

Anticipated Research Studies

Title: The effect of Pesticide exposure on the health of farm workers in Cameroon

Introduction

The population of Fako division-Cameroon and its environs are facing severe health and environmental problems as a result of the inappropriate and persistent use of pesticides. Unfortunately the pesticides that were meant to bring good, increase food production or destroy pests, have in the contrary turned against the health of human beings, animals and the environment. Structural deformities, chronic poisonings leading to all kinds of health hazards and death are being experienced by workers and people living in and around this area.

The Problem

Cameroon's economy stands strong based on agricultural activities undertaken in this area with large plantations developed since colonial days. The plantations occupy a larger portion of the area. In this regard the use of pesticides is considered indispensable in agricultural production giving the same importance to fertilizers and improved seed varieties. While waiting for on-going research to reveal new farming methods and resistant varieties, the use of pesticides is for the time being the only means through which crop production and future harvests can be guaranteed in these plantations.

In 1989, due to the financial crisis that hit the country, the government liberalized and privatized the use of pesticides. As a result of this, farmers accumulated stockpiles of pesticides in deteriorating leaking containers. This has resulted to enormous health and environmental hazards with very devastating consequences to public health.

Generally, the use of pesticides on plantations in Cameroon is done with little or no consideration to the health of the workers handling the chemicals and the environment. Workers and farmers are regularly exposed to these pesticides and therefore experience

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serious problems with health. There is an enormous exposure to a “cocktail” of pesticides not in traces but in very significant concentrations. The greatest at risks are the workers involved in mixing and loading of pesticides. In most cases, there are no protective clothing and nose masks to prevent inhaling the gas fumes.

Pesticide use especially in these plantations and among farmers indicates that it is very difficult to follow labeled instructions and recommendations which include: high temperatures and humidity, lack of protective equipments, leaking knapsack sprayers, illiteracy, lack of facilities for washing, or medical treatment and repeated exposures. Limits with regards to application duration for pesticides are never considered thus leading to chronic concentrations in human bodies.

A cross section of the population use very dangerous pesticides as baits for hunting animals in the wild for local consumption and public sales.

Justification of research

Institutionally, pesticide contamination, poisoning and pollution enforcement are weak due to negligence, lack of financial resources, abatement infrastructure and personnel. Pollution monitoring is a recent event in Cameroon and even where it is undertaken, international standards are not applied. There is no scientific data resulting from previous research work indicating pesticide levels in humans and other organisms in this particular area on which basis for subsequent controls or monitoring can be justified. It is believed that even with similar research studies carried out in other parts of the world, the data might not be convincing enough to establish a strong basis for awareness in this area and situation.

Medical treatments for all pesticide poisonings, intoxication or contamination on plantation workers and farmers are administered without proper diagnosis of the specific chemical involved probably because the names of pesticides used on plantations are not even made available to medical personnel.

Methodology

A list of pesticides will be chosen based on their frequency of use, experience with regard to toxicity to human health and the environment. Epidemiological studies will also be carried alongside some pesticide exposure modeling.

Blood samplings and analysis will be obtained to determine the concentrations or doses of selected pesticides from the following categories of people:

- Workers involved in the mixing and loading of pesticides.
- Workers actively involved in the application of pesticides.
- People permanently residing in areas within the plantations with persistent and intensive applications.

Collection of water samples at definite and strategic positions from the source of pollution to the sea.

Development of questionnaires to guide and enable participant observation and interviews from all categories of people within the specified study area.

Data analysis

The analysis of data will be aided by the use of different exposure computer models, clinical and laboratory analyses depending on the type and origin of data.

Location of study area

Fako division is located in the Southwest Province of the Republic of Cameroon. Its divisional boundaries stretch from the lower Mungo River estuary to the East, to the Southeastern and eastern axis of Mount Cameroon, passing through the creeks and the coast of Ngeme.



Figure 1: Map showing study area

Soil type

The soil of Fako are of recent origin, mostly of young volcanic rocks and very rich in nutrients.

Topography

The land is generally flat with very gentle sloping towards the ocean.

Climate

Fako enjoys a Tropical climate. Due to the combination of winds from Mount Cameroon and the ocean currents of the Atlantic, parts of Fako record levels of precipitation with

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Debundcha the second wettest place on earth recording close to 400 inches of rain per year.

Population

The population is estimated as 2,348,985 people.

Main occupation

Agriculture, fishing and harvesting of forest products are key livelihoods occupations for the greater rural population.

Envisaged achievement of research

The motivation for this research has been developed out of personal experience and long-standing interest. Achievements at the end of the project will include:

- To seek a balance between health concerns and effective pesticide use in an area where many residents depend on agriculture and often co-exist in areas where pesticide use is persistent
- Contribute towards on-going research on pesticide use.
- To strengthen the capacity of government and plantation authorities to elaborate, enforce and monitor environmental legislation.
- To identify the sources and mode of pesticide contamination and pollution and thus find possible abatement strategies.
- Awareness and sensitization of the general public and plantation authorities on pesticide use.

Literature review

Pesticide health problems can affect pesticide users and non-users accidentally exposed to pesticides at varying doses and consumers of food or water containing pesticides. Most unintentional pesticide poisonings are occupational cases, and occur mainly among plantation workers and farmers (Wesseling *et. al.*, 1979b). However, existing knowledge concerning the effect of pesticide exposure on human health is incomplete especially with the effect of different types of pesticides reacting together (pesticide synergy) for which there is little information (Walker *et. al.*, 1997).

There are three main routes of exposure to pesticide contaminations; dermal, respiratory, and gastrointestinal (Levitan, 2002). Several methods have been proposed to estimate the environmental and health impact of pesticide use, but most of these approaches have strong limitations (Margni *et. al.*, 2002).

Other researchers have created risk indexes to conduct pesticide impact assessment for other purposes, relying on less aggregate analysis. By necessity, many relevant environmental and safety factors are not taken into account in the estimate (Kovach *et. al.*, 1992; Levitan *et. al.*, 1995).

Pesticide contamination of the environment and its subsequent human health hazards is never an entirely technical process; political imperatives can be very important in determining its agreed magnitude (Falconer, 2002) and when human lives are at great risk, as in the case in Cameroon, urgent need is needed to stop the suffering and death of the poor masses.

Conclusion

There are no universally made solutions that can be used to tackle the various problems plaguing the human community in a country. A single problem may require several methods of solving it.

In as much as it is my desire to pursue research studies, I owe an obligation to contribute in whatever way possible in finding plausible solutions to the pesticide related problems that have caused serious ill health, sufferings and death to many especially the poor for decades.

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There is no doubt that illnesses and deaths resulting from pesticide poisonings are being carefully attributed to other causes like HIV/AIDS, witchcraft and/or supernatural forces. This is an intended attempt to divert the real cause of the sufferings, a situation that is perpetuated by some plantation authorities. This diversion seems to work successfully because of the ignorance of the masses coupled with the absence of education.

Human life is very important no matter how empty their brains may be with respect to education. The outcome of this research may not transform the prevailing situation overnight, but it may act as a scientific basis for subsequent work toward liberating the human population in this area from a long-standing disaster.

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