EDUCATING AND EMPOWERING CHILDREN FOR GOVERNING THE ANTHROPOCENE: A CASE STUDY OF CHILDREN'S HOMES IN SRI LANKA

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ABSTRACT

Educating children and young people on how to care for the environment is the focus of this paper. Today's children will encounter the adverse effects of global population growth and subsequent pollution by adults at the expense of the environment. Thus it is important to draw children's attention to carbon footprints and climatic changes. Through participation they will have opportunities to learn more about the implications of the way we choose to live our lives in the short, medium and long terms. Children learn about their rights and responsibilities by being given the opportunity to express their ideas and to translate policy into practice through small scale interventions that make a difference to this generation and succeeding ones. Such interventions can include lessons on recycling, use and re-use of resources, composting, organic and ethical farming, water and energy conservation techniques and much more.

The essence of this paper has been extracted from my Participatory Action Research (PAR) on the life chances of children and young people in institutional care in Sri Lanka. This PAR largely employs qualitative investigations to manipulate the information collected during the study in order to assess and evaluate the findings. During the PAR, it was identified that some children's homes have initiated a few enhanced ecosystem governance practices that redress problems associated with the worst aspects of industrialisation. These practices promote the harmonious coexistence of humanity and nature and have adopted the concerns of critical systemic thinking with consequent improvement of human well-being and ecosystem health. The potential of these homes to provide education for these vulnerable children by improving their ability to deliver stewardship responsibilities towards the environment should never be underestimated.

Keywords: Anthropocene, children's homes, participatory action research, ecosystems, critical systemic thinking, stewardship responsibilities, capacity building, capabilities.

INTRODUCTION

This paper first discusses the environmental problems caused by human activities in the Anthropocene epoch. Following this, the relationship between environmental impacts and the institutional care of children is highlighted. It emphasises the significance of educating and empowering children for governing the Anthropocene by unfolding three examples of good governance practices exercised by children's homes that showcase how diverse knowledge systems can be included in the discussion of enhanced eco-system governance. The lessons learnt from these case studies confirm that there is enormous potential for these homes to provide education for institutionalized children to improve their ability to deliver stewardship of the environment.

Environmental problems caused by human activities in the Anthropocene epoch

Looking historically at the human-environment relationship, Steffen, Grinevald, Crutzen, and McNeill (2011) state that prior to the Anthropocene[1], i.e. during the Holocene[2], humans and their ancestors modified the natural ecosystem to gain advantage in gathering plant food sources they required or in hunting for animals, but they did not transform the ecosystem around them on a large scale. They indicate that it was the industrial revolution, with its origins in Great Britain in the 1700s, that marked the end of agriculture as the most dominant human activity and set the species on a far different trajectory from the one established during most of the Holocene.

According to Steffen et al. (2011) the era after the World War II (from 1945-2000) can be aptly referred to as the "Great Acceleration". They point out that environmental problems received little attention during much of the Great Acceleration; indeed emerging global environmental problems were largely ignored. During this period there was a general global consensus that economic growth needed to be accomplished at all costs, including at the cost of environmental damage. The environment was viewed as open for exploitation and manipulation for the benefit of human advantage. Some prominent examples of the dire consequences of environmental manipulation include the recent landslides in the hill country of Sri Lanka as a result of tea plantations, hydroelectric power projects and construction of reservoirs. Investigations carried out by National Building Research Organisation indicate that haphazard and unplanned land use, inappropriate construction methods and wanton human intervention have led to an increase in landslide susceptibility (cited in Bandara, 2015). Sugawara (2013) lists; excavation, filling, tunnelling, as some of the factors which may cause instability. Construction of reservoirs for the purpose of generating hydroelectricity and agriculture purposes has also been identified as a triggering factor for landslides.

The human-elephant conflict in Sri Lanka is also an adverse effect of the Anthropocene epoch. Deforestation for human settlement, construction of reservoirs and slash-and-burn agriculture has lessened the fallow cropland for elephant to roam around. Thus, elephants enter villages because, having lost much of their wilderness habitat, they compete with human communities for land and food. Elephant incursions have increased over the past five years. These massive animals eat crops, trample fields, smash into houses and sometimes attack people they perceive as a threat (Dissanayake, 2015).

ENVIRONMENTAL IMPACTS AND INSTITUTIONAL CARE OF CHILDREN

Children are more susceptible to becoming victims of adults' adverse actions against the environment. The more we harm the environment, the more we produce demand for children's homes to care for children because adults are unable to care for them. This may be the result of either parental death due to anthropogenically instigated disaster, or because removal or destruction of the natural resources of Sri Lanka dictates that parents can no longer support their families. Thus there is an urgent need to identify strategies to eliminate actions which harm the environment in order to decrease the demand for institutional care of children. Romm (2015, p. 4) emphasises that "the earth is no longer able to carry the cost of

[1] The word Anthropocene fell into common usage after Paul Crutzen, an atmospheric chemist, and the late biologist Eugene Stoemer, used the term in the Global Change Newsletter in May 2000. The word joins the Greek word 'anthropos', for human, to the suffix 'cene', meaning new or recent, to suggest an epoch defined by recent human activity (Source: http://www.theguardian.com/science/2014/oct/16/)

