

LIVESTOCK NUTRITION, HEALTH AND DEVELOPMENT: A HISTORICAL SURVEY OF HEIFER PROJECT INTERNATIONAL (HPI) IN BUI DIVISION OF CAMEROON SINCE 1986

INTRODUCTION

The persistence, and more recently, the intensification of rural poverty, has characterized the process of economic development in developing countries in the last two decades. By the mid-1980s, Cameroon was suffering economic paralysis, the rural areas bearing the brunt. Government in an effort to reverse the situation, increased expenditure on rural development.¹ Government efforts failed to provide a viable solution to the rural development problem, as government's efforts to this end yielded less positive results than expected. This was largely due to misplaced priorities, mismanagement, endemic corruption, affluence and extravaganzas of government officials. It is to this end that Chinua Achebe asked this question of the Nigerian society: "Why is it that our corruption, gross inequities, our ineptitude seem so much stronger than the good influences at work in our society?"² The ultimate result is poverty and misery. Government's failure made NGOs a more attractive proposition for addressing the developmental problems, especially in rural areas. HPI is one of such organizations in Cameroon. It has been operating in Cameroon since 1974. By September 1995, it was officially registered as an independent non-governmental organization with the Ministry of Territorial Administration.³ The government was motivated, *inter alia*, by the desire to encourage self-reliance, sustainable and integrated development, alleviation of rural poverty, hunger, environment degradation, improved rural health and nutrition, and to check rural exodus of youths to urban centres.

Since its inception in Cameroon and advent in Bui, HPI's focus has been to improve upon small livestock (rabbits, goats, pigs, poultry, Guinea pigs), small-scale dairy production technology and marketing, beef cattle upgrading, agroforestry and other environmental protection activities, ethnoveterinary medical sciences and paraveterinary medical practices. Also, HPI gives financial assistance, promotes revolving fund and micro credit loan schemes in an attempt to ensure the sustenance of its projects. It equally promotes gender programmes in leadership, decision-making,

monitoring, implementation and evaluation of project.⁴ All these projects are in an attempt to improve on the condition of the rural people.

HPI, an independent NGO in Cameroon, started operating in 1974. HPI activities started in Bui in 1986 with its pioneer groups in Ngondzen, Meluf, Mah, Nseh, and Lassin. Up to 2001, HPI had about 46 groups - ongoing (13) and weaned (33). HPI works to alleviate hunger and poverty in Bui as well as all parts of the world. According to Barbara Klugman, many NGOs are primarily concerned with poverty or disaster alleviation, while others focus on local-level development projects usually filling gaps government services have not met.⁵ Eradication of poverty and hunger, greater equity in income distribution and human resources development remain challenges everywhere. The struggle against poverty is the responsibility of all governments.

On poverty, B.R. Schiller recorded that, "if the poor are culturally bound to poverty, then the task of eliminating poverty becomes infinitely more difficult and time consuming. Hence, the culture of poverty thesis cannot be dismissed lightly."⁶

Non-governmental organization (NGOs) are primarily concerned with poverty alleviation, spread of benefits of socio-economic growth, science and technology to rural populations. They (NGOs) have filled the vacuum as viable institutions for agricultural development. The contribution of international humanitarian and development NGOs to the economic and social development of Cameroon can hardly be overemphasized. The activities of these organizations have been largely felt by the rural masses. This is because these organizations seem to be more responsive and committed to the needs of the rural masses and have a more ideologically committed staff than the public sector. Philip Langley observes that:

One of the principal changes has been a dramatic decline in the capacity of African governments to effectively provide development services, either in rural or urban areas. The tendency to reduce state intervention in the economy has continued, and has even been accentuated. In this respect, a convergence can be observed between the lack of state resources due to a lack of economic growth and a general improvement of the society on one hand and on the other, a lack of faith in the ability of public bodies to assume their declared functions.⁷

NGOs, as responsive organizations, can enhance the self-help capacity of the rural poor and develop basic needs programmes. In short, they can

act as a catalytic force in economic development, a concept about which much has been written in the last five decades or so.

