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Analysis of socio-economic factors and vulnerability of fishermen and female fish traders to HIV/AIDS in fishing camps in the Kasenga-Luapula-Moero region, Katanga Province. Democratic Republic of Congo • Final Report

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Fisheries and HIV/AIDS in Africa: Investing in Sustainable Solutions



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1. Introduction

1.1. Description of the study

This study originates from a general empirical reflection on a widely held view arising from a careful observation of African societies, and those of the world. This view is that: "communities of fishermen are highly vulnerable to HIV/AIDS; they are even in a state of extreme vulnerability to HIV/AIDS". This issue, which affects several communities of fishermen living in various areas, can only be raised and addressed within the context and in accordance with realities of each of those areas. Therefore, these communities must be divided into sectors, allowing us to carry out a study that may offer viable solutions to each community of fishermen. As a matter of fact, the causes of vulnerability among fishermen fishing in the river Nile, for example, may not be necessarily the same as those among fishermen fishing in Lake Tanganyika in the Democratic Republic of Congo (DRC.).

In efforts to better understand this issue, the WorldFish Center together with World Vision International – DRC joint forces in a research project to investigate the socio-economic factors which are at the root of HIV/AIDS among fishermen and fish traders, and to gain insights into their vulnerability to HIV/AIDS¹. The main research questions which are considered in this study include:

1. *What are the socio-economic characteristics of fishermen and female fish traders in Kasenga (Kasenga city and fishing camps)?*
2. *What are the modes of transportation used, what are the main roads or the main routes taken by fishermen and female fish traders of Kasenga and what is the approximate number of the segments of the population that are affected (in percentage) ?*
3. *What are the factors that contribute to increasing the vulnerability of female fish traders of Kasenga to HIV infection?*

This report presents the matrix and foundation of the study conducted in Katanga, based on the assumption that communities of fishermen in the Kasenga – Luapula – Moero area are vulnerable to HIV/AIDS due to a mix of several socio-economic factors and the presence of female fish traders in the fishing areas (fishing camps). This is also true for fish market dealers and transport operators who frequently have to deal with the same female fish traders who are generally short of capital. Apart from this social interaction, fishing camps do not have health and school services, among other things, and the mobility of female fish traders in these camps increases the risk of disease and vulnerability of these populations.

To conduct this study in the most effective way, we felt it rational to carry out these investigations in three successive stages, notably:

- 1) To conduct a systematic review of journals, articles, scientific papers and other earlier publications on fisheries and /or HIV/AIDS;
- 2) To identify socio-economic characteristics of fish production and marketing at the markets of the town of Lubumbashi;

¹ This study was conducted by WorldFish Center as part of the regional programme entitled: « *Fisheries and HIV/AIDS in Africa: Investing in Sustainable Solutions* » with financial assistance from the Swedish International Development Cooperation Agency (Sida) and the Norwegian Ministry of Foreign Affairs.

- 3) To identify the socio-economic characteristics of fishermen and female fish traders in fishing camps located in the Kasenga – Luapula – Moero region.

1.2. Description of the geographic area of the study

The town of Lubumbashi served as a starting point for the present study which culminated in the analysis of the entire production and marketing channel of fish in the various fishing areas of the Kasenga – Luapula – Moero region.

1.2.1. The town of Lubumbashi

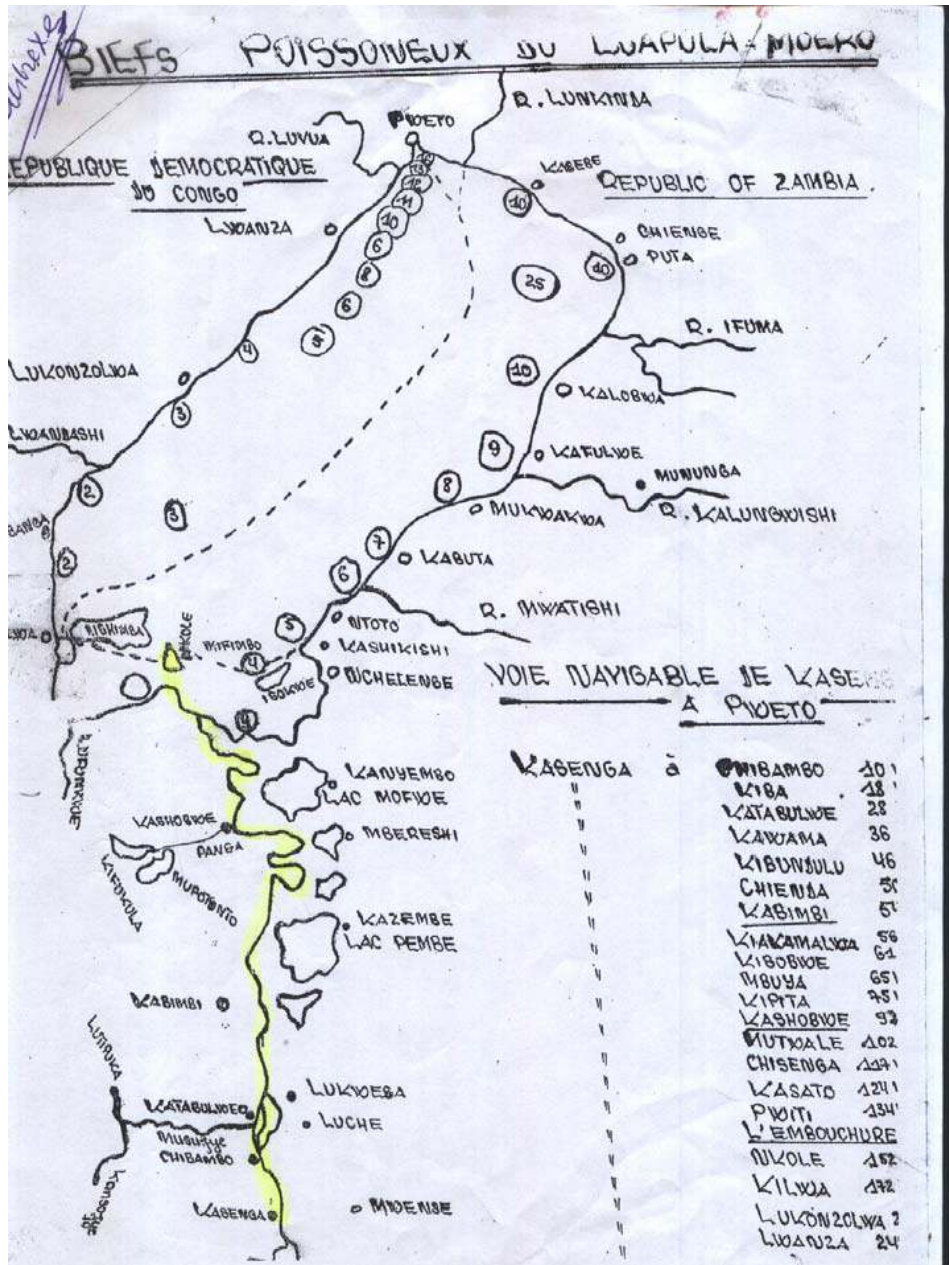
Firstly, we visited all the libraries of the town of Lubumbashi, the chief city of Katanga Province, to conduct a review of earlier publications on HIV/AIDS and /or fisheries. Subsequently, an analysis was conducted on how the population of Lubumbashi is affected by banners and other documents produced by some organizations such as the national multisectoral programme for HIV/AIDS (PNMLS), the national programme for HIV (PNLS), and the World Health Organization (WHO) in the context of HIV/AIDS awareness campaigns.

