

CONFLICTS OF INTERESTS IN USE OF FORESTS

Introduction

When understanding the interplay between forests and humans, we will identify topics where there are conflicts of interest. When understanding the reason for different points of views, it is possible to make better decisions and take alternative actions. Skills for asking good questions are crucial to collect knowledge and reliable information. With a wide range of knowledge covering dissimilar perspectives, it is possible to work seriously with the conflict of interest between different opinions, and to make up one's own opinion based on facts and reliable information.

Forests serve many purposes for people. Some have economic interests, some care about forests for its social and cultural values, yet others are concerned about the biological values of forests. All perspectives are equally important, and its stakeholders care specifically for their own perspective. With more than one stakeholder, conflicts of interest can occur.

This activity triggers democratic processes. It is important to give young people experience in these processes and to see a case from different perspectives.

There are many ways to do this exercise, from a few hours indoors in a theoretical manner, or as a big project including thorough preparations, outdoor activities and after work. The following is an example of how it can be used as a big project.

Preparations

You need at least three perspectives of one specific case. Preferably use local examples of existing or potential conflicts of interests, or you can use the examples below.

Divide the class into three groups representing one interest each. A possible case can look like this:

Economy

A forest owner wants to log his forest to earn money. The forest will be replanted, but it takes time for it to reach a stage where we can call it a forest again.

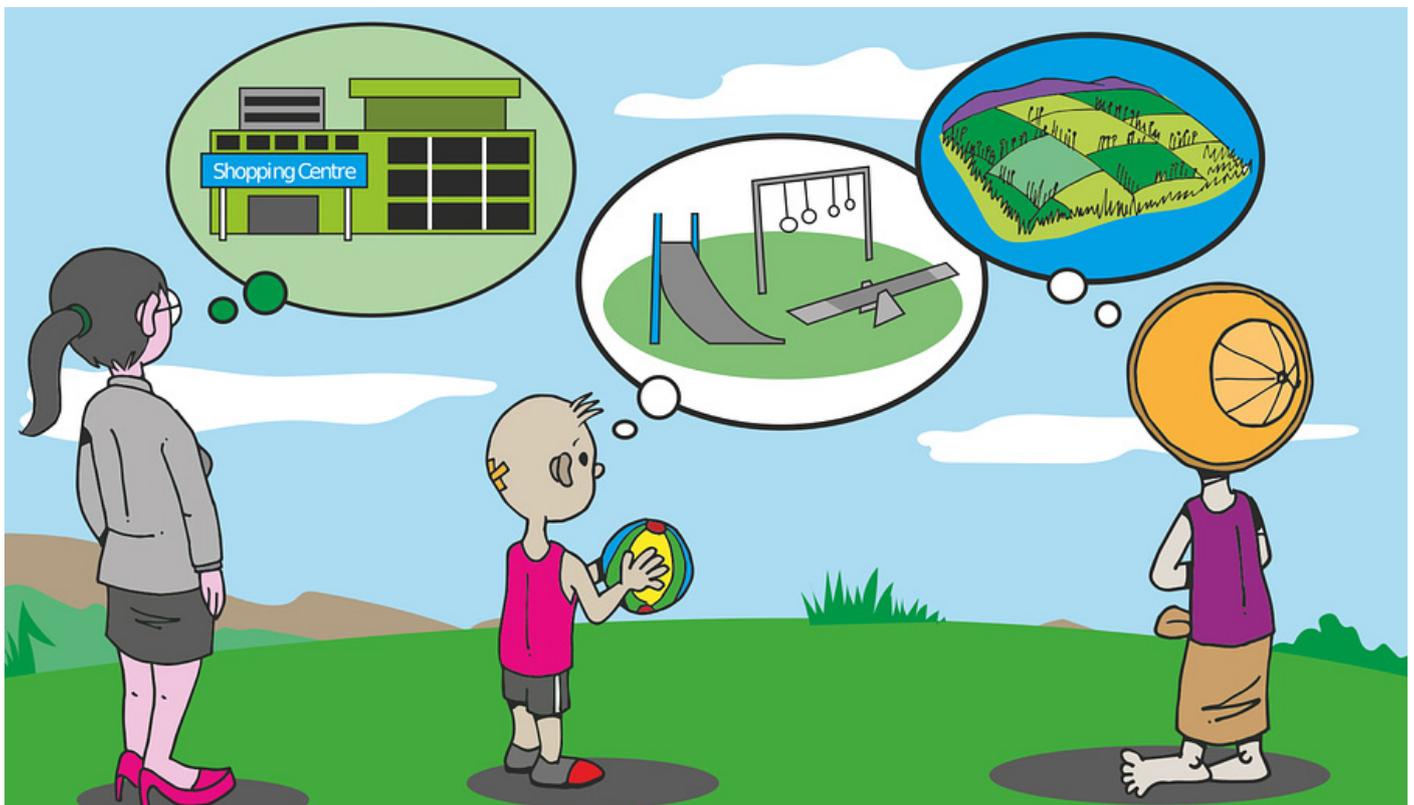
Biology

A biologist is concerned that removal of the forest will destroy the biodiversity in the area and that the area will no longer be available for recreation purposes. This group wants to protect the forest to preserve its diversity.

Social

An investor wants to use the land for creating a golf course. This will create jobs and new options for social recreation.

All perspectives are equally valid, but there is a conflict of interest. How can they solve this?



Implementation

Stage 1

Let each group do research to find facts about their viewpoint. They can start indoors doing research and then go out to do fieldwork.

The group representing the forest owner, should calculate the value of the forest. To do this, they need to find the number of trees in the forest, and estimate the volume of these trees. This requires use of mathematics and a method to estimate the number of trees, and their average height and width. With this information and the price for the wood you can give a good estimate of the value of the forest.