[2] Holocene: The prior epoch of more stable human-environment relations (Source: Romm 2015, p. 2)

human exploitation", whilst Steffen et al. (2011, p. 746) assert that "the twenty-first century provides an essential context for the transformation from resource exploitation toward stewardship of the earth system". The author's findings through PAR 2012[3] have demonstrated that in the North Central Province (NCP) and the Central Province (CP) nearly 50%; North Western Province (NWP) and Eastern Province (EP) over 30% of children supported by children's homes[4] are there because they are victims of adverse environmental impacts. Owing to tsunami, floods, cyclones, landslides, droughts and elephant attacks, children become orphaned and families become homeless. As a result, children are institutionalized in children's homes as a measure to address their need for housing, food and other basic human rights issues (source: Provincial DPCCS commissioners' interviews, PAR 2012). This group of children, as a result of poor environmental management, become a potential tool to better nurture the stewardship of the earth in this Anthropocene epoch.

Ariyadasa (2013) states that natural disasters, civil war and poverty have made institutional (rather than parental) care an inevitable measure to protect children's well-being and safe guard their rights. In present day circumstances, the advantages of the prevalence of children's homes outweigh their disadvantages, because the government alone cannot address the issues of children's rights and needs when large numbers of children become orphaned or destitute due to unexpected environmental problems. For instance; according to International Development Law Organization (2007), in Sri Lanka, an estimated 5,500 children lost one or both parents to the tsunami that struck in December 2004. Thus, in a Sri Lankan context, environmental impacts have been a catalyst for the creation and the growth of many children's homes, away from the need created by other causes such as poverty, parents' migration for work abroad and domestic violence (Ariyadasa, 2015b; 2015c). The tsunami was a natural phenomenon, but the incident provides an example of the need to deal with the effects on children of catastrophic events, anthropogenic or otherwise.

Wide media coverage was given in the local and foreign media on the devastating landslides in Haldumulla – Koslanda areas in Sri Lanka (Fig. 1). It was reported that around 250 people including children were buried alive with another 150 still unaccounted for (Jayawardena, 2014). Jayawardena states that this is the worst natural disaster since the tsunami in 2004 that killed over 38,000 people along the coastal belt of Sri Lanka. I challenge Jayawardena's description of the Koslanda landslide as a *natural* disaster when there is ample evidence pointing to it being the result of human activities in the area over the last few centuries. This mudslide, triggered by monsoon rains, buried around 140 workers' houses at a tea plantation in central Sri Lanka. (Mallawarachi, 2014) states that children who had left for school in the morning returned to find that their homes and families had disappeared without a trace. The BBC confirms Mallawarachchi's statement, quoting local Member of Parliament Udith Lokubandara; "Many parents had returned home after leaving their children at school when the landslip happened. It is a very sorry situation because there are many children who have become orphans" (BBC, 2014).

[3] The author of this article conducted the field study throughout Sri Lanka in 2012 as part of PhD research using PAR and critical systemic praxis undertaken at Flinders University of South Australia (referred to as 'PAR 2012').
[4] Children's homes: Institutional care settings for orphaned, abandoned and destitute children that are provided by Non-Government Organizations (DPCCS, 2010).

Figure 1: About 140 houses were engulfed by the disaster, some houses have been buried in 30ft (9m) of mud [Source: (BBC, 2014)]

Dissanayake (2015) asserts that the long-running conflict between humans and wild elephants in rural Sri Lanka is intensifying, with the number of reported attacks increasing in the past five years. According to the Department of Wildlife Conservation, the number of attacks causing property damage rose from fewer than 700 in 2008 to nearly 2,000 in 2010 and nearly 3,200 in 2012. Bruno (2015) asserts that elephants kill over 150 humans annually. The conflict is deadly to the elephants as well (Fig. 2). Between 2005 and 2010, people have killed 1,154 elephants, an average of nearly 200 a year (cited in Dissanayake, 2015). These figures justify the statements of policy makers and policy officers of PAR 2012. One provisional commissioner states that "Children's homes in my province recently have started having more orphaned and destitute children than any other period due to human-elephant conflict. Some of these children have lost their breadwinners owing to elephant attacks and some have become homeless and destitute due to devastation attacks to their houses and crops by elephant herds".

Figure 2: A crowd gathers around a dead elephant in Sri Lanka, possibly killed in retaliation for raiding crops (Courtesy the Sri Lanka Wildlife Conservation Society). [Source: (Bruno, 2015)].

Sri Lanka experienced civil war for more than 25 years from 1983. Northern and Eastern Sri Lanka were the main battlefields of a conflict between the rebel group known as the Tamil Tigers and the Sri Lankan army that produced many thousands of orphaned and destitute children (Ariyadasa & McIntyre-Mills, 2014a). The conflict, which is said to be the longest

running war in South Asia, came to an end in 2009 but the consequences of this war have impacted on all children in Sri Lanka. Children who have lost one or both of their parents, and homeless and destitute children were directly institutionalized in children's homes. War Child (2014) asserts that the long-lasting war has had an enormous impact on children.