Secondly, we carried out a census of fish markets throughout the town of Lubumbashi before conducting a detailed study on them, because, as will be clearly shown in this study, more than 80% of the fish that is sold in Lubumbashi comes from the Kasenga – Luapula – Moero region. This is the reason why Kasenga region has been selected as a second stage of our study.

1.2.2. The Kasenga – Luapula – Moero region

The present study targeted all the fishing areas extending from Kasenga city through Luapula River to Lake Moero. Several fishing camps were identified from Kasenga city to Lake Moero, and the most important ones were the subject of our research. These include fishing camps located around Nkole Island, and those of Kashobwe, Kasato and Puiti villages.

It should also be noted that Nkole Island is a meeting place for fishermen operating in the Luapula area as it is centrally located between Lake Moero and Luapula River. Thus, this island is located at the mouth of Luapula River. The navigable portion of Luapula River extends from Kasenga city to the mouth of the river over a distance of 152 km and has several localities located all along its banks.



We identified the following cities and localities:

- Kasenga city,
- Kilambo locality : 10 km,
- Kiba locality : 18 km,
- Katabulwe locality : 28 km,
- Kawama locality : 36 km,
- Kibundulu locality : 46 km,
- Chienda locality : 50 km,
- Kabimbi city : 54 km,
- Kiakamalolwa locality : 56 km,
- Kibobwe locality : 61 km,
- Mbuya locality : 65 km,
- Kipita locality : 75 km,

- Kashobwe city : 92 km,
- Mutwale locality : 102 km,
- Chisenga locality : 107 km,
- Kasato locality : 124 km,
- River mouth : 150 km,
- Nkole locality : 152 km.

Located on the border between Zambia and the DRC, the Kasenga – Luapula – Moero region is a gateway to Zambia for fish products. Therefore, some localities in the Republic of Zambia which are bordering the DRC along Lake Moero and Luapula River have also been included in this study aimed at analyzing the distribution channel of fish products in this region. These mainly include localities such as Kashikishi, Pototo and Ntimba.

1.3. Objectives

1.3.1. Overall objectives

As said earlier in the description of the study, this study is aimed at identifying socio-economic factors which are the root of HIV/AIDS and may have an impact on the vulnerability of fishermen and female fish traders to HIV/AIDS. Based on these identified factors, recommendations will be made on how to set up a pilot project aimed at reducing vulnerability to HIV/AIDS among fishermen in the Kasenga – Luapula – Moero region and among female fish traders who are working in the same areas. By addressing the issue of a high HIV/AIDS prevalence rate in these two population groups, this study seeks to promote fish production by ensuring protection to productive forces, thus improving the living conditions of these populations.

1.3.2. Specific objectives

The present study seeks to identify socio-economic factors which are the root causes of the vulnerability of fishermen and female fish traders to HIV/AIDS in the fishing camps. From this perspective, an appropriate intervention will be developed and applied to the Kasenga – Luapula – Moero region with a view to reducing vulnerability factors to HIV/AIDS.

Finally, the research team will make recommendations on the implementation of a pilot project geared towards protecting female fish traders and improving their living conditions with regard to their health and business.

1.4. Implementing organization

The Katanga Provincial Faculty of the Open University – CIDEP has been contracted to conduct the present study. In fact, the interdisciplinary centre for development and continuing education – the Open University (CIDEP - U.O.) is a state-run institution of university education (public institution) which came into existence in 1972 and was entrusted with as adult education as primary task.

1.5. Methodology

To carry out this study, we used one methodology with a number of supporting techniques. A study of this nature required us to use the method of socio-economic questionnaires.

The following techniques were used as the means by which we could achieve our objectives with the above mentioned method:

- 1) Literature review,
- 2) Direct observations,
- 3) Participatory observations,
- 4) Participation – observation,
- 5) Structured and semi-structured interviews,
- 6) Guided and semi-guided interviews,
- 7) Sampling.

It should be noted that this study used a non-probabilistic sampling strategy also known as stratified random sampling method or QUOTA method.

1.6. Structure of the report

This survey report is divided into two parts. The first part, which is outlined here-after, is focusing on describing the research framework and earlier publications on communities of fishermen and HIV/AIDS on the one hand and describing markets and types of fish sold in Lubumbashi on the other hand. Describing markets is important to us as this will help us to trace the origin of the fish which is sold in Lubumbashi. This first section also examines the socio-economic characteristics of female fish traders, key players (owners of food depots and female fish traders) within the fish marketing chain.

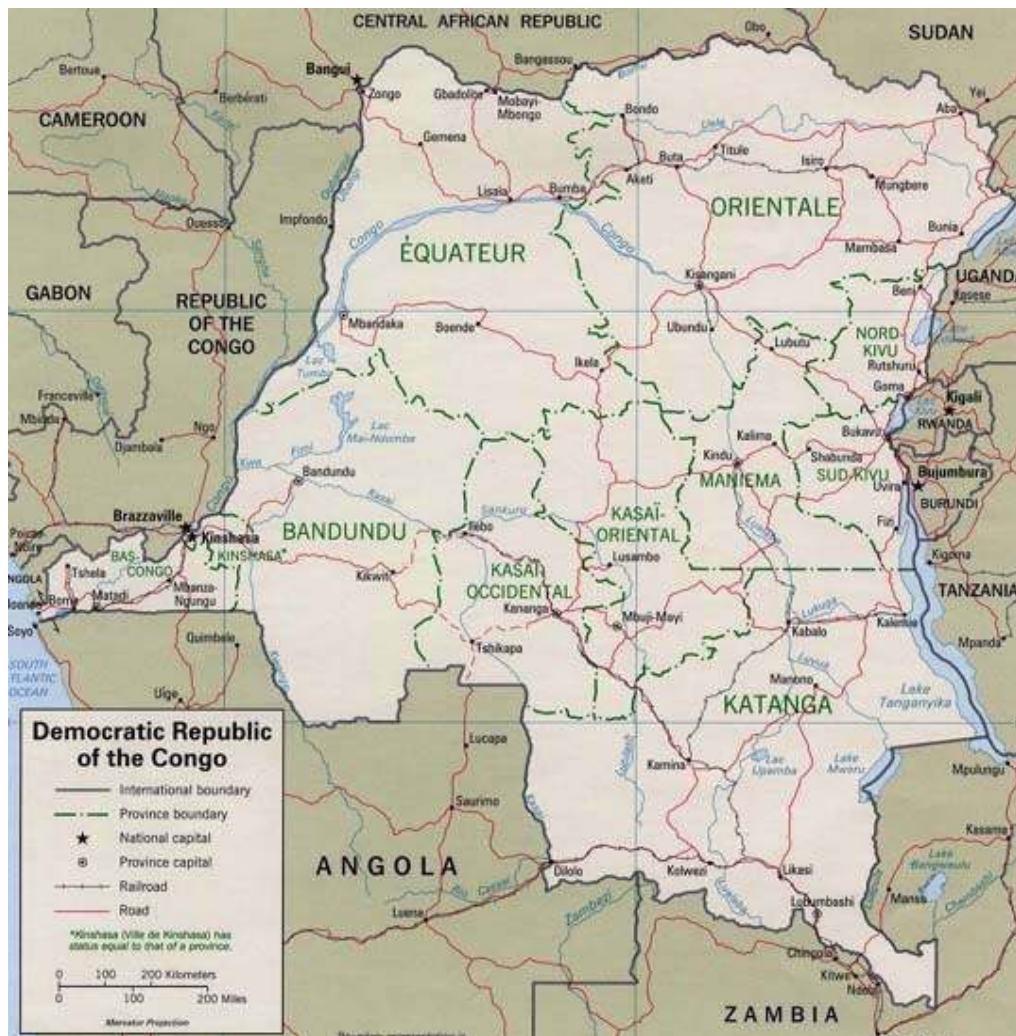
As for the second part, it describes the socio-economic characteristics of fishermen and fish traders in the fishing camps which are located in the Kasenga – Luapula – Moero region, establishing a correlation between socio-economic characteristics and the prevalence of HIV/AIDS among fishermen and female fish traders.