Given the forgoing discussion, it is necessary for us to have a clear idea of what development is all about. Everett Rogers defines it is:

...a type of social change in which new ideas are introduced into a social system in order to produce higher per capita incomes and levels of living through more modern production methods and improved social organization.⁸

According to Pius Okigbo development is the process through which a polity improves its standard of living not only materially but also in the realm of its value system.⁹ A.I. Okpoko and E.U. Ezeadiche see it as positive change in both the material and non-material aspects of human life within the framework of available cultural and natural resources.¹⁰ Brett, E.A. observes that development is a change process characterized by increased productivity, equalization in the distribution of the social products, and the emergence of indigenous institutions whose relations with the outside world are characterized by equality rather than by dependence or subordination.¹¹

Onwuka N. Njoku states that:

Economic development is, therefore, a process of transformation usually manifested in the occurrence of desirable changes in the various sectors of a given economy. It is concerned with how best to harness available human and natural resources so that the productive forces in society are released. This involves economical utilization of manpower in a way that not only raises productivity but also makes it self-generating and self-sustaining.¹²

Through Participatory Rural Appraisal (PRA)¹³ HPI emphasizes development on a sustainable basis. In this regard, Robin Sharp states,

The concept of sustainable development embodies a belief that people should be able to alter and improve their lives in accordance with criteria which takes (*sic*) account of the needs of others and which protect the planet and future generations.¹⁴

Ideally, sustainable development in Africa should be concerned with the establishment of a system of economic growth and advancement that puts into proper consideration both the socio-cultural background of the people and 'Physical environmental adaptability of technology.'¹⁵ A key

prerequisite for sustainability is maintaining the constancy of the stock of natural resources and environmental quality. But because this situation has already been breached, in that the environment in many situations has become degraded by human activities, the problem of maintaining the constancy of the capital stock is not just one of stopping further environmental degradation but undoubtedly one of rejuvenating the environment.

Cameroon, like most African countries, promotes NGOs as principal agents of socio-economic development. Thus, like other NGOs dotted all over Cameroon, Heifer Project International (HPI), an international NGO since its advent to Bui, has endeavoured to hasten socio-economic development. HPI funds and assists farming groups that conform to its cornerstones. HPI cornerstones are time-tasted principles and values the organization use to guide an initial screening to determine the feasibility of working with a particular group, community or organization. The selected groups are given livestock training. This is to ensure that the animals given are managed according to the stipulations of the contract, and that each member passes on the gift of training and first female offspring (or the equivalent options agreed on by the group) to another member or new group. At this stage, the group and HPI jointly own the animal until such a time that the gift is passed. From thenceforth, the livestock becomes the *bona fide* property of the member.

Apart from its cornerstones, HPI tackles its economic development goal using the integrated approach and bottom-up development strategy. The integrated approach is an interdisciplinary approach that prescribes that actions intended for development must be taken on several fronts simultaneously and not independently of each other. In other words, the integrated approach emphasizes a greater role for the local people and for local institutions in the planning, implementation and evaluation of local development programmes. Bottom-up strategy of development is usually understood to be a multi-sectoral, multifunctional development initiative, which embraces socio-political and cultural development. By this strategy development is seen as a process dealing with the total human conditions. It also emphasizes popular participation and community development. Integrated approach suggests that all aspects of development such as health services, agricultural extension, credit and technological dissemination are coordinated and flow together to form an unbroken whole.¹⁶ This paper considers HPI innovations in livestock nutrition and health and the changes that occurred in the process. For reasons of space constraint, our

discussion will be limited to livestock nutrition and health. This choice is informed by three principal considerations. First, an increase in the yield of livestock depends much on feeding. Second, for a livestock enterprise to maximize output, it is necessary that the animals should be in good health. Lastly, a basic fact is that livestock constitute the largest source of protein intake by human beings. The supply can only be possible and sustainable with improved livestock nutrition and health.

ROLE OF HPI INNOVATIONS IN DEVELOPMENT

Livestock Nutrition

An increase in the yield of livestock and reduction of sickness depends much on feeding. Increase in carcass weight and reproduction is obtained by better feeding and genetic improvement. In Bui, both Fulani and HPI farmers were instructed on the techniques for the improvement of pasture management. This was in order to let farmers achieve the following objectives:

- * To adapt the stocking rate per hectare to the production possibilities of the natural pastures biomass.
- * To avoid overgrazing during the period to which the vegetation is sensitive.
- * To avoid the destruction of tree and shrub species by excessive exploitation by the stockmen by woodcutting and bush clearing for agriculture.

