

**BUSINESS DEVELOPMENT SERVICES  
FOR ACTORS WITHIN THE FISH VALUE CHAIN**

**LEARNER'S GUIDE**



**August 2021**

## ACKNOWLEDGMENTS

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## **WHO TO USE AND HOW TO USE THIS GUIDE?**

This Learners' guide contains both questions and answers, illustrations and activities to guide the learners during and after the training on Business Development Services in the fish value chain. This manual summarizes the main concepts which the learner needs to comprehend after the training of every module. The participants need to build on the knowledge and skills they have acquired and that which they already have to reason and come up with different ideas.

This guide is direct and simple to use but the illustrations and questions demand a lot of discussions amongst the learners to get a broader understanding of what is happening and acquire business skills. Learners should be involved in all activities during the training and share experiences with their fellow participants to enable them to learn from each other's experiences.

**GOOD LUCK**

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## INTRODUCTION ABOUT THE LEARNERS' GUIDE

Welcome to the Learner's Guide for entrepreneurs involved in the fish value chain at micro and small scale levels. This guide has been designed to help the learners who are actively engaged in fishing businesses to acquire knowledge, skills, competencies that are critical to business development and sustainability.

This is a learner's guide which compliments the content delivered by the trainers as a means of supporting and maximize the learner's uptake of knowledge. In general, the learners' manual covers the basics of a business, entrepreneurship, business planning, marketing, costing and pricing, sources of business capital, business management, record keeping, soft skills, financial literacy, financial management, financial linkage to banks, fish food defense, fish spoilage, fish processing, fish safety and quality. Given the ever-changing dynamics of COVID-19 and the emergence of new strains, the learners should always observe Covid\_19 SOPs and guidelines from the Ministry of Health and other stakeholders.

## COVID-19 STANDARD OPERATING PROCEDURES



image sources: <https://uccinfo.blog/2020/04/02/press-statement-update-on-the-covid-19-response-in-uganda><https://twitter.com/minofhealthug/status/1402909262519713793?lang=de>

## MODULE 1: ENTERPRISE TRAINING

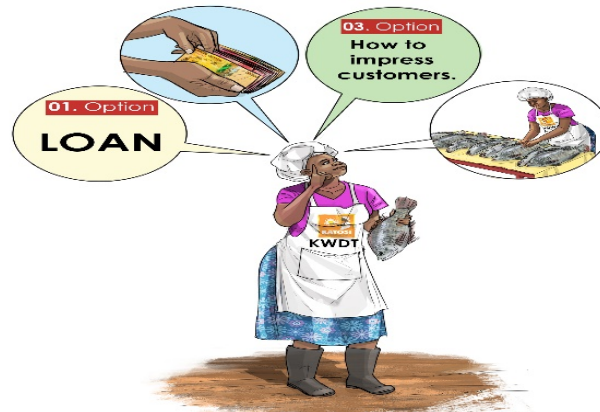
### 1.1 Entrepreneurship Skilling:

**Question 1:** Who is an entrepreneur?

**Answer:** A person who creates and develops a business idea and takes the risk of setting up an enterprise to produce a product or service that satisfies customer needs.

**An entrepreneur can also be defined as a person who:**

- Analyses how best his goods/services can meet the uncertified needs of the customers or society.



- Calculates risks and probability of starting the new venture
- Mobilizes the necessary resources

**Question 2:** What is entrepreneurship?

**Answer:** The process and practice of;

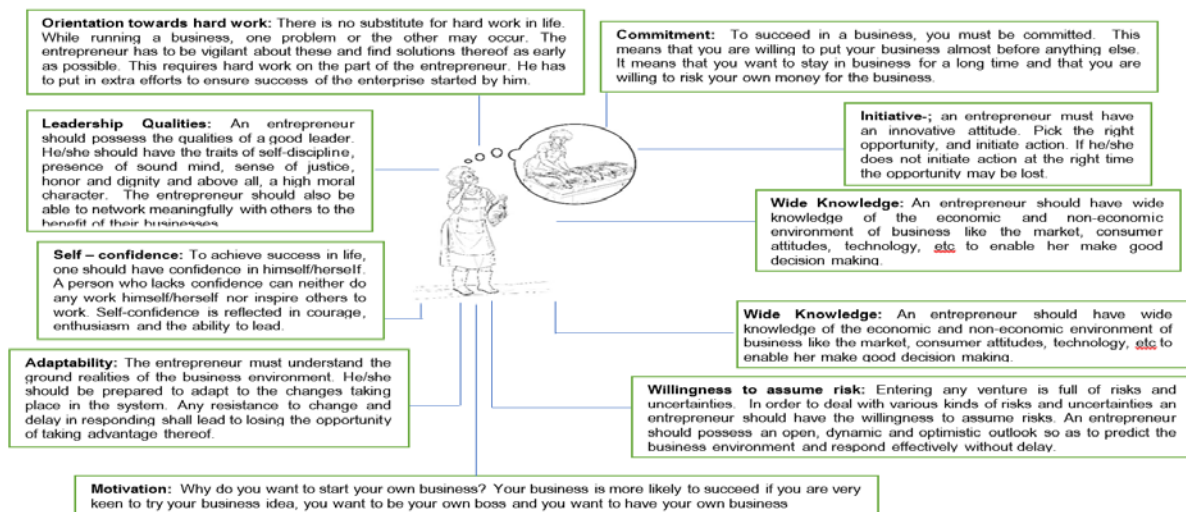
- Identifying opportunities/business ideas in the marketplace,
- Arranging and investing the resources required to pursue these opportunities
- Being creative, innovative and leading to enterprise development and growth.
- Shifting people from being “job seekers” to “job creators” hence creating wealth.

### 1.2 What are entrepreneurial Skills?

Entrepreneurial skills are the attitudes and qualities entrepreneurs typically possess.

**A good entrepreneur must have the following Personal Entrepreneurship Behavioural Traits (Skills)**

The prominent entrepreneurial behavioral traits can be summarized as follows;



## Self-Assessment

- Who is an entrepreneur?
- What do you think are the characteristics of a good businessperson?
- How can an entrepreneur grow his or her business?

### 1.3 Fishing as a business

#### Question 1: What is a business?

A business (also known as an enterprise or firm) is an organization that is engaged in the trade of goods, services, or both to satisfy the consumers to make a profit.

### 1.4 Types of Businesses

#### Question 2: What are the types of fish business ownership?

The fish business can be categorized into three types

##### 1. Sole proprietorship

In this form of ownership, the whole business is owned by a single person.



#### Advantages

- The owner enjoys all the profits of the business.
- The single owner has complete freedom to manage the affairs of the business as he/she desires.
- He/She is answerable to nobody.

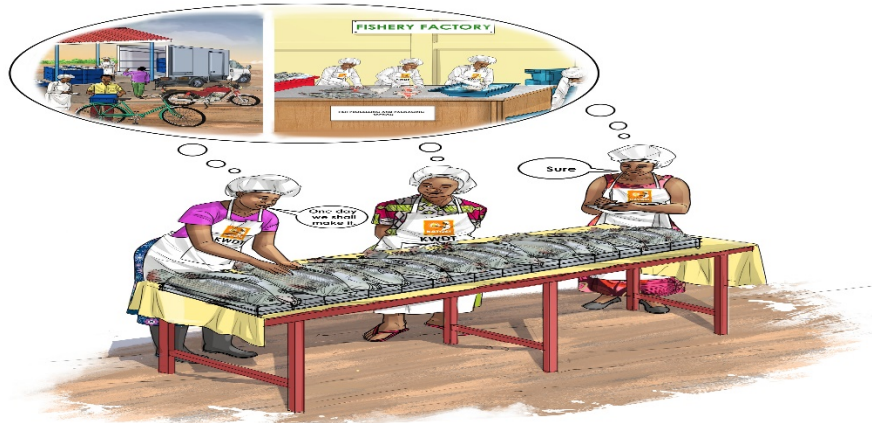
#### Disadvantages

- The owner's liability is unlimited. That is in settling the debts of the business if the business assets are insufficient, the personal assets will also be taken.
- Being owned by a single person, the resources of the business are limited.
- Also accepts all losses alone

##### 2. Partnership (owned by a few persons, could be 2-20)

Here, two or more persons join to start a business.