Section One

2. Socio-economic characteristics of fish production and marketing at the markets of the town of Lubumbashi

2.1. Map of the DRC

The Kasenga – Luapula – Moero region as well as the town of Lubumbashi, which are our research sites, are geographical areas located in the south of the DRC. Thus, we feel it necessary to provide the map of the DRC, showing the vast size of Katanga province in the DRC, because Katanga province, which is 496.877 km² in area, is not only the second largest province of the country in terms of its surface area but also in terms of its population density.



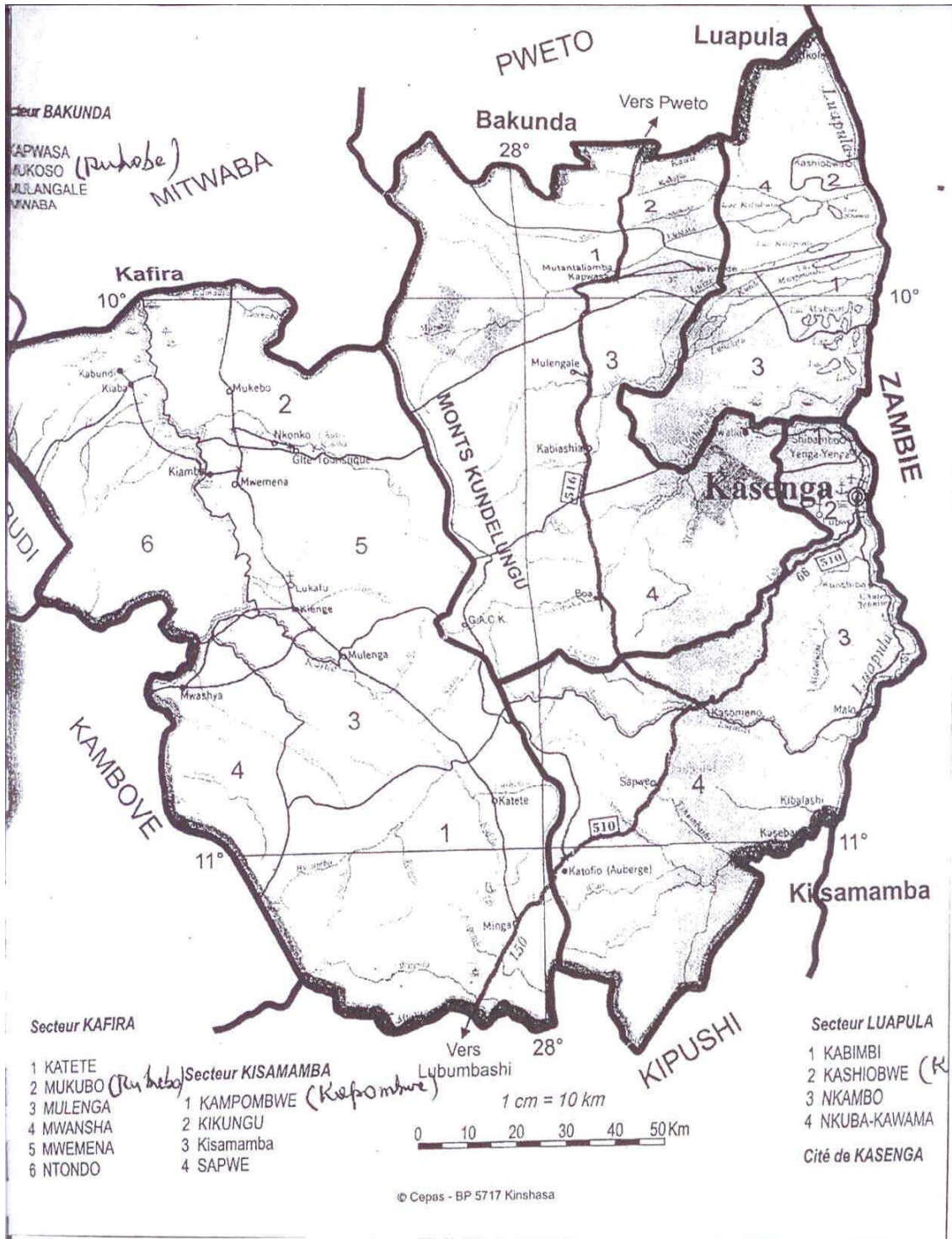
2.2. Map of Katanga Province

It is important to provide the map of Katanga Province because our research site (Lubumbashi and Kasenga – Luapula – Moero) is part of this province. Thus, we can clearly see which part of the province has been covered by the study.



2.3. Map of Kasenga territory

The map of Kasenga territory shows geographical areas which are the subject matter of the second part of this study. This map clearly shows in which part of the territory (in the Kasenga –Luapula-Moero region) the branches of the river are located which are well stocked with fish, and around which this study is centred. The map also shows the high density of fish in the area which is covered by our survey, that is the part of the river in the Kasenga –Luapula-Moero region which are well stocked with fish.



3. Publications on fish markets in Lubumbashi

3.1. Overview of publications on fisheries and HIV/AIDS in the DRC

There are a number of libraries in Katanga province and more particularly in the town of Lubumbashi which are either privately-owned libraries or state-run libraries that belong to public institutions of higher and university education (See list of libraries in appendix 1).

3.2. Review of publications

The activity of visiting all the libraries in the town of Lubumbashi to identify publications on HIV/AIDS and fisheries proved to be disappointing. One of the main findings is that fisheries and HIV/AIDS are largely an uncharted area of science in view of the number of scientific papers which have been written on the subject so far.

Also, we noted that publications on HIV/AIDS and fisheries are more academic than educational and no direct correlation between HIV/AIDS and fisheries has been shown. As a result, publications are in fact not read by the sections of the population for which they are produced. Thus, there is a lot of ignorance about the realities of the fisheries industry and HIV/AIDS among this poor population. Other findings which should be noted relate to the fact that all the identified and visited libraries, although in use (operationally), remain in large part poor and ill-stocked with books.

As said earlier, we failed to trace studies related to the vulnerability of fishermen and female fish traders to HIV/AIDS in DRC in most of the publications we read. However, our study revealed the existence of two national organizations whose objective is to conduct awareness sessions and reduce the prevalence of HIV/AIDS in various territories and towns, notably the national programme for HIV/AIDS (PNLS) and the national multisectoral programme for HIV/AIDS (PNMLS). Furthermore some publications highlighted the importance of the Kasenga – Luapula – Moero region as a major supplier of fish to markets. In its annual reports, the Ministry of Agriculture and Fisheries maintains that 80% of the amount of fish sold at the markets of Lubumbashi mainly comes from this region, which has also been confirmed by our study. This information is of importance to our study, which is centered on the correlation between communities of fishermen and female fish traders and their vulnerability to HIV/AIDS.

