

SECTION

6

PRIMARY
ECONOMIC
ACTIVITIES



HUMAN AND ENVIRONMENT

Economic Activities

Introduction

This section explores two important aspects of economic activities, that is farming and lumbering. These are examples of primary economic activities. Hope you understand what primary activities are from your JHS Social Studies. In this section, you will learn about agriculture in Ghana, but the emphasis will be on subsistence and commercial farming. This section further delves into the various techniques and methods employed in subsistence farming and highlights its significance in providing food for the families, especially in rural communities. The section also examines the differences in farming practices between subsistence and commercial agriculture, considering factors such as the size of farms, technology, labour, and marketing of produce. Through this session, you will gain a comprehensive understanding of the diverse ways by which primary economic activities such as farming contributes to livelihoods, food security, and economic development in Ghana. This section has a link with Agricultural Science at the Senior High School and Social Studies at both the Junior and Senior High School levels.

This section also explore another economic activity called lumbering, which involves the extraction and processing of timber for commercial purposes. Finally, the section has a link with Agricultural Science at the senior High School level as well as Social Studies at both the Junior and Senior High School levels.

At the end of this section, you should be able to:

- Discuss the characteristics of subsistence and commercial agriculture and their importance and challenges in Ghana.
- Examine the methods, importance and problems of lumbering and mining in Ghana (Lumbering)

Key Ideas:

- Agriculture is the cultivation of crops and rearing of animals for human use.
- Agricultural activities are either subsistence or commercial in nature.
- Subsistence agriculture involves farming practices where individuals or families produce food for their own consumption, but small portion of the produce may be offered for sale.
- Commercial agriculture focuses on large-scale production for the purpose of selling crops or domestic animals for profit.
- Each of these farming activities has its own unique characteristics, advantages and disadvantages.
- Lumbering as a primary economic activity involves the felling, processing and transportation of economic trees for commercial, domestic and industrial purposes.

- Timber refers to wood that has been cut and prepared for use in building houses, bridges, furniture, and other projects
- There are several methods of lumbering in Ghana which include, the use of lumberjacks, logging and then transportation
- Some of the factors promoting lumbering in Ghana include favourable climate, availability of cheap labour, good transport system, etc.
- Lumbering is important to the people as well as the government.
- There are challenges affecting the lumbering industry in Ghana.

SUBSISTENCE AND COMMERCIAL AGRICULTURE

Meaning of Agriculture: Agriculture is the practice of cultivating crops (plants) and rearing animals for food and commercial purposes by humans. Agriculture in Ghana can broadly be grouped into two categories, namely, subsistence and commercial agriculture. According to Dadson (2021), this classification, among other things, is largely based on size of the farm and purpose of produce.

Subsistence Agriculture

Subsistence agriculture involves farming practices where individuals or families produce food primarily for their own consumption. In this farming system, the cultivation of crops and rearing of animals is purposely for domestic use, but the surplus of the farm produce may be sent to the market for sale. This farming system is very common in most Ghanaian rural communities where the family use their own labour to do a backyard garden or engage in small-scale farming activities for their survival.



Fig. 6.1: Family working together on their small-sized farm, using simple farm tools

Characteristics/Features of Subsistence Agriculture

The underlisted are the characteristics or features of subsistence agriculture.

1. Subsistence agriculture or farming involves the use of simple farm tools. Examples are cutlass, hoe, axe and others.
2. It is a small-scale farming activity which may be a backyard garden or a small-sized farm, and mostly practiced in the rural areas.
3. Farm produce is mainly for family consumption. This notwithstanding, some may be sent to the market for sale.
4. It mostly involves the use of manual labour. The family is main the source of labour where the parents and children work on the farm from time to time.
5. Less money is involved due to the use of family labour, the use of simple farm tools and small nature of the farm size.
6. Subsistence agriculture is seasonal and rain-fed. In Ghana, the subsistence farmers always wait for the rains to set in before they cultivate their crops.
7. It mostly involves the cultivation of consumable farm products such as vegetables, maize, cassava, plantain, sweet potatoes, and sorghum among others. In livestock rearing or farming, goats, sheep and birds or fowls are mostly kept for family consumption.
8. In livestock farming, subsistence agriculture is practiced by free range, where the animals such as goats and sheep; including birds or fowls are allowed to roam in the immediate community and return home in the evening.
9. Control of pests and diseases is not very common because little attention is given to the crops and animals. Natural means such as dogs, traps and fencing are used to control pest as well as ash which is used in spraying the crops to control diseases.
10. Notable subsistence farming systems include mixed cropping, mixed farming, bush fallowing, free range farming, shifting cultivation, nomadic pastoralism and transhumance.

Benefits/Advantages of Subsistence Agriculture

1. It ensures regular food supply for the family (food security).
2. It does not involve much cost since the family is the main source of labour.
3. The farmer does not require any specialized skills to engage in subsistence farming. This is because the farmer makes much use of indigenous knowledge and basic technology to manage the farm.
4. Since it involves the use of basic technology, its impact on the natural environment is less. For example, the control of weeds, pest and diseases is done naturally without the application of chemicals.
5. Subsistence agriculture helps maintain the fertility of the land. This is because, a farmer who practices mixed farming can use the waste from the animals and birds

to fertilize the soil. In less populated areas where shifting cultivation is practiced, the soil regains fertility naturally during the fallow period.

6. Farm produce is largely healthy since the natural state is maintained. Sometimes farm produce are consumed within the short period that they are harvested.

Problems/Disadvantages of Subsistence Agriculture

1. Farm yields are low due to the small nature of the farm size and the use of simple tools and little attention to the crops or farm animals.
2. Negative environmental effects such as long dry season, rainstorms and floods may pose a challenge to the farmer.
3. The farmer may face financial difficulties due to less access to the financial market and low income. This is because it is only the surplus that the farmer may sell.
4. Some of the farmers have less access to essential farm inputs and tools because they cannot afford.
5. In these days, subsistence farming is becoming more challenging due to limited access to land and reduced family labour, due to rural-urban migration is also becoming a problem.

