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Capacity Building Needed by Retirees in Snail Production for Poverty Alleviation in Benue State, Nigeria

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Abstract: This paper focused on capacity building needed by retirees in snail production in Benue state, Nigeria. Four objectives with corresponding research questions guided the study with hypotheses tested at 0.05 level of significance. The study adopted a descriptive survey research design with a sample of one hundred and twenty (120) respondents for data collection. Instrument titled: Capacity Building for Retirees in Snail Production (CBRSP) was structured by the researcher from the literature reviewed and face validated by three experts. The internal consistency of the instrument was determined using cronbach alpha with a coefficient of 0.82 obtained. The data collected was analyzed using frequency, mean and standard deviation to answer research questions while Chi square was used to test the null hypotheses at 0.05 level of significance. It was observed that twelve (12) capacities in rearing snails, ten (10) in harvesting snail products, seven (7) capacities in poverty alleviation and thirteen (13) constraints faced by retirees were all needed for effective snail production in Benue State. It was recommended amongst others that seminars, symposium and workshops be organized by Government and Non-Governmental Organizations to train their workforce in snail production before proceeding to retire them so that they can have a skill and be useful to themselves and the society after retirement.

Key Words: Capacity Building, Farmers, Retirees, Snail production and Poverty Alleviation

I. Introduction

The issue of national development or national rebirth coupled with its monumental benefit to the citizenry and a country in particular which dates back to primordial times has never been attained without harmonizing the various inherent capacities of a people. It is also true that the development of nations whether in primordial times or in contemporary era has never been made possible without the identification, development and utilization of the various human capacities of the people for sustainable development. Any development process visualized in its simplest or broadest context must meet the expectations of the people of the state for enhancing their standard of living and helping to contribute to national development. This must find root in effective human capacity building and development [1]

Accordingly, an all-encompassing goal of development is one which is centered on the progressive realization of the capacities, abilities and talents of each individual of the state for his own satisfaction and enhancement of the good of the community he finds himself and the nation at large [2]

From the foregoing, it becomes imperative that no nation of the world neglects the continuous improvement of the skills, knowledge base, education, competencies and the strategic alignment of its people, communities, businesses and other institutions to national development without concerted effort to effective human capacity building and development which is a sine qua non for an all-round sustainable development [3]. Humans and their capacity identification and development remain the center of creation of goods and services, advancement in science and technology, economics, agriculture, military; and above all value creation in all spheres of endeavor [4].

Therefore capacity building as a human development strategy must aim at improving skills for carrying out key functions, solving problems, defining and achieving objectives and focusing on building the individual's knowledge base, skills, attitudes, competencies, abilities while at the same time expanding and strengthening network of individuals and institutions by creating a pool of talents which will potentially and significantly improve sustainable development practices.

At the individual level, capacity building refers to the process of changing attitudes and behaviors, imparting knowledge and developing skills while maximizing the benefits of participation, knowledge exchange and ownership. Individual capacity building also relates to leadership development skills, advocacy, training/speaking abilities, technical skills, organizing skills, and other areas of personal and professional development. Capacity building and development are the elements that give fluidity, flexibility and functionality of individuals/organization to adapt to changing needs [3] It is about who, how and where individuals

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and organizations can reposition themselves which are necessities of resilient societies to achieve their own development objectives over time.

Capacity building needs for snail production refers to efforts geared towards improving skills and attitudes possessed by snail farmers [4] In order to determine the capacity building needed by snail farmers, they must be assessed to obtain information on the competencies they possess and the gap that exists towards expectation, that is, what they need to possess. It is for this reason that the authors of this paper decided to take a look at the imperatives of an effective capacity building for retirees who are into snail production.

A farmer in this context is a person engaged in agriculture, raising living organisms for food or raw materials. The term usually applies to people who do some combination of raising field crops, orchards, vineyards, poultry, snails or other livestock. A farmer might own the farmed land or might work as a laborer on land owned by others, but in most developed economies, a farmer is usually a farm owner, while employees of the farm are known as farm workers, or farmhands. However, in other older definitions a farmer was a person who promoted or improved the growth of plants, or crops or raised animals (as livestock or fish) by labor and attention [5].