Statistics on HIV prevalence rates in the Democratic Republic of Congo and in Katanga province, as has been shown by the above mentioned two organizations, indicate that 4.5% of the population is infected with HIV (see table 1 below), that is 3.6000.000 inhabitants.

Table 1: HIV prevalence in the DRC according to PNLs (in 2007)

	0 – 14 years	15 years and above	Total
Number of people living with HIV	116.230	1.260.000	1.376.230
Number of new HIV infections	38.180	133.100	171.280
Number of pregnant women living with HIV		147.270	147.270
Number of deaths resulting from AIDS			104.900
People in need of Anti-Retroviral Therapy (ART)	30.300	317.190	347.490
Prevalence amongst adults			4.05%

Source: adapted from PNLs (Dec. 2007)

Analysis shows that, despite the fact that the above table establishes no direct correlation between HIV/AIDS and the community of fishermen and female fish traders, Katanga province ranks among the provinces which are the most affected by HIV/AIDS. As a matter of fact, after Bas-Congo Province with its Matadi harbour at the coast of the Atlantic Ocean, and the town of Kinshasa with its 12.000.000 inhabitants, Katanga Province has the next highest prevalence rate. The HIV prevalence in Lubumbashi stands at 5.4% as compared to 3.6% in Kinshasa, the capital of the DRC.

An examination of activities carried out by PNLs and PNMLS in the field has revealed that these two organizations have geared their interventions towards providing voluntary testing and counselling, and the distribution of free condoms. We consider these practices to be unreliable methods for determining the prevalence rate and more particularly for implementing an efficient policy on raising awareness about HIV/AIDS and fighting it in high-risk areas such as those of communities of fishermen and female fish traders.

4. Inventory and map of fish markets in Lubumbashi

4.1. Inventory of fish markets in Lubumbashi

We consider it imperative to identify all the fish markets in Lubumbashi for the simple reason that this inventory will help us determine the amount of fish in tons which is sold in each commune. Thus, the question is to know whether such a sectoral analysis of markets can, in general, help us to trace the origin of the bulk of the fish which is consumed by Lubumbashi dwellers and by people from other areas of the province and the country who get their supply of fish from Lubumbashi.

Tracing the source of fish will serve as a starting point for the second stage of our study. Field work has shown that there are six (6) markets in Lubumbashi that clearly sell fish in addition to some small other markets that are found in quarters, blocks and other sub-locations. The six markets can be classified in descending order of size as follows:

- a) Njanja Market (Munama road),
- b) Central Market of Kenya commune,
- c) Mzee Laurent-Désiré Kabila Market (town Centre),
- d) Kamalondo commune Market,
- e) Central Market of Katuba commune,
- f) Ruashi commune Market.

a) Njanja Market

Njanja Market turns out to be the biggest fish market of Lubumbashi and even of Katanga Province. Consequently, other markets in the town of Lubumbashi and in other towns and cities of Katanga province such as Kolwezi, Likasi, Kipushi, and Kasumbalesa, get their supplies of fish from Njanja Market. Therefore, we can hardly find fish in a market of Lubumbashi that has directly come from Kasenga without passing through Njanja Market. This market has several food depots which belong to different people and there are about 70 of them (see appendix 2: List of food depots at Njanja Market).

The amount of fish sold at Njanja Market is between 80 and 100 tons per month. The types of fish which are sold are as follows:

- Big fish,
- Smoked fish,
- Salted fish,
- Fry.

The source of these various types of fish is as follows:

- Large fish: 100% comes from Kasenga (Luapula – Moero).
- Fry (Kashobwe) : - 80% comes from Kasenga (Luapula – Moero),
- 10% from Lake Tanganyika,
- 10% from Congo River.
- Smoked fish : 100% comes from Kasenga (Moero),
- Salted fish : - 60% comes from Kasenga (Moero),
- 40% from Zambia, Mozambique.

Njanja Market is comprised of wholesalers who store their fish in food depots that are privately-owned. And all vendors charge a price for their fish according to expenses they have incurred.

Fish from Kasenga is transported to Lubumbashi in trucks (by road). Njanja Market is characterized by the presence of wholesalers and a large number of women vendors who are short of capital commonly called “*epope*”. This means that these women, who lack capital, buy their fish on credit from wholesalers and sell them in the same food depots at retail prices and they pay back their debts and keep a profit from their sale. This type of arrangement to receive fish on credit as a special favour usually induces women to sell their bodies, thus increasing the spread of HIV infection among wholesalers and female fish traders.

Njanja Market has more than 70 food depots owned by individual people. These food depots are supplied with fish that is transported from Kasenga in trucks. Fees for storing fish are paid to the owner of the food depot after selling the fish.



Female fish traders selling fish at Njanja Market.



Display of salted fish at Njanja Market.



Insights into the sale of fish in front of the stalls at Njanja Market.

b) The Central Market of Kenya commune

The amount of fish sold at the Central Market of Kenya commune is between 40–60 tons per month. The types of fish which are sold are as follows:

- Large fish,
- Fry,
- Smoked fish,
- Salted Fish.

An analysis of the source of fish that is sold at the Central Market of Kenya commune shows that 80% of the fish comes from Njanja Market while 20% comes from the Congo River. Fish is transported by trucks and trains. Traders who sell fish in the Central Market of Kenya are retailers. The prices of fish here are higher than those charged by wholesalers in Njanja Market.



Display of Smoked fish at the Central Market of Kenya commune.



*Inside view of the Central Market of Kenya commune:
Display of salted fish by female fish traders.*



Display of smoked fish at the Central Market of Kenya

c) Mzee L.D. Kabila Market

The quantity of fish sold at Laurent- Désiré Kabila Market is between 10 and 15 tons per month. The following are the types of fish that are sold:

- Large fish,
- Fresh fish (Tilapia, Thomson),
- Salted fish,
- Fry,

- Smoked Fish.

Fish that is sold here comes from:

- large fish: Njanja market
- fresh fish: Malawi and South Africa
- Fry: Zamia and Lake Tanganyika
- Smoked fish: Njanja Market

Fish is transported by trucks and trains and vendors are retailers. Prices in Mzee Laurent-Désiré Kabila Market are higher than in any other market because it is located in the town centre of Lubumbashi where the population is supposedly rich.



Display of salted fish at L.D. Kabila Market



Sale of fish in one of the largest markets of the town of Lubumbashi

d) Commune Katuba Market

The amount of fish sold in this market is between 5 – 6 tons per month and the types of fish that are sold are as follows:

- Fry,
- Salted fish,
- Smoked fish.

Fish sold in this market comes from Njanja Market (Kasenga) and small trucks are used to transport it to the market. Traders are retailers (100%). As most people in the townships are poor, prices of fish there are also tailored to their earnings. Generally, the fish types and species which are sold in this market are of poor nutritive value. At the first sight, fish sold in the town centre is of a higher quality than the fish sold in the townships.



An interviewer (Ass. Alpha Mwana) talking to female fish traders at the Commune Katuba Market



Display of salted fish on a shelf at the Commune Katuba Market

e) Kamalondo commune Market

The amount of fish sold at this market is between 1 and 2 tons per month. The following are the types of fish which are sold here:

- Salted fish,
- Smoked fish,
- Fry.