Solutions to problems of Subsistence Agriculture

1. There is the need to use modern knowledge to educate the farmers to use improved farming techniques and technology.
2. In addition to subsistence farming, you should advise your community members engage in other income earning economic activities to broaden their sources of income.
3. The road networks should be improved by the government through the local assembly and the community members. This will help the farmers to easily transport their farm produce from the farm, to the home and the market.
4. The farmers must be educated on both the indigenous and modern ways of storing farm produce for future use.
5. The farmers should be educated by the local district assemblies through extension officers on how to diversify and expand their farms. This can be done through workshops and seminars.
6. The local communities can come together to construct small-scale irrigation systems such as dams and ponds. They can come together and solicit for assistance from the government, NGOs, corporate institutions and individuals.
7. There should be supportive policies on education and empowerment of rural communities, such as skilled training, giving of subsidies and land tenure reforms.

Now that you have learnt about subsistence agriculture, go on and work out this activity as a way of testing your level of understanding before you learn commercial agriculture.

Activity 6.1

Assume the role of a subsistence farmer, trader, or consumer, simulate interactions and challenges faced in subsistence farming and present to class.

Commercial Agriculture

It is a system of agriculture or farming which involves large-scale cultivation of crops and rearing of animals purposely for sale rather than for family or personal consumption. Commercial agriculture focuses on large-scale production to sell crops and generate profits. Farms may be highly mechanised with the use of tractors, cutlass, axe, plows and combined harvesters (Dadson, 2021).



Fig. 6.2: Farmer working with disc plough mounted on a tractor.

Characteristics/Features of Commercial Agriculture

The following are some of the characteristics of features of commercial agriculture

1. Farm sizes are large. It may cover tens to hundreds of acres or hectares.
2. Commercial farmers often specialise in the production of specific crops or livestock, that is cultivation of one type of crops at a time. This is called monoculture. *Do you remember this in your agricultural science lessons? If not, take your dictionary or google it and quickly find the meaning.*
3. Much capital, either money or equipment is used. It is therefore capital intensive.
4. It employs modern and advanced technologies and machinery such as the use of improved seeds, weedicides, pesticides, fertilisers and mechanised equipment.
5. It is mostly produced for sale to make profit.

6. The market for commercial farm produce is mostly external. That is, the produce are mostly exported for sale. For example, Ghana exports pineapples or cocoa for sale to foreign countries.
7. Some of the produce may be sold either directly or indirectly to manufactures for further processing in Ghana.
8. Crops grown are mostly cash crops. These crops include cocoa, cotton, oil palm, rubber, cashew, and various fruits and vegetables.
9. Notable commercial farming systems include plantation farming, irrigation farming, ranching, and market gardening.

Benefits/Advantages of Commercial Agriculture

These include:

1. Commercial agriculture enables large-scale production of food crops, cash crops and farm animals.
2. It ensures food security, by increasing the availability and accessibility of food.
3. It helps create numerous employment opportunities. People with different skills and expertise are employed to perform specific duties in the farm such as tractor operators, harvesters, extension officers, sales persons, and distributors. These workers earn income, thus improving their standard of living.
4. It generates income for farmers through the sales of farm produce.
5. Produce from commercial farming are used as raw materials for processing industries. Examples include cocoa processing industries, fruit processing industries and agro-processing industries in general.
6. It contributes to the infrastructural development as well as provision of social amenities to the communities in which the commercial farm is located. In Ghana, we can mention Benso and Kwae Oil Palm Plantation, Okyereko Irrigation scheme, roads, storage facilities, and processing plants provided by some of the commercial farms.
7. It helps improve the skills and expertise of farmers and workers. This is due to the training and education given to them from time to time.
8. The export of commercial farm produce generates foreign exchange for Ghana.

Problems/disadvantages of Commercial Agriculture

1. Challenges with access to large tract of land for their operation. This is due to problems with land tenure (who owns the land) issues as a result of rapid expansion of settlements and increasing population.
2. Insufficient infrastructure, including roads, irrigation systems, storage facilities, and processing plants.

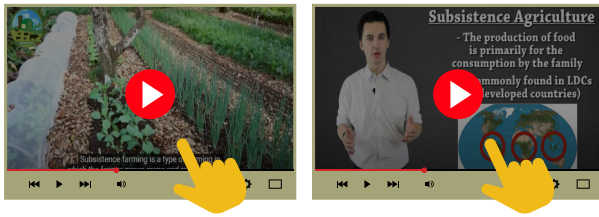
3. It requires huge capital support but it is difficult to raise such monies to buy equipment and machinery due to high interest rate on loans and lack of financial security.
4. Challenges with climate change and environmental degradation. Long period of dryness, excessive rainfall, floods, storms and human-induced environmental degradation such as illegal and surface mining are problems facing commercial farming in Ghana.
5. Negative effects from pests and diseases are a major problem to commercial farming. Pest and diseases such as capsid, black pod disease, swollen shoot, weevils and locust affect commercial farming in Ghana.
6. Inadequate access to market, fluctuations in prices and trade restrictions.
7. Limited access to modern farming technologies, improved seeds, and mechanised equipment.
8. Limited access to agricultural training, extension services, and information.

Solutions to Problems of Commercial Agriculture

The efforts to improve the commercial agricultural activities in Ghana are:

1. The Ministry of Food and Agriculture, in collaboration with related agencies, traditional and local authorities should establish clear agricultural land use and secured land tenure systems that protect the rights of farmers, especially commercial agriculture investors.
2. Efficient and improved road and water transportation networks should be a priority in Ghana, especially in farming communities.
3. Interest rate on loans to farmers should be reduced to improve access to finance for smallholder farmers and emerging commercial agriculture enterprises.
4. There should be education and training in farming communities by promoting agricultural practices, such as conservation agriculture, agroforestry, and water management techniques.
5. Governments, research institutions, and extension services should ensure the development and education on effective pest and disease management practices.
6. As a nation, we should revamp the agro-processing industries while the Ministry of Food and Agriculture also negotiates favourable trade agreements for fair prices, reduce trade barriers, and streamline customs procedures to improve market access for agricultural products.
7. Promoting the adoption of modern farming technologies, such as improved seeds, precision agriculture tools, and efficient irrigation systems, can increase productivity and efficiency.
8. Investing in agricultural research and development, extension services, and farmer training programs can facilitate knowledge and skill transfer, encouraging innovation in the sector.

