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MODERN SRI LANKA STUDIES

A Journal of the Social Sciences

Contents

Vol. XI, No. 01, 2020

An Assessment of the Trend of Deforestation and its Impact on the Changing Climate in North Central Nigeria

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Abstract

Deforestation has become a major environmental issue in the world today especially in Sub-Saharan Africa where forest wood is worth more to people than their wellbeing in the long run. Thus, the forest cover is constantly depleted due to its use as fuel and in the manufacture of paper and charcoal. Nigeria has the world's highest deforestation rate of primary forests according to revised deforestation figures from the Global Forest Resources Assessment of the Food and Agriculture Organization of the United Nations (FAO, 2015). Between 2000 and 2005 the country has lost 55.7% of its primary forests and is currently estimated to having only 6% of its entire land area covered by forests. Logging, subsistence agriculture, and the collection of fuelwood are cited as leading causes for the forest clearing in the West African country. Deforestation is considered to be one of the major contributing factors to global climate change. This research aims at assessing the trends in deforestation in North Central Nigeria with respect to changes in climatic parameters while also seeking to educate locals on how their actions like deforestation and bush burning are constantly modifying the climate. Changes in the extent of the forest cover were studied over 32 years with a 10-year time step using satellite images obtained from the United States geological survey archive and the Idrisi image analyst software, while climatic parameters for the study area (rainfall and temperature) were obtained from the archive of the Nigerian Meteorological Agency, Oshodi, Nigeria. The data was analyzed using the trend line equation for the same period. The results of the forest cover change were mapped and overlaid to determine the extent of forest cover change and its implication on changes in climate. The results reveal a decline in rainfall and a rise in

Annual temperature averages. The rate of forest depletion was 17.38% between 1987 and 2018 with an additional 30.1% decline in the light vegetation over the same period. Changes in built up areas and densely vegetated forest areas have a highly statistically significant influence of R^2 above 90% and P-value <0.05 on maximum temperature.

Keywords: Deforestation, Environmental Management, Climate Change, Nigeria Forest

Introduction

Forests are of great importance to the environment; they furnish us with the basic necessities of life, providing habitats for a variety of species, helping to control and moderate the climate, and prevent soil erosion and flooding. Despite all these benefits obtained from forest ecosystems, the clearing of forests has remained a consistent feature of man's development contributing immensely to the continuous depletion of forests. Deforestation is clearing Earth's forests on a massive scale often resulting in damage to the quality of the land. Glenn et al. (2011) reporting Dove (1993) indicates that poverty draws people to exploit tropical forests for immediate gains. Dolisca et al. (2007) and Ehrhardt-Martinez (1998) explain that pressures brought about by the land tenure system and population growth are some of the identifiable causal factors of deforestation. According to Geist and Lambin (2002), demographic, institutional, cultural, economic and technological factors and policies all contribute to the underlying driving forces of deforestation.

According to the Seventy years of FAO's Global Forest Resources Assessment (FAO, 2018) on the state of the forests, the global forest cover has been found to have decreased from 31.6% to 30.6% between 1990 and 2015 albeit a slower pace of encroachment reported in recent years. Forests produce vital oxygen and provide homes for people and wildlife; the world's most threatened and endangered animals live in forests, and 1.6 billion people rely on benefits that forests offer, including food, fresh water, clothing, traditional medicine and shelter. But the fact

remains that forests around the world are under threat from deforestation, jeopardizing these benefits. Forests are cut down for many reasons, but most of them are related to money or to people's need to provide for their families. Deforestation comes in many forms, including man-made fires and clear-cutting for agriculture which is the by far the biggest driver of deforestation (Nepstad et al., 2008). This corroborates the findings of the Global Forest Fund (2002) that deforestation comes as a direct consequence of the following; shifting cultivation, logging, grazing, fuelwood use, and urbanization. The World Resources Institute (2005) reports that over 11 million hectares of tropical forests are cleared annually, and that approximately 225 million hectares of tropical forests have been cleared in the year 2000 based on the current rate of use. Shifting cultivation is by far the most significant cause and it accounts for close to 70% of the total deforestation in the Africa region. Farmers cut forests to provide more room for planting crops or grazing livestock, ranching and development and for unsustainable logging for timber. These and the forest degradation due to climate change have come to impact people's livelihoods and the survival of a wide range of plant and animal species as 46-58 million square miles of forest equivalent to 36 football fields are lost each year (WWF Living Planet Report, 2013).

The importance of forests in climate control cannot be overemphasized because it plays a critical role in moderating climate change (UN, 2016). Forests act as a carbon sink soaking up carbon dioxide that would otherwise be free in the atmosphere and contribute to the ongoing positive changes in climate patterns. Deforestation undermines this important carbon sink function. According to WWF Living Planet Report (2013), it is estimated that 15% of all greenhouse gas emissions are the result of deforestation which is a concern, particularly, in tropical rainforests since they are home to much of the world's biodiversity. For example, in the Amazon around 17% of forest has been lost in the last 50 years due mostly to forest conversion for cattle ranching.

Although deforestation appears to be on the decline in some countries, it remains disturbingly high in others including Brazil, Sri-Lanka and

Nigeria and has become a grave threat to the world's most valuable forests (WWF Living Planet Report, 2012). Analysis of the FAO (2008) report shows that developing countries in the tropics have suffered the worst rates of forest loss between 2000 and 2005, and that 10 countries with the highest deforestation rates during that period were all considered "developing" with 9 been tropical countries. Among these countries, Nigeria has the world's highest deforestation rate of primary forests. According to the revised deforestation figures the country has lost 55.7% of its primary forests between 2000 and 2005 largely attributed to logging, subsistence agriculture, and collection of fuel wood (FAO; FAOSTATS, 2008; Oriola et al. 2017; Tilakasiri et al., 2016; Olanrewaju et al. 2018). In Nigeria, as in other tropical countries, the rate of deforestation has accelerated in recent years. In 2016, the FAO confirmed that Nigeria has lost about 350,000 to 400,000 hectares of forest cover per year to deforestation, with the total estimated percentage cover of forests in Nigeria standing at less than 6%.

The high rates of changes witnessed in the study area in terms of land use/ land cover from forested land to the built environment is alarming and call for caution. According to WWF Living Planet Report (2013), trees play a critical role in absorbing the greenhouse gases that fuel global warming. Therefore, fewer forests mean larger amounts of greenhouse gases entering the atmosphere and increased speed and severity of global warming, hence the need for this study. The aim of this research is to assess the rate/trend of deforestation in North Central Nigeria and its implication on the changing climate.

The Study Area

North Central Nigeria consists of the seven states situated geographically in the middle belt region of the country, spanning from the West, around the confluence of the River Niger and the River Benue (Figure 1). The region itself is rich in natural land feature, and boasts some of Nigeria's most exciting scenery. The region is also home to many historical and colonial relics.

Figure 1: Map of North Central Nigeria

Source: Adapted from GADM (2017)

North Central Nigeria experiences the humid tropical climate characterized by wet and dry seasons (North Central Nigeria Atlas, 1981). The wet season commences towards the end of March and spans to October. The dry season that starts in November spans to February which in North Central Nigeria is characterized by the dusty wind from the Northern part of Nigeria referred to as the Harmattan, and the hot temperature which extends from November to March (Olaniran, 2002). The wet season is characterized by high humidity which begins in April spanning through October while extremely high temperatures often exceeding 30^{o}C is usually experienced between February and April. North Central Nigeria is located in the transition zone between the deciduous rainforest of the Southwest and the savannah grassland of the North. The vegetation in North Central Nigeria is composed of species of trees such as locust bean, shear butter, acacia, baobab, and elephant

grasses, shrubs and plants among others. Areas under the effective cover of vegetation in North Central Nigeria are protected from the impact of raindrops while bare surfaces such as football fields, unpaved roads, ploughed land among others encourage runoff, sheet and gully erosion.

The soil in North Central Nigeria is formed under the grassland savannah cover and belongs to the soil group called Ferruginous soil. This is an ideal soil for the growing of crops such as yam, cassava, and maize, among others. This type of soil yields readily to the agents of denudation when exposed to elements unprotected by the vegetation cover (Jimoh, 1999 and 2000).

Material and Methods

Multi-temporal satellite images (Landsat TM 1987 and 1999 of 30m spatial resolution respectively; Spot 5 multispectral 2005 of 10m spatial resolution, and Landsat OLI/TIRS 2018 of 15m resolution) were obtained and analyzed using ArcGIS 10.6 and Erdas Imagine 2016.

Table 1: Images Path, Row and Date of Acquisition

Path	Row	1987	1999	2005	2018
		Landsat TM	Landsat ETM	Spot 5	Landsat Oli/Tits
187	052			3/5/2005	3/20/2018
	053	7/7/1987	2/15/1999	3/5/2005	3/20/2018
	054	7/8/1987	2/15/1999	3/5/2005	3/20/2018
	055	7/9/1987	2/15/1999	3/5/2005	2/3/2018
188	052			3/18/2005	3/30/2018
	053			3/18/2005	3/30/2018
	054	8/4/1987	11/18/1999	3/18/2005	3/30/2018
	055	8/4/1987	11/18/1999	3/18/2005	3/30/2018
189	052	2/7/1987	11/18/1999	3/5/2005	3/18/2018
	053	2/7/1987	11/18/1999	3/5/2005	3/18/2018
	054	2/7/1987	1/28/1999	3/5/2005	3/18/2018
	055	2/7/1987	1/28/1999	3/5/2005	3/18/2018

190	052	3/4/1987	11/16/1999	3/22/2005	3/25/2018
	053	3/4/1987	11/16/1999	3/22/2005	3/25/2018
	054				3/25/2018
191	052	7/3/1987	2/11/1999	3/25/2005	3/16/2018
	053	7/3/1987	2/11/1999	3/25/2005	3/16/2018
	054	7/3/1987	2/11/1999	3/25/2005	3/16/2018

Source: Authors' Analysis (2018).

The images were acquired from the Global land cover facility and the data available crossed seasons. However, a careful assessment of the data reflects minimal influence of seasonal variations on the objectives of this study. This is because the forest covers, unlike shrubs and grasslands, are usually subject to human interference and is unlikely to have diminished or increased within the span of a season. Image preprocessing was carried out on the images to ensure that the data was geometrically and radio metrically corrected for analysis. The pre-processing stage usually involves image rectification and image sub-setting. This is with a view to correcting whatever distortion that might have occurred during acquisition from the satellite (Paul, 1992; Ogunleye, 2010). For this analysis the Histogram Equalization technique was employed to balance the color of the images while image sub setting was used to extract the study area. Band combinations were also carried out to highlight features of interest.

The image was initially classified using the ISODATA algorithm to perform an unsupervised classification. The ISODATA clustering method uses the minimum spectral distance formula to form clusters. It begins with either the means of arbitrary cluster or the means of an existing signature set, and each time the clustering repeats, the means of these clusters are shifted. The new cluster means are used for the next iteration.

This process helps in separating the images into unique spectral classes. The ISODATA method repeats the clustering of the image until either:

1. a maximum number of iterations has been performed, or
2. a maximum percentage of unchanged pixels has been reached between two iterations.

The image generated 36 classes through 10 iterations at 0.97 convergence threshold. The convergence threshold is the maximum percentage of pixels that has cluster assignments that can go unchanged between iterations. This threshold prevents the ISODATA utility from running indefinitely. By specifying a convergence threshold of 0.95 it specifies that as soon as 95% or more of the pixels stay in the same cluster between one iteration and the next, the utility should stop processing. In other words, as soon as 5% or fewer of the pixels change clusters between iterations, the utility stops processing). The classes were then grouped using trained eye assessments and Google earth pro. The generated classification was then converted to shape files and introduced into the ArcGIS image classification window as training samples.

Leo Breiman's Random Forest Supervised Classification Algorithm, which is a supervised machine learning model, was utilized for the supervised classification of the data sets. The random forest algorithm makes use of decision trees, usually many decision trees, called an ensemble or a forest, that is then used for prediction. Each tree generates its own prediction and is used as part of a voting scheme to make final predictions. The final predictions are not based on any single tree but rather on the entire forest. The use of the entire forest rather than an individual tree helps avoid overfitting the model to the training data set as does the use of both a random subsets of training data and explanatory variables in each tree that comprises the forest. For this research, 20% of the training samples were trained by the random forest classifier. The model output was adjusted and reviewed until it suited the expected model behavior of the data sets. The model was then applied to the image to generate a supervised classification of the study area.

Time Series Analysis

For the time series analysis, the time series modeler in SPSS version 20 and Excel trend line analysis was used to analyze the trend and time series analysis of rainfall and temperature for the study area. Average annual maximum and minimum temperatures and rainfall data were subjected to time series analysis using a series of models (ARIMA, Holt and TS).

The curve estimation regression method was used to analyze the relationship between land use and the climatic variables due to the nature of the variables, and linear, cubic and exponential algorithms were employed to determine the relationship between these variables.

Results and Discussion

The land use and land cover classification of the entire North Central Nigeria covering an area extent of 232,344.76 km^2 shows a steady decline in vegetal resources over the study period with built-up areas and bare surfaces as the biggest gainers in the study period (Figures 2-5).

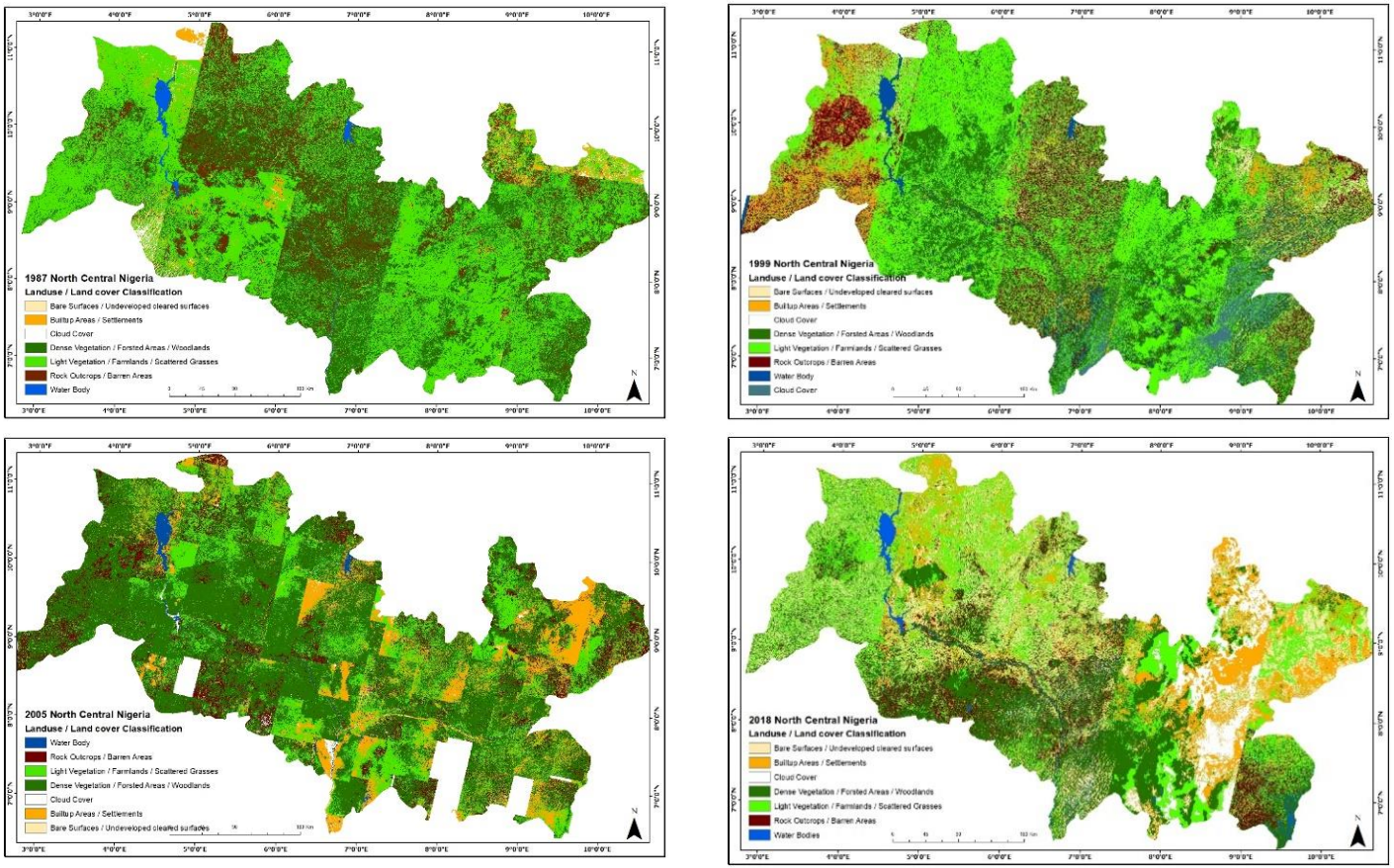


Figure 2-5: Land Use Land Cover Classification for North Central Nigeria (1987-2018), Top-bottom (1987, 1999, 2005 and 2018). **Source: GLCF, Analyzed by Author** (2018)

The built-up areas that accounted for 2.81% of the area in 1987, 14.15% in 1999, 26.06% in 2005 and 29.76% in 2018 depict a steady rise in extent over the period while bare surfaces increased from 0.55% in 1987 to 17.34% in 2018 (Table 2).

Table 2: Land Use Land Cover Change (1987 – 2018)

Landuse / Land cover	**1987**		**1999**		**2005**		**2018**	
	Area Km^2	**%**	**Area Km^2**	**%**	**Area Km^2**	**%**	**Area Km^2**	**%**
Bare Surfaces / Undeveloped cleared surfaces	1271.77	0.55	17067.73	7.35	35007.51	15.07	40295.21	17.34
Built-up Areas / Settlements	6519.78	2.81	32878.22	14.15	60549.13	26.06	69156.12	29.76
Cloud Cover	1555.45	0.67	9547.99	4.11	1156.70	0.50	7586.77	3.27
Dense Vegetation / Forested Areas / Woodlands	76283.07	32.83	69199.01	29.78	47643.93	20.51	35938.36	15.47
Light Vegetation / Farmlands / Scattered Grasses	112214.69	48.30	61937.28	26.66	50091.42	21.56	42314.74	18.21
Rock Outcrops / Barren Areas	32705.28	14.08	35590.77	15.32	35192.97	15.15	32697.20	14.07
Water Body	1794.71	0.77	6123.77	2.64	2703.10	1.16	4356.37	1.87
Grand Total	**232344.76**	**100**	**232344.76**	**100**	**232344.76**	**100**	**232344.76**	**100**

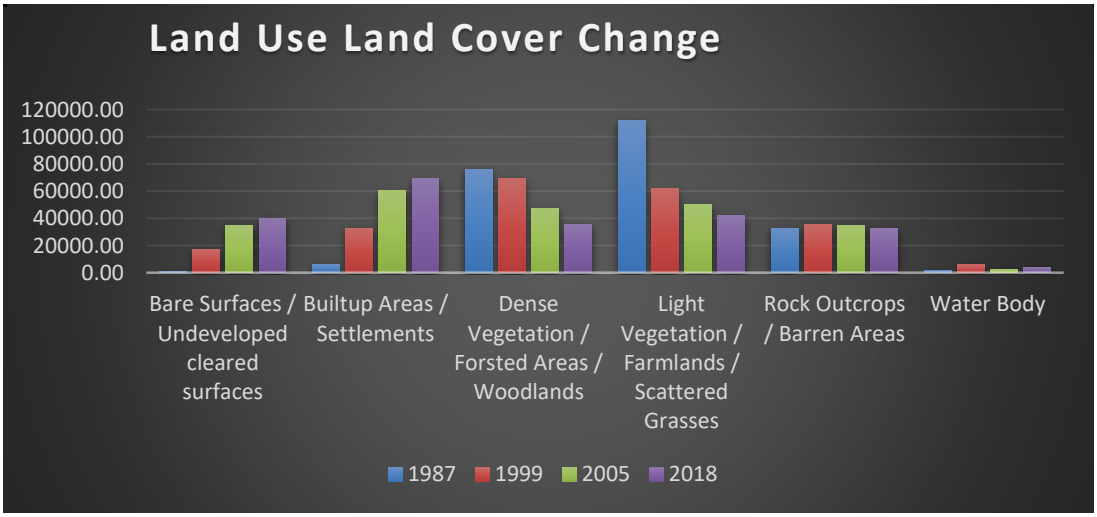
Source: Authors' Analysis (2018)

The forested areas declined from 32.83% in 1987 to 15.47% in 2018 while light vegetation (grasslands, shrubs etc.) declined hugely from 48.30% to 18.21% in 2018.

