Effects of invasive plants: A case study in Bulankulama wewa in Mihintale

Extended Abstract

UHS De Silva[1], NSK Herath

Back ground

Conservation of the biodiversity is a major challenge of the world. Invasive alien species (IAS) are major part of this challenge. They may invade terrestrial or aquatic ecosystem. (Wijesundara., 2010) At present Sri Lanka has faced to aquatic IAS in terrible. They spread on tank and water reservoirs. Wawa is a main manmade water reserves and ancient civilization was based on tanks. Bulankulama is a main water resource in Mihintale area. Water of the Bulankulama Wawa is used by people for agricultural activities, fisheries and cultural activities. At present Wawa ecosystem and livelihood of Mihintale are suffering from aquatic IAS. Impacts of aquatic IAS are increasing day by day.

Objectives

The general objectives of the study were to identify the effect of aquatic IAS to Bulankulama Wawa and livelihood of villagers and to identify the proper mitigation methods for resolve the problems.Specific objectives were to identify what is the aquatic IAS, reason of spread of aquatic IAS, impact of aquatic IAS to protect sustainability of Wawa, solution to control, the barriers to minimize the aquatic IAS can be identified.

Methodology

Both primary and secondary data were used from collecting data from field surveys, interviews and questionnaires were used as a primary data. Newspapers, magazines, extended reports and internet were used to collect secondary data. Both qualitative and quantitative data were used for data analysis. Map analysis, correlations were used as a data analysis method. Interviewed 50 villagers in Mihintale

including Welwidane, members of agrarian society, agrarian society, fishermen, some peoples and students.

Result and findings

According to field survey researcher faced both negative and positive impact of irrigation, livelihood and eco-system. Lot of aggressive plants have spreaded on Wawa. Water lily, (*Nemphaea pubescens),* blue manel (*Numphea stellate*), Nelum (*Nelumbo hucitera)* salvinia (*salvinia molesta),* water hyacinth (*Enchornia crassipes)* Kankun (*Impomoea aquatica),* ikiliya (*Asenthus illicitolia)* diya nidikumba (*Neputunia oleracea*) are the common IAS in Bulankulama Wawa.

Sri Lankan government establishes number of rules and regulation for control IAS. Water hyacinth act in 1909, 1988/99 ministry of forestry and environment (MFE) got to its notice the spread of *mimosa pigra, parthenium hostroporus* and alligator seed in Sri Lanka. MFE was organized 1st awareness work shop on alien invasive species in Colombo. (Marambe, 2011). Most of younger generation hadn't good knowledge about wawa and some of them don't go to visit Wawa.

Cultivate 32acrs using water of wawa in twice in year (yala and maha) 46% people protect water from evaporation. Fishermen said some of their equipment can't handle properly due to aquatic IAS.19% percent use water for fishing. Some of fishermen said aquatic IAS like floating leaves plants are helped to increase fish production. As well as some people use aquatic IAS as a medicine {Ikiliya (*Asenthus illicitolia)* Nelum (*Nelumbo hucitera)*}

Some plants disturb irrigation systems like water hyacinth and hydrilla.

Some plants create a thick layer on water and that block the sun rays. That cause to eutrophication and change the COD and BOD level in water.

Conclusion and recommendation

As a dry zone area wawa is a most important thing. That can stock high water capacity. Nevertheless in present Bulankulama wawa is going to dead due to aquatic IAS. It is needed to get an action for controlling aquatic IAS using government officers and villagers. There are three way to control aquatic IAS. Chemical control, physical control, biological control Awareness of the villagers should be improved about the impact of aquatic IAS and also should be given the proper knowledge about maintenance and importantance of wawa. After that must start again cultural programs like Mutti mangalya, Kiri itirum Mangalya. That helps to

[1] Department of Environmental Management, Rajarata University of Sri Lanka, Mihintale, Sri Lanka.

protect Wawa. Bulankulama Wawa has rich with bio diversity and Rajarata University must pay attention about sustainability of this wewa as one of the responsible institutios of the conty.

References

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