In developed nations, a farmer (as a profession) is usually defined as someone with an ownership interest in crops or livestock, and who provides land or management in their production. Those who provide only labor are most often called farmhands. Alternatively, growers who manage farmland for an absentee landowner, sharing the harvest (or its profits) are known as sharecroppers or share farmers [5].

More distinct terms are commonly used to denote farmers who raise specific domesticated animals. For example, those who raise grazing livestock, such as cattle, sheep, goats and horses, are known as ranchers (U.S.), graziers (Australia & UK) or simply stockmen or herders (Nigeria). Sheep, goat and cattle farmers might also be referred to, respectively, as shepherds. The term dairy farmer is applied to one engaged primarily in milk production, whether from cattle, goats, sheep, or other milk producing animals.

A poultry farmer is one who concentrates on raising chickens, turkeys, ducks or geese, for either meat, egg or feather production, or commonly, all three. Snail production, commonly known as Heliciculture, is the process of raising edible land snails, primarily for human consumption or cosmetic use [6]. The meat and snail eggs can be consumed as escargot and as a type of caviar respectively. Mucus, commonly known as snail slime, has medical properties and is used in cosmetics [7] Perhaps the best known edible land snail species in the Western world is the *Helix pomatia*, commonly known as the Roman snail or the Burgundy snail. This species is however not fit for profitable snail farming, and normally harvested from nature.

Commercial snail farming in the Western world is typically done with *the Cornu aspersum (morphotypically divided into Cornu aspersum aspersa and Cornu aspersum maxima)*, formerly known as Helix aspersa. In tropical climates snail farming is typically done with the African snail, which biologically does not fall in the family of Helicidae, and the meat of which therefore may not be called escargot [8].

Basically, all land snails are edible, provided they are properly cooked. Their tastiness varies per species and the way of cooking, and preferences may vary per culture. Whereas all land snails are edible, fewer are thus considered tasty, and even fewer are of economic value [9]. Among those of economic value, only very few species are suitable for profitable farming.

Snails are hermaphrodites. Although they have both male and female reproductive organs, they must mate with another snail of the same species before they lay eggs. Some snails may act as males one season and as females the next. Other snails play both roles at once and fertilize each other simultaneously [10]. When the snails are large and mature enough, which may take several years, mating occurs in tropical season, especially in Nigeria [10]. Sometimes there is a second mating in summer. (In tropical climates, mating may occur several times a year. In some climates, snails mate around October and may, mate a second time 2 weeks later.) After mating, the snail can store sperm received for up to a year, but it usually lays eggs within a few weeks. Snails are sometimes uninterested in mating with another snail of the same species that originated from a considerable distance away. For example, a *H. aspersa* from southern France may reject a *H. aspersa* from northern France [10].

Successful snail culture requires the correct equipment and supplies, including: snail pens or enclosures; devices for measuring humidity (hygrometer), temperature (thermometer), soil moisture (soil moisture sensor), and light (in foot candles); a weight scale and an instrument to measure snail size; a kit for testing soil contents; and a magnifying glass to see the eggs [11]. Equipment to control the climate (temperature and humidity), to regulate water (e.g., a sprinkler system to keep the snails moist and a drainage system), to provide light and shade, and to kill or keep out pests and predators may also be needed. Some horticultural systems such as artificial lighting systems and water sprinklers may be adapted for snail culture. Better results are obtained if snails of the same kind and generation are used [11].

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The major challenges faced by snail farmers are; pest attack, predators, lack of techniques, lack of funds, lack of feeds, lack of water, climate change and slow growth rate [12]. According to [13], snail farmers are facing the challenges of stealing their products, most of the stealing take place during the night hours when the farmer(s) might have gone to bed. This has greatly retarded the production of snail commercially, because it discourages the farmers. Snails' are harvested as soon as they reach maturity (that is, when lip edge becomes hard) and will not grow any bigger. They are kept into purging cages for seven days without food to rid their digestive systems of any soil or grit. The snails lose 20% of their body weight and retract into the shell but are able to remain alive in this condition for two months if kept in a cool environment of around 4-60 degrees [14].