Visit the links below to watch videos on subsistence and commercial agriculture



If you cannot access the video, check your school or local library or look for an internet café near your home.

Activity 6.2

1. **Farm Visit:** Visit a local subsistence farm near you or your school garden, or your family backyard garden. Observe and interact with the farm owner or workers, ask questions and gather information. Observe the farm tools and the type of crops the farmers grow or animals reared. Now share your thoughts and ideas on the characteristics of subsistence farming with a friend.

A clue to questions to be asked in the field:

Characteristics

- a. What crops do you grow, and why?
- b. How much land do you cultivate?
- c. What farming techniques do you use?
- d. What are your basic farm tools?
- e. How do you store and preserve your harvest?
- f. What is the source of labour?

You may go ahead and ask some more questions on challenges:

- a. What are the biggest challenges you face in subsistence farming?
- b. How do you deal with crop failures or pests? Explain what you will do to maintain this farm.
- c. What are your main concerns regarding soil fertility and water availability?
- d. How much of the farm produce do you consume?
- e. How do you access markets or sell your left-over produce?
- f. Explain what you will do to maintain this farm.

2. **Commercial Farming:** Visit a local Commercial farm, interview the farmer and gather information about their operations, challenges and marketing strategies. If you cannot access any commercial farm, then get the information from the internet or books.

Clue to questions to be asked or information from books

Characteristics:

- a. What crops or livestock do you specialize in, and why?
- b. What is the scale of your operation?
- c. What technology and machinery do you use?
- d. How do you manage your supply chain and distribution?
- e. How do you get access to financial assistance?
- f. How do you get access to Agricultural training, extension services and information?

Challenges:

- a. What are the biggest challenges you face in commercial farming?
- b. How do you manage market fluctuations concerning prices of farm produce?
- c. What are your main concerns regarding labor management and worker safety?
- d. How do you address environmental concerns, sustainability,

Table 1.1

1. a. Fill the empty spaces in the table below with the respective characteristics of subsistence and commercial agriculture based on the variables provided

Variable	Subsistence Agriculture	Commercial Agriculture
Size of farm		
Purpose of Farm produce		
Source of labour		
Types of farm tools		
Types of crops cultivated		
Farming systems		
Farm maintenance		

- b. Use the information you have provided in the table above to write an essay on the characteristics of subsistence and commercial agriculture.

LUMBERING AS AN ECONOMIC ACTIVITY

Meaning of Lumbering and Timber

Lumbering refers to the cutting down of trees, particularly in forested regions, to obtain timber and wood products. This involves felling trees, extracting the logs, and transporting them to sawmills or other processing facilities.

Lumbering also called timber logging, is defined as a primary economic activity which involves the felling, processing and transportation of economic trees for commercial, domestic and industrial purposes.

Timber refers to the wood obtained from trees, particularly those that are suitable for use in construction, manufacturing, and other industrial applications. It also refers to wood that has been cut and prepared for use in building houses, bridges, furniture, and other projects. This includes processing the wood into beams, planks, or other usable shapes.

Areas of lumbering activities/ timber logging in Ghana

Lumbering is undertaken in forested areas. They include Western, Western North, Bono, Ashanti, Eastern, Central parts of the Volta and Oti regions.

Some of the notable lumbering areas or towns are Sefwi-Wiawso, Goaso, Manso-Nkwanta, Kade, Offin Dunkwa Akim Oda, Breman Asikuma and Mim.

Common types of trees that are cut down for timber include Odum, Mahogany, Wawa (Obeche), Sapele, Emire, Dahoma, African walnut, Makore, Utile, Teak and Kokrodua.

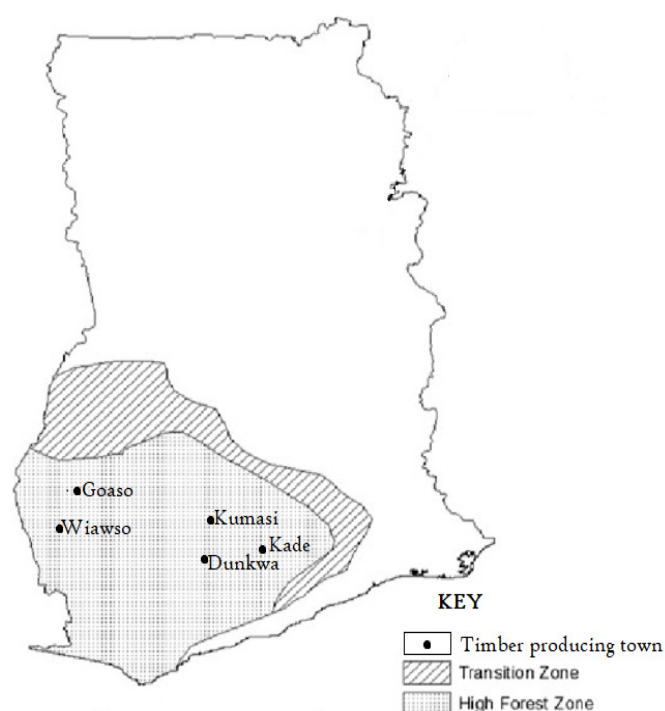


Fig. 6.3: Lumbering areas in Ghana

Methods of Lumbering/Timber Extraction in Ghana

1. The lumberjacks (people who cut down trees) initially search the forest for tree species, which may include Wawa, African Walnut, Odum, or Sapele.
2. Secondly, platforms of approximately 3m in height are constructed around the roots of the buttress.
3. The lumberjack is then employed to fall the tree using a chainsaw in a manner that minimises the risk of injury.
4. After felling the tree, branches are removed, followed by the cutting of the tree into logs.
5. The logs are then dragged along the floor of the forest to a loading point.
6. Finally, the logs are transported by timber trucks to a sawmill for processing or a port for export.