All the fish in this market comes from Njanja Market (Kasenga) and is transported to the market in small trucks. Traders in this market are retailers.

Kamalondo commune Market is in close proximity to food depots of Njanja Market, and people prefer to get their supply of fish directly from Njanja Market as the prices there are relatively lower.

f) Ruashi commune Market

The amount of fish sold in this market varies between 1/2 – 1 ton per month. The following are types of fish that are sold here:

- Salted fish,
- Smoked fish,
- Fry.

Fish in this market comes from Njanja Market (Kasenga) and is transported in small trucks, as is the case in Kamalondo commune Market. Traders here are retailers.

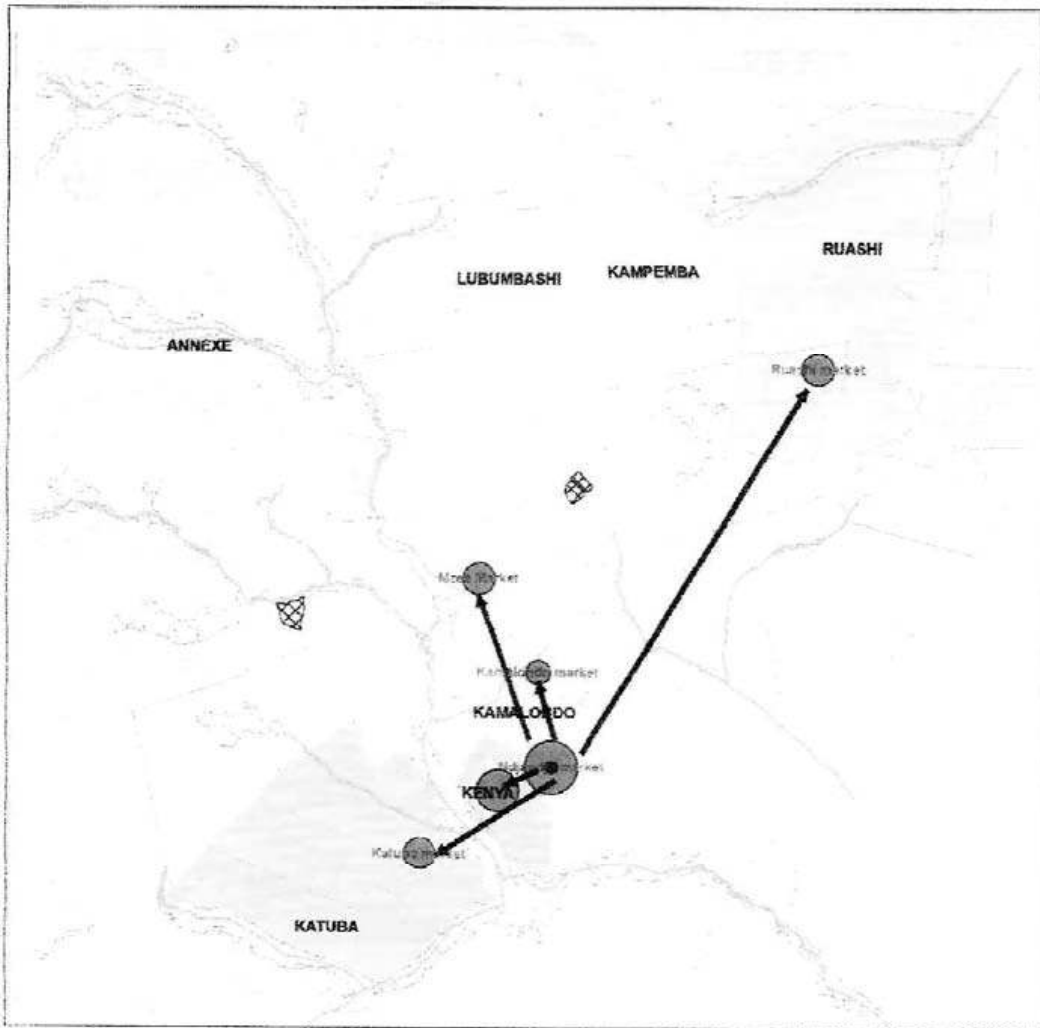
4.2. Map of fish markets of Lubumbashi

A map of the fish markets of Lubumbashi is of major importance to us as it clearly shows the importance of each market with regard to size as well as the transactions between the various markets. Not all these markets are directly supplied by Kasenga. Some of the markets supply others. A case in point is Njanja Market along with the Central Market of Kenya commune, which both supply markets of Lubumbashi with fish (cf. arrows on the map below indicate the movement of fish).

FISH MARKET MAPPING OF LUBUMBASHI

20

0 0,5 1 2 3 4
Kilometers



fish market

→ Procurement trends of fish market

- Très grande importance
- Grande importance
- importance moyenne
- petite importance

Légende

- rivières
- Lac artificiel
- chemins
- Marécage
- limites des communes
- ANNEXE
- KAMALONDO
- KAMPEMBA
- KATUBA
- KENYA
- LUBUMBASHI
- RUASHI



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Mapping

4.3. The origin of fish sold in Lubumbashi

Despite the fact that fishing is undertaken throughout Katanga Province, as Congo River as well as its various tributaries and lakes, notably Lufira, Luvua, Lukuga, Lake Kisale, Lake Moero, Lake Tanganyika, and Lake Tshangalele all flow through this region, the survey conducted in the field has shown that 95% of the fish sold in the town of Lubumbashi comes from the Luapula – Moero – Kasenga section. The Luapula is a river that drains Lake Bangwelo and flows into Lake Moero (in Zambia) and has created several floodplains, turning this region into one of the richest fishing grounds of the region.

The Kasenga – Luapula – Moero region (in Katanga), which is our research site, does not only have the advantage of being one of the richest areas of the country but has also the advantage of being in close proximity to the town of Lubumbashi, which is one of the largest consumer areas with an estimated population of 3.000.000 people. Because roads are impassable and railways are run-down, Kasenga has become the only commercial centre supplying fish to towns of Katanga.

The monopoly that this region enjoys in fisheries and the ease with which fish can be transported have attracted a considerable number of fishermen from various areas to this region, with all the consequences this might have on the spread of HIV/AIDS. Large concentrations of fishermen from various areas in this province has led to an influx and concentration in to this region of male and female traders, so consequently there is a wide range of social and sexual networks, which are at the root of the vulnerability of these communities to HIV/AIDS .

4.4. Types and species of fish sold in Lubumbashi

The survey conducted in the field has shown that there are four (4) types of fish which are commonly sold in Lubumbashi:

- Salted fish,
- Smoked fish,
- Fry
- Large fish.

However, there are several fish types that are processed into the above-mentioned conditions. These include Makoki (Tilapia), Kabambale (Caston), Misumari, Kashobwe, Mikebuka, and Milonge. It should be noted that these three fish types are processed through the salting, smoking and drying of fresh fish. Yet, these operations require the buyer of fresh fish to settle in the area to conduct such processing methods. This mobility is at the basis of sexual relations that are formed between fishermen and female fish traders.

