultural practices out of this project and learner enrolment has gone high in many schools and below this is what learners and educators have to say;

*When asked how she had looked after her tree, Asonle Nontwana from Goso-Forest Junior Secondary School in Ingquza Hill Local Municipality said: "I had no clue about the value of planting trees until I planted my tree". Growing up a tree a fruit tree requires multiple strategies and I am happy that I eat oranges out of my efforts.*

*In the meantime, Noziphiwo Nqeketho confirmed that she has developed more interest in tree planting and that she would like to pursue her career in forestry. This all came after she was awarded an opportunity to grow a fruit tree and to take care of indigenous trees at her school. Mrs. Bini who is the project coordinator in Kwa-Msikwa SPS in Port ST Johns said "When growing a tree, you need to treat and love it like a baby. I sometimes wake up in the morning and watch my school orchard and further speak to those orange trees as if I am speaking to my kids. Our school has been making a profit out of oranges. We sell oranges to the local market and other neighbouring schools and buy other commodities for needy school children like stationery and sanitary towels. In 2018 the school started harvesting oranges and made an income of R2400 while in 2014 the school made an income of R3400. Additionally, parents derive income through sold oranges from the trees that were given to school children.*

*Mr Nombanga from Thabatha SPS stated that they use their school orchard as a supplement to their school feeding scheme. In winter, they do not buy fruit instead they pick up oranges from their orchard. Also, 33 out-growers had emerged as a result of the One Tree One Child capacity building workshops including the study tour to Durban.*

These findings are further complemented by the following achievements extracted from the one tree one child assessment reports on the progress and the impact made by the project.

- 34 schools have benefited from the program
- To date, the project has given out 17057 Fruit Trees and 2000 Indigenous trees of different species have been planted in homesteads, school compounds and on streets

- 17 orchards have been established of which 5 of them have started harvesting.
- Employment opportunities have been created. Schools like Kwa-Msikwa JSS, Thabatha SPS, Ntabezwe SPS, Goqwana JSS have employed permanent people to look after their school orchards
- The program was profiled as the legacy project of South Africa and a legacy project of the United Nations Food for Agriculture as a result of South Africa hosting the World Forest Congress XIV 2015 of which the One Tree One Child had showcased.

### **9. CHALLENGES ENCOUNTERED**

Since the inception of the One Tree One Child Project in 2014, there has been an increasing demand for tree planting across the O.R Tambo District Municipality. However, due to the capacity constraints including financial and material resources, the program has fallen short of achieving the target of planting 700,000 trees within a space of five years. When it started, the program used to distribute fruit trees to all children in any identified school, establish an orchard within the school and planting indigenous trees for greening. However, due to budget constraints and financial limitations, the total number of trees that must be distributed has been reduced. Currently, the One Tree One Child program is mandated to distribute only four hundred fruit trees (400) per quarter amounting to one thousand six hundred trees (1600) for the whole financial year which is the drop in the ocean according to the dangers facing the district in terms of tree distribution. As research shows that every one tree caters for four people in terms of distribution of oxygen.

The program has received overwhelming support at the household level. However, since its inception, the One Tree One Child program has never received any support from either the Provincial or the National Government, more especially from the Department of Rural Development and Agrarian Reform (DRDAR). The program has been noted as one of the legacy projects of South Africa in 2017 by the DAFF Minister, yet no formal Correspondence or Communication has ever been received as evidence-based of its status.

Also the project has never received any form of support to strengthen its program since "One Tree One Child" of ORTDM through this project we are members of the Eastern Cape Forest Forum Committee then it leaves the project in the limbo relying on the Political leadership of the District Municipality which is not good in the language of Project Management Cycle. Apart from the political will and support but there are no indicators of its Sustainability if there is a change of leadership.

Though there has been some limited support from the Department of Agriculture, Forestry, and Fisheries (DAFF). One Forestry development officer has been quietly active in our One Tree One Child programs. His active participation, including selecting the best suitable schools to be offered fruit and indigenous trees, traveling around the district to conduct situation analysis from those schools and areas, capacitating communities on the role and the importance of planting both indigenous and fruit trees and also acquiring some indigenous trees that are planted at school. However, due to this limited support, there are some schools that have never received their indigenous trees which is not good on the side of the project implementers thus the doers coupled with the suitability of the project and sending wrong signals towards our communities as lack of uniformity in the process.

Lastly, the program has received a huge demand for trees from households, schools, community organizations, towns, and streets. There has been a call that the program should consider planting indigenous trees in sports grounds and landfill sites, particularly in rural areas. Another call was that at the household level, each fruit tree should be accompanied by an indigenous tree (Shade Tree). For example, Chief Mgwili from Ingquza Hill made a request that the program should move from One Tree One Child to One Tree One Household where all community members will benefit from the program, because there are those who are interested in tree planting yet cannot participate because they do not have kids or their kids have passed the stage of primary and secondary school's levels. It has been difficult to provide trees for some places because they are not properly fenced and the trees were considered vulnerable as they are exposed to animals.

