# Editorial Board

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Calculation of Carbon Footprint of Roads of Indore City
Sandhya Dixit\textsuperscript{1}, Anil Gharia\textsuperscript{2}, M. L. Gangwal\textsuperscript{1}, Mukesh Gupta\textsuperscript{1}
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ABSTRACT
Issues and concerns about climate change and the need to reduce greenhouse gas emissions are continually discussed by the media and, periodically, major reports are issued such as those from the UN supported Intergovernmental Panel on Climate Change (IPCC). There is a general consensus among this group that the global warming arising out of climate change is “very likely” attributable to human activities. CO\textsubscript{2} is released from a wide range of sources including industrial processes, waste and agriculture as well as transport. Estimating the amount of CO\textsubscript{2} emitted from road freight transport is complex. Two methods can be used. The aim of this research is to develop a model capable of producing routes which not only minimise CO\textsubscript{2}, but also estimate CO\textsubscript{2} emissions for routes minimised by the conventional approach of time or distance. To do this it is necessary to estimate the level of CO\textsubscript{2} emitted on each link of a digitised road network which is input to the model.

INTRODUCTION
According to Stern (2006), there is compelling scientific evidence that rising levels of carbon dioxide (CO\textsubscript{2}) are implicated as the primary cause of global warming. In 1997, the Kyoto Agreement legally bound the world’s developed nations to an overall reduction of a basket of six greenhouse gases by an average of 5.2% below 1990 levels by 2014 at the latest, with the India committed to a reduction of 12.5%. However, the government set its own domestic goal to cut CO\textsubscript{2} emissions to 20% below 1990 levels by 2014 (DEFRA, 2007) with a long term target to reduce greenhouse gas emissions by 60% by 2050.

The six greenhouse gases are CO\textsubscript{2} (carbon dioxide), CH\textsubscript{4} (methane), N\textsubscript{2}O (nitrous oxide), HFC’s (hydrofluorocarbons), PFC’s (perfluorocarbons) and SF\textsubscript{6} (sulphur hexafluoride). Of these, CO\textsubscript{2} is estimated to account for two thirds of global warming (DETR, 2000). It is present in the atmosphere in significant quantities, representing 99.4% of the six greenhouse gases, by tonnage. Pollutants from vehicle engines are mainly CO (carbon monoxide), NO\textsubscript{x}(oxides of nitrogen), fine particles and HC (hydrocarbons). These four pollutants are known as ‘local pollutants’ in that when emitted, they remain in the vicinity in which the vehicle has driven.

Estimating the amount of CO\textsubscript{2} emitted from road freight transport is complex. Two methods can be used. One is to use the amount of fuel purchased by companies in different industry sectors. The other method estimates CO\textsubscript{2} from the distance travelled by vehicles and the quantity of goods carried, and is obtained from surveys such as the Department for Transport Continuing Survey of Road Goods Transport. Emissions are estimated using average grams of CO\textsubscript{2} per kilometre. One possible approach is the technique used in this research which has been to develop an enhanced computer based vehicle routing model to assess CO\textsubscript{2} emissions from freight vehicles.

Unlike other vehicle emissions, CO\textsubscript{2} is directly proportional to fuel consumption (Kirby et al, 2000; Vehicle Certification Agency, 2002; Australian Greenhouse Office, 2003). Vehicle fuel consumption and emissions require complex calculations due to the many different variables which affect the
calculated values, such as vehicle and travel characteristics. The \( \text{CO}_2 \) emissions can only be estimated because establishing this pollutant from individual vehicles is complex. It relies on an estimation of a vehicle's fuel consumption which is a function of many parameters, including speed and acceleration. Once a realistic speed has been established, it would then be possible to reflect the acceleration and deceleration of vehicles by applying a level of variability to the speed. This enables a vehicle's fuel consumption to be estimated more accurately, and hence \( \text{CO}_2 \) emissions.

The carbon footprint of a road can be defined as the total amount of \( \text{CO}_2 \) and other GHG (direct or indirect) emitted over the full life cycle of a road. Said life cycle includes construction, operation and maintenance phases. Its life ends when the road needs to be completely reconstructed or when it is abandoned.

**Method**

The method proposed is also uniquely able to assess the impact of traffic congestion by increasing traffic volumes on each of the links in the road network, and using speed flow formula for the appropriate road categories, in order to predict a reduced speed. This will have a direct impact on fuel consumption and therefore \( \text{CO}_2 \) emissions.

There are a number of instantaneous models that have been developed. A European Union (EU) sponsored study called MEET (Methodologies for Estimating air pollutant Emissions from Transport) identified data sources and used a model called COPERTII for estimating emissions from road transport (Hickman, 1999). This study subsequently spawned an updated version of the model referred to as COPERTIII. However, there was a paucity of data on large freight and light commercial vehicles in the MEET study, and it also used a limited range of vehicle classes. A second study, ARTEMIS (Sturm et al, 2005), was subsequently commissioned which pooled data from a wide range of emission related projects from different countries, and developed two models:

- NEMO (Network Emission Model) which was a meso-scale model for estimating emissions on road networks
- All of these studies acquired and used real life transient driving cycle data and involved models which calculated dynamic emissions and fuel consumption for individual vehicles over a given driving cycle on a second by second basis, thereby achieving high levels of accuracy.

The aim of this research is to develop a model capable of producing routes which not only minimise \( \text{CO}_2 \), but also estimate \( \text{CO}_2 \) emissions for routes minimised by the conventional approach of time or distance. To do this it is necessary to estimate the level of \( \text{CO}_2 \) emitted on each link of a digitised road network which is input to the model. A number of analyses have been undertaken to identify how fuel consumption varies under different conditions of road category and speed.