### Advantages

- The owners collectively are called the company, and individually, partners.
- The profits and losses are shared by the partners in agreed proportions.
- Since more than one person is involved, the sources of funds to the firm are usually more.
- A partnership could also be formed to combine the resources required for the enterprise. Resources can include skills, money, land, raw materials, etc

### Disadvantages

- Freedom of conducting the affairs of the business is restricted as the partner is liable to the other partners.
- Their liability towards the firm's debts is unlimited.
- Delayed decision making since every partnership has to be consulted in case of an action to be done.

## 3. Cooperative

A cooperative is when people come together to do business with a common purpose and intent. In a cooperative form of ownership, a large number of persons collectively own the enterprise and are involved in its activities. The part owners are called members.



<p><b><u>Advantages</u></b></p> <ul style="list-style-type: none"> <li>• All the members contribute an equal amount towards the capital.</li> <li>• Share the profits equally and have equal rights.</li> <li>• Since a large number of owners are involved, the management of the co-operative is entrusted to a small group of members who are elected by the many.</li> <li>• The financial asset is crucial. The liability of the members is limited. That is; even if the assets of the co-operative are insufficient to satisfy the debts, the members 'assets cannot be touched.</li> <li>• A co-operative is also more powerful than individuals or partnerships.</li> <li>• A cooperative represents a large group of people and quite often, this gives it access to Government programs and developmental agencies, which offer financial assistance in the form of grants or interest-free loans.</li> </ul>	<p><b><u>Disadvantages</u></b></p> <ul style="list-style-type: none"> <li>• Freedom of conducting the affairs of the business is restricted as the partner is liable to the other partners.</li> <li>• Their liability towards the firm's debts is unlimited.</li> <li>• Delayed decision making since every partnership has to be consulted in case of an action to be done.</li> </ul>
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#### **Self-Assessment:**

2. What kind of business are you currently engaged in?
3. What would be the ideal business that you can do and why?
4. Brainstorm on the advantages and disadvantages of a cooperative?

### **1.5 Personal income statement**

#### **Question 3: What is a personal income statement?**

A Personal income statement is an outline of an individual's financial position at a given point in time.

- It shows income
- Expenditure
- Whether one is making a profit or loss for a given period.

#### **Personal Income Statement Template**

<b>Personal income statement</b>	
<b>Income (monthly)</b>	
e.g Fish sales	
<b>Total Income</b>	
<b>Expenses (monthly)</b>	
e.g Rent	
Food	

Transport	
Taxes	
Air time	
School fees	
Loan payment	
<b>Total Expenses</b>	

#### **Question 4: How can one make business decisions using a personal income statement?**

It is from profits that can be generated through income statements that a fish vendor can decide to expand her business or invest in another business.

### **1.6 Fish enterprise analysis**

#### **Question 1: How do you attain a change in the desired business?**

Answer: By establishing criteria to use in selecting promising business ideas i.e., one can base on skills they possess e.g., good communication skills, resources they already have e.g., having the capital to start and also the fishing nets

#### **Question 2: What are the different things to consider before starting or venturing into a business?**

Answer:



#### **Selecting the business idea**

When selecting the business to engage in, use the following criteria to select the best business idea.

#### **Guide to Micro Screening Chart (use number of ticks for each criterion).**

- ✓ Very good or positive (5 ticks)
- ✓ Good or reasonable (4 ticks)
- ✓ Indifferent (3 ticks)
- ✓ Difficult or negative (2)
- ✓ Very difficult or negative (1)

<b>Name of business idea</b>	<b>Skills and competencies</b>	<b>Available Equipment</b>	<b>Access to Raw materials</b>	<b>Financial resource</b>	<b>Sufficient demand</b>	<b>Competitors</b>	<b>Total no. of ticks</b>

Notes: The Business idea with more votes will mean that this is the best idea in that location.



## MODULE 2: BUSINESS SKILLS

### 2.1 Understanding purchasing

#### Question 1: What is purchasing?

**Answer:** This refers to acquiring goods and services for use in the business or organization.

#### *Advantages of purchase management*

- *It lowers fish costs by enabling one to source from markets that offer the best possible fish prices eg lower prices.*
- *It reduces risk and ensures the security of fish supply by moving risks to the suppliers*
- *It is used in managing relationships for instance during negotiations*
- *Used to pursue innovation as one is in contact with a variety of other fish businesses.*
- *Can leverage technology as it encourages one to source for technology solutions to address the value chain problems*

### 2.2 Stock control

#### Question 2: What is stock control?

**Answer:** Stock control is the process of ensuring that appropriate amounts of stock/fish are maintained by a business, to be able to meet customer demand immediately while keeping the costs associated with holding stock to a minimum.



#### Benefits of maintaining good stock control

- Increases productivity and efficiency as a fish vendor can sell fish with ease using multiple channels and enables a fish vendor to manage returns.
- Saves time and money since it minimizes a fish vendor to operate on guesswork.
- Improves accuracy of inventory orders thereby minimizing running out of fish stock and overstocking.
- Keeps customers coming back for more.
- 

A stall with the stock of fish in a disorganized way (A) and another stall with organized fish stock (B)

**Question:** Which is the best way of managing fish stock?

A



B



### 2.3 Pricing

#### Question 3: What is pricing?

**Answer:** Pricing is the process whereby a business sets the price or amount at which it will sell its fish products.

#### Factors that determine market Prices

- Demand (Market forces of demand and supply determines fish prices)
- Competition (Competition among sellers)
- Cost of production (e.g. transport, taxes, processing, packing, etc.)
- Price skimming (Rumors on fish scarcity or surpluses)
- Economy (price fluctuations due to inflation)
- Psychological (Cure or medicinal associated purposes)
- Discounts (Discounts given or not given during fish purchases)

#### Review Question?

What have you learned that will improve your purchasing and pricing decisions?

At what price do you sell your fish?

Do you make a profit?

## MODULE 3: MARKETING SKILLING

### 3.1 Understanding marketing

#### Question 1: What is marketing?

**Answer:** Marketing is everything you do to find out who your customers are and what they need and want while making a profit.

#### Marketing Involves:

- Providing the fish products, they need. e.g., fish fillet or whole fish, smoked fish, etc
- Setting prices that they are willing to pay
- Getting your fish to them effectively
- Informing and attracting them to buy your fish



- Providing after-sales care and support in buying your fish e.g, providing packaging.
- Understanding the 5 Ps i.e. price, place, promotion, product and people

### A lady marketing her fish in a covid-19 situation



### 3.2 Market and client segmentation

#### Question 2: How can one market fish effectively?

**Answer:** One can effectively market her fish by conducting a Market Survey and client segmentation

Client segment is the process of dividing customers into groups based on common characteristics.

#### Types of client segmentation

- Demographics (Age structuring)
- Behavior (eating from hotels, home, etc.)
- Benefits of fish to a group eg medicinal and nutritious like silverfish, lungfish, Nile perch *Haplochromis*
- Value-based clients who want to buy eg Mputa due to fish maw
- Needs-based eg

#### The different market segments





## 2.4 Marketing avenues

### Question 3: How best can one market her fish?

Answer:

- Social networks (family, friends, etc.)
- Use the media, community radios, Newspapers,
- Internet marketing
- Selling directly (commonly used in local markets)



- Point of purchase marketing (fishmonger directs the wholesale fish buyer where to take the produce)
- Conversational marketing – marketing that talks to consumers e.g. engaging with website visitors and converting leads via dialogue-driven activities/ online marketing

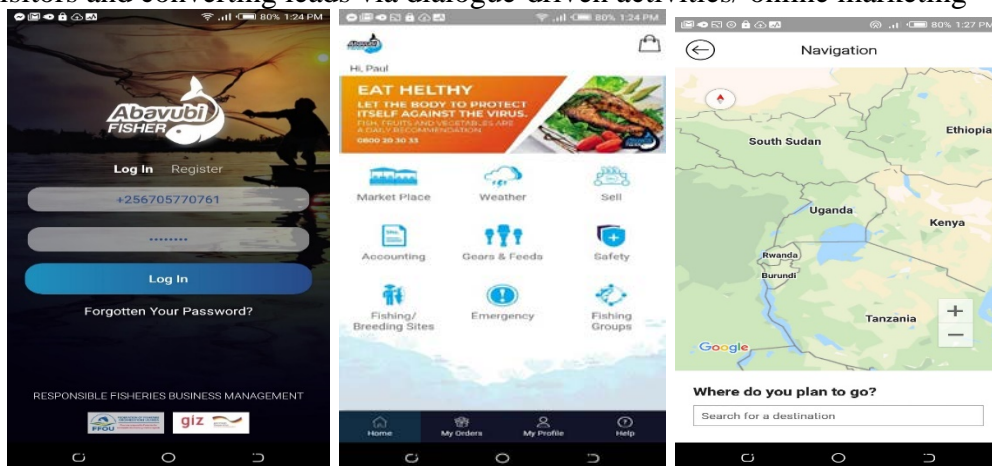


Photo showing the ABAVUBI app

### 3.3 Classifying fish markets

#### Question 4: How can fish vendors classify their market stalls?

**Answer:** Markets can be classified according to;

- **Time** (Some fish markets operate in morning hours while others in the afternoon) example of some market areas at the landing sites
- **Area** (at the landing site for the whole sale or to consumers for retail)
- **Nature of goods** (fresh, frozen, or smoked).