When fighting ended in May 2009, families that had abandoned villages in the Northern and Eastern Provinces returned. However, the end of the armed conflict contributed to the rise in human-elephant conflict. According to the Department of Wildlife, the war affected areas had been dominated by elephants, and when humans reclaimed the land, this created issues. The human-elephant conflicts started to intensify in these areas around 2011. Now that most abandoned villages have been re-inhabited, the situation is stabilizing. Many families in villages vulnerable to attack have stopped cultivating family vegetable plots because they draw elephants close to the homes. People live in fear of the havoc that elephant herds would cause in the village (Dissanayake, 2015). Thus, people undergo life threats directly and indirectly owing to elephant attacks. A person can be severely injured or killed by an elephant which is the direct threat to their lives. The damage that elephants cause to property and/or crops that impact the livelihood of people is the indirect threat. This envisages that the demand for institutional care has been increased as a result of human-elephant conflict in Sri Lanka. These examples demonstrate that the environmental problems and the institutional care of children have a significant relationship.

CHILDREN'S INVOLVEMENT FOR GOVERNING THE ANTHROPOCENE: THREE CASE STUDIES FROM CHILDREN'S HOMES IN SRI LANKA

Romm's declaration (2015, p. 1) "that we, as humans, are called upon to play a reasonable role in our caring for each other and for the earth" is applicable for the field of institutional care of children. If NGOs are to promote the care and protection of children deprived of parental care in its "true" meaning and not for any other hidden agendas[5], they are obliged to care for the earth too. For they cannot achieve the former in any long term sense without catering for the latter, i.e. to care and protect children well, the earth should also be cared for and protected well. The number of institutionalized children and the government and non-government bodies involved in the management of these children's homes is quite substantial. Thus, managing children's homes is a significant Anthropocene assignment. Looking after the children's social, cultural, educational, physical and emotional development is the major aim of children's homes. Whilst there are a number of studies that have researched these aspects of children's homes, literature on the environmental context is lacking. This paper fills this gap and identifies three genuine exercises for 'governing the Anthropocene' by managers' of children's homes in Sri Lanka.

Case study-1: Governing the Anthropocene - Integration of Renewable Resources

As the principal researcher of the PAR 2012 entitled "Life chances of children and young people in institutional care in Sri Lanka" (Ariyadasa, 2013), the author visited thirty children's homes. During the field study he witnessed that every children's home manages a garden of their own to produce vegetables and fruit. With few exceptions, however, un-healthiness, untidiness, lack of maintenance and attention were common features of most gardens visited. In contrast to the optimistic approach and outlook of the most productive and

[5] Some provincial commissioners of DPCCSs revealed that some NGOs have hidden agendas such as financial gain and religious conversion in lieu of the "true" meaning of their manifestation, i.e. care and protection for children.

successful gardens, the unsuccessful gardens had many reasons for their failure. This case study reveals the story of the most successful home. This home caters for the needs of twenty young vulnerable children and has been mindful of its governance challenges in social, cultural, economic and environmental aspects. The manager of this children's home expressed the opinion that the day he could feed all children under his care with food that was not exposed to agrochemicals would be the day that he could be considered as the children's true carer. His full statement when author posed the question "What are the strategies that you have taken to enhance the life chances of children under your care?" was as follows:

> "I am well aware that most of the vegetables, grains and fruit that we purchase from markets to feed our children are exposed to range of poisons from their birth to harvest and storage until sales. The artificial fertilizers, pesticides and agro-chemicals that are utilized for preserving food during storage, lead us towards unforeseeable illnesses. The most affected are the children. By consuming these foods their un-matured organs start deteriorating day by day. Therefore, I am hesitant to feed children under my care with poisoned foods. In actual fact, if I am not hesitant to do so, in its true meaning I am not a true carer. That is why I started running an organic farm in our children's home premises. Now it provides around one third of the provisions that are required for children's meals. I will be a real father on the day I can supply 100% of organic food to these children. I am driven by the possibility of thriving organic farming and eco-friendly projects for enhancing the life chances of children".

In achieving these objectives the management of this home strategically manages and integrates the renewable resources. This in turn makes a positive contribution toward creating an eco-friendly society while simultaneously responding to its own governance challenges. This children's home consists of a series of interconnected eco-systems (Figure 5). They produce bio gas energy using human and animal waste along with the home's kitchen food scraps. The bio gas then runs through the kitchen first, supplying energy for cooking meals for the inhabitants of the home. The remainder runs through the vocational training centre (VTC), supplying gas for boiling herb containers. The VTC produces garments using clothes dyed with varying colours soaked in boiled herbs. The manager says;

> "Dying clothes using herbs is a pure and natural process, free from use of artificial chemicals of any kind. Then the leftovers from the VTC are directed to the organic farming field directly, the waste water is used for watering the organic farm and the herb waste is used in the compost yard. The effluent from the bio gas tank is effectively utilized for producing compost and for the home's worm farm. The cattle shed houses three cattle and provide sufficient dairy products for the residents. The waste water from the kitchen and the toilets runs to a field that grows grass for the cattle. The waste from the cattle shed is in turn used to enhance the biogas and compost production. All vegetables and the fruit from the garden are fully organic and have assured residents' food safety. In addition to the vegetable garden, the home has built a productive plant nursery and herb garden. The beehives positioned in three places around the premises contribute not only to the supply of honey for the home but the bees also pollinate the trees in and around the premises".

