Journal of Management Matters

Journal homepage: www.rjt.ac.lk/mgt

Faculty of Management Studies, Rajarata University of Sri Lanka

Issues of Biopiracy VS Community Based Forest Management: A Case Study on in the Nilgala Forest Reservation (Sri Lanka)

H.I.G.C. Kumara[1], S. Wawwage, L.G.D.S. Yapa and M.L.M.S. Karunarathne

[1]Department of Geography, Faculty of Humanities and Social Sciences, University of Ruhuna, chamindakumara03@yahoo.com

Abstract:

Protecting the right of the local community/country to use their own genetic resources available in a particular area is an important element of Community Based Forest Management as argued in the bottom up and sustainable development discourses, however, biopiracy has now become one of the main challenges in southern peripheral countries. Since both concepts of Sustainable Development and Community Based Forest Management have originated and developed as Western alternative development ideologies, biopiracy challenges can occur when such concepts are applied in the Sothern peripheral context. This research examines such possible challenges in sustainable development approach in the Nilgala forest, Sri Lanka. A qualitative-inductive research methodology has principally guided this research to examine the socio-cultural, socio-economic and geo-political contexts of biopiracy issues. A total of 68 participants have informed this research and direct observation and semi-structured interviews have mainly been used in primary data collection. Critical Discourse Analysis method is used to examine both primary and secondary data. According to the research findings, when Community Based Forest Management has been implemented in the southern peripheral context, it has been followed by capitalism which is superimposed in the area and its people. One of the main findings is that despite plans being developed at a community level, in wider context, biopiracy challenges related to superimpose capitalism contest the sustainable development ideologies. Superimposed capitalism has resulted in individualistic and competitive behaviors that undermine collaborative and responsible Community Based Forest Management activities. Authorities have still failed to control these activities in this site for the support received by bio-pirates from the local community. The research concludes that Community Based Forest Management is an appropriate pathway for community development and forest management in Sri Lanka but recognition of biopiracy issues associated with superimposed capitalism is required and needed to be addressed.

Keywords: Biopiracy, Community Based Forest Management, Superimposed Capitalism, Sustainable Development.

1. Introduction

Protecting the right of the local community/country to use their own genetic resources available in a particular area is an important element of environmental and biodiversity conservation (Kamau, 2009; Sampath, 2005). However, one of the main challenges of biodiversity conservation in the southern peripheral countries is biopiracy which simply can be defined as the commercial use of genetic resources or indigenous knowledge without obtaining permission or properly paying the relevant community or country (Mgbeoji, 2005).

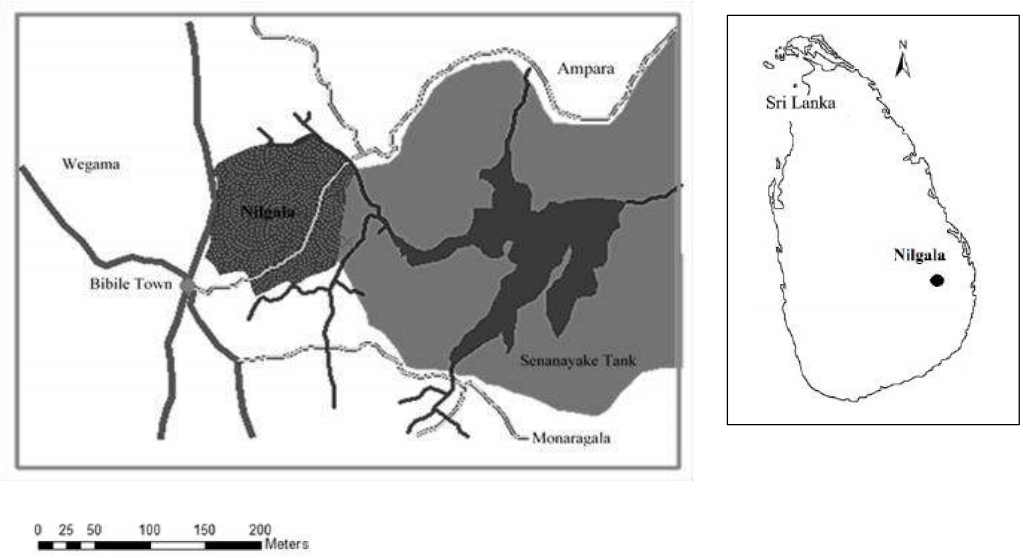
Thus, this research based on Nilgala forest reserve focuses on examining issues of biopiracy, specifically, loss of forest genetic resources and wildlife smuggling that associated with Community Based Forest Management (CBFM) in the Sri Lankan context.