Four systems of snail farms can be distinguished: Outdoor pens, in buildings with a controlled climate, in closed systems such as plastic tunnel houses or "greenhouses. In addition, snails may breed and hatch inside in a controlled environment and then (after 6 to 8 weeks) may be placed in outside pens to mature. Snail farming provides source of income to farmers and play a vital role in economic development of a country [15]. Hence, it sustains rural farmers by reducing poverty level of those in practice.

Poverty is a fundamental global problem. The number of poor people in Nigeria and many developing economies across the globe has continued to be on the increase within the past two or three decades. In addition, the changing socio-economic, political, environmental, and climatic atmosphere in Nigeria and other developing countries across the globe has continued to aggravate the living conditions of most households especially those living in the rural areas [16]. Poverty alleviation refers to all the methods, ways or techniques adopted by government, non-governmental organizations or individuals to reduce or eradicate poverty from a collectivity. Poverty alleviation/eradication is best approached as an exercise in raising people's capabilities or enhancing freedom. The corollary of this approach to development is empowerment, which is, helping people in poverty to acquire the tools they need to meet their basic needs as the long-term solution to poverty which is common among Nigeria retirees [15].

A retiree is someone who has permanently stopped working in a job or profession**:** a person who has retired from a job [17]. It is on this background the researcher intends to investigate the capacity building needs of famers in snail production for poverty alleviation among retirees in Benue state.

II. Statement of the problem.

Civilization started with agriculture which, to this day, remains very important and plays a significant role in our lives. And while its significance may be even more pronounced in some countries than others, the reality is that every country depends on agriculture to sustain itself in one way or another. In Nigeria and Benue state in particular, farming such as crop and animal production has become everyone's business. The researcher observed that one of the important alternative sources of animal protein, which has received relatively scanty attention in Benue State, is snail production. Many of the snails marketed are collected from the wild and few farmers exist for commercial breeding and production of snails. It is worrisome that retirees in the study area who are suffering due to non-payment of their pension and gratuity have also paid little attention to snail farming as a means of livelihood. Could it be that they are not aware of the potentials and financial benefits from snail production? Or they lack relevant and modern technicalities in its production? Findings from other studies reviewed that retirees in Benue State needed capacity building to open their eyes to the enormous career opportunities in snail production. It's against this background that the researcher wants to identify skills in form of capacity building required by retirees in snail production for poverty alleviation in Benue State.

Objectives of the study

The main objective of this study is to identify the capacity building needs for retirees in snail production for poverty alleviation in Benue state. Specifically, the researcher seeks to:

1. Identify the capacity building needed in snail rearing in Benue State
2. Identify capacity building needed in harvesting snail products in Benue State
3. Identify poverty alleviation strategies in snail production in Benue State
4. Identify the constraints faced by farmers in snail production in Benue State

Research Questions

The following research questions guided the study

1. What are the capacity building needed by retirees in snail rearing in Benue State?
2. What are the harvesting techniques of snail products in Benue State?
3. What are the poverty alleviation strategies employed by retirees in snail production in Benue State?
4. What are the constraints faced by retirees in snail production in Benue State?

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Research Hypothesis

The following research hypotheses were tested.

1. Capacity building needs for retirees have no significant effect on snail rearing in Benue State.
2. Harvesting techniques of snail products have no significant effect on snail production by retirees in Benue State.
3. Snail production has no effect on the livelihood of retirees in Benue state
4. Retirees do not face challenges in snail production

III. Methodology

This chapter deals with the following: Research design, Area of study, Population, Sample and Sampling techniques, instruments, validation of instruments, reliability of instrument, method of Data collection and method of data analysis.

Research Design

The Research design adopted for this study was the descriptive survey research design. Descriptive research design is a type of research method that is used when one wants to get information on the current status of a person or an object. It is used to describe what is in existence in respect to conditions or variables that are found in a given situation.