The manager also identified the strengths, weaknesses, opportunities and threats to their eco-system health. His organic farm is surrounded by paddy fields and coconut plantations. People spray excessive amounts of pesticides to protect paddy from insects. According to the manager, these insects attack the vegetable garden which is free from pesticides. However, they have been able to protect most of their harvest using indigenous eco-friendly methods. Systemic characteristics of this project have also been helpful to address the challenges of their own eco-system. The VTC uses the parts of the Neem tree called colloquially *kohomba* (*Azadirachta indica*) tree which is famed in the country and indeed throughout South East Asia for its medicinal/antiseptic and insecticidal properties. *Kohomba* seeds, leaves and bark are used to dye clothes at the VTC and the boiled leftovers are used in the organic farm. The waste water that comes out as a result of boiled *kohomba* tree parts are sprayed on vegetable plants as it is a natural insecticide. Ruk Rakaganno (2006) asserts that some insects have been found to starve rather than to eat plants treated with *kohomba* oil.

The tradition of 'Dane' or alms giving brings many donors to this children's home (Ariyadasa, 2015b). During their presence at the home, the donors receive the opportunity to visit the VTC, organic farm and to view all other eco-systems maintained in this home. Visitors purchase the produce of the VTC, plants from the nursery and the organic products such as honey, vegetables and compost. The knowledge and the experience that they earn while roaming around the cattle shed, beehives, organic farm, plant nursery, herb garden, worm farm, compost yard and bio-gas unit enables the spread of eco-system governance practices into society. Hundreds of school children in the region who have visited this home learn and experience its practices, demonstrating the popularity that this project has gained over the recent years.

The combination of different ecosystems and their coexistence have systemically balanced the children's home environment. The VTC contributes employment and has empowered three disadvantaged women and continues to provide vocational training for numerous institutionalized children. The organic garden and herb farm employ two labourers and a traditional agricultural inspector. The opportunity for children to spend their leisure time helping with the gardening activities contributes to building their capacities and capabilities in many fields. These include biological dyeing techniques, organic farming, worm farming, compost production, plant nursery marketing, bee keeping and dairy farming (Fig. 3). The dynamics of the eco-systems governed by this particular children's home can be described in a systemic manner (Fig. 4). It demonstrates how systems and sub systems can share their values to contribute to a common goal. The children grow up immersed in an environment that values the ecosystems health which contributes immensely to each child developing a greater understanding of the significance of environmental protection and stewardship.

This project characterises the harmonious existence between humanity and nature. The management sees nature as a relative which reflects the notion that relatives should live in harmonious relationships (Harris & Wasilewski, 2004 cited in Romm, 2015). It makes provision for the suggestion that a critical systemic approach need not imply that ecological concerns are undervalued in the quest for human emancipation (Midgley, 1996). Smith (2011, p. 1) adopts a similar approach with regard to the concerns of critical systemic thinking with a description of "the simultaneous improvement of human well-being and ecosystem health" (2011, p. 1 cited in Romm 2015). This management team has designed their project to maintain their own natural resources. While managing the children's home which is their primary objective, the managers have introduced processes for enhanced ecosystem governance. As McIntyre-Mills (2014, p. 10) reminds us "the environment is primary and that designs need to ensure that they protect the web of life, rather than pitting profit versus the planet systemic ethics".

Figure 3: Illustration to interpret the systemic intervention for governing the Anthropocene through integration of renewable, reusable and recyclable resources (source: PAR 2012).