The rock outcrops and Water bodies remained fairly constant through the study period with changes occasioned by vegetation growing over rock outcrops and on the banks of water bodies thus reducing visible areas of the classes.

The cloud cover remained a constant through the images covering 0.67% of the image in 1987, 4.11% in 1999, 0.5% in 2005 and 3.27% in 2018. Figure 6 depicts the land use extent of all classes during the study period.

Figure 6: Land Use and Land Cover Change (1987-2018)



Source: Authors' Analysis (2018)

The results of the forest cover analysis show a 17.36% decline between 1987 and 2018, while lightly vegetated surfaces inclusive of grasslands, farmlands, shrubs and patches of scattered grasses had a 30.10% decline within the same period.

This is due in part to the geometric urbanization as witnessed in this region during the period under study. Cities such as Ilorin, Minna, Jos and the FCT (Federal Capital Territory) have all had varying degrees of encroachment on forest cover and vegetal resources in a bid to develop land for residences and expand industries (Table 3).

The built up areas gained by +26.96% while Bare surfaces gained by +16.80%. The cloud cover retained a 2.60% cover while rock outcrops and water bodies remained fairly constant.

Table 3: Percentage Change in Land Use/Land Cover (1987-2018)

Land use / Land cover	Changes 1987 – 2018	
	Area	%
Bare Surfaces / Undeveloped cleared surfaces	+39023.44	+16.80
Built-up Areas / Settlements	+62636.34	+26.96
Cloud Cover	6031.32	2.60
Dense Vegetation / Forested Areas / Woodlands	-40344.72	-17.36
Light Vegetation / Farmlands / Scattered Grasses	-69899.96	-30.08
Rock Outcrops / Barren Areas	-8.08	0.00
Water Body	+2561.66	+1.10

Source: Authors' Analysis (2018)

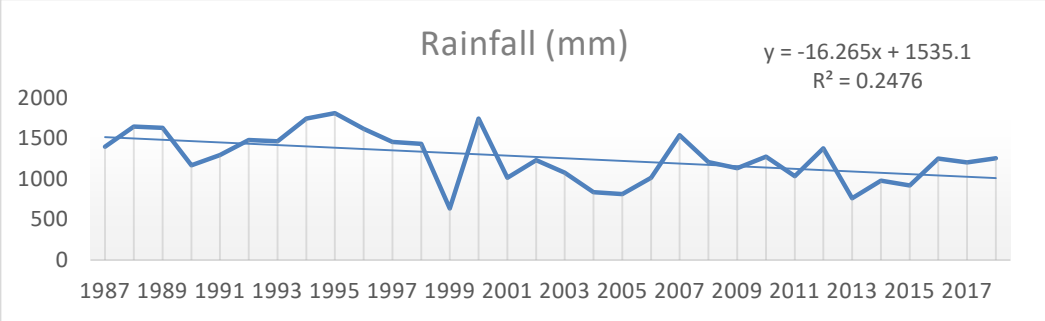
The overall accuracy of the land use maps using Kappa indices for 1987, 1999, 2005 and 2018 was determined to be 86.01%, 88.45%, 87.53%, and 82.31%, respectively.

Climatic Analysis

The Mean annual rainfall for the entire North central Nigeria was analyzed using linear trend line analysis for 32 years and results show a

decline in the amount of average annual rainfall over the period (Figure 7). The average total amount of rainfall is expected to decrease by -16.265 mm for every annual total rainfall of about 1535 mm recorded.

Figure 7: Trend Line Chart for Mean Annual Rainfall



Source: Nigeria Meteorological Agency (2018)

The model statistics for the time series shows 87.50% goodness of fit with a Maximum predicted error of 22.86 and a P value of 0.75 as shown in Table 4.

Table 4: Model Statistics for Time Series (Holt Model)

Model	Number of Predictors	Model Fit statistics		Ljung-Box Q(18)			Number of Outliers
		Stationary R-squared	MaxAPE	Statistics	DF	Sig.	
Rainfall NC-Model_1	0	.875	22.858	11.935	16	.748	0

Source: Authors' Statistical Analysis (2018)

For temperature, the trend analysis for the states in the North Central Region was carried out using the multivariate time series model (ARIMA, Holt and simple TSL). The time series utilized the ARIMA model for the analysis and shows an 85.3% goodness of fit and a p value of 0.201(Table 5, Figures 8 and 9).

The results of the analysis show an expected rise of $+0.05^0$C for every 29.94^0C recorded maximum temperature and an expected rise of

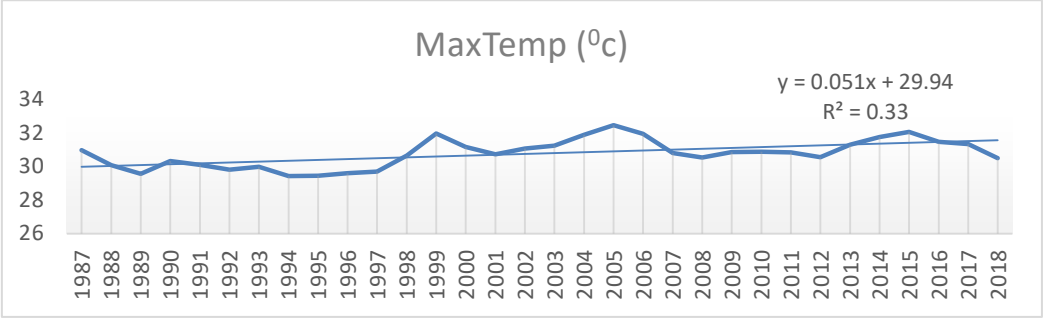
$+0.038^0$C for every 20.06^0C recorded minimum temperature in the study area.

Table 5: Model Statistics Time Series (ARIMA)

Model	Number of Predictors	Model Fit statistics	Ljung-Box Q(18)			Number of Outliers
		Stationary R-squared	Statistics	DF	Sig.	
Temperature-Model_1	0	.853	20.442	16	.201	0

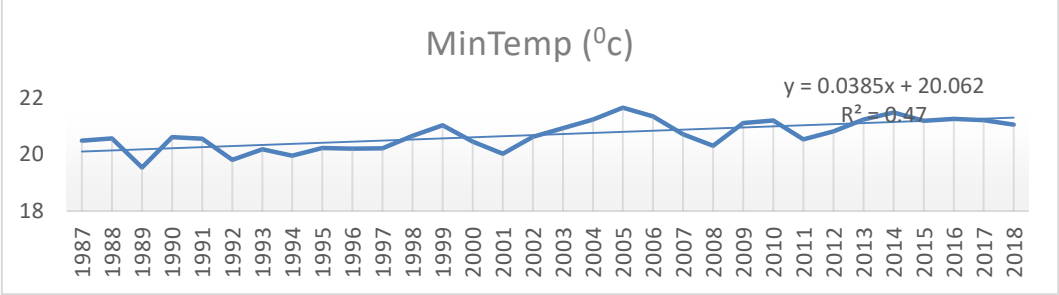
Source: Authors' Analysis (2018)

Figure 8: Trend Line Chart for Maximum Temperature



Source: Authors' Analysis (2018)

Figure 9: Trend Line Chart for Minimum Temperature



Source: Authors' Analysis (2018)

To explore the relationship between land use classes and climatic variables, the variables were standardized using the mean and standard deviation of the variables. The result was then analyzed using the curve estimation regression method.

The results (as shown in green) indicate that changes in built up areas and densely vegetated, forested areas have a highly statistically significant influence (R^2 *above 90% and P value < 0.05*) on maximum temperature (^{0}c) with (.939 [*0.031*]), (.932 [*0.034*]) while lightly vegetated, grassland areas also influence maximum temperature albeit no statistical significance is shown with (.711 [0.157]).

The assessment of the influence of the land use types on rainfall (mm) showed built-up areas (.591 [*0.362*]), densely vegetated, forested areas (.594 [*0.230*]) and lightly vegetated, grassland areas (.622 [*0.211]*) exhibiting some form of influence with no statistical significance as P >0.05(Table 6).

Minimum temperature was seen to only have been influenced by changes in bare surfaces (.698 [*0.164]*) and rock outcrops (.849 [*0.079]*).

Table 6: Linear Regression Summary Estimating Relationship between Land Use and Climatic Variables (1987 – 2018)

LULC	Min Temp				Max Temp				Rainfall			
	R^2	Sig	F	t	R^2	Sig	F	t	R^2	Sig	F	t
Bare Surfaces	0.698	.164	4.632	-2.152	0.000	.978	0.001	-0.031	0.407	.362	1.372	-1.171
Built-up Areas	0.003	.945	.006	.077	0.939	.031	30.718	-5.542	0.591	.231	2.896	1.702
Dense Vegetation	0.004	.940	.007	.085	0.932	.034	27.516	-5.246	0.594	.230	2.921	1.709
Light Vegetation	0.041	.797	.086	-.293	0.711	.157	4.916	2.217	0.622	.211	3.292	-1.814
Rock Outcrops	0.849	.079	11.251	3.354	0.015	.878	0.030	0.173	0.400	.368	1.333	1.154
Water Body	0.010	.900	.020	.142	0.012	.891	.024	-.156	0.022	.850	.046	.214

Source: Authors' Analysis (2018)

Summarily, increase in temperature and the subsequent declining amount of rainfall has been shown to have impact on the vegetal resources of the study area. The maximum temperature has a 93% impact on forested areas and a 71% impact on grasslands and shrubs while rainfall is also shown to have a R^2 value of 59%, 59.4% and 62.2% on built up, forested areas and grasslands respectively.

Conclusion

Urbanization and industrialization are the world's highest excuse for the rate of deforestation globally experienced and North Central Nigeria is no exception. This research has shown the rate of changes in land use in North Central Nigeria between 1987 and 2018 while assessing the rate of forest depletion in the study area and results show that forests have given way to built-up areas, and to grassland in most areas. This is substantiated by the time series analysis carried out on the climatic variables in North Central Nigeria also showing an increase in temperature (maximum temperature) as well as a corresponding decline in rainfall amount in the study area thus lending credence to the fact that over exploitation of forest resources in the study area without recourse to reforesting is leading to an all-round change in the climate pattern as evidenced by the strong relationship between maximum temperature, rainfall and forest cover.

It is therefore recommended that for this region that is yet to be on the hotspot of forest depletion, it is imperative that laws and legislations be urgently put in place to combat the trend of deforestation and arrest it while embarking on afforestation in areas where massive urbanization has overtaken forest growth and vegetation especially in city capitals and other major towns.

References

Dolisca, F., McDaniel, J.M., Teeter, L.D. and Jolly, C.M. (2007), "Land tenure, population pressure, and deforestation in Haiti: the case of Forêt des Pins Reserve", *Journal of Forest Economics*, Vol. 13 No 4, pp.277-289.

Dove, M.R. (1993), "A revisionist view of tropical deforestation and development", *Environmental conservation*, Vol. 20 No 1, pp.17-56.

Ehrhardt-Martinez, K. (1998), "Social determinants of deforestation in developing countries: A cross-national study", *Social Forces*, Vol. 77 No 2, pp.567-586.

FAO (2015), Global Forest Resources Assessment 2015. How are the world's forests changing? Country Report, Nigeria.

FAO, F.A.O.S.T.A.T. (2008), Food and Agriculture Organization of the United Nations, available at: http://www.fao.org/faostat/en/#home (accessed 25 September 2017).

FAO (2018), Seventy years of FAO's Global Forest Resources Assessment Historical overview and future prospects. Food and Agriculture Organization of the United Nations. Rome, 2018

Geist, H.J. and Lambin, E.F. (2002), "Proximate Causes and Underlying Driving Forces of Tropical Deforestation. Tropical forests are disappearing as the result of many pressures, both local and regional, acting in various combinations in different geographical locations", *Bio Science*, Vol. 52 No 2, pp.143-150.

Su, G.S., Macawile, J., Villarino, A., Agapito, J. and Gomez, N., (2011), "Recognizing local people's perceptions towards deforestation in Quezon Province, Philippines", *Environmental Research Journal*, Vol. 5 No 3, pp.131-135.

Global Forest Fund (2002). "Indonesia - The Role of the Urban Forest", available at: https://www.gff.global/2013-projects (accessed 22 October 2017)

Jimoh, H.I. (1999), "Effects of run-off on sediment transportation and deposition in North Central Nigeria City" *Centre Point*, Vol. 7 No 2, pp. 97-100.

Jimoh, H.I. (2000), "Man-Environment Interactions", in: H.I. Jimoh and I.P. Ifabiyi, (Ed.), *Contemporary Issues in Environment Studies*, North Central Nigeria: Haytee Press and Publishing Company

Nepstad, D.C., Stickler, C.M., Filho, B.S. and Merry, F., (2008), "Interactions among Amazon land use, forests and climate: prospects for a near-term forest tipping point", *Philosophical Transactions of the Royal Society B: Biological Sciences*, Vol. 363 No 1498, pp.1737-1746.

Ogunleye, E.K. (2010), "A study of urban growth dynamics using Geoi nformatics techniques in Zaria, Kaduna state" Unpublished M.Sc the sis, submitted to the Department of Geography and Regional Plannin g, Ambrose Alli University, Ekpoma.

Olaniran, O.J. (2002), "Rainfall anomalies in Nigeria: The contemporary understanding" *Inaugural Lecture*, Nigeria, University Press: University of Ilorin.

Olanrewaju, R.M., Tilakasiri, S.L. and Bello, F.B. (2018), "Community Perception of Deforestation and Climate Change in Ibadan, Nigeria" *Journal of University of Ruhuna.* Vol. 6 No 1, pp 26-36.

Oriola, E.O. and Omofoyewa, O. (2017), "Climate change and forest resources: A global perspective" in S.L. Tilakasiri, (ed.), *Water, land and people in climate change*, Sri Lanka, Stamford Lake Pvt. Ltd, pp.155-166.

Paul, J.C. (ed.) (1992), *Principles of Remote sensing*, New York John Wiley and sons Inc.

Tilakasiri, S.L., Olarewaju, R.M. and Salami, A.A. (2016), "Global warming and climate change: Past, present and future", in: Tilakasiri, S.L., (ed.), *Water, land and people in climate change*, Sri Lanka, Stamford Lake Pvt Ltd, pp. 3-30.

United Nations (2016), Sustainable development knowledge platform. New Orleans: United Nation.

World Resources Institute (WRI) in collaboration with United Nations Development Programme, United Nations Environment Programme, and World Bank. 2005. World Resources 2005: The Wealth of the Poor—Managing Ecosystems to Fight Poverty. Washington, DC: WRI.

World Wildlife Fund (2012), Living Planet Report 2012 Biodiversity, Bio capacity and Better Choices. WWF International Avenue du Mont-Blanc 1196 Gland, Switzerland

World Wildlife Fund (2013), Living Planet Report 2013 - Human Impact, WWF International Avenue du Mont-Blanc 1196 Gland, Switzerland

Prevalence, Causes and Mechanisms in Addressing Violence against Women (VAW) in Sri Lanka

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Abstract

Women have become main contributors to the societies across the world as they play multitasking roles in their families. Although they have gained achieved great heights, when it comes to both the private and public spheres, we can identify that some women are discriminated and marginalized. In this context in the present world many countries including Sri Lanka have understood the importance of women's empowerment and have implemented a number of policies and mechanisms to protect women from violence against women (VAW). Even in the presence of such actions, the rates of VAW are high in numbers. Therefore, in this context it is very essential to examine the root causes for this situation. This research examines the level of awareness in the general public on VAW, based on the three different contextual areas in the country. Through this research findings, an attempt has been made to draw attention to how human rights education can be used to eliminate VAW.

Keywords: Violence against women, root causes, Sri Lankan context, human rights education, awareness

Introduction

Achieving gender equality is one of the debatable themes in the current world discourse. At present some scholars and academics have emphasized the importance establishing gender equality throughout the world. Global organizations including the United Nations (UN), have taken to account that the current practices are still contributing to violate gender equality in multiple ways. Achieving gender equality therefore

has become one of the UN sustainable developmental goals. Since more women than ever before are both educated and are participating in the labour market, and there is a greater awareness that gender equality is of paramount importance in efforts to reduce poverty and boost economic development, (International Labour Organization, 2018:07). It is mentioned that they have become equal contributors as men to the societies around the world by playing multitasking roles in their families. With this, their traditional role as a mother in the private sphere, whose primary concern was her family has changed into a more diversified one. In the traditional family setup in Sri Lanka, a good wife is one who obeys her husband, remains silent in his presence, avoids socializing outside the family and attends to household chores and child care for her family. Although women have a great potential to contribute to the development of the world, the problem is that when it comes to real-life practice, they are clearly being discriminated and have become voiceless and vulnerable in public and private spheres. As mentioned before, United Nations has dedicated their 5^{th} sustainable development goal to emphasize the need of getting urgent action to eliminate the root causes of discrimination against women. According to UN, 49 countries still have lack of laws to protect women from domestic violence. Apart from this, based on data obtained from 87 countries, 1 in 5 women and girls - under the age of 50 will have experienced physical and/or sexual violence by an intimate partner within the last 12 months. Harmful practices, such as child marriage, steal the childhood of 15 million girls under the age of 18 years annually and women do 2.6 times more unpaid care and domestic work than men (UN Women, 2018) which is a challenging situation to the entire world.

However, when paying close attention, evidently, it is quite common for women to fall into the prey of violence against women. According to the declaration on the elimination of violence against women, the concept of violence against women is defined as 'Any act of gender-based violence that results in, or is likely to result in, physical, sexual, or psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or private

life' (The Declaration on the Elimination of Violence Against Women, 1993). Apart from this 2nd article in the declaration, the article has emphasized the term VAW can be understood to encompass, but not be limited to, the following: (a) Physical, sexual and psychological violence occurring in the family, including battering, sexual abuse of female children in the household, dowry-related violence, marital rape, female genital mutilation and other traditional practices harmful to women, non-spousal violence and violence related to exploitation; (b) Physical, sexual and psychological violence occurring within the general community, including rape, sexual abuse, sexual harassment and intimidation at work, in educational institutions and elsewhere, trafficking of women and forced prostitution; (c) Physical, sexual and psychological violence perpetrated or condoned by the State, wherever it occurs (The Declaration on the Elimination of Violence Against Women, 1993). Therefore, based on this broad definition VAW can result in physical, sexual or psychological harm or suffering to women which affect their quality of life in many ways. In the Sri Lankan context, article 12 of the 1978 constitution of the Democratic Socialist Republic of Sri Lanka, clearly provides equality for all men and women and nondiscriminatory treatment based on the sex to establish equality in the country while stating that 'No citizen shall be discriminated against on the grounds of race, religion, language, caste, sex, political opinion, place of birth or any of such grounds' in article 12(2) (Constitution of the Democratic Socialist Republic of Sri Lanka, 1978:04). Further legal enactments and international conventions have provided supportive backup to prevent VAW in Sri Lanka (Ministry of Women and Child Affairs, 2016).

Even in the presence of a sufficient legal background, the expected outcome for prevention of VAW does not meet the practicality. According to The Sri Lankan Police statistics in 2016, there were 9042 reported crimes against women and among them only 4986 cases were resolved (Ministry of Public Administration, Management and Law & Order, 2017:09). As stated by Women in Need, every three out of five women have become victimized of domestic violence and only as low as 1% of

the total victims have used the Prevention of Domestic Violence Act, No34 of 2005 to obtain redress. Their statistical findings have shown that once every 90 minutes a woman is raped and 97% of the rapists face no legal consequences (Women in Need, 2019). Therefore, these facts indicate that the violence against women is one of the main issues that need to be addressed in the present Sri Lankan context. In the aforesaid context, the main focus of this study was to investigate the level of awareness of women on the VAW, women's rights, and current mechanisms to prevent VAW in Sri Lanka.