Indore, the heart of central India, is commercial capital of Madhya Pradesh. The network of roads in Indore city can be divided into four categories:

1. National Highway
2. State Highway
3. Major roads within city
4. Rural roads

Our study focus on these major roads:

1. NH 3(Agra-Mumbai)
2. NH 59(Indore-Ahmadabad)
3. NH 35(Indore-Betul-Nagpur)
4. SH 27(Indore-Burhanpur)
5. SH 34(Indore-jhansi)
6. MG road
7. Western Ring road
8. Eastern Ring road
9. Riverside road(Ujjain road to airport)

The road map of Indore city is as follow
For each of the sample routes Akcelik’s (1982) elemental formula was used to estimate fuel consumption for the route averaged speed and constant link speed options, and Bowyers et al (1985) instantaneous fuel consumption formula was used for the TRL driving cycle option (Green et al, 2004). As shown in Table 1.

Having discussed the way fuel consumption, and therefore CO2 emissions, varies when different representations of speed are used, there is a direct relationship between fuel consumed and CO2 emissions, but the values differ between sources. The table 2 provides an indication of typical levels of kilograms of CO2 per litre of diesel consumed. These estimates may vary due to the hydrogen carbon ratio of the diesel fuel which affects emissions of CO2. The model developed for this research uses a midpoint figure of 2.7 kg per litre of CO2. The fuel consumption figure for each road category is multiplied by this value to obtain the amount of CO2 emitted. The obtained value is called Carbon footprint of the road.

Conclusion
A model has been developed which incorporates novel techniques for measuring the CO2 emitted by a vehicle. It integrates concepts from transportation planning, fuel consumption and emissions research and logistics based routing and scheduling. Road freight transport has been shown to be approximately 16% of all emissions of CO2 in Indore city. Therefore this model can also make a contribution towards various transport and logistics related government policies which encourages sustainable distribution programmes to support efficient operating practices, and is aimed at helping the Central government achieve the targets set by the Kyoto protocol. There are opportunities to expand on this research by refining and developing the model, and considering alternative data as follows:

- Expanding the research to cover a wider area with a larger set of alternative delivery data
- The use of alternative delivery vehicles
- The use of alternative fuels

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McKinnon, A. (Sep 2006) CO2 emissions from freight transport in the UK, Report for CFIT

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<th>Description</th>
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<th>Source</th>
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<tr>
<td>HGV standard diesel fuel</td>
<td>2.82</td>
<td>FTA quoted in J Sainsbury plc, 2002</td>
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<tr>
<td>HGV ultra low sulphur city diesel fuel</td>
<td>2.57</td>
<td>Greenergy quoted in J Sainsbury plc, 2002</td>
</tr>
<tr>
<td>HGV all diesel fuel</td>
<td>2.68</td>
<td>DETR quoted in J Sainsbury plc, 2002</td>
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<td>Diesel fuel</td>
<td>2.70</td>
<td>AustralianGreenhouse Office, 2003</td>
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<td>Diesel fuel</td>
<td>2.70</td>
<td>Potter et al, 2003</td>
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<tr>
<td>Diesel fuel</td>
<td>2.62</td>
<td>The UK Parliament,2003</td>
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<tr>
<td>Diesel fuel</td>
<td>2.85</td>
<td>Dauncey,2005</td>
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Table 2: Estimates of CO₂ emissions per litre of diesel fuel
GEOLOGICAL CHARACTERISTICS OF ROCK PAINTINGS OF MADHYA PRADESH

Pradeep Kumar Jain
Dept. of geology
Govt. Maharaja P.G. College
Chhatarpur (M.P.)

ABSTRACT

In Madhya Pradesh 150 rocks shelters were recognized by various workers out of these there are about more than thousand rock paintings have been located in Vindhayachal range and Satpura range. In the present paper attempt has been made to describe geological characteristics of rocks depicting rock painting. Three types of geological characteristics have been selected for present study. These characters are lithological engineering and resistance to erosion/weathering.

On the basis of Lithological characters rock paintings of Madhya Pradesh have been grouped to the following types:

1. Rock painting made on sand stone of Gwalior group.
2. Rock painting made on sand stone of Bijawar group.
3. Rock painting made on sand stone of Vindhyachal super group.
4. Rock painting made on sand stone of Godwana super group.

Important Engineering properties of rocks that contain rock paintings also discussed in the present paper.

INTRODUCTION

Madhya Pradesh is the richest zone of pre historic rock painting in India. In Madhya Pradesh highest concentration of rock painting sites are situated in the Vindhyan region, Satpura range and in the Bundelkhand region respectively. The rock paintings of Madhya Pradesh are depicting in hill caves made up by sand stones of different geological age. These sand stones have the properties to weather relatively faster to form rock shelters and caves. They are located in the dense forest and were ecologically ideal for occupation by primitives. In the present paper an attempt has been made to describe geological characteristics of rocks depicting rock paintings.

STUDY AREA

Madhya Pradesh state is selected for the present study. It is situated in the centre of India. Therefore it is also known as heart of India. The state shares its borders with the other states. Uttarpradesh in the north-eastern side, Rajasthan in the north-western side, Gujarat in the western side, Chhatisgarh in the south-eastern side and Maharastra in the southern side. The state is bounded by longitude N 21°15 – N 26°88 and latitude E 74°03 E 82°90. It spreads across the area of 3, 08, 245 sq. km population of state is 60,348,023.

MATERIALS AND METHODS

Information and description on the rock painting of Madhya Pradesh have been collected from secondary sources. Rock painting of study area were described by various workers Wakankar(1975), Khare (1975), Pandey(1993),Verma(2007) Yashodhar(1984) an Tiwari(2000). Important geological characteristics of rocks depicting rock paintings are lithological characters, their nature resistant to weathering/erosion and general engineering properties. These characteristics of rocks have been considered for present study.
RESULTS AND DISCUSSION

Collected information /description of important rock paintings of Madhya Pradesh have been studied and discussed their geological scenario. On the basis of lithological characters important rock paintings of Madhya Pradesh have been grouped in to the following types:

1. **Rock paintings made on sand stone of Gwalior group.**

   Localities of important rock paintings made on Gwalior sandstone are Gupteshwar (Gwalior), Jora, Sabalgarh and Pahargarh (Murena). Sandstone of Gwalior group is compact, thinly bedded, brownish in colour. Sandstone of Gwalior group belongs to middle proterozoic (1500 my.). These sandstones weathered easily. Various sedimentary structures have been found in Gwalior sandstone.