As a result of shrinking of pasture area, HPI introduced intensive techniques of pasture improvement and effective year round animal feeding and on-farm concentrate feed mixing for improved livestock production.

Pasture Improvement and Effective Year-round Animal Feeding

Purebred livestock introduced by HPI proved to be in need of much more feed than local livestock. As land became scarcer HPI introduced to its farmers the necessity of planning for adequate fodder for their livestock year-round. This was done by planting part of their land with permanent grasses and legumes. The Leguminosae family of plants led to increase of pasture productivity pursued at a low cost. Generally, the legumes proved to have a later vegetative cycle than other grasses. This extended the growing period of the forage as a result of this fact. The legumes also improved the grasses by fixing atmospheric nitrogen in the soil into a nitrogen source available for uptake by grass roots.

Legumes and grasses which HPI recommended as appropriate to pasture improvement and effective year-round animal feeding were perennials which do not need re-establishing each year, and that which give a high production of high quality feed, rapid regrowth, and are suited to a variety of soils and climates. Since some species maintain a high feed value longer than others, mixtures of fodder types were often planted. Mixtures of fodder types followed a plan to stagger the maturation time of the various species. This assured farmers of the availability of good quality fodder even late in the dry season. The increased use of fodder trees has been instrumental to achieve this.

The popular fodder grasses and crops recommended by HPI are elephant grasses or napier (*Pennisetum Purpureum*), setaria (*Setaria Sphacelata*) guatemala (*Tripsacum Laxum*) various brachiaria species, sweet potato (*Ipomoea batatas*) and maize. Herbaceous legumes recommended are desmodium, stylo and lucerne, and fodder trees such as *Leucaena* (*L. Leucocephala* and *L. diversifolia*), *Desmodium rensonii*, *Calliandra*, *Erythrina*. HPI assisted farmers by distributing seeds and seedlings of these plants. With manure from livestock, pastures have progressively improved. The above pastures are popular species used by HPI farmers in various zero-grazing systems. HPI assisted farmers in Bui had the most improved pastures in the late 1980s up to 2001. About 12 hectares of native pastures are required to support a cow and her calf in a year's time. On the other hand, the type of improved pastures used by HPI farmers as of 1986 have had a large level of production (i.e. carry capacity) that only about 0.25 hectares are needed to produce a large number and better quality of livestock than are possible with native pastures. Furthermore, HPI assisted farmers all along train their livestock to eat certain food items consumed by man. This is illustrated in Table 1 below.

Table 1: Some Crops Used for Animals Feed

S/N	Animal Feedcrops English/Latin Names	Human Food	Cattle	Pigs	Poultry	Rabbit	Goat & Sheep
1.	Grains Zen Mays	*	*	*	*	*	*
2.	Maize <i>Pennisetum Typhoides</i>	*	*	*	*	*	*
3.	Rice <i>Oryza Saliva</i>	*	*	*	*	*	*
4.	Soyabean <i>Glycina Max</i>	*	*	*	*	*	*

5.	Sorghum (Large Millet)	Sorghum Bicolor	*	*	*	*	*	*
6.	Banana	Mua Sapientum	*	*	*		*	
7.	Mango	Magifera Indica	*		*			
8.	Papaya	Carica Papaya			*			
9.	Roots & Tuber Yams	Diocorea Spp	*		*			
10.	Cassava	Manihot	*	*	*			
11.	Sweet Potato	Ipomoea Batatas	*		*		*	
12.	Potato	Solanum Tuberosum	*		*			
13.	Cocoyam	Colocasia Esculenta	*		*			
14.	Cow Peas		*				*	
15.	Cabbage		*				*	
16.	Bitter Leaves		*				*	*
17.	Ripe Tomatoes		*		*	*	*	
18.	Amaranties		*				*	
19.	Carrot		*				*	

Source: Modified from Jean Pagot, *Animal Production in the Tropics and Subtropics* (trans.), London: Macmillan LTD., 1992, p.225.

