

TENNESSEE VALLEY AUTHORITY

(Tennessee Multi-Purpose Scheme)

The Tennessee Valley region is found in the South-East of United States and covers an area of about 40,910 square miles (105,956 square kilometers).

The Tennessee valley region includes parts of the following states: -

- Tennessee,
- Kentucky,
- Virginia,
- North Carolina,
- Alabama,
- Georgia and
- Mississippi.

The Tennessee valley region is drained by three large river systems;

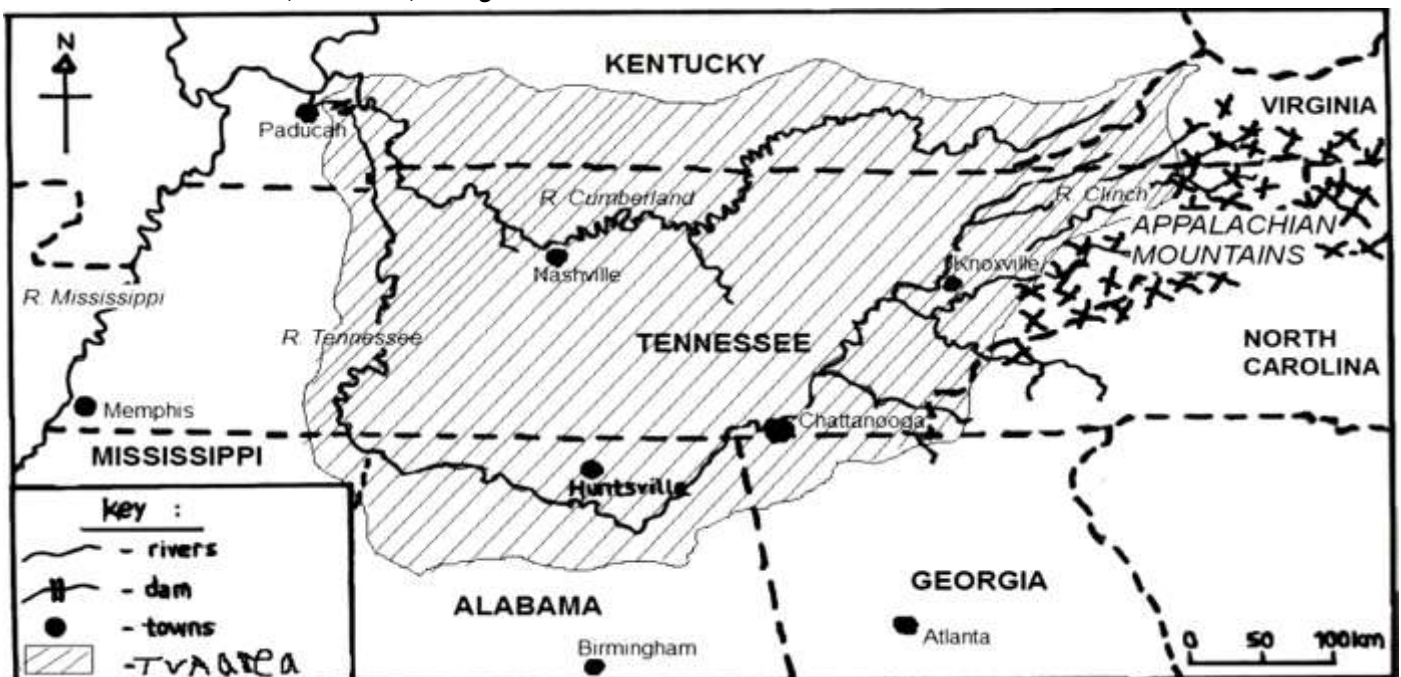
- ✚ Mississippi,
- ✚ Cumberland and
- ✚ Tennessee.

The Tennessee River is a tributary of river Ohio which is also a tributary of river Mississippi which drains most of the west Tennessee region. River Tennessee has very many tributaries and Cumberland river drain the rest of the states. The rivers rise in the Appalachian Mountains.

