

Examination of the Interconnected Nature of Identified Manmade Environmental Problems and the Discovery of Keystone Environmental Crises**Sivaramanan S.^{1*}, Kotagama S.W.²**¹*Environmental Officer, Central Environmental Authority, Battaramulla, Sri Lanka.*²*Department of Zoology, University of Colombo, Colombo 03, Sri Lanka***sivaramanansr@gmail.com***Abstract**

Man-made environmental problems are increasing in numbers with time. A study based on cause-effect relationships of man-made environmental problems developed by the methodology of “theoretical sampling”. Here, published literature sources were referred to recognise the environmental issues. The causes and their effects were recognised as a chart. The chart was then transferred into the “Concept diagram” with the principles of the visualisation tools of Stockholm Environment Institute (SEI) of United Nations Environment Management Group (EMG), which depicts a complete “mental map” of relationships among the man-made environmental problems. For instance, manmade climate change is caused primarily as a result of deforestation, draining of wetlands, intensive farming and air pollution (greenhouse gas emission), and each of these problem such as air pollution is caused by intensive farming (methane), burning of fossil fuels (due to global energy crisis), urbanisation, methane emission from solid waste dumps, etc. Furthermore, deforestation is mainly caused by increasing human population, poverty, overexploitation of natural resources, urbanisation, mining minerals, intensive farming, establishment of dams, wild fires during El Niño, acid rain and global warming (cyclic as cause and effect). In addition, each of these manmade environmental problem may causes various other environmental problems, for instance, air pollution causes ocean acidification, ozone depletion, acid rain, disease, visual pollution (smog), etc. Similarly, deforestation causes issues such as biodiversity loss, land degradation, human animal conflict, etc. Thus, manmade environmental problems are interconnected as causes and effects. 228 links between 39 defined environmental crises from real world events (stated in published literature) have been identified, in this web certain causative environmental problems establish keystone links. Solving a keystone issue would result in the extermination of one or more linked manmade environmental problems. But when a man-made environmental problem is caused by more than one man-made environmental problem then their causative environmental problems cannot be considered as keystone links such as air pollution causes human-caused global warming, ocean acidification, acid rain, ozone depletion, respiratory diseases, etc. and mitigating air pollution could halt all the resulted environmental issues, thus, air pollution is a keystone environmental issue. However, in case of draining of wetlands, this is one of the cause for global warming (stored carbon in peat wetlands get released to atmosphere), but it is not a keystone issue, because global warming is caused by many other problems such as air pollution, deforestation, intensive farming, etc. In this approach study found seven manmade environmental problems as keystone links such as air pollution, deforestation, population explosion, overexploitation of natural resources, global energy crisis, intensive farming and urbanisation, urban sprawl and settlements.

Keywords: Environment, Environmental problems, Man-made environmental problems, Keystone environmental problems, Interconnected environmental problems