2. **Rock paintings made on sand stone of Bijawar group.**

   Rock paintings of Jatashanker, Deora, Ammapani and Monashaiya of Chhatarpur district are made on Bijawar group sandstones (Photograph No. 1). These rock shelters are known as raktaputariya or purnaka data, putli ka data by local village peoples. Sandstones of Bijawar group also belongs to middle proterozoic period. These sandstones are characterized by alternate competent and incompetent beds and closed jointing along bedding. The general colour of the sandstone is yellowish brown. In some localities bands of many shades have been observed. The quartizitic sediments have been weatherd slowly but softer sediments have been weathered faster and removed in the shape of teeth. These processes are responsible for the formation of cavities of various size and shape in the sand stone of Bijawar group.

   ![Photograph No.1 A view of Bijawar Sandstone](image)

3. **Rock paintings made on sand stone of Vindhyan super group.**

   The rock paintings of this type are reported in the following districts:
   - Gwalior – Gupteshwar near Gwalior city.
   - Sagar – Abchand, Baroda forest area, Bhape, Bilaghat and Naryauli.
   - Bhopal – Guphamandir, Manuabhan ki tekri and Shyamala hill.
   - Raisen – Bhembetka, Bhojpur.
   - Panna – Brihaspatikund, on the bank of Bhaghan river.
   - Dhar – Bagh caves.
   - Hoshangabad – Adamgarh 3 km south of Hosangabad on Itarsi road.
   - Vidisha – Ahmadpur

   Geological characterics of important rock paintings made on Vindhyan sandstone are as follows:
I Bhimbetka: located about 45 kms from Bhopal on Hoshangabad road (Photograph No.2, 3&4).

Photograph No.2
A View of Bhimbetka Rock shelter

Photograph No.3
A View of weathered sand stone cave at Bhimbetka.

The site spread over 10 kms in length and about 3 kms in width has more than 700 rock shelters of which have more than 400 paintings (Mathpal, 1984). Bhimbetka group of hills are found by send stones of vindhyan super group. These sedimentary rocks display very clear layering, ripple marks and sun cracks. The sand stone has been slightly metamorphosed and has turned into orthoquartzite. The general colour of the rock is milky crimson but there are bands of many shades from dark purple, light brown to milky white. Weathering and accumulation of dust have changed the eroded surface of rock into orange colour. The perfect horizontality of layers produces as effect of masonry architecture.

Photograph No.4
A View of Cave in sand stone at Bhimbetka.

II Bagh caves: are a group of 9 rock cut monuments situated among the southern slopes of vindhyans in kukshi tehsil of dhar district. These monuments are located at a distance of 97 kms from Dhar.(Photograph No.5) The Bahg caves were excavated on perpendicular send stones rocks face of a hill. (verma,2007) Sand stones of Vindhyan super group belongs to Upper proterozoic (520-1500 my.) period.(de, 2003).

Photograph No.5 The Entrance of Bagh Caves

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4 Rock paintings made on sandstone of Gondwana super group.

Pachmarhi hills rock shelters are made on sandstones of Gondwana super group and located in Satpura range. These rock shelter are known as Nimbu bhoj, Lashkariya khob, Imli khob and Maradeo. Upper Gondwana sandstones are friable in nature and reddish in colour (Photograph No.6). Through the course of geological time the sandstone has suffered extensive erosion. Sun, rain, wind, changes in temperature, acid perculating into the rocks with rain water and penetration of tree roots have all contribution to the loosening and breakup of the rocks. These sandstones were formed in oxidizing environment.

Photograph No.6
Showing small caves in Pachmarhi sandstone

CONCLUSION

Important rock paintings of Madhya Pradesh are depicting on sandstones of various geological periods. The softer sediments have been decayed faster and removed. This has led to the formation of all kinds of caves in the rocks. Layered sedimentary formations of the proterozoic age are characterized by alternate continent and incontinent beds. The compressive strength of the proterozoic sandstones are ranging between 750-950 kg/cm². In general these sandstones are fine to coarse grained and has shown proper bonding characters. (Ghosh, 1990)

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Mathpal, yashodhar (1984): Prehistoric rock paintings of Bhimbetka,central India, abhinav publ. new delhi, pp.236
V.S. Wakankar (1975): Bhimbetka the prehistoric paradise. Prachya pratibha, vol.3, No 2, pp.7-29
ABSTRACT
Supply chain management basically involves all the activities which are involved from the production of goods to supplying of goods to the consumers. There must be efficient pre-evaluation of all the plans to be implemented and executed during the whole process for better functioning of the supply chain. Better plans can lead to increase in profits, productivity of the company and thus waste must be eliminated to reduce the incurred cost of the supply chain process. The aim of this paper is to highlight the advantages and disadvantages of supply chain management.

INTRODUCTION
Supply Chain Management (SCM) is the system of organizations, people, activities, information and resources involved in moving a product or service from supplier to customer. This is the process in which involves the transformation of raw materials to the finished products which can be consumed by the consumers. It basically consists of the whole process starting from processing of the raw materials by various companies, the suppliers involved in supplying of the various products to the consumers for whom he products are manufactured. Thus the whole process makes the chain inside within the company and outside the company from manufacturer to the consumers. Thus Supply Chain Management (SCM) is the control of the supply chain as a process from supplier to manufacturer to wholesaler to retailer to consumer. When the products are moved from one part to another as to complete the supply chain, the full information about the products which are required, the payment schedules, status of pending payments along with the physical movement of the product.[1] SCM includes five components in the chain Plan, Source, Make, Deliver, Return. Thus every component in the supply chain has its own impact to complete the chain.