**3.4** Nature of competition, demand and supply conditions (some fish dealers have specific selling tactics like haggling, auctioning, etc especially when selling from source/landing site. **Attracting and retaining clients**

#### Question 5: How can fish vendors best attract and retain clients?

**Answer:** Fish vendors can best attract and retain fish clients by knowing what sets them apart. i.e. what makes her different from others (Branding, Name, packaging, quality, and quantity, etc.). The fish outlet should also be in a location that can be easily seen, clean and accessible for self-marketing.

#### A Clean and accessible fish market





## MODULE 4: SOFT SKILLING

### 4.1 Soft skills

Soft skills are the competencies that enable you to fit in at a workplace. They include how you interact with colleagues, how you solve problems, and how you manage your work. These may include; personality, attitude, flexibility, motivation, and manners, Interpersonal (people) skills, communication skills, listening skills, time management, and empathy among others.

### 4.2 Expounding on some soft skills

**Question:** What are essential personal relationship-building behaviors?

**Answer:** These are skills necessary for one to be successful in business and they include; Persuasion and networking, negotiation, listening to others, demonstrating leadership.

#### Persuasion and networking

**Question 2:** What is persuasion?

**Answer:** Persuasion is a way of convincing someone to get something or make a decision in your favor.

**Question 3:** What is networking?

**Answer:** Networking is an extended group of people with similar interests or concerns who interact and remain in informal contact for mutual assistance or support

#### Factors that affect persuasion and networking

- Socio-cultural background and perceptions (how we see things differently)
- Communication skills (both verbal and non-verbal).
- Negotiation skills

**Question 4:** What is negotiation?

**Answer:** Negotiation is an engagement of one or more people in a win-win situation.



**Question 5:** What is self-confidence in negotiation?

**Answer:** Self-confidence is the state of being certain that a chosen course of action is the best or most effective given the circumstances.

**Characteristics of a self-confident person**

- **Risk-taking;** Willing to take risks and go the extra mile to achieve better things.
- **Independent;** Entrepreneurs like to be their masters and want to be responsible for their own decisions.
- **Perseverance.** Ability to endure and survive setbacks and continue to build confidence in whatever you do in your business.
- Able to **learn** to live with failure.
- Ability to find **happiness and contentment** in work.
- Doing what you believe to be right, even if others mock or criticize you for it.
- **Admitting** mistakes and learning from them

**REMEMBER: HIV/AIDS IS REAL AND IT KILLS**

Facts about HIV/AIDS	HIV Risk reduction methods
<ul style="list-style-type: none"><li>• HIV is the virus that causes AIDS</li><li>• One does not develop AIDS as soon as he or she becomes infected with HIV and during this period 5-10 years many may not be aware that they are infected</li><li>• HIV is found in blood, semen, vaginal fluids, and breast milk</li><li>• HIV is spread in three ways; Sexual contact with an infected person, From infected mother to baby before or during breast-feeding after birth and through infected blood and blood products (including sharing needles and through blood transfusions)</li></ul>	<ul style="list-style-type: none"><li>• Abstaining from sex</li><li>• Reducing the number of sexual partners ( one partner)</li><li>• Using condom</li><li>• Avoiding sex with people who may have multiple partners or are engaging in other high-risk activities such as commercial sex or drug users</li><li>• Getting treated for other STIs</li></ul>

**MODULE 5: FINANCIAL MANAGEMENT COMPONENT**

**5.1 Personal and business cash:**

**Question 1:** What is the relationship between personal cash and business cash?

**Answer:** Personal cash is the money that is at your disposal for personal use. Business money is the cash that is invested in the business and that which is generated by the business itself.

- Business cash can become personal cash
- Secondly, business cash can become personal cash if one is earning a salary out of the business. This can be done through commissions/ bonuses and allowances.
- Thirdly one earns personal cash from business through business commissions/bonuses and allowances

**Question: Why should we separate personal and business money**

**Answer:** There are many reasons why we should separate personal and business money for many reasons. Some of these may include;



- To understand how the business is performing i.e business status
- To enable the business to grow
- To improve the performance of the business

a



## **NEVER MIX BUSINESS MONEY WITH PERSONAL MONEY**

### **Question 2: What is personal money-drawing from a bank?**

- **Answer:** A drawing is any money from a business for private use. An example is drawing cash from the bank or safe for personal treatment.

### **5.2 Income and expenditure**

#### **Question 3: What is income?**

**Answer:** "income is the sum of all the wages, salaries, profits, interest payments, rents, and other forms of earnings received in a given time

<b>Sources of Income</b>	<b>Income-generating activities</b>
<ul style="list-style-type: none"> <li>• By producing and selling goods such as fresh fish or smoked fish</li> <li>• By buying and selling goods e.g. fish trader buys from a fisherman and sells to a school</li> <li>• By giving a service (like a taxi driver who provides transportation)</li> <li>• By receiving gifts from friends or family members</li> <li>• By getting a loan</li> <li>• By inheritance</li> </ul>	<ul style="list-style-type: none"> <li>• Producing and selling local brew</li> <li>• Drying and selling fish</li> <li>• Producing and selling bread</li> <li>• Weaving mats</li> <li>• Producing and selling cassava</li> <li>• Producing and selling rice</li> <li>• Receiving donations</li> </ul>

#### **Question 4: What is an expense?**

**Answer:** An expense is money spent on something.

<b>Example of necessary expenses</b>
<ul style="list-style-type: none"> <li>• Transport</li> <li>• Market toll/taxes</li> <li>• Electricity</li> <li>• Business-related phone bills</li> <li>• Rent</li> <li>• Purchase of stock, material, or ingredients (like fish and firewood for fish smoking, fabric for dressmaking, flour for bread baking);</li> </ul>

### **5.3 Profit and loss**

#### **Question 5: What is profit and loss?**



<sup>1</sup>**Answer:** Profit is the investment **gain** or **rewards** that entrepreneurs aim to get to reflect the **risk** that they take.

**Profit** - means that there is more money coming in than going out.

**Loss** - means that you spend more money on producing or buying your products than you earn from selling goods and services

#### Question 6: What are savings?

**Answer:** Savings is money that is not spent or money kept for future use. Are savings only for a business or for any other development? Answer.....



### 5.4 Capital for business

#### Question 7: What is capital and its sources?

Capital refers to the financial resources that businesses can use to fund their operations like cash, machinery, equipment and other resources.

The sources of capital are both Internal and external

#### Example of Internal sources of savings

These are savings from own/personal business

- **Personal Savings;** Through daily fish sales or other alternative income-generating activities
- **Accumulated profits;** This is accumulated after deducting daily expenses from income
- **Family contribution;** Family members can contribute directly or indirectly to one's own business through direct capital, transport, labor, etc.
- **Selling of personal assets;** These personal assets sold can be in form of land, cows, goats, pigs, etc.

<sup>1</sup> <https://www.score.org/resource/12-month-profit-and-loss-projection>

<b>Advantages:</b>	<b>Disadvantages:</b>
<ul style="list-style-type: none"> <li>• They contribute to independent mind/own decisions in planning and usage</li> <li>• They do not attract extra costs – (interest)</li> <li>• The owner has total control and benefits</li> </ul>	<ul style="list-style-type: none"> <li>• The contribution may be too small</li> <li>• There is the danger of relaxation i.e. no completion of tasks</li> </ul>

### External Sources of Capital

These are sources of capital, which may come into the business from outside circles like friends, donors other than family. These may take the form of local and international donors and they may be in form of gifts, offers/donations/grants.