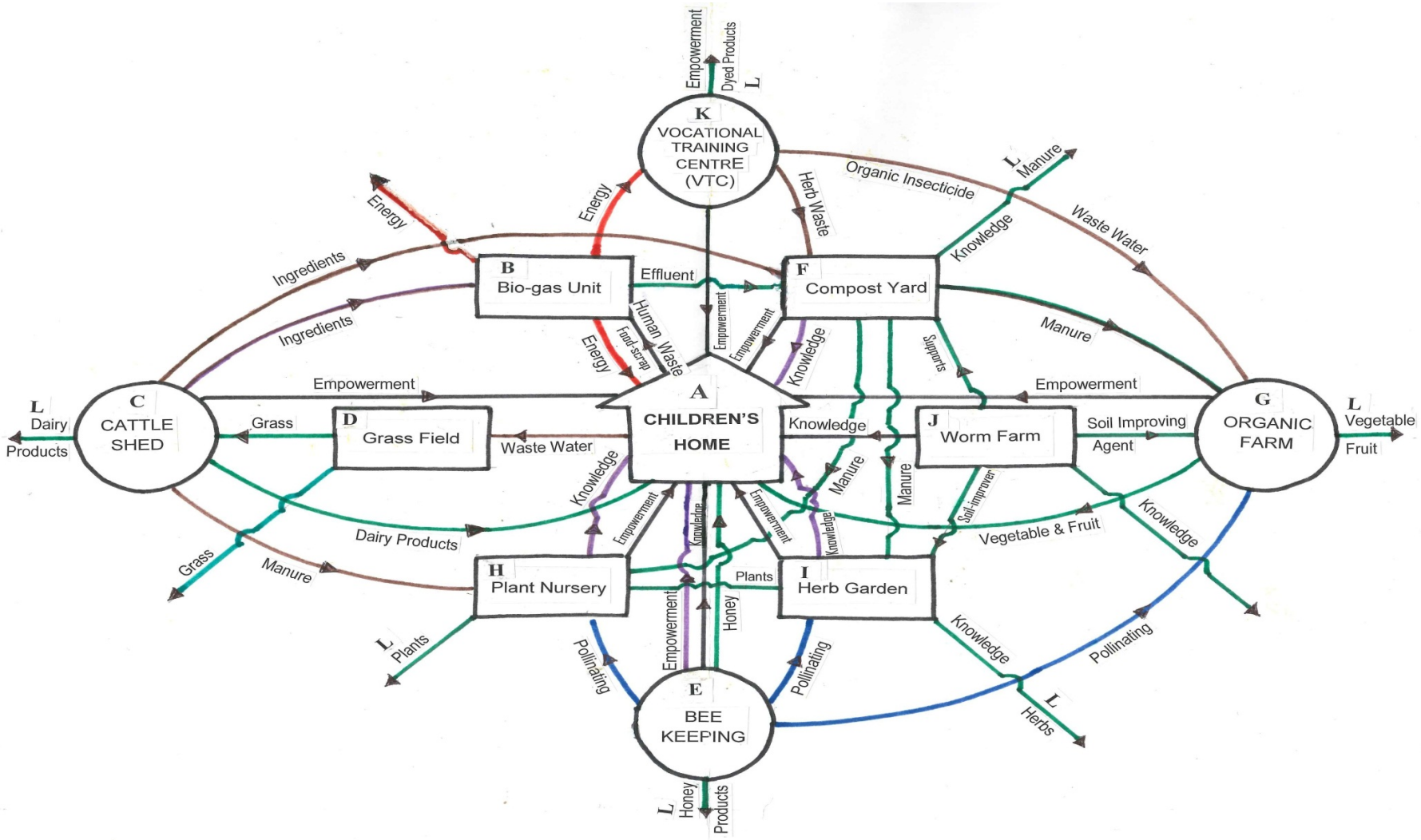

Figure 4: Systemic diagram to represent the eco-system dynamics of case study-1 (Figure 5): A combination of different ecosystems and their interactions have systemically balanced the children's home environment and its management.

Wanigasuriya, Peiris-John, and Wickremasinghe (2011) assert that chronic kidney disease (CKD), of uncertain aetiology, in the NCP mainly affects males from poor socio-economic backgrounds who are involved in paddy farming raising the possibility of agrochemical exposure as a cause for this disease. Thus, the systemic strategies that this home practices can be further studied to address the increasing trend in mortality and morbidity due to CKD mainly in the NCP of Sri Lanka. The case study-1 can be identified as praxis that paves the ways of understanding our environmental stewardship responsibilities for governing the Anthropocene.

Case study-2: Governing the Anthropocene - The Lunch Packet Concept - Reject, Renew, Reduce, Reuse, Recycle (5R)

The industrial revolution has influenced people to travel away from their homes for work or schooling during the day time. Thus, it is generally expected that they have their lunch at the work place or at school. The lunch routine and context could understandably be different for each individual. One could have lunch at the work place canteen or in a restaurant near the work place. In the Sri Lankan context however, it is typical to have a pre-prepared lunch that one takes from home. The most customary lunch consists of rice and curry served on a thin polythene paper (referred to as 'lunch sheet') and wrapped using a sheet of newspaper and packed in a polythene bag (referred to as 'shopping bag').

After the lunch is eaten, several kinds of waste material are generally disposed of into the environment. They are; shopping bag, newspaper sheet, lunch sheet and the food left overs. Managing the waste that has been generated by the lunch packet can be regarded as an Anthropocene assignment, because it is an outcome of the Anthropocene epoch. The significance of this typical lunch packet and its relationship to waste management is reflected in both empirical findings and secondary data of PAR 2012 conducted by the author. The following case study provides strategies of how to overcome environmental problems that result from lunch packet use. This particular children's home has placed four bins for the disposal of waste (Figure 5). The bins are for specific categories of waste; polythene / plastic, paper / cardboard, waste food materials and lunch sheets. The manager explained the reasoning behind this:

> "The most common form of excess rubbish at any workplace or school is the waste as a result of lunch packets. When one has eaten his lunch, he rols the left overs using the lunch sheet and then wraps it using the sheet of newspaper. Then he puts it into the polythene bag and throws it into the garbage bin provided, or throws it into a space where garbage had already being stacked. This is the beginning of many disasters. The stray dogs and cats steal them and mostly end up consuming the food leftovers along with the very thin lunch sheet. When this waste is taken to an open garbage disposal premise away from human vicinity, it becomes the meals of crows, cows and any other animal varying from hedgehog to an elephant. The big animals who can only smell the food but unable to unwrap it, eat it along with the lunch sheet and/or the shopping bags. Anyone can understand the consequences to their health. Not only that, the rain collects the waste and takes it to drains and has become the major cause of recent floods in urban areas. These garbage collection centres have become major fly breeding beds and the sources for various diseases. Thus, I have built the lunch packet concept for disposing of garbage systemically that gives many solutions to these environmental dilemmas".

