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Introducing New Book

Eating with the World in Mind

Nico Slate, *Gandhi's Search for the Perfect Diet: Eating with the World in Mind*, Orient BlackSwan, Hyderabad, 2019, xii + 237 pages, Rs. 850/-

Saurav Kumar Rai

A committed vegetarian with an interest in raw food, the dietary experiments of Mahatma Gandhi are well-known. Equally famous are his occasional tryst with non-vegetarian food which he deemed as 'tragedy' and experiments in dietetics in London as well as South Africa vividly delineated in his autobiography *The Story of My Experiments with Truth*. The present book by Nico Slate sheds new light on important periods in Gandhiji's life as they relate to his developing food ethic: his student years in London, his politicization as a young lawyer in South Africa, the 1930 Salt March challenging British colonialism, and his fasting as a means of self-purification and social protest during India's struggle for independence. To quote the author, 'Gandhi's life story reveals the power of food as a catalyst of personal and political transformation' (p. 5).

Following the newly emerged genre of food history, this book intertwines dietary experiments of Mahatma Gandhi with the values propounded by him like non-violence, religious tolerance and rural sustainability. As the author claims, Mahatma Gandhi was constantly in search of a 'perfect' diet which could respect many connections between the food, physical health, social and political environments. In this connection, Nico Slate emphatically argues that Gandhiji's rejection of sugar, chocolate and salt was not merely a matter of dietary choice; rather it was a conscious device to oppose the economics based on slavery, indentured labour and imperialism. Here it is noticeable that sugarcane and cocoa were grown throughout the nineteenth and early twentieth centuries by using slave or indentured labours brought from Africa and Asia respectively to the plantation colonies. Hence, opposing sugar and chocolate inherently implied anti-imperial stance by Mahatma Gandhi.

Similarly, salt was crucial for preserving food during long sea voyages, making it a vital commodity for sustaining colonial outposts. European powers, particularly the Spanish and Portuguese, sought to control salt-producing regions to secure their colonial interests. Therefore, rejecting salt in diet was akin to attacking the entire political economy of salt. Thus, the pillars of Gandhian diet like vegetarianism, limiting salt and sweet, rejecting processed food, eating raw food, fasting, etc. had profound socio-political ramifications which the present book brings out exquisitely.

Slate has discussed Gandhiji's experiments and opinions regarding salt, chocolate, goat meat and peanut milk, raw food, nature cure, farming, and fasting in separate chapters of this book. What makes the narrative interesting is that it brings forth not only the dietary experiments of Mahatma Gandhi which span across decades, from the early tests of his vegetarianism to the epic fasts at the end of his life, but also sheds light on his constant struggle to search for perfect diet. According to Slate, for Gandhi, our struggles for perfect diet are never ours alone (p. 169). That is why, Mahatma Gandhi worried about what to eat with the world in mind and it was seldom an individual's concern.

The book interestingly ends with recipes adapted from meals created by Gandhiji or based on key principles of his diet such as simple fruit salad, tomato rasam, wheat berry porridge, etc. This book will equally appeal to readers interested in history of food and nutrition, politics of Mahatma Gandhi, his dietary experiments, as well as history of medicine.

Disparities in Education and Employment of Females in Kerala

Archana S.R.
& Sheeja S.R.

The role of female education in economic development has recently received considerable attention in the development literature. It creates positive externalities such as a reduction in fertility and population growth rates. The benefits of female education have led many development economists to argue that educating females yields substantial economic benefits and higher economic returns than those that result from comparable expenditures on men. The studies found that age and marital status are the significant factors that determine the employment status of females. Kerala experienced low female work participation and higher unemployment among educated females. This is one of the drawbacks for the State of Kerala, which ranks first in the Gender Empowerment Index and Human Development Index. In this background, the paper attempts to identify the factors that determine the work participationof females in the State.

Keywords : Educated Females; Female Labour Force Participation Rate; Work Participation Rate; Unemployment.

Introduction

The role of female education has received considerable attention in economic literature recently. Female education has many benefits to society. It is not only fruitful to the present generation, but also creates positive impacts on future generations. It has a lot of social and economic externalities, such as reduction in population growth, improves child health, improved life expectancy of children and decline in infant mortality rates. Development economists argue that educating women yields substantial economic benefits. If a cost-benefit analysis is done the benefits exceeds the cost inquired for female education.

Participation of females in the labour force enhances economic development. In Developed Countries female labour force participation increased from around 38% in1970's to around 45% in 1990's and in developing countries it increased from around 20% to 30% (World Employment Report 1998-1999). From the statistics it is clear that the transformation of underdeveloped economies into developed economies is possible through the substantial change in participation of females in the economic activity. In this context it is generally stated that the rate of economic growth and level of education have a significant positive impact on female labour force participation rate.

The study focused on education and employment in Kerala.The state has the highest achievement in female education in India. It is clear that female education has achieved positive development goals such as low fertility and infant mortality rates, better health status and longer life expectancy at birth. However the impact of education on the female work force participation is questionable. The work participation rate among females in Kerala is 20.4% in 2018-2019 (NSSO) which is one of the lowest in India. This low work force participation is accompanied by high rate of unemployment. In the case of Kerala the female labour supply increased due to decline in fertility rate and spread of education. This paper attempts to address the paradox of existence of high level of education and high unemployment among women in the state. The study attempts to identify the factors that cause unemployment among educated females in Kerala.

Theoretical Linkages

Theoretical basis of the linkages between education and labour market participation of women can be found in both neoclassical and sociological literature. Neoclassical economists state that education is an investment because it raises earning potential of individuals. This increases the opportunity cost of economic inactivity and thus the incentive to search employment (Bowen and Finegan, 1966). In another way education increases wage rate and the substitution effect of a wage rise will induce more women to enter the work force.

Another important argument for the existence of a relationship between education and labour force participation is the aspirations effect argument. Accordingly education is one important determinant of income aspirations and expectations, and as such is likely to induce greater economic activity from educated women (Cain, 1966). However, since education also raises income and occupational expectations, a positive relationship cannot be presumed because expectations cannot always be realized. Strong job preference of highly educated women sometimes leads to high rate of female unemployment (Devi, 2001) The changing economic role of women in Kerala shows that it is the growing participation of highly educated women, which has pushed the aggregate female labour force participation rate in the upword direction. Along with education there are other factors that affect labour market outcomes of women. In the context of Kerala, factors like labour market discrimination, migration, demographic transition, and household division of labour also has a direct influence on women's participation in labour market.

Data Sources and Research Methods

The present study covers work participation of females under the purview of higher education based on the secondary data sources. The paper is based the 68th (2011-12) round of Employment and Unemployment Survey (EUS) of National Sample Survey Office (NSSO) and Second (2018-19) Periodic Labour Force Survey (PLFS) of National Statistical Office[1] (NSO), Ministry of Statistics and Programme Implementation (MOSPI), Government of India. The above surveys measures the employment and unemployment situation in India in a specific intervels. The 68th round of survey was the last surevy conducted by NSSO in the area of employment and unemployment. In the year 2017-18, NSO introduced yearly PLFS to capture the employment and unemployment situation in India.

Based on the survey, the activities of the persons/individuals are counted using Usual Principal Activity (UPA) status. The UPA status approach measures the activity status of a person during the 365 days (majo time criterion) preceding the survey date. Based on the UPA status, the persons are classificed in to two major groups. The first group called "labour force[2]"; it include both employed and unemployed persons. The second group namely "out of labour force[3]"; are those who are not in the labour force. The work participation rate[4] (WPR) is the per cent of employed persons in the population. The major theme of the paper is work participation of females, hence the paper considers only employed females in the age group of 15 to 59 years.

One of the major tools of Logit regression model is used to determine the significance of the variables associated with the entry of females in to workforce. In the model, the dependent variable is the Usual Principal Activity (UPA) status of females. The variable contains the values of 1 or 0. Here 1 representing females are engaged in work and 0 represents the females not in the workforce. Logit regression generates the logit coefficients to predict a logit transformation of the probability of the presence of females in the work force.

$$\text{Logit } (P) = \beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\ldots\ldots\ldots\ldots..+\beta_KX_K \quad (1)$$

Where P is the probability of the presence of females in work force. β_0 is the constant term.$X_1, X_2,\ldots, X_k$ are the independent variables and $\beta_1, \beta_2,\ldots\ldots\ldots,\beta_K$ are the coefficients of the estimated variables. The logit transformation is defined as the log of odds ratio:

$$\text{Odds} = \frac{P}{1-P} = \frac{\text{Odds of Case}}{\text{Odds of Non-Case}} = \frac{\text{Probability of Presence of Females in Work Force}}{\text{Probability of absence of females in Work force}} \quad (2)$$

Or

$$\text{Logit}(P) = \ln\left(\frac{P}{1-P}\right) \quad (3)$$

Where P is the estimated probability of participation of females in work force. The generalised logit model is

$$(UPA) = \beta_0+\beta_1 AGE+\beta_2 MPCE+\beta_3 HS+\beta_4 ES+\beta_5 SG+\beta_6 RG+\beta_7 RH+\beta_8 MS+\beta_9 SR+\varepsilon_i \quad (3)$$

Where, UPA : Usual Principal Activity Status

MPCE : Monthly Per-capita Consumer Expenditure

HS : Household Size

ES : Educational Status

SG : Social Groups

RG : Religious Groups

RH : Relation to Head

MS : Marital Status

SR : Sector

• : Error Term

Apart from the above usual tables graphical representations are used to analyse the two rounds of data.

1. Educational Attainment of Females

Educational attainment of the females are one of the significant factors that determine their employment level. The educational attainment of females in Kerala are depcitied in the following table 1. The share of females who are attaining higher education level (graduation & Diploma and PG & Above) in Kerala shows an increasing trend from 2011-12 to 2017-18 whereas, the share of females who are attaining lower educational levels (Middle education and below) were declining over the same period.

Table 1: Share of Females in Various Educational Levels

Education Level	2011-12	2018-19
Illiterate	4.24	3.03
Below Primary & Primary	16.39	10.4
Middle	30.33	26.89
Secondary & Higher Secondar	33.81	35.48
Graduates & Diploma	12.72	19.67
PG & Above	2.5	4.53
	100.00	100.00

***Source**: Author's own calculation from 68th (2011-2012) Round of EUS, NSSO and PLFS (2018-19), NSO*

The improvement of educational level of females leads to an upward mobility of better work environment. This is clearly shown in table 2 below.

Table 2: Share of Females in UPA Status among Various Educational Levels

UPA Status	Illiterates		BP & P[1]		Middle		S & HS[2]		Graduates & Diploma		PG & Above	
	2011 -12	2018 -19	2011 -12	2018 -19	2011 -12	2018 -19	2011 -12	2018 -19	2011 -12	2018 -19	2011 -12	2018 -19
Self Employed[1]	7.56	8.53	5.7	9.48	6.79	8.5	6.04	5.02	5.59	4.38	2.48	6.52
Regular Wage Work[2]	4.29	7.27	4.57	7.54	4.88	7.98	7.22	8.31	24.24	25.53	39.42	44.26
Casual Wage Work[3]	23.7	17.73	17.88	14.36	8.37	6.48	3.2	2.02	1.82	0.5	0.43	0.00
Unemployed[4]	2.58	0.00	2.62	0.67	3.59	0.87	6.9	4.51	17.97	19.98	25.49	28.56
Education[5]	0.00	0.87	0.53	0.15	6.69	6.76	26.21	29.47	10.49	9.69	4.58	3.25
Domestic Duties[6]	50.94	46.29	62.39	56.66	68.6	63.19	49.76	46.98	38.3	36.25	27.24	14.00
Others[7]	10.93	19.31	6.31	11.14	1.07	6.23	0.67	3.69	1.62	3.67	0.36	3.42
WPR (1+2+3)	35.55	33.53	28.15	31.38	20.04	22.96	16.46	15.35	31.65	30.41	49.85	50.78
LFPR (1+2+3+4)	38.13	33.53	30.77	32.05	23.63	23.83	23.36	19.86	49.62	50.39	67.82	79.34
Out of LFPR (5+6+7)	61.87	66.47	69.23	67.95	76.36	76.18	76.64	80.14	50.41	49.61	32.18	20.67

***Source**: Author's own calculation from 68th (2011-2012) Round of EUS, NSSO and PLFS (2018-19), NSO*

*Note: **1** – Below Primary and Primary Education;**2**– Secondary and Higher Secondary*

Figure 1 below shows the positive relationship between educational level and female's WPR. Upto the educational level of secondary and higher secondary, the WPR of females were declining. With the attainment of higher education of degree and above, the WPR showing an upward trend. Among the graduates and diploma holders, 31.63 and 30.71 per cent of females entered into the workforce in the year 2011-12 and 2018-19 respectively, whereas half of the PG and above qualified females were engaged in some kind of work. In this, the major share is in the regular salaried work (Table 2).

Figure 1: Education Level and FWPR

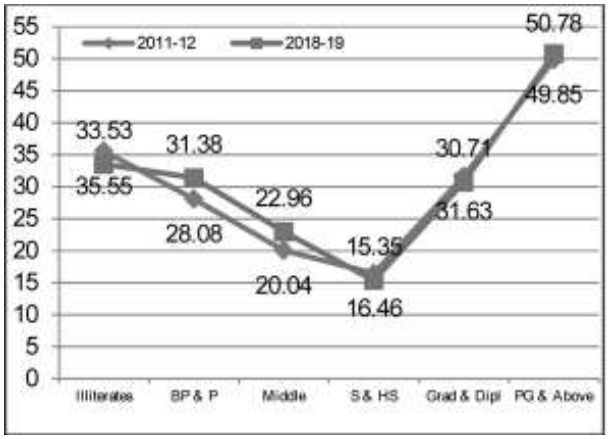
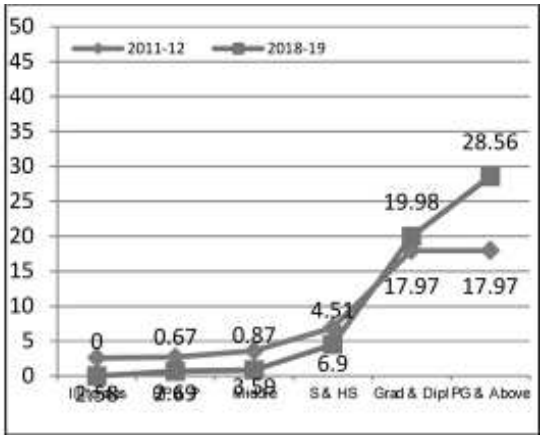


Figure 2: Educational Level and Unemployment among Females



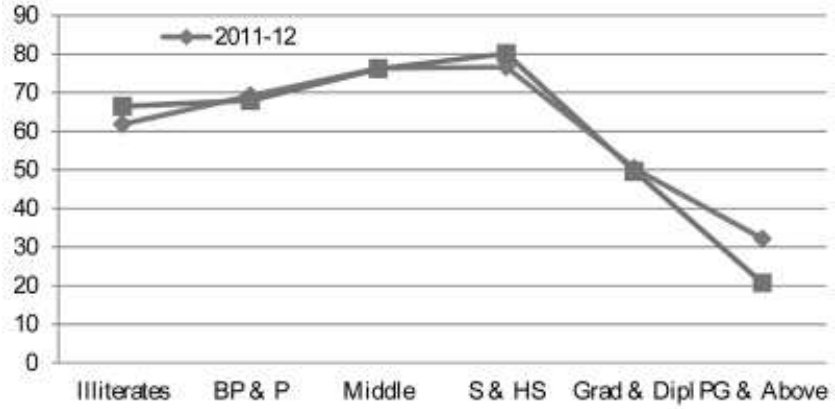
***Source**: Author's own calculation from 68th (2011-2012) Round of EUS, NSSO and PLFS (2018-19), NSO*

The figure 2 shows the positive relationship between educational level and unemployment rate among females. The economy of Kerala experienced a high level of educated unemployment in recent years. The figure also shows that among highly educated females, the unemployment rate was high compared to lower levels of education. Unemployment of illiterate females was zero per cent in the 2017-18 period and at the same time there was a wide gap in the share of unemployement among PG & above qualified females. In

this category of females, the unemployment rate increased from 17.97 per cent to 28.56 per cent from 2011-12 to 2017-18.

The following figure 3 represents a mirror figure of educational level and FWPR (figure 2). The relationship between education level and share of females in out of Labour Force was negative. At the lower levels of education, more than 60 per cent of the females came under the category 'out of labour force'. If a female attains higher level of education, the share of females in 'out of labour force' was less especially in the level of PG and above.

Figure 3: Education Level and Out of FLFPR



***Source**: Author's own calculation from 68th (2011-2012) Round of EUS, NSSO and PLFS (2018-19), NSO*

2. Determining Factors of Work Participation Rate.

Logit regression model is used to determine the significance of the variables associated with the entry of females in to workforce. Three models are used to explain the females entry into work force. First model explains the relationship between selected variables and females entry into the workforce where all the education levels are under consideration. The second model is for the lower educated females preference to entry into workforce and third model explains the determining factors of highly educated females entry into the workforce.

From the table 3, the three models are statistically significant (Prob> chi^2 orP values are zero for three models) for detemining the females entry into the work force. The Pseudo R^2 value of first model shows that the selected variables are determining the 62.69 per cent of the entry of females in the workforce. The model II and III explaining 64.99 per cent and 51.35 per cent of the varations in the females in the workforce.

Table 3: Logit Model Summary

	Model I All Females	Model II Lower Educated Females	Model III Higher Educated Females
Prob> chi^2	0.00 0	0.000	0.000
Log Likelihood	-2742.6725	-2070.3483	-657.4118
Pseudo R^2	0.6246	0.6487	0.5086

Source: Author's own calculation from 68th (2011-2012) Round of EUS, NSSO and PLFS (2018-19), NSO

The following table explains the determining factors of the females entry into the work force.

Table 4: Logit Regression Result (Odds Ratio)

Variables	Model I All Females	Model II Lower Educated Females	Model III Higher Educated Females
Constant	2.2172***	1.1578	2.6670
Age	1.0071**	1.0123***	1.0240***
MPCE	1.0011***	1.0012***	1.0007***
Household Size	0.8706***	0.8639***	0.9485
Social Group (ST)			
SC	0.6677*	0.6279*	0.6196
OBC	0.3310***	0.2617***	0.8777
Other's	0.2986***	0.2029***	0.9731
Religion (Hindu)			
Islam	0.3371***	0.3197***	0.6107***
Christianity	0.9970	1.0680	0.8396
Relation to Head (Self)			
Spouse of head	1.5571***	1.6756***	1.2052
Married child	1.7873***	2.1219***	1.1906
Spouse of married child	0.9070	1.0720	0.6748
Unmarried child	0.3154***	0.3728***	0.1061***
Others	0.7665*	0.8203	0.5765
Marital Status (Unmarried)			
Married	0.4928***	0.6466	0.1160***
Widowed/Divorced	1.1825	1.7901***	0.2166***
Sector (Rural)			
Urban	0.9215	0.8538***	1.0619
Educational Status (Illiterate)			
Below Primary & Primary	0.9632		
Middle	0.6617***		
Secondary & Higher Secondary	0.5661***		
Graduates & Diploma	1.4269**		
PG & Above	2.4694***		

*Source: Author's own calculation from 68th (2011-2012) Round of EUS, NSSO and PLFS (2018-19), NSO.Note: ******* - 1% Confidence Level, ****** - 5% Confidence Level, *** - 10% Confidence Level*

Model 1 considers all the females in Kerala irrespective of their educational attainment. Model II considers females with low level of educational attainment and Model III is about the females with high education. A variable, which is found to have a strong influence on female labour force participation, is women's education level. The coefficient value of education level in Model 1 shows that compared to females with higher secondary and below education, females with higher education has a positive and significant value. It is to be noted that postgraduate and above are more likely to be employed. Age turned out to be an important factor determining the employment status of females. There is a positive relation between age

and employment of females. The other two continuous variables MPCE and household size is statistically significant in determining females entry into workforce. The variables MPCE is positively related to female work participation. Household size is negatively associated with females entry into workforce, but no significant relation is found in the case of higher educated females and size of house holds. Another factor found significant in the regression analysis is marital status. It shows that, unmarried female have more probability than married women to have employment. In the case of widows the probability of work participation is high for all the three Models. Coefficient value of higher educated females regarding marital status is significant. Religion does not exert any influence on women's employment as the coefficient of religion turned out to be insignificant except in the case of Islam. The coefficient value of relation to head is irrelevant for higher educated female's employment choice. It is found to be significant for less educated female. The sector whether belong to urban or rural only matters for lower educated females employment choice.

