



## Seen but not Addressed: Inefficacy of the Present Legal Framework on Invasive Alien Plant Species in the Face of Looming Biodiversity Extinction in Sri Lanka

Tharushi Gamage<sup>1</sup>

### Abstract

Invasive Alien Plant Species (IAPS) are non-native plants, introduced deliberately or unintentionally outside their natural habitats where they become established, proliferate, and spread, presumably at the expense of indigenous species causing significant harm to the biodiversity of a country. The distribution of IAPS is reckoned to be one of the major drivers of biodiversity loss and native species extinction and endangerment in the world, second only to direct habitat destruction. Sri Lanka being one of the 36 global bio diversity hotspots, is now at a high risk of deterioration of its habitat quality due to IAPS, which will ultimately end up affecting the long-term survival of the island endemic. In such a context, this paper attempts to evaluate Sri Lanka's efforts at controlling and managing the spread of IAPS through legislation while emphasizing how the many sectoral policies and obsolete legislations touching on IAPS remain unclear, disjointed, and largely unenforced in the present. The paper further aims to evaluate the effectiveness of existing legal frameworks on IAPS in India and Nepal, drawing necessary attention to relevant International Standards as well. On a conclusive note, the paper proposes that a well-coordinated institutional mechanism for effective control of IAPS in the country is urgently needed.

**Keywords:** *Loss of Biodiversity, Invasive Alien Plant Species, Water Hyacinth Ordinance, Plant Protection Act, Invasive Alien Species Act*

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<sup>1</sup>LL.B (Colombo)

## 1. Introduction

Invasive Alien Plant Species (IAPS) are non-native plants, introduced deliberately or unintentionally outside their natural habitats where they become established, proliferate and spread, presumably at the expense of indigenous species causing notable damage to bio diversity.<sup>2</sup> They have increased drastically over the past few decades, spreading leads to the homogenization of urban flora, and altering the genetic diversity. More than 38 plant species appear to have become dominant and invasive, causing a significant threat to the native biota of Sri Lanka while greatly impacting the agro-ecosystem of the country as well<sup>3</sup>. They have been mostly introduced to Sri Lanka by the lucrative trade of ornamental and aquatic plants<sup>4</sup>. As of now, Horton Plains National Park is overrun with common gorse (*Ulex europaeus*) while forests and other sub montane have been invaded by autograph tree (*Clusia rosea*) and wet zone marshes by water hyacinth (*Eichhornia crassipes*) and Giant Salvinia (*Salvinia molesta*). Bundala National Park, a wetland of international importance under the Ramsar Convention has now been invaded by *Kalapu Andara*<sup>5</sup>.

Under the Constitution of Sri Lanka,<sup>6</sup> government<sup>7</sup> as well as every person<sup>8</sup> should protect nature and conserve its riches. Keeping in line with the Constitutional directives and the International Conventions that the country has been a signatory, it is the duty of the responsible stakeholders to enforce the law effectively. Several legislations have been enacted to govern the entry and spread of IAPS, yet remain woefully inadequate and obsolete<sup>9</sup>.

This paper, therefore, has been compiled with the intention of identifying the key legal instruments and policies which address the issue of Invasive Alien

<sup>2</sup> Robert Bartz, Ingo Kowarik, 'Assessing the Environmental Impacts of Invasive Alien Plants: A Review of Assessment Approaches' (Neobiota, 15 March 2019) 69.

<sup>3</sup> Kalyani Prematilleke, Sudheera Ranwala, Lian Jenna Wong and Shyama Pagad 'Global Register of Introduced and Invasive Species, Sri Lanka - Version 2.7, Invasive Species Specialist Group ISSG. Checklist Dataset' (GBIF, 21 October 2020) <<https://doi.org/10.15468/hv9zht>> accessed 15 February 2022.

<sup>4</sup> Sayuni Maskorala, 'Unnoticed and Untracked' *Ceylon Today* (Sri Lanka, 24 October 2020) <<https://ceylontoday.lk/news/unnoticed-and-untracked>> accessed 15 February 2022.

