

**“PRODUCTIVITY AND FINANCIAL HEALTH ANALYSIS OF TAMIL NADU CO-  
OPERATIVE SUGAR INDUSTRIES: A STUDY”**

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**ABSTRACT**

*The focusing on “productivity and financial health analysis of Tamilnadu co-operative sugar industries : A Study” are playing a vital role in determining the financial viability of the sugar industries. The analysis of the financial statements is the process of evaluating the financial viability, profitability ratio, long term solvency ratio, current asset, liquidity ratio and efficiency in asset utilization of the sugar industries operating in the state of Tamil Nadu during the financial year between 2007-2008 and 2016-2017. The Sugar industries are basically depending upon the agricultural production, geographical and climate conditions of the State. Knowingly the researcher made an attempt to evaluate the sugar industries, whether the financial performance and the productivity level based on the season, climate conditions, geographical area wise they are physically powerful or not in the circumstances.*

**Key Words:** Sugar Industry, Productivity, Financial Health Analysis

## **I. INTRODUCTION**

The growth of the sugar industry is one of the major factors in the economic development of the nation. The sugar industry is the second largest agro-based industry next to the textile industry and it contributes significantly to the socio-economic development of the nation. Sugarcane is the key raw material for the production of sugar in India. Two different raw materials, sugar cane and beet are extracted from the sugar; both produce identical refined sugar. The two-third of world sugar production is from semi-tropical region. The balance one-third of the beet grows in temperate climates.

The sugar industry is one of the significant industries in India, which impacts the rural livelihood of about 50 million sugarcane farmers and around 5 lakhs workers directly employed in sugar industries. Employment is also generated in various ancillary activities relating to transport, trade servicing of machinery and supply of agricultural inputs.

## **II. STATEMENT OF THE PROBLEM**

The growing sickness of sugar mills needs to be stopped in general, and serious efforts should be made to identify the reasons for such sickness and the maximum support to such mills should be revived. The sugar has marketed by both open market and levy system. This may affect the production cost of sugar. The government of India has fixed the purchase price for the levy sugar, which is less than the cost of production.

## **III. REVIEW OF LITERATURE**

The researcher referred a number of related and allied studies to collect the review of literature on the productivity and financial health analysis of sugar industries in the state of Tamilnadu also in other states in India and abroad as well. The presentation of the review of literature enables the researcher to know the research gap that exists in a particular area of study.

Chellaswamy and Revathi<sup>1</sup> in their study, “A study on growth and productivity of Indian sugar companies”, opined that Sugar production in India has been cyclical in nature. An estimated 75 percent of the population depends on the sector either directly or indirectly. The sugar industry is also expected to develop further, thereby offering more employment opportunities to a number of semi-skilled and skilled workers in the rural areas of the country thereby contributing towards their development. The sugar industry also supports diversified ancillary activities and skills that support the local economy.

Parimala S.<sup>2</sup> observed that “The study was undertaken to analyse the financial performance is to fulfill the objective of the study, selected profitability ratio, financial ratio and turnover ratios were calculated and inferences are drawn. The study of research reveals that the effort should be taken to the company trend in the profits.”

Umarani R., Nithya G.<sup>3</sup> in their paper “Profitability analysis of selected companies in the sugar industry in India based on their margin of sales”, stated that sugar is made from sugarcane, which was arguably discovered thousands of years ago in New Guinea. From there, the route was traced to India and Southeast Asia. It was India, which began producing sugar following the

process of pressing sugar cane to extract its juice and boiling it to get crystals. A business needs profit not only for its existence but also for expansion and diversification. The investors want an adequate return on their investments, workers want higher wages, and creditors want higher security for their interest, loan, and so on.

Uma Maheswari and Ramachandra Reddy<sup>4</sup> presented a paper on Working Capital Management in Sugar Mills in Chittoor District of Andhra Pradesh. The study focused on Sri Venkateswara Co-operative Sugar Factory Limited and Sagar Sugars & Allied Products Limited in Chittoor district of Andhra Pradesh. The sugar industry faces many problems such as fluctuations in production due to inadequate availability of sugarcane and power failure. The profitability of the sugar industry is comparatively very low because of the high cost of production. In fact, some units are incurring losses continuously. The study found the industry has failed to retain more profits, consequential, been forced to depend more on external sources.