Level of Education and Nature of female Employment

The data clearly shows the close association between nature of job and level of education of women in Kerala. Majority of workers in elementary occupations are from lowest education category (secondary and below). Among the graduates and above only less than 2 percentage are in elementary occupations.

Females with graduate level and above are found more in professional and technical jobs. The share of females with higher education (PG and above) in elementay occupations are zero.

Table 5: Share of Employed Females in Different Occupations Among Various Educational Levels

Employment *(NCO 2004)*	Illiterates		BP & P[1]		Middle		S & HS[2]		Graduates & Diploma		PG & Above	
	2011 -12	2018 -19	2011 -12	2018 -19	2011 -12	2018 -19	2011 -12	2018 -19	2011 -12	2018 -19	2011 -12	2018 -19
Legislators, Senior Officials	9.30	10.67	4.38	4.35	5.27	13.97	9.17	15.23	4.72	11.52	10.51	11.50
Professionals, Technicians	0.00	0.00	1.33	0.72	3.88	2.49	18.02	15.32	63.51	50.19	80.77	69.58
Clerks	0.00	0.00	0.00	0.00	0.46	0.90	7.28	8.68	17.63	21.00	6.73	16.08
Service & Market Workers	6.82	2.77	7.63	11.90	15.31	20.29	18.67	19.26	6.50	8.61	0.94	1.11
Agriculture and Fishery Workers	3.92	12.04	6.32	20.90	10.33	18.22	14.40	11.50	2.36	3.26	1.05	0.00
Workers related to Crafts, Trade Plant & Machine	17.54	12.99	25.57	12.53	28.26	15.89	14.06	13.44	3.69	4.16	0.00	1.73
Elementary Occupations	62.42	61.52	54.77	49.60	36.50	28.24	18.39	16.55	1.58	1.26	0.00	0.00

***Source**: Author's own calculation from 68th (2011-2012) Round of EUS, NSSO and PLFS (2018-19), NSO*
*Note: **1** – Below Primary and Primary Education;**2**– Secondary and Higher Secondary.*

Thus the over all picture that emerges from the data is that education has an important role in determining the nature of job of women in Kerala.So any policy for improvement of females quality of life must start with improvement in their educational attainment.

Conclusion

Educational attainment of females is a significant factor that determines their employment level.

Educational attainment of females in Kerala shows that, the share of females who are attaining higher education level (graduation and above) shows an increasing trend. It is found that both work participation and unemployment rate has increased among highly educated females.The available data on nature of employment and education shows a positive relation, majority of workers in elementary occupations are from lowest education category (secondary and below). Females with education level graduation and above are found more in professional and technical jobs. The share of females with higher education (PG and above) in elementary occupations are zero.

Rise in higher education leads to an increase in unemployment among women along with an increase in their work participation . It appears that the main factor that affects WPR of higher educated women in the state is the existance of high unemployment rather than low labour force participation .High levels of female unemployment and the persistence of a generated work structure have limited the scope of women's education in increasing their work participation.Thus it has become clear that education alone does not enable women to acquire gender equality in economic participation.

Notes

1 Government of India from the National Statistical Office (NSO) on 23rd May 2019 merged by National Sample Survey Office (NSSO) and Central Statistical Office (CSO)

2 Usual Principal Activity Status code of 11, 12, 21, 31, 41, 51, and 81. Labour Force Participation Rate is number of persons in the labour force per 1000 persons or share of persons who are working or seeking or available for work in the population (NSSO, 2011-12).

3 Usual Principal Activity Status code of 91, 92, 93, 94, 95, 97 and 99.

4 Work Participation Rate is the Labour Force participation rate minus unemployment.

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Book Review

Investing in State Capacity for Better Development Outcomes

Accelerating India's Development: *A State-Led Roadmap for Effective Governance*, Karthik Muralidharan, aTata Chancellor's, Professor of Economics, University of California, San Diego, USA, Penguin Random House India, Pp. 812. Price Rs.1299, 2024

D. Jeevan Kumar

Seventy-five years after Independence, India has much to be proud of. We are both the world's biggest democracy and fastest-growing large economy. Yet, we face profound challenges that hinder both individual well-being and aggregate growth.

A key premise of the book under review is that India is struggling to deliver better development outcomes because we have a crisis of *weak state capacity*. While the Indian state has done a good job when measured by its absolute performance in delivering on core goals such as defence, law and order, macro-economic stability and above average economic growth, it has done less well when measured by its effectiveness in delivering on several key aspirations of its citizens.

However, while poor development outcomes are an indicator of *weak state capacity*, they do not tell us *how* to improve it. A core contribution of the book is to get into the 'black box' of state effectiveness and examine the state as an *organization* and not just as an institution. In doing so, the author identifies six key systemic elements of state capacity, explains their importance, documents weaknesses in the *status quo* and provides a roadmap for improvement. These include systems and processes for (1) Collecting, analyzing and acting on data; (2) Recruiting, training and managing public personnel; (3) Ensuring quality of public expenditure; (4) Collecting adequate revenue and doing so efficiently; (5) Optimizing tasks across layers of our federal governance structure; and (6) Effectively leveraging non-state actors, including the private sector and civil society. These systems, assert the author, play a critical role in state effectiveness. They affect both the quality of policymaking, and the quality of programme implementation and delivery.

Improving India's public systems will require strengthening each of the above sub-systems that together determine overall state effectiveness, asserts the author. But before delving into potential solutions, he explains *why* these systems are so weak:

1. From Nation-Building to Election-Winning

Politicians have found it easier to appeal to voters based on short-term palliative interventions such as loan waivers and subsidies than longer-term development.

2. Systemic Overload

There is a steady addition of tasks to the bureaucracy *without* commensurate investments in its capacity to deliver.

3. Trust Deficits

The Indian state has a history of broken promises, affecting Indians of all classes.

4. An Ineffective Bureaucracy

Its several structural weaknesses include: (a) Short tenures and frequent transfers; (b) Limited connection

with people; (c) Limited incentives and opportunities for upgrading their skills; (d) Inadequate autonomy and empowerment to deliver; and (e) Inadequate and misdirected accountability.

5. Elite Exit

Indian elites and middle classes have mostly seceded from being recipients of public services.

6. A Highly Stratified, Fragmented and Unequal Society

The caste system in India is unique in being a system of graded inequality that has been transmitted and sustained over several generations.

7. Institutional Stasis

There is both under-investment and a lack of imagination and initiative with regard to how institutions should evolve to continuously strengthen state capacity.

Why should investing in state capacity be a top priority for India? As improving state effectiveness is a long-term project, the author states that it can be facilitated by reaching a broad consensus on the way forward. He offers five convincing reasons why it should be top national priority in the coming years:

1. It offers a 10x+ Return on Investment (RoI) opportunity;
2. An effective state is essential for accelerating India's development;
3. *All* Indians will benefit from a more effective state;
4. We need state capacity to secure democratic freedoms; and
5. The COVID-19 crisis highlights the importance of state capacity.

The conceptual core of the book is to be found in **Section II** titled, '***Building an Effective State'***. It devotes full chapters to each of the six systemic components of state capacity. These include Data and Measurement (Chapter 4); Public Personnel Management (Chapter 5); Quality of Public Expenditure (Chapter 6); Quantity and Quality of Public Revenue (Chapter 7); Federalism and Decentralization (Chapter 8); and State and the Market (Chapter 9).

Each of the above chapters follow a similar structure: They first explain concepts, present key facts, and discuss relevant research and evidence. They then present a list of implementable reform ideas based on principles and evidence. These reform ideas, in the author's conviction, are likely to have a large public return on investment, are practically implementable, will be able to draw support from the broader public and hence be politically feasible.

The above chapters are also interconnected. For instance, better outcome data can improve both personnel management and quality of expenditure; more local control over funds and functionaries can help improve quality of public spending and public personnel management; and conceptual clarity on the optimal relationship between the State and Markets, followed by appropriate policy and regulatory actions can improve the quality of both public and private providers, asserts the author.

The interconnectedness of the themes highlights the value of taking a 'whole systems' approach to augmenting state capacity. "*Understanding these systemic themes, and designing a coordinated reform agenda to improve all of them, will likely have a greater impact than piecemeal action",* states the author. This is analogous to the 1991 economic reforms, where a set of coordinated reforms helped to alleviate multiple binding constraints in the economy.

Where does technology fit into the author's scheme of things?*Why does technology not get a chapter of its own in the book?* The author explains this so-called lapse. While many of the book's reform ideas rely on technology - for quality, standardization, speed and scale – technology, by itself, is an *enabler* and not a

panacea. "*Using it effectively requires us to first understand the key challenges in the status quo and use technology thoughtfully to alleviate binding constraints,*" explains the author.

What about equity? As poor and marginalized sections of society disproportionately depend on the state for accessing basic services, a reform agenda of improving the state's effectiveness in delivering basic services will be the most effective *systemic* way of improving outcomes, *at scale,* for disadvantaged citizens across caste, gender, education and income, states the author.

Section III is the core **Policy Section** of the book, and is devoted to how the reform ideas in the previous section should be applied to accelerate India's development. This section has full chapters on each of six critical areas of **Human Development**: Education and Skills (Chapter 11); Health and Nutrition (Chapter 12); Police and Public Safety (Chapter 13); Courts and Justice (Chapter 14); Social Protection and Welfare (Chapter 15); and Jobs, Productivity and Economic Growth (Chapter 16). The author's choice of chapters is driven both by their importance to public welfare and by the scale of public resources (budgets and employees) allotted to them. Each chapter provides an actionable roadmap for reforms that any Minister, Secretary or Commissioner can act on, states the author. In his words, "*Acting on the roadmap to improve outcomes in these key areas will lay the foundation for accelerating Human Development.*"

The concluding section in the book (**Section IV**) is titled, '**Making it Happen'**. Here, Chapter 17 on '***Reimagining Institutions'*** discusses how states can build new institutions to help strengthen public systems. To increase the chances that these reforms actually happen, it also discusses ideas for reforming the institutional rules of our democracy to better align the private interests of politicians with the public interest, to reduce the role of money in politics, to improve representation, and to increase citizen participation in governance.

Chapter 18 on '***State, Citizen and Society'*** concludes the book with a discussion on why citizens across classes should come together in a broad-based coalition and actively engage in improving governance. It then presents ideas on how different social actors can each contribute towards our shared goal of building a more effective Indian state. Finally, it shows how acting on this roadmap will not only strengthen India, but also help us lead the world in accelerating global development.

While the book would definitely qualify to be the author's *magnum opus*, its sheer size, length and price is very intimidating. Picking up this book from a shelf will require considerable strength as it runs into as many as 812 pages (with the Index). Even though the text of the book is 600 pages (the rest being devoted to detailed Notes, References, Acknowledgements, and an Expanded Table of Contents), it is still too long to be read and digested in a few sittings. A condensed edition is definitely warranted, to ensure wider circulation and readership.

In terms of **missing dimensions** in the book, this reviewer would like to make the following observations:

1. Despite being an economist of repute, the author does not make a reference to the "**wicked problems**" in Public Policy, identified by Horst Rittel and Mel Webber (1973) as those intractable problems defying rational solutions. Good examples would be the conundrums of Environment *vs.* Development, Urban *vs.* Rural Development and National Security *vs.* Human Security.
2. The domination of the Public Policy ecosystem by populism, *adhocism* and short-sightedness is because it is dominated by Generalists and not Specialists. Public Policy, in most cases, therefore, is *not* based on **Rational Choice**, but on **Bounded Rationality** and Incremental Decision Making, as pointed out long ago by Herbert Simon (1955).
3. A bulk of public budgets are devoted to salaries, pensions, establishment charges and doles/ freebies/guarantees, and consequently, governments have no money for recruitment and to fill

up vacancies, or for nation-building and development. Does this not call for a radical relook at budget making?

4. There is hardly any reference in the entire book to the elephant in the room, namely **Corruption.**The author seems to be under the mistaken impression that only 17 per cent of public money is eaten up by corruption (p.9) which is obviously an understatement,

5. The author does not clarify the **model of development** India should be aspiring for. He even states that *ideological debates are distractions* (p.297). This is odd, because if he is talking about accelerating the Neo-Liberal Model of Development, with its proven manifestations of increasing income inequality, decline in social security, absence of social and economic rights, accelerating rural-urban migration and accentuating environmental degradation, this would be actually reinforcing the race to the bottom, which would be entirely counter-productive to the noble intentions behind the book.

Financial Liberalization in India - A Policy Analysis

Jiji Vijayan

The reform process in the Indian Economy is often criticized for moving at snail's pace by the protagonists and advocates of reform measures. The process of liberalization followed by a period of stabilization is a feature of the Indian approach to financial liberalization. There is a need for constant review, progressive revision, and streamlining of reforms. A remarkable achievement of liberalization to cite is that the financial sector in India has gradually transformed from a capital scarce/deficient to a capital abundant economy since the decade of reform of the nineties. The East Asian Crisis of 1998 and the Global Financial Crisis of 2007 acted as speed breakers in the liberalization process. There is a perceptible slowdown in the momentum of liberalization measures in the decade after the Global Economic Slowdown of 2007. The role of Regulatory and Monetary Authorities in successfully managing the challenge of Capital Flow management by an optimum mix of liberalization, regulation, and soft capital controls need to be stressed and applauded at this juncture.

Key words : Big Bang, Chakraborty Committee, Financial Liberalization, Capital Account Management, Global Financial Crisis

Introduction

The global financial liberalization wave of the 1980s and I990s and the lessons imbibed from them moulded the Financial Liberalization Policies in Indian Economy. Financial Liberalization measures which began in the 1990s necessitated policy changes and reforms in the Capital Account of the Indian Economy, which included Capital Flows Management, Foreign Investment, External Commercial Borrowings, External Debt, and External Assistance Policies. The Capital Flows responded positively to these enervating wind of policy changes. To manage the Exchange Rates in the event of increased Capital Flows, Exchange Rate Management Policies and Foreign Exchange Reserves Management Policies also underwent a significant transformation. The Monetary Policy Regime switches also occurred in the globalized era of the 1990s. The Chakraborthy Committee on Monetary Policy in 1985, the Narasimham Committee on Financial Sector in 1991 and Banking Sector in 1997 and the RaghuramRajan Committee on Banking Reforms in 2007, bear proof of Government efforts to revamp the Indian financial system.

1.2 Global Financial Liberalization Wave

There is no uniformity in the period of starting of financial liberalization across countries. The shift and transformation from financial repression to financial liberalization varied in speed, content, and timing across countries and included even reversals in the complex process. The East Asian countries of Indonesia, the Republic of Korea, and Thailand began the liberalization wave in the 1980s itself, though in varying degrees. Indonesia liberalized capital flows in the 1970s. It liberalized interest rates only in 1984. In South Asia, the liberalization process started in the 1990s. Episodes of financial liberalization occurred in Latin America in the 1970s itself. But the reversal of liberalization measures happened in the 1980s triggered by debt crises, high inflation, populist policies, and government measures. In Latin American Countries, financial liberalization returned, increased, and continued in the 1980s (Dornbusch, 2001). Substantial financial liberalization occurred in the 1990s with varying degrees and timing across countries. The transition economies initiated the liberalization process as a reaction against Communism in the 1990s (Bokros et al. 2001). The African countries initiated the process of economic liberalization in the 1990s as the costs of financial

repression became clear and as part of the structural adjustment and stabilization programmes prescribed by the International Monetary Fund and the World Bank.The liberalization process was followed by the gradual freeing of interest rates, a reduction in reserve, liquidity, and directed credit requirements and liberalization of equity markets in the developing Asian countries. Foreign currency deposits were introduced to encourage the inflow of offshore funds and foreign currency holdings into the economy and increase resident's access to foreign currency assets (Hanson, 2001). The role of Central Banks transformed from being a financier of development to a regulator and supervisor. Central Banks became more autonomous and focussed on controlling inflation and stopped financing development (Hanson et al.1990). The financial reforms of the 1990s focused more on peripheral liberalization measures neglecting the fundamental issue of improving the institutional framework of finance, which required much harder and more prolonged efforts. The financial crises forced policymakers to exercise caution in the liberalization process (Hanson et al. 1990).

1.3 Financial Liberalization in India

Indian journey towards Financial Liberalization began in the 1990s. The vulnerabilities and institutional weaknesses in the economic system, which were perceptible after India gained independence, found expression in the financial repression policies adopted since the 1950s. The Indian Model of development was characterized by Inward Orientation, Financial Repression, Self-Reliance, and Import Substitution. External sources of assistance included bilateral, multilateral aid, grants, and concessional loans from the rest of the world, the International Monetary Fund (IMF), and the World Bank.

In the early 1960s, by the imposition of various repression policy measures like lending rate controls, higher liquidity requirements, the establishment of state development banks for agriculture and industry, the government tightened its control over the financial system. The culmination of these policies was the nationalization of banks in 1969. Policy measures, which are testimonies of the financial repression, are the interest rate controls introduced in the 1970s and 1980s, credit planning, directed lending, priority sector, and concessional rates of lending. The financial repression measures were augmented with capital controls, regulations, and tight restrictions, which bred structural deficiencies in the Financial Sector of India. India had a well-developed control apparatus and a comprehensive framework of control, of which control of capital formed a part (Reddy, 2001). An underdeveloped capital market, a weak money market with artificially administered interest rates and, a large unorganized financial market had its repercussions in the real sector also, as evident in the Hindu Growth Rates experienced prior to economic reforms of the 1990s. The growth rates stagnated around 3.5 percent from the 1950s to the 1980s, while per capita income growth averaged 1.3 percent. The direct effects of financial repression in India were negative and quite substantial (Demetriades et al. 1997).

The official concessional assistance dried up in the 1980s. Financial resource constraints resulted in the emergence of a grave Saving-Investment and Foreign Exchange gaps in the Economy. The need to reform the financial sector was felt even in the mid-1980s itself with the setting up of the Chakraborty Committee in 1985 to suggest reforms in the monetary sector. Gulf Crisis of 1990, substantial fiscal deficit and political uncertainty precipitated a crisis in the Balance of Payments front. There was an imminent need to revitalize the Indian Economy in a globalized world. Faced with severe liquidity crunch, the implementation of IMF sponsored comprehensive Structural Adjustment Programme was imminent (Kletzer, 2004). The real process of Financial Liberalisation started in the 1990s with the implementation of the recommendations of the Narasimham Committee Report (1992) on the Financial Sector. The reforms in the financial sector are a continuation of the reforms started in the real sector with the announcement Industrial Policy Reforms of July 1991. The deregulation and liberalization of the financial system is a hallmark of India's New Economic Policy (Guha- Khasnobis et al. 2000).

1.4 Indian Approach to Financial Liberalization

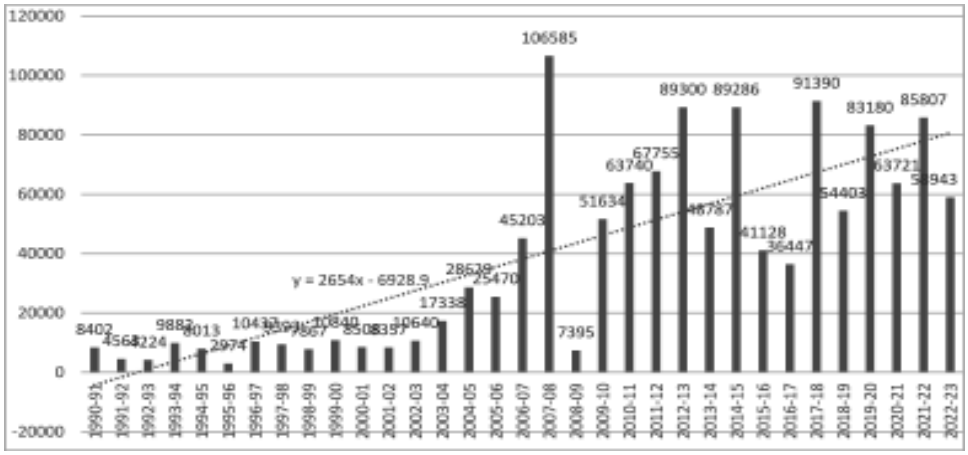
The Indian Financial Liberalisation is characterized by a Process Approach rather than Big Bang.

