A COMPARATIVE ASSESSMENT OF THE METHODS OF CONTROL OF WATER HYACINTH INFESTATION WITH REGARDS TO FISH PRODUCTION

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INTRODUCTION

Water hyacinth *(Eichhornia crassipes)* has been subject of three control methods: mechanical, chemical, and biological since its arrival into the Nigerian freshwater lagoon system in 1984 as one of the most noxious and prolific weeds (Akinyemiju and Imevbore, 1990).
Its infestation has been known to obstruct waterways, preventing fishing, navigation, water transportation, post-harvest activities of women-in-agriculture, communal washing needs, recreation and other social uses. This is because the individual weed has been said to have a potential for producing at least, 140 million others since it multiplies rapidly doubling its number every 6-10 days Gopal (1983). This rapid rate of propagetion has compelled incessant interest in its control in Nigeria and other places such as Egypt and Sudan (Batanouncy and El-Fiky, 1975). The present National spread of water hyacinth in Nigerias lagoon systems has been put at 3,561.35km² (Chemical Task Force on water Hyacinth control, 1992) with a spread in the adjoining lagoons of the Republic of Benin and the Cameroons put at 500km² and 275km² respectively. A spread of the infestation to river systems has been noticed on the Rivers Yewa and Okomayon in Ogun State (Akinyemiju, 1984) raising the possibility of spread into reservoirs and fish ponds as well (Adekoya, 1991) Recent reports of infestation in the Northern parts of the country, notably in Lake-Chad and Kebbi State (Upper Niger River areas) raises the possibility of its spread to kainji reservoir with a potential to distrupt hydro-electric power supply and lacustrine fisheries activites. (Adekoya, 1992). There is, therefore, a great danger of incessant and increasing obstruction to capture and culture fisheries activities, in the present levels of infestation by our freshwater lagoons by water hyacinth, as had been assessed in Ogun State, (Adekoya and Ekpo, 1992).

The Federal Government has opted mainly for the mechanical control method with the contraints of limited success possibilities since 1984, (Kusemiju, 1988) as had been done in Ondo and Ogun State, also unsuccessfully (Adekoya, 1987) Chemical control pilot studies have been commissioned in Igbokoda, Ondo State and at Ere, Ogun State with appreciable success, with the problems of possible dangers to aquatic life (Adekoya, *et al*, 1992). The Biological method used elsewhere in the world (Brader 1992) is currently being tried through the use of *Neochetina eichhornaie* with possibilities of some success. The use of freshwater animals like the mantaee, *Trichechus senegalensis* capable of consuming about 40kg fo weeds daily has been highlighted (Sodeinde, 1992).

METHOD

The merits and demerits of these methods are thus highlighted against the background of fish production within our capture and culture fisheries biologies, especially as water hyacinth infestation has been reported to have significant effects on the production of freshwater lagoon fish and marine species such as *Elhamalosa Fimbriatae* and *Sardinella madernsis.* (Adekoya and Ekpo, 1992).

DISCUSSION

The assessment of the three major methods of water hyacinth control seems to suggest that mechanical and chemical control methods, both of which are costly must be applied either solely or integrated to combat the present level of considerable infestation in Nigeria. The mechanical can, however, be put into sustained and continuous usage if the social/industrial - promoted harvesting for feed (Asala and Ofojekwa, 1990) is highlighted for rural communities, despite its limited capacity of control.

The chemical can be used under specialists control to promptly bring the present level of infestation under control before secondary control measures of weevil *N. eivhorniae* and *I. senegalensis* can be undertaken for continuous sustained usage.

This is because, the biological control methods are advisable for slow, sustained control and can only cope with loaw levels of infestation. The biology of *N. eichhorniae* must also be sufficiently studied in our context to ascertain that it does not have the potential of being a pest of any valuable crops. The eihology of the maintee, isenegalensis must also be studied for the safley of lacustrine, estacrine and river capture fisherfolk.

The environmental impact assessment of the chemical, control method must be studied for a variety of the lagoon and riverine sites of present infestation to ascertain the safety and limitations of usage under specialist, supervision.

The mechanical control must be used mainly from the stand point of social/industrial usage for feed, fertilizer, paper -making etc for consistent, sustainable removal by rural, communal peoples at low cost and for added economic benefits.

CONCLUSION

The assessment of the three major water hyacinth control methods: mechanical, chemical and biological as done in this study seem to suggest an intergrated approach to the control of water hyacinth.

The preliminary control method should however, be mechanical or chemical control method to effectively abate the nuisance that the present level of infestation constituties. The biological control method can then be used for slow sustained control once infestation level has been sufficiently reduced.

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