Fig 6.4: Major lumbering processes (felling of tree > loading logs into trucks > transporting of logs)

Factors that Favour Lumbering in Ghana

1. **The presence of tropical rainforest:**
 - a. Ghana has a significant portion of its land area covered by tropical rainforests, which are a rich source of valuable timber.
 - b. The dense, diverse forests provide an abundant supply of wood that can be harvested for commercial use.
2. **Presence of economic trees:**
 - a. The tropical rainforests in Ghana contain a variety of tree species that are commercially valuable, such as mahogany, teak, and Odum.
 - b. These “economic trees” are highly sought after for their timber, which can be used in construction, furniture-making, and other wood-based industries.
3. **Favourable equatorial climate:**
 - a. Ghana’s location in the equatorial region provides a warm, humid climate that is well-suited for the growth and development of tropical forests.

- b. The consistent rainfall and warm temperatures create optimal conditions for the proliferation of timber-producing trees.
4. **Availability of transport facilities:**
 - a. Ghana has a relatively well-developed transportation infrastructure, including roads, railways, and ports, which facilitate the movement of timber from the forested areas to processing facilities and markets.
 - b. This accessibility makes it easier to harvest, transport, and distribute the timber resources.
 5. **Availability of labour:**
 - a. Ghana has a large population, with a significant portion of the workforce engaged in rural, natural resource-based activities, including logging and timber harvesting.
 - b. This provides a readily available pool of labour both skilled and unskilled to support the lumbering industry.
 6. **High demand for wood in the local market:**
 - a. There is a significant domestic demand for wood and wood products in Ghana, driven by the construction, furniture, and other industries.
 - b. This local market provides a ready-made outlet for the timber harvested from the country's forests.
 7. **The external market for hardwood:**
 - a. Ghana's tropical hardwood species, such as mahogany and teak, are in high demand in international markets, particularly in developed countries.
 - b. This export potential creates economic incentives for the lumbering industry to expand and meet the global demand for these valuable timber resources.
 8. **Presence of sawmilling industries:**
 - a. Ghana has a well-established sawmilling industry, with numerous facilities that can process the harvested timber into various wood products.
 - b. The availability of these processing facilities supports the overall lumbering industry and enables the efficient utilization of timber resources.

Economic Importance of Lumbering in Ghana

1. It provides job opportunities for both skilled and unskilled workers, including loggers, sawmill operators, truck drivers, and workers in related industries.
2. It generates income to workers which contributes to poverty reduction and improves livelihoods.
3. The timber industry plays a crucial role in earning foreign exchange through exports.
4. The exports as well as taxes from timber companies generate revenue for the country, contributing to its balance of trade and overall economic growth.

5. It serves as a source of industrial raw materials e.g. wood for manufacturing industries
6. Lumbering supplies fuel wood such as firewood, coal, sawdust, and timber chips for use in the home and industry.
7. It also encourages the development of ancillary industries and opens up new doors for related businesses, like sawing, furniture, woodworking, carpentering, shipping, and logistics
8. It provides wood products for building and construction of houses, bridges and railway sleepers
9. The timber companies, as a way of compensation, provide infrastructure and social amenities such as roads, electricity, pipe-born water, clinics and more in the towns in which they operate. They also perform some of these roles as their social responsibilities
10. Some wood, such as Wawa is used for boat/canoe building which promotes fishing activities.

Problems Affecting Lumbering in Ghana

- a. Illegal logging which contributes to deforestation, habitat destruction, and loss of biodiversity.
- b. Deforestation and forest degradation, primarily driven by agricultural expansion, including the cultivation of cash crops like cocoa.
- c. **Attack by pests and diseases:**
 - i. The tropical rainforests in Ghana are home to a wide variety of pests and diseases that can affect the health and growth of the timber-producing trees.
 - ii. Insect infestations, fungi, and other pathogens can damage or even kill the trees, reducing the overall timber yield and quality.
 - iii. This poses a significant challenge for the lumbering industry, as they need to implement effective pest and disease management strategies to protect the forests.
- d. **Poor transport systems:**
 - i. Despite the overall availability of transport facilities in Ghana, some remote, forested areas may still have inadequate or poorly maintained roads, railways, or waterways.
 - ii. This can make it difficult and costly to transport the harvested timber from the forests to the processing facilities or markets, increasing the operational costs for the lumbering industry.
- e. **Low level of technology:**
 - i. The lumbering industry in Ghana may not always have access to the most advanced harvesting, processing, and manufacturing technologies.
 - ii. This can limit the efficiency and productivity of the industry, making it harder to keep up with the demand for timber and wood products.

- iii. Investing in modern, technology-driven equipment and techniques could help the industry become more competitive and sustainable.
- f. **Inadequate capital:**
- i. The lumbering industry requires significant upfront investments in equipment, infrastructure, and workforce development.
 - ii. However, access to adequate financial resources and capital can be a challenge for some players in the industry, especially smaller-scale operators.
 - iii. Lack of access to credit due to lack of collateral, funding, or investment can hinder the industry's ability to expand, modernize, and improve its overall operations.
- g. The trees are not in a pure stand, and this makes the felling challenging and expensive.
- h. Inadequate enforcement of forestry regulations and weak governance systems contribute to the challenges in the lumbering sector.