On-Farm Concentrate Feed Mixing for Improved Livestock Production

In order to produce well, livestock must be well fed. A combination of concentrate feed (food that is rich in either protein, carbohydrate or mineral), and roughage, make a good supplementary feed for livestock especially during the dry season. Supplementary feeds are additional feeds to the usual livestock feed given with the intention to make up for animal intake of low quality feed as well as preventing weight loss. HPI trained and encouraged farmers to give less valuable products in order to obtain more valuable products. For instance, concentrates are turned into beef, milk, *pendi*, cheese and Yogurt. HPI assisted livestock projects have been progressing, importantly, because farmers use predominantly their own crops and other ingredients to mix feeds (based on formula given to them by HPI) for types of livestock and at different levels of production. As such, farmers did not rely on prohibitively expensive and most often unavailable commercial animal feeds.

HPI educated farmers on on-farm concentrate feed combination (feed formulation). A good feed should contain nutrients such as proteins,

carbohydrates, fats and oil, minerals and vitamins. This is shown in table II below.

Table II: Shows Categories and Functions of Nutrients needed by Livestock

Feed Nutrient	Function	Source
Protein	Produce body organs, muscles and blood (builds the body)	Milk, fish, soyabeans, eggs, snails, etc.
Carbohydrates	Provides energy and build up fat	Maize, cassava, rice, wheat, etc.
Fats and Oil	Provide warmth and energy	Vegetable oil, cotton, seed cake, kernel cake, <i>egusi</i> , groundnut, etc.
Vitamins	Protect disease and gives blood.	Vegetables, fruits, grass.
Minerals	Produce bones, muscles, and body fluids such as blood.	Salt, bone meal, egg shell, limestone, scrap fish, etc.

Source: HPI/Cameroon, sector 1 Bui, 2000.

In addition to the combination of various dry feed ingredients mixed together in their respective quantities (concentrate feed), clean water is an essential feed needed to produce body fluids and flesh. It is supplied directly from a clean source or through green feeds. Water helps to digest food and get rid of waste materials.

LIVESTOCK HEALTH

Modern Western Approaches to Disease Control

Animal viral, bacterial or parasitic infestation of livestock in the tropics has three main causes - the number of diseases that are endemic in the tropics, livestock rearing methods and periodic shortages of water or feed. The conditions in which herds are reared, stock movement over considerable distance and mating between different herds near watering places are all factors favouring disease transmission. HPI has classified the aetiology of disease in Bui into two: either the development within the organism of pathogenic agents: viruses, bacteria, protozoa, fungi, parasites or the effect of intrinsic factors.: malnutrition, poisoning, climatic or intrinsic stress, body malnutrition and genetic abnormalities.

Indeed, some development experts think that disease has been one of the critical impediments to development in the tropics.¹⁷ For a livestock enterprise to maximize output, it is necessary that the animals should be in good health. What will be the point if genetic improvements of the

animals are at the mercy of any disease whatsoever? In order to maintain animals in good health, HPI adopted two types of measures: One intended to protect the animal from the action of pathogenic agents and the other had the objectives of rendering the animals able to resist them. The first were hygienic (sanitary) prophylactic measures and the second were medical prophylactic and therapeutic measures. The two complemented each other. Some sanitary prophylaxes were applied to the vectors in the disease. Above all, HPI encouraged prevention more than cure through vaccination programmes. Also, HPI provided curative drugs to farmers. Payments since 1986 were made to groups in order to improve their revolving funds, which could be used for group activities or loan to members on low interest rates.

Between 1986-2001, HPI trained farmers how they could manage health crisis in livestock - identifying sick animals, causes of animal diseases, and their history. Table III below shows some common livestock diseases and disease conditions in Bui.