ADVANTAGES
1. Radio Frequency Identification (RFID):
The RFID technology has revolutionized the SCM process with replacement of barcodes which has further helped the administration in evaluating the pre-planned processes to make the products available at right time at right place with zero error of mistakes. Thus the accurate knowledge of the movement of raw materials with allocated time duration has further enriched the planning process. Implementation of RFID technology has helped in boosting the distribution processes, speed of delivery and reduction in the distribution costs [2].
2. Increased Output:
SCM can lead in building good relationships between the suppliers and customers due to fulfillment of orders at required time. The customer satisfaction which is main aim of every company is accomplished thus company would always be in good books of the suppliers which can lead in increase in productivity
of the goods so the output of the company can be increased.

3. Increased Profits:
   As the sole aim of the company is to make profits which could be increased by elimination of the waste. As the waste generation also includes the operating costs of the company thus elimination of waste diverts the incurred cost to saving of the company which could be further used for manufacturing of more new products thus increasing the profit aspect of the company.

4. Increased Efficiency:
   Improper planning in SCM can lead to the wastage of the resources which can increase the cost of production as it includes the operating cost that incurred during production.[3] Thus there should be proper planning through which various policies and strategies could be implemented to reduce the wastage which could further help in increasing the efficiency of the company.

DISADVANTAGES
1. Investment:
   As huge amount of capital, time, resources are required for the formation of SCM as it includes the chain starting from the production of materials to the consumers including all the various intermediate factors. The market analysis, market place, customer demands, suppliers, supplying channel, the various existing competitors are the main factors to be considered. The SCM thus formed would be to provide the products at reduced cost with sole aim of satisfying the customer needs. The company must be familiar with its weakness, strengths thus try to upgrade them respectively [4]. To manage the whole chain it requires very hard task and requires lot of investment to fulfill the need of the various cost incurred during the whole chain formation process.

2. Suppliers:
   As the marketing of the products manufactured are done with the help of suppliers. The suppliers made products available to consumers through various supplying channels. But the cooperation with the suppliers is hardest task than one can think. As the company must be able to provide goods at high quality with low prices to the suppliers as they would be able to differentiate the products of different companies and best products would be only marketed [5]. So these factors must be considered to be in good books of suppliers thus maintaining the coordinal relations with the suppliers for easy marketing of manufactured products.

REFERENCES
SOCIO-ECONOMIC SCNERIO OF J&K; AN ANALYSIS
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Research Scholar

ABSTRACT
The socio-economic environment of Jammu and Kashmir is unique in many respects. The present research paper is an endeavor to study various avenues of social and economic sources of state in terms of revenue generation, foreign exchange, raising standard of labors and employment generation. The paper focuses on the socio-economic environment of Jammu and Kashmir and thereby providing suitable suggestions in order to make socio-economic environment of the state more suited and more sustainable in future. The study reveals that there is very significant relation between population and economic generation of the state. The pillars of any state rest on the building blocks of Economy, Environment, Education, Employment and Health care. Although each block is important for the stability and growth of a civilization but “Economy” is the corner stone on which the prosperity of a state rests.

INTRODUCTION
India is the only country in the world with an unbroken, living vibrant tradition of crafts. India has 28 states and 7 union territories; Jammu and Kashmir is one of these 28 states. Jammu and Kashmir is one of those states in the country where both the demographic situation and level of socio-economic development remains far from satisfactory. Jammu and Kashmir is the northernmost state of India. It is situated mostly in the Himalayan mountain. Jammu and Kashmir shares a border with the states of Himachal Pradesh and Punjab to the south and internationally with the People’s Republic of China to the north and east and the Pakistan-administered territories of Pakistan controlled Kashmir and Gilgit–Baltistan, to the west and northwest respectively. Formerly a part of the erstwhile Princely State of Kashmir and Jammu, which governed the larger historic region of Kashmir, this territory is disputed among China, India and Pakistan. Pakistan, which claims the territory as disputed, refers to it alternatively as Indian-occupied Kashmir or Indian-held Kashmir, while some international agencies such as the United Nations, and call it Indian-administered Kashmir. The regions under the control of Pakistan are referred to as Pakistan-occupied Kashmir or (POK) within India.

The present paper focuses on socio-economic environment of Jammu and Kashmir. Jammu and Kashmir consists of three regions: Jammu, Kashmir valley and Ladakh. Jammu, Kashmir and Ladakh have a multifaceted, multi religious and multi ethnic culture distinct to the three areas of the state. Kashmir became the center of Sanskrit literature during the early Indo Aryan civilization, Persian flourished with the advent of Islam in the region opening it up to influences of Persian culture and civilization. Ladakh developed into a center of Buddhism with strong Tibetan influence while Jammu remained the repository of Hindu religion and its cultural impact. A long line of secular rulers amalgamated these diverse strains into a rich cultural heritage unifying all these religious, ethnic and linguistic divisions.

Kashmir is a repository for some of the finest craft traditions in India. Traditional craftsmen who have the skills passed from one generation to the next in a tradition that survives even today. Hand-knotted carpets in silk, wool or a combination of yarns bear floral designs and exquisite patterns with a strong Persian influence. Less expensive but equally beautiful are the woolen rugs called 'namdas'.
made by first pressing wool and cotton fibers manually, the rugs are then decorated with colourful chain stitch embroidery. This special chain stitch or crewelwork of Kashmir adorns wall hangings, rugs, the phiran (robe-like over-dress worn by both men and women) as well as shawls. Other handicrafts of Kashmir include papier-mâché objects painted with gold leaf and natural colours, basketry, carved wooden furniture made from the walnut wood and beaten silver and copper ware.

OBJECTIVES OF THE STUDY

The present study has certain specific research objectives. They are as follows:
1. To evaluate the socio-economic conditions of J&K.
2. To find out the role of population in different sectors of the J&K economy
3. To find out the major problems faced by Jammu and Kashmir economy.