Area of study

The study was carried out in Benue State. Benue State is one of the North Central states in Nigeria with a population of about 7.5 million people. The state derives its name from the Benue River which is the second largest river in Nigeria. The state is bounded with Nasarawa State to the North; Taraba State to the East; Kogi State to the West; Enugu State to the South-West; Ebonyi and Cross-Rivers States to the South; and has an international border with Cameroon to the South-East. It is inhabited predominantly by the Tiv, Idoma, Igede and Etulo people. Its capital is Makurdi. Benue is a rich agricultural region, popularly known for crop and animal production. Commercial snail production is also practiced in the study area.

Population of study

The population of the study was eighteen thousand two hundred and fifty (18,250) retires in Benue state.

Sample and sampling techniques

The study sample is 120 retirees from four local Governments in Benue state. The retirees were selected using systematic sampling technique. The selected Local Governments were; Makurdi, Otukpo, Gboko and Apa Local Government area

Instruments for data collection

The instrument used for data collection was a questionnaire titled capacity building for farmers in snail production (CBFFSP). It was divided into sections A B C and D according to the research question. The respondents were asked to respond to the items on a four points rating scale of Highly Needed (HN=4), Needed (N=3), Moderately Needed (MN=2) and Not Needed (NN=1).

Validation of instrument

The instrument was validated by experts in the Department of Agricultural Education and the Department of Educational Foundation and General Studies (EFOGENS). It was finally scrutinized by the researcher. Their suggestions were useful in modifying the instrument. All the items in the instruments were designed to also cover the hypothesis considered for the study.

Reliability of the instrument

The validated instrument was trial tested to ascertain the reliability of the instrument using Cronbach Alpha method which yielded a coefficient of 0.82. The coefficient was high, thus accepted.

Method of data collection

The questionnaire was administered by the researcher to the respondents. The researcher afterwards took possession of the questionnaire after completion by respondent for recording and analysis.

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Method of data analysis

The data were analyzed using frequency, mean, standard deviation and chi-square. The mean of 2.50 representing the average value of the four scale rating was bench mark for the decision making to answer the research question. Chi-square was adopted for this study, because the study seeks to elicit responses from the respondents under the variable considered.

Data Presentation, Interpretation and Discussion of findings

One hundred and twenty (120) copies of questionnaires were administered to the respondents in the sampled Local Government areas. The data collected were analyzed based on the stated null hypotheses and four research questions.

Research Question One

What are the capacity building needs for retirees in rearing snails in Benue state?

S/No.	Questions	FRQ	Mean	STD	DEC.
1	Constant water supply is necessary for rearing snails	120	2.77	.76	Needed
2	Fence the area where snails are kept to prevent off farm escape.	120	3.40	1.10	Needed
3	Feeding is a very significant factor to consider in rearing snails.	120	2.61	.96	Needed
4	Knowledge of pest/disease control is necessary for rearing snails	120	3.07	1.00	Needed
5	The common species for commercial snail production is the Helix pomatia	120	2.59	.94	Needed
6	Raise snails in fenced fields, sand dunes and garden	120	3.49	1.18	Needed
7	Snails mate mostly in October and may	120	3.38	1.08	Needed
8	Snails lay eggs two weeks after mating	120	3.37	1.07	Needed
9	Make provisions for snail pen	120	3.37	1.00	Needed
10	Make provision for magnifying glasses for seeing snail eggs	120	3.37	1.00	Needed
11	Sprinkler system for keeping the soil moist/shade	120	3.48	1.08	Needed
12	Regular training for farmers is required	120	2.59	0.94	Needed

Table 1 revealed that there is need for capacity building of retirees in snail production. Items with mean responses of 2.50 and above were taken as needed and not needed allotted to responses below 2.50 respectively. The table revealed that all the items presented were needed by respondents, they include, Raising snails in fenced fields, sand dunes and garden, provision of sprinkler system for keeping the soil moist/shade, mating period, provision for snail pen and provision for magnifying glasses for seeing snail eggs amongst others. The standard deviation also revealed that the responses do not vary significantly from the mean, indicating uniformity in perceived skill requirements.

