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REPORT: INFORMAL FOOD VENDORS TRAINING



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The food vendors training was held at Mlango Kubwa on 25th February, 2016 involving 30 plus food vendors carefully selected from thirteen villages in Mathare Valley in Kenya. The food vendors ranged from the ones who sell: meat products, vegetables, fruits, eggs, fish and the ones selling ready made food products. The aim of the training was to enlighten and empower the participants with practical skills and knowledge on proper food, premise and attire hygiene, sanitation and safety issues. Muungano wa Wanavijiji food security programme coordinators mobilized the participants while ILRI and APHRC facilitated the training. The activity was in response to vendors' own requests for capacity-building and offered a crucial opportunity to support livelihoods and bolster community health across eight villages in Mathare.

SESSION 1: OVERVIEW OF THE URBAN ZOO PROJECT.

FACILITATOR: JAMES AKOKO

Participants were informed that the Urban Zoo project collaborates with several partners and aims to understand how urbanization results to disease emergence in urban and peri-urban areas of Nairobi. The various past and on-going studies within the Urban Zoo project were highlighted: (1)

Case Control study: that investigated the causation and risk factors for diarrhoea in

children under 5 in two low income settlements in Nairobi. Partner institutions being: APHRC, ILRI, KEMRI, and UoN; (2) **Livestock Value Chain study:** which seeks to describe the livestock value chains operating in Nairobi and identify the food safety and zoonosis risk practices within these chains using a value chain framework. Partner institutions being: ILRI and RVC; (3) **Community mapping:** which sought to understand how local environmental hazards interact with food preparation/consumption and livestock keeping practices, and how this in turn may result in greater exposure and vulnerability by people and places to potential exposure to certain zoonotic diseases. Partner institutions: MuST, UCL, IIED, APHRC and ILRI; (4) **Seeds project:** which investigates the link between livestock value chains (LVCs) and nutrition outcomes. Partner institutions: ILRI, RVC, and APHRC; and (5) **The 99 Household study:** seeks to understand what characteristics of urban environments might predispose to an emergence event, and what is the contribution of livestock keeping to this process. Partner institutions: ILRI, UoN, KEMRI, UoE, and UoL



Figure 1: James Akoko, highlighting the various Urban Zoo project studies

SESSION 2: RELATIONSHIP BETWEEN GERMS AND FOOD SAFETY.

FACILITATOR: DR. MAURICE KARANI

Participants were informed that germs are tiny living creatures that can only be observed with the aid of a microscope and that they are found everywhere. Three analogies were used to illustrate the size of the germs, namely: (1) 1 million germs can cover the head of a pin; (2) 1 billion germs can fill one tea spoon; and (3) an average of 100, 000 bacteria can be found at each centimetre square of human skin.



Figure 2: Dr. Maurice Karani, presenting on the relationship between germs and food

Germs were then classified into three groups: (1) The good germs, which are often used to make food and drinks such as yoghurt; (2) the bad germs, which do not usually make people sick, but food to smell bad, taste horrible, change colour and look disgusting and lastly (3) the dangerous germs, which make people sick and can even kill them. It was reiterated that most of the aforementioned germs do not

usually change the appearance of food, necessitating proper food preparation and hygiene so as to prevent food-borne diseases. When participants were asked if they have ever had a food-borne illness? Most of them said 'yes' and 'a lot' of times.

The symptoms that one can exhibit as a result of a foodborne illness were mentioned as: diarrhea, colds, rashes, coughing among others. Some of the diseases that can be contracted from were also mentioned, such as: tuberculosis and brucellosis. Participants were then informed of the sources of the bad germs, namely: (1) faeces of adults, children and animals; (2) discharges from people & animals such as sneezing, spitting, ear discharge or anything else that comes out of the body etc.; (3) people's hands, skin and hair; (4) animals and pests such as flies, rats, mice, insects; (5) soil and untreated water and (6) anything that smells or tastes bad.