Population

According to the census 2001, the total population of Jammu & Kashmir state is 10,143,700 which is 0.99 percent of the total population of the country. Out of this population, 5,360,926 are male and 4,782,774 females. As per Census 2011, the State has a population of 125 lakhs comprising of 66 lakh (53%) males and 59 lakh (47%) females. Out of population of 125 lakhs, 91.35 lakh (72.79%) live in rural areas and 34.14 lakh (27.21%) live in urban areas. Decadal growth during 2001-2011 declined to 23.71% from 29.43% during 1991-2001. The average annual exponential growth declined to 2.15% per annum during 2001-2011 from 2.61% per annum during 1991-2001. The child sex ratio [0 to 6 years] has shown a sharp decline from 941 in 2001 to 859 as per census 2011. The overall sex ratio of the state has also declined from 892 in 2001 to 883 in 2011. It showed a continuing preference for male children over females in the last decade. As per census 2011, the population density of the State is 124 per sq km which is lower than 382 per sq km at national level. The population of the J&K State accounts for 1.04 percent of the country in 2011 as against 0.99 percent population in 2001 and ranks 19th among the States.

Table 1.0
Estimated Division wise population and %age of Religious groups among these divisions

<table>
<thead>
<tr>
<th>Division</th>
<th>Population</th>
<th>% Muslim</th>
<th>% Hindu</th>
<th>% Sikh</th>
<th>% Buddhist and other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kashmir(53.9%)</td>
<td>5,476,970</td>
<td>97.16%</td>
<td>1.84%</td>
<td>0.88%</td>
<td>0.11%</td>
</tr>
<tr>
<td>Jammu (43.7%)</td>
<td>4,430,191</td>
<td>30.69%</td>
<td>65.23%</td>
<td>3.57%</td>
<td>0.51%</td>
</tr>
<tr>
<td>Ladakh (2.3%)</td>
<td>236,539</td>
<td>47.40%</td>
<td>6.22%</td>
<td>2.3%</td>
<td>45.87%</td>
</tr>
<tr>
<td>Total (%)</td>
<td>10,143,700</td>
<td>66.97%</td>
<td>29.63%</td>
<td>2.03%</td>
<td>1.36%</td>
</tr>
</tbody>
</table>

Source: Population Census 2010-11
As per Census 2011, the State has a population of 125 lakhs comprising of 66 lakh (53%) males and 59 lakh (47%) females. Out of population of 125 lakhs, 91.35 lakh (72.79%) live in rural areas and 34.14 lakh (27.21%) live in urban areas.

**Religion of Jammu and Kashmir**

While the Kashmir valley is predominantly Muslim, Jammu has a majority of Hindus while a large percentage of Ladakh is practicing Tibetan Buddhism. Apart from their majority religious denominations, all the areas have minority populations of Muslims, Hindus and Buddhists.

The languages spoken commonly in Jammu and Kashmir are Kashmiri, Urdu and Hindi. Dogri is spoken in the Jammu region of the state and Ladakhi is the language of the people of Ladakh antelope.

**Food of Jammu and Kashmir**

The food of Jammu and Kashmir differs from region to region with the Hindus Dogras of Jammu being predominantly vegetarian; eat a staple diet of rice, wheat and beans. The Ladakhies eat rice, wheat, millet, locally produced vegetables and fruits, goat meat and dairy products made from yak milk. Kashmiri food is characterized by its vast array of dishes cooked over a long period of time in exotic spices. The seasons and availability of fresh produce dictates the ingredients, some of which are dried and used in the winter months. The main food of Kashmiri cuisine is the formal banquet called "wazawan" that includes a spread of over 36 courses cooked all night long by a team of chefs called ‘wazas’ under the supervision of a ‘Vastawaza’ or master chef, descendants of the cooks from Samarkand. The food is characterized by thick gravies using liberal quantities of yoghurt, spices and dried fruits, and is usually cooked in ghee (clarified butter) or mustard oil. Saffron, the most expensive spice in the world, is grown locally. It is used extensively to flavour the pulaos (rice dish) and sweets. The popular dishes include the starter yakhni, tabaqaat made of fried ribs, dumaloo (steam cooked potato curry), rogan josh made with mutton, gushtaba, a meatball curry and haleem made from meat and pounded wheat. A Kashmiri meal has to end with a cup of ‘Kahva’, green tea flavored with cardamom and almonds.

**Festivals**

On the tenth day of the bright fortnight Assuj is celebrated as the day of victory of Rama over Rawana. Shivratri festival is also celebrated in Jammu and Kashmir. Four Muslim festivals celebrated in the State are Id-ul-Fitr, Id-ul-Zuha, Id-Milad-un-Nabi and Meraj Alam. Muharram is also observed. The Hemis Gumpa festival of Ladakh takes place in the month of June. A special feature of the Hemis festival is its mask dance.

In Spituk monastery in Leh, enormous statues of Goddess Kali are exhibited once in the year on the occasion of the annual festival which falls in January. Other festivals celebrated are Lohri marking a climax of winter. Sinh Sankranti observed in Ramban and adjoining villages. Mela Pat observed in Bhadarwah in the month of August.

**Economy of Jammu and Kashmir**

The Jammu and Kashmir economy depends mostly on traditional forms of occupation. Unaffected and unaltered by modern day industrial developments and changing times, the indigenous traditional occupations of farming, animal husbandry and horticulture forms the backbone of the economy of the state of Jammu and Kashmir. A state affected by continued violence and insurgency, the economy of Jammu and Kashmir is an underdeveloped one. However in the recent years, the government of Jammu and Kashmir has taken several significant steps to strengthen the financial conditions of the state and improve the standard of living of the indigenous local inhabitants. The following sectors represent the economy of Jammu and Kashmir, such as agriculture, industry, tourism, infrastructure, power, health, irrigation, railways, roadways, and airways.

**Agriculture**

Agriculture is the main occupation of more than 80% people in Jammu and Kashmir. The majority of the native population depends on primitive forms of shifting agriculture. The valleys of the region form suitable grounds to grow various kinds of crops that earn a large chunk of revenue for the state. Major food crops are wheat, paddy and maize. Barley, jewar and bajra are also cultivated in some parts of the state.