<b>Advantages</b>	<b>Disadvantages:</b>
<ul style="list-style-type: none"> <li>• They are free and at no cost</li> </ul>	<ul style="list-style-type: none"> <li>• Not reliable</li> <li>• Not timely</li> <li>• May have strings attached</li> </ul>

Other sources of external funds include;

### Loans

These can be from the bank, Microfinance, moneylender, NGO/KWDT, Small Savings and Investment clubs

<b>Advantages:</b>	<b>Disadvantages:</b>
<ul style="list-style-type: none"> <li>• They are a source of extra resources, technology, business materials and equipment</li> <li>• They enforce hard work and discipline since one has to work hard to repay with interest/penalty</li> <li>• Introduces control, since it has to be repaid thus instigating financial discipline to the borrower.</li> </ul>	<ul style="list-style-type: none"> <li>• Interest charges</li> <li>• Not timely</li> <li>• Tight repayment obligations</li> <li>• External control of one's business</li> <li>• Risk of loss of one's assets in case of business failure</li> </ul>



**Supplier's credit;** You can get the fish from your supplier without paying upfront. They can give you fish, sell and then pay after selling.

<b>Advantages:</b>	<b>Disadvantages:</b>
<ul style="list-style-type: none"> <li>• A stable way of obtaining supplies</li> <li>• No interest charges</li> <li>• Reduction in operational expenses – (ordering, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>• High prices</li> <li>• Inferior supplies</li> <li>• Inflexibility in planning supplies</li> </ul>

### **Venture capital**

These are funds availed by rich individuals for professional funds managers to manage as an investment. The funds are availed to business people at terms and conditions defined by the fund managers.

<b>Advantages</b>	<b>Disadvantages</b>
<ul style="list-style-type: none"> <li>• A stable way of obtaining funding</li> <li>• The terms may be friendly</li> </ul>	<ul style="list-style-type: none"> <li>• Terms may be unfriendly</li> <li>• Available funds may be limited</li> </ul>

### **Self-Assessment I:**

1. What key lessons do you get from this topic?
2. What is the ideal way of raising capital for business?

## **6.1 Financial management**

**Question 1:** What is financial management?

**Answer:** Financial management involves planning and ensuring business activities and networks are running as expected. For Example;

- Buying the right material at the best possible prices and at the right time
- Meeting the customer's need
- Controlling business transactions and ensuring there is money to buy, transport fish, package, etc
- Keeping a record of the business finances, stock and investments
- Ensuring the business is growing and making a profit

## **6.2 Record keeping**

**Question 2:** What are records?

**Answer:** Records refer to the information created, received, and maintained as evidence by a person, in pursuance of legal obligations or business transactions, or instance, a receipt book is a record of cash entering/coming into a business, records on fish bought, fishing equipment owned.

### **Daily sales record form**

<b>DAILY CASH RECORDS</b>				
<b>DATE.....</b>				
<b>S/N</b>	<b>PARTICULARS</b>	<b>QUANTITY</b>	<b>PRICE</b>	<b>AMOUNT</b>

	<b>TOTAL SALES</b>			

### Receipt book

<b>NAME OF BUSINESS ADDRESS TIN 000-01100</b>	
DATE.....	
Received from .....	
Being payment of.....	
Amount in words.....	
.....	..... Amount in figures
Signature of receiver	

### Inventory record book

No.	Description	Qty	Beginning	Purchases	Sales	Loss

### Credit book

<b>CUSTOMER CREDIT BOOK</b>					
NAME: _____					
ADDRESS: _____					
DATE	DESCRIPTION	CREDIT	PAYMENT	BALANCE	SIGNATURE
	Total				

**Debtor book**

DATE	DESCRIPTION	DEBT	PAYMENT	BALANCE
	<b>Total</b>			

**Proforma Invoice**

Date..... Proforma invoice no ..... Sent by; ..... Company name..... Department..... .... Address..... ..... Country..... .....	<b>Proforma Invoice</b>	Sent to: Company name..... Dept..... ..... Address..... ..... Country..... ..... Currency..... .....		
<b>Description of goods</b>	<b>Qty</b>	<b>Price</b>	<b>VAT</b>	<b>Total</b>
<b>TOTAL VALUE</b>				
<b>Authorized Signature</b>				





### Question 3: Why do we need records?

- To control business capital, especially cash.
- To show the direction of the business.
- To plan for the future.
- Records allow business people to oversee expenditures, costs, and profit
- Records help to analyze business development over time.



## 6.3 Tools used in financial management

### QUESTION 4: What are the tools in business transactions?

Tools are documents that help store information safely and methodologically. Each type of document used in the business should be stored separately. Some of the recording tools the fish business should have include;

- Daily sales record;
- Receipt book



- **Cashbook;** The book in which we write all the money that comes in and goes out is called a 'Cash Book'. You can use a standard arithmetic exercise book as a 'cash book'. The cashbook is used to record all-cash transactions of the business usually after a specific period, that is, monthly, quarterly, semi-annually, or annually.
- Inventory Record Book
- Credit Book
- Debtor book
- Proforma Invoice

### Simple Cash Book Entry

Financial record-keeping means that you write down all the money that comes in and the money that goes out.



The following symbols are used:

Money in = Money becomes more, so we use the addition sign (+)

All money that **comes in** is written on the **left page** (LEFT)

Money out = Money becomes less, so we use the subtraction sign (-)

All money that **goes out** is written on the **right page** (RIGHT)

### Example of a Filled in Cash book

DATE	MONEY IN	AMOUNT (shs)	DATE	MONEYOUT	AMOUNT(shs)
20-Jan-09	10 pcs of fish	2,000	1-Jan-09	Purchased machinery	3,000
25-Jan-09	14 pcs of fish	2,800	7-Jan-09	Payment of salary	1,200
29-Jan-09	20 pcs of fish	4,000	16-Jan09	Transportation	800
	<b>Total</b>	<b>8,800</b>		<b>Total</b>	<b>5,000</b>

## 6.4 Making business decisions by Compiling a basic profit and loss statement

**Question 5:** What is a profit and loss statement?

- A profit and loss statement is also called an income statement and it shows the revenues and expenses of the fish business and the resulting profit or loss, over a specified period (a month, quarter, or year).
- **Profit** - means that there is more money coming in than there is going out.

- **Loss** - means that you spend more money on producing or buying your products than the money you earn by selling goods.

***PROFIT = TOTAL SALES less TOTAL COST***

Example of a Filled in Profit or Loss Formula

Sales	Costs	Profit or Loss
SHS 100,000	SHS 75,000	SHS 25,000 (Profit)
SHS 100,000	SHS 125,000	SHS 25,000 (Loss)
Total Sales greater than total costs		= Profit
Total costs greater than total sales		= Loss
Total sales = total costs		= Break Even

Money in	-	Money out	=	Profit or Loss or Break Even
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**Question 6:** What are the elements of a profit and loss statement?

- List of all transactions in the fish business (Checking account and all purchases made)
- Petty cash or other cash transactions for which one has receipts
- List of all sources of income, cheques, credit card payment
- Information on reduction to sales (discounts or returns)

### Improving profit margins

**Question 7:** What is the required Profit margin in a fish business?

**Answer:** Fish business profit margin measures the percentage of revenue your business keeps after paying for outgoing expenses. Tracking a business profit margin helps to monitor business health and it enables better decision making in the future.

**Question 8:** How do you improve fish sales profit margin?

**Answer:** Fish profit margin can be improved by lowering costs, expenses and increasing sales.

Costs can be lowered by;	Sales can be increased by:
<ul style="list-style-type: none"> <li>• Optimizing vendor relationships</li> <li>• Looking for alternative solutions to current processes</li> <li>• Cut offerings that do not do well or sell</li> <li>• Reduce business and operating expenses</li> <li>• Identify and eliminate waste</li> </ul>	<ul style="list-style-type: none"> <li>• Sale on old inventory</li> <li>• Increasing prices</li> <li>• Use up-selling and cross-selling techniques</li> <li>• Increase customer retention</li> <li>• Improve inventory visibility-- proper display.</li> </ul>

## 6.5 Costing and Pricing

**Question 1:** What are costs?

**Answer:** Costs refer to all the money your business spends to make and sell your fish.

**Question 2:** What is costing?

**Answer:** Costing is the way you calculate the total costs of making or selling the fish.

### Importance of Costing

Costing helps your fish business to:

- set prices
- reduce and control costs how
- make better decisions about business
- plan for the future



### Types of Costs

1. **Fixed costs:** Fixed costs are costs that do not vary with the level of output in the short term. Examples of these may include; rent, salary for permanent employees, market levies, etc.
2. **Variable costs;** A variable cost varies in direct proportion with the level of output. Varying directly means that the total variable cost will be dependent on the level of output. If output doubles, then the variable cost would double. If halved, the variable costs would halve. If output were zero, then no variable costs would be incurred. They may include the causal laborers, raw materials, packaging costs, etc
3. **Overhead costs;** are what it costs to run the business, including; electricity, water, personal protection equipment/ mandatory wear. They are operating expenses are required to run the business and cannot be avoided. Overhead expenses should be reviewed regularly to increase profitability.