The participants were informed that the most effective way to prevent germs from spreading is through proper hand washing: (1) before and after handling food; (2) after using the toilet (3) after

sneezing, blowing your nose or coughing (4) before and after handling animals or animal waste; (5) after working outside or touching soil; (6) after handling rubbish or anything dirty; and (7) when you come in the house from the outside. They were then taken through a discussion session on the various myths and truths about food and germs as outlined in the table below:

MYTH	TRUTH
If food looks and smell good, then they are safe	<i>Many diseases are spread by germs which are too small to see. These can make you sick or kill you, even if the food looks and smells perfectly good.</i>
If you cook food well it is completely safe	<i>boiling will kill the germs responsible for some diseases. But, some germs shed poison and boiling will not remove these. Also, boiling will not destroy harmful chemicals. Boiling or cooking will always make food safer but it will not remove all things that can cause disease</i>
If you are sick then it is the last thing you ate is responsible;	<i>Sometimes you are sick directly after eating bad food; but often you become sick 1-3 days later. In the last is the case, then it will not be the last food you ate which caused the sickness.</i>
Bad food just causes vomiting and diarrhoea	<i>Bad food causes vomiting and diarrhoea but it can also cause paralysis, depression, infertility, abortion, kidney failure, arthritis, and other serious conditions.</i>
The faeces of cattle (and children) is harmless	<i>Faeces is the number one cause of diarrhoea! 1 gram of cow faeces can contain millions of germs.</i>
If it doesn't make me sick, it won't make anyone else sick	<i>Just because you can eat food without ill effect does not mean everyone else can. Some people are much more likely to get disease as they are less resistant, especially children, old people, pregnant women and people weak from HIV or another illness</i>

SESSION 3: GOOD HYGIENE PRACTICE, HAND WASHING AND CLEANING CONTAINERS CLOTHES AND TOWELS.

FACILITATOR: LOUREEN ALUMASA

This session highlighted the importance of hygienic practices and steps taken to keep clean and healthy. It was reiterated that poor hygiene introduces germs to self and also spreads germs to others resulting to sickness.

Participants were informed on favorable conditions that can cause germs to grow such as: (1) Nutrients from the food itself; (2) temperature/warmth: they were advised that food should be well prepared to kill germs and kept in low temperatures to suppress growth of germs; (3) time: advised to serve prepared food as soon as possible and to also ensure that perishable products such as meat are sold within a short. They were also informed that eggs to last 2-3 weeks on the shelf and; (3) water/moisture: they were given the example of meat, in which its wetness encourages germ growth as compared to bread which has very little water content, making meat to spoil faster as compared to bread.

The common food-borne disease symptoms were also mentioned, namely: stomach pains, vomiting and diarrhea. So as to avoid having such symptoms they were advised to use: (1) Quality food products since they have: (a) valuable nutrients such as vitamins and minerals, (b) are clean with no bad taste or odour (c) are safe, without germs and

chemicals; (2) clean and safe (quality) food attracts customers, minimizes losses due to spoilage and increases profits; (3) clean vendors also attracts customers since food that is prepared by dirty people or in a dirty way doesn't attract customers.

A practical session on how germs spread was demonstrated using drinking chocolate powder. The powder was rubbed on the palms of the hands and then several people were hand shake demonstrating how germs can quickly spread from one person to another.



Figure 3: Loureen Alumasa, demonstrating the use of glo-germ in determine hand hygiene

Participants were informed that germs are everywhere: on hands, face, hair, nose, mouth and the gut. Therefore, to ensure proper personal health and hygiene, the right personal protective equipment should be worn, especially one with bright colours (preferably white). Some of the hygiene practices that they were advised to uphold were: (1) proper hand hygiene; (2) proper use of personal protective equipment (PPE); (3) cover cuts or sores, keep fingernails short and clean; (4) not wearing rings, jewelries or other items; (5) tie hair back or cover hair; (6) keep clothes clean and disinfect daily; (7) be careful not to sneeze, cough or breathe into food (i.e. avoid blowing into plastic bags before packaging food for customers); (8) different people to handle raw and cooked areas or wash and disinfect hands in between; (9) do not handle food when ill and report illness; (10) when handling food avoid: touching body parts especially, face, nose, ears and mouth, wiping off sweat, coughing or sneezing, smoking or chewing gum, putting fingers/hands in food, touching non clean or disinfected equipment; (11) medical certificate with frequent medical check-ups every 6 months.