Solutions to Address the Problems of Lumbering in Ghana

1. Adoption of forest certification programs that make sure timber products come from forests that are managed in a way that is good for the environment, society, and the economy.
2. Legislation to combat illegal logging. This includes increased patrol, surveillance, and monitoring of forest areas to identify and arrest illegal loggers.
3. The government should initiate extensive afforestation programmes to restore and preserve forests, in partnership with local people and international organisations.
4. Farmers and unlawful chainsaw operators need to be taught about sustainable tree felling and the dangers of deforestation on radio and television.
5. Railways should be modernised and designed for the primary purpose of carrying heavy goods such as timber. Road maintenance should also be carried out regularly.
6. Disease control measures and pesticides should be used to address the attack of pests and diseases.
7. Leading financial institutions such as the Agricultural Development Bank (ADB) and the National Investment Bank (NIB) should be able to easily offer low-interest loans to timber companies.
8. Workers should receive in-service training with foreign specialists to enhance their understanding and proficiency in lumbering.

Activity 6.3

1. Visit the link below to watch a video on lumbering, listen to the resource persons as they provide information and perform the following activities.

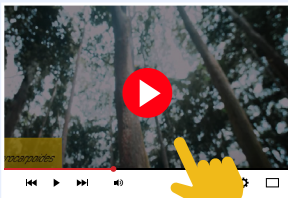


If you cannot access the video, check your school or local library or look for an internet café near your home.

- a. The meaning of lumbering
- b. The process of lumbering
- c. The economic benefit and importance of lumbering in Ghana.
- d. The challenges lumberjacks face in lumbering
- e. How the policies of lumbering in Ghana affect their operations
- f. Suggest solutions to farmers

Note down your observations and share your observations and insights to your friends in class.

2.
 - a. Using a map of Ghana, identify and mark the major forestry regions or tropical rainforest areas.
 - b. Mention some of the trees that are cut for timber in Ghana.
 - c. Discuss with your friend or colleague, the geographic factors that contribute to the presence of these forests or trees, in the areas noted for lumbering.
3. Visit the links below to watch a video on using lesser-known timber species for lumbering. Listen to the resource persons as they provide information and perform the following activities.



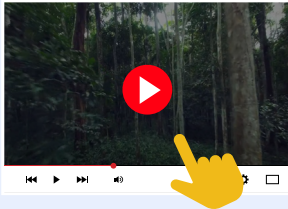
If you cannot access the video, check your school or local library or look for an internet café near your home.

- a. Mention some of the lesser-known timber species.
- b. Economic benefit of the lesser-known timber species.
- c. Uses of the lesser-known timber species.

- d. Identify sustainable management strategies for lesser-known timber species.

Note down your observations and share your observations and insights with your friends in class.

4. Visit the link below to watch a video on common species and answer the following questions:



- a. Identify the common species/trees used in Ghana for furniture and building (eg. making door frames).
b. How is the common species/trees important to your community?

If you cannot access the video, check your school or local library or look for an internet café near your home.

5. a. Embark on a field trip to a local sawmill, timber processing facility, or managed forest area to observe the lumbering industry in action.
b. State the various aspects of the lumbering industry, from harvesting to final product manufacturing.
c. Analyze the geographic factors that influenced the location and operations of these lumbering-related facilities in your area.
6. As a member of the Environmental Club in your school, you have been asked to plan a presentation to raise awareness about the environmental impact of lumbering activities in Ghana. Use your knowledge gained from the lesson and the various links provided, and present your findings to build a digital or scripted presentation for your club to highlight the impacts.
7. a. Fill the empty spaces in the table below with their respective/ corresponding answers, with regards to lumbering in Ghana. Write as many points as possible that can be contained in the spaces.

Aspects of Lumbering in Ghana	Corresponding Answers
Areas of lumbering in Ghana	
Methods of lumbering	
Examples of timber/trees	
Favourable factors for lumbering	
Importance of lumbering	
Challenges of lumbering	
Efforts to manage the challenges	
Reasons for declining tree species	

- b. In class, show the full table to a friend, let him/her assist you to use the information provided in the table above to write an essay on the lumbering industry in Ghana. Include in your write-up, your views on the future of the industry.

What did I learn?

Review Questions

1. What are the main challenges faced by subsistence farmers in Ghana?
2. How does climate impact subsistence farming practices in Ghana?
3. What role could technology or education play in improving the productivity of subsistence farms in Ghana?
4. Can you explain the socio-economic benefits of subsistence farming for rural communities in Ghana?
5. What are the factors driving the success of commercial farming in Ghana?
6. How do commercial farming practices in Ghana impact local communities?
7. What challenges do commercial farmers in Ghana face, and how are they overcoming them?
8. How could the Ministry of Agriculture support commercial farming in Ghana?
9. What roles do private firms (producing palm oil or cocoa) play in the development of commercial agriculture in Ghana?
10. Draw a table to describe the differences between subsistence and commercial agriculture in terms of farm size, tools, technology, labour, crops, profit, capital (money).
11. How is Lumbering different from timber?
12. Explain the factors that favour lumbering activities in your community.
13. Examine the problems of lumbering in Ghana.
14. With specific reference to a major area in your community or region that is very important to commercial production in timber:
 - a. Sketch a map of Ghana, locate and name your area.
 - b. Explain how timber is felled, transported and processed.
 - c. Describe the problems involved in the extraction of timber.
 - d. Describe the factors which favour the production of timber in the area.
 - e. Describe the problems involved in the extraction, processing, transportation and commercialisation of timber in the area.
 - f. Suggest practical solutions to the problems in (v) above.