Fixed costs	+	Variable costs	+	Variable costs	=	Total costs
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**Question 3:** What is fish pricing?

**Answer:** Fish pricing is the determining of how much the fish will be sold. These are considered when setting a price for the fish.

The price you charge should consider these:

- i) That all the cost of production is recovered
- ii) That there is a profit
- iii) That the price reflects the quality/value of your fish
- iv) That the price is not too high or too low to push you out of competition

Therefore, find out;

- a) What your competitors charge
- b) Whether the majority of your target consumers will afford the price of the fish

**Question 4:** How best can one develop a pricing strategy?

**Answer:** For example, a fish vendor can make minimum profit in the early months through low prices, but capture the market for the product and increase prices later. This however requires the fish business to know the minimum level of production and prices at which it recovers all its costs (break-even point)

**Question 8:** What is credit?

**Answer:** This is buying and selling without cash.

**Rules to keep while buying or selling on credit**

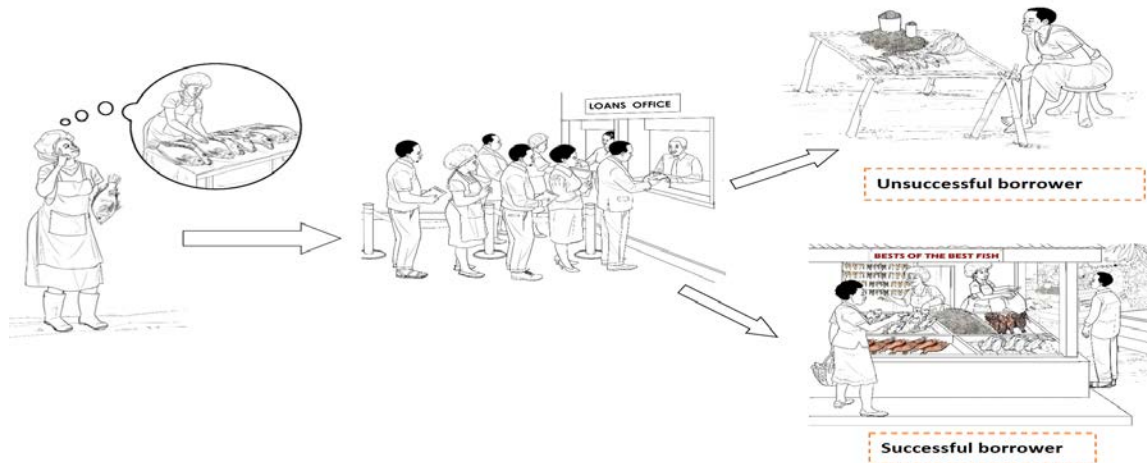
- Only sell on credit to regular customers who you are sure will pay you back on time
- Demand payment of part of the amount.
- Always carry sufficient cash to buy new stock.
- Keep records of people who buy from you on credit.
- Always pay back and in time.

**Advantages and Disadvantages of Selling on Credit**

Advantages	Disadvantages
<ul style="list-style-type: none"><li>• It is a service to your customer and it will attract some customers.</li></ul>	<ul style="list-style-type: none"><li>• Your customers may linger in repaying or may not pay you at all</li><li>• There may be quarrels over the repayment</li><li>• Can easily add to a lot of money which makes it difficult for you to remember if no records are kept, who should repay you and how much</li><li>• The money that your customers still owe you cannot be used to purchase materials or upgrade your business</li></ul>

**Advantages and Disadvantages of Buying on Credit**

Advantages	Disadvantages
<ul style="list-style-type: none"><li>• To buy stock in a season when it is cheap (such as fish, cassava), preserve and store it and sell it when the prices are high.</li><li>• To enable you to buy cheaper in bulk (items such as flour).</li><li>• To include seasonal high expenses (such as plugging).</li></ul>	<ul style="list-style-type: none"><li>• There may be quarrels or confusion over repayment.</li><li>• You may forget that you owe someone money.</li><li>• There is a tendency to buy unnecessary things.</li><li>• Sometimes you have to pay more when you buy on credit (interest charges).</li></ul>



## 6.6 Financial Linkage to Banks

**Question 1:** Why is bank account opening necessary in the fish business?

**Answer:** It helps to safely keep fish business money

**Question 2:** How can a fish vendor assess the need for a loan?

**Answer:** it is important to examine all aspects of the business carefully to determine whether the money sought is required. Even if money is required, the following options should be examined before considering a loan:

- Is there any non-moving or slow-moving stock that can be disposed of by offering it at a low price for quick cash instead of expecting a good price and waiting for it?
- Are there any debts remaining uncollected due to disputes etc. that can be settled by agreeing to get a little less than what is owed?
- Are there any idle surplus assets that could be sold?

**Question 3:** What are the necessary pre-requisites and documents required to access a loan?

**Answer:**

Pre-requisites for the loan	Documents required
<ul style="list-style-type: none"> <li>• The moneylender collects information from the borrower and checks the capacity to pay back the loan.</li> <li>• Then also considers the capital that is readily available in the business in form of savings, investments and other assets.</li> <li>• The lender also does a background check for the credit, historic record of paying debts and paying bills.</li> <li>• The lender also takes into account the value of the property that the business owners have as collateral.</li> <li>• The loan application is either approved or rejected</li> </ul>	<p><b>Key document necessary to access a loan</b></p> <ul style="list-style-type: none"> <li>• Identity (Passport, National ID, or driving permit)</li> <li>• Address (Work/Home)</li> <li>• Bank statement for at least previous 3 months</li> <li>• Business name</li> <li>• Security</li> </ul> <p><b>Documents to identify the borrower</b></p> <ul style="list-style-type: none"> <li>• Loan application</li> <li>• Financial statement</li> <li>• Type of business (Sole, partnership, limited liability, limited by guarantee without share capital)</li> <li>• Resolutions for partnerships</li> <li>• Articles and memorandum of association/ By-laws</li> </ul>



	<ul style="list-style-type: none"> <li>• Certificate of Incorporation (URSB)</li> </ul> <p><b><i>Documents to evidence the debt</i></b></p> <ul style="list-style-type: none"> <li>• Collateral valuation documents</li> <li>• Loan agreement</li> <li>• Commitment letters</li> </ul> <p><b><i>Documents to attach and support various types of collateral</i></b></p> <ul style="list-style-type: none"> <li>• Security agreement</li> <li>• Deed to secure debt</li> <li>• Guarantor agreement</li> <li>• Landlords waiver</li> <li>• Insurance policies</li> </ul>
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### Self-Assessment I:

1. What is financial management?
2. What is record keeping and why is it important?
3. What tools can be used in financial management?
4. How can a basic profit and loss statement help in making a business decision?
5. What is costing and pricing?
6. What are the key documents required for accessing a loan?
7. What makes one a good borrower?

## MODULE 6: FISH HANDLING

### 7.1 Defining fish handling

Question: What is fish handling?

Answer: “Fish handling is defined as;” Careful handling of fish right on boat or canoe or during transportation to landing site, market or processing plant or factory.



## 7.2 Defining Constituents of fish handling

- **“Fish spoilage”** is defined as a process of deterioration in the quality of fish, such changes can be fish appearance, odour/smell and taste arising from intentional and non-intentional causes.
- **“Food defense** is defined as; the protection of food products from **intentional** contamination/adulteration with the motive to cause harm. Food defense also involves **putting in place measures** to reduce the **intentional** contamination of food.
- **“Food safety”** Food safety addresses **unintentional** adulteration/contamination of food. “Food safety” includes quality and safety through the whole fish value chain. In most cases, the aim is to ensure that such fish does not cause harm to the consumer.