Research Question 2

What are the harvesting techniques of snail products in Benue State?

Table 2: Harvesting techniques of snail products.

S/N	Items	FRQ	Mean	STD	DEC.
1	Snails are harvested as soon as they reach maturity	120	3.00	.99	Needed
2	They are kept into purging cages for seven days without food to rid their digestive systems of any soil or grit.	120	2.98	.04	Needed
3	The snails lose 20% of their body weight and retract into the shell.	120	3.13	1.12	Needed

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4	Hoe is used to dig the floor of snail pen when searching for snails eggs	120	3.21	1.15	Needed
5	Wheelbarrow is used to comfortably move large quantities of snail at harvest	120	3.43	1.19	Needed
6	Plastic spoon is used for snail harvesting	120	3.39	1.17	Needed
7	Plastic buckets is used to carry snail from one place to another	120	3.06	1.00	Needed
8	The hand trowel is used to pick snails	120	2.88	1.02	Needed
9	Water can is used to carry snails	120	2.93	.98	Needed
10	The shovel is used to pick snails	120	3.26	1.17	Needed

Table 2 indicated that respondents agreed that the items in the table were the requirements needed by retirees for harvesting snail products. This is because all the items had there mean values above 2.50 as stated above. The standard deviation ranged from 1.19 to .98 indicating uniformity in their opinion on the techniques required for harvesting snail products.

Research Question 3

What are the poverty alleviation strategies in snail production in Benue State?

Table 3**:** poverty alleviation strategies for snail farmers.

	Poverty alleviation strategies	FRQ	Mean	STD	DEC
1	Provision of viable equipment's to snail farmers by government or NGOs will strengthen capacity building	120	3.07	1.00	needed
2	Provision of loan/grant to farmers who intend to venture into snail business	120	2.59	.94	Needed
3	Farmers/extension agents needs social capital to enhance adoption of new technologies	120	2.77	.76	Needed
4	Establishment of snails market	120	3.38	1.08	Needed
5	Advertising the nutritional and medicinal value of snail meat to the general public would enhance purchase power	120	3.39	1.10	needed
6	Exotic breeds of snails be made available to farmers	120	2.49	.98	needed
7	Snail farming has good sources of income	120	3.00	1.00	needed

Table 3 revealed that all the questions on poverty alleviation strategies were needed by retirees in the study area. It showed that retirees needed equipment's, grant/loan, farmer/extension agents relationship, market information, exotic breeds and viral advertisement respectively. The standard deviation also correlated with one another in their values, indicating uniformity in their responses.

Research Question 4

What are the constraints faced by farmers in snail production in Benue State?

Table 4: The constraints faced by farmers in snail production

S/N	Constraints	FRQ	Mean	STD	DEC.
1	Inadequate training	120	3.55	1.20	Needed
2	Pest/diseases attack	120	3.26	1.15	Needed
3	Lack of funds	120	2.61	.96	Needed
4	Lack of quality feeds	120	3.06	.99	Needed

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5	Lack of water	120	3.20	1.13	Needed
6	Climate change	120	3.30	1.16	Needed
7	Low growth	120	3.21	1.19	Needed
8	Steeling of products	120	3.43	1.02	Needed
9	Farmer/herder clashes	120	3.02	1.13	Needed
10	Inadequate facilities	120	3.24	1.07	Needed
11	Lack of awareness	120	2.96	.05	Needed
12	Lower market value	120	2.75	.03	Needed
13	High tax	120	2.96	.05	Needed

The data presented in Table 4 revealed that the respondents agreed on the 13 items as challenges faced by retirees in snail farming in the study area. This is because all the items have their mean values ranged from 3.55 to 2.61 above the bench mark of 2.50 and their corresponding standard deviation ranged from .03 to 1.15 indicating that the respondents were not far from each other in their responses.

Research Hypothesis 1

Capacity building needs of retirees has no significant effect in snail rearing in Benue State.