**Industry**
Handicrafts, the traditional industry in the state, are receiving top priority in view of employment potential and demand in wood carving, papier-mâché, carpets, shawls and embroidery etc. Carpets earn a substantial foreign exchange. Export of handicraft products has increased about six fold in the last decade. Handloom Development Corporation is producing woolen items like tweed, blazes, blankets, shawls etc.

As per Annual survey of industries (1999 – 2000), Jammu and Kashmir had 393 factories employing 26,311 persons. Total investment was Rs 58,504 lakh and net income generated was Rs 18,123 lakh. As on 31st march 2002, there were about 32,245 small scale industries in the state.

Another important economic activity of the state is animal husbandry. Apart from farming the undulating lands of the state, most of the local inhabitants also keep many animals like sheep. Sheep rearing is an important industry of the region. The economy of the state also depends on horticulture. Horticulture is one of the budding industries of the state that earns large revenue. The favorable weather helps in the production of many kinds of fruits. With an annual turnover of over Rs. 300 crore, apart from foreign exchange of over Rs. 80 crore, this sector is the next biggest source of income in the states economy.

Tourism

Jammu And Kashmir State has a vast potential of tourism. Tourism in Jammu And Kashmir State has been recognized as one of the most important sectors of the economy as it is being realized as a major engine of growth for future. Jammu and Kashmir is endowed with all the basic resources necessary for thriving and booming tourism activity like geographical and cultural diversity, beautiful and pristine streams, sacred shrines, historic geographical monuments and the friendly and hospitable people. Every year thousands of Hindu pilgrims visit holy shrines of Vaishnu Devi and Amarnath which has had significant impact on the state’s economy. In Kashmir valley tourism has rebounded in recent years and in 2009, the state became one of the top tourist destinations of India. Gulmarg, one of the most popular ski resort destinations in India, is also home to the world’s highest green gulf course. Tourist arrivals in Kashmir valley has increased from 27,000 in 2002 to around 60000 in 2005.

Infrastructure

The state government of Jammu and Kashmir has turned its attention to the various infrastructural amenities of the region. Roads, power, health, primary education and irrigation are some of the important areas that the need urgent attention of the state government.

Power

The Jammu and Kashmir state is one of the energy starved state of the country despite having tremendous hydropower potential. The state is facing acute scarcity of power, which can be gauged from the fact that against a total peak requirement 1427 MW (2004-05) of electricity, the state has hardly 374 MW (2002-07) of installed capacity in the state sector. According to Jammu and Kashmir State Power Development Corporation (JKSPDC), the hydropower potential of the state is 20,000MW and has identified 16000MW for four rivers in the state: Chenab (10853.81 MW), Jhelum (3141.30MW), Indus (1598.70MW) and Ravi (417.00MW).

Health

The state has made considerable progress in the field of medical education. There are two medical colleges, one in Jammu and the other in Srinagar. The Sheri-Kashmir Medical Institute, at Soura in Srinagar, has a 600-bed complement and provides facilities for postgraduate medical education and medical research. In 2004-05, the state had 117 hospitals, 687 dispensaries, 394 primary health center and sub-centres, 453 medical aid centers and 2080 family planning centers and sub-centers. The total fertility rate of the state is 2.3, infant mortality rate is 51, crude birth rate (2007) is 19 and crude death rate is 5.8 (2007).

Irrigation

Special initiatives have been taken for flood control, drinking water supply and irrigation in Jammu and Kashmir. In the Eight Five year plan, there was a provision for Rs 205.52 crore for the above mentioned purposes. As on 2005-06 net irrigated area was of 311 thousand hectares and gross irrigated area was 451 thousand hectares in the state.
Railways

At present, there is railway connection up to Udhampur and extension of railway line to Srinagar and Baramulla has been taken up. New rail line between Mazhom-Baramullah has been established. The longest passenger route in India is of Himsager Express from Jammu Tawi to Kanniyakumari, covering a distance of 3,726kms.

Roadways

National Highway, 1-A, connecting Srinagar with Jammu (300 kms) is an open-ended road. Jammu in turn is connected to many sections of Northern India admitting New Delhi. Buses and all types of Taxis to Srinagar are available from Jammu railway station and city station. Several Tourist Taxi stations, in Srinagar city have recently upgraded their fact and taxis can be hired for to using Srinagar city and various resorts in Kashmir. The road length in J&K on Nov. 2006 was 13540 kms.

Table 2.1

<table>
<thead>
<tr>
<th>Year</th>
<th>SDP (In million INR)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>11,860</td>
</tr>
<tr>
<td>1985</td>
<td>22,560</td>
</tr>
<tr>
<td>1990</td>
<td>36,140</td>
</tr>
<tr>
<td>1995</td>
<td>80,970</td>
</tr>
<tr>
<td>2000</td>
<td>147,500</td>
</tr>
<tr>
<td>2005</td>
<td>539,850</td>
</tr>
<tr>
<td>2010</td>
<td>730550</td>
</tr>
</tbody>
</table>

ECONOMIC SURVEY OF JAMMU & KASHMIR

Fig. 2.1

State Domestic Product
Conclusion

As a state with unique features and a strategic location, the speedy development of Jammu and Kashmir needs an integrated approach. The top priority of the government should be to create a secure environment by improving the law and order situation in the state. State finance should also receive proper attention in order to ensure better fiscal management. A sound policy should be devised to exploit the potential in the sectors of strength. The development of potential sectors such as horticulture, handloom and handicrafts, biotechnology, tourism and information technology will have strong inter-linkages with the rest of the sectors.