Hands were mentioned as the most common means for spreading germs from one place to another or from one individual to another, and therefore hand washing is one of the most important way to stop spread of germs. Hand washing also prevents and controls spread of illness. They were further informed that hands should be washed using



Figure 4: hand washing session

soap and clean water before handling food and frequently during food preparation. Participants were then shown a video demonstrating the 6-step process of hand washing which was followed by practical demonstrations on how to wash hands. The Glo-germ was used as a practical aid to demonstrate on how ineffective convectional ways of washing hands can be.

Participants were then taken through steps for cleaning food containers, clothes and towels. When cleaning food containers, the following were the steps advised: (1) Rinse immediately after use; (2) scrub with warm water and soap/detergent; (3) rinse with clean water; (4) dip rinse in boiling water. If big container, pour water into it and; (5) if no boiling water, leave disinfectant in container for at least 10 minutes. While when cleaning clothes and towels the following were advised:

(1) Wash with soap and water; (2) rinse in clean water; (3) leave in disinfectant solution for 5 minutes; (4) dry in the sun till completely dry and (5) Store in clean, dry place.

Further comments that were given to the participants were to: (1) use safe water or treat to make it safe; (2) select fresh and wholesome foods at all times; (3) avoid food that is damaged or rotting; (4) wash fruits and vegetables thoroughly, especially if eaten raw; (5) avoid using food that is expired; (6) cook food thoroughly especially meat, eggs and seafood; (7) boil soups and juices thoroughly i.e. meat or poultry juices should be clear not pink; and (8) avoid leaving cooked food at room temperature for more than 2 hours.

SESSION 4: CLEANING PREMISE.

FACILITATOR: DR. PATRICK MUINDE

Initially two people were invited to describe how they clean their premises before being taken through the four steps of cleaning premises, namely: (1) Initially, remove gross dirt with water, which can be warm at 40°C; (2) clean using an approved detergent such as Omo; (3) sanitize using approved disinfectant such as jik or boiling water; (4) rinse with portable water; and (5) dry thoroughly if possible under direct sunlight.

Some of the other added necessities that participants were advised to observe were: (a) Surfaces and walls should be in sound condition to wash and disinfect, preferably tiled; (b) food containers be at least 30 cm from the floor to avoid contamination; (c) have an adequate supply of clean water; (d) have a toilet with washing facility; (e) cover food at all times; (f) use garbage cans and remove them regularly. Participants were then engaged in an interactive session of identifying food safety issues in two photos.



Figure 5: Dr. Patrick Muinde, presenting on Premise hygiene

Participants were then informed that the water used for washing ingredients, adding to food, washing hands must be either: (1) portable to avoid cross-contamination; (2) purified by filtering to remove visible dirt, boil for 5 minutes and add bleach/water guard. They were further informed

to avoid storing fruits and vegetables together; storage bags for vegetables and fruits should have holes for aeration and that they should be packed loosely. Participants were then shown a video on how to wash sukuma wiki followed by a practical demonstration.

When it came to milk safety issues, they were initially informed that milk spoils quickly if not in a cold system and that a lot of handling along the chain have high chances of contamination and adulteration. Therefore, for precautions they were advised to: (1) use the approved aluminum metallic containers for storage, including buying from a supplier who has approved equipment; (2) deliver milk as soon as possible after milking; (3) when transferring milk to pour instead of scooping; (4) avoid blowing into the paper bags before packaging milk for customers and (5) know source and retain trusted supplier. Participants were then shown two photos on milk packaging to identify some differences and food safety issues.