As Community Based Eco-Tourism (CBET) has been viewed as a savior of all ailing economies by the governments of many Asian countries, it has been promoted in various new forms such as community based ecotourism, biodiversity friendly joint forest management, and agro-tourism, etc. With the development of the CBFM sector of these countries, over the last decades, smuggling and illicit trade in valuable flora and fauna have increased (Dellinger, 1995; Pleumarom, 1999; Subasinghe, 2013; Tella & Hiraldo, 2014). Theoretically, CBFM programs are supposed to be accountable for environmental conservation and biological protection but in practice, this accountability has been challenged in many ways. Nilgala forest reservation also can be considered as a sensitive forest site and, as a ecofriendly development approach, CBFM has been applied by Wildlife Department and Forest Department from last few years.

Genetic forest resource loss caused by wildlife trafficking and biological or genetic resource smuggling is one of the major environmental challenges faced by many developing countries. Most of the indigenous people in developing countries, as underlined by the environmentalist interviewed above, are unaware of the biological value and the importance of protecting for their own future most of the genetic resources available in their natural environments. They see only the immediate economic value of these resources when they see how much they are paid by biopirates. Thus, they are unaware of the size of the loss of their own future genetic resources when biopirates access these resources. This has made the people and the places they live in vulnerable to biopiracy and theft of genetic and biological resources (De Carvalho, 2000; Odek, 1994; Posey & Dutfield, 1996). Sri Lanka also faces this problem and it has become one of the key challenges of practicing positive CBFM in the country. According to the records of many CBFM sites, international visitors have been charged with wildlife trafficking and biological and genetic resource theft (Forest Department, 2013a)

The percentage of endemic flora and fauna species is very high in the forests of Sri Lanka (Gunatilleke, Gunatilleke, & Dilhan, 2005). Therefore, they have become famous destinations for commercial gene hunters who enter the forest posing as ordinary eco-tourists. At present, smuggling out Wallapatta plant (*Gyrinopswalla*) and gathering Kimbul Huna (Sri Lankan golden gecko), a nocturnal reptile species, have become profitable in Kudawa-Sinharaja as well as in other rain forests of the country (Forest Department, 2013a).

Map no 1: Location of Nilgala Forest Reservation



Nilagala Forest is a biologically sensitive hotspot and covers a catchment area of *Senanayake Samudraya* that located in the Uva provinces of Sri Lanka (dry zone) (see map no1). The main source for the Senanayake Samudra is the Gal Oya. It is at Nilgala that the river falls into the reservoir. It can be considered a lowland tropical dry mixed evergreen forest. The general climatic conditions in the Nilgala area can be described moderately cool, turning humid climate during the northeast monsoon season. This geo-physical background facilitates growth of many endemic flora and fauna within this ecosystem. Therefore, this forest reservation is a highly vulnerable area in relation to issues of biopiracy: Loss of forest genetic resources and wildlife smuggling related to unfavorable ecotourism and CBFM activities. The research objectives and questions are formed in view of above background.

Research questions

1. Are Issues of biopiracy: Loss of forest genetic resources and wildlife smuggling significant in the Sri Lankan context?
2. What are the socio-economic and political background of CBFM and issues of biopiracy?

Research Objectives

There are three main research objectives.

1. To examine nature of CBFM and biopiracy issues: Loss of forest genetic resources and wildlife smuggling in the Sri Lankan context.
2. To examine socio-cultural and socio-economic linked with CBFM and issues of biopiracy in Sri Lanka.
3. To propose theoretical and practical solutions for identified challenges and issues of CBFM and biopiracy taking Sri Lankan socio-economic and political structure into consideration.

2. Methodology

Qualitative Research Methodology

To design this research, an elementary field survey has been carried out, based on a literature review to identify the rationality of this research and the appropriate methodology. Then it was understood that the biopiracy challenges of CBFM in this site are based on deep socio-cultural, and socio-economic factors, which operate as hidden social factors; however, respondents are not necessarily ready to discuss them openly. Therefore, in this research primary concern was to deal with 'rich and deep' primary data rather than 'numeric' data and much attention been paid to qualitative research methodology.