When investigating the Sri Lankan situation, there are number of literary sources that have tried to address the matter of violence against women. In Edirisinghe's study on gender-based violence on post- conflict Sri Lanka and in 'Country profile on Gender-based violence of Sri Lanka' by the World Health Organization, Sri Lanka, in 2018, point out that the high number of cases of gender-based violence against women indicate the considerable problems that many women have faced in their daily lives. Therefore, these literary sources have recommended to address this problem with mechanisms such as policy implementation, active reaction at police and judiciary levels, providing support and assistance etc. (Edirisinghe, 2018:18-21; World Health Organization, 2018). 'Policy Framework and National Plan of Action to Address Sexual and Gender-based Violence (SGBV) in Sri Lanka 2016 - 2020' by the Ministry of Women and Child affairs in 2016, has clearly identified the international and national legal frameworks that implemented to prevent these types of matters. Therefore, a majority of previous studies have concluded & emphasized the importance of a strong legal framework rather than creating merely awareness of this matter.

Additionally, Chulani Kodikara's work on 'Only Until the Rice is Cooked? The Domestic Violence Act, Familial Ideology and Cultural Narratives in Sri Lanka' has described how women are victimized inside and outside the household while discussing the ideological and conceptual background of this problem. Here, she has discussed how Sri Lankan society is generalizing and legitimizing the violence that occurs

between married men and women within the cultural framework in the society by using the popular phrases such as *'violence in the home is only until the rice is cooked'* which translates as, *'ගෙදර රණ්ඩු ඔත ඉදෙනකන් විතරයි'* and '*Don't give fires in the house to the outside'* which translates as, *'ගෙදර ගිනි පිටට දෙන්න එපා'* (Kodikara, 2012: 20). Other than this, in her work the author has discussed the national legal framework which is established to act against violence against women while pointing out some implementation gaps between the law and practice in the current Sri Lankan society. According to her, when law cases are filed, few implementation gaps due to the familial ideology continue to operate and manifest, even in court proceedings. Therefore, in her writing she has thoroughly discussed this mater while arguing how the Domestic Violence Act has been politicized.

Also in Rajan's work of 'Rethinking Law and Violence: The Domestic Violence (Prevention) Bill in India in Gender & History' he has argued that the mere enactment of laws in itself is insufficient to ensure sufficient protection of women from violence. Therefore these literature findings reflect that even after a sufficient legal back up with provisions from the 1978 Constitution of the Democratic Socialist Republic of Sri Lanka, which has ensured equality for every citizen under the fundamental rights chapter and some acts and conventions like Prevention of Domestic Violence Act, no 34 of 2005, Women's Charter, approved by the Sri Lankan government in 1993, Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) and its Optional protocol, VAW in Sri Lanka is still high in numbers. In this context there is a clear research gap in this area to investigate the women's perceptions on actual causes, mechanisms and prevalence for VAW in Sri Lankan society which is very much enclosed with cultural norms and practices.

Study Design and Methodology

Based on the above facts and a thorough literature review, this research was directed to address the rationale behind the VAW that continuously happened in high numbers in the Sri Lankan society even in the presence

of a legal system to protect women from violence. In investigating this, the current study was based on the positivist approach and mixed method which has used both the quantitative and qualitative data. Here, six focus group discussions (FGDs) and six key informant interviews (KIIs) were conducted to cover the qualitative aspects of the study. As for the purpose of covering the quantitative part of the study a field survey was conducted for a randomly selected sample of 60 women from the three selected divisions. The purpose of using random sampling on all three districts was to make a comparison of the participants' perceptions and awareness on the causes, mechanisms and prevalence of VAW. This sample was equally divided among the three districts representing 20 respondents each. In order to receive a ground level understanding, this study conducted as a survey in rural areas in different districts. When selecting the study sample, Gampaha, Matara and Moneragala districts were chosen as they have reported a high number of incidents in terms of violence against women according to the police headquarters statistics in Sri Lanka. According to the distribution of grave crime abstract for the year 2018 in Police Headquarters, there were 61 incidents in Gampaha, 129 in Matara and 76 in Monaragala districts during 2018 (Sri Lanka Police, 2018). Based on the above details, this study was conducted on Weligama in Matara district, Batuwatta in Gampaha district and Weliyaya in Moneragala district to identify the different aspects of VAW. Here, only five houses were skipped after every household chosen to ensure maximum spread of the sample.

Results and Discussion

In Table 1 and 2, number of respondents by their age and number of respondents by their education in the study sample were summarized.

Table 1: No. of respondents by their age range

Age Range	No. of Respondents
18-28	24
29-38	15
39-48	07
49-58	11
59 and above	03

Table 2: No. of respondents by their educational qualification

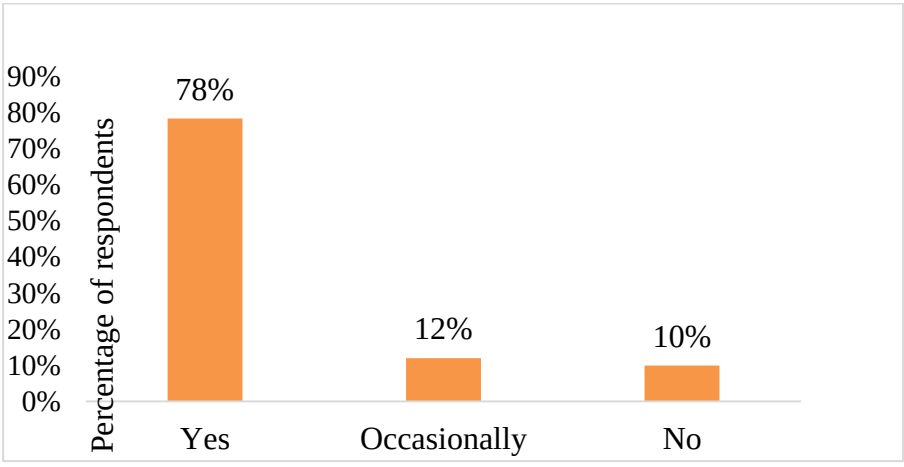
Educational Qualification	No of respondents
Degree/ Higher degree Level	03
Up to Advanced Level	07
Up to Ordinary Level	11
Above Ordinary Level	01
Grade 5 pass and above	03
Up to Grade 5	09
Never went to school	26

When considering the demographical data of Tables 1 and 2, these respondents belonged to different levels of social stratification. When considering their occupations, it can be identified that most of the respondents were engaged in various types of occupations such as studying, office work, teaching in schools, serving as police officers, attendants and nurses in the hospitals, garment factory workers, labourers, self-employees and housewives representing diverse levels of the society.

In the questionnaire based survey, both close and open ended questions were included. In the close ended questions, there were multiple answers to choose from. Based on their responses, it is identifiable that most of the respondents, nearly 61% were aware that VAW is a crime and it is against the Sri Lankan law. Among them 21.66% were not aware that it was a crime according to the Sri Lankan legal framework and 18.33% were not sure about the answer. However, when considering above fact, it has revealed a very interesting point that among these respondents 86% were considering VAW against the law but not as an absolute crime. This reveals a rather poor level of women's awareness on VAW in the country.

Additionally, when considering the awareness of types of sexual violence that they can face in day to day life; raping, sexual harassments, forced abortions, beating, murdering and burning are the top 6 answers given by respondents. According to their answers most of them were only aware of the physical and sexual harm (85%) while psychological harassments were not recognized by them as VAW. Among the respondents, only 15% were aware of the fact that VAW can occur in both physical and psychological means. This highlights the fact that the awareness of VAW is not in a satisfactory level in the selected areas.

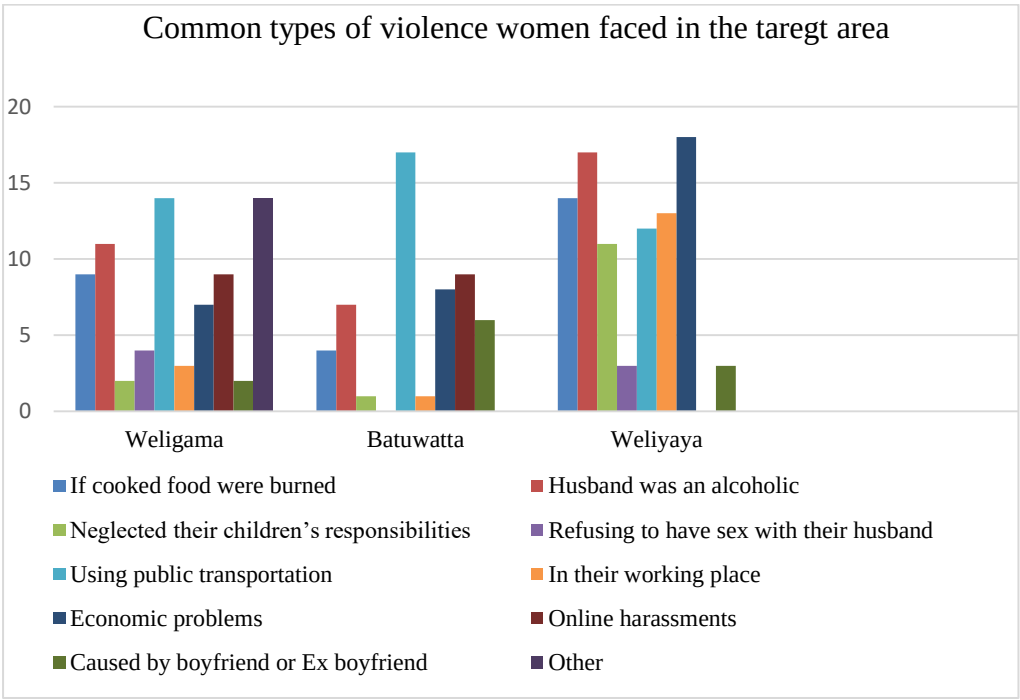
Figure 1: Being a victim of VAW



As figure 1 indicates, the frequency is high for those who are facing these types of violence. Among them 78% of respondents have faced these types of actions on a frequent basis and another 12% of respondents have faced these types of violence occasionally. 10% have not undergone any such kind of experience. Here, most respondents who have faced these harassments have experienced them while using public transportation such as buses and trains (Figure 2). When it comes to the respondents who barely faced these types of sexual harassments, most of them revealed that they are using their private vehicles and three-wheelers for transportation.

When looking at the root causes of VAW that occur at the households, the survey data and interview findings suggest that primarily these occur in the households due to deep or instant anger. For instance, if cooked food were burned, if their husband was an alcohol addict, if women have neglected their children's responsibilities knowingly or unknowingly and also if they have refused to have sex with their husband etc. Such domestic aggressions and grudges often burst out in the forms of extreme arguments and torture and eventually results in VAW. Also, women can have commonly become subjected to sexual harassment in their work places. Terminating relationships with their boyfriends or divorce also often lead women to get victimized not only by their former partner but also by the entire society. Breaking up with someone who was in a close relationship often results in various kinds of threatening and blackmailing, while exposing women to the direct blame and pressure from their society which in turn impairs their future progress and make women vulnerable.

Figure 2: Types of Violence faced by the women in the target area



When considering the statistics in figure 2, the range of violence that women faced vary between different areas. As noted in Weligama, the 'other' factor was reported frequently in significantly (14 votes by the respondents). Here, the respondents have mentioned that since coastal area of Weligama is one of the famous tourist attractions, that tourism in this area has created an unsafe environment for children, young girls and women in the region. According to the respondents in Weligama has a favorable environment for some unethical actions such as the use and dealing of drugs, maintaining illegal affairs etc. resulting in many sociocultural problems. In this context, some women and girls were knowingly and unknowingly trapped in unacceptable affairs and unhealthy relationships that can cause problems between parents and children and husbands and wives.

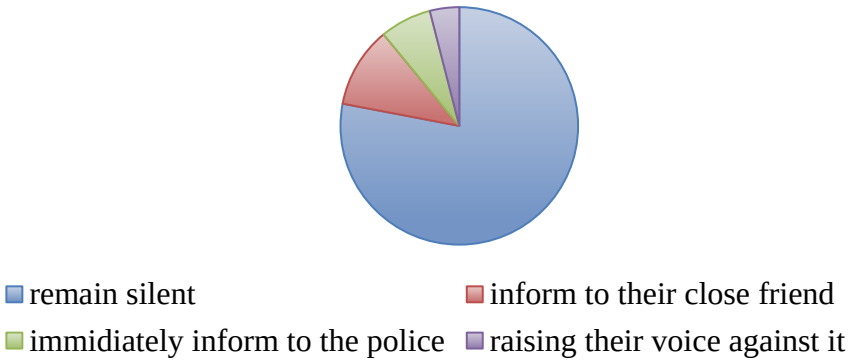
In the Batuwatta area, use of public transport (17 votes) and online and technology based violence (9 votes) were mentioned as a common type of violence that women face in their day today lives. According to the respondents, while they were travelling by bus or train, they have faced harassment, especially in the form of unnecessary touching and other unpleasant physical, verbal and psychological experiences. According to their opinion, most of these troublesome acts are caused by elder or middle-aged men. In such situations, sometimes these women respond by raising their voice against them, but the arguments with the perpetrators make women become helpless in this type of situations as the society around them is not supportive to seek justice for such maltreatments.

When it comes to Weliyaya, in Moneragala district, their economic problems, especially such as troubles created around micro finance loans and alcoholic habits of men cause most women to face various forms of violence. As Moneragala is the highest poverty reported district in Sri Lanka (Department of Census and Statistics, 2016:19), most people who live there face many financial problems (18 votes) that create socio-economical insecurities. In this situation, many companies give them micro finance assistance as loans. However, receiving these loans does not necessarily provide solutions to their financial struggles and most of the time these people hardly payback their monthly interest. These loan schemes tie up the lives of the poor as they now have another struggle to pay back the unpaid loans and the interest. Such financial situations have created many problems, especially within the family setup. Consequently, women get beaten up and tortured by their husbands unnecessarily and some women in such rural areas commit suicide due to feeling that there's no way out. Also according to the respondents, alcohol addiction of men (17 votes) was another main cause of VAW in this area. Their low level of financial stability leads to these types of misbehavior of their husbands. This has a direct impact on VAW as women are used as a target to relieve men's frustration.

Considering the entire study sample, most respondents (61%), have experienced such violence while using public transport. According to the survey data and interview findings, women become victimized at their households as well as in workplaces to various extents. This is well evident and common in all three districts. Women in Weliyaya has mostly experienced such abusive treatments due to the alcoholic habits of their husbands (17 votes). In Weligama and Batuwatta, cyber bulling and cyber based violence such as threats via social media such as Facebook, YouTube, WhatsApp and Viber; threatening/blackmailing them to perform certain acts without consent in order to avoid their personal photos or videos (often exposing nudity) being published in public has become a novel threat. This is somewhat common in study areas that are urbanized and exposed to the use of novel technological appliances (18 votes). Therefore, in these areas, mainly, some young people have become vulnerable to such threats and these abusive uses of technology introducing new forms of VAW and thereby greatly impacting the Sri Lankan society. Additionally, some elderly women in the study sample also have experiences of being victimized by unknown callers and social media users on Viber, WhatsApp, Imo and etc.

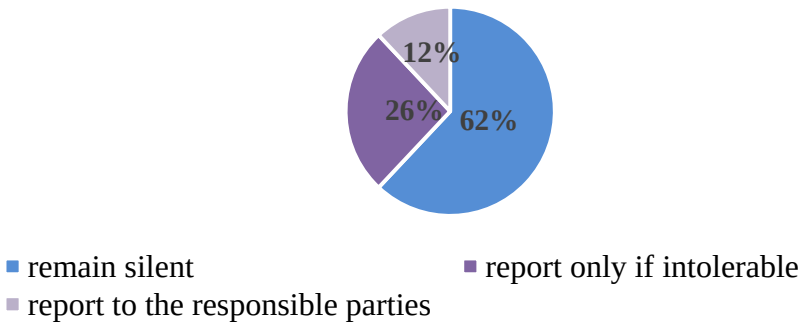
When focusing on the relationship between the perpetrator and the victim, survivors of most incidents report that violence was caused to them by their close relatives & associates like their father, husband, brother, brother-in-law, mother-in-law, friends, boyfriends or ex-boyfriends. This suggests that closely associated people have easy access to cause VAW. Apart from these parties VAW happens by the hands of unknown parties such as persons in public transport, owners of fake Facebook accounts, by hacking social media accounts, giving missed calls to unknown numbers, editing photos were brought out by respondents during the qualitative section of the study to describe the perpetrator and the victim's relationship.

Figure 3: Reactions towards VAW



Focusing on the reactions towards VAW, figure 3 and interviews revealed that most of the time women prefer to stay silent when they become the victims of the violence or sexual harassment. Among the responses, a majority prefer to inform such incidents only to their close friends instead of informing responsible parties like the police, women's affair hotlines or raising their voice against them in such instances. An associated problem is that this type of responses to VAW can create only a friendly environment to the perpetrator to comfortably continue such actions in the society in future. Therefore, when focusing on this, it shows that there is a clear attitudinal problem within women that makes VAW unreported or underreported unless it becomes extreme, unavoidable or unbearable.

Figure 4: Reactions against Domestic Violence



As shown on figure 4, the most prominently associated reactions against VAW and such incidents at domestic level was to remain silent (62%). The time they decide to report incidents of domestic violence was mentioned as only after such incidents become intolerable or increased in frequency (26%). This finding has shown that some women believe that some amount of physical, psychological or verbal harassments should be tolerated within their households to certain extent until they become uncontrollable. However, it is interesting to see that 56% of respondents has justified their answer that such tolerance was essential to keep their families/marriages intact. According to the key informant interviews and the study sample, most of time women suffer from these types of violence from their husbands and close family members, but prefer to stay silent because of their children, and the fear to report these types of complaints to the police or other responsible parties as they believe it will affect their children's future negatively. However, unreported violence which acts as an indirect acceptance of VAW, makes women more vulnerable to aggravated forms of maltreatments and they would not stand on their own feet to find justice for them. Sometimes they become reluctant to raise their voice for their rights independently since some of them are dependents of their husbands. These responses show the level of women's economic capability, the status of dependency and various familial bonds and obligations that make women prone to VAW in the Sri Lankan society.

In investigating the awareness of the legal mechanisms and aids related to VAW, the study shows that the current level of awareness is not adequate. Even though almost all the respondents said that they know where to report cases of VAW and from where to obtain free legal advice, none of them could mention an institute from which they could obtain such services other than the Sri Lankan Police. Other options such as Sri Lanka women's Bureau, Women's Hotline, Legal Aids Commission, cybercrimes investigation units, Sri Lanka Computer Emergency Readiness Team (SLCERT), and NGOs like Sumithrayo, Women In Need (WIN) were not mentioned by any of the respondents who participated in this interview. Not knowing such institutional

involvements and where to seek proper help if they need to share their concerns and receive assistance surely put women in a disadvantage sphere. This finding is highlighting the ignorance and unawareness as a major contributing factor that lie behind the scene of VAW. When considering awareness of the legal provisions, conventions and acts which describe and emphasize the actions against VAW, many respondents' awareness was not nearly accurate. According to the findings, respondents were only aware about constitutional provisions (41.33%) and the Prevention of Domestic violence act no 34 of 2005 (36%). Most of them were not even aware of the provisions of the penal code, Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW) and Women's Charter etc. all of which could support them further when they are in need.

According to Foucault, a person would learn how to write, speak, think, and behave through discursive practices that shape our minds, bodies and emotions. Also in this, power and knowledge interplay in the formation of these discourses (Foucault: 1990, 1980). Therefore, in this context we can identify how some patriarchal practices very strategically justify these types of actions against women while violating their rights due to the lack of awareness and necessary knowledge.