The major towns/urban areas found in the Tennessee valley region are: -

- Memphis, Nashville, Knoxville and Chattanooga in Tennessee state,
- Birmingham and Montgomery in Alabama state,
- Jackson in Mississippi state,
- Atlanta in Georgia state,
- Charlotte in North Carolina state,
- Louisville in Kentucky state and
- Charleston in Virginia state.

A sketch map of Tennessee valley region showing the TVA area of jurisdiction, the seven states, rivers, major towns and dams



Conditions in the Tennessee Valley before the establishment of the Tennessee Valley Authority or Problems that were faced in the Tennessee valley before the Tennessee Valley Authority

The conditions that led to the establishment of the Tennessee valley Authority/ problems existed in the Tennessee valley region before 1933, the establishments of the Tennessee Valley Authority are:

- There was severe soil erosion on the slopes of the southern Appalachian Mountains characterized by severe deep gullies. The severe soil erosion was caused by the following factors:
 - Deforestation on the slopes of the Appalachian Mountains as a result of rapidly growing population cutting down trees for fire wood, creating room for agriculture and settlement. Deforestation therefore, led to exposure of soil to agents of soil erosion like running water.
 - The farmers in the area practiced poor farming methods such as ploughing up and down the slopes; over cultivation and continuous cropping of crops like soya beans, corn, cotton and tomatoes without leaving the land to fallow.
 - The heavy rainfall received in the Appalachian Mountains provided plenty of water run off which caused gully erosion.
 - The steep slopes of the Appalachian Mountains provided a steep gradient over which the water run off flowed at a high speed to cause gully erosion.

Due to severe soil erosion, the area become infertile as the fertile soil was removed leading to low production of crops and hence food shortage.

- Silting of Tennessee and Cumberland river- This was caused by clearance of forests along the slopes of the mountains which led the severe loss of the top soil and later deposited into the river valleys areas making the channels shallow
- The silting of rivers hampered navigation because the river channels became too shallow.
- Occasional floods were experienced in the valley region since the rivers and their tributaries were silted and were common in late winter and early spring seasons.
- The occasional flooding of rivers caused loss of life and property hence human suffering
- Isolation of Tennessee Valley region from other states United States of America because of poor transport networks and limited navigation leading to inaccessibility of the region.
- Unemployment in the area due to limited job opportunities.
- There was wide spread poverty and low standard of living, poor housing facilities coupled with poor sanitation
- Inadequate power supply in the area forcing the residents to use oil lamps.
- There were acute food shortages due to over use of the cultivable land.
- There was land degradation due to use of poor farming methods.
- There was a problem disease like malaria. The flood waters become breeding grounds for vectors like mosquitoes that spread malaria, snails that spread bilharzia, hookworm and water borne diseases such as typhoid and diphtheria, as well as dietary deficiency diseases like pellagra set in and killed many people.
- Over population which led to overcrowding in a few areas and unemployment.
- There was numerous water falls formed on the rivers making them un-navigable.

Research work:

Draw Sketch map of the south east United States of America showing the areas affected by soil erosion.

The establishment of Tennessee Valley Authority

As a result of the above problems, the Government of the United States of America under the leadership of Franklin D. Roosevelt setup a Federal Corporation works known as the “Tennessee Valley Authority” (TVA) which was to undertake and solve the problems of the Tennessee valley.

It was established by an act of the American congress.