Table III: Common Livestock Disease in Bui

Cow (Diary)	Pigs	Goats/Sheep	Fowls	Rabbit
Foot and mouth disease	Worms (endoparasite)	Abortion	Fown typhoid	Cancer
Abortion	Pneumonia (common in piglets)	Epidemics, (when healthy goats die)	Fowl Cholera	Coddidiosis
Worms	African swine fever	Returning of the hoff	Coccidiosis	Vent disease
Foot rot	Loss of weight	Boils	Pneumonia	Bloat
Swollen stomach (los of appetite)	Wounds and fractures or	Whitish puise from the eyes	New castle diseases	Boils
Poison	Mange	Worms	Pollurum	Mange (mites)
Standing hairs	Jiggers	Coughs	Tuberculosis	Pneumonia
Warts	Lies/Ticks/Parasites	Ticks	Fowl pox	Diarrhea
Mastitis	Scabies	Scabies	Worms	Abortion
Difficult delivery	Diarrhea	Diarrhea	Lice	Sudden deaths
Difficult breathing	Tong disease	Loss of hair	Big head	Wry neck

Scabies	-	Exposed anus (pile)	Cannibalism	Worms
Black Quarter (heart water)	-	Loss of appetite	Wound	Wound
Blindness	-	Hoof and mouth disease	Salmonelosis	Scabies
Tuberculosis	-	Limping animal	Stress	Snuffles
Cough	-	Worms from sheep/goats nose	Wing weh	Cannibalism
Retain placenta	-		Blindness	Difficult crossing
Ticks	-		Egg drop Chronic	Maggots Transit fever
			Respiratory Disease	
			Infectious Bronchitis	

Source: HPI Community Based. Animal Health Volunteers Workshop on Community Animal Health Practices, Kumbo, May 23-31, 2001, HPI Office Kumbo.

Ethnoveterinary Medical Science and Practices

Ethnoveterinary¹⁸ medicine plays an important role in modern approaches to disease control in livestock the world over. Indeed, livestock keepers and healers have utilized traditional veterinary techniques, a fact which reflects centuries of experience albeit through trial and error¹⁹.

The Fulani in Bui were mostly pastoralists and their culture and way of life centered on livestock. Over time, they learnt various disease symptoms and their corresponding remedies. In other words, they gathered a lot of information on ethnoveterinary medicines within their own communities. The medicines were developed from local and naturally occurring substances in the area. It is this knowledge, which has been accumulated over the years that is referred to as Ethnoveterinary Knowledge (EVK). Jacob Wanama defines EVK as people's beliefs, knowledge and practices pertaining to animal health²⁰. It is in the same line that O.N. Njoku recorded owing to his experience of Nigeria about traditional medicare. He wrote, intimate knowledge of the medical and even psychic and cosmic properties of weeds, herbs and plants was the basis of traditional medical science²¹. EVK covers disease nomenclature, symptoms, pathology, treatment and prevention. Even with the introduction of modern veterinary practices, HPI assisted farmers and the pastoralists of Bui were trained and encouraged to continue to rely on the reservoir of traditional medical knowhow.

HPI all along designed ethnoveterinary projects to provide affordable, available and alternative ways of treating and controlling animal health problems. Farmers trained were and are versed in the medicinal properties and potencies of herbs and plants. A well trained grazer/farmer could, with ease diagnose and provide immediate first aid to livestock²². Since 1986, this NGO has been collecting information on ethnoveterinary practices in most of its project areas. This is the case with the ethnoveterinary group of Jakiri. Alhaji Eggi Sule its leader has a big ethnoveterinary garden of about 150 medical plants. In an interview with him in his garden on the 23rd August 2002, he listed some plants, and their prophylactic and curative capabilities. He correctly stated that, the following plants prevent and cure livestock diseases:

- * *Behohi* (in Ffulde) roots treat hardwater, blackquater, diarrhea and boils.
- * *Dutalli* (*Hemizygia welwitschii*) combined with Jabalgohi (*Ocimum cannum*) flower treats hardwater, blackquater, and eye/ear infections.
- * *Kali* (*Khaya aethiopia*) bark causes abortion when deemed necessary for animal health and also deworms.
- * *Bummehi* bark (*Vitex doniana*), boiled and decoction cures cattle that urinates blood.
- * *Basihi* (*Terminalia glaucescens*) deworms cattle, sheep and goat.
- * *Sonyi* (*Lannea kertingii*) treats wounds in livestock. The leaves pounded, dried, sieved to powder. The powder is applied to wounds.
- * *Bokassa*, (in Ffulde), goods for fowl treatment.
- * *Nyametekoho* in Ffulde. The bark cures diarrhea when boiled. Water is mixed with feed.
- * *Agogog* (*Dryopteris athamanticu m.*) roots deworm livestock.
- * *Perki* (*Syzygiumgumense*). The bark is boiled and decoction used to cure diarrhea in sheep, goat, horse and fowl.
- * *Nekiti* (*Urelytrum digitatum*) kills worms in sheep, goat, and cattle. Also cures gastritis in human beings.
- * *Gadallcosam* in Ffulde. The bulb and raw groundnut when boiled and sieved, the liquid is given to cattle. This remedies the shortage or lack of milk for the calf.