The group of biologists can go to the forest to map the number of species. They can try to determine how many species depend on the forest and the potential loss of species. Further they check with the local authorities and their point of view about biodiversity and use of land. They can also try to map the social value by for instance doing a survey among the locals.

The investor group should argue why the location should be used for creating a new business. They can check with the local authorities about their point of view for creating new businesses. Further they can make a business plan and argue in an economic perspective as well as the benefits for locals and the new social opportunities in use of the area.

Stage 2

Let the pupils formulate different fact based arguments for their own perspective. Arguments can also be emotional. One or two pupils must be chosen to represent the group in a panel debate.

Stage 3

Debate. Each stakeholder will introduce their perspective and point of view. After all three's introduction, the debate can start. The rest of the class is audience. The debate team must argue in a proper manner, using facts and avoiding personal attacks. The audience can respond by clapping, but should avoid booing. The teacher's role is to challenge the pupils by asking good questions. The teacher must help the pupils stick to the point, help them express their main arguments, and if necessary moderate the debate.

Stage 4

Let the class discuss the debate.

- Could they do anything different?
- Which of the stakeholder's interests can possibly trigger a conflict?
- Is one interest more valuable than the other?
- How do we measure what is valuable?
- Is it possible to find a solution which all parties can agree on?
- Write a report about the work done and the possible solutions to solve the conflict.



Useful tools to find data about forests

Measure tree height

This is a description of how to measure the height of a tree, using a stick, a measure band, and simple mathematics. Find a stick that is at least the length of your arm. While keeping a straight arm, hold the stick so that the distance from your hand to the top of the stick, is equal to the distance from your hand to your eye. You can check this by placing the stick along your arm. If the end reaches your shoulder, then the distance is correct.

Place yourself in front of the tree you would like to measure. The distance between you and the tree, should correspond to the height of the tree.

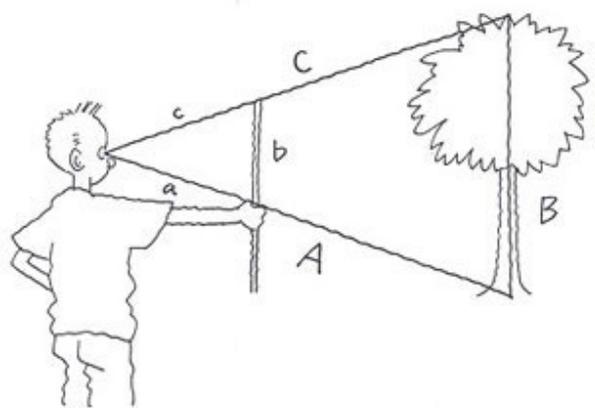
Now, while keeping a straight arm, hold the stick vertically. Place the stick in front of the tree, so that it covers the tree. It should fit perfectly; it should not be longer nor shorter. Move closer or farther away until you find the distance. At the position where the whole stick covers the tree from the bottom to the top, make a stop. You have now found the position that will help you measure the height of the tree. From this position, use the measure band to find the distance to the tree. The distance you have just measured, equals the height of the tree!

Wondering why? Take a look at the figure.

When holding the stick vertically in front of you like this, two triangles are formed. The small triangle abc and the big triangle ABC have pairs of equal angles. Equal angles means that the triangles are similar. They have different sizes, but have the same shape.

Consequently, if a equals b in the small triangle, then A must equal B in the big triangle. To begin with, we made sure that the distance between the eye and the hand (a) was equal to the distance from the hand to the top of the stick (b).

Thus, $a = b$. And hence $A = B$. By measuring A (distance from us to the tree), we find B (height of the tree).



Measure tree volume

This is a description of how to measure the volume of a tree, using a measure band and simple mathematics. (To be able to find the volume, you need to find the height of the tree first.)

The three-dimensional geometric shape which corresponds to a tree, is a cone. The formula to calculate the volume (V) of a cone, is

$$V = \frac{\pi \times r^2 \times h}{3}$$

In this formula, h is the height of the tree, $\pi = 3,14$, and r is the tree's radius at the bottom of its stem. The radius (r) is unknown, and must be measured. Use the measure band to find the circumference. Once we know the circumference (C), we can calculate the radius by using this formula:

$$r = \frac{C}{2\pi}$$

This formula has been derived from the circumference of a circle:

$$C = 2\pi r$$

Estimate the number of trees in the forest

This is a description how to estimate the number of trees in the forest, using a **four meter long** rope and simple mathematics.

To find the number of trees in a forest, we don't count all the trees. We count all the trees within a restricted area, and repeat this in several places within the forest. This gives an average of the density of trees. To find the total number of trees in the forest, the average density is multiplied with the area of the forest. The pupils will count the number of trees within a circle, and the rope represents the radius of this circle.



Knowing that the radius (r) is 4 meters, the area (A) of the circle can be calculated using this formula:

$$A = \pi r^2$$

Which gives:

$$A = 3,14 \times 4\text{m} \times 4\text{m}$$

$$A \approx 50,24 \text{ m}^2$$

At least two pupils need to cooperate. One of the pupils must place his-/herself at the centre of the circle whilst holding the rope. The other pupil holds the rope at the other end, keeping it at a straight line, and then moves along the circumference of the circle. Now comes the important part: While making this circle, the pupils must count all the trees that are within the circle.

By repeating this exercise in several places, the pupils will find the average density of trees in the forest (no. trees/50 m²).

Please note: The area of a forest is often measured in hectares. A hectare is 10,000 m². This means that if the pupils prefer to find the no. trees/hectare, all they need to do, is multiply the number of trees within the circle by 200.

Why? Because the area of the circle is approximately 50 m², and multiplied with 200, this gives 10,000 m², - a hectare.

