

Managing Environmental Issues Simulation

Name

Institution

Red stinkwood or *Prunus Africana* is a tree growing in the mountainous regions of sub-Saharan Africa, Madagascar and the adjacent islands, at an altitude of 900-3400 meters above sea level. The height of mature trees is about 10-25 meters, with extensive crown diameter of 10-20 meters. An extract prepared from the bark of *Prunus Africana* is used to treat prostatic hyperplasia. However, collecting bark for this purpose threatens the existence of the species. The increasing demand for the bark has led to growing *Prunus Africana* specifically for medical uses. Unfortunately, this alone is not enough to satisfy the demand for bark, which leads Colney & Pitts to develop a project for building a manufacturing plant in Aberdares Mountains area, Kenya, which is known to be rich in *Prunus Africana* trees. However, this area is inhabited by natives – the Kikuyu tribe, so building a plant there will definitely interfere with their lives. So, in order to prevent resistance from the tribe against setting the manufacturing plant, the project was overlooked and modified in collaboration with The International Center for Ethnobotanical Research (ICER). The most important principle of the new project is the priority of environmental requirements for the development of the area. Project proposals are aimed not only at ensuring favorable conditions of living for the present and future generations of residents of the area, but also preventing irreversible effects of human impact on the natural environment. The master plan is based on the need for conservation and development of natural complex as ecological network through planning structure of the area, performing environmental, conservation and recreation functions. The project provides a rational and efficient use of the territory within area limits, as well as the rehabilitation and preservation of landscape and biological diversity of natural system. An amount of U.S. 250,000 dollars will be spent on developmental purposes for the tribe and forest conservation, along with U.S. 75,000 dollars offered as compensation to the tribe.

In general, the project consists of the following measures:

1. Providing infrastructure.

The roads will be laid to ease the access to the city for the tribe. This will also lower the transportation costs for the bark, and result in increase of traffic volume between the city and the area where Kikuyu tribe lives in. In addition, permanent houses for the tribe will be built, not only aiding in their social and economic development, but also reducing the amount of *Prunus Africana* trees cut down for the building needs. Such measure requires an investment of U.S. 80,000 dollars.

2. Providing training.

Colney & Pitts would like to involve natives in working at the plant and rewarding them for their efforts. To fulfill this initiative, a necessary amount of training will be provided for the tribe, including teaching them modern methods of harvesting bark. Such measure will not only provide natives with a stable income from working on the plant, but also rise their competitive ability on the labor market of the mainland. In other words, it will be much easier for them to find a well-paid job. This measure requires an investment of U.S. 21,000 dollars.

3. Tree planting.

Undoubtedly, harvesting the bark from trees will make a negative impact on the biodiversity of the forest. To reduce the damage to the environment, Colney & Pitts considered a possibility of planting twice a number of trees in a neighboring mountain zone for each debarked tree, as an environmental justice, assuming that *Prunus Africana* trees grow up to 30-meter height in 20 years. While not exactly replenishing the amount of trees in the harvesting area, this will allow maintaining a considerable overall amount of *Prunus Africana* trees in Aberdares Mountains area, conserving this region's biodiversity. A sum of U.S. 37,500 dollars is required to carry out this measure.

4. Utilizing marcotting.

Marcotting is a method of forcing branches of a tree to form their own root systems. After roots are well developed, the branches can be removed from the tree and planted to grow into new trees. While being quite an expensive farming technology, this method is efficient in the long run, as it reduces the number of years taken by tree to attain full growth, making it quite effective for reforesting the area. Moreover, provided with training, the Kikuyu tribe can be involved in the process, increasing the efficiency even more. Utilizing marcotting method requires an amount of U.S. 40,000 dollars.

5. Utilizing sustainable harvesting.

Considering the opinion of EcoSmiles organization, Colney & Pitts included a possibility of doing sustainable harvesting in the area. The method involves removing bark from opposite quarters of the trunk from about 35 centimeters above ground level to the height of the first branch. After some years, the bark re-grows, allowing the alternate quarters to be removed. However, utilizing this method means it will not be possible to satisfy the demand for bark extract around the world, as company will have to wait for at least five-seven years until the next harvest. Still, combined with such measures as tree planting and marcotting, this problem can be solved in due time, and moreover, the risk of deforestation will be significantly lowered. Applying this method will cost about U.S. 50,000 dollars.

It is possible to see the estimated cost of the project is U.S. 229,000 dollars, plus U.S. 75,000 offered as compensation to the tribe, making it U.S. 304,000 dollars total. Colney & Pitts believe this project will be a success, for it concentrates not only on satisfying the demand for *Prunus Africana* bark extract, but also targets problems of ensuring favorable conditions of living for the present and future generations of residents of the area and preventing irreversible effects of human impact on the natural environment. However, it should be noted that some goals listed in the offered project will take a considerable amount of time to achieve, making it susceptible in a long run

## References

*Managing environmental issues simulation*. Retrieved from

[https://ecampus.phoenix.edu/secure/aapd/vendors/tata/sims/env\\_issues\\_ethics/env\\_issues\\_ethics\\_managing\\_env\\_issues\\_simulation.html](https://ecampus.phoenix.edu/secure/aapd/vendors/tata/sims/env_issues_ethics/env_issues_ethics_managing_env_issues_simulation.html)