Rationality of 'Reactive-naturalistic Approach' and 'Ethno-methodology'

Qualitative research methodology is more useful in understanding socio-cultural, economic, as well as political phenomena. Comprehension of social experiences, attitudes, practices, norms and beliefs is focused on by this methodology, rather than collecting numeric data (Bricki & Green, 2002; Bryman, 2012). Qualitative research methodology was gradually developed as a systematic research approach practically helping to understand many complex social issues (Denzin & Lincoln, 2000; Tetnowski & Damico, 2001; Bryman, 2012; Tetnowski & Damico, 2001).

According to many scholars, four traditions of qualitative research methodology have developed: 'naturalism' 'ethno-methodology', 'emotionalism' (interested in subjectivity and gaining access to inside experience), and 'postmodernism' (Bryman, 2012; Hennink et al., 2010; Van Maanen, 1983). 'Naturalism' focuses on understanding social reality on its own terms (Van Maanen 1983; Bryman 2012). According to Reynolds;

> *"The methodology of naturalism is usually defined as the study of the social world through observation of individuals or groups in their natural setting with minimal interference by the observer" (Reynolds, 1980: 77).*

Understanding, describing and interpreting social experiences and structures of Nilgala community is one of the key components of this research. Therefore, the 'naturalistic approach' has been applied within the qualitative research tradition.

There are three main traditions of 'naturalistic observation'. First is a 'non- reactive' (unobtrusive) mode in which the researcher observes social phenomena without intervening in the particular society. Second is a 'reactive' mode where the researcher intervenes in social activities as an outside observer. Third is a 'participant mode' in which the researcher joins the particular society as an active member, until s/he finishes the study (Babbie, 2012).

The different explanations given by different respondents on the same CBFM practices made me observe these ventures within the particular context to understand the rationality and hidden factors behind the different explanations. Therefore, the 'reactive-naturalistic observation' mode has been selected to understand the social reality in the challenges of Biopiracy in the Nilgala site.

This research was focused to understand how different social processes come about to the challenges of biopiracy in this site, thus, 'Ethno-methodology' approach is also was used as a one of the methodological approach of this research (Babbie, 2012). As defined by Garfinkel,

> "Ethno-methodology is the study of the methods people use for producing recognizable social orders. 'Ethno' refers to members of a social or cultural group and 'method' refers to the things members routinely do to create and recreate the various recognizable social actions or social practices. 'Ology' as in the word 'sociology' implies the study of or the logic of these methods. Thus 'ethno -methodology' means the study of members' method producing recognizable orders" (Garfinkel, 2002: 06).

Ethno -methodology is involved in the study of various social actions and practices that people use for the production of social order and seeks to understand how social order is created through talk and interaction (Babbie, 2012; Bryman, 2012). Traditional ethno-sociological factors and norms have influenced the forming of the social order of this study area and an elementary field survey and literature review revealed that this social order has contributed to economic and socio-cultural challenges of biopiracy in this site. Thus, contemporary social actions and practices in this site was examined to understand the social order and its contribution to biopiracy issues of the local CBFM project and to do so, the 'ethno-methodology' tradition was used under the qualitative research philosophy.

Inductive Research Approach

This study targets collecting ideas about how 'rich' and 'deep' intangible factors, such as cultural changes, local knowledge, geopolitics and local economic wealth that are associated with issues of biopiracy. Consequently, a 'qualitative inductive research approach' was selected as the dominant methodological approach of this research. There

is a profound correlation between qualitative methodology and inductive research. In inductive research, first, data is collected using relevant qualitative data collecting methods and then findings are linked with relevant theories, discourses, and concepts. This is the opposite way to conducting a 'quantitative-deductive research', so it is called a 'bottom up' research approach (Bryman, 2012; Thomas, 2012). Suitability of qualitative inductive research approach to this research is its ability to provide complex textual descriptions of how people experience a given research issue. It provides information about the 'human' side of an issue – that is, the often-contradictory behaviors, beliefs, opinions, and relationships of individuals.

Data Collecting Methods:

Secondary data in the research is extracted from the following sources. A number of publications by local and international writers, especially those that include information about development discourses, alternative development, eco development, ecotourism, community forest management, joint forest management, tropical forest management etc. was used in the study.