Table 5: Chi square analysis on capacity building needs for Retirees

Items	df	X^2	Asymp. Sig (p-value)
Chi square	8	69.00	0.007
Number of valid cases	120		

Table 5 shows the Chi-square analysis on capacity building needs for retirees which yielded Chi-square calculated of 69.00 and Significant (p-value) of 0.007 which is less than 0.05 thus the null hypothesis is rejected. This means Capacity building needs for retirees has significant effect in rearing of snails in Benue State.

Research Hypothesis 2

Harvesting techniques of snail products have no significant effect on snail production by retirees in Benue State.

Table 6: Chi square analysis on harvesting technique in snail products.

Items	df	X^2	Asymp. Sig (p-value)
Chi square	8	72.38	0.003
Number of valid cases	120		

Table 6 shows the Chi square analysis which yielded Chi-square calculated of 72.38 and Significant (p-value) of 0.003 which is less than 0.05 thus the null hypothesis was rejected. This means harvesting techniques of snail products have significant effect on snail production by retirees in Benue State.

Research Hypothesis 3

Poverty has no significant effect on snail farmers in Benue state.

Table 7: Chi square analysis on poverty alleviation

Items	df	X^2	Asymp. Sig (p-value)
Chi square	5	42.00	0.000
Number of valid cases	120		

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Table 7 shows the Chi-square analysis which yielded Chi-squre calculated of 42.00 and Asymp. Sig (p-value) of 0.000 which is less than 0.05 thus the null hypothesis was rejected. This means Poverty has significant negative effect on snail farmers in Benue state.

Research Hypothesis 4

Farmers do not face challenges in snail production.

Table 8: Chi square analysis on challenges faced by snail farmers

Items	df	X^2	Asymp. Sig (p-value)
Chi square	10	38.67	0.018
Number of valid cases	120		

Table 8 shows the chi square analysis which yielded X^2 calculated of 38.67 and Significant (p-value) of 0.018 which is less than 0.05 thus the null hypothesis was rejected. This means snail farmers face challenges in snail production.

Findings of the study

1. Retirees in the study area needed training and retraining to build their technical know-how in rearing snails as a means for poverty alleviation
2. Capacity building is needed for retirees to know the techniques and requirements for harvesting snail products.
3. To boast snail production and fill the poverty gap, retirees needed social capital (extension/farmers collaboration), equipment's, grants/loans, improved breeds, training on pest/diseases identification/control to ameliorate their challenges and reduce total dependence on government.

IV. Discussion of findings.

The findings of the study revealed that Retirees in the study area needed training and retraining to build their technical know-how in rearing snails as a means for poverty alleviation.

This result supports the work of [19], who stressed that successful snail culture requires the correct equipment and supplies, including: snail pens or enclosures; devices for measuring humidity (hygrometer), temperature (thermometer), soil moisture (soil moisture sensor), and light (in foot candles); a weight scale and an instrument to measure snail size; a kit for testing soil contents; and a magnifying glass to see the eggs. Equipment to control the climate (temperature and humidity), to regulate water (e.g., a sprinkler system to keep the snails moist and a drainage system), to provide light and shade, and to kill or keep out pests and predators may also be needed. The findings were also in agreement with the review of [11] who added that some horticultural systems such as artificial lighting systems and water sprinklers may be adapted for snail culture. Better results are obtained if snails of the same kind and generation are used.

[15], in support of the findings of the study distinguished four systems of snail farms viz: Outdoor pens, in buildings with a controlled climate, in closed systems such as plastic tunnel houses or "greenhouses, in addition, snails may breed and hatch inside in a controlled environment and then (after 6 to 8 weeks) may be placed in outside pens to mature. Snail farming provides source of income to farmers and play a vital role in economic development of a country, hence, sustaining snail farmers by reducing poverty level of those in practice.

[20], supported the findings while maintaining that a prospective farmer needed to back up his desires to venture into snail farming with enough information, adequate knowledge and relevant skills to cope with challenges of running a vibrant and viable snail business. It is not enough to have the capital, desire to start, without acquiring the necessary training required for day – to day running of the business.

Findings of the study on research question 2 also revealed that capacity building is needed by retirees to know the techniques and requirements for harvesting snail products.