The congress created the TVA in 1933 and gave it the overall goal of conserving the resources of the valley region. The congress also directed the TVA to speed the region’s economic development. Its Headquarters are in Knoxville in Tennessee state. In 1933, the Tennessee Valley Authority began the great engineering works which brought the river under control leading to improved navigation, industrialization, scientific agriculture, reforestation and the general improvement of the conditions in the Tennessee valley area with the following aims:

Aims of the Tennessee valley Authority

- To generate hydro-electricity power and supply power through the construction of power stations on the main rivers in the region which could be used for industrialization and electrification of the area.
- To control seasonal floods on the rivers Tennessee, Cumberland and their tributaries to minimize their effects.
- To improve on the standard of living of the people in the Tennessee valley region.
- To control the severe soil erosion through soil conservation methods such as tree planting, crop rotation, and contour ploughing
- To improve on navigation along the Tennessee, Cumberland and their tributaries.
- To reclaim the badly eroded landscape.
- To encourage industrial development and other economic activities to create alternative employment opportunities and manufactured goods to the people.
- To train farmers in modern farming methods so as to improve food production and conserve the soil.
- To eradicate, control diseases that were attacking the people and improve on the health conditions in the area.
- To conserve the environment/ wildlife along the river valley such as forests
- To promote forestry through afforestation and reforestation/ To plant trees where they existed before reforestation and afforestation
- To improve on the road network by constructing modern transport routes such roads and railways.
- To control the rapidly growing population

Activities of the Tennessee valley Authority

In order to realize the above aims, the following activities were carried out:

- **The construction of the dams**

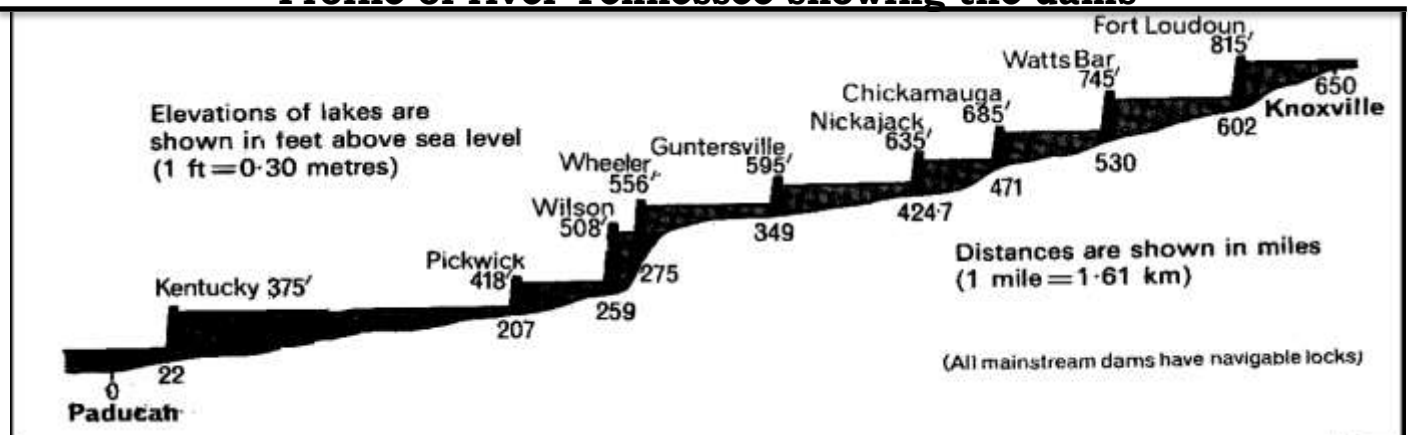
Under the Tennessee Valley Authority thirty-nine multi-purpose dams have been constructed across the Tennessee River and its tributaries to rehabilitate a vast devastated valley.

The multi-purpose dams serve many purposes:

- Storing water in huge water reservoirs (man-made lakes) like Cumberland, Pickwick, Barkley, Norris Altoona, Fontana and Guntersville during the rainy season which was later released gradually in the dry season and to control severe floods
- The water from the reservoirs was used to generation of hydro-electric power for industrial, agricultural and domestic uses. The main Hydro Electrical Power stations found on River Tennessee are Chickamauga, Fort Loudoun, Guntersville, Kentucky, and Nick jack, Pickwick, Landing Watts Bar, Wheeler and Wilson.
- The water from the dams was also used for irrigation in dry season.
- The reservoirs became fishing grounds and so provided fish for the people.
- The huge reservoirs or man-made lakes created by the construction of dams like Norris Fontana, Appalachia improved on the water transport.
- The dams at the reservoirs became tourist attractions which helped the states to earn foreign exchange and revenue.