Other than the lack of necessary knowledge and awareness, social attitudes and cultural norms constantly contribute to create a favorable environment to continue VAW in the Sri Lankan context. Since Sri Lanka still operates under the patriarchal norms, society believes and accepts that the male is superior to female. Even when declaring The Declaration on the Elimination of Violence Against Women, it was identified that the VAW is a manifestation of historically unequal power relations between men and women, which have led to domination over and discrimination against women by men. This prevents the fulfilled advancement of women, and therefore violence against women is one of the crucial social mechanisms by which women are forced into a

subordinate position compared to men (The Declaration on the Elimination of Violence Against Women, 1993).

Studying women's perspective on the violence that they face in their day to day life is crucial while discussing how familial ideology and cultural narratives operate within the society. This was proven in Kodikara's idea that the Sri Lankan society was generalizing and legitimizing the violence that occur between married men and women within the cultural framework by using the popular phrases *'violence in the home is only until the rice is cooked', 'ගෙදර රණ්ඩු බත ඉදෙනකන් විතරයි'* and '*Don't give fires in the house to the outside' 'ගෙදර ගිනි පිටට දෙන්න එපා'* (Kodikara, 2012:20). Therefore, this clearly shows that under the traditional set up both men and women seem to agree with the norm 'a good wife obeys her husband even if she disagrees with his view and actions'. Women are reluctant to go beyond the boundaries long created by the Sri Lankan society. In Sri Lanka there is a traditional saying that domestic violence lasts only until the rice is cooked (Kodikara, 2012:21) shows how the society is culturally and socially influenced to tolerate household issues under the impression that such issues would be resolved shortly without the need of any actions against them. VAW is also a kind of manifestation of the historically unequal power relations between men and women in the Sri Lankan society and still the society tries to preserve and maintain such an imbalanced distribution of power between men and women placing men in a higher position.

Women's reaction towards actions of the perpetrator by just remaining silent or tolerating the harassment could only pave the way for future incidents of VAW and therefore it is not favorable to the progress of the society. For example, women facing such incidents in the public transportation services move to other locations within the same bus to get away from the harasser, shift seats or take an alternative bus or train to protect themselves from such harassments. Fleeing from such harassment may temporarily save them for the moment but could result in more threats in future occasions to them or to the others in their society. Therefore, such actions and silence provide a favorable environment to

the perpetrator to continue their actions and unfortunately, this response towards the unacceptable actions of the harassers are not at all affirmative to reduce the burden of VAW in Sri Lanka.

With the findings in this study, it can be suggested that the Sri Lankan society needs a massive attitudinal change to take away the long-held fear in women to defend themselves in order to create a socially secure environment for women. This shows that 'fear' and 'shame' plays key roles in this matter in preventing women from seeking justice. For example one officer mentioned that threatening and exposing women's character on social media is one of the ways that perpetrators use to get hold of the victim, to force them into certain actions that can further harm them. When women face such abusive exposure, they usually do not seek justice in order to avoid further exposure such as that of herself or her family to criticism and humiliation. The law, if accessed at all, is a last resort in these cases (De Alwis, Morseth, R. 2007:127). Continuous struggles that women face due to VAW has its root causes in cultural, social and attitudinal phenomena rather than not having access to legal support or provisions of law.

Conclusion

In conclusion, among the causes of VAW, lack of awareness of the society on what is violence and the forms of violence one might experience, what rights peoples have and what actions can be taken regarding these types of matters have created the favorable environment to continuation of the VAW. Other than these causes, rapid misuse of technology and socially unsafe environment in both private and public spheres, remain contributory in addition to the attitudinal impact on VAW can be identified. Another major concern is that some women deny the means of help for VAW due to privacy issues. As evident in the interviews, some police stations do not have enough officers and especially female officers in the child and women's bureau. Therefore, sometimes the victims tend to conceal their experiences and underreport such cases in front of male officers. Also, according to the research

findings, it was mentioned that when some victims report to the police stations about such VAW, police officers themselves bring unusual proposals taking advantage of the situation. Therefore, the environment of the institute that receive the complaint can either encourage or discourage further actions against VAW in the area. This shows that negative attitudes within the law enforcement machineries also cause such crimes to go unrecorded or under-recorded. Inadequate knowledge about the other institutions that could help women have also played key roles in reluctance to seek assistance after facing VAW. The need of strengthening up the gender sensitivity in these institutions and the need of creating awareness regarding when, why and where to report VAW in Sri Lanka are truly a major requirement to reduce VAW.

As one important aspect to combat VAW, the concept of Human Rights Education (HRE) can be mentioned. HRE can be used as a tool to empower women who are suffering from such injustice. Moreover, as Rajan elaborates, enacting laws are insufficient to ensure the protection of women from violence. It is essential to supplement them with knowledge about human rights at least to standup for themselves. In the study, it was well observed that most of the respondents did not know about the rights that they have as a person and as a woman. Other than this, most of them did not have any idea about what type of remedies that they can take if they become a victim. This clearly point out that human rights cannot get protected by establishing legal instruments alone. Furthermore, protection of human rights is not the sole responsibility of NGOs, youth organizations or volunteer groups but a responsibility of the country and every citizen. Active community participation is vital to ensure human rights are protected by being aware, reporting and holding attitudes against the violation of human rights.

Therefore, it is better to introduce and expand the practice of human rights education. In this process state also has a major responsibility towards promoting it by introducing and expanding the practice of human rights education in a more systematic way to prevent occurrence of VAW in Sri Lanka. As Council of Europe defines HRE, it includes education,

training, raising awareness, information, practices and activities which aim equipping learners with knowledge, skills and understanding and developing their attitudes and behavior (Council of Europe, 2012). This can be mentioned as a process of learning about, learning through and learning for human rights. It is essential to ensure that it is understood, upheld and promoted by everyone. In order to do so, active contribution of the socialization factors like, family, friends, religious institutes, school, media etc. is needed. Therefore, the instances of VAW should be approached with the application of HRE for the sake of transformative action against VAW. This can also be proved by investigating Monisha Bajaj's study based on the Dalit community in India, as her study has proven that Human Rights Education can uplift the marginalized, voiceless or discriminated people's lives in a progressive way by giving them adequate strength and a voice to the voiceless. Similarly, Sri Lankan society requires adequate levels of HRE education, clear awareness of the legal setup and institutions of Sri Lanka that promote protection against VAW and the attitudinal change in the society to reduce the burden of VAW and to truly establish equality for citizens of Sri Lanka.

As few limitations of the study, the preliminary study was conducted based on three GN divisions which can be considered as semi-urban and rural areas. Therefore, the identification of different aspects and dimensions requires extensions of this study to both rural and urban areas. Also, the study was conducted only with female respondents. Therefore, it is providing only one aspect of the problem from a female point of view. Such unilateral opinions may only demonstrate one aspect of the problem, hence investigation is required on the male point of view on VAW. Also, the perspective of the perpetrator should be studied in future research. This study therefore may help as a baseline for future researchers to further investigate the root causes for VAW in Sri Lanka.

References

Bajaj, M. (2012), *Schooling for Social Change: The Rise and Impact of Human Rights Education in India*, New York, Bloomsbury Publishers.

Council of Europe (2012), "Compass: Manual for Human Rights Education with Young people", available at: https://www.coe.int/en/web/compass (accessed 11 December 2018).

De Alwis, M. R. (2007), "Private Battles in Public Domains: Going beyond legal Terrains*",* in Perera, N., Rajasingham, L. K. and De Alwis, M. R. (Ed), *Feminist engagement with violence: Contingent Moments from Sri Lanka*, ICES, Colombo, pp. 106-142.

Department of Census and Statistics (2016), "Demographic and Health Survey"*,* available at: http://www.statistics.gov.lk/Health/StaticalInformation/DemographicAndHealthSurvey-2016FullReport (accessed 15th December 2018)

Edirisinghe, A. (2016), "Gender Based Violence and Post Conflict in Sri Lanka". available at: https://www.researchgate.net/publication/311581412GenderBasedViolenceandPostConflictinSriLanka (accessed 15 December 2018).

Foucult, M. (1980), "Power/Knowledge: Selected Interviews and Other Writings 1972-1977", in Gordon, C. (Ed), *Two Lectures*, New York, Pantheon Books, pp. 78-108.

Foucult, M. (1990), "The History of Sexuality", *An Introduction*, Vol. 1, pp.01-17.

International Labour Organization (2018), "World Employment Social Outlook: Trends for Women2018 Global Snapshot"*,* available at: https://www.ilo.org/global/research/global-reports/weso/trends-for women2018/WCMS_619577/lang--en/index.htm (accessed 25 October 2019).

Kodikara, C. (2012), *Only until the rice is cooked? The Domestic Violence Act, Familial Ideology and Cultural Narratives in Sri Lanka*, Colombo, International Center for Ethnic Studies.

Ministry of Public Administration, Management and Law & Order (2017), "Annual Performance Report -2017", available at: http://parliament.lk/uploads/documents/paperspresented/performance-report-ministry-of-law-order-southern-development-2017.pdf (accessed 25 October 2019).

Ministry of Women and Child Affairs (2016), "Policy Framework and National Plan of Action to address Sexual and Gender-based Violence (SGBV) in Sri Lanka 2016 - 2020, Colombo", available at: https://www.dropbox.com/s/oz1di27to59ox4m/Policy%20Framework%20and%20National%20Plan%20of%20Action%20to%20address%20SGBV%202016%20%20-2020%20Final%20Cabinet%20Approved.pdf?dl=0 (accessed 11 December 2018).

Rajan, S. R. (2002), "Rethinking Law and Violence: The Domestic Violence Prevention) Bill in India" *Gender & History*, Vol. 16 No 3, pp. 769-793.

United Nations (1993), "Declaration on the Elimination of Violence against Women", available at: https://www.ohchr.org/en/professionalinterest/pages/violenceagainstwomen.aspx (accessed 11 December 2018).

United Nations (2005), "Transforming our world: the 2030 Agenda for Sustainable Development", available at: https://sustainabledevelopment.un.org/post2015/transformingourworld/publication (accessed 11 December 2018).

United Nations Women (2018), "UN Trust Fund to End Violence against Women Annual Report 2018 Road to Change", available at: https://www.unwomen.org/en/digital-library/publications/ 2019/

06/un-trust-fund-to-end-violence-against-women-annual-report-2018 (accessed 10 June 2019).

World Health Organization - Sri Lanka (2018), "Country Profile on Gender Based Violence in Sri Lanka", available at: https://apps.who.int/iris/handle/ 10665/273193 (accessed 15 December 2018).

Women in Need (2018), "Why women and girls*",* available at: https://www.winsl.net (accessed 23 November 2018).

Agro-well Development and its Impact on *Gasgommana* Tank Reservations in Tank Cascades of Sri Lanka

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Abstract

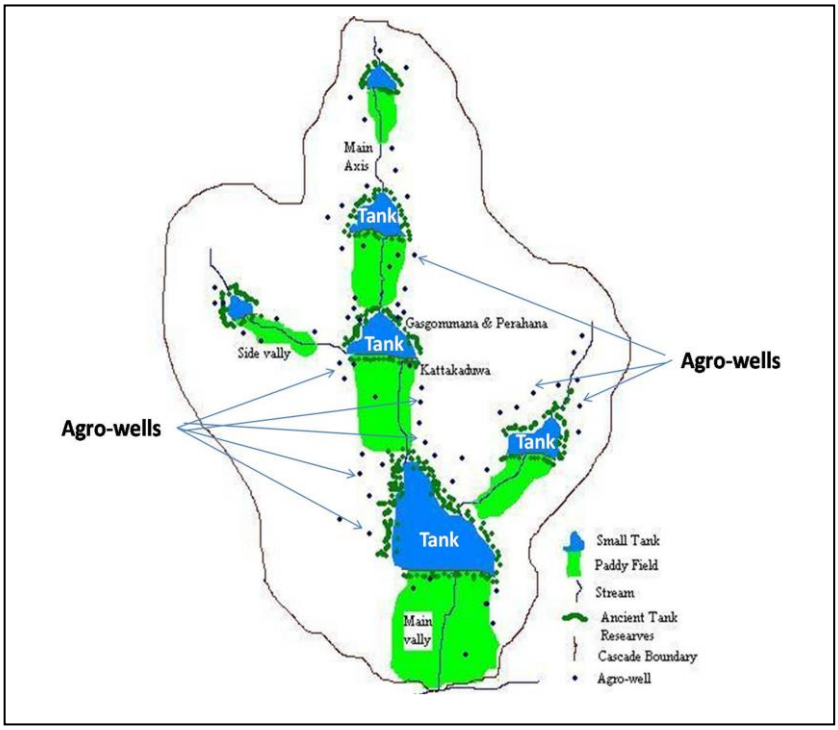
The expansion of Agro-well based agricultural systems has been a significant trend in the agricultural sector during the last three decades in the Dry Zone of Sri Lanka. Although there are many positive impacts, it has an adverse effect on tank reservations including natural vegetation belt locally called *"Gasgommana"* located surrounding the tanks. These systems have been contributing a lot of hydro-ecological services in tank cascades. Due to this recent issue on degradation of *Gasgommana* tank reservation, a study was planned to examine the impact on this tree zone using six tank cascades covering two river basins in the dry zone of Sri Lanka. For this study Geo-Eye 1 satellite images, Google images, direct observations, field surveys, structured questionnaire and focus group discussions were used for gathering necessary data. It was revealed that, with the increase of Agro well density in tank cascades, number of Agro-wells in reservations has been increased. In addition to the Agro-well excavation in reservations, these systems have been damaged due to Agro-well based land development, collection of woody materials and use of excavation machines. During the study, only 18 tree species were recorded in the remaining *Gasgommana* reservation area. It is also an evident that the tree density of *Gasgommana* reservation has decreased. With the increase of Agro-well density more than 15 per/ha, the *Gasgommana* land strips have also faded away nearly more than 60%.

Keywords: Agro-well development, Tank reservations, *Gasgommana*, Groundwater, Tree density

Introduction

Historically, the land use pattern of the tank cascades[1]in the dry zone of Sri Lanka has been transformed from natural ecosystem into agro-ecosystem. The traditional process of integrated forest and water resources management has reflected some sort of land allocations like 'Tank Reservations' within the tank cascades in the dry zone. The existence of these reservations has been challenged by the recent development activities within tank cascades. A number of researches including Dharamasena (1998), Dharmasena and Goodwill (1999), Senaratne (2002), Panabokke (2002), Pathmarajah (2002), Kikuchi *et al.*, (2003) and Perera and Nianthi (2016), (2017a) have reported the recent Agro-well development[2] in the vicinity of tanks (Figure 1).

Figure 1: Typical tank cascade system with emegence of Agro-wells



[1] Connected series of tanks with micro catchments and command areas, organized within a small valley.

[2]Agro-well development denotes both expansion of Agro-well constructions and Agro-well based land development.

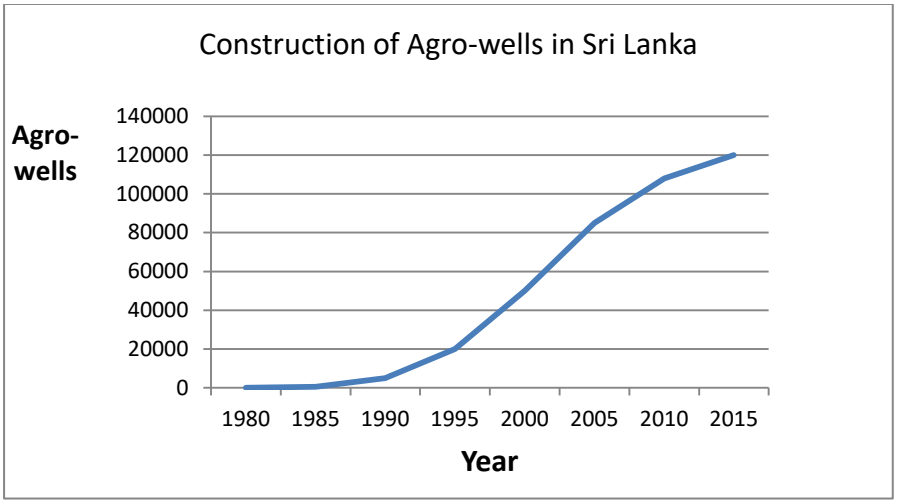
The topography of the tank cascade areas of the central dry zone consist of a thin weathered soil zone which appears to overlain by a thin alluvium layer in the lower and middle parts of the small valleys that consist of small tanks. This weathered bedrock is the aquifer which serves as the groundwater reserves for Agro-well irrigation (Dharmasena and Goodwill, 1999).

However, the rate of construction of Agro-wells to use shallow groundwater has been accelerated with the intervention of the Agricultural Development Authority (ADA) and the Provincial Councils since 1989 (Pathmarajah, 2002).Kikuchi *et al.* (2003) emphasized that the Agro-well development especially in minor irrigation schemes or in the small tank environments has been very rapid, and that has again been confirmed by Wijesundara, Nandasena and Jayakody (2012). A number of studies such as Dharmasena (1998), Aheear and Ariyabandu (2002), Pathmarajah (2002), Kikuchi *et al.* (2003),and Jinapala *et al.* (2012), have proven that the Agro-well based agriculture is economically profitable. However, currently there are more than 120,000 Agro-wells in Sri Lanka (Figure 2 & 3). The diffusion of Agro-wells has been very significant in the vicinity of small tanks in the dry zone due to easy access to the shallow aquifers and maintaining the ground water level closer to the land surface, even in the dry season.

Figure 2: Agro-well construction and land development

Source: Field Studies, 2015

Figure 3: Agro-well construction in Sri Lanka



Source: Author

The first attempt of the biological analysis of the tank is found in the Ratnatunga's (1970) "Eco-Village" concept to describe the Ecological /Biological status of tanks in the dry zone areas of Sri Lanka. Madduma Bandara (2010) explained, that "the traditional village tank systems in Sri Lanka support biodiversity as they provide mixed, heterogeneous landscapes: small tanks, irrigated paddy fields, forests, and villages in small areas". According to several studies, including Dharmasena (2004,2010), Perera (2010), Marambe *et al.* (2012), the tank ecosystems play a vital role such as maintaining the biodiversity, providing wiled fruits, protecting herbal plants, and supplying handloom materials including mat-grass and rattan in addition to maintaining the water source habitat units for a number of fauna species. Further, the ancient systems could provide valuable insights for making the present-day tank ecosystems sustainable and attractive. Poor understanding on the function of this complex ecosystem had led to either ignorance or inadvertent destruction of the ancient tank systems through various development projects (Marambe *et al*. 2012).

Forest reservations including stream reservation sand tank reservations are important components in a tank cascade and these have been providing various hydro-ecological services.There were several types of tank reservations with multiple scientific values, around the tanks and these reservations are surviving up-to-date for several centuries (Dharmasena 1998, Maddumabandara 2010, Perera 2017b, Perera 2017c).

Tank reservations are very important land uses with hydrological, ecological and technical values in the dry zone landscape. These reservations are known as "*Kattakaduwa*" (reserved land strip with well-rooted trees located between the tank bund and the paddy field),"*Perahana*" (strip of bushes in the immediate catchment and acts as a filter to the tank) and "*Gasgommana*" (strip of large trees located in the tank catchment). The *Gasgommana* lies, just above the water level of the tank in the catchment, serving as a windbreak, thus reducing evaporation losses. Between 10 - 20% of the small tank water surface has been covered by this forest patch (Perera 2017b) contributing to reduce the potential evaporation. This tree zone is very important in the dry and intermediate zones, to have an adequate supply of water, through minimizing the evaporation, as evaporation is high during the last two third of the cropping season. The indirect ecosystem functions of these reservations are the conservation of biodiversity, supplying medicinal plants, fuel woods, wild fruits and carbon sequestration in the forests.

There are about 16,000 tanks in Sri Lanka and 98% of them belong to small tank category (Perera, 2010).The estimated extent of tank reservations around small tanks varied from 0.2 ha to 11 ha, around medium tanks 02 ha - 20 ha and around Large tanks as10 ha - 250 ha (Figure 4 & 5).Accordingly, there may be 20,000- 25,000 ha of tank reservations in Sri Lanka.