Figure 5: Lunch packet concept: segregated disposal (Source: PAR 2012)

This manager convinces us that the rubbish disposed in accordance with the "Lunch packet concept" represents the majority of waste disposed by a family or an institution. Shopping bags represent clean polythene/plastic based materials that can be reused or recycled. Newspaper sheets represent clean paper/cardboard based materials that can also be reused or recycled. Leftovers from the lunch represent organic materials that can be used as a renewable resource to feed animals or to produce compost and bio-gas. Unfortunately the lunch sheets are contaminated by oil and food materials. This type of waste represents materials that cannot be reused or recycled.

According to Yatawara (2014) a considerable portion of the post-consumer plastic consists of lunch sheets and shopping bags. In recycling these plastic and polythene items, the biggest problem is its contamination with dirt - in the case of lunch sheets, these are thrown away with leftover food. This contamination needs to be removed, thus recycling lunch sheets and shopping bags is not an easy task. They have to be separated from other materials if an efficient and an effective recycling process is expected. The mechanism becomes much easier and more cost effective, if the initial separation is done by the users themselves. In this home a flyer has been displayed above the waste disposal space to inspire and instruct (Figure 6). It educates the residents and guests of the wider meaning of the lunch packet concept. They have added two new 'R's to the popular '3R' concept "Reduce, Reuse and Recycle": namely 'Reject and Renew'. They want the public to reject lunch sheets and renew the organic waste into fertilizers or use them as renewable resources for producing animal food or bio-gas.

A number of researchers have demonstrated the significance of the timely, critical and appropriate action of this manager. Jayawardane (2015) asserts that "According to recent study estimates, in Sri Lanka, we dispose of 15 million lunch sheets a day; 20 million shopping bags are dumped each day, nearly 20 million food containers such as yoghurt cups are disposed of in addition to many other plastic products. Only a fraction of this is recycled, and a greater percentage ends-up in landfill or other natural ecosystems (such as water bodies and wetlands) causing serious environmental issues.

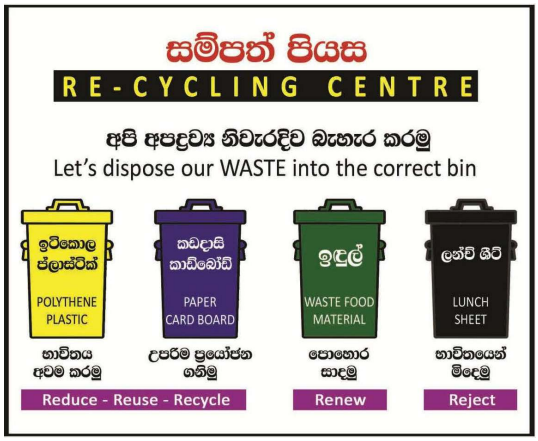

Figure 6: Let's dispose our waste into the correct bin (Source: PAR 2012)

Plastic and polythene account for approximately 6% of the municipal solid waste composition in Sri Lanka" (Fig. 7). Yatawara (2014) states that every time someone goes shopping they bring home several polythene bags which are not recycled or reused. Around six to seven food packaging bags are discarded each day by a family. When multiplied by approximately 4.2 million families in this country, this represents a significant waste stream.

Figure 7: In the western province alone, 60 to 70 percent of the waste is perishable waste and another 15 to 20 percent is recyclable waste. Improper waste disposal, a colossal loss to the country [Source: (Yatawara, 2014)]

Dr. Priyan Perera, Senior Lecturer in the Department of Forestry and Environmental Science, University of Sri Jayawardenepura asserts:

> "Irresponsible disposal of plastics and polythene degrades aesthetic beauty and environmental quality. Plastic and polythene that is improperly dumped can impede water-flow in drainage channels, and provides breeding places for disease vectors such as mosquitoes. Open burning of Plastic and polythene contributes to atmospheric pollution and may cause serious health problems. Many plastics and polythene ends up in aquatic environments such as inland water bodies and oceans. Some reports indicate that over 80% of ocean debris is in fact plastic. Plastic degrades due to solar radiation (photo-degradation) and

> oxidation into smaller particles, eventually forming plastic dust. They can pollute deep ocean sediments and then enter food chains" (Jayawardane, 2015).

Plastic was invented during the latter part of the 19th century, and large scale manufacturing and applications took place only after the 1st World War. So, it is technically possible to live in a world without plastic or polythene, and our own history can provide such evidence. Before lunch sheets were introduced, people used to pack their lunches using eco-friendly materials such as banana or water lily leaves and betel nut leaf stems. In rural areas, even in the present day, banana leaves are used in lieu of umbrellas for protection from rain. Thus the majority of families had identified the significance of growing banana trees in their gardens, in addition to its benefit as a fruit provider. In the present day context, urban life, with minimal space for gardening, has undermined the use of these eco-friendly materials. Furthermore, the convenience, low-cost and multi-purpose characteristics of polythene have substituted and marginalized the use of once common organic materials for household purposes.

When adopting the lunch packet concept as the garbage disposal mechanism, it convinces individuals to consider that lunch sheets should be rejected or reduced as it pollutes the environment in many ways. It also focuses attention on the importance of the separation of waste as an outcome of lunch packets in particular and all other waste in general to maximise their reusability, recyclability and renewability.