Participant and direct observation, semi-structured interviews and focus group interviews were conducted as qualitative data collection methods for this research. Altogether, 37 semi structured interviews were conducted in this research and each interviewee was provided with a consent form too. Semi-structured interviews are presented by their categorical code. For instance, in 'SSI10 Site guides of Sinharaja', 'SSI10' stands for 'semi structured interviewing number 10. Five focused group interviews also have been conducted to the primary data collection process of this research and it is also presented by categorical code as 'FGI4 Visitors (local)': 'FGI4' indicates 'focus group interviewing number 04'. A total of 68 participants have informed this research in 42 interviews.

Sampling Method

'Snow-balling' sampling method have been used for the semi-structured interviews. 'Snow-balling' is based on the metaphor that when a real snow ball is rolling down the hill, its size gradually increases until it approaches saturation (Baker, 2012; Cohen & Arieli, 2011; Dodds, 2014). Thus, the researcher must gather enough data using a chain referral process until it approaches saturation (Baltar & Brunet, 2012). This method was useful in this research, since it helped to gather information from diverse respondents. As well, it helped to examine sensitive and confidential personal information important for the research objective (Longhurst, 2009).

Data Analyzing Method

A critical discourse analysis (CDA) method was used to examine both primary qualitative data, which were collected through participant and direct observation, interviews as well as secondary data. The data were analyzed using steps such as data understanding, categorizing, coding under themes, connecting with theories and discourses and described narratively (Description/Interpretation/Explanation) (Becker, 1958; Dewalt, 2011; Dey, 2003; May, 1997). Classification of themes from the collected raw data can be recognized as a process (Bryman, 2012). Intensive reading, careful reading and re-reading were conducted as a procedure to identify patterns in the data to recognize separate themes (Boyatzis, 1998; Fereday & Cochrane, 2008).

Positionality and Reflexivity

The notion of 'positionality and reflexivity' is normally connected with qualitative research methodology (Guillemin & Gillam, 2004; Walker et al., 2013). Every human being lives in a highly connected socio-cultural and political network. The nature of that network is different from place to place, culture to culture and time to time. That means every human being enjoys a special socio-cultural, economic and political 'position'. Whatever they do, talk, write, create etc., that 'position' is naturally displayed in their work. The social researcher is also a human being who has a separate 'position' that depends on his/her own socio-cultural values, beliefs, feelings and thoughts (Robert Wood Jonson Foundation, 2012). Many scholars have then argued that 'position' is exposed in many parts of a social research process (Walker et al., 2013). Since this research uses qualitative methodology, we (researchers) was concerned about our (researchers') 'positionality' through reflexivity.

3. Results and Discussion

Traditional Forest Utilization Practices of Nilgala

Nilgala Savanna forest has extensively been utilized by peripheral villagers for survival purposes (Gunewardene et al., 2003). Non-timber forest material collecting, hunting, bee honey gathering, forest clearing for shifting cultivation can be identified as major and most common forest utilization practices of them. Especially, the Nilgala Savanna forest area is rich in a large number of flora species of medicinal value (Gunatilleke & Gunatilleke, 1990). Most important and valuable medicinal plant species are commonly available in this savanna forest (Karunarathna et al., 2013).

"Nilgala is a forest ecosystem covering 12,432 hectares in the Bibile divisional secretariat. 'Nilgala' literally means 'blue rock'. According to Gunatilleke & Gunatilleke (1990) the major vegetation type is lowland tropical dry mixed evergreen forest. Commonly found trees include Aralu (Terminalia chebula), Bulu (Terminalia bellirica) and Nelli (Phyllanthus emblica)" (Karunarathna & Amarasinghe, 2012: 70).

Regardless of the conservation attempts of the Forest Department together with Department of Wildlife Conservation to minimize illegal forest utilization through 'top to bottom' forest management approaches, they have failed to control traditional forest utilization methods of these peripheral villagers since forest utilization has become the main income source of the people here.

Pastoral farming is one of the main traditional occupations of the peripheral villagers of the Nilgala forest and thus they have used forest area for cattle feeding, even though it is banned by the government (De Munck, 1998). According to a wildlife officer;

For over centuries, the villagers from Nilgala surrounding areas have illegally used forest areas for cattle feeding. They usually set fire to the forest ones a year that they can have new grass afterwards for their cattle. So, it's difficult for us to stop these activities completely since poor villager know nothing else to keep their economy (SSI22 officer from wild life conservation department - 2016.08.19).