<sup>5</sup> Andrea Egan, Shyara Bastiansz, 'Alien invasion: Protecting biodiversity by controlling invasive species in SL' (The GEF, 17 July 2017) <<https://www.thegef.org/news/alien-invasion-protecting-biodiversity-controlling-invasive-species-sri-lanka>> accessed 15 February 2022.

<sup>6</sup> The Constitution of The Democratic Socialist Republic of Sri Lanka, 1978.

<sup>7</sup> *ibid*: art. 27(14)- State shall protect, preserve and improve the environment for the benefit of the community.

<sup>8</sup> (n 7) art. 28(f)- Fundamental Duty of every person in Sri Lanka to protect nature and conserve its riches.

<sup>9</sup> M Kurukulasuriya *et al*, 'Invasive Alien Fauna in Sri Lanka: National List, impacts and regulatory Framework'.

Plants while assessing whether such provisions are adequate for the effective management of IAPS. The paper also briefly discusses the effectiveness of existing legal frameworks in different South Asian Countries (India and Nepal) while drawing sufficient focus on the relevant International Standards as well. The paper concludes by proposing several recommendations to ensure the productive management of IAPS and to counter their increasing toll on natural resources and society.

### **1.1. Plant Protection Act No. 35 of 1999**

The main legal enactment that has directly assisted in eradicating and controlling the entry and spread of IAPS in Sri Lanka is the Plant Protection Act No.35 of 1999, which came into force by repealing the preceding Plant Protection Ordinance of 1905<sup>10</sup>. Several provisions have been incorporated to prevent the entry of any organism that may become a pest or invasive, or potential threat to the plant life. The term “organism” has been defined under the Act to encompass plants, while pests have been broadly defined to include weeds<sup>11</sup>.

In terms of Section 12(2) of the Act, the Minister may make regulations for restricting or prohibiting the importation into Sri Lanka of any plant, plant products and for restricting or prohibiting the entry points at which they may be landed<sup>12</sup>. When the Director General of Agriculture has reasons to believe that a pest is being harbored on any premises, he can direct officials to inspect the premises and order to take action to eradicate it<sup>13</sup>.

Notwithstanding the repeal of the Plant Protection Ordinance, every regulation made under the repealed Ordinance will be in force as long as it is consistent with the provisions of this Act<sup>14</sup>. One such regulation is the Gazette notification made under the Plant Protection Ordinance to prohibit the importation of any aquatic plant into the country<sup>15</sup>.

Furthermore, any person without lawful authority or excuse who contravenes any provision of this Act or any regulation made thereunder shall be guilty

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<sup>10</sup> Buddhi Marambe, ‘Invasive alien fauna in Sri Lanka: National list, impacts and regulatory framework’ 448.

<sup>11</sup> Plant Protection Act No.35 of 1999, s 15.

<sup>12</sup> (n 17) s 12(2) (b).

<sup>13</sup> (n 17) s 4(1); s 4(2).

<sup>14</sup> (n 17) s 13(2).

<sup>15</sup> Gazette Notification No.165/2 dates 02 November 1981.

of an offence under this Act<sup>16</sup>. Such person who is found guilty of an offence shall be liable on conviction before a Magistrate to imprisonment of either description to a term not less than one month and not exceeding six months or to a fine not less than ten thousand rupees and not exceeding one hundred thousand rupees, or to both such fine and imprisonment<sup>17</sup>.

Regardless of these provisions, several traders who are driven by commercial avarice are often seen continuing illegal methods in importing such plants to the country unbeknownst to the government. Such violations need to be addressed through a central framework that is receptive to detecting and conducting pre-risk assessments and post-risk assessments for restricted ornamental plants, presumably under a revised and upgraded enactment. However, this Act lacks provisions to deal with a species that has already been brought into the country legally, but is potentially invasive or has already become invasive<sup>18</sup>.