The importance of Njanja Market lies in the fact that historically, Greek colonizers who were involved in the fishing industry on the Luapula River and Lake Moero, and who had complete control over it , had built their houses in the area called « Njanja » (on Munana road). They had also built food depots and cold stores in the same area. Therefore, it is for this historic reason that the « Njanja » area has become the country's biggest fish market where fish is sold at wholesale prices.

4.5. Socio-economic characteristics of fish wholesalers and retailers

The survey which was conducted in all the fish markets of the town of Lubumbashi shows that 95.6% of fish traders are female (see table 2 below) and these are mostly married women. A very small number of men are involved in the trade of fish.

Table 2 : Fish wholesalers and retailers at the fish markets of Lubumbashi (by sex)

Market	Total number of people	Men (N)	Women (N)	Men (%)	Women (%)
Kenya	100	07	93	7	93
Katuba	72	06	66	8	92
Njanja	300	36	264	12	88
Mzee Kabila	80	08	72	10	90
Kamalondo	50	00	50	0	100
Ruashi	35	00	35	0	100
TOTAL	637	57	580	8.9	91.5

Investigations in the field show that fish trade is completely a female-dominated activity for several reasons, more particularly:

- 1) The fact that average incomes of Congolese are very low, thus people must engage in commercial activities where they can evade taxes. Yet, women very often have the advantage of deceitfully avoiding all kinds of controls, and in this case, taxes. Thus, fish trade in Katanga and in Lubumbashi in particular has remained a female-dominated activity.
- 2) Another reason which is worth noting is that in the traditional culture of the DRC in general and of Katanga in particular, trading in foodstuffs is generally an activity that is associated with women, while other activities are associated with men.
- 3) A permanent search to maximize profits is one of the reasons why women are involved in fish trade.

Results from our survey show that 89.01% of female fish traders are married (see table 3 below). There can be some justification for such a situation insofar as several families resort to other resources to increase their incomes.

Table 3: Marital status of fish traders at the fish markets of Lubumbashi.

Market	Total number of people	Married (N)	Single (N)	Married (%)	Single (%)
Kenya	100	91	09	91.00	09.00
Katuba	72	54	18	75.00	25.00
Njanja	300	280	20	93.00	6.67
Mzee Kabila	80	75	05	93.70	6.25
Kamalondo	50	38	12	76.00	24.00
Ruashi	35	29	06	82.80	17.20
TOTAL	637	567	70	89.01	10.99

Results from table 4 below show that, in general, there are two main ethnic groups that are involved in the fish trade in the markets of Lubumbashi, notably people from the Kasai and Luba tribes.

Table 4: Tribe or ethnic group of fish traders at the fish markets of Lubumbashi.

Markets	Total number of people	Kasai	Luba	Hemba	Rund	Bemba
Kenya	100	76 (76%)	15 (15%)	5 (5%)	3 (%)	1 (1%)
Katuba	72	65 (90,2%)	3 (4,16%)	1 (1,3%)	3 (4,16%)	0 (0%)
Njanja	300	150 (50%)	100 (33,33%)	20 (6,66%)	5 (1,66%)	25 (8,35%)
Mzee Kabila	80	60 (75%)	10 (12,5%)	3 (3,75%)	4 (5%)	3 (3,75%)
Kamalondo	50	35 (70%)	10 (20%)	1 (2%)	4 (8%)	0 (0%)
Ruashi	35	20 (57,14%)	1 (2,85%)	1 (2,85%)	0 (0%)	12 (34,28%)
TOTAL	637	406 (63.73%)	139 (21.82%)	31 (4.86%)	19 (2.98%)	41 (6,43%)

5. Findings from the survey on vulnerability of fishermen and female fish traders to HIV/AIDS.

In view of the nature of our topic (analysis of socio-economic characteristics), we thought it necessary to use structured and semi-structured interviews as survey techniques. The target population as well as all resource persons answered oral questions about the socio-economic factors that are the root causes of the vulnerability of fishermen and female fish traders.

The sampling method used in the survey was the stratified random sampling method, which consists of having a survey group which has the same characteristics as the parent population. The following strata were designated:

- Sex,
- Profession (fisherman or other),
- Religious affiliation,
- Age,
- Ethnic group,
- Marital status,
- Social status (those who govern –those who are governed).

As was mentioned earlier in the preceding pages (Table 2), 91.5% of fish traders in the markets of Lubumbashi are women. It is appropriate to note here that all women are not at equal exposure to HIV/AIDS. Those who are the most exposed are female fish traders operating as wholesalers in food depots and those who frequently travel by road to Kasenga in search of fish.

To find the reasons why these two categories of women are highly vulnerable to HIV/AIDS, the survey conducted in Lubumbashi on 500 resource persons (female fish traders, drivers, sex workers) identified the following fundamental causes of vulnerability:

- **Lack of capital:** 80% of women who sell fish in the food depots are identified as « traders who have no capital ». These women claim to be wholesalers because they receive 90% of their fish on credit from the food depot managers. Their requests for credit constantly expose these women to sexual relationships with those who are helping them, hence increasing their vulnerability.
- **Maximizing profit:** To maximize profit, most women will never pay their truck fares and hotel rooms. In return, they prefer to sell their bodies to hotel managers and transport operators.
- **Mobility:** most female fish traders move from place to place between various fishing camps and markets, depending on the season, in search of more profitable businesses, which keeps them away from their homes and puts them at risk.

Our research also found that women who are submitting to high risk sexual intercourse in exchange for fish under a credit arrangement or for free transport fares tend to belong to certain ethnic groups: the Luba from Kasai , the Luba from Katanga and the Bemba. There is need for a more detailed study on the various ethnic groups that are involved in artisanal fisheries and fish trade in the Kasenga –Luapula – Moero region.

The comment that emerges from the views of the surveyed population is that the high prevalence of HIV/AIDS among female fish traders in Lubumbashi is inseparable from the socio-economic crisis which the country has been facing for more than 35 years. As a matter of fact, since the 1970s, after the country had experienced a boom in the mining industry (copper, zinc, cobalt, and cadmium), the DRC, and Katanga Province especially, have suffered the most spectacular socio-economic decline Africa has ever known. This multi-faceted crisis caused GCM, one of the country's biggest mining companies, and all other subsidiary companies such as SNCC,

banking institutions, manufacturing companies, and agricultural companies, to go into bankruptcy, and many people to lose employment in several companies, and the road infrastructure to become decrepit. As a result, household incomes quickly decreased. Consequently, fish trading by women emerged as a new coping strategy for low-income households. Poverty has led many women, more particularly female fish traders, to engage in high-risk sexual activities.

6. Analysis

Of the various independent explanatory variables which were offered to respondents for consideration, the following were selected. To answer the fundamental question: “why are communities of fishermen and female fish traders regarded as highly vulnerable to HIV/AIDS?”, several independent explanatory variables were provided by our respondents. The most important variables include:

- Low income of households,
- Maximizing profits,
- Fish trade is predominantly in the hands of women,
- Ignorance about the disease and its effects,
- Ignorance about preventive measures,
- Lack of an organization that offers support and extension service to fishermen,
- Lack of a culture of disseminating preventive measures,
- Lack of an organization that offers extension service to farmers,
- Increased number of women at the market,
- Appearance of an unrestricted form of polygamy known as “*bureaucratie*” (having a second wife).

All these findings were recorded in Lubumbashi and were used as guidelines by the team of interviewers who were sent to Kasenga in October 2008. The first section of this report helped to guide the analysis of the vulnerability of female fish traders in the production and marketing of fish in the Kasenga –Luapula- Moero region. A detailed account of this is given in the second part of this study conducted in the DRC.