Evaluation of the Indian strategy of financial liberalization reveals that there is gradual phasing out of administrative controls, which were replaced by regulation and prudential limits on transactions since the 1990s. Rodrik (1998) argues that there is a compelling case for maintaining capital controls or taxes on short-term borrowing even as liberalization progresses. India pursues active management of the capital account in the post-liberalization era. The prudential limits are placed for debt flows, and within debt flows, tighter restrictions are placed on the access of financial intermediaries to external borrowings vis-a-vis nonfinancial corporate entities. There is managed flexibility in exchange rate movements but with the capacity to intervene in times of excessive volatility along with appropriate sterilization of interventions and associated building up of adequate reserves. There is the continuous development of financial markets in terms of participants and instruments and progressive strengthening of the financial sector through prudential regulation while also enhancing competition. The pre-emptive tightening of prudential norms in the case of sectors witnessing very high credit growth and refinements in the institutional framework for monetary policy were also part of the Indian strategy of managing the trilemmapolicy variables of Capital Account Openness, Exchange Rate Management and Monetary Independence (Kletzer, 2004).

1.5 Policy towards Capital Flows and Capital Account Liberalization

Conventionally in Indian Economy the Current account deficit is bridged by recourse to external assistance and commercial credit flows. The year 1993-94 saw the positive response of capital account flows to policy reform measures. A compositional shift began in the capital account with the falling share of concessional and commercial debt flows and rising share of non-debt creating foreign investment flows. By 1995-96 the Indian Capital Account began to experience a structural change in terms of decline in non-equity and debt flows and a rise in equity flows. Gradual, sequenced, and calibrated approach to capital account liberalization characterizes the Indian approach to Capital Account Management in the Post - Liberalization Period.

Figure 1.1 Showing Capital Account flows (in US million dollars) from 1990-91 to 2022-23



Source: Author's Calculation

The clustered column chart in Figure 1.1 presents the Net Capital Account Flows from 1990-91 to 2022-23. The Net Capital Account Flows experienced a positive linear trend with a slope coefficient of 2654. In 2007-08, the year of the global financial crisis and economic downturn, Net Capital Account Flows experienced a surge with a value of million 106585 US dollars, in 2008-09 Capital Flows dipped to a million 7395 US dollars. The rise in Net Capital Flows to the Indian Economy may be due to increased Net Portfolio Inflows in 2007-08 resulting from an expansionary Monetary Policy in developed economies. Higher Expected Returns stimulated inflows into the Indian Economy. The fall in Net capital Flows can be attributed to the withdrawal of funds from the Indian Economy when signs of recovery from the crisis were seen in developed economies.

Despite the fluctuations, the rising trend in volume and magnitude of Capital Flows make the macroeconomic management of theCapital Flows a real challenge. To maintain a healthy financial market with financial stability, the approach to the management of capital flows included intervention to smoothen volatility, accumulating reserves and appropriate liquidity management. To prevent capital flows from affecting the monetary base, sterilization operations involving market stabilization schemes are resorted to after assessing the nature and extent of foreign exchange surplus and whether capital flows are temporary or enduring and whether self-correcting mechanisms operate in the market and market responses in terms of sentiments (Rangarajan et al.2008).

When the Indian Economy experiences surges in capital inflows, capital account flow management involve selective liberalization of outflows, compensation to affected exporters due to erosion of competitiveness, prudential norms for market participation, selective use of capital controls, reprioritization of hierarchy conditions on External Commercial Borrowings (ECBs), end-use conditions on ECBs, etc. Policymakers try to resolve a relatively open capital account, monetary independence, and a managed flexible exchange rate regime by a mix of policy options. Capital Flow management is guided by the need of the economy. When there is considerable capital inflow, the domestic currency appreciation may be allowed sometimes to prevent the full pass-through of capital flows to the monetary sector. As Capital Flows are reversible and have potential volatility, the level of intervention and reserves are guided by both the liquidity at risk rule and monetary policy considerations (GOI, 2003).

1.6 Foreign Investment Policy

The liberalization of Foreign Investment Policy began in 1991. A change occurred in Foreign Investment policy from 1992 to attract huge volumes of non-debt foreign investment flows to the Economy to augment and supplement domestic resources. There was a deliberate attempt to inject new dynamism into the Foreign Investment Policy. Gradualism was the hallmark of the Indian approach to the liberalization of Foreign Investment Policy. Foreign Investment Flows were presented as a panacea for India's poor economic performance (Athreye et al. 2001).

There was a pragmatic shift in Foreign Investment Policy in the 1990s, which marked the Indian Economy's transition to an outward-oriented regime. The setting up of the Foreign Investment Promotion Board was an important policy measure to encourage Foreign Direct, Portfolio, and Non-Resident Investments and Deposits in Global Depository Receipts into the Indian Economy. The cautious approach is evident in the opening of the Indian Capital Market, where only Reputed Foreign Institutional Investors were allowed entry. This measure was accompanied by the encouragement given to corporates to tap global financial markets through the mechanism of Global Depository Receipts Mechanism. The liberalization of Indian Joint Ventures Abroad also took place as part of the new strategy towards foreign investment. The Progressive measures involving the relaxation of norms of equity participation and dividend repatriation since 1991, restructuring of Foreign Investment Promotion Board (FIPB), and setting up of Foreign Investment Promotion Council for speedy approval are part of the policy to provide a stimulus to investment inflows into the Economy. The reorientation of the foreign investment policy was focussed on making India an attractive destination of foreign direct investment flows. A liberal FDI regime was consistent with other reform measures aiming at greater financial integration.

Foreign investment flows responded positively to the reform measures and augmented the linkage effects in the Economy. In the Post Liberalisation period, Foreign Direct Investment constitutes an important source of non-debt, creating private capital flows (GOI,2002). FDI as a stable source of supplementing domestic resources assists technological up-gradation access to global managerial skills and practices optimum use of human and natural resources, provide backward and forward linkages access to quality global goods and services make the Indian export industry globally competitive. The Foreign Institutional Investment Inflows have a high correlation with contemporaneous returns from country-specific domestic stock markets and the risks prevailing in international equity markets. As a result, improvement in domestic market sentiments accompanied by positive

return expectations result in portfolio inflows and deterioration result in a flight of capital. Progressive liberalization of Foreign Institutional Investment norms over the years also had a positive impact on Net Portfolio flows.

To push forward the unfinished task of reform agenda, the Planning Commission had set up a steering committee on FDI in 2001 to suggest recommendations to liberalize FDI norms further. The FDI norms are revitalized and occasionally revamped in the post-liberalization period. The volume of Net Foreign Investment flows experienced a surge from 2003-04 with a value million US 13744 dollar, the period which marked the beginning of accelerated capital flows.

Figure 1.2 Net Foreign Investment flows from 1990-91 to 2022-23

Source: Authors' Calculation

Figure 1.2 presents the volume of Net Foreign Investment Flows in a clustered column graph. The Net Foreign Investment Flows experienced a positive linear trend with a slope of 1728.4.

1.7 External Commercial Borrowings Policy

External Commercial Borrowings (ECBs) have emerged as the preferred medium of borrowing by corporates. The composition of capital flows witnessed a paradigm shift from official transfers to private capital inflows in the post-liberalization period in the Indian Economy (Gopinath, 2004). External Commercial Borrowings emerged as the prime component of debt creating capital flows.

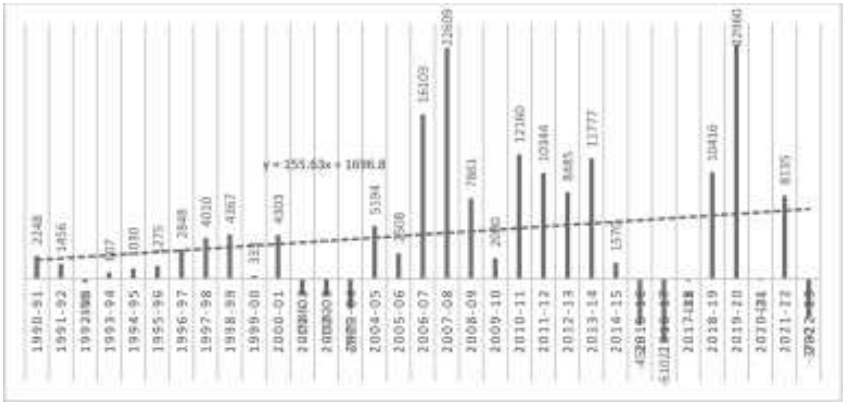
The External Commercial Borrowings Policy since the introduction of the series of structural reforms in July 1991 is characterized by keeping a close vigil on commercial debt. Debt Management assumed priority to prevent a recurrence of crisis events. A high-level committee on Debt Management was constituted in 1992-93 as it was necessary to review and monitor the magnitude, composition, and allocation of debt to ensure that debt was kept at a sustainable level. Infrastructure, Core Sectors, Export Oriented, and Import Substitution units, Medium and Small Scale units were given priority in ECBs policy. ECBs were allowed to meet the foreign exchange cost of capital investment. As the demand for ECBs rose in 1994-95, the policy was further relaxed and liberalized, like the upward revision of minimum maturity requirements. The Export Oriented Units were accorded priority.

The External Commercial Policy was revised and carefully calibrated to ensure debt sustainability and keep it within prudent limits. The External Commercial Borrowing Policy was further liberalized in 1997-98 in which ECBs Funds were allowed to meet certain categories of rupee expenditure, which were earlier not allowed. In the light of the South East Asian Financial Crisis of 1998-99, the ECB Policy was reviewed by requiring to have a longer maturity for larger borrowing, caps on borrowing cost, and restrictions on end-use of ECB. The ECB policy was modified to provide easier access to external funds by Indian Industry to support investment and economic activity and to increase transparency in the policies and procedures. In the New Policy, greater priority was given for projects in the infrastructure and core sectors and export sector. Further Liberalization measures were announced for mobilizing external resources occasionally.

The broad aims of the External Commercial Borrowing Policy include providing flexibility in

borrowings to Indian Corporates and PSUs and maintaining safe limits for total external borrowings consistent with prudent debt management. The guiding principles include borrowings of long maturities, low costs, encouragement to infrastructure, and export sector financing for accelerating economic growth.

Figure 1.3 Net External Commercial Borrowings from 1990-91 to 2022-23



Source: Authors' Calculation

Figure 1.3 presents the Net External Commercial Borrowings from 1990-91 to 2022-23. The Net External Commercial Borrowings experienced a positive linear trend with a slope coefficient of 155.63.

Both domestic macroeconomic pull factors and global economic push conditions determine External Commercial Borrowings (ECBs) inflows to the Indian Economy. Sur et al. (2019) argue that there is a need for simplifying and consolidating India's regulatory framework for ECBs without compromising the macro-prudential principles of capital account management as regulatory changes in the capital account are found to have the greatest effect on ECB flows.

1.8 External Debt Policy

The negative developments in the external debt front in the 1980s, like the deterioration of the quality of external finance, short-maturity debt necessitated the close monitoring of the size, composition, and growth of external debt after the BOP crisis of 1991. The collection and compilation of external debt statistics and their monitoring were standardized following the recommendations of the Task Force on External Debt Statistics. The government adopted a conscious policy of limiting External Commercial Borrowing, reducing defence debt, maintaining debt burden within a prudent level, and encouraging non-debt creating equity flows imbibing lessons from the Balance of Payments Crisis of 1991. The strategy of the government is to manage the debt service ratio in the comfort zone. High short-term debt increases the probability of another Balance of Payments crisis.

External Debt management is an area of priority. The elements in the debt management strategy include consolidation of gains, managing existing liabilities carefully, planning for sustainable future borrowings, optimization of currency interest, and maturity mix of debt to minimize costs and exposure risks. The long-term goal of the External Debt Policy incorporates tight control on short term debt, keeping Commercial Debt under the manageable limit in terms of its serviceability and in relation to total GDP of the country and close supervision of Maturity Structure of Debt to avoid falling into Debt Trap. Even though India's debt is large in absolute terms, a large part of it has a degree of concession attached to it. Out of total debt stock, the share of long-term debt outweighs short term debt. India's External Debt is characterized by a high share of multilateral and bilateral debt, which accounts for two-thirds of total long-term debt. Prudence and sustainability of external debt management can be improved by increased coverage and computerization of debt statistics, better coordination of agencies reporting debt refinancing costly debts, prepayment of identified high-cost debt and exploring the possibility of using financial products for hedging of risks for active management of sovereign debt (GOI, 2015-16).

1.9 Current Account Convertibility

The current account of the Balance of Payments records the receipts and payments of real flows of Merchandise Trade and Invisibles, which is an indicator of the real strength of the Indian Economy. Current Account Convertibility is the freedom to buy or sell foreign exchange in connection with foreign trade, other current business, including services, and normal short term banking and credit facilities; payments due as interest on loans and as net income from other investments; payments of a moderate amount of amortization of loans or for depreciation of direct investments; and moderate remittances for family living expenses (GOI, 1994-95). The first step towards Current Account Convertibility was made in 1993-94 with the abolition of foreign exchange budgeting, the unification of exchange rate, and freeing of transactions in trade account from exchange control. In August 1994, India accepted obligations under Article VIII of the IMF under which India is committed to have no restrictions on current payments and avoid discriminatory currency practices. Rupee became fully convertible for Current Account Transactions in 1994 as India acquired Article VIII status on August 20, 1994. The Process of Current Account Liberalisation was carried forward with the announcement of further relaxation measures in 1997-98 which included modifications in exchange control regulations, more liberal foreign exchange transactions for travel, studies abroad, medical expenses, remittances, donations, greater flexibility for remittances for purchases of foreign services by residents, etc. Full Convertibility of Rupee on Current Account was the first major step taken towards the achievement of complete financial liberalization in the future.

1.10 Deliberations on Full Capital Account Convertibility

In India, Capital Account convertibility is considered as a process under the overall purview of the Reform Process, which should be approached with prudence and calibration to minimize risks. Full Capital Account Convertibility (FCAC) is regarded as the culmination of the Financial Liberalization Reforms initiated from the 1990s in the Capital Account of Balance of Payments of India. Capital Account Convertibility implies the right to transact in financial assets with foreign countries without restrictions. Reddy (2001) evaluated the Indian experience of capital account liberalization as a process approach, with an emphasis on caution and gradualism. The approach has been on progressively replacing administrative controls with prudential limits on transactions, the norms are being guided by the country's absorptive capacities and financing needs, and by the need to achieve a mix of short term and long term, debt and non debt, and stable and volatile flows. From administrative discretionary controls gradually, the focus has shifted to prudential limits and regulation of transactions in the capital account, providing freedom of choice within these limits and increasing the number of transactions routed through automatic clearance windows. Financing needs, as indicated by current account deficits and absorptive ability, decide the norms to be adopted in general for capital account transactions.

In 1997-98 for the first time, the Capital Account was liberalized for resident individuals and companies who can invest part of their savings in foreign assets. Tarapore Committee appointed by RBI to suggest recommendations on full capital account convertibility submitted its report in May 1997. The committee recommended the sequencing of FCAC over three-year period from 1997-98 to 1999-2000 subject to the attainment of stipulated signposts and preconditions for each year, which included Fiscal Consolidation, mandated Inflation Target and strengthening the financial system (Tarapore,1997). The East Asian Crisis, which struck Thailand, Indonesia, Malaysia, Philippines, and Singapore, was an eye-opener to Policy Makers on the advisability of FCAC and the risk of complete financial liberalization. The East Asian Crisis had acted as a speed breaker and slowed down the liberalization process in India. Limited capital account convertibility was recognized as an appropriate strategy to avoid the extreme uncertainty of global financial scenario. India's economic fundamentals were reasonably strong in 1997, and the gradual and continuous strengthening of financial sector prudential regulatory norms and supervision introduced since 1992-93 helped to prevent East Asian Contagion from having a significant adverse spillover impact on the Indian Economy.

The second Tarapore Committee on FCAC submitted the report in September 2006 to revisit the subject

of fuller capital account convertibility in the context of the progress in economic reforms, the stability of the external and financial sectors, accelerated growth and global integration the committee also suggested a phased approach instead of "Big Bang" in adopting the full convertibility of rupee in the capital account (Tarapore, 2006).

Sen (2006), while arguing for the case against Full Capital Account Convertibility, maintains that a strong financial sector is required if a nation is to reap the potential gains from trade in assets. In the financial markets, the collapse of a few institutions could lead to a collapse of the entire system. The experience of emerging economies suggests that one should approach the issue of throwing open the capital account with extreme caution. There is a need for institutions, market structures, market practices, and macro policies to evolve and develop before permitting Full Capital Account Convertibility.

1.11 Exchange Rate Management Policy

India's exchange rate management and monetary policies are closely linked and are constrained by the trilemma, which sets a limit to independent policies across the three dimensions of exchange rates, external capital controls (financial openness), and monetary policy. Analyzing the exchange rate policy in the post-liberalization period independent of Capital Liberalization and Monetary Policy Regime switches is incomplete and inconclusive.

The Exchange Rate Management Strategy was evolved to achieve a middle ground in terms of trilemma policy goals of Exchange Rate Stability,Monetary Independence and Capital Account Openness. In the year 1991, to tide over the Balance of Payments crisis priority was given to stabilizing the exchange rate at a realistic level. A two-step downward adjustment of the exchange rate and introduction of Exim scrips were made in July 1991. After achieving stability in the external front, a gradual process of reforms was introduced in the exchange rate management strategy.The Liberalised Exchange Rate Management System (LERMS)/ Dual Exchange Rate Regimewas announced in the budget of 1992-93. This represented a transitional stage towards a unified exchange rate, which ultimately leads to full convertibility on the current account. The LERMS represented the first step towards Foreign Exchange Market Reforms to attract foreign capital to the Economy. In 1993-94, a Unified Exchange Rate and Floating of the rupee was announced to provide opportunities for the foreign exchange market to develop and mature. Exchange controls were relaxed by the amendment of the Foreign Exchange Regulation Act in 1993-94.

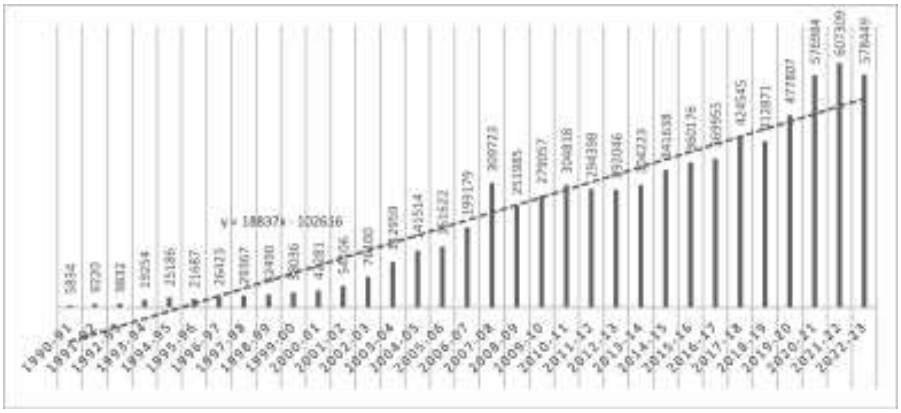
The exchange rate regime in India is characterized by Managed Flexibility. The Managed Floating Exchange Rate is adopted as a monetary policy strategy to achieve some degree of monetary independence in the face of capital inflows and the growing openness of the economy. Theoretically, the market forces of demand for and supply of foreign exchange determine the equilibrium exchange rate of the Indian Rupee. The market-determined exchange rate ensures that the external value of rupee reflects the economic fundamentals. In Reality, the Reserve Bank of India frequently intervenes in the forex market by purchasing and selling foreign exchange to even out excess demand and supply in the thin market. Indian Exchange Rate is heavily managed and behaves more like a Fixed Exchange Rate Regime than a Floating Regime. The exchange rate policy aims to prevent destabilizing speculation in the market and facilitate foreign exchange transactions at market rates for purposes that are permitted. The Principles guiding the exchange rate management policy are the development of an orderly, strong and healthy foreign exchange market by eliminating market constraints, maintain an adequate level of foreign exchange reserves, prevent excess fluctuations in exchange rates to maintain a realistic and stable exchange rate, to ensure movements in foreign exchange market movements are calibrated and smooth and the continuous monitoring of real exchange rate.When the movements in the exchange rate go beyond any correction required by the fundamentals, it is imperative for an activist exchange rate management policy. Monetary Policy and Exchange Rate Management are intertwined, an unorthodox monetary policy geared towards price stability can help to avoid disruptive adjustment in Exchange Rate (Rangarajan et al.2008).