## 1.2. Water Hyacinth Ordinance No.09 of 1909

Water Hyacinth (*Japan Jabara*) was introduced to Sri Lanka, owing to its horticultural value. A few years after its deliberate introduction, Water Hyacinth Ordinance was enacted in 1907, indicating the possible long-term detrimental effects of IAPS<sup>19</sup>. The Ordinance clearly stipulates a prohibition on importation or possession of water hyacinth while imposing a further duty on the landowners to destroy the plant growing on any property belonging to them<sup>20</sup>.

The Ordinance enables to declare any other noxious plant or weed to come under the purview of this enactment by an order made by the Minister in charge of Agriculture<sup>21</sup>. Such declaration would make it illegal to import any such plant, seeds, or other parts. When an order is made declaring a plant under this Ordinance, the Customs Department can destroy such plants if detected during importation<sup>22</sup>. This Ordinance introduces a simple yet effective way to deal with any real or potential invasive that is already in Sri

<sup>16</sup> (n 17) s 10(1).

<sup>17</sup> (n 17) s 10(2).

<sup>18</sup> JAI Kumarasinghe, 'Silent Threat to Sri Lanka's Biodiversity: Laws relating to Invasive Alien Species' (KDU Law Journal 2017).

<sup>19</sup> Buddhi Marambe, *et al.* "Human dimensions of invasive alien species in Sri Lanka" *The Great Reshuffling: Human Dimensions of Invasive Alien Species*. IUCN, Cambridge (2001) 135-144.

<sup>20</sup> Water Hyacinth Ordinance No.09 of 1909, s (3), s (4).

<sup>21</sup> (n 12) s 7(1); s 7(2).

<sup>22</sup> (n 12) s 6.

Lanka or is likely to be imported to the country<sup>23</sup>. However, the Ordinance is archaic and remains unrevised.

### **1.3. Fisheries and Aquatic Resources Act No.02 of 1996**

This Act intends to provide for the management, regulation, conservation and development of the fisheries and aquatic resources of Sri Lanka<sup>24</sup>. The Minister in charge of the subject of Fisheries and Aquatic Resources, in consultation with the Minister in charge of the subject of Trade, can prohibit or regulate the import of any aquatic resource into Sri Lanka by regulations<sup>25</sup>. The term “aquatic resources” has been broadly defined to include aquatic flora as well and thereby conceivably allowing the Act to regulate the entry of IAPS into the country as aquatic plants.

It appears that these legislative enactments provide considerable legal support to act against the introduction of IAPS. Nonetheless, the interests and scopes of these enactments are inadequate and do not meet the total requirement of acting against IAPS<sup>26</sup>. The present laws are sectoral in nature and thus can be used only in relation to specific types of invasive plants.

### **1.4. The Prevention of Mosquito Breeding Act No.11 of 2007**

This Act provides provisions for the prevention of mosquito breeding, for the eradication of places of mosquito breeding and for connected matters. Pursuant to its sections, it is the obligation of the proprietor or occupier of any premises to remove shrubs and undergrowth, other than those grown for food or ornamental purposes, that have become a breeding place for mosquitoes<sup>27</sup>. Correspondingly, the owner or occupier of any premises must remove and destroy Water Lettuce (*Pistia stratiotes*) and any other water plant or other plants which may facilitate the breeding of mosquitoes.<sup>28</sup> According to Section 3(1)(g), the Competent Authority can, by written notice, order the removal of any plant that affords breeding conditions to mosquitoes or the Water Lettuce to be destroyed. Thus, it appears that this Act could be used to destroy any of

<sup>23</sup> Buddhi Marambe and Jagath Gunawardene, 'Institutional Coordination, Legal Regime and Policy Framework for Management of Invasive Alien Species in Sri Lanka' *Invasive Alien Species - Strengthening Capacity to Control Introduction and Spread in Sri Lanka* (2010) 63-76.

<sup>24</sup> Fisheries and Aquatic Resources Act No.02 of 1996, Preamble.

<sup>25</sup> (n 25) s 30.

<sup>26</sup> (n 15).