Participants were informed that meat can get contaminated: (1) during slaughter; (2) cutting into small portions then washing releases nutrients and increases surface area; (3) cross contamination during handling and slicing (from knives, boards); (4) meat should be reheated and served at above 60°C and (5) should be transported in approved meat boxes.



Figure 6: participants following through the presentations

Participants were informed that for eggs they need to: (1) keep them in a cool place preferably at 4°C; (2) avoid keeping eggs for too long on the shelf; (3) buy clean eggs i.e. eggs that do not have any chicken faeces on them; (4) check for cracks when buying eggs; (5) ensure the eggs are cooked adequately especially when fried; (6) buy eggs from trusted suppliers and farmers

and maintain the good business relationship. Participants were then shown a picture of an egg retailer shop to identify food safety issues.

Finally, participants were then taken through some of the precautions they should take, such as: (1) Thoroughly boil/cook food; (2) separate dirty (raw food area) and clean areas (finished food area); (3) keep raw materials from finished products; (4) separate utensils for raw and cooked products; (5) people working with raw food shouldn't work with finished or wash hands in

between. They were thereafter shown several photos to identify food safety issues and asked to suggest how to avoid them.

SESSION 5: GOOD QUALITY BETTER RETURNS

FACILITATOR: NICHOLAS NGOMI

Participants were asked to mention why they need to improve their food quality? and some of their responses were: (1) to fetch high prices; (2) for safety reasons. An added reason given was that customers will always go for taste and preferences hence offering better business.

When asked how they can improve the quality of their products they said: (1) Buying fresh food; (2) have enough space and good organization (3) packaging of food since this will attract customers; (3) maintain high standards of cleanliness (4) ensuring that their products are fresh. Other reasons that were added by the facilitator were: (5) Bench-marking: visiting other businesses and see their premises, their products and prices and customer service, which can provide ideas on how to improve own business.



Figure 7: Nicholas Ngomi, presenting on food quality

When asked how they should deal with customers, the following were the feedback: (1) When having bad tomatoes, try not to answer customers wrongly but humbly thy self; (2) Have a good/pleasant welcoming face (3) accept when corrected by consumers then rectify; (4)

Know that the consumer is always right (5) sometimes some customers may not be having money and therefore offer to lend them goods; (6) try pleading with customers; (7) Help customers when there are security concerns e.g. if a customer offers Kshs. 1000; and (8) if the customer offers excess money give it back. Other ways of dealing with customers that they were informed are: (1) Keep in control, do not get angry or upset (2) listen carefully and don't interrupt until the customer has finished; (3) do not blame the customer or yourself; (4) try and find what the root of the problem is and see can you solve it; (5) be calm, friendly and put yourself in their shoes.

When asked some of the promotional activities they will carry out if for example they were selling meat they mentioned: (1) Place the business in a good place with customers; (2) giving samples to customers; (3) providing promotion to regular customers i.e. others provide other food items in addition as an appreciation to regular customers. Other promotional activities they were informed were: (1) promotional posters; (2) prizes e.g. buy one get one free; (3) provide promotional opportunities during seasonal variations, sporting events, special holidays; and (4) discount for bulk-buy.

Participants were also informed about the importance of innovation and diversification. They were advised to: (1) Innovate in their manufacturing processes; (2) try changing the recipe or process in ways that will save money or increase quality; (3) try the experiment in a small batch so if it doesn't work the loss is not great; and (4) try and identify other outlets for their products.

Participants were also informed on the importance of standardizing recipes and processes, such as: (1) Listing ingredients needed for the recipe; (2) use a standardized measure for the ingredients; (3) write down the different processes which are carried out and the time and conditions for each; (4) taste the finished product to make sure it is satisfactory. Adjust if necessary; (5) calculate the cost of the recipe; (6) make sure the cook follows the same recipe each time; (7) make sure the ingredients are always of the same quality.