1.12 Foreign Exchange Reserves Policy

Foreign Exchange Reserves Management Policy assumes immense importance with globalization, accelerated capital flows, and the global financial integration of the domestic economy with the global economy. Foreign Exchange Reserves Policy is linked to Capital Flows and Exchange Rate Management Policies in an integrated economy. The post-liberalization period has experienced a paradigm shift in India's approach to foreign exchange reserve management. The change has occurred from a single indicator to a menu, or multiple indicators approach (Kapila, 2005).

In India, foreign exchange reserves are accumulated to provide resilience to the economy and withstand both cyclical and unanticipated shocks by enhancing the ability of the monetary authority to intervene in the foreign exchange market. Foreign exchange reserves have been accumulated by encouraging non-debt, creating stable equity capital inflows, and de-emphasizing debt flows. With the adoption of a managed exchange rate regime, there was a dynamic change in the role of reserves for smoothening out the volatility in the exchange rate from volatile capital flows. The accretion of foreign exchange reserves has a direct link with exchange rate management policy. The signalling channel through which official foreign exchange intervention minimizes exchange rate volatility is of immense relevance to the managed exchange rate regime in India, where intervention is a stable policy with an announced exchange rate stability objective. The large accumulation of foreign exchange reserves that RBI has built up provides ample testimony to RBI's intervention activity (Baig et al. 2003).

Figure 1.4 Foreign Exchange Reserves in India from 1990-91 to 2022-23



Source: Authors' Calculation

Figure 1.4 presents the trend of Foreign Exchange Reserves from 1990-91 to 2022-23. The Foreign Exchange Reserves experience a positive linear trend with a high slope coefficient of 18837. A noteworthy aspect is that the years which experienced increased capital flows also saw a rise in the accretion of foreign exchange reserves, which underscores the fact that the Indian Exchange Rate is heavily managed to and Exchange Rate Stability is accorded the highest priority.

1.13 Monetary Policy in India

With increased capital inflows in the post-liberalization period, coping with liquidity management has become a challenge in India. The volatile capital flows necessitate appropriate monetary operations to smoothen wide fluctuations in market rates and ensure reasonable stability consistent with the monetary policy stance of the Indian Economy. The Indian experience illustrates the close link between external sector management and domestic monetary management. The conduct of Monetary Policy in the face of increased Capital Flows requires new monetary policy instruments and a mechanism of a parallel liquidity shock absorber for domestic monetary management just as foreign exchange reserves act as shock absorbers in the external front. Monetary Policy in India is tuned to achieve the desired exchange rate stability of the Indian Rupee.

The regime shift in the conduct of exchange rate management in India that occurred in the early 1990s

with the adoption of a managed exchange rate regime had a significant impact on the monetary policy framework (Mohan, 2006). The liquidity impact of capital flows has become an even more important problem for monetary management in the 1990s than it was in the pre-financial liberalization period.

It is held that the globalization process of the 1990s caused the loss of monetary policy independence in India. Paul (2012) contends that India's monetary policy independence is anchored in the exchange rate regime along with its state of foreign exchange reserves and not in globalization.

Mohan et al. (2009) argues that with increased financial integration with the global economy, it is imperative that the framework of monetary policy itself has to undergo a change. A pragmatic and flexible exchange rate management and monetary policy allow flexibility in the conduct of monetary policy rather than strict and blind adherence to theoretical rules. The Indian experience is a testimony to the need for emerging market economies to allow greater flexibility in exchange rates, but also retaining the capacity of the monetary authority to intervene in foreign exchange markets in view of the volatility observed in international capital flows. Therefore, there is a need to maintain an adequate level of foreign exchange reserves, and this, in turn, both enables and constrains the conduct of monetary policy (Mohan et al. 2009).

1.14 Market Stabilisation Scheme and Liquidity Management

The strategy of introducing the new Market Stabilization Scheme (MSS) instrument in 2004 to manage excess capital flows and reduce volatility in the exchange rate reflects the overall issue of global capital flows that many emerging economies in Asia are facing. The MSS has evolved as a useful instrument of monetary policy to sustain open market operations. The MSS was made operational from April 2004. This scheme is meant exclusively for liquidity management. Under this Scheme, the Reserve Bank has been empowered to issue Government Treasury Bills and medium duration dated securities for the purpose of liquidity absorption. The introduction of MSS has succeeded, in principle, in restoring Liquidity Adjustment Facility (LAF) to its intended function of daily liquidity management. Since its introduction in April 2004, the MSS has served as a very useful instrument for medium-term monetary and liquidity management. It has been made dysfunctional in times of low capital flows and greater liquidity needs and made operational when excess capital flows could lead to excess domestic liquidity. In principle, the MSS is designed to sterilize excess capital flows that are deemed to be durable or semi-durable.

1.15 Financial Liberalization andthe Indian Trilemma

The Indian Policymakers are also constrained by the challenges imposed by Trilemma in the post-financial liberalization era, and the policies of Capital Flows, Exchange Rate Management and Monetary Policy are linked to Trilemma management. The difficulty of simultaneously managing trinity goals is evident in the design of capital flow management, exchange rate, and money supply policies in the Indian Economy. In the paper, an overview of the Indian approach to Financial Liberalization, Capital Flows, Exchange Rate, and Monetary Policy was provided as a prelude to analyzing Indian Trilemma. Capital Flow Management, Exchange Rate Management, Monetary Policy are all interlinked in the Indian Economy. The debate on Has Globalization reduced monetary independence in India? is still unresolved.

Mohan et al. (2009) argued that the impossible trinity in the Indian Economy was managed by a judicious convergence to an intermediate regime or middle ground characterized by a limited and managed capital account and a managed flexible exchange rate. Rather than relying on a single instrument, a mix of instruments was used in coordination for managing Indian Trilemma. Monetary policy had been key in the management of Indian Trilemma. This was enabled by the fact that in India, both monetary policy and regulation of banks and other financial institutions and key financial markets are under the jurisdiction of the supreme monetary authority, the Reserve Bank of India, which permitted the smooth use of various policy instruments. Indian experience suggests that monetary policy needs to move away from the narrow price stability and inflation targeting objective. Given the volatility of capital flows and the need to ensure broader

stability of the financial system, central banks need multiple instruments. As is the case of monetary and fiscal policies, Capital account management has to be countercyclical.

The intermediate regime of trilemma policy variables enabled the country to balance exchange rate stability, exchange rate targeting and monetary autonomy, and to withstand successfully various shocks that included contagion from the East Asian crisis. India's experience serves to reinforce doubts about the desirability of bipolar exchange rate regimes for developing countries as an integral element of a new international financial architecture (Joshi, 2003).

1.16 Conclusion

The appropriateness of the "Big Bang or Gradualism" debate is still going on in the Indian Economy. The reform process in the Indian Economy is often criticized for moving at snail's pace by the protagonists and advocates of reform measures. There are consensus and unanimity among policymakers for the need to exercise caution in the calibration of reforms. The process of liberalization followed by a period of stabilization is a feature of the Indian approach to financial liberalization. There is a need for constant review, progressive revision, and streamlining of reforms. A remarkable achievement of liberalization to cite is that the financial sector in India has gradually transformed from a capital scarce/deficient to a capital abundant economy since the decade of reform of the nineties. While there is no doubt that the sector is more robust than at the beginning of reforms, it is still susceptible to inefficiencies engendered by the blunted incentives associated with large public sector involvement in the sector, institutional rigidities, and regulatory forbearance (Bhattacharya et al.2005). The East Asian Crisis of 1998 and the Global Financial Crisis of 2007 acted as speed breakers in the liberalization process. There is a perceptible slowdown in the momentum of liberalization measures in the decade after the Global Economic Slowdown of 2007. The role of Regulatory and Monetary Authorities in successfully managing the challenge of Capital Flow management by an optimum mix of liberalization, regulation, and soft capital controls need to be stressed and applauded at this juncture.

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West Bengal Panchayat Elections 2023: A Trendsetter?

Nirjhar Mukherjee

The politics of West Bengal is hovering around the dynamics of a polarised two party system. The votes that the Left gained regained from the BJP are strongly anti TMC votes. At the local level the BJP is yet to build an organisation as strong as the CPM. The latter, though out of power for thirteen years still has a very strong party organization at the grassroot level. Thus, at the level of local elections in may places, they were able to consolidate the anti TMC vote to a large extent and in some places even win seats. However, at the Lok Sabha levels, the CPM had no chance of winning. In such a situation, those anti TMC voters went back to the BJP. Thus, the erstwhile vote bank of the CPM was not a strong ideological one. It remains a resolutely anti TMC vote bank. Neither is it driven by left ideals nor by the Hindutva rhetoric. They are likely to vote for the party most capable of defeating the TMC.

Key words : Three tier local elections, The Trinamool Congress, Village Self Government Act, 1919, West Bengal Panchayat Act 1957, The Ripon Resolutions 1982.

Panchayat polls hold a rather special albeit a brutal and macabre place in the political fabric of West Bengal. Ever since the inception of rural local elections in it's current form in West Bengal in 1978, the three tier local elections have been the bone of contention for power politics, intrigue, corruption and also one of the bases for the creation of the party society in West Bengal. Nevertheless, it has also been an instrument, however underutilised, of decentralisation of power and local self government. The 2023 panchayat polls continued the macabre traditions of West Bengal's legacy of political violence and a bevy of electoral malpractices. The Trinamool Congress retained it's overwhelming supremacy in these local elections though the degree of the same has reduced as compared to the notorious previous election of 2018. Similarly the number of seats (especially at the Gram panchayat and Panchayat Samiti levels) have also gone down for the Trinamool Congress though that still gave them a stranglehold over the much coveted rural regions in each and every district. Another significant development of these elections has been the rise of the vote percentage of the left-front and the Congress. This happened at the expense of the BJP which has floundered further as compared to its defeat in 2021 assembly polls. This paper will shed light on some such issues and their relevance to the politics of Bengal and attempt to provide some insights regarding the same. The paper will also discuss what possible impact it might have on the Lok Sabha elections of 2024.

Legacy of Panchayati Raj in West Bengal

The Panchayati Raj system has a long history going back to the days of the British Raj. An elaborate discussion of the same is beyond the scope of this paper. However, for those unaccustomed to the system of local self government in West Bengal, a brief outline is necessary to understand how the Panchayati Raj System works in West Bengal. The embryonic attempts at decentralisation of power in West Bengal started by the efforts of the British viceroys Lord Mayo and Lord Ripon. The Bengal Chowkidari act 1870, the Ripon Resolutions 1882 and Bengal Local Self Government act 1885 were the baby steps towards the end of local self government. These acts, established the idea of a three tiered rural self governance system and the statutory recognition of the institution of panchayat (which has long been a part of the traditions of cultures in this part of the world). However, these were not elected bodies. Members were nominated by bureaucrats. They had little power and funding. Subsequent acts such as Bengal Village Self Government

Act 1919 would do little to change the situation. Unfortunately such trends continued even after independence. The West Bengal Panchayat Act of 1957 replaced the Bengal Village Self Governance Act of 1919 (Datta, 2002). The Balwantrai Mehta committee, 1957 had recommended a three tier panchayat system but it was not implemented. This was actually a trend which was observed at an all India level. Rural self government suffered while land distribution laws were not wholeheartedly implemented. In West Bengal, as with other parts of India, the bureaucrats held their sway while rural self governance and democracy did not materialise. In West Bengal, it was only after the Left front's victory in 1977 that there was some concrete development in the effective implementation of local self government in the rural areas of West Bengal (Ghosh, 2013 and Jabeen 2017).

The Left Front led by the CPI(M) came to power with a lot of promises. The main plank of the Left front's programme was the implementation of the tenancy laws and land redistribution among poor peasants (operation Barga). The proper implementation of the three tier Panchayati Raj system was a political counterpart to these reforms. It was through the vigorous implementation of the Panchayati Raj System that the left front strengthened its grip on power in West Bengal's rural heartland, the base for its thirty four year rule (Mukherji, 2019).

So on one hand while the rest of India was lagging behind, West Bengal led in rural self government. It was only after the implementation of the 73rd and 74th constitutional amendments in 1993 that rural self-government made headway in the rest of the country. A detailed discussion on the effects of decentralisation of power and benefits of rural self governance is beyond the scope of this paper. However, what must be noted is that along with the number of benefits that local self government has brought to West Bengal, it has also been the foundation on some of the darkest aspects of West Bengal's political landscape. The village self governance institutions have become the foundations of the party society in West Bengal. As funding for panchayats and their coffers increased so did the struggle for control over the same. Political violence in Bengal has become more and more entrenched through the struggle for these institutions. (Webster, 1992; Chatterjee, 2009). Again, a more thorough analysis of the political economy and political sociology of political violence in Bengal is not within the purview of this paper but it cannot be overemphasised how control over local panchayats (and the financial and other resources that follow) have become one of the most entrenched pillars of political violence in Bengal. The axis of power shifted with the decline of the left front in favour of the Trinamool Congress but the macabre traditions of political violence has continued. It is to be noted that political violence also includes fratricidal violence among the factions of a party, mainly the ruling party.

A Brief Outline of the Panchayati Raj System in West Bengal.

The three tier panchayat system in West Bengal is based on decentralisation of power and the principle of democratic control over rural administration. For a brief overview of the system we can say that the three tiers are the Gram Panchayat at the base unit. A gram Panchayat consists of a number of booths of around 1100 voters per booth. The head of the gram panchayat is known as the Panchayat Pradhan. A number of Gram Panchayats combine and make up the Panchayat Samiti headed by a Sabhapati (chairperson) and Saha Sabhapati (vice chairperson). It is to be noted that the exact number varies from place to place depending upon the demographics and other local factors. Again a number of Panchayat Samitis make up a Zilla Parishad (ZP) seat. Again there are discrepancies in the numbers depending on demographics and other local factors. However, a general rule is that there are approximately three Zilla Parishad seats per Vidhan Sabha constituency. It is headed by the Sabhadhipati (political head of the ZP) assisted by the Saha Sabhadhipati (vice chairperson). The Zilla Parishad consists of nine departments. The elected members of the ZP are divided through mutual election among themselves (in reality coordinated by the winning party) into the nine departments. Among each department, five members are elected into the standing committee of that department. The five members of the standing committee elect among themselves a Karmadhyaksha or head

of that department. It is to be noted that the District Magistrate or DM is the Executive officer or EO of the Zilla Parishad. Other bureaucrats of various government departments work alongside the elected members of the Zilla Parishad, especially with Karmadhakshya and standing committee members of each department. Thus there is a bureaucracy- politically elected member coordination as well as democratic control over the system. However, what needs to be understood is that like in all aspects of parliamentary politics, it is the ruling party which calls the shots. Right from the gram panchayat levels to the ZIlla Parishad, huge amounts of money are involved for developmental work. These are lucrative assets for power control and needless to guess corruption. As mentioned earlier, when huge stakes of power are involved, violence follows. Rural elections are the site of the greatest amount of political violence, intimidation, murders, booth capture and various other kinds of electoral malpractices. There is little doubt that ruling parties have exercised inordinate amounts of money and muscle power to secure their grip over these institutions. This does not mean that opposition parties do not use political violence. In 2023, as in previous elections, every party used political violence but obviously the opposition was outmuscled by the ruling TMC. It should be noted that the State Election Commission conducts the elections to local self-government bodies in West Bengal. Critics argue that it is not as unbiased as it is supposed to be. Moreover, it is alleged that the state police forces which are in charge of security in the panchayat polls are also biased towards the ruling party. Opposition candidates often demand central forces for unbiased conduct of these polls though to little use. These allegations have been continuing since the days of the Left Front. The actors have changed, roles reversed but the allegations have remained the same.

Black 2018 and its Legacy

For a proper analysis of the 2023 panchayat elections, the legacy of the previous panchayat elections must be made. As mentioned earlier, panchayat elections have been a site for great political violence since the days of the Left. They used the panchayati raj institutions to create the ground for a party society. This tradition has continued in in the days of the TMC. Elections continue to violate democratic mandate with large scale attacks on the opposition. Nomination filing is a period of extreme violence. Candidates, especially from formidable opposition parties are often prevented from filing nominations or coerced to withdraw nominations. There is violence and brutality at every stage which has brought enormous shame and calamity to West Bengal. However, even by West Bengal standards of political violence, 2018 was a watershed. The 2018 elections proved to be one of extreme violence and unprecedented manipulation and malpractice. The exceptional violence in the 2018 panchayat elections had some important consequences in the trajectory of West Bengal politics which had subsequent ramifications in the 2019 Lok Sabha elections and the 2021 Vidhan Sabha elections.

The results showed that the TMC won around 72 percent of the popular vote- a result representing something like an election result from Putin’s Russia or a result from an election in a hybrid regime or a Banana republic. Around one third seats were won by the TMC uncontested, with a large number of seats being won as a result of opposition candidates being unable to file nominations. Extreme fear and violence by the ruling party made most of the election a futile attempt. The TMC won more than 38000 Gram panchayat seats out of around 50000 seats, more than 8000 out of a total of around 9000 panchayat samiti seats and 793 out of 824 Zilla Parishad seats! This election saw the BJP emerge as the main opposition to the TMC. The TMC came to power in 2011 defeating the thirty four year old Left Front regime. However, the Left remained the principal opposition in West Bengal. The left front suffered an electoral debacle in the 2014 Lok Sabha elections winning only two seats but still retained the role of the principal opposition. The BJP garnered 17 percent votes and won two seats. It was the first time in its history that the BJP sought to become a major player in West Bengal politics. In order to stem the rise of the BJP and build up a strong opposition to the TMC, the Left front allied with the Congress party in the 2016 vidhan Sabha elections. Once bitter rivals, the alliance did not perform well in the assembly polls. However, they did retain the position of the principal opposition. The vote share of the BJP went down to around ten percent from seventeen in 2014.

However, it was during the 2018 panchayat elections that the CPM led Left front and Congress party completely fell into disarray. More importantly, sick and tired of excesses by the ruling TMC, anti-TMC voters sought to find an alternative in the BJP. The BJP thanks to better funding and the privileges of being the ruling party at the Centre was able to up it's ante and offer itself as a viable alternative. In a few places they were able to fight back against the TMC and pay them back in their own coin. This inspired a large number of common supporters of the left front (who might not be ideologically very committed) to vote for the BJP.

Much has been said, this author included (Mukherjee, 2019 and Mukherjee, 2021) about the much hyped 'vote transfer' from the left to the BJP. Whether it was deliberate or a spontaneous response from the lower level ordinary supporters of the CPM is debatable. What is beyond doubt is the fact that the excesses of 2018 panchayat polls consolidated the anti-TMC vote in favour of the BJP. The 2019 Lok Sabha Elections saw the BJP garner around forty percent votes and as many as eighteen out of forty two seats. TMC won twenty two, down from thirty four in 2014 despite increasing their vote percentage to around 43 percent, Congress won only two while the once mighty Left front was reduced to zero. Much of the success of the BJP in 2019 has its origin in 2018. The anti-TMC vote firmly consolidated with the BJP. In the Vidhan Sabha polls two years later, the TMC was able to win by a huge margin (winning more than 210 seats out of 294) as it was able to increase its vote share to more than 47 percent. The BJPs vote percentage declined by around two percent and BJP won only 77 seats. However, BJP continued to remain the main opposition and the Left and Congress both drew ignominious blanks in the 2021 elections where they fought together as an alliance.

The 2023 panchayat polls witnessed a lot of violence but the amount was much lesser than in 2018. As compared with the previous panchayat elections, the number of uncontested victories by the TMC was also significantly lesser. Extreme violence, reminiscent of 2018 was concentrated largely in a few districts such as Murshidabad and Bhangar in South 24 Parganas. However, both these districts saw determined resistance by the opposition and a much better performance by them both in terms of seats as well as vote share.