HPI farmers in Bui have used parts of the plants mentioned above for prophylaxes and curative measure. They boiled these parts with water to produce a decoction which livestock drink or is concocted with feed. HPI

emphasized on the conservation of these medicinal plants and also encouraged ethnoveterinary gardens.

The aim of HPI in promoting ethnoveterinary practices was to let local farmers and pastoralists understand problems related to animal health in given areas and identify the practices used to address these problems. This, to enable the farmers and pastoralists to design appropriate community animal health care packages. These packages have offered training for Community-selected Animal Health Volunteers (CAHV) otherwise referred to as paraveterinary personnel.

Community Animal Health Volunteers (CAHV)

Through CAHV, systems of disease surveillance, treatment and control, blending the complementary use of orthodox (modern) and traditional veterinary practices were set up and were implemented. The project was cost-effective, practical and sustainable, since it was based mainly on the services of experienced and well-trained (in both orthodox and traditional veterinary medicine) livestock owners who served as animal health auxiliaries or "barefoot itinerants".

HPI has participative and practical training methods as the most effective way of training CAHVs. These methods respect the existing knowledge as the basis for new learning. Specific training tools enabled trainees to share and discuss their knowledge, while also acquiring knowledge from each other and the trainer. Participative training with practical, hand-on exercises was used with both literate and illiterate trainees. This approach differed markedly from lecturing and classroom teaching, thus trainers or CAHVs need training before training others. This was sometimes called, "Training of Trainers"²³.

ADAPTABILITY AND DIFFUSION OF HPI INNOVATIONS

As innovation normally aims to make changes, introduce a new technology, new ideas, and new methods or improve on the previous, E.F. Schumacher states that technological innovations need to be compatible with local farmers' financial capacity, education, aptitude and above all organizational skills.²⁴ Innovations involve not merely the systematic application of scientific and other organized knowledge to practical tasks, but also the social and economic atmosphere within which such application has to take place.²⁵ Furthermore, innovations refer not only to ways of producing goods, but also ways of fulfilling needs and deriving satisfaction. The technology of consumption has a profound

impact on the structure of the economy, influencing the goods and services to be produced. Even the attitudes and values of people are, in a sense, a part of technology since they affect the capabilities of the people.²⁶ In our case, HPI nutritional and health innovations to an extent were gradually adapted and diffused by Bui farmers. As earlier stated, innovations must be symbiotic with social and economic variables in the locale of application.

One of the greatest innovations put in place by HPI was pasture improvement and effective year-round animal feeding. Legumes and grasses recommended as appropriate to this system were perennial and did not need planting each year. They yielded high quality food, had rapid growth, and were suited to a variety of soils and climates. HPI assisted farmers by distributing seeds and seedlings of these plants after a thorough training on their cultivation. Manure to improve pastures was available from livestock. This innovation gained wide acceptability and adaptability from local farmers. According to Alhaji Eggi Sule, "Bracharia is very nutritious. At any point in time, I am prepared and ready to offer FCFA 3000 for each kilogram on sale."²⁷ Another worth innovation in livestock nutrition was on-farm concentrate feed mixing (feed formulation) for improved livestock production. Because farmers used predominantly their own crops and other ingredients to mix feeds (based on formula given to them by HPI), they adapted easily to the changes. In other words, they did not rely on prohibitively expensive and most often unavailable commercial animal feeds. Though at times farmers complained of high prices of some raw materials needed for feed formulation, they acknowledged they got quite a good number of them from their farm or from the immediate surroundings at cheap prices.