<sup>27</sup> The Prevention of Mosquito Breeding Act No. 11 of 2007, s 2(g).

<sup>28</sup> *ibid* s 2(h).

the invasive plants that have been found to be conducive to the breeding of mosquitoes.

### **1.5. Invasive Alien Species Act 2021 and Other Policies**

Considering the importance of implementing relevant legal instruments to manage IAPS, a bill entitled Invasive Alien Species Act 2021 will be introduced soon and the new draft bill will include a risk assessment mechanism which will be conducted when introducing foreign plants to the country<sup>29</sup>.

Similarly, under the National Environment Policy 2003, environmental management systems are encouraged to be flexible so as to adapt to changing situations including invasive species<sup>30</sup>. It also identifies that, effective measures must be adopted to guard the entry into Sri Lanka of noxious, invasive species (of plants, animals and micro-organisms) and environmentally harmful genetically modified organisms in order to conserve the biodiversity within the country.

## **2. International Regulatory Framework on IAPS**

The Convention on Biological Diversity (CBD) is the only global instrument to provide a comprehensive basis for measures protecting all components of biodiversity against those non-native species that are invasive, by calling on member governments to prevent the introducing, controlling or eradicating those which threaten ecosystems, habitats or species<sup>31</sup>. Sri Lanka being a signatory to CBD is directly obliged to establish and maintain means to regulate, manage or control the risks entailing the introduction of IAPS<sup>32</sup>.

Furthermore, the International Plant Protection Convention is aimed at taking action to prevent the spread and introduction of pests of plants and plant products and to promote appropriate measures to control them<sup>33</sup>. Resolution VIII/18 (invasive species and wetlands) adopted under Ramsar Convention also urges State Parties to address the problems posed by IAS in wetland ecosystems

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<sup>29</sup> Hiranyada Dewasairi, 'New Act to stop Invasive Plants' *Sunday Morning* (Sri Lanka, 29 December 2020) <<https://www.themorning.lk/new-act-to-stop-invasive-plants/>> accessed 17 February 2022.

<sup>30</sup> National Environmental Policy and Strategies (Ministry of Environment and Natural Resources, 2003).

<sup>31</sup> CBD, art. 8(h).

<sup>32</sup> Bhagya Jayarathne, Sudheera Ranwala, 'Research on Invasive Alien Plants in Sri Lanka: An Analysis of Past Work' (2010).

<sup>33</sup> C Shine, 'Invasive species in an international context: IPPC, CBD, European Strategy on Invasive Alien Species and other legal instruments' <<https://onlinelibrary.wiley.com/doi/10.1111/j.1365-2338.2007.01087>> accessed 15 February 2022.

in a decisive and holistic manner<sup>34</sup>. Even under United Nations Convention on the Law of the Sea, Parties are required to prevent, reduce or control the pollution of the marine environment resulting from the intentional or accidental introduction of non-native species to a particular part of the marine environment, leading to significant and harmful damages thereto<sup>35</sup>.

## 2.1. Regulatory Frameworks governing IAPS in other South Asian Countries

### (a) India

In recent years, the number of invasive species and their abundance in other South Asian countries such as India and Nepal have been increasing rapidly. India being one of the “megadiverse” with a diversity of ecological habitats,<sup>36</sup> has now identified over 80 IAPS in the country<sup>37</sup>. Invasive growth of grass *Paspalum distichum* has changed the ecological character of large areas of Keoladeo National Park reducing its suitability for certain waterbird species including the Siberian Crane. Similar occurrences have been reported from Kanjli wetlands and Ropar wetlands<sup>38</sup>.

The threat of IAPS gaining entry into India is being addressed under the Destructive Insects and Pests Act 1914 and the Plant Quarantine (Regulation of Import into India) Order, 2003, which calls for the prohibition on import of commodities with contamination of weed/alien species<sup>39</sup>. However, the increasing number of new incursions into the country indicate that the current biosecurity regulations are either not implemented properly or they lack proper provisions to prevent invasions<sup>40</sup>.