The Results

The Panchayat elections were held on 8th July 2023. Results were declared on 11th July. More than 80 percent of the population voted though there were many allegations of rigging.

Concisely speaking, let us first see the results of the 2023 panchayat polls at a glance.

Table (I) showing the results of 2023 Panchayat Polls:-

Party	Gram Panchayat	Panchayat Samitis	Zilla Parishad	Vote Percentage (approximate)	Percentage Change (wrt 2021 assembly polls)
TMC	44 105	7 855	879	51.14	+4
BJP	9 990	1074	31	22.92	-15
Left+ Cong+ISF	6822	459	17	23.02	+10
Others/ Independent	2972	301	1	2.84	
Total seats	63 229	9 730	928	100	

Note: The independents include a large number of rebel candidates especially those from disgruntled TMC factions.

The results shown above is a concise result at the all West Bengal level. From these results we can see that the TMC has once again swept the elections. Fifty one percent of the popular vote share is a lot but not usurious such as the seventy one in 2018. Moreover, the TMC garnered more than 47 percent of the popular vote in the assembly polls of 2021. This leads us to the inference that while malpractices are likely to have increased the TMCs vote share, it did not do so astronomically as in 2018. This clearly indicates the enduring popularity of the TMC despite allegations of massive corruption, raids by the ED, CBI and political pressure from the BJP. The social security schemes launched by the TMC along with other populist schemes remain extremely popular with the Bengali people. Despite vilification by a significant section of the media and their extensive coverage of corruption by TMC ministers and leaders, the TMC has been able to retain its vote. As of 2023 no party had been able to provide a popular alternative that could effectively unseat the TMC from power. Of course the TMC was able to benefit from the division of opposition votes and other electoral malpractices but none of these can underscore the immense popularity of Chief Minister Mamata Banerjee. She is extremely popular with the rural masses. Social security schemes especially cash transfer schemes and women centric schemes are extremely popular. The opposition must come up with constructive alternatives rather than ridiculing these schemes as 'doles' will have few takers other than 'hardcore anti-TMC' voters. As far as the TMC's internal dynamics is concerned, these elections further tried to cement the position of Abhishek Banerjee (Mamata Bnerjee's nephew) in the party. He had a significant role to play in the organisation of the TMC in this election (Das and Nielsen, 2023).

The BJP saw a significant decline in its vote share. The fact remains that BJP's popularity has been waning since 2021. The panchayat election 2023 exposed another weakness for the BJP - lack of organisation. As compared to the TMC and the Left (who still have a formidable all Bengal organisation) the BJP lacks a popular narrative other than hatred for the TMC and allegations of Muslim appeasement. The election showed the limitations of Hindutva politics in West Bengal and exposed the fact that without a consolidation of anti-TMC votes, it is hard for the BJP to mount a serious challenge to the TMC. BJP won many more seats than the Left and Congress but they have been pushed to third spot in a large number of districts.

Of course the major talking point in this election has been the recovery of the Left front and the Congress. As the results clearly show, the anti-TMC vote has split into two. While the BJP won more seats than the Left Congress Alliance, the latter won a larger vote percentage. It can be said that the anti-TMC vote which had consolidated with the BJP in 2019 and mostly remained so in 2021 returned to a large extent back to the Left in 2023. This is a matter of great consternation for the BJP which needs to retain a near monopoly on anti-TMC votes if it has to nurture any ambition to unseat the TMC. The author had argued (Mukherjee, 2019) that the BJP's 40 percent vote share in 2019 is not necessarily an ideological vote or a Hindutva vote. A large number of ex-Left voters voted for the lotus symbol not out of communal hatred but because of sworn hatred of the TMC. A significant section of these voters seem to have come back to the Left fold, at least for the panchayat polls. The trend started months after the 2021 elections in the Santipur by polls where the Left candidate clinched second position. Similarly in the municipal polls across Bengal at the end of 2021 and 2022, the Left front - Congress alliance clinched second position at the expense of the BJP in a large number of cities. In the Sagardighi bypolls the Left supported Congress candidate was able to defeat the TMC and BJP and enter the assembly. However, he defected to the TMC in a matter of months.

One important factor might be the free back and forth movement of personnel from the TMC to the BJP. The Bengal BJP is innundated with leaders and workers (often musclemen) from the TMC. From Suvendu Adhikari to Nishith Pramanik, the BJP leadership is mostly dominated by exTMC henchmen. Since 2019, there have been innumerable camp switching between these two parties. For the anti-TMC voters voting for exTMC henchmen might not be the most amusing of prospects. Thus, the Left-Congress campaign emphasising 'there is little difference between the TMC and the BJP' and 'there is a Modi Didi setting' is bound to have some effect among anti-TMC voters.

One must also note that the Left - Congress-ISF cadre have also put up determined resistance, at least in a number of districts. They were also able to defeat the TMC in places where they could organise effective resistance. The question is can the Left and the Congress retain and increase its share of anti-TMC votes in 2024 Lok Sabha Elections? This is the main question as far as the future of politics in Bengal is concerned.

Another important take away from these elections is the question of the so-called 'minority vote bank'. After the TMC came to power, the minorities have largely voted for them. The ascendance of the BJP at the national level amplified by the emergence of the BJP as a major player in Bengal has consolidated the minority votes even more strongly behind the TMC as evident in the 2019 and 2021 elections. However, this doesn't essentially mean that the minority votes can be taken for granted by the TMC. In the panchayat polls in a number of areas where the minorities are in a majority, the TMC has faced a number of defeats. The districts of Murshidabad and South 24 Parganas especially in the Bhangar area witnessed quite a few significant defeats for the TMC even in the face of tremendous violence and repression. While it is doubtful if the minority vote will significantly split in the Lok Sabha Elections 2024 as the possibility of getting a non-BJP, anti-TMC candidate to win is almost nil other than some seats of Malda and Murshidabad districts, one must note that there's an undercurrent of recurring dissatisfaction among the minority communities with regard to the underdevelopment and continuing backwardness of their community. It will not be very wise to ignore the real demands of the communities with regard to development, education and jobs. Taking their vote for granted is not a good decision for the TMC in the long run.

The shameful politics of defections continued in this election as well. After the elections a large number of elected opposition candidates joined the TMC. This trend has gained traction in West Bengal politics in the past decade. It continued unabated after these elections.

Precursor to 2024 Lok Sabha Polls?

It is well known that local elections have local dynamics and are not the best parameter to judge the dynamics of Lok Sabha or Vidhan Sabha Elections which are at least partially a different ball game. However, it is also perhaps wrong to rule out the impact of local elections on the changing dynamics of the political landscape of the state. In the panchayat polls of 2008, the TMC made significant gains which went on to build the momentum in the 2009 Lok Sabha polls. It would culminate in the TMC unseating the Left in 2011. More recently the excess of political violence in the previous panchayat polls for example went a long way in consolidating the anti-TMC voters in favour of the BJP.

How far did this logic hold for the 2024 elections? Now the question is will this trend continue? Obviously the TMC will not get such huge proportions of votes in 2024. They were likely to get somewhere around forty seats. The question was how much of votes would the Left and Congress be able to increase? All eyes were on the Congress under the leadership of Adhir Chowdhury to retain Berhampore and Malda South? While the congress retained Malda South they lost Berhampore. The alliance had little chance of winning other seats but if the vote share of the left front and the Congress had increased then it would have been alarming for the BJP. The vote of the Left Front slumped again to less than six percent while the congress got less than that. It seems that the Left vote increase in the Municipal and Panchayat elections were wiped out. The vote went back to the BJP.

A more nuanced analysis of the situation would show that the politics of West Bengal is hovering around the dynamics of a polarised two party system. The votes that the Left gained regained from the BJP are strongly anti TMC votes. At the local level the BJP is yet to build an organisation as strong as the CPM. The latter, though out of power for thirteen years still has a very strong party organization at the grassroot level. Thus, at the level of local elections in may places, especially in former strongholds like Burdwan, they were able to consolidate the anti TMC vote to a large extent and in some places even win seats. However, at the Lok Sabha levels, the CPM had no chance of winning. In such a situation, those anti TMC voters went back to the BJP. Thus, the erstwhile vote bank of the CPM was not a strong ideological one. It remains

a resolutely anti TMC vote bank. Neither is it driven by left ideals nor by the Hindutva rhetoric. They are likely to vote for the party most capable of defeating the TMC.

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Hydro-Power Expansion in Himachal Pradesh : Need for a Reassessment

Prashant Rohta

Hydro-power expansion has been a priority of Himachal Pradesh government from the beginning. The grim financial situation of Himachal Pradesh has pushed the state government to set up more hydro-projects in different parts of its territory. The present study examines the policies of Himachal Pradesh state that were framed to expand its renewable energy sources. Against the backdrop of global environmental discourse and in the larger national interest, Himachal Pradesh has embarked on a journey of becoming a 'power-state' of India with the assistance of multiple stakeholders. While the state has succeeded in hydro-power expansion, it has failed to address the environment and human concerns in the process.

Keywords: Hydro-Power, Renewable Energy, Small Hydro Projects, Run-of-the-River Projects, Clean Development Mechanism, Environment, Development, National Interest, Disaster

Introduction

Hydro-power is regarded as an important source of renewable energy worldwide. In Himachal Pradesh the scope of hydro-power development is huge. The topography of Himachal Pradesh offers massive potential for generating hydro-power in the hilly terrain of the state. Nature has blessed Himachal Pradesh with abundant natural resources, especially water. The state is a catchment of five perennial rivers, namely, Sutlej, Beas, Ravi, Chenab, and Yamuna. These five rivers provide a vast opportunity to generate hydropower through the utilization of its water. Apart from the topographical advantage of hydro-power development, the grim financial situation of the state encouraged it to invest heavily in the hydro sector. From the beginning, Himachal Pradesh has been dependent on central grants for the development of the state. The pressure mounted by the central government to improve the financial situation of the state has impelled Himachal Pradesh to go for hydro projects at a larger scale.

Though Himachal Pradesh is working towards reducing its financial dependency on the central government, not much success has been achieved yet. The state still receives half of its revenue receipt from the central assistance. In the financial year 2022-23, out of the total 36,375 crores of revenue receipt, 15,946 crores came from the central government through a grant in aid scheme (Economic Survey Himachal Pradesh 2022-23: 25-26). Harnessing the rivers for hydropower expansion in different parts of the state has been one of the ways in which the state has tried to improve its financial prospects. These hydro projects have serious socio-economic and ecological implications on the lives of people.

The Hydro-Power Scenario in the State

Himachal Pradesh region had realized its hydropower potential even before attaining its statehood. A few mini hydro schemes like Jubbal (50 kW) and Bhura Singh / Chamba (170 kW) were in operation before independence. Unit-1 and Unit-2, each of 35 kW, and Unit-3 of 100 kW in Chamba were installed in 1904 and 1938 in erstwhile east Punjab. In Shimla, a hydroelectric project at Nauti Khad, a tributary of Sutlej was constructed in 1913. Shanan (48 MW) hydro-project was installed in erstwhile Punjab in 1932 (Electrical India: 2007). After independence, the centre prompted the state to invest in the hydro sector and the department of the multipurpose project was started in 1964-65 (Verma 1995: 233). The central government in 1963

commissioned one of the earliest river valley hydro projects; Bhakra dam in Himachal Pradesh. Only some projects were in existence till the end of the 20th Century. It was only after 2000 that the government went for hydro-projects on a large scale.

Himachal Pradesh accounts for one-fifth of India's total hydropower potential. The state is also known as an emerging 'power state' of India (Kumar and Katoch 2017: 175). As per estimates, the state has a potential of 27,436 MW hydro-power from its five rivers (Economic Survey, Himachal Pradesh, 2018-19: 83). A total of 20,912 MW hydro-power has already been allotted to different stakeholders. Together these stakeholders are producing 10,547 MW of hydro-electricity from various hydro projects. The state government alone is producing 659 MW of hydro-power from its hydro-projects. The highest share of producing hydroelectricity in the state belongs to the central or joint PSU's (Public Sector Undertakings). They are producing 7547 MW from their jointly run hydro-projects. Private players alone are producing 2274 MW of hydro-power from their projects. From the public-private joint operation, 159 MW of hydroelectricity is being produced in the state (Economic Survey of Himachal Pradesh, 2018-19: 83).

When we look at the figures of hydro-power at the global and national level, the statistics are intriguing. One-fifth of the world's total power generation comes through hydropower (Yuksel 2009: 101). India generates 11.8 percent of its electricity through hydro-power (Annual Report 2021-22, Ministry of Power, GOI: 40). Of the total hydropower potential in India i.e. 1,48,701 MW, only 21% i.e. 31,239 MW hydropower capacity has been tapped so far. Out of the remaining hydropower capacity, 9.8% capacity is under construction, and 69.8% capacity is yet to be tapped (Sharma and Kuniyal 2016: 378-79). Considering hydro-power an important renewable energy source, it is preferred all over the world despite the fact that the cost of establishing a hydro-power project is very high. The economic factor of the low cost of electricity generation with the higher monetary return is another reason for promoting hydropower projects.

Taking into consideration the poor financial situation of the state, the government seeks an opportunity to exploit its maximum hydropower potential (27,436 MW). By producing more electricity, the state will not only meet its domestic demand but also the rising demand from the urban and industrial centers of the plains. The policymakers decided to produce more than double the hydroelectricity in Himachal Pradesh from the existing capacity and make Himachal Pradesh a "Hydro-Power State' of the country. As hydro-power was essential for the economy of Himachal Pradesh, the expansion of hydropower projects in the state was done with the involvement of non-state developers and private players by adopting a clean development mechanism (CDM) (Erlewein and Nusser 2011: 294).

The expansion of the hydro-power industry in Himachal Pradesh has benefited the state financially. The state is earning good revenue from these hydropower projects. While the project under the state government gives the whole revenue to the state; from all other projects, the state is getting a royalty of 12 percent (Himachal Pradesh Development Report 2005: 123). At present the hydro-power industry has become an important business of the Himachal Pradesh government. Realizing the value of its hydropower potential, the state government came up with the hydro power policy (2006) and energy policy (2021). These policies seek to generate high revenue through the expansion of the hydro-power network.

The Hydro Power Policy of 2006

The policy document of the 2006 aimed to make Himachal Pradesh a "hydropower state" of the country. Although Himachal Pradesh had already achieved rural electrification of all villages in 1988 (Negi 2017: 216), this document sought to benefit the neighboring states by selling electricity throughout the year. The hydro policy was an effort to harness the maximum hydro potential of the state and to meet the external energy demand. In the process, the policy invited private investors to expand hydro infrastructure in the state. Though it was an aggressive policy to expand the state's hydro infrastructure, it also had another noble objectives, that of mitigating the social, economic, and environmental impacts of hydro projects.

Surplus electricity would not only help to check the cost of power supply but also help the state financially. The development of hydropower could provide huge revenue to the state. This policy was an important step in consolidating the financial position of the state. Setting up more hydropower projects was in the interest of the state. The projects given to private investors were meant to provide a 12 percent royalty to the state. Private investors were given 40 years' ownership of hydropower projects, following which the ownership would be transferred to the state government. With this objective, the state hydro policy of 2006 aimed to accelerate hydro projects in different parts of the state.

The policy also had broader objectives in the process of hydropower expansion. This was to address the social, economic, and environmental concerns. The policy took into consideration the social and economic life of the local people. The provision of local area development authority (LADA) was an important step for addressing the social and economic concerns of the local people. As per the policy guidelines, the investors were required to deposit one percent of the project cost in the account of the district commissioner. These funds, known as local area development funds, were to be allocated by the Local Area Development Authority (LADA) to support local development activities, particularly related to the infrastructure and services of the affected villages (Baker 2014: 79).

The policy also aimed at starting new projects that can provide employment to several people. Under the agreement, private investors were supposed to provide 70 percent of jobs to the residents of the state. Also, small projects up to 5 MW were reserved for the bonafide residents of Himachal Pradesh. The policy had many other clauses that catered to the concerns of the local population. The private investors had to get clearance from the Irrigation, Public Health, and Revenue Departments with a declaration that the proposed project would not infringe on the drinking and irrigation rights of the local inhabitants and of the ownership of traditional water mills, i.e. Gharats.

The policy document also aimed at maintaining the ecological balance of the region. The policy stated that the Himachal Pradesh government was serious about developing renewable energy sources through investment in small hydro projects (SHPs) up to 5 MW from the agency called "Himurja". Though the state was successful in tapping 750 MW through SHPs, 469 new sites were identified to tap the 720 MW in the direction of producing renewable energy through smaller projects. Larger projects were seen as detrimental to the environment. Large dams create more problems in hilly areas like deforestation, submergence, rehabilitation, seismic risks, etc. Small hydro projects were promoted because they suited the sensitivity of Himachal Pradesh's ecology. Considering the drawbacks of large dams, the policy viewed SHPs with run-of-the-river technology as being more beneficial to the state. The state has many streams, nullahs, and small rivers. Setting SHPs in these streams, nullahs and rivers would generate more hydro-electricity. SHPs were considered more environmentally friendly as they do not release harmful gases. Moreover, SHPs require low capital investment and less time for the construction of projects.

The Himachal Pradesh Energy Policy of 2021

The energy policy of Himachal Pradesh was approved by the Himachal Pradesh government in the year 2022. The policy aims to strengthen the power position of the state through the development of renewable energy sources. Apart from hydro, the policy emphasizes on developing other renewable energy sources such as solar, wind and converting biomass and waste to energy plants. It also focuses on developing infrastructure through the storage of energy by various means (pumped storage, battery storage, green hydrogen storage, and hybrid energy) to meet peak demand in the grid. This policy acknowledged the relationship between energy and the development of the nation. It has been mentioned in the policy that energy plays an important role in a nation's economic growth which further accelerates the social development of the country. Thus, the energy sector required reforms to meet new challenges in the national interest. In the 15 years after the 2006 hydro policy, new challenges and changes emerged. The hydro policy of the state was modified in conformity with new regulations, challenges, and rising energy demand. To address these concerns, a new

energy policy was formulated in 2021. The policy focuses on strengthening the intra-state and inter-state transmission system, distribution, and grid operation for securing a reliable, regular, quality, and affordable power supply. The policy also aimed at integrating two important economic ventures of the state: hydro-power and tourism. This would be done by developing hydro-tourism through infrastructure development near project sites. There are many hydropower projects in the state. The development of water sports activities amid scenic locations can provide alternate employment opportunities.

If we compare this policy with the 2006 hydro policy of the state, there is no big difference between them in terms of addressing the social, economic, and ecological concerns of the society and state. The policy acknowledged, Himachal Pradesh as being always concerned about the well-being of its people and at the same time contributing to the expectations of national objectives. The energy policy was equally sensitive to the environmental and the socio-economic context. The major difference this policy brought vis-à-vis the 2006 hydro policy was in terms of addressing the issue of rising energy demand and the new challenges in the power sector. Of all renewable energy sources, hydropower is seen as the important energy source.

Apart from these issues, increased global pressure of shifting to renewable energy sources and difficulty in developing solar and wind energy pushed the state to expand its hydro industry by exploiting the remaining hydro resources of the state. Given this, the state government set a target of 10,000 MW renewable capacity additions by 2030. The policy says, that out of the total hydro potential of the state, 10,948 MW has already been tapped. Whereas 2615 MW is under construction, 9195 MW is under clearance through allotted projects and the remaining is under process of allotment and identification. The policy prioritized partnership with central/joint sector and private sector in the development of renewable energy sources citing inefficiency of state and other infrastructural challenges.

To accelerate the hydro expansion in the state, the policy aimed at removing unnecessary obstacles in setting up power projects through single window clearances. This was done to reduce the gestation period. To sync with national objectives of attracting investments and developing mechanisms for the ease of doing business, this policy adopted a time-bound single window clearance for all projects by allowing online applications to obtain the necessary clearances, no objection certificate (NOC), and other formalities. This was done for early completion of all under-construction projects and future projects. Earlier, various departments used to give clearances for hydro projects separately which was time-consuming and halted the project for a long duration. Now, all departments have to come up with a single platform for giving clearances to projects in a time-bound manner. This was done to facilitate the project developer and to attract the corporates.