Lastly, participants were given tips on how to deal with suppliers, namely: (1) Note the price, collection and delivery time, payment mode, maintenance, quality and additional services; (2) your orders are crucial for the supplier; (3) be careful of driving a hard bargain. It can make the supplier offended; (4) state your needs clearly from price, quantity, quality to date of delivery, mode of payment etc.; (5) be open, courteous and firm with your suppliers, and they will respond in kind.

The training came to an end with further practical demonstrations on how to wash equipment, sukuma wiki (kales), and meat. One of the participant had mentioned that when they place pig meat in paraffin it released worms, and to dispel this myth that not all pigs have worms a demonstration was done by placing a piece of pig meat in paraffin and there was no worm that was observed.

COMBINED Q&A SESSIONS

Question	Response
Luos like fish that is sun dried and it smells bad but it is very sweet. Does sunlight kill the good or the bad germs;	The participant was informed that sunlight may kill some germs (due to UV-rays) and it may also not kill some germs. Further, he was informed that the method of preservation also involves addition of salt to the which further reduces survival of some germs
What makes some germs increase or others to reduce?	It was clarified that sunlight doesn't segregate which germs to spare or not to spare.
When cutting pig meat and put it in paraffin it releases some organisms?	The response was that many people do not understand how pigs are raised. Further, it was mentioned that when pigs are raised well they will not have parasites but contrary if raised in unhygienic ways they will harbour parasites and they are the ones that are released. A demonstration was also held at the end of the training to dispel this myth that it is not every pig meat that has parasites.
One of the participant mentioned that sometime ago his wife was sick and pregnant. At the hospital she was advised to eat soil. Since it was initially mentioned that one tea spoon of soil harbors 1 billion germs, then why is it so advised?	He was informed that the advice provided was to supplement iron from the right non-contaminated soil. Further, the participants were advised to use the pharmaceutical iron since it may be difficult to determine the non-contaminated soil.
What causes food poisoning? Can one know which type of germ it is?	The germs in food release substances that cause food poisoning and it is possible to determine the cause if a sample of the food is taken to the laboratory for analysis.
Many of the participants had a concern that some spices e.g. Royco maybe germs themselves and that some people become sick when they take spices/	They were informed that spices by themselves are not germs and that the people who become sick as a result of taking spices is because their bodies are different from others on how they react to the spices
Diarrhea is caused by many things but are germs inclusive?	He was informed that germs can also cause diarrhea
Cows faecal is good for farming? Then how comes it causes disease?	Informed that the plant only picks nutrients from the faeces to utilize for food manufacturing and not that they pick the germs from the faeces, but because contamination can occur as result of using manure it is important to wash the vegetables properly
Some of the participants mentioned that they were informed by their	Informed that it is best to wash the vegetables well before cutting and not after cutting. One of the participant further

mothers not wash vegetables to avoid losing components?	added that is only when you wash the vegetables after cutting that the nutrients are lost.
3 types of germs? Are there germs that also do not release toxins?	They were informed yes, there are germs that do not release toxins
Sukuma grown using sewage as manure, is washing good enough?	They were informed that sewage also contains chemicals and heavy metals that are contained in the Sukuma wiki which causes other diseases if taken, even if well cooked. Since cooking doesn't kill such chemicals and heavy metals.
The participants were also asked if they have a medical certificate?	Most participants mentioned that they do not have a medical certificate. The single participant who mentioned that she has one, after further question, it was discovered that she was providing falsified information i.e. renewing after 3 months, when the right renewal period is 6 months.

PRACTICAL DEMONSTRATION PHOTOS



Figure 8: Meat hygiene demonstration



Figure 9: Hygiene of equipment demonstration



Figure 10: hygiene of vegetables demonstration



Figure 8: Dispelling myth on all pig meat having parasites demonstrations