Figure 4: G*asgommana* reservation

Source: Google images 2012 Imagery date 05/07/2012

Figure 5: Different forms of *Gasgommana* tank reservations

However, there is a legislative support to protect these systems at national level as follows.
According to the Agrarian Services Act (1979) and the Agrarian Service Revised Bill 2006-43-1,

i. Tank reserves should not be cultivated
ii. The destruction of the tree covers or soil erosion prone activities in an irrigation reserve or in a water source should be avoided.

According to the Agrarian Development Act, No. 46 of 2000 and the National Land Use Policy (Drafted in 2006) -iii – 7,

i. The reservations of all natural and man - made water courses and sources whether private or state will be demarcated and protected through appropriate conservation measures.

All this background has been developed a platform to examine the current issue on Agro-well development in tank cascades and its impact on the *Gasgommana* reservation area.

Methodology

Six sample tank cascades were selected for this study, covering upper Malwathu Oya Basin and upper Yan Oya basin in the North Central Dry Zone of Sri Lanka. The strategy was to examine the availability of tree species in *Gasgommana* reservations and correlated the findings with different Agro-well density values of tank cascades. Then *Gasgommana* tree zones of upper most tanks and lower tanks were selected, to cover the upper areas as well as lower areas within a tank cascade, for the tree survey.

To extract the information on Agro-wells construction in tank reservations of the study area, the Geo-Eye 1 satellite images (Geo Eye 1 – 2012 – 0.5m high resolution exclusive images) and Google images were observed first. Then the field verifications with the assistance of key farmers in each tank cascade were made for the final data base.

The second field study was undertaken to find out the tree density of each tank reservation. Following the standard criterion, the category of "trees" (Trees = Height = >1 m & DBH = > 5 cm), was selected for the floral survey. This survey was conducted as a field level tree census in tank reservations with five senior farmers. In addition to that, in-depth field observations, structured questionnaire and focus group discussions were also used to gather necessary data. Six focus group discussions were

conducted covering six tank cascades and 10-15 outstanding farmers representing lower, middle and upper parts of the cascades. Area calculations were completed with GIS maps, based on Geo Eye 1 satellite images, to find out the size of the cascades and *Gasgommana*area. Then the survey on tree density of the respective reservations was computed. In addition to that map interpretations, density calculations and correlations were used for the necessary analysis.

Results and Discussion

The tree survey was conducted in 6 tank cascades covering upper and lower tank *Gasgommana* reservations. Agro-well availability in reservations, Agro-well density of cascades as well as tree density of reservations was examined. Ahead of the tree survey, it was verified that no outstanding relationship of tree density of reservations with population density of cascades and other development activities. According to the survey, only 18 tree species were recorded and abundance species were *Damba,Kumbuk, Nabada* and *Nithul* (Table 1).

Table 1: Recorded Tree Species in *Gasgommana* reservation area

Local or Common Name	Scientific Name
Bakmee	*Nauclea orientalis*
Bo	*Ficus religiosa*
Damba	*Syzygium assimile*
Halamba	*Mitragyama parvifolia*
Karanda	*Pongamiapinnata*
Ketakala	*Bridelia retusa*
Kirikon	*Walsura trifoliolata*
Kohomba	*Azadirachta indica*
Kon	*Schleichera olesa*
Kumbuk	*Terminalia arjuna*
Lunuwarana	*Crateva adansoni*
Maila	*Bauhinia racemosa*
Mee	*Madhuca loggifolia*
Nabada	*Vitex leucoxylon*
Nithul	*Streblus asper*

Palmaira	*Borassusflabellifer*
Palu	*Manilcara hexandra*
Thimbiri	*Diospyros malabarica*

Source: Field survey 2013

Agro-well density of sample tank cascades was between 1.8 – 22 per sq.km. The tree survey was undertaken to examine the relationship between the Agro-well density of tank cascades and tree density in *Gasgommana* of each cascade. The highest tree density in *Gasgommana* area (57 per ha) was identified in the lowerst Agro-well density cascade (Rambewewa = 1.8 Per/km^2), while the lowest tree density (10 per ha) was reported in the highest Agro-well density cascade (Table 2).

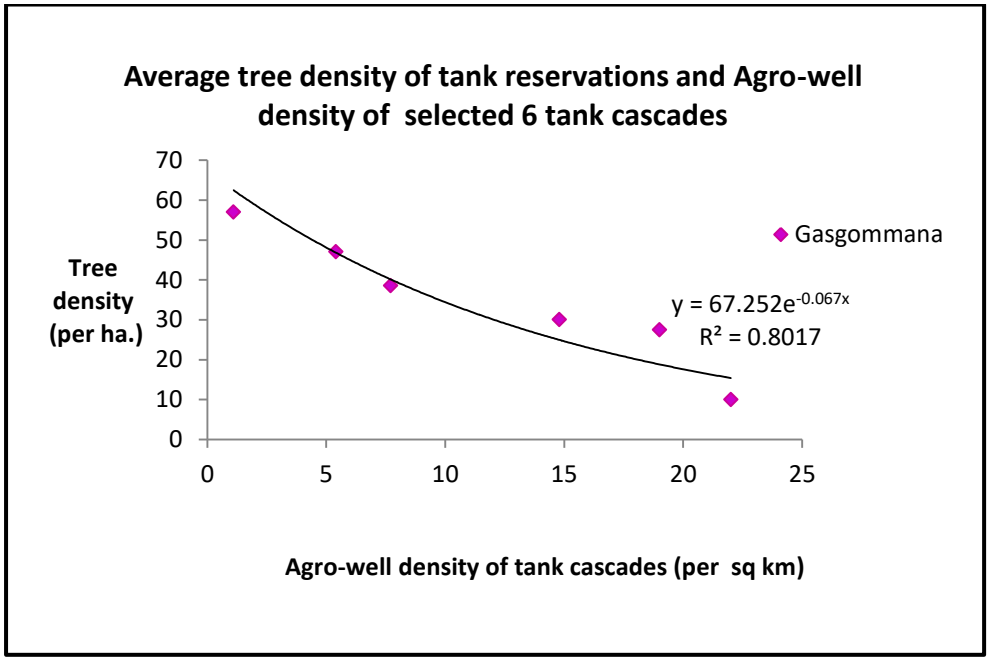
Table 2: Tree density of *Gasgommana* tank reservations

No	**Tank cascade**	**Agro-well density** (Per/km^2)	**Tank (upper tank & lower tank of the cascade)**	**Number of trees in *Gasgommana* Area**	**Extent of the *Gasgommana* (ha)**	**Density of trees in *Gasgommana* area (Per ha.)**	**Average Tree Density in Gasgommana (Per ha.)**
1	Periyakulama	22.0	Padiketuwewa	26	3.70	7	10
			Periyakulama	96	7.50	13	
2	Konwewa	14.8	Mawathawewa	98	3.10	31	30
			KonWewa	108	3.68	29	
3	Halmillawewa	5.4	IhalaHalmillawewa	362	7.00	52	47
			Halmillawewa	254	6.12	42	
4	Belikulama	19.0	Kawarakkulama	67	2.56	26	27
			BeliKulama	290	9.90	29	
5	Dambagaswewa	7.7	Pathirathnewewa	28	0.66	42	38
			Dambagaswewa	102	2.90	35	
6	Rambewewa	1.8	IhalaRambewewa	440	6.60	67	57
			Rambewewa	512	10.8	47	

Source: Field survey 2013 and GIS calculations based on Geo Eye 1 satellite images, 2012

Then average tree density value of each tank cascade, correlated with the Agro-well density. The results showed that the tree density of *Gasgommana* has been decreased with the increase of Agro-well density (Figure 6).Further, tree density of *Gasgommana* has been reduced with strong correlation ($R^2 = 0.801$) due to extracting poles and woody parts to fulfill the Agro-well based agricultural needs. That mean especially the tree density of *Gasgommana* has been affected due to the Agro-well constructions in or near to the tank reservations.

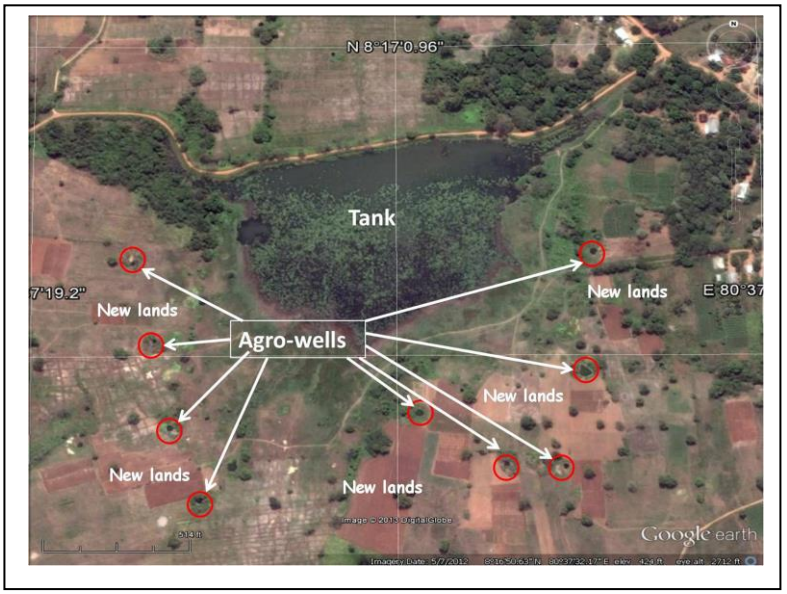
Figure 6: Relationship between the tree density of tank reservations and Agro-well density



In addition to the Agro-well availability in reservations, physical damages to the reservations were recorded due to the construction of Agro-wells using excavation machines and with the land clearing process. Further, thinning of trees in reservation areas was also observed. The reason was that hundreds of poles and other woody parts have been collected for Agro-well based agriculture especially for constructing huts and fence as well to construct beetle beds, bitter gourds and snake gourds

beds. Finally most of the areas of *Gasgommana* reservation has been damaged (Figure 7).

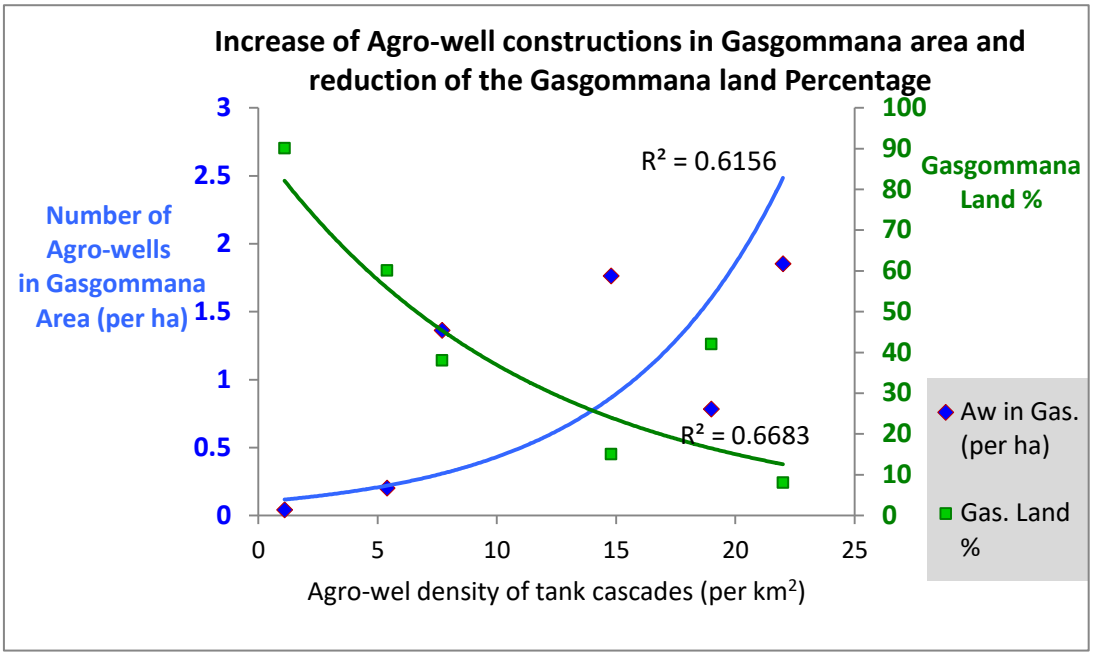
Figure 7: *Gasgommana* reservation damages due to Agro-well development



Source: Geo Eye 1 satellite images 2012 and Field survey 2013

Eventually the tree density also has been reduced, with this context. To analyze the spatial impact, the tree survey data and Agro-well data correlated with the Agro-well density of cascades. The analysis revealed that the *Gasgommana* land percentage has decreased more than 60 % with the increase of Agro-well density in tank cascades nearly more than 15 per/ha. Further, Agro-well density within *Gasgommana* area has also increased with the increase of Agro-well density of the same tank cascades (Figure 8).

Figure 8: Relationship between Agro-well construction and *Gasgommana* land cover



Source: Field survey 2013

Accordingly, the results revealed that with the expansion of Agro-wells up to tank reservation areas, the *Gasgommana* reservation has been affected by several ways.

Conclusion

Agro-well development in the dry zone of Sri Lanka has been spread out up to tank reservation areas of tank cascades. It was revealed that, although there were relevant regulations, Agro-wells have been constructed in tank reservations too.

Although there is a hydro ecological value of the *Gasgommana* tank reservations, different kinds of impacts such as removal of the forest patches for constructing Agro-wells, expansion of the agricultural area towards the reservation, and collection of woody parts for agricultural purposes were identified. Further, physical damages to the reservation area due to machinery usages were also identified.

There was a negative correlation of Agro-well density of tank cascades and tree density of tank reservations. Further, the results revealed that with the increase of Agro-well density in tank cascades, correspondingly number of Agro-wells in tank reservations has also been increased. With that the percentage of *Gasgommana* land also has decreased within the tank cascades.

Therefore, it is clear that although the Agro-well development generally shows positive impacts on agricultural productivity and regional economy, uncontrolled expansion of Agro-wells has degraded the tank reservations in tank cascade areas of the dry zone of Sri Lanka.

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References

Aheeyar, M.M.M., and Ariyabandu R.D.S. (2002), "Socio-economic Issues Pertinent to Agro-well Farming in Sri Lanka". In Pathmarajah, S. (ed), *Use of Ground Water for Agriculture in Sri Lanka* - Symposium Proceedings, Agricultural engineering society of Sri Lanka, Peradeniya.

Dharmasena, P.B. (1998), "Resource Management Studies on Agro-well Farming in the Dry Zone of Sri Lanka" – *Project Terminal Report*, Field crops research and development institute, Mahailluppallama.

Dharmasena, P.B., and Goodwill I.M (1999), "Use of Ground Water in Minor Tank Irrigation Schemes of Sri Lanka". *In Proceedings of 17th International Congress on Irrigation and Drainage*, Granada, Spain pp.75-194.

Govt. of SL. (1979), Agrarian Services Act, and Agrarian Service Revised Bill 2006-43-1

Govt. of SL. (2000), Agrarian Development Act, No. 46 of 2000.

Govt. of SL. (2006), the National Land Use Policy (Drafted Act in 2006)-iii – 7

Jinapala, K., *et al*., (2003), "Multi-Level Participatory Consultative Approach for Institutional Change in River Basins" (Working Paper 59), International Water Management Institute, Colombo.

Kikuchi, M. *et al.,* (2003), "Agro-well and Pump Diffusion in the Dry Zone of Sri Lanka" (Research Report–66), International Water Management Institute, Colombo, pp. 1-25.

Marambe, B., Pushpakumara, G., Silva, P. (2012), "Biodiversity and Agro biodiversity in Sri Lanka: Village Tank Systems". In: Nakano, S.I., Yahara, T., Nakashizuka, T., Yamamoto, S. (Eds.), Biodiversity Observation Network in the Asia-Pacific Region. Springer, Japan, pp. 403-430.

Madduma Bandara, C.M., *et al.* (2010), "Scientific validation of some traditional land and water management practices under Village Tank Cascade Systems", in *Economic Review,* Vol. 36, People's Bank, Colombo.

Panabokke, C.R., et al. (2002), *Small Tanks in Sri Lanka-Evolution, Present Status and Issues*, International Water Management Institute, Colombo.

Pathmarajah, S., (2002), "Use of Groundwater for Agriculture in Sri Lanka", In Pathmarajah, S. (ed), *Use of Ground water for agriculture in Sri Lanka* -Symposium Proceedings, Agricultural engineering society of Sri Lanka, Peradeniya.

Perera, M.P. (2010), *Irrigation Heritage of Sri Lanka* (Sinhala Version), Center for Environmental Justice, Colombo.

Perera, M.P., and Nianthi, K.W.G.R. (2016), "The Impact of Agro-well Development on Floral Diversity in Tank Cascades in the Dry Zone of Sri Lanka", in *International Journal of Science and Research (IJSR)*, Vol.5 No 6, DOI: 10.21275/v5i6.NOV164764

Perera, M.P. (2017a), "Groundwater Exploration for Agro-well Development in Sri Lanka and the Current Status", in *International Research Journal of Human Resources and Social Sciences* (IRJHRSS), Vol. 4 NO 8, pp. 359-373.

Perera, M.P., (2017b), "Evolution of Tank Cascade Studies of Sri Lanka", in *Saudi Journal of Humanities and Social Sciences* (SJHSS), Vol. 2 No 7, pp. 597-610. DOI: 10.21276/sjhss

Perera, M.P. (2017c), "Stream Reservations are at Risk?: A Case Study on the Agro-well Development in the Dry Zone of Sri Lanka", *International Journal of Science and Research (IJSR)*, Vol.6 No 6, DOI: 10.21275/ART20174619

Ratnatunga P.U. (1970), *Sri Lanka Wewas and Reservoirs Album*, Sri Lanka Freedom from Hunger Campaign, Colombo.

Senaratne, A. (2002), "Groundwater Exploration in Sri Lanka", in Pathmarajah,s.(ed), *Use of Groundwater for Agriculture in Sri Lanka* - Symposium Proceedings, Agricultural Engineering Society of Sri Lanka, Peradeniya.

Wijesundara, W.M.G.D., Nandasena K.A. and Jayakody A.N. (2012), "Seasonal and Spatial Variations of N,P,K, and Cd Concentrations in Water of the Mahakanumulla Cascade in the Dry Zone of Sri Lanka", in Twenty Fourth Annual Congress Proceedings, PGIA, Peradeniya, p. 41.

Asia and Global Capitalist Development; the Role of Indian Business Communities, with Special Reference to Sri Lanka

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Abstract

Economic transformation in Asia under the intervention of European colonial expansion is a popular theme in the academic discourse on global capitalist development. Eurocentric theory, both Liberal and Marxist, on development of capitalism on a global scale has been intensively refuted and debated about. The current academic discourse on the subject recognizes the interaction of multi-centered economic processes over several centuries paving the way for global capitalist development. In this process, the specific nature of the contributions of India and China has received considerable academic attention. In the case of India, its merchant capital had been operating in South and Southeast Asia, in the Persian Gulf, Red Sea areas and East Africa over several centuries. At the time of the advent of Western capitalism, Indian mercantile operation had brought about significant economic changes in this vast geographical area. It was in this background that the interaction between European and Indian merchant capitalist operations takes place in the 18th century. In this process Indian business communities performed specific roles and made a significant contribution to the development of capitalism in the region in the 19th century in collaboration and competition with European colonialism. Sri Lanka presents a typical arena of this broad transformation process. Sri Lanka was in the Asian merchant capital network and Indians played an intermediary role in the economy for centuries. When Sri Lanka underwent rapid economic change under the

British colonial intervention in the late 19th and early 20th centuries, Indians played a noteworthy role to make colonial initiatives practicable, as in most parts of South East Asia. The aim of this study is to analyze the debate on economic transformation in Asia examining the involvement of various Indian business communities during the colonial intervention in the Sri Lankan economy, and to assess their contribution towards its transformation. The principle problem addressed in this research is the specific role played by various Indian business communities in the economic transformation in Sri Lanka under the colonial intervention. The research tries to assess the importance of their roles in the incorporation of indigenous society into colonial capitalist production processes. This research will utilize information and data obtained from primary archival materials in Sri Lanka and India and statistical records of colonial governments. The research will also involve a search for private collections of documents of such families.