Case study-3: Governing the Anthropocene - Learning by doing

One particular children's home runs a club activity called "Green-birds". According to the manager, he attempts to enhance children's life chances and build their capacities whilst engaged in environment conservation projects. He explains their major green-bird activity as follows:

> "We have divided our children in the home into three groups. Once a fortnight, each carer takes one group to a nearby town or a temple where many people gather. Then we start collecting all sorts of litter that the public have thrown away. It does not take long to fill our bags. We come across many materials. Temple premises are full of polythene bags. Devotees bring fresh flowers and after offering them, bags are thrown to a corner of the temple premises. We sort them out and collect them into our rubbish bags. At viewpoints, PET[6] bottles, polythene bags, empty confectionery boxes and leftovers from lunch packets are often encountered. Our intention is not just to collect as much rubbish as possible, but to enhance our children's awareness of the immense environmental impact from this waste. Most of all, when children collect rubbish, the people around them can learn from the children's action and may reconsider throwing litter around, and of course regret previous littering. Some people join us and help us with our deeds. I have also found this a better way for our children to interact with the general public. The public have a general consciousness that institutionalized children are vulnerable and helpless and that it is public's duty to support children's homes. When we have initiated this kind of social work, people admire the children's action which naturally empowers them to build their morale and confidence".

The manager's words are indicative of a children's home which presents a good example of educating children for governing the Anthropocene. He has provided children with "Green-bird" T shirts, gloves and tongs for use when they are engaged in collecting rubbish (Fig. 8). The manager has also extended the project to include participation from other local school children outside his children's home. His intention is to promote the

[6] Poly-Ethylene Terephthalate

Green-bird project nationally around Sri Lanka to protect the environment from discarded rubbish and educate and change the public's unacceptable habit of excessive littering. His activity in his own words is; "example is better than precept". He ends his narrative saying "I am pretty sure that in future we will have number of environmentalists produced from our children's home".

Figure 8: Collecting rubbish at a temple by green-birds (Source: PAR 2012)

After every rubbish pickup, Green-birds gather around their picked rubbish bags and have a discussion over refreshment. It gives an opportunity for the participants to express their feelings and attitudes about their participation. A comment book provides them with further space to express their thoughts. Of many hundreds valuable comments, the following three from participants are provided to emphasise the significance of the green-bird activity whilst educating children.

- "I have not taken much effort to throw litter into a garbage bin earlier. For example, throwing a toffee paper, bus ticket or a grocery bill into the environment was a very general habit of mine. I am convinced that the litter which I collected today was the result of many individuals whom might have the same habit as mine. If every one of us had refrained from littering everywhere we need not have collected rubbish today. The environment would have been free from litter and a pleasant place for everyone".

- "The places that have been most visited by people are the most affected by rubbish. Of course in many places either the garbage bins had not been placed or were overflowing. Loads of litter has been stacked everywhere with no proper covers to protect them from being exposed to the environment. It is a pity to witness how people have destroyed the beautiful places at the expense of their attractiveness. If they do not find a proper waste disposal mechanism around, mindfulness to take back their own litter with them, would have kept the environment clean without harming its beauty".

- "I am proud to be a green-bird".

STRATEGIES FOR MAINTAINING THE HUMAN-ENVIRONMENT FRIENDLY RELATIONS IN THE ANTHROPOCENE

Constructing reservoirs for hydroelectricity and agricultural purposes, tunnelling for roads and railways for transportation, filling and excavation for building roads, deforestation for tea plantations and agriculture are human activities that continue in the Anthropocene epoch. Although these said human activities are supposed to enhance human well-being and the standard of living, sometimes the opposite happen. This paper reveals that these human activities have been the major causes for many environmental problems including landslides and human-elephant conflicts. Thus, it is time to learn from past experience to avoid future depredation. This paper emphasises the importance of a thorough consideration of environmental impacts and the consequent adverse effects to the human lives prior to the implementation of any project that might hinder the environmental equilibrium. The significance of ethical conduct in accordance with Environmental Impact Reports and the importance of listening to the voice of the public have been discussed as strategies to maintain the human-environment friendly relations in the Anthropocene epoch.

LESSONS LEARNT FROM THE CASE STUDIES

The first case study shows that our existence is contingent on our supporting, and being supported by, others (including non-living entities). It also teaches us to limit our use of fertilisers and pesticides which have the potential for environmental harm. It introduces alternative measures on how to protect crops from agrochemicals that eradicate endangered herbs at the expense of commercially driven food production. Strategies for avoiding and banning chemically driven food production and reducing carbon footprints through systemically integrating interdependent renewable resources are the lessons learnt from this children's home. According to the manager of this home, he has initiated the organic farming with the principal intention of maintaining the good health and longevity of the children. It is interesting to note that the central focus on organic farming has become the hub of many capacity building initiatives that are linked with central capabilities including; safety, education, standard of living, productive valued activities, quality social interactions, recreation and play (Ariyadasa & McIntyre-Mills, 2014a; Canoy, Lerais, & Schokkaert, 2010; Nussbaum, 2011). Furthermore, the eco-system governance practices of this home have paved many paths in empowering children for diverse occupations such as organic, dairy and worm farmers; bee keepers; plant nursery marketing; compost and bio-gas producers; herbal medicine practitioners; environmentalists; and agricultural inspectors. The vocational training atmosphere is consistent with the Guidelines[7] for the Alternative care of Children (United Nations, 2010) and the General Standards[8] for Promoting the Quality of Services of Voluntary Children's Homes (DPCCS, 1991).