These findings were in consonant with that of [14] who maintained that snails' are harvested as soon as they reach maturity (that is, when lip edge becomes hard) and will not grow any bigger. They are kept into purging cages for seven days without food to rid their digestive systems of any soil or grit. The snails lose 20% of their body weight and retract into the shell but are able to remain alive in this condition for two months if kept in a cool environment of around 4-60c.

The findings conflict with those of [21] who stated that the age and size at which snails should be collected from the snailery obviously depend on the farming objective: whether the snails are grown for personal use or for the market. Snails grown

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for personal use can be harvested according to the farmer's needs; whereas customer preferences dictate the optimum size and consequently age of snails harvested for the market. The author maintained that snails usually need to grow for at least one year to reach their proper size and weight. It is recommended to harvest snails by the time they reach two years, because after this age their rate of growth slows down. Snails are picked by hand, at nightfall, when they become active and are easier to find and collect. They need to be put carefully into a basket, box, crate or sack, to avoid damaging the shell, which would lower their market value. Never put more than 10 kg of snails together in whatever storage receptacle you use, to avoid cracking or crushing the shells in the lower layers.

To boast snail production and fill the poverty gap, the findings on research question 3 and 4 stated that retirees needed social capital (extension/farmers collaboration), equipment's, grants/loans, improved breeds, training on pest/diseases identification/control to ameliorate their challenges and reduce total dependence on government. This findings collaborate with the view of [22] who pointed out that Poverty alleviation are methods, ways or techniques adopted by government, non-governmental organizations or wealthy individuals to reduce or eradicate poverty from a collectivity, the author maintained that Poverty alleviation/eradication is best approached as an exercise in raising people's capabilities or enhancing freedoms. The corollary of this approach to development is empowerment, which is, helping people in poverty to acquire the tools they need to meet their basic needs as the long-term solution to poverty as evidenced among Nigeria retirees.

On the challenges faced by snail farmers, [22] agreed and maintained that, before embarking on snail farming you should ensure there is a ready market! This may seem self-evident; but there are many examples of cases in which snails were introduced to other parts of the world for farming, but were eventually dumped (or allowed to escape) into the wild for lack of market. Once the snails have been introduced, dumped or allowed to escape, they develop into a serious agricultural pest. Without any natural enemies they end up destroying a wide range of agricultural and/or horticultural crops and causing considerable economic damage.

[23], also supported that snail farmers are faced with mirage of difficulties. The authors maintained that snail farmers must be aware of several predators, parasites and diseases if mortality rates are to be kept to a minimum. Snails have many natural predators, including members of all major vertebrate groups, carnivorous snails, ground beetles, leeches and even predatory caterpillars. Humans also pose great dangers to snails in the wild and farm grown snails as well. Pollution and destruction of habitats have caused the extinction of some snail species in recent years. The major predators a snail farmer may have to deal with are field mice, rats and shrews, frogs and toads, thrushes, crows and domesticated birds such as ducks and turkeys, lizards and snakes, beetles, millipedes and centipedes. The frogs tend to take only the young snails, while the reptiles eat both eggs and snails of all ages. Therefore, for snail business to be profitable there is need for farmers' capacity building in snail production, harvesting, and storage, processing and marketing in Benue State, Nigeria.

V. Conclusion and Recommendations

Conclusion

The study revealed the capacity building needed by farmers "retirees" in rearing snails, requirements for harvesting snail products, constraints faced by farmers and the poverty alleviation strategies in snail farming. It was concluded that retirees in the study area needed training and retraining to build their technical know-how in rearing snails as a means of poverty alleviation. They also needed requirements for harvesting snail products and to fill the poverty gap, retirees needed social capital (extension/farmers collaboration), equipments, grants/loans, improved breeds, training on pests/diseases identification/control to ameliorate their challenges and reduce total dependence on government.