In a nutshell, sound policy and good governance can lead the state of Jammu and Kashmir to a faster development path. J&K needs to focus on its weakest contributor “Agriculture” which ironically supports more than 60% of employment and the effects can be easily seen in the disparity ratio between average incomes of agriculturists and non-agriculturists which has been increasing since long. This means that a major population (60% people) of J&K is becoming poorer. Also, keeping in consideration the scope of expansion in manufacturing sector and Service sector (primarily with tourism industry under its kitty) the major bottle neck that can hold us back is the Agriculture sector. The agricultural sector has shown a lower performance due to a number of factors such as illiteracy, insufficient finance, insufficient irrigation facilities, power availability, and inadequate marketing facilities and under pricing of agricultural products. The average size of the farms is very small and approximately 90% of land holdings are of the size of 2-4 Kanals, which in turn results in low productivity. The sector has not adopted modern technology and agricultural practices to a larger extent. Also decline in plan allocations investment and investment credit are contributing factors.

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14. Discussion with Kabir Dar, the chief executive officer of the agency for the development of aromatic and Medicinal plants in Valley.
15. Discussion with H D Shoura, joint director of the Department of Industries and Commerce on the status of Industries in the state.
16. Discussion with G M Shah, the chairman JK Consultancy Bureau, a nodal agency for OLPE, EDII (Entrepreneurship Development Institute of India), Ahmadabad.
VARIATION IN THE PROTEIN CONTENT DURING DIAPAUSE AND NORMAL DEVELOPMENT OF “Bombyxmori” L

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Govt. N.S.P. Sc. College

ABSTRACT
Total Protein extracted from different developmental stages of “Bombyxmori”L. No remarkable variation in the quantity of protein was observed during early embryogenesis. The protein content increased in late embryonic stage whereas abruptly decreased in newly hatched larvae. There was a steady increase in protein content during larval development of “B. mori”, however 4th instar late stage larva showed decreased amount of protein .The protein content reached to maximum in 5th instar mature larvae. Protein content decreased abruptly in 4days old pupae. A further increase in protein content was observed during pupal and pharate adult stages while the protein content decreased after adult emergence. The sexual dimorphism was observed in adults and found higher amount of protein in female.

INTRODUCTION
The silkworm has been raised since time immemorial and has become completely domesticated. Sericulture is one of the important occupations in M.P., Kashmir, Karnataka & other States. Karnataka state occupies a prominent place in Indian silk industry. In M.P., Production of silk is 15-20%. The range of food selection of this insect is very narrow, almost limited to mulberry leaves. Hence the silkworm is classified as Monophagous insect, one of the most striking examples. The larval stage is the only feeding stage in which the food is accumulated in the form of fat, carbohydrate & Proteins. This stage is a very important period for silkworm Protein synthesis. Tender leaves containing 75% water which is very essential for newly hatched larva and have more protein than carbohydrate in comparison to coarse one.

MATERIAL & METHOD
Whole eggs, Larvae, Pupae, Moths: Samples of different developmental stages were obtained from Central Sericultural Research & Training Institute (CSRTI), Mysore.

Common reagents – All chemicals and organic solvents used were analytical reagent grade.

BDH-Bombay, S.M. chemicals-Baroda or Rechem-Hyderabad

Estimation of total Protein– \( N_2 \) was estimated by microkjeldahl method (Bruel et.al3, 1947)
The apparatus used for analysis was containing the following three units.
1. Buchi 430 digestor.

Digestion– 100 mg conc. \( H_2 \)SO\(_4\) was carefully added. The contents were digested in the presence of catalyst mixture (\( HgO&K_2SO_4 \), 1:30 w/w) by heating the flask for about 5-6 hour. Boiling chip was also added to each flask before the continuous heating.

Distillation– After completing the digestion, distillation was done with the automatic distillation unit Buchi 322. 5 ml of 5% Boric acid solution contained in 100 ml. Erlenmeyer flask was immersed under the stem of receiving condenser & 1-2 drops of Methyl-red-Methylene blue indicator was added. As the distillation unit was started, 40%
alkali (NaOH) was slowly trickled. After a few minutes, distillate was collected in the Boric acid solution receiver which turned green blue.

**Titration & Calculation** – All the N₂ in the sample was presumably held as Ammonia in the Boric acid indicator solution was titrated with 0.1 N H₂SO₄ in an automatic titration unit B 342. As the neutral grey end point was produces the titration unit stopped automatically & the final reading was recorded. An analysis made on a blank owing to reagents was executed in an identical manner at the same time, and its final titer value substracted from the reading obtained from the sample.

The percentage(w/w) of N₂ in the sample was by the formula:

\[
\frac{[(\text{ml. of std. ac. For sample} - \text{ml. of std. ac. For blank}) \times \text{normality} \times 14]}{\text{mg of sample}} \times 100 = \% (w/w) \text{N₂}
\]

The N₂ value thus obtained were multiplied by factor 6.25 & the protein % was obtained.

**RESULT**

The variation in total protein during different developmental stages is shown in table-1 & graph-1. Percentage of protein varied from 70 to 88.31 % (on dry wt., defat basis). During early embryonic period there was no much significant difference in the protein content. It gradually increases upto 8 days old eggs.

The Protein dropped abruptly in newly hatched larvae(70.05%). The Protein content increased gradually in rest of the larval stages (Table1 & graph1) except 4th instar late stage larvae where the amount of protein was slightly decreased(76.36%). A gradual increase in Protein content was observed in the 5th instar larval development where the mature/spinning larval contained the highest amount of protein(88.31%).

The protein content again decreased abruptly in 4 days old pupae which revealed 70.74% & increased gradually up to pharata adult stage. Male Pupae contained more protein(80.96%) than that of female (78.96%)

After emergence Protein contents were slightly reduced in both sexes. Adult male revealed 71.37% & female showed 77.87% protein content.

**DISCUSSION**

No remarkable variation in the quantity of protein was observed during early embryogenesis. Yamashita & Iris(1980) were also of the opinion that there is not much variation in quantity of proteins during 6-7 days of embryogenesis. In agreement to the present result Lang et. Al. (1965) found the highest amount of Protein on the 6th day of larval development. Srivastava et. Al. (1981) observed similar findings as reported in B. mori, that the amount of total protein increased with growth of Acrythosiphonpisum larvae. Tojoet. Al. (1980) also reported an increase in the haemolymph protein from the final instar which reached to maximum level at the time of spinning in utilization of protein during early metamorphosis has been reported by Chippendale(1970) attributed to sequestration & subsequent redistribution of utilization, in energy metabolism(Crompton & Birt 1967, Birt & Christian 1969). De novo synthesis of Protein was also reported in Lucilia(William & Birt, 1972).