Mane, Patil and Changul<sup>5</sup> in their article they analysed the impact of Manjara Co-operative Sugar Factory on saving. Borrowing, comfort and luxuries of farmers” had revealed that consumption of items of comfort and luxuries were more by the farmers from the sugar factory area as compared to that of non-sugar factory area.

Dr. Neeraj Kumar Gupta<sup>6</sup> in his paper, “Financial Wealth, Health of Co-operative Sugar Mill”. Financial health is the stepping stones for the economic activities in every business enterprise. Financial health reflects the success of the sugar mills. The scenario circles around diagnosing the wealth health of sugar mill by peeping deep into the annual reports of the concerns.

Nopany S.C.<sup>7</sup> in his study on “The problems and prospects of the sugar industry” discusses these problems associated with the ban on sugar exports, the implementation of regulations in the sugar industry and cane shortage due to establishment of new sugar factories in close proximity and reallocation of the cane area developed by them to the new units. The status of the ethanol doping programme in India is also described.

Sundara B.<sup>8</sup> in his study on “Cost efficient and sustainable sugarcane productivity improvement technologies”, has focused on two issues that are relevant to sustainable sugarcane production i.e. productivity improvement and cost reductions. Some important technologies which need to be adopted to achieve this goal are discussed, including appropriate cultivation, quality seeds, bio-fertilizers, sugarcane residues and sugar industry by product utilizations and suggestions to improve soil health, improving water productivity and improving the productivity of roots are recommended.

Goncharuk and Anatoliy<sup>9</sup> in his article entitled that How to make sugar production more effective: A case of Ukraine is devoted to the analysis of efficiency of sugar companies of Ukraine and the ways of its improving. The main factors of sugar plant inefficiency are defined and he finds that these problems have two sides: external and internal. The solving of external problems is not connected with actions of companies and depends on the government and its further policy in the field of regulation of agriculture and sugar production. The solving

of internal problems of sugar companies depends on the desire and abilities of their proprietors and management to manage a business performance.

Lawrence E.<sup>10</sup> examined the status of working capital management in 300 companies including 150 companies with high level of sales and 150 companies with low level of sales. He aimed to consider different methods of working capital management, which are applied in varied size companies and also to provide a general view from common approaches used by all companies.

Mrs. Prabha R.<sup>11</sup> in her study revealed that the Sugar Mills (co-operative, private, and public) have been instrumental in initiating a number of entrepreneurial activities in rural India. There is a considerable scope for further reduction in the cost of production of both sugarcane and sugar in India, with the liberalization of controls on the sugar industry. The co-operative sugar sector in Tamilnadu is facing various problems than the private sugar sector, and if these are solved in time, then it will be possible for the cooperative sector to compete with the private sector. Healthy competition leads to the growth of the sugar industry, and thereby the country.

#### **IV. RESEARCH GAP**

The following research gaps are identified by the researcher for the present Study.

1. The productivity and financial health of sugar pertaining to the state level are very few and inadequate.
2. A research study on working capital management of the sugar mills under the co-operative sector is insufficient.
3. The studies related to the influences of retention of sugar in revenue were not considered in the past studies.

#### **V. SIGNIFICANCE OF THE STUDY**

Indian Council for Agriculture Research (ICAR) drew the attention of the government towards the possibilities of developing the sugar industry in India. All the facilities were made available for the establishment of the sugar industry. The sugar industry was considered as a suitable industry to promote rural industrialization, which in turn provides employment opportunities and income generation possibilities for the rural masses, especially the sugarcane growers. The sugarcane producers can have a vital link between themselves and the industry as their welfare and industry's progress are interdependent. The sugar industry has lots of potential and can become one of the significant contributors to the overall economic growth of the country. A high degree of financial performance in this industry is indispensable. To ensure a high degree of financial performance an overall coordinated effort from the government, farmers and sugar mills are necessary.

#### **VI. OBJECTIVES OF THE STUDY**

The present study aims at diagnosing the financial conditions of the Tamilnadu co-operative sugar mills in order to evolve remedial measures, if required, for strengthening the finances of these co-operative sugar mills. The following are the specific objectives of the present study.