Global Environmental Discourse and the Promotion of Hydro-Power Projects

Environmental concerns have become very important in recent times and the issues related to the environment, sustainable development, climate change, and the use of renewable energy have been the focal agenda of nation-states in all global and regional forums. In these platforms, nations are joining hands to make collaborative efforts to protect the mother earth. The entire focus is laid on developing the technology that can replace traditional non-renewable energy sources with alternate renewable energy sources.

In India, the debate on climate change and its consequences gained momentum during the same time. As per the synthesis report of the Intergovernmental Panel on Climate Change (IPCC) Indian peninsula is likely to face the bad consequences of climate change. The mountains and the areas surrounding sea shores are said to be worst affected by climate change (Climate Change 2001 Synthesis Report: 9-16). Policymakers of Indian states are coming up with different policies to cope with climate change and its impacts. The Hydro Power Policy 2006 and the Himachal Pradesh Energy Policy 2021 are initiatives of the Himachal Pradesh government in this regard.

Many other policies at the state level and national levels have been formulated to address the concern

of climate change and global warming. One such policy is the Clean Development Mechanism (CDM) for the funding of renewable energy in mountain regions. Under this policy, the major focus is laid on adopting renewable energy sources that do not emit greenhouse gases. The CDM emphasizes on developing clean energy sources in the mountain regions of India through hydro projects. The mountain regions of India have ample scope for power generation through the exploitation of hydro resources. In India, the majority of hydro projects are built in Himachal Pradesh (Erlewein and Nusser 2011: 293-94).

Looking at the hydro potential of Himachal Pradesh, this state has been heavily targeted for hydroelectricity generation under "Mission-2012: Power to All" of the Government of India. To meet the rising energy demands of industries, agriculture, and rural electrification, the state government has also accorded the highest priority to the development of hydropower (Slariya 2013: 195-96). The challenge before the state is not just to make power but to make 'clean' and 'green' power by adopting environment-friendly techniques (Himdhara: 2012).

Justifying Hydro-Power Projects in the Larger National Interest

In India, a sudden increase in development projects such as dams, irrigation projects, mines, and industries is noticed after 1990 in the post-liberalization period. Maitra (2009) while studying India's development model talked about the large-scale displacement of people resulting from the development projects for which justification of 'national interest' was given by the state.

Justifying national interest for the state's objectives has been an old practice of the government. If we closely scrutinize the policies of the state, justifying development in the name of national interest is often noticed in these policies, for instance, the 1952 National Forest Policy of India gave more impetus to national interest over local interests. While referring to forest access for local people, the policy document states,

"...the needs of the local population must be met to a reasonable extent, national interests should not be sacrificed because they are not directly discernible, nor should the rights and interests of future generations be subordinated to the improvidence of the present generation" (National Forest Policy 1952: 4).

The same approach was followed by the state government when Himachal Pradesh came up with its policy of forest farming and environmental conservation in 1980. This forest policy is drafted by the state government after considering the provisions of national forest policy. The policy seeks to increase the forest cover of Himachal Pradesh to serve the developmental purposes of the state and to meet the environmental considerations of the country. For these two goals, the state government restricted the forest rights of people. It saw the rights of people as a burden on the forest.

"Local people were allowed liberal rights for fuelwood, timber, and minor forest produce under varying provisions of the Forest and Revenue Settlements of erstwhile Princely States and Territories. These provisions are very vague and need to be rationalized and codified. The definition of right-holders has to be standardized for application to the whole of the state. The present forests cannot sustain such liberal and cheap rights" (Himachal Pradesh Policy for Forest Farming and Environmental Conservation 1980: 4-5).

The obsession with development has reached to such an extent that the state is more concerned about the economy than people. Owing to the bad consequences of CDM projects, the policymaker was once asked; whether these projects benefit either the communities or the environment. Replying to this; the then Indian environment minister Jairam Ramesh said, "Before people, the country should benefit. I don't draw distinction between country and people" (SANDRP 2010: 1). This statement reasserts the priority of the state to national interest over local interests.

Impact of Hydro-Power Projects on Humans and Ecology

In contemporary times these projects are questioned for producing catastrophic impact on the fragile

mountains of Western Himalayas and to the people of this region. Disasters like landslides, land subsidence, falling of rocks, rolling stones, or boulders are commonly witnessed near the project sites. Poor and innocent hill people often fall prey to disasters from these development projects. Every year reports of damage to ecology, agricultural land, and loss of human lives are coming from various dam sites in Himachal Pradesh. Paying no heed to these incidents, the state government continues to expand its hydro-power network by approving new hydro projects in the new sites.

The government has framed many policies to accelerate the hydro-power expansion in the state. Despite the stress on securing ecological and human concerns in these policies, the said concerns have been compromised in the process of hydropower expansion. The tribal district Kinnaur is worst affected by the policy of hydro-power expansion as this district has the highest number of hydro projects in Himachal Pradesh. Kinnaur district alone has more than fifty planned hydro projects in its territory, of which 17 are large (above 25 MW). Fifteen projects of a total of 3041 MW have already been commissioned and are operational (Aggarwal: 2020).

As Himachal Pradesh is committed to expanding its hydro-power potential by installing new hydro-projects, the risk of accidents has also increased. Many fatal accidents in the project sites have taken the lives of people due to the negligence of the project developers. In a tragic incident that happened on 21st May 2021 in the Garsa Valley of Kullu district, four laborers were buried under the debris when an under-construction tunnel of the Parbati-II hydro-power project collapsed all of a sudden (SANDRP: 2021).

The project developers keep on violating the safety norms time and again. There are times when water is released without any intimation to people. On 8th June 2014, a sudden release of water from Larji dam in the Mandi district of Himachal Pradesh swept away as many as 24 students of a Hyderabad-based engineering college who were clicking photographs in the middle of the Beas river (The Times of India: 2014). Not only tourists, but locals of hilly areas often go near the river and stream sites for the collection of fuel wood, grazing of cattle, etc.

Some incidents have directly impacted the local population. In a major landslide reported on 11th August 2021, at Nigulsari in Kinnaur district (near the Karcham Wangtoo hydropower project), as many 28 people lost their lives, and five vehicles, including a Himachal Road Transport Corporation (HRTC) bus, were buried under its debris (The Times of India: 2023). In yet another landslide incident that happened in Pangi village of Kinnaur on 30th April 2020, the death of a migrant Nepali worker working in the apple orchards and huge damage to apple orchards was reported (SANDRP: 2020).

Numerous trees are also being felled for the construction of hydroelectric projects. There is no check on project developers for felling trees which is posing damage to ecology. More trees are felled than the permissible limit. The incidents of carelessness on the part of the project developer are also reported from the project site leading to a reduction in forest cover. One such incident was reported from Pangi village in Kinnaur district of Himachal Pradesh on 25th July 2018, where water was released from the flushing tunnel of the Stage-1 without warning submerging hundreds of Deodar and near-threatened chilgoza trees. This incident simultaneously impacted the vegetation and land, which together accounted for a colossal damage of 17.83 crores as assessed by the Divisional Forest Officer (Himdhara 2020).

Conclusion

Hydro-power expansion in Himachal Pradesh is the priority of the government for which various policies are being formulated by government from time to time. Despite the government's claim of addressing human and environmental concerns in these policies, large-scale damage to ecology and humans has been done by the installation of several hydro projects in Himachal Pradesh. Except for providing revenue to the government, the performance of these projects is pathetic on all counts. The commercial interest of the government has ignored an environmental and human concern which has affected the socio-economic life in the region. The

need of the hour is to address these concerns in true letter and spirit. Unless these concerns are not addressed genuinely, the success story of hydro-power expansion will remain under the lens.

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Cyber Security and Artificial Intelligence (AI) : Emerging Challenges in the Context of Digitalisation

Raju Narayana Swamy IAS

Though AI powered cyber security is no panacea, AI will become a standard element of cyber security in the short term. But AI needs to deliver greater accuracy in detection and fewer false positives for it to earn the trust. A drawback of using AI within cyber security is the concern of data privacy. Moreover due to the unique and unforeseeable nature of AI, existing legal frameworks do not necessarily apply to this discipline. Cyber security being a back-and-forth game between attackers and defenders that will constantly evolve as technology grows. AI needs to be trained for all these varied scenarios. Attackers are already using AI to power their attacks - spear phishing tweets being classic instances - and we must deploy AI - driven defenses to keep up. In fact, offences on AI systems often appear in three areas - adversarial inputs, poisoning training data and model extraction attacks.

Keywords : Artificial Intelligence, BYOD, Cyber Security, Assisted Intelligence, Augmented Intelligence, Autonomous Intelligence

The digitalisation of almost every area of society has changed the rules of our economy. Cloudification, IoT and BYOD (Bring Your Own Device to Work) are all giving rise to micro environments that contain a lot of sensitive data. If these devices fall into wrong hands, it could certainly lead to grave consequences. To put it a bit differently, cyber security - the technology, process and practice to protect networks, devices, programmes and data from attacks, damage or unauthorized access - will not only become a crucial issue for the safety of our new digital critical systems, but it will also be a prerequisite for creating trust in our digital economy. The situation is further alarming when one considers the newer types of attacks, which are mostly machine engineered. Thus cyber security which was a war among humans has changed to a battle of human versus machine. In fact the old protection mechanism which was largely a “seal the borders” approach via firewalls, proxies, antivirus software, access controls and dynamic passwords is today grossly inadequate. A new approach is required to continuously monitor the large number of factors and detect what constitutes abnormal activity. This could be similar to our body’s immune system where the white cells and antibodies are continuously scanning and neutralizing any organism that does not fit the normal functioning patterns within the body. This is where AI comes into play. It needs to be reiterated here that AI works in three ways - assisted intelligence, augmented intelligence and autonomous intelligence.

The primary targets for AI application in cyber security are network intrusion, detection, malware analysis and classification, phishing and spam emails. Machine learning (ML) algorithms can recognize potential security breaches or attacks by continuously observing what is an abnormal behaviour and given the authority, they can automatically shut down systems under perceived threat. In fact ML can revolutionize the way cyber security has been handled to date - whether it be in detection, protection, prediction or termination. There are broadly two categories of possible uses:-

a. Apply supervised learning to the massive amount of historical data to continuously improve prediction capabilities.

b. Apply unsupervised learning to make some sense out of the massive amount of data through clustering and dimensionality reduction techniques.

As regards the former, the most talked about cases in the context of cyber security are malware classification and spam detection. In Gmail for example, the supervised machine learning algorithm scans countless variables such as the originating IP address and phrases in the email content to determine whether the email conforms to an abnormal pattern and then pushes it out of your inbox folder into the junk folder.

As regards the latter, context and expert knowledge base are two critical aspects to make sense out of raw data. For instance, rather than looking at network traffic logs in isolation,we need to add context to make sense of the data such as whether the device is supposed to respond to DNS queries. If it is a DNS server, then this is absolutely a normal behavior, but if it is not, the behavior could be the sign of an attack.

However, there is a hitch - machine learning lacks the general knowledge required to distinguish real threats leading to too many false alarms. A potential solution could be a hybrid human-machine collaborative approach such as the AI2 cyber security platform from MIT's Computer Science and Artificial Intelligence Lab where human experts handle the judgment related tasks of validating and classifying the threats and associating severity tags.

A major challenge here lies in defining what is not an anomaly. For example, starting from reading the morning news online to shopping, to travel booking, to carry out work-related activities, we use our laptops in many different ways. There could also be infrequent patterns such as downloading a game or organising pictures from a vacation. In essence, the most potent security threats are not just statistical outliers.

Most cyber attacks follow certain attack phases that can be described as a cyber kill chain. Every attack sequence starts with a reconnaissance phase (in which an attacker tries to locate gaps and vulnerabilities of a target system). The weaponizing phase follows. This is followed by the delivery phase when the malware is transferred to the potential target. After the malware is delivered successfully, the exploit phase occurs during which the malware triggers the installation of an intruder's code. Aim of ISA (Integrated Security Approach) is to generate early warnings before the exploit phase.

ANNs (Artificial Neural Networks: statistical learning models imitating the structure and function of the human brain) have been used successfully within all stages of ISAs. ANNs can be used to learn from past network activities and attacks in order to prevent future attacks from actually transpiring. DNNs (Deep Neural Networks: a more elaborate and computationally expensive form of ANNs) have been used not only to protect organizations from cyber attacks, but also to predict these attacks.

It must not be forgotten that machine learning is no silver bullet. Just as businesses are beginning to adopt AI systems, attackers are aslo finding ways to manipulate the same AI systems. They are focusing on finding ways to turn AI against its owners-from hacking chatbots to deliberately misleading pattern recognition algorithms. A classic example is Tay, a chat bot introduced by Microsoft to engage people through casual and playful conversation. Within 24 hours, a structured attack on Tay resulted in the bot shouting all sorts of misogynistic and racist comments.

To summarize, though AI powered cyber security is no panacea, AI will become a standard element of cyber security in the short term. But AI needs to deliver greater accuracy in detection and fewer false positives for it to earn the trust. A drawback of using AI within cyber security is the concern of data privacy. Moreover due to the unique and unforeseeable nature of AI, existing legal frameworks do not necessarily apply to this discipline. Cyber security being a back-and-forth game between attackers and defenders that will constantly evolve as technology grows. AI needs to be trained for all these varied scenarios. Attackers are already using AI to power their attacks - spear phishing tweets being classic instances - and we must deploy AI - driven defenses to keep up. As an example, the AI - driven defenses of tomorrow must be geared up to deal with the upcoming challenge of generative adversarial networks (GAN), a class of machine learning frameworks that can be used to generate deep fakes by swapping or manipulating faces or voices in an image

or a video. In fact, offences on AI systems often appear in three areas - adversarial inputs, poisoning training data and model extraction attacks.

The reality is that until now, AI alone has not proven overall success in cyber protection. Despite the great improvements that AI has brought to the realm of cyber security, related systems are not yet able to adjust fully and automatically to changes in their environment, learn all the threats and attack types and choose and autonomously apply dedicated countermeasures to protect against these attacks.

AI methods in Cyber security

Security function	DT	SVM	NB	K	HMM	GA	ANN	CNN	RNN	SNN
Intrusion detection	X	X	X	X	X	X	X	X	X	X
Malware detection	X	X	X	X	-	-	-	X	X	-
Vulnerability assessment	X	-	-	-	-	-	-	-	-	-
Spam filtering	-	-	X	-	-	-	-	-	-	-
Malware Classification	-	-	-	-	-	X	X	-	-	X
Phisting detection	-	-	-	-	-	-	X	-	-	-
Traffic Analysis	-	-	-	-	-	-	-	X	X	-

DT = Decision Tree; SVM = Support Vector machine

NB = Naive Baye's classifier

K = K- means clustering

HMM = Hidden Markov Model

GA = Genetic Algorithm (heuristic search algorithm employing the concept of genetics and natural selection)

ANN = Artificial Neural Network

CNN = Convolutional Neural Networks

RNN = Recurrent Neural Network

SNN = Siamese Neural Network

In the Indian context, the challenges are even more:

a. Large digital divide (Lack of digital literacy makes them vulnerable to phishing attacks and online scams)

b. Fragmented cyber security infrastructure: Responsibility for cyber security is distributed across various government agencies and private entities leading to a lack of coordination

c. Shortage of qualified cyber security professionals.

Needless to say cyber security is not only a technological issue, it is also about regulation and the way that security risks are dealt with. At the end of the day it is still the human factor that malters – not only the tools.

The Kerala Model of Digital Economy: A Study on Internet Disparities in Kerala

Revathy. R

Kerala follows a unique way of development compared to other Indian states. This uniqueness is also visible in its digital economy. The massive increase in total internet subscribers is followed by narrowing rural-urban disparities in internet availability. But still Kerala is not fully free from digital inequalities. The widening gaps in broadband connectivity is a major concern in Kerala.

Keywords: Digital Economy, Digital Divide, Internet Penetration, Kerala Economy, Kerala Model of Development.

1.Introduction

Digital economy is a constantly evolving concept. The development and adoption of new technologies and innovations over several decades will eventually add up on to the existing one. Digital economy is the summation of many areas including hardware industries, software industries, telecommunications, e-commerce, information services and much more. As a result, there is no widely accepted definition of the digital economy and due to this reason value measuring in digital economy is extremely difficult. The term digital economy is commonly used to describe how digital technology is changing patterns of production and consumption(UNCTAD, 2017; 2019).

The growth of the digital economy can create new economic opportunities, uneven impacts and negative spillovers, depends upon the overall participation and performances in the economy (UNCTAD, 2019). Universal and active participation is needed to reap these benefits but often economies fail due to digital divide.The differential between access and use of information and communication technologies (ICTs) is termed as digital divide. Digital divide is a universal phenomenon and over time its nature has changed. Today digital divide is more significant in access to the internet and, particularly in access to broadband services (UNCTAD, 2013).

As the digital economy evolves, it is important to ensure that more people are able to engage in and benefit from it. The impact of digital economy depends on the readiness of countries, enterprises and people to take advantage of digitization. Hence a high coverage, high speed reliable and affordable digital infrastructure is a prime priority.The proportion of internet users in a country depends upon many factors. The digital divide between developed and developing economies is mainly in terms of internet penetration. Growth in broadband access and penetration in developed countries, particularly from 2001 to 2005, is due to increasing competition and declining price. In developing and low-income countries, limited internet usage is due to low purchasing power, lack of awareness about the benefits of internet, lack of skills, lack of trust in online world and the absence of relevant content in local language. When it comes to the problem of gender digital divide, the gender gap in ICT use is more prevalent in LDCs and developing countries. The only possible solution for digital divide is to increase the access and use of digital technologies and at the same time efforts should be taken to solve the existing inequalities not only in income but also in individual's socio-economic-political participation and opportunities (UNCTTAD, 2006; 2017).

There is strong correlation between affordability and penetration, as a result the less affordable the service, the lower the penetration. Affordability barrier is important to reduce the digital divide. The lack of

electricity is another barrier to ICT take-up for poor in developing countries, especially in rural areas. In short, high prices (which creates affordability issues), lack of electricity, coverage issues, lack of education and awareness (which in turn results in lack of skills) are key bottlenecks that prevent greater use of computer and the internet, especially among the poor and in rural areas (UNCTAD, 2010). Digital divide is not merely limited to access and use, in fact it is more of a kind of digital exclusion. People with ICT training participate better in the knowledge -based economy. Government can enhance digital literacy through basic education system, starting at primary school level, as well as promoting lifelong learning through adult training programmes (UNCTAD,2009).Telecentres are commonly accepted as a tool to bridge the digital divide. Telecentres may come in varied forms and names like, information kiosks, community multimedia centers, common service centers and public internet access points. They are aimed to support local development and often requires financial support from Government. The late 1990s brought telecentre programmes in developing countries (UNCTAD, 2007; 2013). Furthermore, there is a visible change in goals. in the initial days, a common objective was to reach a certain tele-density and to promote telecentres in rural areas, but today's information society is more person oriented. Universal broadband access through public internet facilities is the prime concern for developing countries but this concern will totally change, as the country move up the development ladder (UNCTAD, 2009).

2. The Digital Divide

UNCTAD (2019) in its digital economy report, briefly explains the evolution of the digital economy concept. The term was first coined in mid 1990s. In the late 1990s, digital economy was all about the 'internet economy' (adoption of internet and its economic impact). In the mid-2000s the focus shifted to the conditions under which the internet economy might emerge and grow. Later the discussion was more on digitalization, because digital products and services are creating more change across a wider range of sectors like agriculture, tourism and transportation. An analysis of policies related to technologies is very important for understanding the development implications of digital economy. The UNCTAD (2007) examined the possibilities of ICTs in supporting the means of livelihood for poor people. It was found that, for a person, not only wage income but also other assets (including access to govt support) and capabilities (like access to information and ability to communicate) are needed to earn a living. This notion makes us rethink the problem of digital divide as a form of exclusion rather than mere disparity.

Digital divide is possible within the use of ICTs. Among the different ICTs, mobile phones are the most equitably distributed ICT. Mobile Phones are easily available than fixed lines and also it doesn't require any basic literacy skills for Internet access. Mobile telephony is the most attractive option to expand telecommunications to rural areas. Mobile phones are widely affordable and available in developing countries and they are also more preferable than computer. Public internet facilities like internet cafes are important for boosting internet usage in developing countries. In many developing countries, wireless solutions are more preferable than fixed broadband technologies, since the first one appear to be more economically attractive in the term for bridging the broadband divide. Another barrier to internet usage is low levels of education and there is only limited supply of web content in local languages (UNCTAD, 2009).