Answers to Review Questions

1. Basic points are:
 - a. **Climate Change:** Unpredictable weather patterns, droughts, and floods can severely impact crop yields.
 - b. **Limited Access to Resources:** Many farmers lack access to quality seeds, fertilizers, and modern farming equipment.
 - c. **Poor Infrastructure:** Inadequate roads and storage facilities make it difficult to transport and store produce, leading to post-harvest losses.
 - d. **Financial Constraints:** Limited access to credit and financial services restricts farmers' ability to invest in their farms.
 - e. **Market Access:** Difficulty in accessing markets to sell their produce at fair prices often results in low income for farmers.
2. Basic points are:
 - a. **Unpredictable Rainfall:** Irregular rainfall patterns can lead to droughts or floods, both of which can devastate crops and reduce yields.
 - b. **Temperature Changes:** Rising temperatures can stress crops and reduce their productivity, affecting food security.
 - c. **Pest and Disease Outbreaks:** Warmer and wetter conditions can increase the prevalence of pests and diseases, which can further damage crops.
 - d. **Soil Degradation:** Extreme weather events can lead to soil erosion and degradation, reducing the fertility of the land.
 - e. **Water Scarcity:** Changes in rainfall patterns can affect the availability of water for irrigation, making it harder for farmers to maintain their crops.
3. New or modern technology can increase productivity by providing farmers with improved seeds, efficient irrigation systems, and modern farming equipment, leading to higher yields and better resource management. Education can give farmers access to knowledge about how to best to grow crops, pest management, and sustainable farming techniques, enabling them to make informed decisions and improve their productivity.
4. Subsistence farming provides food security and employment for rural communities in Ghana, ensuring families have enough to eat and a source of income from extra that might be produced. It also helps maintain cultural traditions and community cohesion, as farming practices are often passed down through generations and involve collective efforts.
5. Basic points are:
 - a. **Access to Modern Technology:** Use of advanced farming equipment and techniques.
 - b. **Government Support:** Policies and subsidies that encourage agricultural investment.

- c. **Infrastructure Development:** Improved roads, storage facilities, and irrigation systems.
 - d. **Market Access:** Better access to local and international markets.
 - e. **Public-Private Partnerships:** Working together to provide resources and expertise.
6. Commercial farming practices in Ghana impact local communities by:
- a. **Creating Jobs:** Providing employment opportunities for local people.
 - b. **Boosting the Ghanaian Economy:** Contributing to local and national economic growth.
 - c. **Improving Infrastructure:** better roads, storage facilities, and utilities communities less isolated.
 - d. **New Skills:** Offering training and skill development for workers.
 - e. **Increasing Food Supply:** Producing more food for local consumption as well as export.
7. Commercial farmers in Ghana face several challenges, but they are finding ways to overcome them:
- a. **Access to Finance:** Difficulty in obtaining loans and credit. Solution: Forming cooperatives to pool resources and secure better financing options.
 - b. **Infrastructure Issues:** Poor roads and storage facilities. Solution: Government and private sector investments in infrastructure development.
 - c. **Market Access:** Limited access to markets. Solution: Utilizing digital platforms and improving supply chain logistics.
 - d. **Climate Change:** Unpredictable weather patterns. Solution: Adopting climate-resilient crops and advanced irrigation techniques.
 - e. **Pest and Disease Management:** Crop losses due to pests and diseases. Solution: Implementing integrated pest management practices and using improved seed varieties.
8. The Ministry of Agriculture in Ghana can support commercial farming through several initiatives:
- a. **Financial Support:** Providing subsidies, grants, and low-interest loans to farmers.
 - b. **Infrastructure Development:** Investing in roads, storage facilities, and irrigation systems.
 - c. **Research and Development:** Promoting agricultural research to develop high-yield and disease-resistant crop varieties.
 - d. **Training and Education:** Offering training programs to improve farmers' skills and knowledge.
 - e. **Market Access:** Facilitating access to local and international markets for agricultural products.

- f. **Public-Private Partnerships:** Encouraging collaborations between the government and private sector to enhance resources and expertise.
9. Private firms producing palm oil or cocoa play several crucial roles in the development of commercial agriculture in Ghana:
 - a. **Investment:** Providing capital for infrastructure, technology, and research.
 - b. **Market Access:** Facilitating access to both local and international markets.
 - c. **Training and Support:** Offering training programs and technical support to farmers.
 - d. **Value Addition:** Engaging in processing activities that add value to raw agricultural products.
 - e. **Sustainability Practices:** Implementing sustainable farming practices to ensure long-term productivity.
 10. Table should clearly differentiate between each feature.
 11. **Lumbering:** refers to the cutting down of trees, particularly in forested regions, to obtain timber and wood products. This involves felling trees, extracting the logs, and transporting them to sawmills or other processing facilities. It is also called timber logging, is defined as a primary economic activity that involves the felling, processing and transportation of economic trees for commercial, domestic and industrial purposes.

While Timber on the other hand refers to the wood obtained from trees, particularly those that are suitable for use in construction, manufacturing, and other industrial applications. Or wood that has been cut and prepared for use in building houses, bridges, furniture, and other projects. This includes processing the wood into beams, planks, or other usable shapes.

12.
 - a. **The presence of tropical rainforest:**
 - i. Ghana has a significant portion of its land area covered by tropical rainforests, which are a rich source of valuable timber.
 - ii. The dense, diverse forests provide an abundant supply of wood that can be harvested for commercial use.
 - b. **Presence of economic trees:**
 - i. The tropical rainforests in Ghana contain a variety of tree species that are commercially valuable, such as mahogany, teak, and Odum.
 - ii. These “economic trees” are highly sought after for their timber, which can be used in construction, furniture-making, and other wood-based industries.
 - c. **Favourable equatorial climate:**
 - i. Ghana’s location in the equatorial region provides a warm, humid climate that is well-suited for the growth and development of tropical forests.