Section Two

7. Analysis of socio-economic characteristics of fishermen and female fish traders in the fishing camps

The second part of this study was conducted in the Kasenga – Luapula – Moero region, more particularly in Kashobwe, Pwiti, Nkole and Kasato fishing camps. At this stage the objective was to identify socio-economic characteristics of fishermen and female fish traders with a view to explaining the prevalence of HIV among them and their vulnerability to HIV/AIDS.

7.1 Origin of fishermen in Kashobwe, Pwiti, Kasato and Nkole

Research carried out in Kashobwe, Pwiti, Kasato and Nkole fishing camps has shown that about 85% of fishermen come from as far as Manono (700 km from Kasenga) and Bukama (650 km from Kasenga). And they are predominantly from the Luba ethnic group. These fishermen leave their homes and families to come and settle in fishing camps and lead a life of single people. Tables 5 and 6 below show the marital status and ethnicity of fishermen.

Table 5: Ethnicity of fishermen in 4 fishing camps

Ethnicity	Pwiti fishing camp	Kashobwe fishing camp	Kasato fishing camp	Nkole fishing camp	Total	%
Luba from Katanga	75	73	80	78	306	72,8
Bemba	20	20	10	34	84	20,0
Sanga	02	03	05	02	12	2,8
Lunda	02	02	02	--	06	1,4
Other	01	02	03	06	12	2,8
TOTAL	100	100	100	120	420	100,0

Results related to the marital status of fishermen in table 6 below show that in all the four surveyed camps, out of a sample of 420 fishermen, 330 (that is 79%) live as single people in the camps. And 90 fishermen out of 420 (that is 21%) are leading a life of married people in the camps.

Table 6: Marital status of fishermen in the 4 fishing camps (N = 420)

Marital status	Pwiti fishing camp	Kashobwe fishing camp	Kasato fishing camp	Nkole fishing camp	%
Married	10	38	2	40	21%
Single	90	72	98	80	79%
Total	100	100	100	120	100%

The fact that men and women live as single people, predisposes them to develop sexual relationships with single women and single men, and increases the vulnerability to HIV among female fish traders who are looking for fish. HIV/AIDS will spread beyond the fishing camps because the majority of people who live as single people in fishing camps are actually lawfully married people in their places of origin. They may pass on the virus to their spouses once they are back home. The risk of spreading HIV/AIDS can become even higher with the mobility and migration of fishermen and female fish traders. They all must return to their permanent homes during the closed fishing season which is often imposed throughout Katanga Province from 1st December to 1st March every year.

7.2 Fish production processes in the fishing camps

In the Kasenga – Luapula – Moero region, which is our research site, fishing is carried out using partly mechanized methods (20%) and artisanal methods (80%). The products are directly sold as fresh fish in the fishing camps to traders who are predominantly women. Traders of fish (particularly women) are then compelled to secure accommodation in the fishing camps to easily collect and process this fish through drying and salting because there are no cold stores for fish preservation. Drying and salting operations may take three weeks or more. And in the meantime, female fish traders, who have come to buy fish, must stay in the same camps with fishermen, the majority of whom are single.

Fishing camps are made of grass huts which have a maximum of two small rooms. This situation, which causes female fish traders who do not have enough capital, to face fishermen who have been deprived of sex because they are single, promotes promiscuous behaviour which increases the vulnerability to and prevalence of HIV in fishing communities.

7.3 Recreational activities in fishing camps

The survey conducted in various fishing camps of the area has shown that the main recreational activities in the fishing camps include alcohol consumption and sex. There are no other recreational activities. These alcoholic beverages (Lutuku, bols, château) which are purchased from remote cities and villages are consumed by both the fishermen and female fish traders, and are often prelude to unsafe sexual activities.

7.4 Organizations that provide support to fishermen in Kasenga Region

In an effort to identify causes and consequently to look for solutions needed to eliminate this scourge which poses a threat to the survival of communities of fishermen, this study also sought to identify the organizations and institutions which are active in providing support and raising awareness of fishermen about HIV/AIDS.

The findings from the survey indicate that there is almost no organization nor institution that offers counselling on HIV/AIDS to fishermen. The only Non-Governmental Organization (NGO) known as Association of Volunteers for Development (AVD), which is an organization based in Nkole and has been initiated by some youths of Nkole, has insufficient capacity to deal with the entire region of Kasenga.

The few sellers of condoms who operate on a casual basis often collide with traditions which claim that a man and a woman must have an intimate relationship and that a foreign object must never be introduced into the body of a woman. This belief has resulted in people not using condoms and thus increasing the risk of transmitting HIV and other Sexually Transmitted Infections (STIs).

8 Findings on the vulnerability of fishermen and female fish traders to HIV/AIDS

In an effort to clearly define the causes and factors that are at the root of the vulnerability of fishermen and female fish traders to HIV/AIDS, the survey team thought it its duty to interview the populations concerned in the four surveyed fishing camps. The following questionnaire whose substance is recorded below was administered to 420 fishermen and 200 female fish traders.

Question 1: Have you ever heard about HIV/AIDS?

Category of surveyed persons	Number of respondents	Yes	No	Yes %	No %
Fishermen	420	420	0	100	0
Female fish traders	200	200	0	100	0
Medical staff (health zone medical staff)	04	04	0	100	0
Civil servants and government workers	12	12	0	100	0
Transport operators	60	60	0	100	0
Owners of food depots	03	03	0	100	0
TOTAL	699	699	0	100	0

Question 2 : Do you know how people contract HIV?

Category of surveyed persons	Number of respondents	Yes	No	Yes %	No %
Fishermen	420	42	378	10	90.0
Female fish traders	200	60	140	30	10.0
Medical staff (health zone doctors)	04	04	0	100	0,0
Civil servants and government workers	12	10	02	83.3	16.7
Transport operators	60	20	40	33.3	66.7
Owners of food depots	03	02	01	67	33.0
TOTAL	699	138	561	19.7	80.3

Question 3: Are there any organizations that raise awareness about HIV/AIDS?

Category of surveyed persons	Number of respondents	Yes	No	Yes %	No %
Fishermen	420	07	413	1.7	98.3
Female fish traders	200	04	196	2.0	98.0
Medical staff (health zone doctors)	04	02	02	50,0	50.0
Civil servants and government workers	12	02	10	16.6	83.3
Transport operators	60	02	58	3.3	96.6
Owners of food depots	03	00	03	0.0	100.0
TOTAL	699	17	682	2.4	97.5

Question 4: Do female fish traders who go to Kasenga have enough capital to buy fish?

Category of surveyed persons	Number of respondents	Yes	No	Very few	Yes %	No %	Very few %
Fishermen	420	38	300	82	9.0	30.1	19.5
Female fish traders	200	70	103	27	35.0	51.5	13.5
Medical staff (health zone doctors)	04	00	01	03	0.0	25.0	75.0
Civil servants and government workers	12	01	04	07	8.3	33.3	58.3
Transport operators	60	05	48	07	8.3	80.0	11.6
Owners of food depots	03	00	02	01	0.0	66.6	33.3
TOTAL	699	114	458	127	16.3	65.5	18.1

Question 5: Do female fish traders submit to sexual intercourse with fishermen because they lack capital and want to maximize profits?

