

## Debate on energy use in Malawi

### **Lesson Aims**

- To learn about energy issues in Malawi
- To learn how to analyse a problem from different view points
- To learn ways to prevent deforestation

### **Rules for group work**

When doing group work, it is important to set down your rules so that the students know your expectations. Here are some suggested rules which you could adapt for your own purpose. It may be a good idea for the students to have them copied into their exercise books so that they can refer to them each time you do group work.

- Ensure that everyone can see the resources
- Ensure that everyone has the opportunity to contribute ideas
- Listen carefully and respect each other's ideas
- It does not matter if you cannot agree, a variety of opinions is good
- Ensure that the task is completed properly and in time
- Stop and listen to the teacher when requested

### **Background info**

- Over 90% of electricity in Malawi is produced by hydroelectric power.
- The majority of the electricity generated is used for industry and irrigation.
- 90% of Malawians live in rural areas. Only a minority of them can afford and have access to electricity in their homes.
- 90% of trees cut down in Malawi are used as fuel for cooking fires in homes

### Roles for groups

#### **Electricity Company**

You want to build the hydroelectric power station. It will cost you a lot of money to build the station, but you hope to make a big profit selling the electricity you generate. The increase in electricity production could encourage more industries and businesses to be created. This would lead to the creation of new jobs.

You are concerned about the amount of trees being chopped down. During the rainy season, the top soil washes into the river. This in turn slows down the river's current and enables plants like water hyacinth to grow.

If the river slows down, the power station cannot make as much electricity and you will lose money. Dredging to unblock the river will increase the current, but will be a high cost.

#### **Rural dwellers**

You are farmers living in the countryside. You cannot afford to have electricity in your home. Instead, you collect wood and buy charcoal for your cooking fires. Therefore, you do not feel that you will benefit much from the power station.

However, there are not currently any proper roads where you live. Roads would need to be built to get to the power station which could also be used by the locals. It will also create some passing trade of people building the station. They may wish to buy some of the food you could sell at the roadside.

You live downstream from the proposed site of the station. The river will be dammed to control the flow rate of the water. However, during the rainy season, the river level rises. If it rises too high the flood gates will be opened and could flood your crops and home.

#### **Urban dwellers**

You live in a city and own a factory. You need electricity to power your machinery, computers etc. You are very keen on the new power station. Recent flooding has damaged

one of the existing hydroelectric power stations causing regular power cuts. You are losing money each time that your machines stop working. You hope that the new power station will ensure that future power cuts are prevented.

However, you are not happy about the amount you currently pay for your electricity bill. Prices have gone up recently as the rivers had to be dredged to make the current flow faster. The rivers are being clogged up with soil washing off the hills in the rainy season.

This is caused by deforestation as the tree roots used to prevent the soil from washing away. You therefore blame the rural community for cutting down trees and thus making the electricity prices higher.

### ***Charcoal sellers***

You used to live in a city, but the business you worked for went bust. Part of the problem was the frequent power cuts and high costs for electricity. You have moved back to a rural area, but do not have enough money to buy some farm land.

Instead you make charcoal and sell it to the local people to use on their cooking fires.

You are happy about the new power station as it may enable you to have electricity in your home. However, this may cause a threat to your business because if other people in your area get electricity in their homes, they will buy less charcoal.

### ***Environmental Organisation***

You are happy about the power station, as 90% of the trees cut down in Malawi are used as fire wood. If more people have electricity in their homes they will probably cut down fewer trees.

You hope that the energy company will support your campaign to protect the forests. Rain water that used to be absorbed by forests during the rainy season is now washing directly down the hills into the rivers. This can cause serious flooding that could damage the hydroelectric power stations.

Deforestation also causes topsoil erosion during the rainy season. This means that the soil washes down into the rivers. The rivers then flow slower and less electricity is made.

It costs a lot of money to dredge the rivers to increase the current. A simpler solution would be to replant trees, not just along the river banks but up the hills. This will help prevent soil erosion, keep the river unblocked and reduce flooding.

However, you are not happy about the high cost of electricity. If the cost came down, more people in rural areas could afford it, so would cut down fewer trees for fuel. This in turn would reduce the costs of dredging the rivers and repairing the power station.

## **Tasks**

### ***Viewing the scripts 15 mins***

- Put students into mixed ability groups or roughly the same size.
- Give each group a role
- Ask the groups to delegate someone to record the group's ideas
- Ask the groups to write a speech for their group based on the script. It should be no longer than 2 mins long. It should have a structure outlining their opinions for and against the scheme.
- Make available all the images on hydroelectric power and deforestation to enable the groups to show in their speech.
- They should then split the speech into several parts and delegate students to read out each part.

### ***Presentation of the speeches 15 mins***

- Ask students to create a table with two columns in their exercise books. Label the columns reasons for and reasons against.

- Ask each group to deliver their speech. The rest of the class should listen and add to their tables.
- After the speeches open up the debate to enable the rest of the class to give any extra opinions, to challenge the opinions of another group or to ask any questions.

**Feedback on tables and vote 10 mins**

- Ask several students to read out the ideas recorded in their tables.
- Explain that the energy company cannot build the power station without planning permission. Tell the class to imagine that they now belong to the committee that will decide if the station can be built. Ask the class to vote either for or against the plan. This can either be done with a show of hands or by writing yes or no on slips of paper.
- Give the results of the vote.

**Solutions to deforestation 10 mins**

- Ask students to copy the following into their books:

Solutions to deforestation

- Planting more trees
- Educating people to protect the forests
- Charging less for electricity
- Using solar and/or wind power
- International aid
- Better wages
- Fair trade

Discuss what the following ideas mean. Fair trade means that farmers and manufacturers are paid a better price for their produce (such as coffee and bananas) on the world market.

**Plenary (What have we learnt?)**

- Ask students to close their books
- Ask students to say what are the advantages of building the station
- Ask students to say what are the disadvantages of the station
- Ask whose responsibility it is to protect the forests, locals, forestry commission, government, population of the country, international organisations, foreign governments
- Explain that the forests are of importance for the world's population so all have a responsibility to protect them.

**Homework**

- Students should write a paragraph explaining two ways in which the forests could be protected

**Additional resources**

- The videos could be used to introduce the issues of hydroelectric power and deforestation.
- The CD contains all the resources including the images used and windows media player to play the video. Open the folder and double click on index.htm. Follow the instructions on the page.