More research should be focused on the functionality of different ICT services in relation to the digital divide(UNCTAD, 2009). The traditional approach to examine digital divide is through ICT access and use. The technology and economic aspects of the digital economy can be divided into three components. These components are used in various ways for measuring the extent and impact of digital economy. Also, proposed definitions of the digital economy were closely related to these three components (UNCTAD, 2019):

1. Core aspects/fundamental aspects of digital economy, which consist of core technologies (e.g., computer and telecommunication devices) and enabling infrastructure (e.g., internet and telecom networks).

2. Digital and information technology (IT) sectors, which includes digital platforms, mobile applications, and payment services etc., that produce key products or services.

3. A wider set of digitalizing sectors which implies digitally enabled sectors with the increased use of digital products and services (e.g., e-commerce, tourism etc.)

The basic level analysis focus on first two components (or suitable proxies) which is related to infrastructure investments and policies relating to digital economy, particularly in terms of economic growth and employment. Measuring the third component is quite tricky, because the impact from the use of digital technologies may create spillover effects and intangible outcomes (UNCTAD, 2019).

3. Objectives

The prime objective of the study is to find out the trend and pattern of internet subscribers in Kerala. The following objectives are framed for this purpose.

- To trace out the growth of internet subscribers in Kerala.
- To identify the rural-urban disparities in terms of internet subscribers in Kerala.
- To assess the quality of internet in Kerala.

4. Methodology

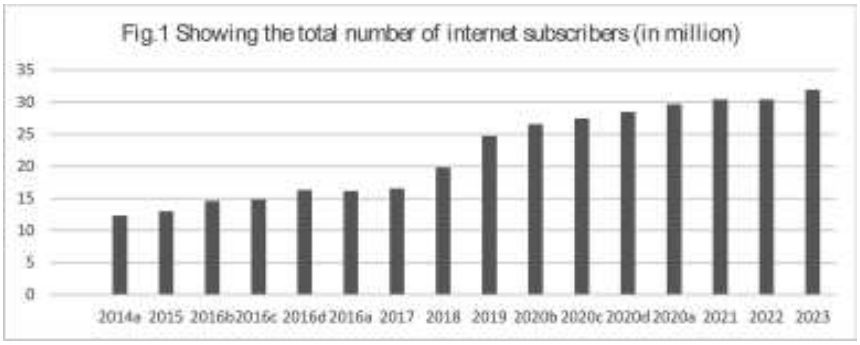
The present study is all about the availability of Internet in Kerala and not about the accessibility. The varying patterns of internet usage or the requirement of internet literacy and subsequent skills are not covered. The study is completely based on secondary data sources. Majority of the data were collected from the telecom service performance indicator reports, published by Telecom Regulatory Authority of India (TRAI). Yearly data was collected on total internet subscribers, total number of rural-urban internet subscribers, internet subscriber rate per 100 population (on rural-urban Kerala), broadband internet subscription and narrowband internet subscription.

The internet availability in Kerala is studied through the three objectives. Data was collected on the total number of internet subscribers in Kerala from 2014-2023 to analyze the overall growth of internet subscribers in Kerala. Trend analysis and forecasting is applied on the same data to predict the growth of internet up to 2033. Data on rural-urban internet subscription was also collected to identify rural-urban disparities in internet subscription that required an independent t-test to find out a clear statistically significant result. The data on rural-urban internet subscribers per 100 population gives more insights about the regional growth and trend of internet in Kerala. The quality of internet in Kerala is studied by the total number of narrowband and broadband internet subscribers in Kerala. The rural-urban disparity in quality of internet is studied indetail via an independent t-test.

5. Analysis and Discussion

The overall purpose of the study is to find out the trend and pattern of internet subscribers in Kerala for the past ten years. For the sake of convenience, firstly, we deal with the trend of internet subscribers in Kerala and its future implications. Secondly, a more detailed analysis of the same data is under taken by providing the dimension of rural-urban disparities of internet subscribers. The paper also looks into the detailed analysis of rural-urban disparities in terms of quality internet.

The availability and accessibility of internet is very crucial for the active participation in digital economy. The following graph shows the ten-year growth of internet subscribers in Kerala. The data is collected from the first quarter of each year (except 2014). Besides this, detailed quarterly data was collected on each year of 2016 and 2020. Such an attempt was made to cross check the effect of demonetization and covid-19 on total internet subscription.



Source: (TRAI, 2014;2015;2016;2017;2018;2019;2020;2021;2022;2023)

[a]The data is collected from the months of October-December of the year, [b]the data is collected from January-March of the year, [c] the data is collected from April-June of the year, [d]the data is collected from July-September of the year.

The above graph shows continuous increase in the total number of internet subscribers over the past ten years in India. The Government announced the policy of demonetization on 8th November 2016. In 2016, the total number of internet subscribers for the first quarter of the year was 14.59 million and, at the end of the year it increased to 16.15 million. From here the number moderately increased to 16.55 million in the first quarter of 2017 and drastically increased to 19.80 at the first quarter of 2018. After 2018 there is remarkable growth in the total internet subscribersin Kerala.The search for an answer to this quick internet usage ended in the available literature (Aggarwal & Gupta, 2019; Chakrabarthy et.al, 2021; Mehrotra & Kandpal, 2019), which shows mixed response about the impact of demonetization on digital payments. Chakrabarthy et.al, (2021) analyzed the impact of demonetization on digital payments like RTGS, NEFT and mobile banking transactions. The study found that there is no significant impact of demonetization on RTGS and NFT and, since mobile transactions constitute a smaller proportion of total digital transaction, demonetization could have little impact on demonetization. Aggarwal& Gupta (2019) points out the importance of internet speed and level of penetration on the effectiveness of cashless transactions. They found that, demonetization nudged a larger number of population towards digital payments. In India the download of paytm wallet has tripled since 9th November 2016. Mehrotra & Kandpal (2019) are also confirming the wider popularity of digital payment applications in India. Hence on the light of these studies, the spontaneous growth of internet in Kerala (after 2017) is justified.

5.1 Growth of Internet Subscribers in Kerala

A ten-year forecasting from 2023 (with a confidence level of 95%) shows that, the growth of internet subscribers in Kerala will further increase in the subsequent years.

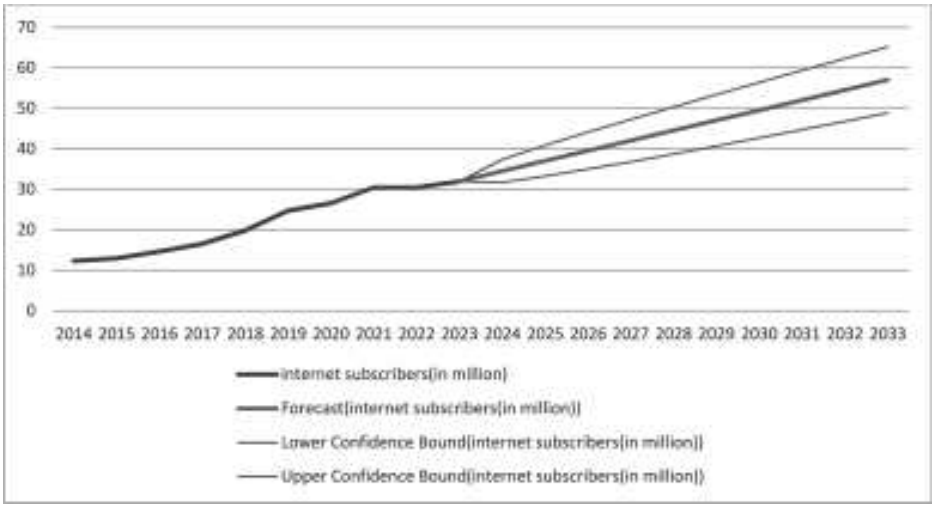
Table I : Showing Forecast of Growth Rate of Internet Subscribers up to 2033

Year	Internet subscribers (in million)	Forecast [internet subscribers (in million)]	Lower Confidence Bound [internet subscribers (in million)]	Upper Confidence Bound [internet subscribers (in million)]
2014	12.31			
2015	12.96			
2016	14.59			
2017	16.55			
2018	19.8			
2019	24.71			
2020	26.55			

2021	30.42			
2022	30.42			
2023	31.91	31.91	31.91	31.91
2024		34.53262497	31.71	37.35
2025		37.03063636	33.24	40.82
2026		39.52864775	34.96	44.10
2027		42.02665914	36.80	47.25
2028		44.52467053	38.71	50.34
2029		47.02268192	40.67	53.37
2030		49.52069331	42.68	56.37
2031		52.0187047	44.71	59.33
2032		54.51671609	46.78	62.26
2033		57.01472748	48.86	65.17

Source:(TRAI, 2014;2015;2016;2017;2018;2019;2020;2021;2022;2023)
**the data is collected from the first quarter of each year except 2014, where the data is collected from the last quarter of the year.*

Fig.II Forecasted Growth rate of Internet Subscribers up to 2033



Source:(TRAI, 2014;2015;2016;2017;2018;2019;2020;2021;2022;2023)
**the data is collected from the first quarter of each year except 2014, where the data is collected from the last quarter of the year.*

The forecasting analysis shows that, Kerala will achieve over 50 million internet subscribers in the next ten years. The projected mid-year population for the state in 2021 is 3.5156 crores (Department of Statistics & Economics, 2023). Over a decade, internet availability won't be a problem in Kerala.

5.2 The Rural-Urban Disparities in Total Internet Subscribers

The following Table shows the total number of rural-urban internet subscribers in Kerala. The Table depicts an increase in internet subscribers over the time period of 2014-2023. Over the decade there is appreciable change in both rural-urban areas.

Table II : Rural-Urban Disparities in Internet Subscription

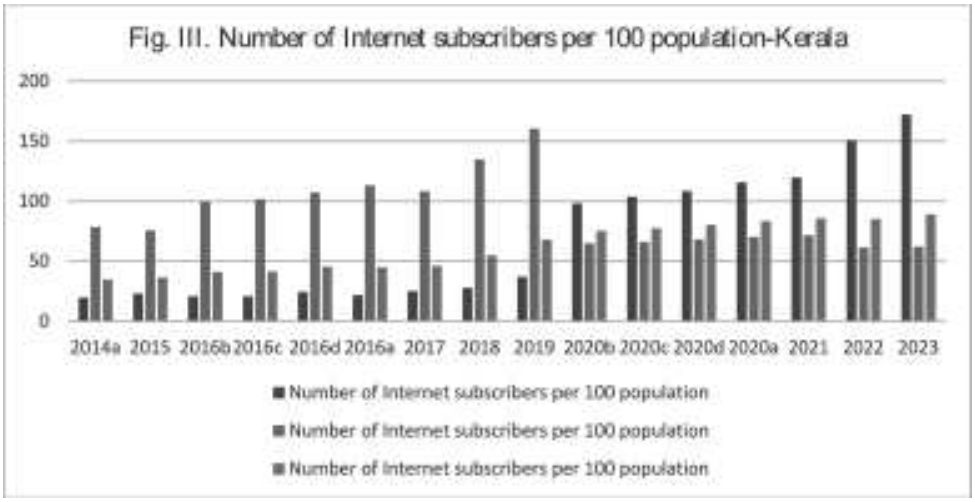
Year	Number of internet subscribers (in million)	
	Rural	Urban
*2014	5.23	7.8
2015	6.14	6.82
2016	5.57	9.02
2017	6.72	9.83
2018	7.49	12.31
2019	10.04	14.67
2020	10.75	15.79
2021	12.46	17.95
2022	14.32	16.1
2023	15.08	16.83

Source: (TRAI, 2014; 2015; 2016; 2017; 2018; 2019; 2020; 2021; 2022; 2023)
**data is from the last quarter of the year.*

To find out the rural-urban disparities of internet subscribers in Kerala, an independent t-test is made on the same data. The result of the t-test shows t (18) =1.91771, p=0.07116. Here the p-value from the t test is greater than 0.05, hence the result is insignificant. The result shows narrowing difference among the rural-urban internet subscribers in Kerala.

5.3 Internet Subscribers per 100 Population

Over the decade the total internet subscribers in Kerala increased and the urban-rural disparities of the same also got narrowed. But when we analyze the number of internet subscribers per 100 population in both urban and rural areas, the result is quite a contradiction. It throws more light into the scenario of internet disparities and digital divide in Kerala.



Source: (TRAI, 2014;2015;2016;2017;2018;2019;2020;2021;2022;2023)
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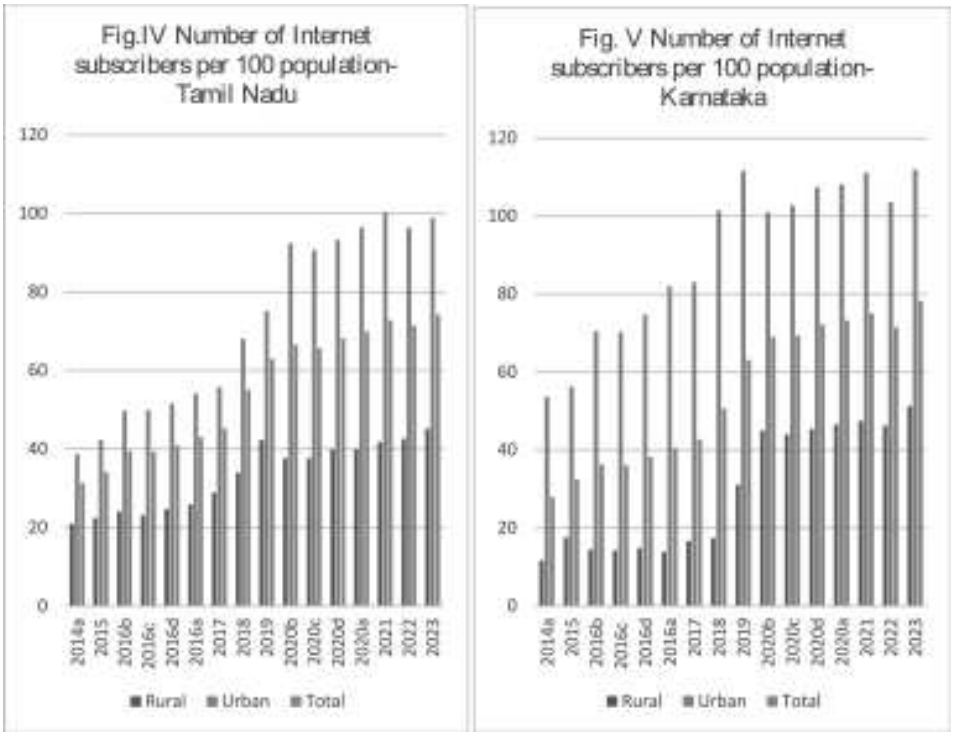

Source: (TRAI, 2014;2015;2016;2017;2018;2019;2020;2021;2022;2023) [a] The data is collected from the months of October-December of the year, [b]the data is collected from January-March of the year, [c] the data is collected from April-June of the year, [d]the data is collected from July-September of the year.

From the above Fig. III, the trend of internet availability in Kerala is quite surprising. From 2014 to 2019 the number of internet subscribers per 100 population in urban areas are continuously growing. This rate is drastically fall from 160.26 (2019) to 64.65 in the first quarter of 2020. From there on, the number of Internet subscribers per 100 population in urban Kerala shows mixed growth trend and in 2023, the urban internet subscribers per 100 population is 89.

The rural internet subscribers per 100 population shows an opposite trend. The rural internet subscribers per 100 population in Kerala is gradually increasing from 2014, and in the first quarter of 2020 it made a jump from 36.93 to 98.10. from there on the rural internet subscriber per 100 population outnumbered the urban areas. The first quarter of 2023 shows 171.98 rural internet subscribers per 100 population.

The Government of Kerala announced a statewide lockdown on 23rd March 2020. The unexpected Covid-19 outbreak and thereby followed lockdown created a new boost to rural internet penetration. The quarterly data of the year 2020 is more than enough to explain this unpredicted increase in rural internet subscribers. From 2020, the number rural internet subscribers per 100 population in Kerala is very much higher than its urban scenario. While comparing to the neighbouring states of Tamil Nadu and Karnataka such a trend is only visible in Kerala.

5.4 Quality of internet in Kerala

Quality of internet is determined in terms of upload and download speeds UNCTAD (2013). In India, TRAI classifies internet speed into narrowband and broadband,on the basis of the download speed. The following Table shows rural-urban classification of narrowband internet subscribers in Kerala from 2014 to 2023. Narrowband is defined with download speed less than 512 kbps. In the first quarter of 2023, TRAI redefined narrowband with download speed less than 2mbps.

Table III : Showing Narrowband Internet Subscribers in Kerala (in million)

Year	Rural	Urban	Year	Rural	Urban
*2014	3.26	3.7	2019	1.06	1.23
2015	3.62	3.47	2020	0.72	0.98
2016	2.7	3.76	2021	0.66	0.87
2017	1.73	2.22	2022	0.54	0.49
2018	0.9	1.16	2023	0.55	0.48

*Source:(TRAI, 2014;2015;2016;2017;2018;2019;2020;2021;2022;2023) *data is from the last quarter of the year.*

The table shows continuous decline in the number narrowband internet subscribers in both rural and urban Kerala. Narrowband represents comparatively low speed internet, so in that sense this is a normal growth. To get more insights into the rural-urban disparities of narrowband internet subscription, an independent t-test is conducted. The result of the t-test is; t(18) = -0.462705, p-value = 0.6491. Here the p-value from the t test is greater than 0.05, hence the result is insignificant. The result shows narrowing difference among the rural-urban narrowband internet subscribers in Kerala.

The following Table shows rural-urban classification of broadband internet subscribers in Kerala from 2014 to 2023. Broadband is defined with download speed greater than or equal to 512 kbps. In the first quarter of 2023, TRAI redefined broadband with download speed greater than or equal to 2mbps.

Table IV : Showing Broadband Internet Subscribers in Kerala (in million)

Year	Rural	Urban	Year	Rural	Urban
*2014	1.97	3.38	2019	8.98	13.44
2015	2.52	3.35	2020	10.03	14.81
2016	2.87	5.27	2021	11.81	17.08
2017	4.99	7.61	2022	13.77	15.62
2018	6.6	11.15	2023	14.54	16.35

Source: (TRAI, 2014;2015;2016;2017;2018;2019;2020;2021;2022;2023)
**data is from the last quarter of the year.*

The table shows continuous increase in the number broadband internet subscribers in both rural and urban Kerala. Broadband stands for high-speed internet, so over the years more people are switching to broadband. To get more insights into the rural-urban disparities of high-speed broadband internet subscription, an independent t-test is conducted. Here the result shows; t(18) = -1.31614, p-value = 0.2046. This result is statistically significant since the p-value is less than 0.05. The result implies significant difference in broadband internet usage among the rural-urban population in Kerala. This result is very significant it implies that even though the overall broadband internet subscription is increased, there is still considerable rural-urban differences in high-speed/high quality internet availability.

6. Conclusion

Enhanced access is required to reduce the digital divide. Digital divide is a universal phenomenon. There is a widening gap between high-income and low-income countries with respect to broadband connectivity. In 2008, the total number of Internet users around the world were 1.4 billion and the estimated fixed broadband subscribers were 400 million. Almost 60 percent of the fixed broadband subscribers were from developed countries. The digital divide is clearly visible in the case of broadband. There is huge gap in terms of broadband speed in which high income countries were blessed with high speed and low- income

countries suffer from relatively low speed. There is also a “broadband price divide”: the cost of using fixed broadband is highest in low-income countries. As a solution, countries are considering wireless technology to overcome the broadband access gap. In 2008, the estimated 3G mobile subscribers were 361 million and within this majority were from developing countries (UNCTAD, 2009).