### (b) Nepal

Lying at the cross-road of six floristic provinces of Asia, Nepal is no different from India<sup>41</sup>. There are 219 species of alien flowering plants native to Nepal,

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<sup>34</sup> (n 3).

<sup>35</sup> UNCLOS, art.196.

<sup>36</sup> Convention on Biological Diversity. (2005) “India’s Third National Report”.

<sup>37</sup> Achyut Kumar Banerjee, ‘We know the problem of Alien Invasive Species but are we doing enough to solve it’ (Monogbay, 4 August 2021) <<https://india.mongabay.com/2021/08/commentary-we-know-the-problem-of-alien-invasive-species-but-are-we-doing-enough-to-solve-it/>> accessed 15 February 2022.

<sup>38</sup> The Ramsar Convention on Wetlands (2006) “The annotated Ramsar List: India.”

<sup>39</sup> Plant Quarantine Order 2003, Schedule VIII.

<sup>40</sup> Kavita Gupta and KV Sankaran, ‘Forest Biosecurity System and Processes: An Indian Perspective’ (Frontiers for Global Change, 30 September 2021).

<sup>41</sup> Bharat Babu Shrestha “Invasive Alien Plants in Nepal’ (ResearchGate, March 2016).<[https://www.researchgate.net/publication/298058333\\_Invasive\\_Alien\\_Plant\\_Species\\_in\\_Nepal](https://www.researchgate.net/publication/298058333_Invasive_Alien_Plant_Species_in_Nepal)> accessed 15 February 2022.

26 of which have been reported to be invasive with negative environmental impacts, including agricultural production<sup>42</sup>. Case studies have shown that the impacts of IAPS in Nepal, range from habitat degradation to endangered wildlife<sup>43</sup>. 44% of the habitat of endangered one-horned Rhinoceros in Chitwan National Park has been negatively affected by *Mikania micrantha* by suppressing regeneration of trees<sup>44</sup>. The country has established many sectorial legislations including Plant Protection Act of 1972; Aquatic Life Protection Act of 1961; Seed Act of 1988; Water resource act of 1992; The Forest Act of 1993, and the National Parks Agro biodiversity Policy 2008 to regulate and eliminate invasive species of germs, pests and weeds in crops<sup>45</sup>.

Regardless of the numerous provisions stipulated under the Plant Protection Act of 2007 to regulate the import of plants, other pertinent national Acts remain silent on the issue<sup>46</sup>. Accordingly, the absence of a dedicated legislative and institutional framework is apparent to be seen as a major cause in aggravating the problem.

Relatedly, the Seed Act of 1988 in Nepal also developed a National Seeds Board to implement policies relating to the seeds and to provide necessary assistance to the Government of Nepal to deal with the introduction of grasses/ forage seeds<sup>47</sup>. Nonetheless, the act does not seem to address issues in relation to seeds which could be invasive in foreign soils, thus making the said Act silent on the adverse impact of IAS.

### 3. Recommendations and Conclusion

Although the National Policy, Strategies and Action Plan on IAS in Sri Lanka, emphasizes the need to establish effective legislation to address the issue of IAPS, the existing legal setup working on IAPS in isolation will not assist

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<sup>42</sup> Tiwari Sagendra *et al.* 'An Inventory and Assessment of Invasive Alien Plant Species of Nepal. IUCN-The World Conservation Union, Nepal' (2005).

<sup>43</sup> *Ibid.*

<sup>44</sup> Binu Timsina, Bharat Babu Shrestha *et al.*, 'Impact of *Parthenium hysterophorus* L. invasion on plant species composition and soil properties of grassland communities in Nepal' (Science Direct, 2011) *Flora* 206: 233–240.

<sup>45</sup> Kabita Kumari Shah *et al.*, 'Invasive Alien Plant Species: A Threat to Biodiversity and Agriculture in Nepal' (2020).