Keywords: Capitalism, Colonialism, Economic transformation, Indian business communities, Merchant capital

Introduction

Eurocentric theory of development of capitalism on a global scale, both Liberal and Marxist, has been intensively debated about and refuted. The current academic discourse on the subject recognizes the interaction of multi-centred economic processes over several centuries paving the way for global capitalist development. In this process, the specific nature of the contributions of India and China, has received considerable academic attention.

Over several centuries Indian merchant capital had been operating in South and Southeast Asia, the Persian Gulf and Red Sea areas. At the time of the advent of Western mercantile capitalism, Indian mercantile operations had brought about significant economic changes in this vast

geographical area. It was in this background that European and Indian merchant capitalist operations interacted in the 18th century with the Indian merchant communities performing specific roles and contributing significantly toward the development of capitalism in the region in collaboration and competition with European colonialism. (Bayly, 1990: 27-39; Washbrook, 1990: 40-84; Mukherjee, 2014: 463)

European historians invented the Eurocentric theory of economic development in the 19th century for the legitimation of colonialism and as an expression of their notion of Orientalism that placed Asia at the bottom of the civilizational ladder.[1] (Mukherjee, 2014: 452) The theory was used extensively to justify the European conquest and exploitation of Asian societies. Andre Gunder Frank on the other hand, argues that Europe depended on the wealth of Asia and drained it for centuries under their colonial domination;

> *…… early modern Europe was neither more important in the world economy nor more advanced in any way than other regions of the world.*
>
> *…… the very search for "hegemony" in the early modern world economy or system is misplaced. Europe was certainly not central to the world economy before 1800. Europe was not hegemonic structurally, nor functionally, nor in terms of economic weight, or of production, technology or productivity, nor in per capita consumption, nor in any way in its development of allegedly more advanced "capitalist" institutions*. (Gunder Frank, 1998: 5)

He proceeds to argue that Asia and China formed the center of the world economy before 1800.

[1] Fernand Braudel became the dominant ideologist of the Annales School of Historiography in the 1950s and 1960s. Euro-centric theory of capitalist development on world scale became a favorite subject of academic debate after Fernand Braudel's works - *The Mediterranean and the Mediterranean World in the Age of Philip II* in 1949 and *Civilization and Capitalism* in 1967. His argument of euro-centric world-system of socio-economic and political developments from 15th century had a strong influence on later writings.

> *If any regions were predominant in the world economy before 1800, they were in Asia. If any economy had a "central" position and role in the world economy and its possible hierarchy of "centers," it was China.* (Gunder Frank, 1998: 5)

> *The two major regions that were most "central" to the world economy were India and China. That centrality rested primarily on their outstanding absolute and relative productivity in manufactures.* (Gunder Frank, 1998: 127)

> *In all these respects, the economies of Asia were far more "advanced," and its Chinese Ming/Qing, Indian Mughal, and even Persian Safavid and Turkish Ottoman empires carded much greater political and even military weight than any or all of Europe*. (Gunder Frank, 1998: 5)

Depending on the predominant position of Asia in the world economy, Europe benefitted from Asian commodity production, markets and trade. As Gunder Frank concludes,

> *Europe climbed up on the back of Asia, then stood on Asian shoulders temporarily*. (Gunder Frank, 1998: 5)

> *Europe was still dependent on Asia during early modem times, before the nineteenth-century invention and propagation of the "Eurocentric idea".* (Gunder Frank, 1998: 8)

Gunder Frank further observes that,

> *...European high regard for Asia did not really change until the nineteenth century, after the inception of European industrialization and colonialism, which then profoundly altered European perceptions and pronouncements, including their historiography and social science. .... in fact we can consider that around the beginning of the sixteenth century the principal civilizations of Asia had attained a level of technical and economic development superior to that of Europe.* (Gunder Frank, 1998: 11-12)

Predominant Role of Asia

Based on the strength of its commercial activities in the Afro-Eurasian region, Asia consistently dominated the world economy for nearly three centuries until about 1800 (Gunder Frank, 1998: 53-54). From the 15th century Asian commerce started to integrate with that of the Western hemisphere as Europe used the wealth acquired from the American colonies to broaden its commercial relations with Asia. *European maritime expansion, particularly the integration of America into the western commercial system, acted as a powerful force drawing together the countries of the Indian Ocean and parts of the African continent*. (Chaudhuri, 1985: 208-209; Mukherjee, 2014: 453,458-459). This process was facilitated by parallel Asian developments in the pattern of long-distance trade enabling the large-scale flow of American silver as liquid capital into the Asian trade. (Chaudhuri, 1985:62) As the demand for Asian commodities in Europe rapidly increased there were significant changes in the internal mode of production in Asia. All this illustrated that Asia was in a process of capitalist development at the time of the European colonial intervention.[2] As David Washbrook argues,

> *..., it would seem that the emergence of capitalism - or at least of strongly capitalistic features including the connection of the processes reproducing political power to the logic of the marketplace - pre-dated South Asia's 'incorporation', which Wallerstine sees taking place in 1750, and had origins outside the Euro-centred world system, as well as inside them.* (Washbrook, 1990: 60)

In the pre-colonial Asian merchant capitalist circulation system; India and China were Ocean related centres. (Hamashita, 1994: 91-107; Gunder Frank, 1998: 111-117,126-130) *Merchant capital, […] had a*

[2]Unlike in Asia the capitalist development of Europe was a long term process of slow capital formation and accumulation for centuries. It commenced about 12th century and reached the level of industrial capitalism with the Industrial Revolution. But, the capitalist development in Asia reached in decades with the collaboration of existing economic developments of Asia and the colonial impact.

long history in the region, and there is evidence of secular growth trends going back to the twelfth century. (Washbrook, 1990: 72) This system revealed its own form of merchant capital formation, within its capital circulation, exchange and accumulation. East Asia and South East Asia, present South Asian geographical area, East Africa and Persian Gulf and Red Sea regions became peripheries of these centres. This was a supplementary development as the existing agricultural system of the area and the surplus were brought to the market. But, means of production, labour, land, financial capital etc., were not directly focused on trade as it happened in Europe.[3]

At the time the Europeans incorporated the above mentioned regions into the world capitalist circuit in the course of the 19th century these economies were already at various levels of their development processes.

> *Prior to 'incorporation', regions such as South Asia are seen to have existed under world empires where, following the …. stereotype, economies and trade were 'administered' by lineage communities and /or state elites, and administration which subordinated the logic of competitive market exchange to those reproducing community and state power.* (Washbrook, 1990: 59)

For example, under the Mughals, by the seventeenth century,

> […] *developments in the state and the economy were […] beginning to create socio-political formations more deeply rooted in the marketplace. There was an expansion of trade and commercial production, an enhancement in the political position of commercially-engaged groups and most, centrally, a closer relationship between command of commercial wealth and ability to reproduce political power*. (Washbrook, 1990: 60)

[3] *This effected many and continuous changes inside South Asian society, changes which revealed complex processes of relationship between economy, social structure, ideology and state system. For the purposes of Modernity, or perhaps contemporary history, however, the 17th century seems to have been decisive. As we have seen, there are many sings that a conjecture between different forms of military organization and expanded commercial opportunities was setting up the structures of a new kind of state.* (Washbrook, 1990: 72)

There is a clear picture of the market playing a prominent role in most of these economies as they were integrated with long-distance trade and capital movements. Money transferred in the form of a credit network within the trading network. However, at the time of European intervention, the development of capitalism in its wider and deeper sense was yet to take place in Asia.

Pre-colonial Economies of Asia

If we go back to the pre-colonial period of the above mentioned regions, two significant elements in their economies need to be considered in a new perspective. Firstly, the existing mode of production in this vast geographical area has to be considered not as a single unit but as individual economies. Therefore, the production process, surplus appropriation and the exchange system in each locality need to be explored and redefined. Secondly, it is necessary to identify individuals or groups who handled the surplus and engaged in trade and commerce of these economies. This information will help in the proper understanding of both the transformation of these economies in the colonial period and the actual roles played by European and indigenous actors in this process.

Pre-colonial economies in Asia[4] functioned in a widely expanded international trading network operating geographically in a large area interconnecting present Central Asia, the Middle East, and Eastern Africa. This network linked the European subcontinent to Asia and extended up to the Russian territory. (Ray, 1995: 472-474; Bayly, 1990: 36) At the same time this network penetrated various interior economies of the mentioned regions deeply. Pre-colonial economies of independent kingdoms or political units of these regions were fostered by prosperous and vigorous trade since at least the 10th century. The production and exchange systems of these economies and the trading network patterns made their own form of capital accumulation in the region as well as in each economy. (Ray, 1995: 456,458)

[4] India, Southeast Asia, China and other East Asian territories.

The well-organized trading network in Asia necessarily developed … *a more advanced circuit of capital which translates values into relative prices and economic surplus into money or productive capital*. (Chaudhuri, 1985: 203) As a whole … *the most important consideration was the ability of a local economy to create a surplus over and above the subsistence demand and to maintain this level of productivity over a sufficiently long period of time.* (Chaudhuri, 1985: 182) Local economies in Asia integrated into this wider system of economic exchange based on capital and its accumulation on a large scale. The most important fact was that the system of transferring capital within the trading network has been shaped for centuries by a well- organized banking system. Inland economies were connected to the long-distance trade through this credit system and trading network. For centuries the banking system was handled by indigenous banking communities with expertise in monetary transmission.

Since the different areas in the above mentioned two regions were at different levels of their economic development, capital as well as skills of trading and financial management flowed from pooling areas to deficient areas. Many Indian and Chinese communities with such capabilities flourished in areas where they were deficient. This was particularly evident in the role played by the Chinese in the East Indies and the Indians in East Africa and South East Asia. These communities, over a long period, were attracted to areas which were deficient in such skills and experiences. As Rajat Kanta Ray observes, their roles were similar to those of Italian bankers in Europe during the Renaissance period.

> *Within China and India, […] the skills of banking and accountancy were confined to certain specialized merchant communities operating through widespread community networks. The banking skills of these hereditary Chinese and Indian business communities, and of the Jews and Armenians of the Islamic World, had long reached the level of development comparable to that of the Italian Renaissance bankers.* (Ray, 1995: 454)

Besides, Asia as a whole was able to maintain a favourable balance of trade at the time, especially with Europe. Compared to Asia, Europe had a huge …*balance of trade deficit with all other regions except with America and Africa. ... the Europeans were able to receive African and especially American bullion without giving much in return and much of that they provided as intermediaries in their re-export of Asian goods*. (Gunder Frank, 1998: 74)[5] Each area in Asia was able to maintain a favourable balance of trade in its own way. There were a number of commercial and financial operations at various levels within the maritime trading network and bullion flowed within these channels. American silver flowed in to India and China through this complex network. (Chaudhuri, 1985: 62,185-188; Bayly, 1990:35) *The economy of China, along with that of India, needed a constant injection of monetary liquidity to keep up its rate of economic expansion.* (Chaudhuri, 1985: 76)

There was also a sufficient balance of commodity production and exchange within various areas in Asia which enabled commercial complementarity among them. This was the rationale behind the expansion of the trading network in the vast geographic area of Asia for centuries. Asia produced a wide variety of commodities ranging from food products, spices, manufactured goods, industrial raw materials, aromatics, medicinal plants, cotton textiles, silk, glass, porcelain, metal ware, precious stones, to horses and many others. These articles were exchanged between specialized areas in the production of commodities and deficient regions through maritime and caravan trade. *Moreover, many regions around the Indian Ocean supplemented their food production with imports from areas of high agricultural surplus.* For example, in the Red Sea and the Persian Gulf, *entire communities depended on food imports from Egypt and India for their daily survival.* (Chaudhuri, 1985: 203-204) *Some of the coastal and inland areas of the*

[5] *For a hundred years the wealth of America had flowed into Europe. The gold and silver mines of Central and South America had enriched the maritime peoples of the Atlantic coast. North American colonies of England and Holland had increased the prosperity of the mother countries.* (Panikkar, 1959: 52)

Middle East, India and China also specialized in the manufacture of industrial products, e.g. Indian textiles. For centuries India was the supplier of cotton textile in the system of commodity exchange within the region. (Mukherjee, 2014: 458,464; Chaudhuri, 1985: 182-185,193-194)

With these interlocking production and exchange centres, Asia *evolved a sophisticated economic system which could support long-distance trade and the apparatus of the state*. (Chaudhuri, 1985:207) Local economies were fully integrated into a structure of distant economic exchange, both as producers and as consumers, depending on the market mechanism. (Chaudhuri, 1985: 207-208) Each region of Asia's geographical location developed its own natural crossroads and meeting points for world trade. There was commodity trade from and to all directions, maritime and inland, overland and riverine, which were trans-shipped from many cities in Asia westwards to Africa, West Asia, Europe, and from there across the Atlantic to the Caribbean and the Americas. Caravan traders were intermediaries between two segments of the trans-continental trade of Eurasia. The overland and maritime trade was more complementary than competitive. (Gunder Frank, 1998: 74-123; Bayly, 1990: 32)

Asian trade was organized and functioned at various levels, from village level to trans-continental level. It varied from inland caravan cities of Central Asia and urban bazaars of Indian inland trade centres to large scale maritime trade emporia. Great circuit of emporia commerce was controlled by cities such as Malacca, Cambay, Aden, Calicut and Canton. These cities interlocked with number of port cities with networks of local monetary institutions and banking and insurance services, shipping arrangements and other essential commercial and legal services. (Chaudhuri, 1985: 182-183,188-190,196-197) Trans-continental level exchanges occurred mostly of specialized products of each region. These commodities traveled from China, South East Asia, or India to the Eastern and Western Mediterranean markets through a series of commercial emporia. (Chaudhuri, 1985: 189)

The other aspect of this commercial network was the presence of well-organized bodies of private traders, trade guilds and organizations with their associates functioning in their networks covering a large geographical area.[6] There were innumerable indigenous merchant and banking communities which sprung up independently from specific historical developments of the two regions. They specialized in banking skills as well as in long distance trade and businesses associated with these economies. Their activities ranged from production, transport and shipping, wholesale and retail to credit and banking. With their skills in marine and overland trading, and handling money and other business techniques they played varied roles. They linked regional supply centres with market areas in various locations in the trading network and as intermediaries of independent kingdoms they penetrated into indigenous economies. Chaudhuri explains,

> *The commodities of the Indian Ocean were sold in three types of markets and were handled by several different classes of trader. The great commercial emporia of Asia had their counterparts in the immensely rich resident merchant families, comparable to territorial nobility. These merchants, towns and cities were multi-functional, dealing in a wide range of goods and spreading the financial risks in a dozen difficult directions. Below this typology there were markets and traders who were still large but specialized in particular goods and commercial services. At the bottom of the scale the urban bazaars and weekly country fairs supplied goods to the consumers at the retail level; these markets were supplemented by the business carried on by pedlars. Long-distance maritime trade included small traders whose individual transactions were no greater than those of local pedlars. The role of this group is difficult to measure in terms of market shares. The small traders accompanied the annual fleet of ships which set out from the ports*

[6] E.g., market centres or towns like Anuradhapura, Polonnaruva and Padaviya in Sri Lanka functioned for centuries in the network of South Indian private traders. See K. Indrapala, 'South Indian Mercantile Communities in Ceylon, circa 950-1250', *The Ceylon Journal of Historical and Social Studies*, New Series, 1.2, July-Decem. 1971, pp.101-113.

> *of India or China, carrying their wares in numerous packs and baskets. Those goods were sold from their shoulders in Malacca, Bantam, or Batavia, causing profound irritation to the larger shippers. The pedlars obviously undercut the great merchants on many items of export. However, it is doubtful if their activities were ever more than marginal to the main volume and direction of seaborne trade.* (Chaudhuri, 1985: 202.)

The picture that emerges from all these details makes it most appropriate to apply the term 'free trade' to the commercial pattern of the precolonial Asian region. Numerous indigenous trading communities with various skills, specializations and trading diasporas interacted freely for centuries in many parts of Asia. Number of traders who arrived mainly from empires of Ottoman, Persian Safavid, Chinese were active in trade zones from Mediterranean to China. They included Mamluk traders from Egypt and Syria, Armenians and Africans; Persians from all over Persia; Gobi traders and Jews as well as Baghdadi Jewish merchant capitalists; traders from Anatolia, Abyssinia and Zanzibar; Arabs from Arabia, Jidda and Yemen; Armenians from Armenia; and Turks from Turkestan. They were joined by Indian traders from various parts of India such as Bengal, Bijapur, Malabar, Vijayanagara, Gulbarga, Gujarat, and Cambay. In addition, even merchants from places like Java, Siam, Tenasserim, in Southeast Asia and from Aden, Socotra and the Maldives actively participated in this trade. (Gunder Frank, 1998: 75-104; Chaudhuri, 1995: 20,189; Bose, 2006: 72-75) *The rise of Gujarati capitalists occurred in partnership with the Arabs from the turn of the nineteenth century and preceded the European penetration of Africa*. (Bose, 2006: 75)

Asian Trade; its Interaction with Western Colonialism

This pattern of Asian economies and trade underwent a rapid and crucial transformation during a few decades under the restructuring process brought about by Western colonialism. In this process both Asia and the Europe played collaborative roles. The colonial impact however did not pave the way for the development of industrial capitalism in Asia but resulted in a colonial mode of production which failed to create a

reproductive process with continuous investments. European investors did not attempt to develop new technologies in the colonies or to introduce those technologies that were operating in European economies in order to reduce costs of production and increase profit margins. Instead they increased their margin of profit by using various mechanisms such as compulsory or cheap labour, monopolies etc. and expatriated the surplus to the colonial centre without reinvesting in the respective peripheral colonial economies. (Alavi, 1982) The ultimate result was the development of underdeveloped economic structures in Asia in contradistinction to those in Europe.

The late pre-colonial and early colonial period of the Asian subcontinent however proved to be a creative one with its own dynamism. Flexible and adaptable pre-colonial Asian political and commercial cultures were appropriated by colonial initiatives between 1750 and 1820. In India this period of economic symbiosis created links of mutual economic interdependence with the alliance between Indian capitalists and entrepreneurs and the East India Company. (Bayly, 1990: 29, 34-35, 37-39) This period is called *the honeymoon period of British and Indian capital* by David Washbrook (Washbrook, 1990: 55). *Even though the later 18th century, the company was bankrolled by Indian capital*. (Washbrook, 1990: 59) This period marked on the one hand the dependence of the Company on Indian capital, and on the other the tendency of Indian capital to expand into spheres of production and trading under the economic policies of the Company. (Washbrook, 1990: 55-56) It was this interaction between the capital of the Western colonial centres and indigenous capital that was responsible for the capitalist development in Asia. As David Washbrook argues,

> *.....very little of South Asia's capitalist development resulted from the investment of core capital seeking to survive and /or profit from the wage-productivity squeeze.* (Washbrook, 1990: 47) *Western sources supplied only a limited proportion of this and directly penetrated the interior economy no deeper than the ports and major railhead towns. Indigenous capital was primarily*

> *responsible for the commercial development of peasant petty-commodity production. Indeed, apart from infrastructural investments in the railways, South Asia never was, and still has not become, a major field for the investment of core capital,……* (Washbrook, 1990: 47-48)

During the three decades from the 1820s the Company state established *the dominance of British trade and financial capital over India* and reduced Indian capital *to a subordinate role in the new colonial structure*. (Washbrook, 1990: 56) *The South Asian economy at the end of the 19th century was distinguished, above the level of peasant production, principally by its elaborate merchant and banking systems and by a few luxury-producing handicraft industries, both of which could be seen as leftovers from the Indian Ocean world economy of the past.* (Washbrook, 1990: 55) [7] Though the Europeans played a significant role in the socio-economic transformation of these areas, the initiatives came primarily from indigenous communities. (Gunarathne, 2011: introduction)

The Indian and Chinese economies were rapidly expanding at the time of the advent of Europeans and they penetrated other economies of the Asian region at an unprecedented scale. But with the European intervention the historic economic role of the Chinese and the Indians in Asia underwent significant change. While the Chinese role came to be confined to East Asia and South East Asia, Indian commercial operations continued to spread out from present South Asian geographical area to most of South East Asian territories. Their role expanded even in the regions of East Africa, and the Persian Gulf and Red Sea area. (Bose,

[7] *Moreover, subordination to British industrial capitalism did not entirely sap the energy of Indian indigenous capital. From the position, in which it was placed, that capital found new and profitable roles for itself, carrying the products of the industrial revolution deep into the bazaars not only of South Asia but of the Eastern colonial world and promoting the commercialization of peasant production. As early as the 1870s, it also began to pioneer a revival of Indian manufacture, handicraft and later industrial goods. In Southern India, the handloom-weaving industry, thriving on expanded South East Asian trade, was even larger in 1900 than it had been in 1800. And by the 1930s indigenous capital began to sustain the growth of modern industry.* (Washbrook,1990: 56-57)

2006: 72,78-87) With the arrival of the Europeans in to the Indian Ocean, Western seaborne trade grew fast and they introduced new economic institutions to Asia. (Chaudhuri, 1985: 207) In response, the Indians as well as the Chinese came to play new roles in the rising economies of these regions.