Recommendations

Based on the findings of the study, the following recommendations are made by the researcher

1. Extension Agents and stake holders in snail industry should create awareness through the media about the prospect of snail products to encourage prospective snail farmers to take to snail production as a lucrative business.
2. Seminars, symposium and workshops be organized by Government and Non-Governmental Organizations to train their workforce in snail production before proceeding to retire them so that they may have a skill and be useful to themselves and the society after retirement.
3. Government and Non-Governmental organizations should provide soft loans to retirees after training them to venture into snail production and extension agents should play their role in assisting them to maintain the tempo.

References

1. Basil S.P., Victor B., and Chinoye J.A., Human Capacity Building and Sustainable Development in Nigeria: A Value Base Analysis. Best International Journal. Vol 3 no 2, 2017.

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2. United Nations Development Programme (UNDP). Human Development Report. New York: Oxford University Press, 2003.
3. Ikharehon, J.I., Capacity building for national sustainable development: The Nigerian experience. Journal of Social Science, 15(1): 25-29, 2007.
4. Isola W.A., and Alani R.A., Human Capital Development and Economic Growth: Empirical evidence from Nigeria. Asian Economic and Financial Review, 2(7): 813 – 827, 2012.
5. Dyer C. "A suffolk farmer in the fifteenth century". Agricultural history review **55** (1): 1–22, JSTOR 2007
6. Kirschenmann F. How many farmers will we need? (PDF). Leopold lettter. **12** (4): 3–4, JSTOR, 2000
7. Mariska L. Snail Farming. AgroBrief-Series No 3, 6 pages, Agromisa, Netherlands, 2005.
8. Michael, O.A. Assessing the effectiveness of capacity-building initiatives: Seven issues for the field. Nonprofit and Voluntary Sector Quarterly, 33(1): 153-160, 2011
9. Rebecca, T. "National Agricultural Library, Agricultural Research Service, U.S. Department of Agriculture, 2018.
10. Willsher, K. French snails farmers lament sluggish year as covid crises dents sales. The Guardian. Retrieved 2021-01-02
11. Betnard, A. Poverty: Some Issues in Concept and Theory" in Rural Poverty in Nigeria 2014.
12. Akinbile, J. K. Determinants of Rural Poverty in Nigeria". Development Policy Centre, Ibadan. Research Report No. 32, 2010.
13. Afolabi, O. Are land snails a signature for the Mesolithic-Neolithic transition? In, M. Budja (ed.), Neolithic Studies 11. Documenta Praehistorica XXXI: 1-24, 2013.
14. Azeez, B. O. The Relationship between Poverty, Conflict and Development". Journal of Sustainable Development, Vol. 2, No. 1, 2018.
15. Nkalo, C. I. Snail farming: production, utilization and marketing. Cross River state University, 2019.
16. Oluwatayo, A.J. Local Government and Rural Development: A Bottom-Up Perspective, Lagos: Sylva Publications Limited, 2019.
17. Olawale, O. S. Determinants of Rural Poverty in Nigeria". Development Policy, 2012
18. Cheney S., and Thompson, R. Raising Snails. Special Reference Briefs (National Agricultural Library SRB 96-05. Updates SRB 88-04). Beltsville, Maryland, USA: United States Department of Agriculture (USDA). This report on snail raising is derived from a review of the literature and searches of selected databases. Available online: www.nal.usda.gov/afsic/AFSIC_pubs/srb96-05.htm 2006
19. Omole A.J., Taiwo A.A., and Amusan, J.A. Practical Snail Farming. Institute of Agricultural Research and Training (IAR&T), Obefemi Awolowo University, Ibadan, Nigeria, 2017.
20. Duah, O.A. and K.A. Monney. Snail farming: Snail collection and small scale production in Africa and Europe. In: African Journal of Ecology, Vol.37 (3). Centre, Ibadan. Research Report No. 32,2001.
21. Eze, C.C., Ohajianya, D.O, and Oguoma N.N.O. Analysis of land snail marketing in Owerri agricultural zone of Imo State, Nigeria. In: Animal Production Research Advances 2 (2): 94-99, 2006.
22. Cobbina J.R., Adri V, and Ben O. Snail farming "production, processing, and marketing" Digigrafi wageningen publishers Netherlands pp 25-52, 2008.