1. To measure the production and sales performance of the co-operative sugar industry.
2. To evaluate the profitability of the selected co-operative sugar industry.
3. To measure the financial health of the co-operative sugar industry.
4. To identify the factors influencing financial health conditions.
5. To suggest suitable measures for the development of co-operative sugar industries.

## **VII. SCOPE OF THE STUDY**

The study is conducted during the financial year between 2007-2008 and 2016-2017. Also, the study covers only the co-operative sugar mills of Tamilnadu have been chosen for the study to evaluate the effectiveness of production and sales and other financial parameters. The trends indicated may differ from year to year as the pattern of investments and borrowings differ. The study becomes a more meaningful as it covers a longer period i.e. 10 years. The study will throw light on the operational inefficiencies and other inadequacies if any, and suggest suitable remedial strategies for their sustenance and growth.

## **VIII. PERIOD OF THE STUDY**

The present study covers a period of 10 years, starting from the financial year 2007-2008 to 2016-2017. The period is considered sufficient to analyze the productivity and financial health analysis of co-operative sugar industries.

## **IX. Hypothesis**

This study is based on the formulation of the following null hypotheses. The validity of them has been tested with the available data through appropriate analysis.

1. There is no significant difference among the groups of the selected co-operative sugar mills in respect of the value of production and value of sales.
2. There is no significant difference among the groups of the selected co-operative sugar mills in respect of profits.
3. There is no significant difference in the economies of scale of operations between the groups of the selected co-operative sugar mills in Tamilnadu.
4. There is no significant difference in the scale of operating cycles between the groups of the selected co-operative sugar mills in Tamilnadu.

## **X. SUGAR INDUSTRIES IN TAMILNADU**

The sugar industry has great significance to the economy of India. It plays an eminent role in the Indian economy due to its multiple contributions in the shape of employment and provision of raw materials to other industries. Since production and productivity of sugarcane are crucial factors for the sugar industry, progress in the cultivation of cane merits our attention. Data on the cultivation of sugar cane in Tamilnadu can be found in Table 1.

**Table 1**  
**Area under sugarcane in Tamilnadu**

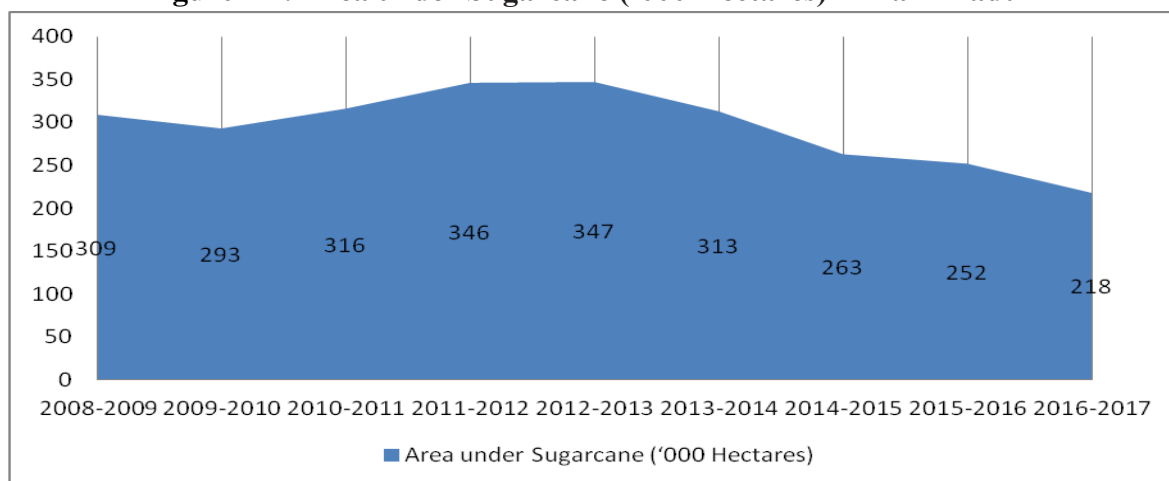
<b>Year</b>	<b>Area under Sugarcane ('000</b>	<b>Production of Cane ('000 tonnes)</b>	<b>Yield per Hectare (tonnes)</b>
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	Hectares)		
2008-2009	309	32804	106.2
2009-2010	293	29746	101.5
2010-2011	316	34252	108.4
2011-2012	346	38576	111.5
2012-2013	347	33919	97.7
2013-2014	313	32454	103.7
2014-2015	263	28093	106.8
2015-2016	252	25494	101.2
2016-2017	218	18988	87.1