In all about 50 dams were constructed in the region of the Tennessee Valley

Profile of river Tennessee showing the dams



A sketch map of Tennessee valley region showing the major rivers, towns and dams



KEY: Major Dams in the Tennessee River valley region

- | | | |
|-----------------|---------------------|------------------|
| 1. Norris dam | 6. Hiwassee dam | 10. Wilson dam |
| 2. Cherokee dam | 7. Watts Bar dam | 11. Pickwick dam |
| 3. Douglas dam | 8. Chickamauga dam | 12. Kentucky dam |
| 4. Fort Loudon | | |
| 5. Fontana dam | 9. Guntersville dam | |

• **The conservation of the environment (control soil erosion and to conserve the soil)** was achieved through:

- Introduction scientific methods of farming like Use of fertilizers in the farms, (TVA operates the national fertilizer Development centre at Muscle shoals Alabama), Mechanization of farming and the Introduction of mixed farming.
- TVA helps sponsor demonstrations of farming devices and techniques designed to control soil erosion, increase crop yields and improve farm management and income levels.
- Teaching the farmers, the importance of conserving the environment.
- Terracing and steep slopes of the Appalachian Mountains where severe soil erosion was experienced the terraces also provided ground for crop cultivation.
- Tree planting programs were undertaken to control soil erosion and improve quality of soil. The trees also provided wood fuel and timber as well as providing a beautiful scenery for tourism.
- Contour ploughing was done to control soil erosion as well as better farming methods fallowing, mulching and crop rotation.
- In some areas of the valley region where soil erosion was too much, cover crops like creeping plants such as Kudzu which enrich the soil with nitrogen were planted.
- Gullies that were created by soil erosion were blocked with brush wood faggots to trap the soils and stones that would be eroded away by the run off.
- Strip cropping was also practiced. Here different crops were planted in alternating parallel strips to ensure that no piece of land is left bare exposed to agents of soil erosion.

• **Establishment of transport routes**, major roads and railways were constructed and the rivers dredged and deepened to improve on the transport network in the area. This led accessibility of the Tennessee Valley to other areas.

All this improvement in transport was through:

- Dredging of the rivers permitted navigation on the rivers like Ohio.
 - Creation of canals or water ways like Tennessee Tombigbee water way opened up the area for development.
 - Creation of man-made lakes improved on water transport.
 - Construction of roads, railways, inland ports and airports in the area.
- **Development of the industries:** Many industries were established to provide employment opportunities and manufactured goods to the people in the area. There was development of the industries in the region like oil refineries, Textiles mining industries offer employment to the people of the Tennessee valleys region
- **Construction of Social infrastructure** like schools, colleges, Universities, Hospitals and research centres.
- **Health services were established** for example hospitals were constructed for treatment of diseases and medical schools were built to train the population. There was also the eradication of the diseases like malaria through spraying and regulation of the water levels in order to destroy the mosquito larvae.
- **Population control** was done by use of family planning methods and education of masses.