## 7.3 Expounding On Fish Spoilage

### 7.3.1 CAUSES OF FISH SPOILAGE

**Question:** What causes fish spoilage?

**Answer:** Fish spoilage is caused by many factors which can be broadly categorized into **biological, chemical and physical** factors

Fish spoilage factors categorizations		
<b>Biological;</b> These are factors that are mainly attributed to small organisms which cause fish spoilage. These can be further classified into;	<b>Physical;</b> Physical factors are those that are based on the natural world. Many factors in the natural world cause fish spoilage.	<b>Chemicals</b>
<p><b><i>1. Spoilage due to enzymes found in the fish</i></b></p> <ul style="list-style-type: none"><li>• Enzymes are chemicals found in fish that help in the digestion process when these fish have eaten their food. These enzymes are found in the fish stomach.</li><li>• When fish is not either chilled or frozen early then these enzymes can cause fish spoilage very fast and hence affect the texture of the fillet.</li></ul> <p><b><i>2. Fat spoilage</i></b></p> <ul style="list-style-type: none"><li>• Fat corrosion (disintegration of fats) is a major cause of deterioration and spoilage in fish. Some fishes such as Mukene are more prone to this type of spoilage.</li></ul> <p><b><i>3. Microbial/Bacterial spoilage</i></b></p> <ul style="list-style-type: none"><li>• Small organisms that cannot be seen by our naked eyes called bacteria that are</li></ul>	<p>These include among others;</p> <ul style="list-style-type: none"><li>• Ambient temperature; fish can be preserved is some recommended temperatures. The change in those temperatures can cause rapid deterioration of the fish. This usually happens from muscle breakdown and increased enzymatic activity.</li></ul>	<ul style="list-style-type: none"><li>• The fish has a belly/stomach which contains some water in which the intestines are suspended. This has some chemicals which are not removed at some stage may cause fish spoilage. Such spoilage is hence attributing to such chemicals which exist in that water.</li></ul>



always in the fish stomach when alive cause fish spoilage. • Bacterial growth and metabolism are a major cause of fish spoilage, which produces unpleasant and unacceptable off-flavors in all fish so long as it not preserved.		
<b>REMEMBER THAT FISH WITH HIGH-FAT CONTENT AND WEAK MUSCLES ARE VERY PRONE TO SPOILAGE</b>		

### 7.3.2 IDENTIFYING SPOILT FISH

**Question:** How to identify a spoilt fish:

**Answer:** A spoilt fish can be identified based on changes in color, texture, smell/odor, the color of eyes, the color of gills, the softness of muscle at times belly bursting.

The table shows the different characteristics to consider when assessing spoilt fish.

Characteristic to consider	Fresh fish	Spoilt
<b>Smell</b>	• pleasant and neutral.	• an unpleasant, sharp smell
<b>Eyes</b>	• bulging and shiny	• cloudy and sunken into the head.
<b>Gills and fins</b>	• moist. • nice, bright red color	• dry, covered with sticky slime, grayish-brown in color and smell bad.
<b>Skin</b>	• moist, unharmed and has a naturally metallic glow • Scales must be tightly attached to the body • Fish slides out of your hands	• Discoloration and cracked skin • Starts losing its scales.
<b>Slime</b>	• equally distributed over the fish • it is clear and odorless	• murky and dirty and has a sour smell
<b>The body</b>	• specific consistency and appearance • When pressed it should bounce back	• Soft, grey and inelastic
<b>Belly</b>	• shiny and undamaged • the anal opening is tight	• Anal opening of old and sticks out • yellow-brown in color.

### 7.3.3 IMPLICATIONS OF FISH SPOILAGE

**Question:** What are the consequences of fish spoilage?

**Answer:** There are quite several consequences that might occur due to fish spoilage and these may include among others;

- Loss to the entrepreneur such as loss of operating capital

- Loss of customers and marketability
- Affect people's health due to contaminants

**REMEMBER: YOUR GENDER SHOULD NOT BE A LIMITATION TO ACHIEVING YOUR DREAMS AND GOALS.**



1. What do you understand by the term gender?
2. What local experiences limit you as a woman or man to achieve your goals?
3. How do you overcome such limitations to achieve your goals?
4. How has gender helped the fisherwomen in the fisheries development?
5. What has been the role of gender as far food defense is concerned?

## 7.4 Expounding on Food defense

### 7.4.1 INTENTIONAL PRACTICES LEADING TO AND SAFEGUARDING AGAINST INTENTIONAL FISH CONTAMINATION

**Question 1:** What intentional practices do fishermen and women use to protect fish from intentional adulteration and where can they happen?

**Answer:** Examples of deliberate practices which can lead to adulteration

- Malicious damage; pouring chemicals on fish, (this can happen from disgruntled friends or employees and intruders)
- deliberate contamination with soil, human hair on the fish
- deliberate laceration (cut, scratch, dismember or break the fish)

These can happen during;

- Operations in the lake and at the landing site
- Transportation to the market
- At the stall in the market and processing
- Storage
- Packaging

**Question 2:** How can these intentional/deliberate practices that cause adulteration/contamination of fish be guarded against?

**Answer:** These intentional practices can be guarded against through;

- **Setting by bye-laws;** rules set up by the people to govern the fish products
- Appropriate **security systems** such as having locks on all storage facilities, strict market operation times.
- **Inspecting of fish;** checking of fish before distribution to market and within the market.
- Setting up **community grievance redress mechanisms;** To address existing wrangles for the traders which could be the cause of deliberate food contamination with intent to cause loss.
- Setting up **market standards** such as deliberate sampling of fish products in the market.

#### 7.4.2 PERSONAL HYGIENE AND SANITATION

**Question: What is personal hygiene?**

**Answer:** Defining body Hygiene<sup>2</sup>

- Good personal hygiene involves keeping all parts of the external body clean and healthy. If we don't hygienically keep our bodies, germs can grow it making us vulnerable to infection and fall sick. We can also infect others with germs.
- Socially, many people may avoid you once you have poor hygiene resulting in isolation and loneliness.
- As a person involved in the business may chase away customers because of poor hygiene.



**Question: What are the types of personal hygiene**

**Answer:** There are many types of personal hygiene but some examples are provided below;

Type of personal hygiene	Definition or explanatory notes	How to maintain good personal Hygiene
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<sup>2</sup> Adopted from <https://www.medicalnewstoday.com/articles/personal-hygiene#summary>

<b>Dental</b>	<ul style="list-style-type: none"> <li>➤ This involves caring about our teeth through brushing using the toothbrush or a shrub after every meal and before going to bed</li> <li>➤ This avoids bad breath and keeps our teeth white.</li> <li>➤ It prevents diseases such as tooth decay and gum diseases</li> </ul>	<ul style="list-style-type: none"> <li>➤ by brushing the teeth for 2 minutes at least twice a day</li> </ul>
<b>Body</b>	<ul style="list-style-type: none"> <li>➤ We sweat a lot and if we don't clean ourselves very well, we end up smelling.</li> </ul>	<ul style="list-style-type: none"> <li>➤ bathe daily, using soap and water</li> <li>➤ We can always wear a deodorant which is not very strong to avoid inconveniencing others</li> <li>➤ The private parts and armpits need to be cleaned well and shaven</li> </ul>
<b>Hand Washing</b>	<ul style="list-style-type: none"> <li>➤ Regular hand washing is one of the best ways to avoid spreading diseases that can affect one human to another.</li> <li>➤ Hand Washing should be done among other times;</li> <li>➤ before, during, and after preparing food, in this case, food</li> <li>➤ before eating food</li> <li>➤ before and after looking after anyone who is vomiting or has diarrhea</li> <li>➤ before and after treating a cut or wound</li> <li>➤ after going to the bathroom</li> <li>➤ after changing diapers or cleaning up a child who has used the toilet</li> <li>➤ after blowing the nose, coughing, or sneezing</li> <li>➤ after touching garbage or dirty surfaces or objects</li> <li>➤ after handling pets or pet-related items, such as food</li> </ul>	<ul style="list-style-type: none"> <li>➤ Wet the hands with clean, running water, then turn off the tap and apply soap.</li> <li>➤ Lather the hands by rubbing them together with the soap, remembering to reach the backs of the hands, between the fingers, and under the nails.</li> <li>➤ Scrub the hands for at least 20 seconds, which a person can time by humming the "Happy Birthday" song twice.</li> <li>➤ Rinse the hands well under clean, running water.</li> <li>➤ Dry the hands using a clean cloth</li> </ul>
<b>Finger Nails</b>	<ul style="list-style-type: none"> <li>➤ Fingernails may harbor dirt and germs, contributing to the spread of bacteria. It is easier for dirt and germs to collect under longer nails, so keeping them short can help reduce the risk of spreading infections.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Keep the nails short</li> <li>➤ Removal of any dirt in the nail</li> </ul>
<b>Menstrual Hygiene</b>	<ul style="list-style-type: none"> <li>➤ Women need to keep hygienic during the menstruation periods.</li> </ul>	<ul style="list-style-type: none"> <li>➤ change sanitary products regularly and wash the hands before and after changing</li> </ul>

		tampons, pads, or any other sanitary products.
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**Question:** What is sanitation?