According to the field observation, setting fire to forest is identified the major environmental issue in this area. In 1990s, use of top to bottom forest management approaches for forest conservation seemed ineffective in all forest areas of the country. Environmental vulnerability and unlimited, uncontrolled economic development created many development challenges in the Sri Lankan context at the beginning of the 1990s. Some of the many reasons include; increasing demand for land for human needs and development projects, poor land use planning, lack of environmental laws and policy applications, absence of an integrated conservation management approach, pollution, human-wildlife conflict, increasing spread of unknown invasive species, and increasing human population density (Amarasekara, 2012; Bandaratillake, 2001; Mattsson, Persson, Ostwald, & Nissanka, 2012). Further, poverty reduction and economic development still remain two major challenges for Sri Lanka and all these above discussed issues, which are strongly interrelated continue to be challenges owing to lack of effective programmes for the socio-economic and political empowerment of marginalized local people (Barbier, 2012; Subasinghe, 2013).

CBFM has been developed as a sub discipline of ecotourism after 1990 and it has become especially trendy as a community development and sustainable development approach in the poor southern peripheral areas. One of the major objectives of CBFM is to achieve economic, social and community development needs by managing available resources while maintaining cultural integrity, essential ecological routes, and biological diversity (Coria & Calfucura, 2012; Gurung &Scholz, 2008; Weaver & Lawton, 2007).

CBFM and Bottom-up Development Project in Nilgala

'The bottom-up development approach' has gradually arisen as an alternative development tool in the last few decades in the western development discourse. This development approach is based on community participation and empowerment through their own development and environmental management.

The bottom up development approach can be seen as localized, contextually rooted, small in scale, flexible, culturally sensitive as well as environmentally friendly (Altieri & Masera, 1993; Menge, 1992; Parnwell, 2002). Local community participation in development plays a major role in the bottom-up development approach. According to the United Nations Development Program (UNDP), community participation includes "sharing by people in the benefits of development, active contribution by people to development and involvement of people in decision making at all levels of society" (Desai 2002, p. 117). Being a peripheral country, Sri Lanka also changed its development approaches from 'top to bottom' to 'bottom to up' following the northern hemispheric ideological changes, proving that the periphery ideologically depends on the core usually (Goldgeier & McFaul, 1992).

The government of Sri Lanka has formally recognized community-based forest management and forest governance through implementation of supportive policy reforms in government legislation. Community based forest management and forest governance have devolved the authority to the community to some extent to use community knowledge for forest resources management, to design the forest resource-use regulations, to establish vigilance and flexible monitoring system, to promote capacity for conflict resolution, and to improve their capabilities for resource governance and administration.

Setting up of prototype design recognizing graduated membership, promoting commitment principle and persuading fair benefit distribution are required for sustainable community forest management and governance (De Zoysa & Inoue, 2015:10).

After 1995, following the forestry sector master plan of the country, the Forest Department of Sri Lanka carried out one of the major CBFM projects in Nilgala Savanna forest and its peripheral areas. It is called 'Community Based Nilgala Conservation Project' and was funded by the IUCN for five year period (from 1998-2003). Western alternative development ideologies such as sustainable development and bottom up development were the main ideological baselines of this project. According to a previous village-leader of this project;

Researcher: *what are the main objectives of the 'Community Based Nilgala Conservation Project'?*

Villager: *There were several key ideas when we started this CBFM program, however, to address poverty issues of the peripheral villagers of Nilgala and to contribute to the forest management using forest resource sustainably were foremost.*

Researcher*: What activities were carried out in the program?*

Villager: *We [peripheral villagers of Nilgala] have been collecting medicinal plants for many years. But we never found a stable market to sell them. Usually we sold them to dealers for cheap. Let's say, for a kilogram of Nelli we received only two rupees. But the project established a proper and stable market for the collected medicinal forest produce. So we could trade our production to high price. At the beginning of the project we could sell a kilogram of Nelli to 30 rupees. Without any dealers we could directly send our productions to privet companies such as 'Link Productions (pvt) Ltd' (SSI05, 2016.08.20).*

As villagers explained, at the beginning most of the peripheral villagers of the Nilgala forest (Karaugala, Nilgala, Uraula, Anapola, Totilioketiya, Dunupitiya, Pitakubura) could obtain considerable economic benefits from the CBFM project. One of the other important facts is that the project focused on forest conservation while developing people's economic conditions. According to a female villager;

As a part of the project, we were involved in and contributed to many forest conservation activities. For example, 'safety fire belts' were created by community members to minimize environmental effects of forest fires. It was successful. On the other hand, we received training on sustainable utilization of forest resources (SSI 08, 2016.08.19).