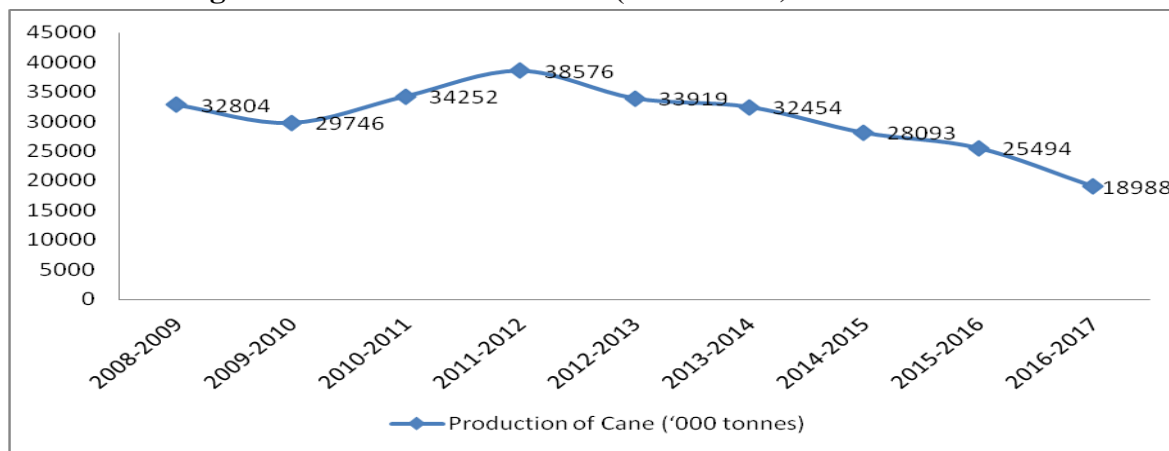
**Source:** Cooperative Sugar, October 2018, Vol. 50, No. 2, pp. 54-56.

During the study period, the area of land under sugar cane raised by 10 percent during 2010-2011. The highest rate of increase in production of cane was due to an increase of 6 percent in the yield of cane per hectare during 2011-2012.

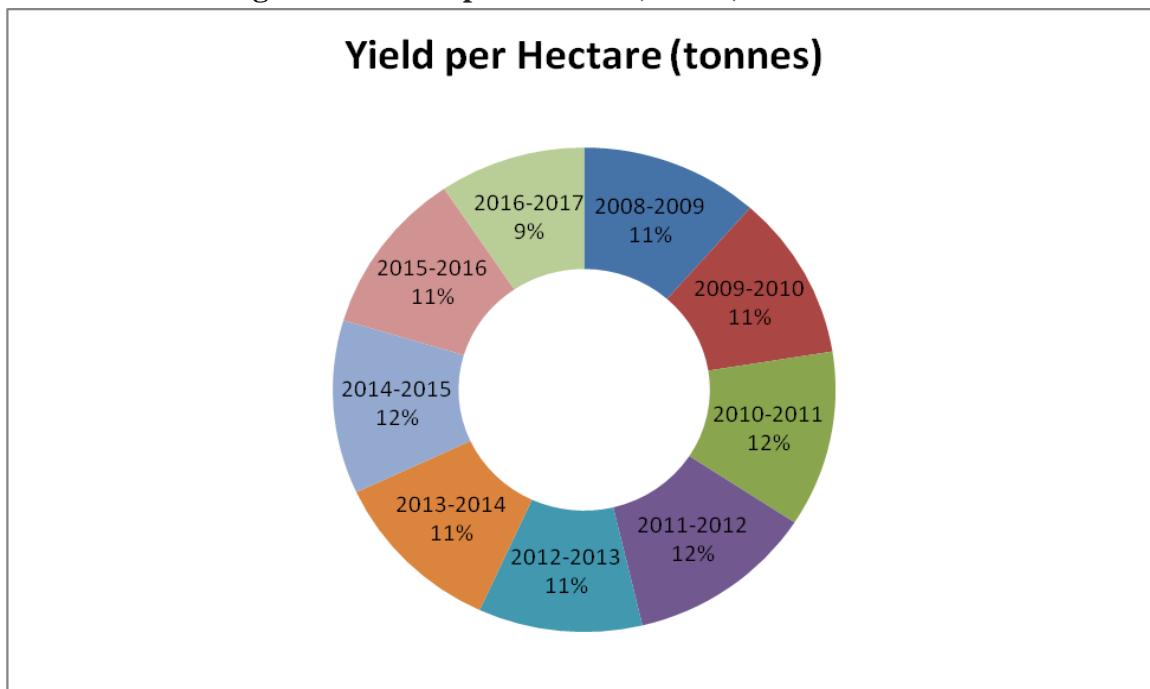
**Figure – 1: Area under Sugarcane ('000 Hectares) in Tamilnadu**