**Answer:** Sanitation is the process of keeping our environment healthy and clean.



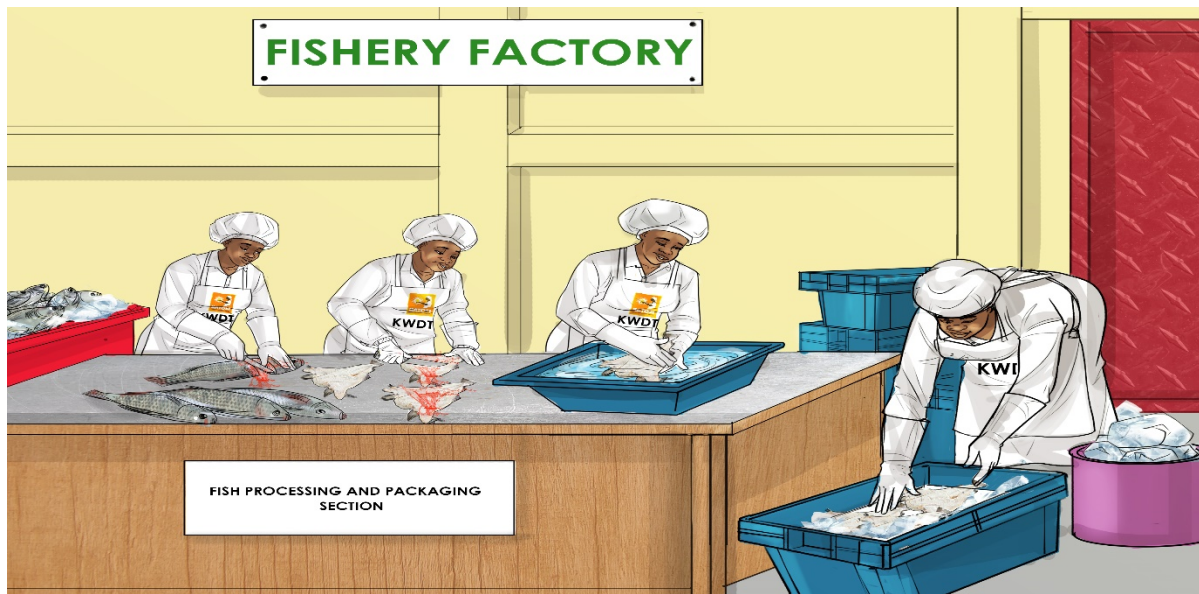
**Question:** How do body hygiene and sanitation relate to the fish value chain?

**Answer:** The answers are given in the table below;



Parameters	Fish Value Chains				
	At The Lake	Landing Site	Transportation	Processing	Marketing
<b>Personal hygiene</b>	<ul style="list-style-type: none"> <li>Use clean clothing and hands to handle fish.</li> </ul>	<ul style="list-style-type: none"> <li>Use clean clothing and hands when handling fish</li> <li>Ensure hand, washing practice: washing hands with dirty water or without soap should be avoided.</li> <li>Wash hands after going to the toilet;</li> <li>Wash hands after handling pets such as dogs and cats;</li> <li>Put on white gum boots and white laboratory coats to ensure the tidiness of the fisherfolk at the landing site</li> </ul>	<ul style="list-style-type: none"> <li>Avoid sitting on the fish while transporting</li> <li>The fish should be well preserved with ice flakes in a better storage container.</li> </ul>	<ul style="list-style-type: none"> <li>Wash hands before and regularly while handling and processing fish products.</li> <li>Cover the hair while handling fish products</li> <li>Do not Handle fish while sick with diarrhea, vomiting, or having skin infections;</li> </ul>	<ul style="list-style-type: none"> <li>Ensure that you cover cuts and wounds.</li> <li>Avoid long dirty fingernails</li> <li>Avoid the wearing of jewelry on hand and wrist which provide grounds for the germs;</li> <li>Avoid coughing and sneezing over food;</li> </ul>
<b>Sanitation (Environment hygiene)</b>	<p>Clean the boat and equipment is using clean water and soap.</p> <p>The boat should not have holes thus seaworthy and life jackets clean and ready for use.</p> <p>The fishing boats should not be used</p>	<p>Toilets should be 30 to 50 meters away from water sources;</p> <p>The water source for animals is separated from the one for human use;</p> <p>The pit latrine should be ventilated and covered.</p> <p>Handwashing facilities must be available</p>	<p>Less time during fishing and transportation of fish on landing to avoid spoilage</p> <p>Control the temperature of the fish by using ice such as Nile perch</p> <p>When fish is, brought from the lake should be handled on a clean slab at the landing sites</p>	<p>Fish caught at different times, have to be kept apart since they will be at a different stage of spoilage</p> <p>The container used for the transportation of fish should be clean after every use.</p> <p>Fish handlers at every processing stage should learn about and adopt good hygiene practices.</p>	<p>There is need to use insulated ice or plastic boxes for fish packaging</p> <p>Packaging material should be clean, durable and sufficient for its intended use and of food grade material</p> <p>You can use baskets which are cheaper must be used when is to be sold quickly</p>

	<p>to transport other items apart from fish to avoid contamination risks;</p> <p>Use of clean water on board to avoid fish spoilage</p> <p>Use of ice flakes for fish preservation</p> <p>Individual fish handled with care on board</p>	<p>Water containers are covered</p> <p>Place rubbish in covered containers to avoid flies that may contaminate fish.</p> <p>The fishing compound must be kept clean at all times</p> <p>All fisherfolk are supposed to pass through the foot dips wherever they are constructed. This helps to prevent transferring bacteria to the processing areas.</p> <p>Avoid animals into the fishing boat.</p> <p>After use, allow the fishing boat and equipment to sundry.</p>	<p>before being placed in the iced vehicle.</p>	<p>Proper storage of fish in proper containers to avoid spoilage</p> <p>Fish waste can be re-processed to produce oil such as the intestines of Nile perch can be used for oil extraction.</p> <p>Then the remaining waste products such as fish waste can be used in the production of silage; used as food for domestic animal/aquaculture; (processing)</p> <p>Secondly, we can also utilize fish waste can be used as fertilizer inland farming</p>	<p>If a woman is using polythene for lining, the boxes while packaging dried fish not to have water to avoid mold (fungal) growth and high contamination.</p> <p>For dried fish, the women are encouraged to use traditional baskets from natural fibers and, wooden boxes.</p>
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#### 7.4.3 FISH PRESERVATION

**Question:** What is fish preservation?

**Answer:** Fish preservation is the method of increasing the shelf life of fish and other fish products to keep the fish, after it has landed, in a condition wholesome and fit for human consumption.

**Question:** What are the types of fish preservation?

**Answer:** There are many types of fish preservation. But in the context of fishing in Uganda, the following have been considered.

