

ENVIRONMENTAL ISSUES ON NUISANCE WEEDS

Alh. SANI ZANGON DAURA, Dan Masanin Daura
(Honourable Minister of Environment)

Federal Ministry of Environment
Abuja FCT, Nigeria

INTRODUCTION:

Nigeria is under siege by green invaders species alien to our aquatic ecosystems. These intruders reached the system through both intentional and unintentional human activities and are spreading at alarming rates threatening the Nigeria's biodiversity and natural habitat within the inland and coastal waters. The seriousness of the problem is widely acknowledged. In July 2000, the House of Representatives concerned about the persistent problem of the invasive species and the great loss to the national economy, resolved that:

- Control measures should commence immediately to avoid the entire river system being completely overtaken by the weed ;
- A multidisciplinary task force be set up to tackle the menace;
- The various attempts aimed at addressing the problem be harmonized under the supervision of the Ministry of Environment with technical, financial, managerial inputs from Transport and Water Resources Ministries and their parastatals as well as relevant governmental agencies and departments;
- The President be urged to release the approved funds in the year 2000

budget to National Inland Waterways Authority to enable it clear the imported weed harvesters at the ports; and

- A think-tank be set up under the Ministry of Environment to formulate a National Master Plan for the control and find use for the plant.

Even before this resolution, upon inception, the Ministry of Environment had identified water hyacinth and other invasive plants and indeed animals as a major threat to the environment and natural resources conservation in the country. The Ministry evolved long term-plans to address the menace. Among such plans is the setting up of a *National Committee on Water Hyacinth and Other Invasive Species*, as a means of bringing all institutions and individuals working on water hyacinth control under an umbrella to avoid duplication of efforts and to forge a partnership for concerted action. Also planned is the adoption of an integrated approach that will employ multiple control measures.

Furthermore because of the trans-boundary nature of the invasive plants, efforts at controlling them have been at global, regional, sub-regional, and national levels. For example, under the United Nations Convention on Biological Diversity, there is the Global Invasive

Species Programme. Concerned about the adverse impacts of the invasive aquatic plants, ECOWAS in 1992 embarked on a sub-regional programme to control invasive floating plants covering Niger, Benin, Chad, Cote d'Ivoire and Nigeria.

Water hyacinth has invaded many of the nation's waterways disrupting irrigation, navigation and the operations of traditional fishermen. The weed chokes irrigation canals, blocks fish breeding sites and encourages mosquito breeding. In 1990, the World Bank estimated the economic loss due to the water hyacinth increase to be as high as ₦5 billion per annum. This amount would be significantly higher today because of the much greater spread of the weed particularly in the coastal areas.

A key to Nigeria's success in containing these invaders, may well lie in the sharing of what critical information exist on the prevention and control of invasive weed before an irreversible damage is done to the sustained productivity of the well being of the Nigeria aquatic ecosystem. In the past Government made tremendous efforts to control water hyacinth and other aquatic nuisance, through various Ministries and Agencies, with disproportionate results. One of the factors to which this performance could be attributed is the absence of coordination. The approach was fragmented and sectorally based. Overlapping, sometimes-conflicting responsibilities and duplicated efforts tended to create problems of accountability and encouraged wastage.

Considering the failure of past uncoordinated control efforts, I wish to commend the timeliness of this conference. This is because the forum will create the necessary atmosphere for cross fertilization of ideas on the control and

utilization of the aquatic weeds that have occupied the natural habitat of indigenous species of flora and fauna..

THE NIGERIAN NUISANCE WEEDS

At the inaugural meeting of the National Council on Environment in May 2000, twelve States of the Federation submitted memoranda on invasive weeds. These States include Kwara, Akwa -Ibom, Kogi, Ogun, Rivers, Kebbi, Cross River, Bayelsa, Delta, Ondo, Benue and Lagos.

These States complained of massive invasion by water hyacinth (*Eichhornia crassipes*), water lettuce, (*Pistia stratiotes*), Niger grass (*Echinochloa stagnina*) and Kachalla/Typha grass invasion. The Council adopted the emerging memorandum, urging the Ministry of Environment amongst others to put in place a coordinated strategy for control and utilization of floating weeds. This reinforced the need for the planned *National Committee on Water Hyacinth and Other Invasive Species*.

In line with International Resolution reached at United Nations Conference on Environment and Development (UNCED) in 1992, Nigeria elaborated a National Agenda 21 to serve as an action plan towards Sustainable Development in the 21st Century. The objectives of Nigeria's Agenda 21 include the following:

- i. integrate environment into development planning at all levels of government and the private sector;
- ii. commence a transition to sustainable development;
- iii. address sectoral priorities, plans, policies and strategies for the major sectors of the economy; and

- iv. simultaneously foster regional and global partnership

The issue of water hyacinth received special attention under the caption "*Control of Water Hyacinth And Other Invasive Infestations*". The overall goal is to control water hyacinth and other invasive infestations in Nigeria's waters by the year 2005. Strategies for implementation proffered are as follows:

1. Inventorise the spread of the weed in all river systems especially in the coastal states;
2. Develop an infestation index map to determine control options;
3. Adopt an appropriate control option to ensure that the weed is no longer a menace using integrated control methods (that is mechanical, biological and chemical) as would be appropriate for various sites;
4. Identify alternative sustainable utilization of water hyacinth and other invasive species

The vastness of the Nigerian landmass put at 923768 km² provides a wide range of suitable ecology for such invasion. In other words a remarkable range of niches exist within Nigerian borders for new biological invader species from virtually anywhere. Trade and advancement in biotechnology have opened the new biological connections with numerous ecological regions of the world similar to those obtainable in Nigeria. But these plants particularly the water hyacinth is native to Brazil in South America from where it was introduced by man through his activities to North and Central America, the Caribbean, and at a later stage to Africa.