**Figure – 2: Production of Cane ('000 tonnes) in Tamilnadu**



**Figure – 3: Yield per Hectare (tonnes) in Tamilnadu**



As in the rest of India, in Tamilnadu also Co-operative sugar mills function along with sugar mills the private sector. Data on number of sugar mills in Tamilnadu can be found in Table 2.

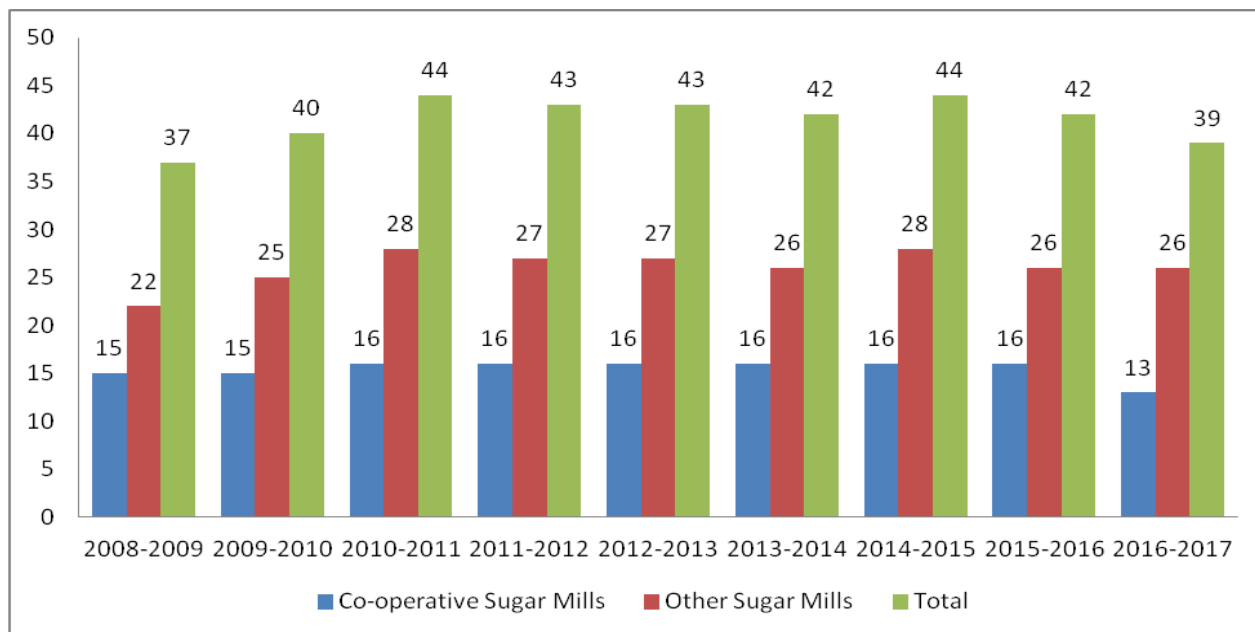
**Table 2**  
**Growth of Sugar Mills in Tamilnadu**

Year	Co-operative Sugar Mills	Other Sugar Mills	Total
2008-2009	15	22	37
2009-2010	15	25	40
2010-2011	16	28	44
2011-2012	16	27	43
2012-2013	16	27	43
2013-2014	16	26	42
2014-2015	16	28	44
2015-2016	16	26	42
2016-2017	13	26	39

**Source:** Cooperative Sugar, October 2018, Vol. 50, No. 2, pp. 64.

**Figure – 4: No. of Sugar Industries in Tamilnadu**





## **XI. METHODOLOGY**

The present study fully based on the secondary data. They are collected from the Annual reports of Tamilnadu Co-operative Sugar Industries, audited report of concern sugar mills, journals, books and websites. The purpose of this study is to examine and evaluate the profitability, liquidity, long term solvency position and efficiency in asset consumption of sugar companies under study and to offer findings and suggestions to improve the financial position of sugar companies.