Accordingly, the expansion of colonialism in the 18th and 19th centuries changed the pattern of operation of the trans-Asian mercantile and financial networks. The inland trade and inter-Asian commerce came to be increasingly associated with the European-dominated international networks. These large international networks, created by European business ventures were able to displace Asian capital from many of its traditional preserves. Adjusting to the new situation Asian financial and mercantile interests were however, able to expand their sphere of operations and profits. They also came to depend on the new institutional framework created by international capital. While established interests of Asians were adjusting to the new situation a number of new businesses were emerging utilizing newly opened avenues. Therefore, many of the Asian bankers and merchants were able to preserve for themselves a lucrative sphere of operations independent of European capital. The Asian business structure became considerably more complex and Asian mercantile groups began to play an intermediary role under the new situation. (Ray, 1995: 464-465)

When the above mentioned regions were brought under the world capitalist expansion their economies started to expand and generated new avenues for the varied expertise of existing merchant communities particularly in the less monetized and less commercially developed societies in their need to fit into the new world economic system. The Asians readily filled the gap between European and indigenous sectors in commercial credit operations as intermediaries in spheres of subsistence agriculture and small scale trading. (Ray, 1995: 453-455; Gunarathne, 2011)

As already mentioned, in the early period of colonial expansion banking facilities for European traders were provided by the indigenous banking systems. In the second half of the nineteenth century with the introduction of 'exchange banks' European banking system expanded its operation and linked Asia into the European business world concentrating on import and export trade and with relevant changes in the communication network. Although the European banking network with its rapid developments gradually replaced the leading Asian bankers in relation to European commercial concerns, it could not oust them entirely from the regional banking network. With the expansion of European banking, indigenous banking system in fact readjusted to the European monetary network, shifting its focus onto local money markets. (Ray, 1995: 478-479) This transformation fitted well with the European monetary requirements as a bridge between Western capitalism and Asian economies. Therefore, under these circumstances one can argue that the foundations of the capitalist development of the above mentioned regions already existed at the time of European capital intervention. European capital merely reformed or restructured and accelerated this existing system.

Until the imperial communications revolution of the mid-nineteenth century, European colonial powers did not attempt to control Asian trade systematically. This gave the Asian traders sufficient time and freedom to expand their activities through their old channels. (Ray, 1995: 471) The expansion of European capital under the hegemony of European powers in the initial stages began to change the pattern of Asian trade in collaboration with European capital. In this collaboration indigenous bankers and merchants became the agents of European overseas capital expansion. Some groups were able to exploit the imperial connection to expand their own mercantile and financial operations. Accordingly, internal Asian trade and banking operations in the 18^{th} and 19^{th} centuries continued to remain in the hands of native traders and bankers. When in the latter part of the 19^{th} century the European colonial authorities slowly and gradually reorganized the economies of their Asian colonies, European commercial network started to penetrate the internal trade of

these economies. Until then European merchant and financial operations were confined to port cities and depended largely on the indigenous banking network for their transactions. (Ray, 1995: 454-457)

The main reason for the restriction of European business operations to those limited areas was the nature of the inland markets in Asia. Asian economies were highly sensitive to seasonal variations in production which gave internal money markets its specific character. Fluctuating prices based on seasonal variations caused a high degree of instability in commercial transactions in the Asian region. Therefore, fluctuations in rates of exchange or in internal money rates did not give sufficient assurance of profits to foreign investors. Therefore, they kept away from risky investments as they were not familiar with these conditions. Europeans were unable to understand or control these conditions and found it easier to deal with the existing indigenous financial machinery. Therefore, the role of indigenous merchants and their participation in linking the domestic market into the European hegemonic international market became an essential part in keeping international trade functional. (Ray, 1995: 479-481)

Developments in the communication system and Western banking network created a favourable environment for European capital expansion in Asia. As a result, European banking and merchant companies and navigation companies were able to create a large international commercial network in Asia with imperial expansion in the late 19th century.

> *It altered fundamentally the organization and finance of Asian trade and at length gave Western capital an assured mastery around the I870s. Together, the Suez Canal, steamships, railways, telegraph and the exchange banks represented a giant forward movement of Europe into Asia, altering the very conditions in which the Asian business communities would henceforward function.* (Ray, 1995: 476)

In some sense, it dislocated many spheres of traditional Asian capital operations. But in another angle, it opened multiple opportunities for Asian financial and mercantile interests to expand their operations. Although the Asians were dependent on the institutional framework created by European capital, they were able to act independently in certain capacities. They expanded more independently in areas left alone by Europeans and penetrated more deeply than ever into inland economies. (Ray, 1995: 454,464-466)

The extension of European communication network into the Indian Ocean altered the conditions in which the trans-Asian mercantile and financial networks operated. To some extent, it disturbed the indigenous network and even replaced it. In the oceanic trade; indigenous network was replaced by steam navigation operating from high seas to coastal lines. Indigenous merchants tried to keep their monopoly in some areas but not very successfully. *Telegraphic communication altered the whole character of transactions in produce from the East, sales of imported manufactures from the West, and monetary, exchange and bullion transactions.* (Ray, 1995: 477) On the other hand extension of telegraph cable lines even to the African subcontinent benefited Indian traders who were extending their businesses in the region at the time. But on the whole the *altered technological conditions of international trade had finally decisively turned the balance against the Asian merchant and in favour of the European corporation.* (Ray, 1995: 478)

There were two significant developments with these changes. Capture of the commanding heights by the Europeans did not, of course, mean the occupation of the lower reaches of the economy; and the Western financial institutions were not uniformly effective in remolding the money markets in Asia in accordance with the requirements of Europe and America. (Ray, 1995: 479)

The Sri Lankan Scenario

Sri Lanka presents a microcosmic picture of Asian commercial and financial network and its transformation under European colonialism.

The country was in the periphery of the Asian merchant capital network but well within the Indian sphere of influence. Though the Sri Lankan market played a limited role, it interlinked with long-distance trade and credit networks through Indian merchant communities. In recorded history of Sri Lanka there appears to have been a lack of indigenous business communities with expertise in long-distance trade and financial skills (Indrapala, 1971: 102-105). This gap was filled by various Indian merchant communities. Thus, for centuries, Indian merchant communities played a dominant intermediary role in the Sri Lankan economy.

Certain essential elements of a commercial economy were already developed in Sri Lanka by the time of European arrival in the early 16th century. At least from the 13th century onwards there were several trading ports along the coastal belt of the country serving as centres of import export trade as well as points of entry of inland trade. Port towns of varied sizes in the coastal belt from Puttalam to Hambantota were developing as urban commercial centres with a resident population engaged in various services necessary for commercial activity. Ship building and repairing as well as basic industries such as timber and coir which were directly connected with the seaborne trade were available in these port towns. These towns also served as supply centres for a wide variety of essential consumer items for the peripheral society. These items brought to the island by Indian merchants were distributed internally by peddlers. Various business groups of Indian origin[8] were located in these centres maintaining their store houses of items of both external and internal trade. For centuries all these activities facilitated the penetration of their capital in numerous functional capacities throughout the island. (Gunarathne, 2011: chap. 2.1)

[8] These included a large element of Tamil and Muslim merchants from Malabar and Coromandel coasts; Chettiar and other Hindu castes and the Roman Catholic Paravars, known as Bharathas in Sri Lanka; Chulia Muslim merchants of Coromandel; Mappila Muslim traders from the Malabar Coast; Gujarati and Bengali traders; Chinese and merchants from various southeastern trading ports in few numbers. (Gunarathne, 2011: 23-26)

There were organizations of South Indian merchant communities such as trade guilds with large numbers of associate bodies engaged in trade and commerce from China to the Persian Gulf. Such organizations were active in the interior market town of the island between 10th to the 12th centuries. (Indrapala, 1971: 102-105) Their role gradually changed with the interference of the Portuguese and the Dutch from the 16th century onwards in the Sri Lankan markets. They however adapted to the changing conditions of the local economy as well as Indian Ocean trade under the mercantilist regulations introduced by the Europeans. Sometimes these merchant communities had to face violent opposition of Europeans who were determined to eliminate local trading communities from the Indian Ocean trade. While the Europeans were unable to expel them, the Indians managed to emerge as the inevitable collaborators in European commercial expansion. It is important to note that limited but new avenues opened for them under the early European colonial supremacy. Exploiting the situation, they were able to become important commercial allies of the Portuguese as well as the Dutch in the Indian Ocean region. Their skills in cash transactions and having sufficient liquid capital for investment in trade not only helped them to venture into new areas but also enabled them to penetrate deeper into the indigenous society that was increasingly subjected to cash exactions under European colonial policies. (Gunarathne, 2011: 29-35)

As already mentioned, Indians maintained a large trading network incorporating many geographical areas with Sri Lanka as a one of the major locations. As intermediaries the Indians handled the island's trade maintaining well-coordinated links between inland and foreign trade. They accumulated the surplus of the agrarian economy via numerous peddler traders and it was transported by caravans to various trading ports for export. They also functioned as the internal distributors of local produce from surplus to scarce areas and as purveyors of essential items such as textiles, rice and other articles of food to the indigenous society through their trading network. The Muslim traders in particular, from the Maldives, the Malabar and Coromandel coasts and from Bengal maintained good collaborative relations with the Dutch Company

keeping this trade mutually beneficial for both parties. On behalf of the Dutch Company these merchants shipped out items such as areca nuts and elephants and shipped in the much-needed rice, other food provisions as well as textiles to the island. (Gunarathne, 2011: 30-31)

The new avenues of profit making that opened for the Indians in early colonial times were few in numbers but very vital at that time. Both the Portuguese and the Dutch followed a kind of indirect rule in the island as it was the general pattern in Asia in the era of mercantilist expansion of European powers. During the early stages the native administrative system continued to operate under the colonial superstructure. But the nature of this indirect rule depended on the interests of the two partners. With their predatory forms of colonial exploitation of the indigenous society, the relationship between the two partners often became confrontational due to the competition over the resources. (Schrikker, 2007: 41-45) Under the Dutch rule the *Company was continually trying to find ways to undermine the power of the native headmen, while at the same time it heavily depended on this group of people for the colonial administration.* (Schrikker, 2007: 48) *The second part of the eighteenth century witnessed a changing balance of power to the advantage of the Company.* (Schrikker, 2007: 40)

In the pre-colonial system, tax collection was mainly a responsibility of local officials. Although, initially, the Portuguese and the Dutch had to depend on local headman as their knowledge and cooperation were essential for tax collection, these rulers however tried to limit their dependency on them by progressively taking away this function from them. During the course of the 18th century all taxes came to be farmed out to the highest bidders.[9] This change opened new opportunities for locals as well as migrant Indians who had substantial capital to invest. Accordingly, most of the tax farmers happened to be either indigenous chiefs, Muslims or Chettiars. (Schrikker, 2007: 50; Dewasiri, 2008: 144-

[9] The VOC administration in Sri Lanka was farmed out all collecting of taxes for highest bidders to undermine the local officials' power. (Schrikker, 2007: 35,50).

145) The Dutch Company even employed Muslims to provide subordinate services such as *shroffs*, money tellers and interpreters. (Goonewardena, 1986: 203) With the entry of Muslims, Chettiars and other Indians into the sphere of taxation, they gained access to peasant society and thereby the ability to exert some control over their economic life. These tax farmers, as the middlemen in the tax collecting process, were able to make quick profits by holding a part of the revenue for themselves. Exploiting this access to peasant society they became peddlers in essential articles such as cloth, salt and dried fish and bartered them with areca nuts and a variety of peasant produce. Thus, while these Chettiar and Muslim peddler traders linked the peasant producers with distant markets, some of them settled down in the villages and even performed customary services connected with the village economy. (Dewasiri, 2008: 144-145; Dewaraja, 1986: 211-234)

European colonialism also opened a vibrant land market in the maritime areas enabling businessmen of Indian origin to emerge as large-scale landowners. Under the Dutch administration the new land owning class was composed of the native officials who served them as collaborators and the Muslim, Chettiar and Paravar communities. The others were mainly officials of the Company and free-Burghers. In addition to paddy lands they acquired lands suitable for coconut cultivation and opened plantations as the export market for coconut products rapidly improved. The Dutch administration gave every encouragement for landowners to cultivate coconuts. In the same way there was a large demand for areca nuts in the export markets of which a large volume was exported. (Dewasiri, 2008: 84,90,93,170-172; de Silva, 1995: 52) Indian communities benefited from these new opportunities for accumulation of wealth and upward social mobility. Though the Dutch took some measures to control their activities in their areas, the Muslims were able to hold a considerable volume of land including coconut plantations and paddy lands. (Dewasiri, 2008: 145,170-172: Goonewardena, 1986: 198-201)

With these developments the Chettiars, Paravars, Malabars, and Muslims, though outside the traditional caste hierarchy of Sri Lankan society, become numerically as well as socio-economically significant communities in the maritime areas of the Island. Some communities such as Chettiars and Paravars integrated into the society with their marriage ties with some caste groups such as *Goyigama* and *Karava*. (Dewasiri, 2008: 185-187,201-202)[10] With their economic dynamism in coastal areas under different colonial regimes, these communities were able to play a vital role as traders, tax and liquor renters and landowners. Their close connection with the peasant society for a long period of time became particularly advantageous when the economy underwent a transformation in the 19th century under British rule.

Economic Transformation under British Colonial Rule

Sri Lanka underwent rapid economic change under the British colonial domination enabling various migrant Indian communities to play a substantial role and make colonial initiatives practicable as it happened in most South East Asian Countries, e.g., Burma, Malay Peninsula, French Indochina or Cochin China, Thailand, the Dutch East Indies and the US colony of the Philippines. In Sri Lanka these Indian communities successfully adjusted their past roles in the pre-British economy to fit into the emerging colonial economy. Their role was essentially as facilitators in the penetration of colonial mechanisms of exploitation the existing subsistence economy and in enabling newly emergent local entrepreneurs to fit into the circuit of colonial European capital. Their involvement and contribution made colonial economic penetration more pervasive. (Gunarathne, 2011: introduction & chap.2.1; Bose, 13, 26-28)

The economy of Sri Lanka changed radically particularly with the expansion of plantation agriculture under the British colonial rule after the 1850s. Under this transformation Sri Lankan economy was integrated into world economy and a new mode of capital formation took place with

[10] *Goyigama* - socio-economically powerful caste in the Sri Lankan society and *Karava* caste was economically more dynamic.

the direct involvement of the colonial state. Export oriented agricultural products in the plantation system became the dominant sector of the economy. It created a large volume of import and export trade paving the way for rapid market expansion. (Gunarathne, 2011: introduction)

Though the British as colonial masters took the initiative steps for this transformation, the economic structure that evolved was based on the involvements of three different groups of investors. Their mutual dependence and collaborative economic behaviour made the transformation practicable. The plantations, as the key sector of the economy with its import and export trade, were handled mainly by Europeans. They engaged in large scale export trade, processing, insurance, shipping and banking at the top level of the economy. Indigenous entrepreneurs, forming the second group, was small in numbers and occupied a marginal position with their investments limited largely to subsidiary industries and ancillary services of the plantation sector, coconut and graphite industries. The third group was formed by various business communities of Indian origin who functioned between the above two and served the needs of both. (Gunarathne, 2011: chap.4)

The major problem of indigenous investors was the scarcity of capital. Capital accumulation of the pre-colonial economy based on subsistence agriculture was very limited, and trade and commerce, both internal and external, were handled by various merchant communities of Indian origin. While trade and commerce were gaining importance under the early European rulers, indigenous society lacked the expertise to take advantage of it. In addition, the low level of capital accumulation was the main reason for their inability to derive full benefits from the new avenues opened by British colonial economic initiatives. They were unable to enter the main stream of economic completion with foreign investors. On the other hand, with their experience as intermediaries in the Sri Lankan economy for a long period of time, Indian merchant groups were able to exploit the situation without competition from indigenous groups. Accordingly, the Indians exploited every opportunity opened by the plantation economy almost unobstructed while at the same

time their roles in the indigenous peasant economy expanded in keeping with its rapid commercialization. (Gunarathne, 2011: chap.4)

There were two broad categories among the Indian business communities operating in Sri Lanka; those domiciled in the island for a long period engaging in trade, commerce and various other economic activities. These communities with their previous connections with the peasant society continued to engage themselves at the lower levels of the economy. Their role and the social space they occupied were different from the new comers who were attracted by the plantation economy under the British. The new comers were directly associated with the upper levels as purveyors of special needs of the plantation economy.

Inevitably their roles became critically important for the working of colonial economy both at the level of the colonial masters and the colonized society in Sri Lanka. Indian business communities were attracted to the plantation economy at an unprecedented scale and their function and operations can be identified in three major spheres. Firstly, they functioned as facilitators of the establishment and expansion of the plantation economy by collaborating with European entrepreneurs as reliable suppliers of necessary services for the management of plantations. The plantation sector totally depended on the large scale Indian migrant labour supply. As labour migration increased annually, Indian traders became the main suppliers of clothes, rice and other food items for migrant the Indian labour population in the plantations and those employed in processing and shipping export produce. They dominated this trade line using their trading and shipping network that connected the main cities of India and Southeast Asia. (Gunarathne, 2011: 108-129)

Another important area of their operations was banking and money lending. The plantation economy in Sri Lanka generated an unprecedented demand for capital and credit as in many other Asian colonial economies under the British. The pioneering entrepreneurs of the

Sri Lankan society were attracted to these economic opportunities but were handicapped by the lack of capital and difficulties of obtaining credit. The European banking system established in the mid-19th century, according to colonial banking regulations, was strictly limited to providing capital requirements of European enterprises in the colonies and was not inclined to meet the credit demand of indigenous society. This banking system therefore, did not play a direct role in financing indigenous economic enterprises and in the marketing of local produce. Indigenous societies were therefore, confronted with the serious problem of capital scarcity and with the difficulty of obtaining institutional credit in order to benefit from the expanding colonial economies. Therefore, as in the case of other Asian economies, the influx of the Indian capital to Sri Lanka was inevitable. These Indian communities integrated the Sri Lankan enterprises into the circuits of colonial European capital. (Gunarathne, 2011: 86-88)

Accordingly, the financial market of the colonial economy in Sri Lanka was divided in to two parts. The European financial market, directly handled by the established European banking system supplied capital directly through European channels to European export trade. The indigenous or native money market, handled mainly by Chettiars and few other money lenders, provided credit facilities for indigenous enterprises and the rural economy. Capital came in to the indigenous money market as short-term loans either from Chettiars' own funds or borrowed by Chettiars from both European exchange banks and Indian Banks. As in the case of many other Asian colonies it is significant that the collaborative and complementary role of European and Indian banks and Chettiars facilitated the necessary capital flow for the functioning of the colonial economy. The collaborative and complementary function of Chettiar capital was not limited to one area of the colonial economy. Direct European capital flow was confined to the European plantation sector and associated foreign trade at the upper level of the economy and it was the Chettiar finances that linked this sector to the lower levels of the society. (Gunarathne, 2011: chap. 4.1)

At the beginning the Nattukkottai Chettiars acted as bankers providing capital and money exchange services for pioneering European planters and traders. These operations ended with the introduction of European commercial banks in the middle of the 19th century. These Chettiars then transformed into the emerging indigenous entrepreneurial class. Until Sri Lankan banks were opened around the middle of the 20th century, indigenous business operations were financed by well-organized Chettiar credit and financial organizations based in major commercial centres in India. The Chettiars on their part established themselves all over the island and transacted every kind of business where they could make profits. They lent money for trade, for production, as well as consumption on varying terms of repayment and on varying conditions of security. (Gunarathne, 2011: 86-107)

Indigenous spheres of investments expanded rapidly specially after the First World War. According to the Ceylon Banking Commission of 1934, *90 per cent of the total acreage under coconut, 55 per cent of rubber and 20 per cent of the tea acreage was under* indigenous *ownership and control. There were also increasing numbers in the internal retail and wholesale business, transport and other similar activities.* (Kannangara, 1960: 92) They all required credit facilities. On account of the restrictive and discriminatory policies of the foreign exchange banks, indigenous businessmen in various fields depended on Chettiar money lending firms.