At the beginning, this CBFM project could gather villagers in one community and they had their own CBFM social institutes, leaders, and power to involve in income generating activities and forest management activities. Yet, after five years period program faced many troubles. According to a former community leader;

Researcher*: How did the project the progress?*

Villager: *In 2003, the villagers obtained more economic benefits from the project. Most people could build new permanent houses, some bought vehicles [he mentioned here about three-wheelers and motorbikes]. Yet with the improvement in material conditions, our traditional values and community harmony gradually decreased. Community members suffered from economic jealousy about others' achievements. In 2003, IUCN stopped funding the project. But we had capacity to continue the program but villagers were not ready to work as a team.*

Researcher*: Can you explain us further why were not they ready to work as a team?*

Villager: *Alongside the changes occurred in country's political situation, village politics also changed. With regional politicians' support some villagers became politically more powerful within the village. Personally, as a village leader in the project I faced many hardships. Villagers who became more politically powerful did not support me to carry on the program. Then, I had to leave the program. After 6 months of my leaving, it broke down [SSI05, 2016.08.20: (This statement was cross-checked and was proved by SSI22, 29, 34, 2, 9, 29, 13, 12, 11].*

This situation is common to many other CBFM projects of the southern peripheral countries. For example, as Nelson (2004) argued, internal conflicts that emerged based on economic reasons have not supported CBFM targets (Nelson, 2004). Many scholars have argued that CBFM practices in the southern peripheral countries have highlighted the need for theoretical attention to the notion of 'reciprocity' between ecotourism practices and objectives and 'social conflicts' (Jamal et al., 2006; Liua et al., 2014; Reimer & Walter, 2013; Stronza & Gordillo, 2008).

Changes in Social Structure: from 'Collectivism' to 'Individualism and Materialism

Theoretically, CBFM focuses on helping isolated and marginalized people to develop income while conserving natural resources. Critics, using post-colonialism and sustainable development ideas have proved the rationality of this approach (Brydon, 2004; Ziai, 2011). Even if this concept is philosophically rational, in practice, implementation of CBFM is challenged by 'individualism' in southern peripheral countries as a result of the influence of superimposed capitalism (Kumara, 2015). This is common to the Nilgala site too. Before the 1990s, the villages of the peripheral areas of the Nilgala forest were isolated traditional rural villages in Sri Lanka, where community lives were based on values of local feudalism and depended on each other for survival. According to a Nilgala villager;

Before the 1990s, we were very poor. Nobody in our community had permanent houses. Yet we were very close to each other and lived as one big family. All the villagers are related to each other by marriage or blood and we lived in harmony. After the 1990s, people started to be more 'money' conscious. Now we have good houses, infrastructure facilities; we have comfortable lifestyles but we do not have sense of belongingness and unity anymore. Each is isolated with his/her money (SSI 10, 2016.08.19).

Along with the activities of the CBFM project, capitalism has been imposed on this isolated communities.At present, there is a huge competition among villagers who envy each other to achieve martial development which is the ideological nature of a social

structure on which capitalism has been superimposed (Clarke & Micken, 2002; Kumara, 2015).

Now most of the villagers have three wheelers. If one villager buys something new, others also want to have it in their houses (FGI 02, a Nilgala villager, 2016.08.18).

This kind of social background is not appropriate to implement CBFM applications. One of the interesting things is bottom up development application such as CBFM are ideologically promoting collectivistic cooperative activities. Yet in practical context, when CBFM is implemented in an isolated collectivistic society, the social structure gradually changes into an individualistic and materialistic society. This kind of social process can be identified a dialectical social process (Fairclough, 2009) because two opposite ideologies activate interrelated within the same context.