### **RECOMMENDATIONS**

- The study recognises and acknowledges that one tree one child does not hold a food system that entails a long term food and nutritional security system in its availability but then again in terms of globally warnings and climate change the project will contribute vastly because of its tree planting.
- The study recommends that one tree one child should create sustainable food system and that requires a combined effort by governments, private sector, NGO's and communities.
- Create a consolidated food system policy guided by research framework, this will be fundamental to foster

the complex and knowledgeable need to achieve sustainable foodsystem.

- Ensure the project implementation is implemented in places of need and monitor the projects progress in order to prevent waste of recourses

The One Tree One Child is a big program and it requires active and collective participation and support from all angles of society including both public and private sector institutions. Since the role of the university is to teach, research and community engagement, universities need to engage more of their students in the tree planting campaigns, establishment of food gardens, orchards through research, innovation and career guidance which will result in skills development and job creation, thus curbing poverty and high levels of youth unemployment and preparing the future generations for the 4<sup>th</sup> Industrial Revolution.

## 10. CONCLUSION

The School community gardens, afforestation, and greening projects have provided many benefits to pupils, students, teachers, parents and the community at large. These spaces have afforded opportunities to expose our children, students to the wonders of the natural world and helped to teach them of the inter-connectedness of all living things. School gardens and green space have enhanced student's physical activity, ecological literacy, knowledge of natural cycles and offered increased protection from ultraviolet radiation. Lastly but not least the School children have demonstrated love for the environment.

## REFERENCES

1. Awopeso, N. 2012. Organizational Capacity Building in Health Systems. New York: Routledge.
2. Bonn. Quisumbing, AR & Meinzen-Dick, RS, 2001. Empowering women to achieve food security. [www.ifpri.org/2020/focus/focus06/focus06.pdf](http://www.ifpri.org/2020/focus/focus06/focus06.pdf). [Accessed 29 April 2019].
3. FAO (Food and Agriculture Organisation of the UN), 2005. High-level dialogue on financing for development: Meeting the Millennium Development Goals – financing for food security, agriculture and rural development. General Assembly – 59th session contribution by FAO, IFAD and WFP. New York, 27–28 June, 2005. [ftp://ftp.fao.org/docrep/fao/meeting/009/ae911e/ae911e00.pdf](http://ftp.fao.org/docrep/fao/meeting/009/ae911e/ae911e00.pdf) [Accessed 2 March 2007].
4. Haq, S.U.; Shahbaz, P.; Abbas, A.; Batool, Z.; Alotaibi, B.A.; Traore, A. (2022). Tackling Food and Nutrition Insecurity among Rural Inhabitants: Role of Household-Level Strategies with a Focus on Value Addition, Diversification and Female Participation. Land 11(2):254
5. Healthy Soils for a healthy life. 2015. Forests and forest soils: an essential contribution to agricultural production and global food security. [Online] Available at: <http://www.fao.org/soils-2015/news/news-detail/en/c/285569/> [Accessed 09 October 2019].
6. Hosu S.Y. (2015): "Vulnerability to climate change in Southern Africa: Can smallholder farmers survive the threat of food insecurity?": A study characterizing the present and future vulnerability of smallholder farming households in contrasting agro-ecological zones in Eastern Cape Province: Last edited: 23 March 2015.08.05
7. Maps, M. (2012-2019, January 20). Municipalities in South Africa. Retrieved October 14, 2019, from <https://municipalities.co.za/map/106/or-tambo-district-municipality>.
8. Parliamentary Monitoring Group-SA (2009): Impact of Climate Change on Forestry: committee on Agriculture, Forestry and Fisheries: <https://pmg.org.za/committee-meeting/10875/>
9. Philip, D & Rayham, I, (2004). Vulnerability and poverty: What are the causes and how are they related? Term paper for Interdisciplinary Course, International Doctoral Studies Programme at ZEF (Zentrum für Entwicklungsforschung),
10. Report on the ten schools, under One Tree One Child Pilot Study between April 2014 to March 2015; <http://www.Ortambodm.gov.za> .
11. Times Live (2011): End of mud schools in Eastern Cape Province, reported by Zine George on 06 February, 2011 21:56: <http://www.timeslive.co.za/local/2011/02/06/end-of-mud-schools-in-e-cape>.
12. UNICEF, 2019. Environment and climate change. [Online] Available at: <https://www.unicef.org/environment-and-climate-change> [Accessed 15 October 2019].
13. United Nation 2020. Climate Acton <https://www.un.org/en/climatechange/what-is-climate-change> [Accessed 09 March 2022]