

UNIVERSITY OF NAIROBI

Department of Geography and Environmental Studies

The Impact of Biotech Eucalyptus on Biodiversity:

A case study of Kiambaa Division of Kiambu District, Kenya

BY:

CHEKAI, KHISA ELIUD (BSc)

I56/7859/04

UNIVERSITY OF NAIROBI
EAST AFRICANA COLLECTION

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
A MASTER OF SCIENCE (MSc.) DEGREE IN
BIOGEOGRAPHY

2008

University of NAIROBI Library



0443187 0

Abstract

This study examined the effects of biotech eucalyptus on biodiversity. In this study biodiversity was taken to mean all the life forms including human beings. Biotech eucalyptus (genetically superior eucalyptus tree seedlings and clones) were introduced in Kenya in 1997 through the Tree Biotechnology Project (TBP). Although biotechnology trees are now popular in Kenya, no information exists on the likely environmental risks. This study is therefore an attempt to assess the likely impact on biodiversity. The objectives of the study were to determine whether the coverage and the pattern of planting biotech eucalyptus has any significant influence on biodiversity, the impacts of the biotech eucalyptus on biodiversity and the socio-economic aspects and identify ways of preventing or mitigating the negative consequences of biotech eucalyptus on biodiversity and environment. Kiambu District where the study was conducted represent high potential areas, where impact on other biodiversity is likely to be felt fast. The local name for eucalyptus is “munywamae” meaning, “it draws a lot of water.” Data collection strategies involved perusal of existing literature and project records as well as field data collection using purposive sampling in the selection of farmers. Biodiversity was assessed using belt transects in plots measuring 32 x 22 metres. Various methods of data analysis and presentation were used to facilitate interpretation of data collected. These included both qualitative and quantitative analysis such as Shannon- Wiener index (H) and Chi-Square. Results indicated that biotech eucalyptus has positive aspects on biodiversity such as fast growth, thus increasing vegetation cover, providing habitat to unique animals, shade and windbreak. Socio-economic benefits include provision of fuelwood, building materials and a quick source of income in a relatively short time. Negative impacts include low flora diversity as a result of allelopathy leading to lack of food for animals. It is also prone to fires, drying up water resources and reduction of soil fertility and moisture. The study recommends enactment and enforcement of a policy requiring Environmental Impact Assessment to be carried out before any large scale planting of biotech eucalyptus. Other recommendations include banning of planting of these trees in sensitive ecosystems such as conservation areas and watercatchments. Awareness campaigns to sensitize and educate farmers on possible impacts and mitigation measures should be mounted. Further research is also necessary to assess the economic benefits from the biotech eucalyptus in comparison with other crops and to determine its impact on the water balance of an area. In conclusion, it is hoped that data and information generated by this study would be useful in planning, implementation and management of future projects involving land use in regard to planting of biotech eucalyptus. The target audience will be the Tree Biotechnology Project, Non-Governmental and Governmental organizations that participated in the research. A copy of the report will be sent to them. Other target audience will be the farmers who will get the information through the Governmental and Non-Governmental organizations.