The tool used for the study includes Motaal's Comprehensive Test Z – Score Ratio, Ratio Analysis, Trend Analysis, Comparative Financial statement, Common Size statement, and Correlation and to understand the actual financial position, trend projection made to projected for the following forthcoming years based on the actual position.

## **XII. FINDINGS**

### **12.1 SOLVENCY**

The current assets of the sugar mills have been decreased regularly, whereas the current liabilities increased. Hence the solvency ratio is decreased gradually during the study period 2007-2008 to 2016-2017. The average solvency ratio for the study period is less than the solvency position of these sugar mills. And the fluctuations in the solvency ratio raised due to fluctuations in current assets and current liabilities. Thus the majority of the running Co-operative sugar mills in Tamil Nadu have an unfavorable solvency ratio.

### **12.2 DEBTOR EFFICIENCY RATIO**

Co-operative Sugar industries in Tamil Nadu have employed a good credit policy with varying degrees of efficiency. In other words Sundry Debtor collection management is very good in Co-operative sugar Industries in Tamil Nadu.



### **12.3 FUND FLOW**

Fund flow analysis fully reflects the unimpressive performance of the sugar mills. Stagnant and falling levels of operations and inadequate utilization of investment eroded profitability depriving the mills of the benefits of the plough-back. The mills had to depend on long-term loans. Market constraints caused swelling of stocks sundry debtors and sundry creditors.

### **12.4 Z SCORE**

Further analysis of Z Score shows that none of the mills could sustain a score of 2.63 or more represents sound financial health. On the other hand continuous decline in the Z score indicated continuous erosion of the financial health of these mills.

### **XIII. LIMITATIONS OF THE STUDY**

The following are the limitations of the study.

1. The study is confined to a period of 10 years during the financial year between 2007-2008 and 2016-2017. The changes taken before and after this period have not been taken into consideration.
2. The area of the study of productivity and financial health analysis of selected co-operative sugar mills are restricted to Tamilnadu. Hence conclusion arrived at may lack universal application.
3. The present study is based on the audited annual reports of co-operative sugar mills. Hence it is only post mortem of the financial statements.
4. The figures taken from the financial statements for the analysis were historic in nature. The time value of money is not considered.
5. This may lead a marginal statistical error. However, due care is taken to keep a degree of error within limits.

### **XIV. SUGGESTIONS**

This study has narrated the ways of encouragement to sugar cane growers for maximum supply of sugar cane to the concerned Sugar Mills in order to crush more sugar cane and maximum sugar production, through which the sugar mills can earn an optimum level of profit. In this way following suggestion for the betterment of function of Cooperative sugar industry in Tamil Nadu is given.

- ❖ The Government of India and State Governments should come forward to create a Quality and Performance Monitoring Committee (QPMC) consisting of representatives from both Governments, managements of Co-Operative Sugar Mills, local farmers and employees to take collective decision an efficient performance of Co- Operative Sugar Mills.
- ❖ The authority of Co-operative sugar mills should take necessary step to equip with modern instruments such co-generation plant and high pressure boiler for improving the operation efficiency of these mils.
- ❖ The Government should have a Pro-active Import or Export Policy in order to ensure reasonable sugar prices so that sustainable cane prices are paid to the farmers.

- ❖ Co-operative sugar mills should be allowed to function independently without any intervention of both central and state Governments, especially in purchase and sell either sugar cane or sugar, fixing the price of sugar and its by-products and maintaining mills.

## **XV. CONCLUSION**

It is concluded and definitely hope that change in the methodology in announcing or declaring Sugar Cane price only based on current year recovery, reducing the cost of production of sugar by arriving separate cost of production of by-products likewise Molasses and Bagasse and preparation of periodical “Z-Score Analysis” can contribute remarkable and intellectual prospects of the sugar industry not only in Tamil Nadu and also in the whole nation (India).

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