Arrack renting, graphite mining and coconut planting and related industries were the main avenues of investment of the pioneer Sri Lankan entrepreneurs. As the plantation economy expanded rapidly, the liquor industry and retail trade emerged as the most significant source of local accumulation in the 19th century. Some Colombo Chettiar families were involved in the arrack industry as renters even before the advent of the British. While a few of them continued their links in arrack trade, financing liquor rents became one of their profitable ventures in the 19th century for the Sri Lankans arrack industry was a very profitable business and was entirely owned and run by indigenous entrepreneurs. But they

had to rely on Chettiar money lenders because they could not obtain capital from banks for initial security deposits insisted by the colonial state. (Ceylon Banking Commission Vol.2, 1934: 396-397; Jayawardena, 2000: 49,77-80,86,126-127; Jayasekera, 1970: 191)

As an example, in 1924 there were a total of 18 taverns within the Colombo Municipality alone. In the 1924-1927 period, including all expenditure for 9 taverns the cost was Rs.3, 540,942.56 (3.5 million). The gross receipts for the period amounted to Rs.3, 837,420.14 (3.8 million) and the gross income amounted to Rs.296, 477.56, the net income for the 3 years being Rs.200, 000. The amount invested on capital account was Rs.140, 000. The casual loans for the period of three years 1924-1929 amounted to Rs.186, 000 and the interest paid during the period of three years was Rs.64, 632.50. This interest was paid to Sea Street Chettiars at 15 per cent per annum. (Ceylon Banking Commission Vol.2, 1934: 396)

The rapid expansion of graphite mining from 1869 to 1918 was a result of the growth of the steel industry in Europe and America and development of the armament production. During the First World War period the demand for graphite sharply increased giving windfall profits to local entrepreneurs and exporters. Except a few European firms that engaged in export, the graphite mining and trade was mostly in the hands of Sri Lankans. Because of the stability of the industry indigenous miners could get some financial assistance from banks through the *shroff*. But in the case of small scale mining, operations were financed only by Chettiar firms. (Ceylon Banking Commission Vol.2, 1934: 207,395; Casinader, 1974a: 7, 1974b: 6)

The Chettiars also undertook financing plantations of both Europeans and non-Europeans alike. Most of the Sri Lankan planters, both large and small scale, had to depend on short-term money raised by mortgaging their properties at usurious rates of interests to the Chettiars. As they were constantly repaying from the income both principal and interest on the loans, they were always faced with shortage of working capital. Most of the commercial crops in Sri Lanka required long periods of maturity

for their economic benefits. Therefore, for the working capital requirements investors had to borrow money constantly. As a result, most of these planters were in chronic indebtedness to Chettiar moneylenders. (Ceylon Banking Commission Vol.2, 1934: 64, 67, 145-146, 206-207, 356, 367)

The Sri Lankan share of the coconut industry was generally reckoned as about 95 per cent. A considerable section of these coconut plantations has been opened up with the aid of borrowed capital from Chettiars by way of mortgages and loans. (Ceylon Banking Commission Vol.2, 1934: 165) According to the evidence before the Ceylon Banking Commission in Puttalam, *the bulk of these estates are in the hands of Nattu Kottai Chettiars. Some of these mortgages date back for very many years. There are some estates which we have never known to be free of encumbrances. These mortgages usually go on with the same firm of Chettiars. Notes and bonds are periodically renewed*. (Ceylon Banking Commission Vol.2, 1934: 457) These mortgaged assets were sold up for recovering their debts, or purchased by Chettiars themselves. *It* [was] *estimated that about 60 per cent of coconut land owned by the* Sri Lankans *was under mortgage and that more than 75 per cent of* the Sri Lankan *landowners were in debt.* (Ceylon Banking Commission Vol.1, 1934: 35) Nearly 1/3 of the coconut lands, around 500,000 acres in extent, both mortgaged and in unsecured debt had been purchased by Chettiars against their claims. The indebtedness in the coconut industry was estimated to the between 50-75 per cent. (Ceylon Banking Commission Vol.1, 1934: 169-170)

About 55 per cent of rubber plantations were in the hands of the Sri Lankans. Even large Sri Lankan rubber estates experienced financial difficulties and depended on Chettiar credit. The few Sri Lankans who opened up tea plantations had to supplement their own capital with funds raised by mortgaging their properties to Chettiars at 18-20 per cent interest. (Ceylon Banking Commission Vol.1, 1934: 192; Vol.2, 1934: 409,426)

The evidence of the Natukottai Chettiars Association to the Ceylon Banking Commission in 1934 claimed that they possessed mortgaged assets amounting to about Rs.20 million. Of this sum about Rs.5 million was in urban property, 12.5 million in coconut property and the balance in tea and rubber plantations. (Ceylon Banking Commission Vol.2, 1934: 488)

In Sri Lanka the development of industries suffered heavily as a result of lack of capital and the burden of high interest charged by Chettiars. The desiccated coconut industry represented a very important sector of local investment. It raised 6 ¾ million rupees (Rs.6,746,623) by exporting 789,850 cwt. in 1933. Owing to the shrinkage in financial assistance the industry under a heavy burden of credit was compelled to seek the assistance of the Chettiars. The banks afforded practically no credit facilities even to oil millers who operated well equipped mills. In the undeveloped economy of Sri Lanka there were several subsidiary industries. Except a few European-owned factories most of these local industries suffered due to the lack of banking facilities. The soap industry, acetic acid and several bi-products from coconut shell charcoal were some of them. In all these small industries 75 per cent of credit was raised from the Chettiars. (Ceylon Banking Commission Vol.2, 1934: 60,306,447)

In distant rural areas the Chettiars financed petty traders, middlemen and local producers. The internal trade and the movement of produce within the island were in the hands of petty traders financed by the Chettiars. In the case of local produce export agencies came up at the point of delivery at warehouses. Chettiars procured mortgages of stocks of produce at this point reserving the right of selling them as they chose. (Ceylon Banking Commission Vol.2, 1934: 89,112)

Both wholesale and retail trade of the Island heavily depended on Chettiar credit sources. Most of the retailers, having no capital of their own and without adequate security to offer exchange banks, were compelled to borrow money from Chettiar and other moneylenders to

finance their undertakings. *The import trade with India was conducted primarily by Indian nationals and was financed by the Indian banking community of Chettiars. The Colombo Pettah import trade was almost totally financed by the Chettiars*. (Corea, 1937:5) The Chettiars became the main financial sources of traders even in distant commercial centres like Jaffna, Batticaloa and Trincomalee. (Ceylon Banking Commission Vol.1, 1934: 50-51,191; Vol.2, 1934: 101,127,176,244)

The principal productions of the Jaffna peninsula were tobacco and paddy. The market for tobacco was primarily in India and Travancore was the major centre of export. For tobacco cultivators the available credit source was mainly the Chettiars. The exporters of tobacco were also financed by the Chettiar moneylenders. (Ceylon Banking Commission Vol.2, 1934: 466,469-470)

Whatever benefits derived by the indigenous population at the village level from the expanding import export economy came to be channeled through the Indian intermediaries. With the expansion of plantation economy there was a degree of monetization of the peasant economy. Muslims and Chettiars who were living among villages and having potential of grabbing the advantages of the emerging markets became the main source of capital for the peasant economy. As money lenders they fulfilled cash or capital requirements of the villagers. Apart from their role as intermediaries between the plantation economy and the village economy they channeled peasant produce to the export market and, at the same time, supplied imported commodities to the village market. As far as the mass Sri Lankan population was concerned, with all these developments the role of Indian merchant communities in Sri Lanka underwent a radical transformation; from one of mutual benefit in the precolonial economy to one of multiple forms of exploitation under colonialism. Especially, with the expansion of plantations over the central highlands, peasant economy gradually faced severe land shortage. Apart from the peasants even the migrant Indian labour communities in the plantations came under the mercy of Chettiar moneylenders who enjoyed

the privilege of entering the estates. (Gunarathne, 2017: 36; Fernando, 1982: 23; Gunarathne, 2011: chap. 4.1)

The period 1860-1925 was on the whole, the peak period of Chettiar businesses. Between the 1870's and 1916 there was nearly a fivefold increase in the number of Chettiar firms in Sri Lanka, from 150 to 700. Of the 700 as many as 50 per cent were engaged in money lending while the remainder were in a variety of trades. The total number of Chettiar firms increased from 700 in 1916 to well over 800 by 1925. Around 1900 their businesses were small; but in the latter years they practically emerged as financial magnates mostly out of the fortunes they made from usurious lending to Sri Lankan entrepreneurs. In Negombo district for instance; a centre of coconut plantations and related industries, there were about 100 Chettiar firms in 1934. About 20 or 30 of these were branches of Colombo firms but the rest were independent. The total of credit provided by Negombo Chettiars was said to have been between 15-20 lakhs of rupees. In the entire island on a rough calculation in 1933, there were 556 Chettiar firms and about a 100 Chettiar pawn brokers and their investment was about Rs.40 lakhs. (Gunarathne, 2011: 102-107; Mahadevan, 1975: 112-113) *According to the estimate of the Ceylon Banking Commission the working capital employed by the Chettiars in their businesses prior to the onset of the Depression was approximately* Rs.150 million. (Mahadevan, 1975: 121) *The excess of their investments then over their own capital, viz., Rs. 65 million, was obtained by borrowing Rs. 40 million from friends and relatives in India and Rs. 25 million from local banks.* (Ceylon Banking Commission Vol.1, 1934: 42)

Apart from their own banking activities the Chettiars performed an intermediary role between the indigenous entrepreneur and the foreign banks which were unprepared to take security risk by lending to indigenous entrepreneurs. The risks that these banks refused to take on advances to the indigenous entrepreneurs were passed on to the hands of Chettiars. (Gunarathne, 2011: 90-93)

From this point of view, established banks the Chettiar system operated satisfactorily till about 1925 when a number of leading Chettiar firms failed. The lending activities of the Chettiars, however, shrank rapidly after 1929 with heavy losses incurred due to the Depression and a combination of other circumstances. The breakdown of the Chettiar system and its ultimate consequences were disastrous to the general economy of Sri Lanka. The failure of Chettiar firms due to this chain reaction was a principal cause of the Depression in Sri Lanka. (Ceylon Banking Commission Vol.2, 1934: 316; Gunarathne, 2011: 103-107)

Apart from the Chettiars, there were various business communities of Indian origin engaged in import export trade. Gradually, they ventured to acquire estates as planters of tea, rubber and coconut in the plantation economy. At the end of the first half of the 20th century there were considerable numbers of planters of Indian origin as individuals and representing leading Indian business organizations. They belonged to various Indians communities and they held a considerable number of acres compared with the indigenous and European estate holders. (Gunarathne, 2011: 129-141)

Conclusion

Universalized merchant capitalism that developed for centuries in the Asian and African regions was gradually aborted by the intervention of Western colonialism. Under colonial administrative and bureaucratic frameworks, economies in these regions transformed into subordinate economies, serving the capitalist centre of Western Europe. These developments rapidly accelerated especially after the Industrial Revolution. In this process economic transformation and the capitalist development in Asian region became a collaborative achievement with complementary roles played by both European and Asian capital. The European initiatives created the foundation for the indigenous operations. Capitalist classes that emerged in these colonial societies played a subsidiary role serving metropolitan economies. For example, subordinate capitalists of various colonies of the British Empire became

suppliers of raw materials and primary goods for British industries. In the British colonies of Asia extensive new markets were created generating unprecedented demand for capital and credit, as in many other parts of the world where colonial economies expanded. But indigenous societies were confronted on the one hand with the serious problem of capital scarcity and on the other hand with the difficulty of obtaining institutional credit from western banking sources in order to benefit from these expanding colonial economies.

The pioneering entrepreneurs in the Sri Lankan society were attracted to these economic opportunities but were handicapped by the lack of capital and difficulties of obtaining credit. In this situation, the influx of Indian capital to Sri Lanka was inevitable from the early 19th century as in the case of other Asian economies such as in Malaya and Burma under British colonial rule. Therefore, as in many other areas of the Asian region the contribution of Indians was vital in the developments of the Sri Lankan economy. While their role in pre-colonial economy in Sri Lanka changed with the expansion of European colonialism, their business operations facilitated the functioning of the colonial economy and even supplemented it. Large investment avenues were created by western colonialism and the Indians were able to flourish expanding their networks connecting Asian region to East Africa and Australia. In the case of Sri Lanka while playing an essential role in the functioning of the colonial economy, the Chettiar operations in particular contributed to the processes of capital formation and the emergence of an indigenous capitalist class. Thus the economic transformation and the capitalist development of the Sri Lankan society in the 19th and 20th centuries was the outcome of the collaborative and complementary roles of primarily Chettiar and European capital operations.

References

Alavi, Hamza, P.L. Burns, G.R. Knight, P.B. Mayer, and Doug McEachern, (1982), *Capitalism and Colonial Production*, London and Canberra, Croom Helm.

Bayly, C.A. (1990), "Beating the Boundaries: South Asian History, c.1700-1850", *South Asia and World Capitalism*, Sugata Bose (Ed.), Delhi, Oxford University Press, pp.27-39.

Bose, Sugata (2006), *A Hundred Horizons, The Indian Ocean in the Age of Global Empire*, Cambridge, Massachusetts, London and England, Harvard University Press.

Casinader, Rex A. (1974), "The Evolution of the Graphite Industry in Sri Lanka, 1829-1973: Patterns of Trade and Entrepreneurship", *Ceylon Studies Seminar Paper*, Series 1974 No 7, Peradeniya, University of Peradeniya, pp.1-26.

Casinader, Rex A. (1974), "The Graphite Industry in Sri Lanka: A Historical Sketch of Its Mining Methods and Organisation", *Ceylon Studies Seminar Paper*, Series 1974 No 8, Peradeniya, University of Peradeniya, pp.1-35.

Ceylon Sessional Papers, 22, 1934, *Ceylon Banking Commission*, Vol.1.

Ceylon Sessional Papers, 23, 1934, *Ceylon Banking Commission*, Vol.2.

Chaudhuri, K.N. (1985) *The Trade and Civilization in the Indian Ocean, An Economic History from the Rise of Islam to 1750*, Cambridge, Cambridge University Press.

Corea, G.C.S. (December 1937) "The State-Aided Bank", *The Ceylon Economic Journal*, Vol. 9, pp.1-16.

de Silva, C.R. (1995), "Sri Lanka in the Early 16th Century: Economic and Social Conditions", *University of Peradeniya History of Sri Lanka*, 2, K.M. de Silva (Ed.), Peradeniya, University of Peradeniya, pp.11-36.

Dewaraja, Lorna (1986), "The Muslims in the Kandyan Kingdom (c1600-1815) a Study of Ethnic Integration", *Muslims of Sri Lanka: Avenue to Antiquity*, M.A.M. Shukri (Ed.), Beruwala, Jamiah Naleemia Institution, pp.211-234.

Dewasiri, Nirmal Ranjith (2008), *The Adaptable Peasant: Agrarian Society in Western Sri Lanka under Dutch Rule, 1740-1800*, Leiden, Boston, Brill.

Fernando, Edgar, (Jan.-March 1982), "The Chettiars, Afghans and Moneylending in Rural Sri Lanka", *Kalamana, Quarterly Publication,* Vol. 3 No 1, pp. 23-29.

Goonewardena, Karl W. (1986), "Muslims under Dutch Rule up to the Mid-eighteenth Century", *Muslims of Sri Lanka: Avenue to Antiquity*, M.A.M. Shukri (Ed), Beruwala, Jamiah Naleemia Inst., pp.189-210.

Gunarathne, M. Sriyani (2017), "Colonialism and Beginning and Evolution of Modern Banking System in Sri Lanka", *Department of National Archives –Souvenir- 2017*, Colombo, Department of National Archives, pp.18-42. (in Sinhala)

Gunarathne, M.S. (2011), *Role of Indian Business Communities in the Sri Lankan Economy, 1833-1949*, Ph.D. thesis, New Delhi, Jawaharlal University.

Gunder Frank, Andre (1998) *Reorient: Global Economy in the Asian Age*, Berkeley, Los Angeles, University of California Press. (ebook)

Hamashita, Takeshi (1994), 'The Tribute Trade System and Modem Asia', *Japanese Industrialization and the Asian Economy,* A. J. H. Latham, Heita Kawakatsu, (Eds.), London and New York, Routledge, pp.91-107.

Indrapala, K. (July-Decem.1971), "South Indian Mercantile Communities in Ceylon, circa 950-1250", *The Ceylon Journal of Historical and Social Studies*, New Series, Vol.1 No 2, pp.101-113.

Jayasekera, P.V.J. (1970), "Social and Political Change in Ceylon 1900-1915 with Special Reference to the Disturbance of 1915", Ph.D. thesis, London, University of London.

Jayawardena, Kumari (2000), *Nobodies to Somebodies, The Rise of the Colonial Bourgeoisie in Sri Lanka*, Colombo, Social Scientists' Association and Sanjiva Books.

Kannangara, D.M. (Jan.-June, 1960), "Formative Influences in Ceylon's Banking Development", *Ceylon Journal of Historical and Social Studies*, Vol. 3 No 1, pp.82-95.

Mahadevan, Raman (1975), *The Origin and Growth of Entrepreneurship in the Nattukottai Chettiar of Tamilnadu 1880-1930,* M. Phil dissertation, New Delhi, Jawaharlal Nehru University.

Mukherjee, Aditya (2014), "Colonialism and the Emergence of the 'Great Divergence': How the Periphery Made the Centre", *The Evolution of a Nation Pre-colonial to Post-colonial, Essays in Memory of R.S. Sharma*, D.N. Jha (Ed.), New Delhi, Manohar, pp.451-484.

Panikkar, K.M. (1959) *Asia and Western Dominance*; *A Survey of the Vasco Da Gama Epoch of Asian History 1498-1945*, London, George Allen & Unwin Ltd.

Ray, Rajat Kanta (Jul. 1995), "Asian Capital in the Age of European Domination: The Rise of the Bazaar, 1800-1914", *Modern Asian Studies*, Vol. 29 No 3, pp.449-554.

Schrikker, Alicia (2007) *Dutch and Colonial Intervention in Sri Lanka, 1780-1815: Expansion and Reform*, Leidon, Boston, Brill.

Washbrook, David (1990) "South Asia, the World System and World Capitalism", *South Asia and World Capitalism*, Sugata Bose (Ed.), Delhi, Oxford University Press, pp.40-84.

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Contents

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