- ii. The consistent rainfall and warm temperatures create optimal conditions for the proliferation of timber-producing trees.
- d. Availability of transport facilities:**
 - i. Ghana has a relatively well-developed transportation infrastructure, including roads, railways, and ports, which facilitate the movement of timber from the forested areas to processing facilities and markets.
 - ii. This accessibility makes it easier to harvest, transport, and distribute the timber resources.
- e. Availability of labour:**
 - i. Ghana has a large population, with a significant portion of the workforce engaged in rural, natural resource-based activities, including logging and timber harvesting.
 - ii. This provides a readily available pool of labour both skilled and unskilled to support the lumbering industry.
- f. High demand for wood in the local market:**
 - i. There is a significant domestic demand for wood and wood products in Ghana, driven by the construction, furniture, and other industries.
 - ii. This local market provides a ready-made outlet for the timber harvested from the country's forests.
- g. The external market for hardwood:**
 - i. Ghana's tropical hardwood species, such as mahogany and teak, are in high demand in international markets, particularly in developed countries.
 - ii. This export potential creates economic incentives for the lumbering industry to expand and meet the global demand for these valuable timber resources.
- h. Presence of sawmilling industries:**
 - i. Ghana has a well-established sawmilling industry, with numerous facilities that can process the harvested timber into various wood products.
 - ii. The availability of these processing facilities supports the overall lumbering industry and enables the efficient utilization of timber resources.

13. Problems Affecting Lumbering in Ghana

- a.** Illegal logging which contributes to deforestation, habitat destruction, and loss of biodiversity.
- b.** Deforestation and forest degradation, primarily driven by agricultural expansion, including the cultivation of cash crops like cocoa.
- c.** Attack by pests and diseases
 - i.** The tropical rainforests in Ghana are home to a wide variety of pests and diseases that can affect the health and growth of the timber-producing trees.

- ii. Insect infestations, fungi, and other pathogens can damage or even kill the trees, reducing the overall timber yield and quality.
 - iii. This poses a significant challenge for the lumbering industry, as they need to implement effective pest and disease management strategies to protect the forests.
- d. Poor transport systems.
 - i. Despite the overall availability of transport facilities in Ghana, some remote, forested areas may still have inadequate or poorly maintained roads, railways, or waterways.
 - ii. This can make it difficult and costly to transport the harvested timber from the forests to the processing facilities or markets, increasing the operational costs for the lumbering industry.
- e. Low level of technology
 - i. The lumbering industry in Ghana may not always have access to the most advanced harvesting, processing, and manufacturing technologies.
 - ii. This can limit the efficiency and productivity of the industry, making it harder to keep up with the demand for timber and wood products.
 - iii. Investing in modern, technology-driven equipment and techniques could help the industry become more competitive and sustainable.
- f. Inadequate capital.
 - i. The lumbering industry requires significant upfront investments in equipment, infrastructure, and workforce development.
 - ii. However, access to adequate financial resources and capital can be a challenge for some players in the industry, especially smaller-scale operators.
 - iii. Lack of access to credit, funding, or investment can hinder the industry's ability to expand, modernize, and improve its overall operations.
- g. The trees are not in a pure stand, and this makes the felling challenging and expensive.
- h. Inadequate enforcement of forestry regulations and weak governance systems contribute to the challenges in the lumbering sector.

14.

- a. Draw the map of Ghana showing the community or region
- b. The lumberjacks (people who cut down trees) initially search the forest for tree species, which may include Wawa, African Walnut, Odum, or Sapele.

Secondly, platforms of approximately 3m in height are constructed around the roots of the buttress.

The lumberjack is then employed to fall the tree using a chainsaw to minimise the risk of injury.

After felling the tree branches are removed followed by the tree cutting into logs.

The logs are then dragged along the floor of the forest to a loading point.

Finally, the logs are transported by timber trucks to a sawmill for processing or a port for export.

c.

- i. Deforestation and habitat destruction:** Timber extraction can lead to the clearing of large areas of forest, which disrupts ecosystems and threatens biodiversity.
- ii. Soil erosion and degradation:** The removal of trees can make the soil more susceptible to erosion, leading to the loss of fertile topsoil.
- iii. Disruption of water cycles:** Forests play a crucial role in regulating water cycles, and their removal can impact water availability and quality.
- iv. Overharvesting and depletion of resources:** If timber is extracted at a rate faster than the forest can naturally regenerate, it can lead to the depletion of this renewable resource.
- v. Challenges in implementing sustainable forestry practices:** Balancing economic demands and environmental concerns requires careful planning and management of timber harvesting.
- vi. Access to remote areas:** Many timber-rich forests are located in remote, hard-to-reach areas, which can make harvesting and transportation logistically challenging and expensive.
- vii. Infrastructure and transportation:** Developing and maintaining the necessary infrastructure, such as roads and railways, to support timber extraction can be a significant undertaking.
- viii. Worker safety:** Timber harvesting can be a hazardous occupation, with risks of accidents, injuries, and exposure to natural hazards.
- ix. Conflicts with local communities:** Timber extraction can sometimes lead to conflicts with indigenous communities or local populations who rely on the forests for their livelihoods and traditional practices.
- x. Balancing economic interests and environmental concerns:** There can be tensions between the economic benefits of timber extraction and the need to protect the environment and ensure sustainable use of resources.

d.

- i. Climatic conditions:** Suitable temperature and precipitation levels: Timber production thrives in areas with a temperate or subtropical climate, with adequate rainfall and moderate temperatures. Areas with reliable and consistent rainfall or snowmelt can provide the necessary water for timber growth.
- ii. Seasonal variations:** The presence of distinct seasons, such as a growing season and a dormant season, can support the growth and development of timber-producing tree species.
- iii. Soil characteristics:** Soil fertility and nutrient content: Timber-producing trees require soils that are rich in essential nutrients, such

as nitrogen, phosphorus, and potassium, to support their growth. Well-drained, loamy soils with a balance of sand, silt, and clay are generally more suitable for timber production.