However in its native range, in the Neotropics, water hyacinth poses no problems. In the natural habitat, natural agents keep it under check but in alien environment the plant grows fast, displacing indigenous species from existence in addition to reducing the diversity and population of species that sustain the livelihood of our people.

In the last 90 years the spread of water hyacinth and the other invasive weeds, has been spectacular and disastrous. It colonizes still or slow moving waters, developing extensive thick mat that dramatically alter the ecology of invaded aquatic eco-systems. The problems created and the damages caused by water hyacinth is greater than those created by other floating aquatic weeds. It is widely acclaimed to be the world's worst aquatic weed, which form dense impenetrable mats on water. The propensity to spread fast within a short time and the attendant socio-ecological problems constitute a great challenge to the scientific world.

POTENTIAL USES OF THE WATER HYACINTH AND OTHER INVASIVE WEEDS

I have catalogued the woes attending the invasion of water hyacinth. However, as bad as these invasive weeds are, some of them have potentials to contribute to the economic and social wellbeing of humans. It is indeed speculated in some quarters that some of these aquatic weeds could be utilized for food and or ingredients for animal feeds, raw material for paper board, biogas production, waste water treatment, water quality management and fertilizer production.

Certainly, water hyacinth, Niger grass and water lettuce can be used for a variety of purposes, some of which have been

enumerated above. However, the only problems that could emerge in this direction include:

- ◆ How to harvest the invasive weeds at minimal cost.
- ◆ How to dry the weeds at minimal or no cost and market the product.
- ◆ Sustained availability of the weeds for easy harvesting as raw materials for some form of industry all year round.
- ◆ Composition of the available weeds, which is over 95% water.
- ◆ Marketing of the end product would require a good road from the mainly inaccessible locations the weeds abound the remote areas.

These are no doubt strong areas of research investigations. In our quest to devising means of control and utilization, these areas cannot be overlooked. This is particularly so because it has been widely expressed that utilization of water hyacinth for now may not be economical. This because the present environmental costs far outweigh the economic benefits, when one considers the problems the weeds create in inland waterways, irrigation canals, fish catches, loss through repairs and maintenance of boats, enhancement of breeding places of disease vectors and aquatic ecosystem degradation and biodiversity loss.

The theme of this conference is on the control and utilization of water hyacinth. I will therefore not attempt delving into detailed methodology for control. This is because I will not want to fumble on the issue eminent scientists are itching to download their research findings. However, it will suffice to say that there

are three basic methods in the control of invasive weeds viz:

- ◆ Physical Removal / or Mechanical Drainage;
- ◆ Use of Chemical Herbicide and Spray; and
- ◆ Biological Control Methods.

Amongst the three options, the use of chemical herbicides and sprays is environmentally unfriendly. The environmental costs result in pollution and reduced level of oxygen in the water body. Gentlemen and ladies, as I stated earlier, there are other means of control. These, I believe the gathering will adequately address.

CONCLUSIONS

Preventing and controlling biological invasions successfully would depend on understanding the different invading species- Niger Grass, Water Lettuce, Water Hyacinth, Kachalla Grass/*Typha* Grass, Nypa Palm, etc. Understanding the invader species pathways of introduction and reproduction will enable development of technologies to combat the menace. This would best happen when information is effectively shared between federal, state, and local government, commercial interest, NGOs, private sector and decision makers. This joint action will greatly enhance control measures geared towards battering the tide in favour of the nuisance biological species.

The type of information that need to be shared for meaningful achievements include: -

- ◆ Characterizing pattern of invasion in space and time by species and transport mechanism;

- ◆ Identifying ecological and economic impacts;
- ◆ Predicting invasive species pathways ;
- ◆ Establishing best management practices for prevention eradication and control; and
- ◆ Assessing effectiveness by monitoring how well invasion is being limited or curtailed.

Through sharing such information with states, local government agencies, NGOS, academia, research institutes, other nations and concerned communities, the body of knowledge increases in addition encourages and enhances extant management activities.

The high points of the conference which include documentation of available control and utilization strategies, leave me with no

doubt that the outcome of this conference will ensure that Nigeria conquers, tame and domesticates water hyacinth for human use.

It is evident all that is required is comprehensive information on the invasive species, for development of effective management plans that minimizes the risk and adverse impacts of the alien species. This conference, it is expected will play a very vital and pivotal role in creating and assessing policy actions that are required in this battle to control the invader nuisance.

I have no doubt that the organizers of this conference shall achieve their noble goals and together we shall rid Nigeria of nuisance weeds and protect the Nigerian environment in the 21st Century.