<sup>46</sup> Mohan Siwakoti, Bharat Babu Shrestha, (2014) 'An overview of legal instruments to manage invasive alien species in Nepal. In: *Proceedings of the International Conference on Invasive Alien Species Management*.

<sup>47</sup> (n 39) 280.



the country's aim<sup>48</sup>. Presently, different legislations look into the issue on a sectoral basis, and some invasive species do not garner due consideration. Therefore, it is necessary to adopt a new enactment to deal with invasive species with one focal point that can coordinate, facilitate and strengthen the role of the different institutions while making periodical revision of such legislation mandatory<sup>49</sup>. Further, the law must be broadened to encompass different types of harmful species including; those that are poisonous and have other possible detrimental effects on people and the environment<sup>50</sup>.

One of the most significant barriers to the policy development and implementation on IAPS has been the lack of public awareness of the causes and consequences of such biological invasions. The knowledge base of IAPS appears to be rather meager and limited in the Sri Lankan context. However, the European Union has already acknowledged the active involvement of citizens in contributing to the successful implementation of the IAPS management. In accordance with the EU Regulation 1143/2014,<sup>51</sup> citizens of European countries are encouraged to report sightings of Invasive Alien Species through the "Invasive Alien Species in Europe" smartphone App. The reported observations are validated by experts of the European Alien Species Information Network (EASIN) and are made available through the EASIN species occurrence maps<sup>52</sup>. This method has been proved to be effective in promoting people's engagement in IAPS management and countering their increasing toll on natural resources and society<sup>53</sup>.

Furthermore, the responsible authorities in Sri Lanka must be vigilant in taking appropriate measures in preventing the entry of IAPS through the newly emerging threat of ornamental and aquatic plant trade. A central framework must be created to function in a more coordinated way to rapidly respond to detecting banned aquatic plants and conducting pre-risk

<sup>48</sup> Voluntary Peer Review of The Revision and Implementation of The National Biodiversity Strategic Action Plan 2016-2022 of Sri Lanka.

<sup>49</sup> Devaka Weerakoon, Siril Wijesundara, 'Invasive Alien Species – Strengthening Capacity to control Introduction and Spread in Sri Lanka (Biodiversity Secretariat, Ministry of Environment 2010).

<sup>50</sup> K Gupta, 'Role of Regulatory Measures in controlling spread of plant pests' (CBS Publishers 2005).

<sup>51</sup> Regulation (EU) 1143/2014 on Invasive Alien Species, entered into force on 1 January 2015.

<sup>52</sup> European Alien Species Information Network (European Commission, 2022). <<https://easin.jrc.ec.europa.eu/easin/CitizenScience/BecomeACitizen>> accessed 19 February 2022.

<sup>53</sup> Report from the Commission to the European Parliament and the Council on Review of the application of Regulation (EU) 1143/2014 on Invasive Alien Species (2021). <[https://ec.europa.eu/environment/pdf/nature/invasive\\_alien\\_species\\_implementation\\_report.pdf](https://ec.europa.eu/environment/pdf/nature/invasive_alien_species_implementation_report.pdf)> accessed 17 February 2022.

assessments and post-risk assessments for restricted ornamental plants to minimize threat levels.

In conclusion, it must be the duty of the Sri Lankan government to ensure that IAPS prevention, and control are fully incorporated in national legislations and national wetland and biodiversity policies and strategies in Sri Lanka, while applying the Ramsar Guidelines to review the laws and institutions, promoting the conservation and wise use of wetlands<sup>54</sup>. The law should also establish clear institutional accountabilities, comprehensive operational mandates, and effective integration of responsibilities regarding actual and potential threats from IASP while ensuring that such legislation provides for the necessary administrative powers to respond rapidly to emergencies, such as detection of potential IAPS<sup>55</sup>.

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<sup>54</sup> Prevention and Management of Invasive Alien Species: Proceedings of a workshop on Forging Cooperation throughout South and Southeast Asia (2003).

<sup>55</sup> IUCN Guidelines <<https://www.iucn.org/theme/species/publications/guidelines>> accessed on 15 February 2022.