HPI farmers in Bui stated unequivocally that orthodox (modern) Western medicine was very costly. At its advent, HPI encouraged farmers to cure their animals and administer vaccination in order to prevent infections. The prohibitive cost of Western drugs made HPI to look for alternatives. HPI designed ethnoveterinary projects to provide available, affordable and alternative ways of treating and controlling animal health problems. Ethnoveterinary medicines were developed from local and natural occurring substances in the area. More so, HPI trained CAHV to survey, treat and control livestock diseases. This was cost-effective, practical and sustainable project. These innovations were unequivocally embraced and adapted by pastoralists, HPI assisted and non-assisted farmers in Bui. Josephine Lemnyuy of Bongaba Jerusalem Group, Nicoline Bongyi of Bongbime Wvem, Mathias Ngai of Elak Rabbit Farmers and

Ernestine Nyuyfodze of Sosum Kikaikelaki, shared the view that, the number of times they consulted with veterinary specialists reduced. They used ethnoveterinary medicines on livestock and themselves. However, ethnoveterinary and veterinary services remained complementary.

A variety of factors accounted for the adaptability of HPI innovations by its assisted farmers. HPI endeavoured to apply strategies (bottom-up and integrated approaches) appropriate to the nature of the problems facing the local farmers. This is described as endogenous development. HPI emphasized a greater role for local people and for local institutions in the planning, implementation and evolution in its operations. According to K.J. Michael, in a bottom-up approach, development is seen not only as an economic concept, but also as a process dealing with the human condition. HPI accepted numerous possible conceptions of development, and argued that development objectives and paths must be pitched to a level that was appropriate to the local situation.²⁸ For all practical purposes, most, but, not all the HPI's technology was labour intensive and consequently, very cheap. This made its innovations attractive to the recipients. Also its outfits comprised thematic schemes. Farmers went in for what they could be able to manage and best suited for. Thus, they took on the innovations of their choices.

One of the most fundamental prerequisites for innovations to become adaptable and easily diffused involves a symbiotic relationship between the innovations with social and economic variables in the locale of application. As earlier said, innovations must take into consideration, the recipient's level of education, aptitude and other related skills. In fact, it must attempt to build on the local technology in order not to have a disruptive effect on the prevailing customary practices.²⁹ HPI endeavoured to put into practice these strategies when and where possible.

In spite of successes with HPI innovations, some represented a radical departure from the socio-economic variables of the locale of application. In such cases, there was a danger that expectations will be unmet and consequently damage done in terms of local confidence and investments. In these circumstances, the spread and adaptability of innovations became an uphill task. Some HPI innovations have been asymmetrical to the socio-economic situations of Bui and consequently, they failed. The failure in some innovations constituted a great problem to HPI and its assisted farmers. This implied a lot of time, effort and money wasted.

Without a proper mastery of the beneficiaries of the operations of an exotic technology, the question of adaptability, even less, diffusion did not arise. It is instructive that adaptation and diffusion are of the very essence of development efforts. Without these elements, every development effort would be ephemeral.³⁰

CONCLUSION

The circumstances that led to the commencement of HPI activities in Bui appear concurrent with the problems in the region. HPI, *inter alia*, responded to requests for development assistance in the following project components: livestock nutrition and health, agroforestry, technological innovations, training, environmental protection, and gender issues. Thus, HPI, which focuses on problems of rural development in Bui, adopts the integrated rural development approach to provide a viable general solution to rural poverty. However, sometimes, its piecemeal reactive policy interventions and strategies have been too slow to generate any significant spread that would have a strong enough positive impact on rural poverty. Nevertheless, HPI projects seem to have produced positive consequences. What is even more important is its commendable self-reliance and sustainability innovations. As S.K.B. Asante averred:

Economic and material growth by themselves should not be viewed as sufficient conditions of development, important though they are, growth must be brought about in ways which actively promote the self-reliant capabilities of developing countries in order to be lasting value.³¹

HPI, overall, needs to redefine its strategies and network more with local people, traditional authorities, institutions and councils that are educative agents in the dissemination of information among rural masses. This would go a long way to buttress its activities in Bui. More important is the need for HPI to reposition and redefine its stance on revolving funds within its groups. A substantial increase in these funds is called for. Other credit avenues are also welcome. This seems the most feasible way to enhance sustainable development otherwise, in years to come, the lofty concrete ideas that embody HPI will become a dream.

REFERENCES AND NOTES

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