In India we have wide variety of ICT based programmes intended for different purposes like e-governance (Gyandoot, Bhoomi, CARD, FRIENDS, Akshaya) and economic activities (E-Choupal, DISK). All these activities are intentionally made to help the vulnerable, who are excluded from the digital world. Kerala has some remarkable achievements in this regard. The present study shows significant growth in total internet penetration. The number of total internet subscribers in Kerala is continuously increasing over time. Unlike the other neighbouring states, the rural-urban internet disparities are less significant in Kerala. Demonetization and covid-19 pandemic has positively influenced internet penetration. The number of narrowband internet subscribers is continuously declining and more people prefer to use high speed broadband. The state is not fully free from digital divide; there are still rural-urban disparities among the availability of high-speed broadband internet in Kerala. In 2023, the number of internet subscribers per 100 population in Kerala is 89, and within this the urban availability of internet on the same is 62.12. The state should take more initiatives to abolish these disparities and the focus should be mainly on two aspects; providing high quality internet in rural areas at minimum cost and assure more internet availability on urban areas.

Internet availability is the core element of digital economy. The effective participation on the digital economy varies with the availability of high-quality internet at a minimum price. On the other hand, various socio-economic disparities create digital divide both interms of accessibility and affordability (Rajam et al., 2021; Tewathia et al., 2020). We need a more holistic approach for solving the digital divide.

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Health Status of Tribals in Kerala

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The tribal population in India comprises indigenous inhabitants who have traditionally lived in harmony with their natural surroundings, fostering cultural practices that align with their physical and social environment. In Kerala, Government initiatives to enhance health awareness and increase access to primary healthcare among tribal communities have fallen short of expectations. Tribals experience severe and prolonged illnesses. Women in particular suffer from inadequate maternal and child health services and a lack of proper healthcare infrastructure. This paper examines the accessibility of health services, malnutrition and food intake among Kerala tribals.

Key Word : Tribals, Health, Status, Kerala

Introduction

The tribal communities are essential to Indian civilization, boasting a diverse and rich cultural heritage. India hosts the world's second-largest tribal population, after the African continent. These indigenous groups, often called Adivasis or original inhabitants, are believed to be the earliest settlers on the Indian Peninsula. India is home to approximately 450 tribal communities, including various subgroups, exhibiting significant diversity in their habitats, developmental levels, modes of production, exposure to external influences, traditional values, customs, and beliefs. As per the 2011 Census of India, the scheduled tribe population was around 10.45 crores, constituting about 8.6 percent of the country's total population, with nearly 90 percent residing in rural areas. The proportion of the scheduled tribe population varies from one state to another. Due to their status as the earliest inhabitants of the region, the Scheduled Tribes display physical characteristics, technological advancements, artistic expressions, religious beliefs, and cultural concepts that suggest a tangible historical connection between the tribes of Kerala and the Negritos of Malaysia. Referred to by various names such as 'Adivasies,' 'Kattujathi' or 'Kattukurman,' 'Vanavasi,' 'Girijans,' or 'Forest dwellers,' these tribes share similarities indicating potential historical ties (Krishna Iyer, 1961).

In India, the tribal population is diverse; the majority of them endure socio-economic marginalization primarily because of factors such as geographical and cultural isolation, limited literacy rates, engagement in traditional occupations, and pervasive poverty. Despite being granted special status under the fifth/sixth schedules of the Indian Constitution, their overall situation, particularly regarding health, remains inadequate (Soudarssanane & Thiruselvakumar, 2009). While health falls under the jurisdiction of the states, the central government has been empowered to issue directives to state governments concerning the welfare of tribal populations, as outlined in Article 339(2) of the Fifth Schedule. This authority should be utilized to instruct state governments to implement separate Tribal Sub Plans by the percentage of tribal populations, as advised by the Ministry of Tribal Affairs.

In Kerala, factors such as high literacy rates, favourable demographic characteristics, government expenditure in the service sector, and income from remittances, crucial elements in the "Kerala Model" of development, have had limited impact on the advancement of tribal communities. Despite significant progress in social development and reform movements, inter-caste inequalities persist in Kerala, with scheduled tribes remaining the most marginalized among all social groups (CSSEIP, 2010). The tribals living in the State are facing acute health problems. They usually take unbalanced and unhygienic food, which causes serious health issues. Tribal communities frequently experience health issues due to inadequate nutrition and harmful

behaviours such as smoking and alcohol consumption. Access to healthcare centers is limited as they are located far away, requiring extensive travel to receive medical assistance. A significant challenge lies in their distrust of the current medical treatment system.

The main aim of this study is to understand the health status of tribals in Kerala. The paper is based on information from secondary sources collected from multiple sources. These sources include census reports, various reports from the State Planning Board, and the Scheduled Tribe Development Department of the Government of Kerala. Publications of other departments of the Government and institutions, books, journals, and additional relevant materials were also used as secondary data sources.

Scheduled Tribes Population in Kerala

In Kerala, there were 36 Scheduled Tribe communities as per the 2011 Census. Most of the indigenous communities of Kerala inhabit the Western Ghats due to geographical reasons. One distinguishing feature is that they possess firm ethnic boundaries based on kinship in their habitation. The quantity of households in a settlement ranges from 20 to 100. The houses were unarranged but with a dramatic setting. STs live together in clusters/settlements called 'ooru.' About 94.66 percent of the STs reside in oorus.

As per the 1961 census, the total scheduled tribe population of Kerala is 2,12,762. In the censuses of 1971, 1981, 1991, and 2001, their population stood at 2,69,356, 2,56,475, 3,20,967, and 3,64,189, respectively. The records from the 2011 census indicate the total number of tribals in Kerala as 4,84,839, constituting only 1.45 percent of the entire population of the State. Among the entirety of 4,84,839 tribal population in the State, 2,38,203 were ST males and 2,46,636 were ST females. About 89.33 percent (4,33,092) of the tribals reside in rural areas, and only 10.67 percent (51,747) of them reside in urban areas (Census various reports). Among the districts, Wayanad has the highest population of tribals. In Wayanad, there are 1,51,443 tribals. It is 31.43 percent of the State's tribals and 18.55 percent of the district's population. Idukki stands second in the tribal population. They are 11.51 percent of the tribals of the State. About 71 percent of the STs in Kerala are located within the Wayanad, Idukki, Kasaragod, and Palakkad Districts (Census, 2011).

Health Status of Tribals In Kerala

Health is the central element in the socio-economic profile of any community. The World Health Organization (WHO) characterized health as "a state of complete mental and social wellbeing and not merely the absence of disease and infirmity" (WHO, 2006). An individual can learn and work effectively and efficiently only if healthy. Intrinsic and instrumental values are attached with a healthy individual who is able to live long (Sen, 1998). The health conditions of tribal populations are notably poorer compared to the state average across various health indicators such as morbidity, mortality, infant mortality, and other demographic factors. This disparity can be attributed to their distinct habits, including alcohol consumption and tobacco usage. (Kannan et. al, 1991). Though Kerala enjoys a unique position in the health map of India, the tribal population living in the State is relatively more underfed, so miserably deficient in nutrition and doomed to hunger and disease. (Report of the research group on SCP & TSP, 2008, p.26). The health landscape, behaviours, and healthcare systems within tribal communities are intricately woven with socio-cultural beliefs and practices. In these societies, beliefs surrounding health and illness often stem from supernatural explanations. Traditional healers are vital as custodians of local health traditions, offering diverse services to community members. The inadequate access to food security, sanitation, and safe drinking water, coupled with insufficient nutrition supply, heightened poverty rates, low literacy levels, and unhealthy lifestyles and dietary habits, exacerbate the poor health conditions among tribal communities. Overall, the health and nutritional wellbeing of tribal communities in Kerala, particularly among children, adolescent girls, and women, are deficient. The effectiveness of Anganwadi centers in improving the nutritional status of children and mothers and providing mid-day meals by educational institutions is limited and falls short of expectations.

Access to Health Care Institutions

Access to healthcare plays a crucial role in the functionality of healthcare systems and significantly influences the disease burden in many nations. Assessing the accessibility of healthcare aids in gaining broader insights into the effectiveness of healthcare systems both domestically and internationally. This, in turn, facilitates the formulation of evidence-based health policies. Merely having healthcare facilities in place is essential but insufficient to ensure access. In addition to physical presence, effective utilization of these facilities by the population, along with the quality of care provided, determines actual accessibility. Moreover, access to healthcare is shaped by individuals' attitudes towards seeking medical services, their understanding of diseases, and awareness of available medical facilities. In essence, access to healthcare encompasses affordability, availability, and acceptability of healthcare services. Accessibility to health institutions is a major problem faced in tribal areas. **Table 1** shows the number of settlements without health care institutions and services.

Table 1 : Settlements Without Health Care Institutions and Services

Sl. No.	District	Total Number of Settlements	Number of Settlements		
			Without Health Care Institutions	Services of Health Care workers Not Avialable	Cleaning etc not Arranged, Health Camps Not Organised
1	Thiruvananthapuram	226	90	36	55
2	Kollam	26	8	3	7
3	Pathanamthitta	43	27	9	18
4	Alappuzha	34	30	20	21
5	Kottayam	101	59	20	24
6	Idukki	299	156	71	106
7	Ernakulam	61	29	16	29
8	Thrissur	59	15	12	20
9	Palakkad	426	245	105	162
10	Malappuram	229	106	51	72
11	Kozhikode	126	84	44	64
12	Wayanad	2167	749	235	462
13	Kannur	353	177	60	93
14	Kasaragod	612	328	98	173
	Total	**4762**	**2103**	**780**	**1306**

Source: STDD Report 2013, State Planning Board, Thiruvananthapuram, Government of Kerala

A total of 2,103 tribal settlements, accounting for 44.16% of the total, lack healthcare facilities within their premises. Among these, 780 settlements do not have access to healthcare workers. Additionally, health services such as immunization, medical camps, and sanitation campaigns have never been conducted in 1,306 settlements. **Table 2** shows the number of settlements beyond the reach of health institutions provided by the government.

Table 2 : Government Health Institutions Not Available

Govt. Health Institutions	No. of settlements	Percentage
Primary Health Centre	1305	27.40%
Allopathy Hospital	3512	73.75%
Ayurveda Hospital	4064	85.34%
Homoeo Hospital	4319	90.70%

Source: STDD Report 2013, State Planning Board, Thiruvananthapuram, Government of Kerala

Government primary health centers are not available for 27.40 percent of the total tribal settlements. It is to be noted that government allopathic hospitals are not available for 73.75 percent of tribal settlements. Like-wise, for 85.34 percent of tribal settlements government ayurveda hospitals are not available. In the case of government homoeo hospitals, they are not available for 90.70 percent of tribal settlements. Wayanad, Kasaragod, Palakkad, Kannur, and Idukki are among the districts that lag behind in addressing these issues.

Differentially Abled Persons and Patients with Chronic Diseases

Scheduled Tribe communities experience elevated rates of physical disabilities, mental disorders, and chronic illnesses. The number of differently abled tribal persons comes to 23059 from 19386 families which is 5.41 per cent of the total tribal population. So also the number of persons affected by chronic diseases is 41037 from 33336 families. This is 9.54 per cent of the total tribal population. **Table 3** shows percentage of tribal families with differently abled and mentally retarded persons and patients of chronic diseases.

Table 3 : Families with Differentially Abled and Mentally Retarded Persons and Patients of Chronic Diseases

Sl. No.	Type of disease	Percentage to total tribal families
1	Differentially aided or mentally retarded persons	17.96
2	Patients of chronic disease	30.88
3	Malnutrition	13.09

Source : STDD Report 2013, State Planning Board, Thiruvananthapuram, Government of Kerala

The STDD Report 2013 shows that 30.88 percent of the families have chronic illness, 17.96 percent were differently abled or mentally retarded and 13.09 percent families were affected by malnutrition. About 14,134 families were affected by malnutrition. They constitute 13.09 percent of the total tribal families. Malnutrition, as expected, is the most common health problem among tribals. Malnutrition arises from dietary deficiencies, where the consumption of improper food results in a lack of essential nutrients. Inadequate intake of the right types of food leads to a shortage of vitamins, minerals, and other vital substances necessary for health. Essentially, malnutrition occurs when a diet lacks sufficient or contains excess amounts of one or more nutrients, resulting in health issues. In essence, it represents undernourishment. **Table 4** shows tribal families affected by malnutrition.

Table 4 : Families Affected by Malnutrition

District	Malnutrition affected families	% to total tribal families
Thiruvananthapuram	231	4.46
Kollam	49	3.76
Pathanamthitta	387	21.61
Alappuzha	170	19.50
Kottayam	114	2.62
Idukki	2002	13.99
Ernakulam	79	3.33
Thrissur	146	9.86
Palakkad	2204	16.67
Malappuram	742	20.30
Kozhikode	414	15.45
Wayanad	5773	15.98
Kannur	994	11.04
Kasaragod	829	7.15
State	**14,134**	**13.09**

Source: STDD Report 2013, State Planning Board, Thiruvananthapuram, Government of Kerala

Number of families affected by malnutrition is highest in Wayanad (5773) followed by Palakkad (2204), Idukki (2002) and Kannur (994) Districts. Kollam (49) District reported lowest number of families affected by malnutrition. But the proportion of families affected by malnutrition is highest in Pathanamthitta (21.61%) followed by Malappuram (20.30%) and Alappuzha (19.50%) Districts. The proportion of families affected by malnutrition is higher among Aranadan, Hill Pulya, Irular, Malaipandaram, Malavedan, Mannan, Muthuvan, Mudugar, Paniyan, Koraga, Kurumbar, Cholanaickan and Kattunayakan communities. The highest being among Koraga (46.74%).

Tribal Medicinal Practitioners

Tribal communities have their traditional healing practices passed down through generations. These methods vary from one region to another. They rely extensively on various herbs and plants, often integrated with magico-religious rituals, to address a wide range of ailments including fever, cough, wounds, urinary issues, diarrhea, skin conditions, snake bites, etc. Overall, tribals manage healthcare through the use of local medicinal plants, administered by tribal practitioners. In Kerala, traditional healers from tribal communities are present in 490 settlements, with their services being utilized in 643 settlements. The majority of these healers are located in districts such as Wayanad, Kasaragod, Palakkad, Idukki, Kannur, and Thiruvanantahapuram. **Table 5** shows settlements where services of ethnic medical practitioners are available.

Table 5 : Settlements Where Services of Ethnic Medical Practitioners are Available

Sl. No.	District	Total Number of Settlements	Number of Settlements where		
			Services of Ethnic Medical Practitioners are Available	Ethnic Medical Practitioners are Residing	Ethnic Medical Practitioners are Residing in Adjacent Location
1	Thiruvananthapuram	226	40	28	63
2	Kollam	26	3	3	1
3	Pathanamthitta	43	7	6	6
4	Alappuzha	34	-	-	-
5	Kottayam	101	8	9	19
6	Idukki	299	64	44	41
7	Eranakulam	61	17	8	11
8	Thrissur	59	6	3	6
9	Palakkad	426	80	77	37
10	Malappuram	229	20	6	6
11	Kozhikode	126	9	5	9
12	Wayanad	2167	260	193	211
13	Kannur	353	42	32	34
14	Kasaragod	612	87	76	103
	Total	**4762**	**643**	**490**	**547**

Source : STDD Report 2013, State Planning Board, Thiruvananthapuram, Government of Kerala

Food Intake

The dietary practices of tribals are primarily shaped by the surrounding ecosystem and socio-cultural factors within their habitat, which includes cropping methods and land use patterns. These food habits significantly impact their health and overall well-being. In Kerala, a total of 2487 tribal families can afford only one meal per day due to the unique nature of their lifestyle. The distribution of these families based on their occupations is provided in **Table 6**.

Table 6: Occupation wise Breakup of Families Taking Food only Once Daily

Sl. No.	Sector	No. of Families
1	Forestry Sector	327
2	Agriculture and Allied Sectors	1541
3	Non agriculture Sectors	383
4	No occupation	236
	Total	**2487**

Source : STDD Report 2013, State Planning Board, Thiruvananthapuram, Government of Kerala

Occurance of Deaths

Of the total of 12,189 deaths recorded in the past five years, 28 were attributed to poverty, 697 resulted from accidents, 432 were due to excessive alcohol/drug consumption, and 48 were caused by wild animal attacks. Furthermore, 3,802 individuals passed away due to inadequate or delayed medical care, among whom 341 were infants and 72 were related to childbirth. Additionally, 950 individuals took their own lives during this period.

The analysis based on community reveals that 1054 *Paniyans* died due to inadequate medical treatment, while 125 *Paniyans* succumbed to excessive alcohol or drug consumption. Following them, *Irular* recorded 469 deaths due to lack of medical treatment and 71 deaths from alcohol consumption. Major causes of death within the five-year period include inadequate medical care, infant mortality due to lack of medical attention, accidents, and alcohol consumption. Additionally, there is an increasing trend in suicides among tribal communities.

Schemes for Tribal Health

To improve the health status of tribals living in the State, successive governments implemented various health schemes. Given below are some of the major health schemes introduced by the government for the tribals.

Janani-Janma Raksha: One of the major concerns in the development of tribal health is one that pertains to nutritional issues of mother and child. Inadequate pre and post maternal care ranks top among them and is attributed mainly to the lack of timely financial assistance. The sub scheme is envisaged for extending timely assistance Rs 2000 per month for 18 months beginning from third month of the pregnancy to the month in which the child attains one year. Payments were made only through bank account.

Assistance for Sickle-cell Anemia Patients: Sickle Cell Anemia is an inherited lifelong disease prevailing among the tribes living in Wayanad, Palakkad, Kozhikode and Malappuram districts. Continuous body pain, mental stress, inability to do hard work, malnutrition are the common problems faced by these patients. Such patients will be provided a monthly financial assistance of Rs.2500 through their bank account.

Running of Health Care Institutions: The Scheduled Tribes Development Department (STDD) is running 5 Allopathic outpatient clinic in the remote scheduled tribe areas of Attappady (2 clinics), Chalakudy (1 clinic) and Idukki (2 clinics). More than 24,000 ST patients are being assisted annually through these institutions. Ambulance services and medical camps are also being conducted through these OP clinics.

Medical Assistance through Hospitals: Under the scheme treatment assistance is provided to tribal people affected by various diseases through approved hospitals in the State. The financial assistance is used for purchase of medicines, medical examinations, provision for medical aids and provision for medical aids and equipments, ambulance transportation services in the absence of the same in government hospitals.

Tribal Relief Fund: The scheme provides financial assistance to the tribal population affected by various diseases and natural calamity. The assistance where given to those tribals who are below poverty line and who suffer from major diseases like cancer, heart/kidney/brain ailments etc. They will also give assistance up to Rupees 1 lakh per person under 'Relief Fund of Hon.ble Minister'. The patients should produce proper medical certificate from concerned specialist medical practitioners. Also, it is envisaged to provide a relief to tribal families in case of emergencies.

Financial Assistance To Traditional Tribal Healers: Under the scheme traditional tribal healers were given an annual grant of Rs.10,000/-. The beneficiaries are selected with the assistance of KIRTADS.

Medical Units: There are 17 Ayurveda OP Clinics and 1 Ayurveda Hospital under the STDD. The Ayurveda Hospital is situated at Aralam in Kannur District.

Mobile Medical Units: Two mobile medical units are functioning under the STDD for conducting

medical camps in colonies. The units are stationed at Nedumangad in Thiruvananthapuram District and Thodupuzha in Idukki District. Besides these, there are 3 mobile medical units functioning in Malappuram, Palakkad and Wayanad under the STDD through HLL (Hindustan Life Care Ltd) and 2 units functioning in Kollam and Idukki through KMSCL (Kerala Medical Services Corporation Ltd).

Conclusion

In Kerala, successive governments implemented several schemes to advance the health of tribals living in different regions. The implementation of the different programmes remains ineffective. Only some programmes could achieve the desirable results. The level of awareness and utilization of health schemes are low among them. Though the health status of tribals is improving, they aren't satisfactory. They considerably lag behind the mainstream society in terms of health parameters. Tribals in Kerala continue to face challenges like malnutrition, limited access to quality healthcare, and a higher incidence of both communicable and non-communicable diseases. These issues are further compounded by factors such as geographical isolation, socio-economic disadvantages and cultural barriers, resulting in poorer health outcomes for these populations.

While Kerala has a robust public health system, more focused efforts are necessary to meet the specific health needs of tribal groups. Improving their health requires strategies that enhance healthcare access, raise awareness and address the underlying social determinants of health through culturally appropriate interventions.

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