Issues of Biopiracy: Loss of Forest Genetic Resources and Wildlife Smuggling

Protecting the right of the local community/country to use their own genetic resources available in a particular area is an important element of environmental and biodiversity conservation (Kamau, 2009; Sampath, 2005). However, one of the main challenges of biodiversity conservation in the southern peripheral countries is biopiracy which simply can be defined as the commercial use of genetic resources or indigenous knowledge without obtaining permission or properly paying the relevant community or country (Mgbeoji, 2005). As Sharma indicates:

Biopiracy refers to the process by which the right of indigenous culture to natural resources and knowledge are erased and replaced by monopoly rights for those who have exploited indigenous knowledge and biodiversity. Biopiracy occurs when multinational companies make billions of dollars by claiming intellectual property rights to traditional knowledge and genetic resources (Sharma, 2012: 142).

Issues of biopiracy have also greatly increased within the last few years in the forest areas of the country. For example, a new trend of Sri Lankan golden gecko (*Hemidactylus leschenaultii*), commonly known as Kimbul Huna in Sinhala, which means 'crocodile-gecko', smuggling was observed after 2012. This reptile is an endemic, rare and attractive species that can be seen in the rain forests of Sri Lanka (de Silva, 2006, Kumara, 2015). During the years 2013 and 2014, many local villagers and some overseas tourists have been arrested by the police for Sri Lankan golden gecko smuggling (Kumara, 2015).

Nilgala savanna forest is a biodiversity hotspot and it contains a large number of endemic flora and fauna species, for instance, Sri Lankan Golden Gecko *(Hemidactylus leschenaultii)* can easily be found here.

Researcher: *Are there any biopiracy issues in this site?*

Forest officer*: According to our records, we could not still find evidences about biopiracy issues here, yet that does not mean the site is totally free from these issues. We have clues about the prevalence of them.*

Researcher*: Is there any possibility to occur such as issues in this site?*

Forest officer: *Why not? Especially tourism is gradually developing in this site, and many outside individuals, companies and overseas people are involved in tourism industries here. So there are certain possibilities for biopiracy issues associated with tourism. However we cannot take action against such activities without reliable information.*

Researcher: *Are you politically supported to minimise wildlife and forest crimes in this site?*

Forest officer*: it is too bad. Especially regional politicians do not support forest conservation. They help villagers who illegally utilize forest resources. Politicians want people to be in power, so, it's no wonder that they take villagers' side than helping us to protect the forest.*

Researcher*: Do you have any experience regarding this?*

Forest officer*: Yes. We have recognized certain cases where they have directly supported illegal forest use practices (SSI 33, forest officer, Nilgala divisional forest office, 2016.08.20)*

This situation has become common in many CBFM sites in the southern peripheral context (De Carvalho, 2000; Odek, 1994; Posey & Dutfield, 1996). Activities of regional politicians and influences of superimposed capitalism in southern peripheral contexts have created vulnerable ground for the occurrence of biopiracy issues and loss of forest genetic resources and wildlife smuggling (Kumara, 2015).

At present, we see a similar socio-economic and political context in Nilgala and peripheral areas of the Sinharaja rain forest of Sri Lanka. This changing social structure is seen as the major factor for increasing biopiracy issues and loss of forest genetic resources and wildlife smuggling in this rain forest (Kumara, 2015)

"A growing number of biopirates venture into Sinharaja for its genetic resources and they have understood that smuggling of biological material is easier and more successful if they cooperate with local indigenous people living at the forest peripheries. Thus, biopirates enter the targeted country posing as innocent tourists and they do not hesitate to pay large sums of money to villagers who deal with them for genetic resources or wildlife smuggling. Regardless of all prevalent laws and regulations against bioprospecting, biopiracy, biological resource and wildlife smuggling, authorities have still failed to control these activities in the Kudawa-Sinharaja site because of the support given to bio-pirates by the local community. Local villagers possess an excellent knowledge about local genetic resources and are well aware of forest geography. Hence, they can quickly access the forest resources and collect them incognito" (Kumara, 2015:170).

According to the field observation, eco-tourism is developing here against the 'eco-tourism' principles and this can be seen a common trend in many southern peripheral contexts (Kumara, 2015). Unfortunately, tourist behaviour has directly influenced to increase forest degradation.

Increasing number of overseas tourists visiting the site has caused foreign genetic resource smugglers to make links with the villagers here and to use them to extract forest resource illegally. Similar situations are observed even in the ecotourism sites of the Sinharaja rain forest.