Category of surveyed persons	Number of respondents	Yes	No	Yes %	No %
Fishermen	420	408	12	97.1	2.8
Female fish traders	200	102	98	51.0	49.0
Medical staff (health zone doctors)	04	04	0	100.0	0.0
Civil servants and government workers	12	12	0	100.0	0.0
Transport operators	60	60	0	100.0	0.0
Owners of Food depots	03	03	0	100.0	0.0
TOTAL	699	587	110	83.97	15.7

Question 6: Would you consent to the establishment of an organization that would raise awareness and provide counselling on HIV/AIDS?

Category of surveyed person	Number of respondents	Yes	No	Yes %	No %
Fishermen	420	420	0	100.0	0.0
Female fish traders	200	195	05	97.5	2.5
Medical staff (health one doctors)	04	04	0	100.0	0.0
Civil servants and government workers	12	12	0	100.0	0.0
Transport operators	60	57	03	95.0	5.0
Owners of food depots	03	03	0	100.0	0.0
TOTAL	699	691	08	98.8	1.2

Findings from the above six tables indicate that the population in the Kasenga – Luapula – Moero region is aware of the existence of a disease called HIV/AIDS. But the majority does not know about HIV transmission routes, nor its effects. Our analysis also shows that poverty, the search for profits by female fish traders, as well as promiscuity (among men and women) in the fishing camps encourage the spread of HIV/AIDS among fishermen, female fish traders and transport operators.

Our research has also shown a lack of organizations that can offer counselling to fishermen, a lack of institutions that can disseminate information on HIV/AIDS and other diseases, and the existence of polygamy as practiced in the cities all encourage the rapid spread of this disease. Consequently, the active fishermen population may be wiped out and their capacity to provide food to the urban population may be considerably reduced, thus affecting the macro-economic balance of the province and that of the entire Congolese state.

9 Recommendations

Results from the analysis of socio-economic factors that are at the root of the prevalence of HIV among communities of fishermen and female fish traders in the entire production and marketing chain of fish in the Kasenga – Luapula – Moero region have shown that HIV/AIDS is an unusual disease for these communities. This scourge does not only have detrimental effects on our research area but has particularly started to disturb the entire macro-economic balance of the province and the country. This study has shown that Katanga dwellers (an estimated population of 13.000.000 inhabitants) and Lubumbashi dwellers (an estimated of 3.000.000 inhabitants) eat fish as part of their staple diet, hence the need to mitigate and counter the effects of HIV/AIDS in communities which are producing this staple food.

Our failure to deal with this scourge which has hit communities of fishermen very hard may affect our food chain which is basically made of fish in the province. As a matter of fact, out of 100 surveyed households, there are 99 households that eat fish six days a week.

To address this catastrophic situation which appeals to our humanitarian conscience, we have made the following recommendations:

1. To implement a pilot project aimed at providing support to fishermen and female fish traders with the primary objective of raising HIV/AIDS awareness among communities concerned, through participatory approaches;
2. To set up a scheme for providing fishing inputs to communities of fishermen who will be technically supported by a project called P.E.P.C./HIV/AIDS – Katanga;
3. To set up a revolving micro-credit scheme for female fish traders who will be organized into community initiative associations by P.E.P.C./HIV/AIDS.

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Annex 1: Libraries

The following institutions of higher education, which are located in Katanga Province, more particularly in Lubumbashi, have libraries:

1. University of Lubumbashi (UNILU)

In addition to its main library, the University of Lubumbashi, one of the largest institution of higher and university education in the province, has several other libraries operating in each of its faculties. These include:

- The Faculty of Agronomy,
- The Faculty of economics and management,
- The Faculty of social political and administrative sciences,
- The Faculty of law,
- The Faculty of Polytechnics,
- The Faculty of Lettres and human sciences,
- The Faculty of Psychology,
- The Faculty of Sciences,
- The Faculty of Medecine,
- The Faculty of Veterinary studies,
- The Faculty of Pharmaceutical Sciences.

2. Open University – CIDEP (U.O.)

The Open University -CIDEP/Katanga has a library in its provincial faculty and other library facilities in each of its departments, notably:

- The Department of Lubumbashi,
- The Department of Likasi,
- The Department of Kolwezi,
- The Department of Kasumbalesa/Sakania,
- The Department of Kamina/Kitenge-Kabongo,
- The Department of Kalemie/Nyunzu,
- The Department of Kongolo.

3. Colleges and Institutes

There are several colleges and institutes in Katanga Province, and more particularly in the town of Lubumbashi, which operate one or more libraries. These include:

- The Institute of Social Sciences (ISES) ,
- The Institute of Statistics (ISS) ,
- Bishop Mulolwa inter-diocesan institute (ISIM) ,
- The Institute of Arts and trades (ISAM) ,
- The Institute of commercial studies (ISC) ,
- The institute of commercial techniques (ISTC) ,
- The Institute of medical techniques (ISTM) ,
- The institute of engineering (ESI) ,
- The institute of computer sciences/Salama (ISIS) ,
- The teachers' training college ,
- The Institute of criminology (ECOCRIM).

4. Independent libraries

There are a few independent, privately-owned libraries throughout Katanga province and more particularly in the town of Lubumbashi:

- Halle de l'Etoile library,
- French-Congolese Alliance library,
- Loyola library,
- Théologicom library,
- CRONGD library,
- Safina Catholic House library.

Annex 2 : List of food depots at Njanja Market

1. On the right side of Munama road (from Town to Kenya Township)

N°	Name of food depot	N°	Name of food depot
01.	Mwika	18.	Kisimba Asina
02.	Njanja	19.	Kotrafa
03.	Kashobwe	20.	Yuwa Yako
04.	Rafiki Mwema	21.	Tala na Miso
05.	Mukuku	22.	Kavumu ni pepo
06.	Ilunga Mwana Mpala	23.	Jerani
07.	Lupiya	24.	Maman Chantal
08.	Maman Ange	25.	Mandevu
09.	Nkulu	26.	Chitondo
10.	Mikombe	27.	Matipa
11.	Kashikishi Maison Mère	28.	Gomas
12.	Palestine	29.	Maman Olive
13.	Delca	30.	Papa Georges
14.	Bukongolo	31.	Kwetu ni kwenu
15.	Delta Force	32.	Chuma
16.	Tupendane	33.	Ngadwe Fils
17.	Kundelungu Bazar		

2. On the left side of Munama road (from town to Kenya township)

N°	Name of food depot	N°	Name of food depot
01.	IDS	15.	A.M. Trading
02.	Ilunga Philémon	16.	Jerani 1
03.	Plantanari	17.	Yona
04.	Marie	18.	Kundelungu
05.	MBP	19.	Le Consultant
06.	Israël	20.	Mwangaza
07.	Emma	21.	J.C. Esprit ya bien
08.	Soweto	22.	DG
09.	Maison Mère	23.	Zinaza
10.	Petit Marché	24.	Mapasa
11.	Oxy	25.	Maman Umba
12.	Monique	26.	Nkulu Map
13.	BMV Jugo	27.	Bwino
14.	Nyembo wa Kalembe	28.	Moero

It should be noted that in addition to all these food depots, the surface area of Njanja Market is surrounded by “street vendors” who operate Independently of food depots; some sell their goods along the road and on the space between the food depots. This is the reason why this national market of fish is of colossal size and in actual fact several other provinces get their supplies of food from this market. This is true of the two Kasai regions and the capital city, Kinshasa.