[7] UN Guideline 134 & 135
[8] General Standards 5.22 & 5.23

The second case-study builds capacities in resource management for institutionalized children in particular and the public in general. It involves lessons on recycling use and re-use of resources. The lunch packet concept has conceptualized a practical solution for the issue of waste management in Sri Lanka. It also addresses many issues related to environmental impacts, health hazards, and social and economic crises due to improper waste disposal mechanisms. Furthermore, it prompts the urgent need to develop alternatives to lunch sheets and encourages us to at least use a lunch box made of reusable material that can be recycled after a reasonable time. The manager showed the author the records of three high school students who had researched this lunch packet concept for their final year assessments. According to the manager, two schools have initiated schemes to implement waste disposal mechanisms in accordance with the lunch packet concept. It indicates the significance of this concept for wider application throughout the country.

The third case study shows that volunteering to clean up the cities empowers the citizens' attitudes to maintain an eco-friendly environment by eradicating the habit of the careless disposal of litter. Furthermore, the generous gesture of this children's home to involve other school children and public in their green-bird activities demonstrates their willingness to campaign for public awareness of a clean environment. It not only helps to keep the environment clean, but keeps a harmonious relationship between the children's home and the external world through a worthy cause. The discussion after every rubbish pickup helps participants to reflect on their activity and provides an incentive to take home the message of their good deeds. The certificates that the manager awards for green-bird participants, are a manifestation of the manager's enthusiasm to mould children to become leaders, guiding society toward a clean and healthy environment.

One of the greatest concerns that has been underscored in many of the research reports written on institutionalized children, and which impedes upon their experiencing competence, is the lack of opportunities to acquire social skills required for adult life (Dunn, Jareg & Webb, 2005; Mann, 2001; Save the Children, 2005; Tolfree, 1995). Jayasooriyya (2008, p. 30) state that "Many of the children expressed fear about society outside the children's institution and were worried about their inability to deal with it once they left the institution". However, the most prominent characteristic of the three examples of good governance practices discussed in this paper is the ability for institutionalized children to interact with wider society and environment. Thus, during their institutionalization, they acquire the courage and confidence that they need to deal with societies outside the high walls and the locked gates of children's homes when they are re-integrated[9]. All three projects educate and empower children, young people and also the adults about how to care for the environment. Mindfulness of eco-friendliness, global warming and climatic changes are the underlying features of the tacit endeavour of these management teams. These practices characterise the harmonious existence between humanity and nature and have adopted the concerns of critical systemic thinking with the simultaneous improvement of human well-being and ecosystem health.

[9] Re-integration: In this PAR *re-integration* is referred to as 'a child's reunification with family/natural birth environment, socialization with society/community or other permanent care solutions such as local/foreign adoption'. Source: (Ariyadasa & McIntyre-Mills, 2014b).

CONCLUSION

"A small group of thoughtful committed citizens can change the world. Indeed it's the only thing that ever has"

(Margaret Mead)

Crutzen (2002) cited by Smith and Zeder (2013) assert "A daunting task lies ahead for scientists and engineers to guide society toward environmentally sustainable management during the Anthropocene". There is an ongoing debate on reckless and abuse conduct in children's homes. Children's homes that build capacities and enhance the capabilities of institutionalized children on environmental affairs were found to be rare. However, the three case studies that have been discussed in this paper showcase the endeavours of a few individuals who have guided their children's homes and their societies toward environmental sustainability by implementing projects on eco-systems and environmental protection. The ethos of these people is summed up by the words of Margaret Mead, who stated that "A small group of thoughtful committed citizens can change the world. Indeed it's the only thing that ever has" (cited in Seneviratne, 2006).

The most important aspect of these projects is that these managers have incorporated institutionalized children in their projects with the intention of empowering them to be the future governors of the Anthropocene. They have pioneered a change in the attitudes of the general public which once held that children in institutional care are helpless and hopeless (Ariyadasa, 2015b). While educating children on the consequences of the human activities in the Anthropocene epoch, these managers attempt to ensure that the mistakes made by earlier generations are not repeated by the current ones. Children learn about their rights and responsibilities by being given the opportunity to express their ideas and to translate policy into practice through small scale interventions that make a difference to this generation and the next.

These explicit examples are exemplary exercises for governing the Anthropocene. They provide intellectual materials to other homes and similar institutions for inventing their own strategies when governing their institutions with the mind-set that we all belong to a single biosphere[10] which includes "not only the biota, but all of their relationships – the web or network of life, the life community" (Caddy, 2014).

"Be the change you want to see in the world"

(Mahatma Gandhi)

[10] The biosphere is the part of the Earth, including air, land, surface rocks, and water, within which life occurs, and which biotic processes in turn alter or transform. The geologist who in 1875 coined the word biosphere, Eduard Suess, defined it as "the place on Earth's surface where life dwells" (Source: http://www.morning-earth.org/).

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