"Development of ecotourism in Kudawa-Sinharaja has opened the biodiversity rich Sinharaja rain forest to gene pirates and thus the virgin forest is prone to bioprospecting, biopiracy and wildlife smuggling" (Kumara, 2015:175).

This situation does not support achieving CBET goals. Even if some scholars have theoretically identified 'ecotourism' as a biosecurity management strategy (Fennell, 2007; Hall, 2007; Hill & Gale, 2009), in practice the opposite has occurred in many southern peripheral countries of Africa, Latin America and Asia (Cater, 2004).

According to a Nilgala senior villagers;

These days village young generation think of achieving material possession and riches. So, they do not hesitate to involve in any business which brings them money. Some of our young villagers are gathering Kibul Huno (golden geckos- Calodactylodes illingworthorum), Walkarapincha (Micromelum minutuim), Rathu Komarika (Red Aloe Vera Aloe), and Gadiba roots for market. But no one knows how they collect these, what quantities they gather or who is buying these flora and fauna species. Well, many overseas tourists arrive at villages and visit the forest accompanying local young site guides. We do not know what exactly they are doing here (SSI 29, 18.08.2016).

Lack of sincere information regarding issues of biopiracy, loss of forest genetic resources and wildlife smuggling in this site are the main forest management issues. Since there are ground realities which support the upsurge of these issues, relevant sectors responsible for forest management and conservation must focus their attention more on this matter. This research reveals that issues of biopiracy- loss of forest genetic resources and wildlife smuggling in this site progresses hidden and are associated with myths and realities.

4. Conclusion

Data analysis of this report discloses several theoretical and practical socio-economic challenges of CBFM as a sustainable bottom up development approach. Implementation of sustainable and bottom up development ideologies based on western alternative development approaches, can bring western capitalism into the particular context along with project activities. Most importantly, capitalist values are ideologically against bottom up development values (Pawłowski, 2012). Based on the research findings, our first argument is that sustainable development discourse suffers from its own ideological and theoretical weaknesses as it lacks a mechanism to face western capitalism values merging into sustainable and bottom up development measures.

Even if sustainable and bottom up development approaches have been introduced to limit the unhealthy development of capitalism, application of sustainable and bottom up development can bring capitalism fundamentals into the particular context which can create problems within the sustainable development process. Illegal forest utilization

practices and issues of biopiracy: loss of forest genetic resources and wildlife smuggling can be increased as main issues of the site as a result of socio- economic and socio-political changes from the traditional collectivist- feudal system to superimposed capitalist-individualistic system. This situation is common to the many other areas that have similar condition to the Nilgala (Kumara, 2015) Thus, until western capitalism is triggered, sustainable development is a fantasy which cannot become a reality and failure of most of the sustainable development projects launched during the last three decades provides evidence for this (Gunawardene et al., 2007; Hall & Vredenburg, 2012). Therefore, sustainable and bottom up development discourses must theoretically and practically take the function of capitalism within these discourses into consideration as a key challenging area in order to recover theoretical weaknesses of these alternative development approaches.

Development of ecotourism practices have created a new socio-economic structure in the Nilgala site with superimposed capitalist values and this structure is different from western capitalism or the traditional Sri Lankan socio-economic system. As revealed in the research, superimposed capitalism has contributed to create an individualistic culture and society in the Nilgala where traditional cultural and social values based on collectivism eroded rapidly. This sort of individualistic culture which is characterised by great competition among its members for economic status out of social envy can be identified as a major challenge in effective implementation of CBFM (Foucat, 2002; Higham, 2007; Jamal et al., 2006; Nick, 2005; Ross & Wall, 1999).

Second argument is that most of the socio- economic challenges here are based on lack of attention on altering the western development modules when used in local contexts.

Plant species with economic value in this site can be planted in home gardens of local villagers through a community based plantation project under the supervision of the Forest Department or any other relevant government institute. Involvement of villagers and outsiders in illegal genetic resource and wildlife smuggling could be controlled. Villagers would stop supporting outside gene pirates as such collaboration would decrease the market demand for their own production.

Finally, as far as we have understood, the socio-economic challenges discussed above and the suggestions proposed are related to the regional geopolitical power relationships of CBFM in this site. Thus, the influence of regional politics can be identified as one of the most important aspects of the research that has associated with issues of biopiracy: loss of forest genetic resources and wildlife smuggling.

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