Factors for the achievement of the aims of the Tennessee Valley Authority

- The supportive Government policy of the United States of America led to the establishment of the Tennessee Valley Authority that is the Government wanted the problem faced to be solved such as floods.
- Availability of adequate capital to purchase the machinery and to pay the labour provided by the Government.
- Availability of abundant supply of skilled labour to work in the project for example researchers and engineers.
- The need to control floods that were destroying property and lives.
- The need to control the severe soil erosion that had led to lose of fertile soil.
- Availability of advanced technology that helped in the achievement of the aims such as construction of dams and generation of hydroelectric power.
- The need to train farmers in better farming methods in order to improve on agricultural production.
- The need to control diseases that were killing people.
- The need to plant forests to provide forest products like fuel and timber.
- The need to establish industries to provide employment and manufactured goods.
- The need to produce Hydroelectric power for industrial development and rural electrification

Benefits/Achievements of Tennessee Valley Authority to United States of America

- It has led to promotion of the tourism industry because the Tennessee Valley area has so many tourist attractions like the man-made lakes, canals, the beautified landscape and the development of recreational facilities like the Kentucky park.
- Occasional floods were controlled by building many dams along the rivers
- It has led to industrialization or development of industries in the area which provide employment opportunities to the people of the area.
- It has led to development of transport and communication networks in the area. There has been Improvement in transport for example water transport (Tennessee Tombigbee water way and Creation of Man-Made lakes), Road transport – Roads + Railways and Air transport through the construction of the Air ports
- Soil erosion was controlled, checked and the soils have been conserved.
- It has led to increased volume of trade between different states hence increasing the states' income/revenue hence economic development.
- There has been the creation of the employment opportunities in the agricultural and industrial sectors. This has provided the source of income to the people.
- It has led to promotion of the fishing industry/sector due to the creation of the man-made lakes.
- It has led to the development of urban centres or cities like Nashville, Chattanooga and Atlanta with better facilities suitable for human settlement.
- It has led to development of social amenities like schools, colleges, Universities, Hospitals and research centres.
- There has been agricultural modernization resulting into increased agricultural output in terms of both quality and quantity.
- There has been improvement in soil fertility leading to increased productivity and production as a result of the use of scientific farming techniques and soil conservation methods.

- It has led to improved standards of living for example the residents are better housed, better fed, educated and live in good conditions.
- There has been increased government revenue through production and taxation of the industrial and agricultural output.
- Generation of the hydro electrical power and other forms of power for domestic, agricultural and industrial uses.
- It has led to provision of water for domestic, agricultural and industrial purposes.
- It has led to diversification of the economy of the Tennessee Valley region.
- Diseases were minimized by creating a healthy environment.
- Resettlement of over 1000 people

Problems faced after the establishment of Tennessee Valley Authority

The development of the Tennessee valley area led to creation of problems as stated below:

- Several people were displaced after the damming of the rivers because the reservoirs occupied more land causing loss of farmland and property.
- The project incurred high costs of resettling the displaced people that is money was needed to buy land and compensate the affected people.
- The reservoirs occupied more areas and stagnant was created leading to the development of habitats for disease carrying vectors such as snails that spread bilharzia.
- The development of the area led to high costs of living for example more industries were established, towns developed and the population increased.
- This led to high demand for goods and services hence high costs of living.
- The high population in the region led to the problems like high crime rates, congestion, slum development and unemployment.
- The various industries established in the area led to pollution of the environment for example the effluent from the industries polluted the water bodies and smoke polluted in the atmosphere.
- The modernized agricultural methods such as use of fertilizers and agroicides have led to pollution of the soil, the water bodies and the atmosphere because of excessive use.

Research work: Outline the steps being taken to solve the above problems.

Revision questions:

1. (a) Draw a sketch map of the area covered by the Tennessee Valley Authority and on it, mark and name
 - i. states: Alabama and Tennessee,
 - ii. rivers: Tennessee, Ohio and Mississippi,
 - iii. towns: Nashville and Colbert.
 (b) Explain the reasons for the establishment of the Tennessee Valley Authority.
 (c) How has the Tennessee Valley Project contributed to the modernization of the region?
 (d) Name any two areas in East Africa where a river development project has been established.