##### A) Fish smoking

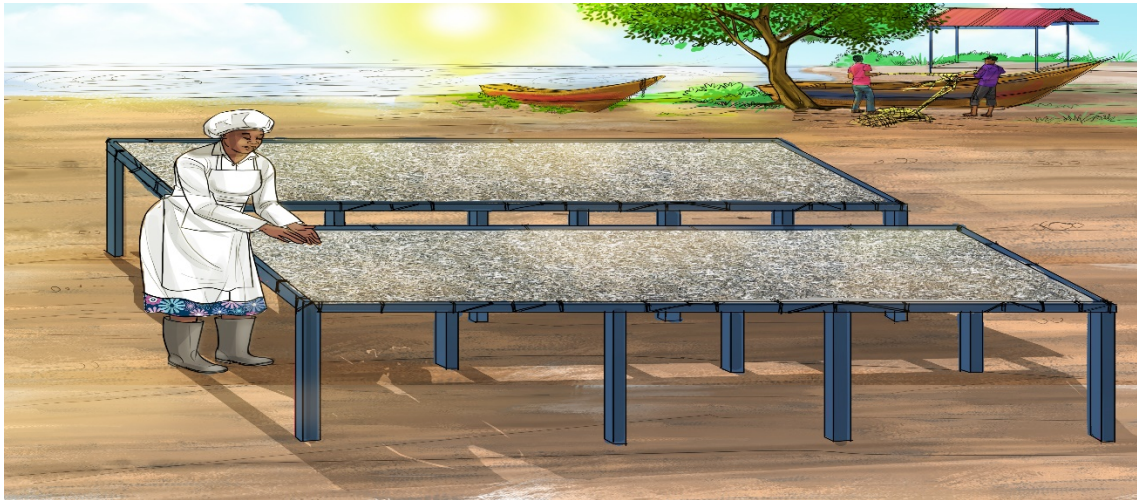
##### The advantage of modern fish smoking kilns or facilities

- Efficient firewood use;
- Improved heat and smoke circulation;
- Reduction of smoking time;
- Increase of quantities that can be smoked at once;
- Use of trays reducing tediousness of the process;



- The trays form a chimney to trap the smoke and heat;
- Heat and smoke required during the smoking process can be regulated;
- Uniformly smoked product of better quality in terms of color, shape and taste;
- Handling of the fish during the smoking process greatly reduced;
- The product acquires a higher market price.

### B) Sun drying of fish



- Sun drying is good for silverfish such as Mukene to be placed on a rack to avoid spoilage and fast dry.
  - Cover the silverfish or other pelagic fishes such as haplochromines on the rack in case of rain to avoid spoilage.
  - After drying this fish should be placed in proper storage to avoid spoilage such as dry places, better ventilation to avoid fungal development on the fish.



**PLEASE PLEASE PLEASE NEVER sundry the Mukene on or near the ground especially if it's for human consumption.**

### C) Salting fish



Salt is applied to fish by the following basic methods:



- The fish are immersed in a solution of salt in water.
- Granular salt is rubbed into the surface of the fish.
- Granular salt is rubbed into the surface of split fish and the fish are stacked with a sprinkling of salt between each layer of fish.
- Salt applied should be at 270 - 360 grams of salt to each liter of water to be applied on fish.
- Fish are covered with salt and then packed in watertight containers in layers with salt

#### **D) Effective fish icing**

- Use only good quality ice made of potable water, in well-maintained ice plants;
- Always store ice in clean containers;
- Avoid large and sharp-edged pieces of ice which can damage the fish;
- Ice the fish immediately after the harvest;
- Use at least 1kg of ice to preserve 1 kg of fish;
- Icing must be placed at the top and bottom of boxes and preferably mixed with the fish inside the box. This will cool the fish more rapidly
- Ensure proper drainage of melted ice water from boxes

#### **7.4.4 DEVELOPING A FOOD DEFENSE PLAN**

**Question:** What is a fish defense plan?

**Answer:** The food defense plan helps you identify steps you can take to reduce the risk of contamination of the fish products in your business.

**Question:** How is a food defense made?

**Answer:** The defense plan can be developed based on the following;

##### **Step 1: Conduct a food defense assessment**

- This helps you to understand the potential internal and external threats which may cause food contamination. The participants assess their level of security, locking and storage systems, access to the fish, employee and friends' attitudes, chemicals and hazardous substances, market security, personal hygiene and others.

##### **Step 2: Developing a mitigation plan.**

- After you have identified the aspects that may cause deliberate food contamination, you identify the preventive actions or measures that can be taken to prevent/minimize intentional contamination.

##### **Step 3: Costing the plan**

- After developing the mitigation plan, the participants will go ahead and estimate the costs required to implement the different actions suggested to deter food contamination.

##### **Step 4: Review the Mitigations**

- Periodically review your plan on whether the mitigations are working or not and revise it where necessary.

**You can use the table below;**

Potential sources of contamination	Possible mitigations to the sources of contamination	The estimated cost of implementing the mitigations	Periodic reviews (Weekly, monthly, quarterly, bi-annual, or annual )

Deliberate chemical poisoning of fish in storage	Establish secure storage facilities with locks	400,000	Monthly



*The process can be done at the individual and group levels.*

## 7.5 Fish safety and quality

### 7.5.1 WHAT ARE POTENTIAL UNINTENTIONAL CAUSES OF FISH ADULTERATION/CONTAMINATION?

**Question;** what are the Potential unintentional causes of fish adulteration/contamination?

**Answer;** These may include;

<p><b>Biological</b></p> <ul style="list-style-type: none"> <li>➤ Bacteria, viruses and parasites (Small organisms that cannot be seen by naked eyes but can cause fish spoilage hence affect the quality of the fish)</li> <li>➤ Enzymes; are chemicals found in fish (The activity can be increased or reduced due to temperature and other changes)</li> </ul>	<p><b>Physical</b></p> <ul style="list-style-type: none"> <li>➤ Accidents during transportation</li> <li>➤ Dust</li> <li>➤ Fumes</li> <li>➤ Temperature</li> <li>➤ Rainfall</li> </ul>
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### 7.5.2 HOW DO WE TRADITIONALLY IDENTIFY THE QUALITY OF FISH?

**Question;** How do we traditionally identify the quality of fish?

**Answer;** The quality of fish can be established mainly through sensory assessments. These may include; seeing, touching, smelling and tasting.

The table below shows some of the qualities of a good fish;

#### Quality evaluation of fresh fish using sensory evaluation

Class	Gills	Eyes	Body	Texture	Quality
5	<ul style="list-style-type: none"> <li>• Dark red color</li> <li>• Some thin clear slime</li> </ul>	<ul style="list-style-type: none"> <li>• Bright, metallic</li> <li>• Clear pupils</li> <li>• Convex eyes</li> </ul>	<ul style="list-style-type: none"> <li>• Natural color</li> <li>• Iridescent</li> <li>• Firm scales</li> </ul>	<ul style="list-style-type: none"> <li>• Firm before or in rigor</li> </ul>	<ul style="list-style-type: none"> <li>• Excellent</li> </ul>
4	<ul style="list-style-type: none"> <li>• Red color</li> <li>• Some slime, but still thin and</li> </ul>	<ul style="list-style-type: none"> <li>• Bright metallic</li> <li>• Slightly cloudy</li> <li>• pupils</li> </ul>	<ul style="list-style-type: none"> <li>• Natural colors</li> <li>• Firm scales</li> <li>• Some slime</li> </ul>	<ul style="list-style-type: none"> <li>• Firm</li> </ul>	<ul style="list-style-type: none"> <li>• Good</li> </ul>
3	<ul style="list-style-type: none"> <li>• Red-brown color</li> <li>• Some thick slime</li> </ul>	<ul style="list-style-type: none"> <li>• Dull</li> <li>• Pupils cloudy</li> </ul>	<ul style="list-style-type: none"> <li>• Slight red color</li> </ul>	<ul style="list-style-type: none"> <li>• Firm</li> </ul>	<ul style="list-style-type: none"> <li>• Average</li> </ul>
2	<ul style="list-style-type: none"> <li>• Brown color</li> <li>• A lot of slimes</li> <li>• Slight off smell</li> </ul>	<ul style="list-style-type: none"> <li>• Dull</li> <li>• Pupils cloudy</li> <li>• Slightly</li> </ul>	<ul style="list-style-type: none"> <li>• Red/yellow color</li> <li>• Scales missing</li> </ul>	<ul style="list-style-type: none"> <li>• Soft</li> </ul>	<ul style="list-style-type: none"> <li>• Poor</li> </ul>
1	<ul style="list-style-type: none"> <li>• Brown color</li> <li>• A lot of slimes</li> <li>• Bad/ammonia</li> </ul>	<ul style="list-style-type: none"> <li>• Dull</li> <li>• Pupils cloudy</li> <li>• Concave eyes</li> </ul>	<ul style="list-style-type: none"> <li>• Red/yellow color</li> <li>• Few scales</li> </ul>	<ul style="list-style-type: none"> <li>• Very soft</li> <li>• Mark of finger left</li> </ul>	<ul style="list-style-type: none"> <li>• Very poor</li> </ul>