- iv. Topography:** Gentle slopes and flat areas: Areas with gentle slopes or flat terrain are typically more accessible and easier to manage for timber harvesting and transportation. Some tree species thrive better at specific elevations, so the local topography can influence the types of timber that can be produced.
- v. Availability of water resources:** Proximity to reliable water sources: Timber-producing trees require a consistent supply of water, so the presence of rivers, lakes, or groundwater can be a favorable factor.
- vi. Existing Forest cover and species composition:** Presence of commercially valuable tree species: The availability of tree species that are in high demand for their timber, such as oak, pine, or maple, can be a significant advantage. Areas with well-established, mature forests are more likely to have a higher timber production potential.
- vii. Infrastructure and logistics:** Access to transportation networks: The presence of roads, railways, or waterways for the efficient transportation of timber can be a favorable factor.
- viii. Proximity to processing facilities:** Having sawmills, pulp mills, or other timber processing facilities nearby can reduce the costs and logistics of timber production.
- ix. Supportive policies and regulations:** Favorable government policies: Policies that encourage sustainable forest management, provide incentives for timber production, or regulate the industry can create a favorable environment for timber production. Proper enforcement of environmental and forestry regulations can help ensure the sustainability of timber production.

e.

i. Extraction Challenges:

- *Environmental impacts:* Timber extraction can lead to deforestation, habitat destruction, soil erosion, and disruption of water cycles.
- *Accessibility and infrastructure:* Reaching remote forest areas and developing the necessary infrastructure, such as roads and logging equipment, can be logistically challenging and expensive.
- *Worker safety:* Timber harvesting can be a dangerous occupation with risks of accidents and exposure to natural hazards.

ii. Processing Challenges:

- *Technological limitations:* Outdated or inefficient processing equipment can lead to waste, inefficiencies, and environmental concerns.

- *Energy consumption and emissions:* The energy-intensive nature of timber processing, such as sawmilling and drying, can result in high energy consumption and greenhouse gas emissions.
- *Waste management:* The processing of timber generates various types of waste, such as sawdust, bark, and wood chips, which need to be effectively managed and disposed of.

iii. Transportation Challenges:

- *Logistics and infrastructure:* Transporting large volumes of timber from the forest to processing facilities or markets can be complex, requiring reliable transportation networks and well-maintained infrastructure.
- *Fuel consumption and emissions:* The transportation of timber, often over long distances, can result in significant fuel consumption and greenhouse gas emissions.
- *Damage during transport:* Improper handling or storage during transportation can lead to damage or deterioration of the timber, affecting its quality and value.

iv. Commercialisation Challenges:

- *Market fluctuations and volatility:* Timber prices can be subject to significant fluctuations due to factors such as supply and demand, economic conditions, and competition from alternative materials.
- *Trade barriers and regulations:* The international trade of timber can be subject to various trade barriers, tariffs, and regulatory requirements, which can impact the commercialisation and profitability of the timber industry.
- *Changing consumer preferences:* Shifts in consumer preferences, such as the growing demand for environmentally friendly and sustainable timber products, can require adaptations in the industry's marketing and product offerings.

f.

i. Extraction Solutions:

- *Sustainable forest management:* Implementing sustainable harvesting practices, such as selective logging, replanting, and forest restoration, to minimize environmental impacts.
- *Improved accessibility and infrastructure:* Developing better roads, logging equipment, and transportation networks to reach remote forest areas more efficiently and safely.
- *Worker safety measures:* Providing proper training, equipment, and safety protocols to protect timber extraction workers.

ii. Processing Solutions:

- *Technological upgrades:* Investing in modern, energy-efficient processing equipment and technologies to improve efficiency and reduce waste.
- *Renewable energy integration:* Utilizing renewable energy sources, such as biomass from wood waste, to power timber processing facilities and reduce reliance on fossil fuels.
- *Waste management and valorization:* Implementing comprehensive waste management systems to reuse, recycle, or repurpose timber processing byproducts, such as sawdust and wood chips.

iii. Transportation Solutions:

- *Logistics optimization:* Improving transportation planning, routing, and coordination to minimize fuel consumption and emissions.
- *Modal shift:* Exploring alternative transportation modes, such as rail or waterways, to reduce the environmental impact of road transport.
- *Sustainable fuel and vehicle technologies:* Adopting more fuel-efficient and low-emission vehicles, as well as exploring the use of biofuels or electric vehicles for timber transportation.

iv. Commercialisation Solutions:

- *Market diversification:* Expanding the range of timber products and targeting new market segments, both domestically and internationally, to reduce reliance on a single market.
- *Product innovation:* Developing value-added timber products, such as engineered wood or cross-laminated timber, to meet changing consumer preferences and environmental standards.
- *Certification and labelling:* Obtaining third-party sustainability certifications (e.g., Forest Stewardship Council) and using eco-labels to demonstrate the environmental credentials of timber products.

Solutions to challenges: Activity 6.2

1.

- a. What strategies do you use to improve soil health?
- b. How do you manage water resources efficiently?
- c. What techniques do you use to control pests and diseases?
- d. How do you share knowledge and resources with other subsistence farmers?

2.

- a. In what ways can you improve efficiency and productivity in your farm?
- b. How do you manage to sustain your farm?

- c. What practices do you use to reduce your environmental effects on your farm?

Remember to ask follow-up questions and encourage farmers to share their experiences and insights! After the interview, put your thoughts together and present to your class.

3. Create scenarios related to subsistence and commercial farmers' challenges emanating from (e.g., drought, floods, pests, diseases, access to land) and develop your solutions to the challenges.
4. **Community Garden Project (your teacher will guide you):** Design a garden for a local community or school, consider factors like climate, soil, and space. Present your designs and discuss the challenges and benefits of gardening in your community setting or the school setting.
5. **Farm-to-Table Simulation:** Create a simulation where you assume the roles like farmers, distributors, and consumers; highlighting the challenges and importance of getting produce from the farm to the table.
6. **School Garden Project:** a). Imagine you have a school or backyard garden you are to participate in its maintenance and management. Make some notes on the importance and likely challenges associated with your school garden.

Extended Reading

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Acknowledgements



Ghana Education
Service (GES)



List of Contributors

Name	Institution
Dr. Kate Gyasi	UEW, Winneba
Prof. Ishmael Yaw Dadson	UEW, Winneba
Glago Frank Jerome	Akatsi College of Education
Susuana Adwoa Appiah	Tamale SHS, Tamale