2. Study Fig.3: Map of the Tennessee Valley provided below and answer the questions that follow:

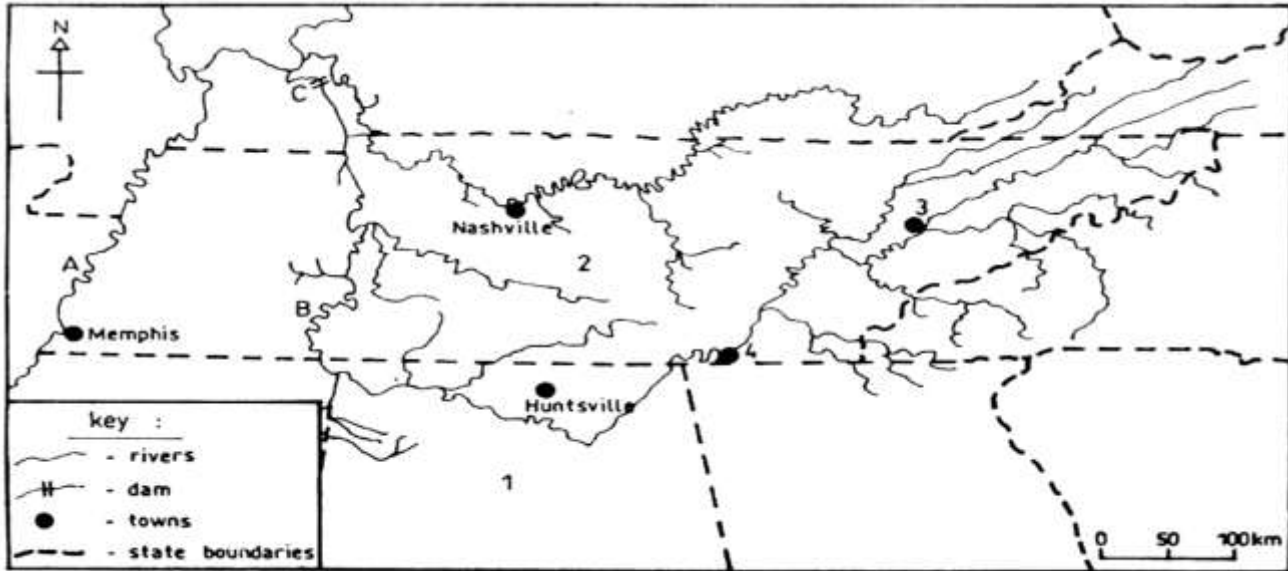


Fig. 3

- (a) Name the:
- rivers marked A and B,
 - dam marked C,
 - states marked 1 and 2,
 - towns marked 3 and 4.
- (b) Describe the factors which led to the establishment of the Tennessee Valley multi-purpose scheme.
- (c) Explain the contribution of the Tennessee Valley multi-purpose scheme to the development of anyone State named in (a) (iii) above.
- (d) Outline the problems which resulted from the establishment of the Tennessee Valley multi-purpose scheme.
3. (a) Name any three:
- states under the Tennessee Valley Authority.
 - rivers draining the area under the Tennessee Valley Authority
- (b) Describe the conditions which led to the establishment of the Tennessee Valley Authority in the states named in (a) above.
- (c) Outline the activities of the Tennessee Valley Authority in the states named in (a) above.
- (d) Explain the benefits of the Tennessee Valley Authority to the United States of America.
4. (a) What is soil erosion?
- (b) Explain the factors that were responsible for soil erosion in the Tennessee Valley region before the establishment of the Tennessee Valley Authority.
- (c) How were the problems of soil erosion in the Tennessee valley region stemmed up after the establishment of the Tennessee Valley Authority?
5. (a) Draw a sketch map of the area covered by the Tennessee Valley Authority and on it mark and name;
- The Appalachian Mountains.
 - Rivers: Tennessee, Mississippi and Ohio
- (b) Give reasons why the Tennessee Valley Authority was established in 1933.
- (c) Identify the benefits of Tennessee Valley Authority to the people of the area.
- (d) Explain how the problem of soil erosion in the Tennessee Valley region was solved.