The sexual dimorphism was observed in adults & found higher amount of protein in female. Similar observations have been made by Tojo(1971) in silkworm. In agreement to the present results synthesis of Protein was observed inpharata adult of Calliphora (Agrell & Lindh, 1966; Sekeri et al. 1968) and Phormia (Dinamarca& Levenbook, 1966).

**CONCLUSION**

Protein constitute major part of biochemical substances found in insect body. It’s % varied from 58-85%(on dry wt., defat basis). During embryogenesis Protein content did not change significantly because the developing embryo mainly utilize carbohydrate & lipids. The significant drop in Protein content in newly hatched larva might be due to its high utilization before hatching.
Gradually increased amount of Protein was found in larval stages & the highest amount of Protein was observed in 5th instar mature/spinning larva might be due to it’s future need for cocoon formation. Decreased amount of Protein in 4 day old pupae indicates utilization of Protein in constructing the cocoon. Slight decrease in Protein content in newly emerged adult might be due to utilization of Proteins during pupal-adult moult.

**ACKNOWLEDGEMENT**

The author proffer sincere thanks to Dr. J.V. Prabhakar, Head & Project coordinator of the Lipid Technology Discipline, CFTRI, Mysore for consistent supervision in bringing out this adventurous work. I am equally thankful to Dr. M. S. Jolly, Director, CSRTI, Mysore, for promptly affording all the required samples of silkworm. I express my profound gratitude to my revered guide Dr. J. P. N. Pathak, Prof. MVM, Ujjain. I am grateful to CSIR for financial assistance.

**Table-1 Estimated composition (%) of total Protein of *B. mori*. During it’s different developmental stages.**

<table>
<thead>
<tr>
<th>Samples (Developmental stages)</th>
<th>Proteins (%) on defat dry weight basis</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Eggs</strong></td>
<td></td>
</tr>
<tr>
<td>1 day old</td>
<td>77.9</td>
</tr>
<tr>
<td>4 days old HCl treated</td>
<td>77.7</td>
</tr>
<tr>
<td>4 days old hibernated</td>
<td>78.0</td>
</tr>
<tr>
<td>8 days old HCl treated</td>
<td>81.33</td>
</tr>
<tr>
<td>8 days old hibernated</td>
<td>83.82</td>
</tr>
<tr>
<td>Larvae</td>
<td></td>
</tr>
<tr>
<td>First instar (newly hatched)</td>
<td></td>
</tr>
<tr>
<td>Second instar (newly ecdysed)</td>
<td>70.05</td>
</tr>
<tr>
<td>Third instar (newly ecdysed)</td>
<td>72.18</td>
</tr>
<tr>
<td>Fourth instar (newly ecdysed)</td>
<td>73.66</td>
</tr>
<tr>
<td>instar late stage (5 days old)</td>
<td></td>
</tr>
<tr>
<td>Fifth instar (newly ecdysed)</td>
<td>76.36</td>
</tr>
<tr>
<td>Fifth instar mid stage (5 days old)</td>
<td>79.10</td>
</tr>
<tr>
<td>Pupae</td>
<td></td>
</tr>
<tr>
<td>4 days old</td>
<td>84.81</td>
</tr>
<tr>
<td>8 days old</td>
<td>88.31</td>
</tr>
<tr>
<td>12 days old (Male)</td>
<td>70.74</td>
</tr>
<tr>
<td>12 days old (Female)</td>
<td>80.96</td>
</tr>
<tr>
<td>Adults</td>
<td></td>
</tr>
<tr>
<td>Male (newly emerged)</td>
<td>71.37</td>
</tr>
<tr>
<td>Female (newly emerged)</td>
<td>77.87</td>
</tr>
</tbody>
</table>
**Fig. 96** Total protein content of *B. mori* during its different developmental stage.

T - Treated, H - Hibernated, M - Male, F - Female.
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A Panoramic view of corruption from the world of literature
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ABSTRACT
Corruption, an issue that the world has been talking about is not restricted to a region, country and ethnicity. But it is everywhere and daily life is riddled with situation between legal and illegal. Literature is the reflection of society. What we read and write has an everlasting impact on our minds. It is not an event of just our generations but it has existed even in the remote past. It has only varied in its domain and extent of influence.

INTRODUCTION
Kalidas, a scholar in the court of the Gupta ruler Chandragupta Vikramaditya has given the subtle example of corruption in his drama “Abhigyan Shakuntalam”. Hunting to the deer is a crime and the I act of the play opens with this criminal act of hunting by the king:

‘I see you hunt the spotted deer
With shafts to end his race,
As though God Shiva should appear
In his immortal chase’ (1)

He has also given a picture of male dominance and crooked ways of love making. In repudiation scene we feel how an avalanche is loosed and coming inch by inch crashes upon the head of Shakuntala. Sarangarava loses his temper with the king for deceiving Shakuntala. They have obeyed orders of their preceptors in conducting Shakuntala to the palace of her lawful husband Dushyanta. It is for the king to accept her or reject her:

“Sarangarava, why bandy words? We have fulfilled our father’s bidding. We are ready to return.
Leave her or take her, as you will;
she is your wife;
Husbands have power for good or ill
O’er woman’s life” (2)

Shakuntala is so depressed that she desires death:

“Sakuntala- o mother earth, give me a grave!” (3)

When Gautami says to Sarangarava that Shakuntala is following us, Sarangarava turns angrily-

“If you deserve such scorn and blame;
What will your father with your shame?
But if you know your vows are pure,
Obey your husband and endure” (4)

Shakuntala is so depressed that she desires death-

“Sakuntala- o mother earth, give me a grave!” (5)

The play highlights the misery, the suffering, the discrimination, the brutal unethical dominance and clearly shows the corruption that they have gone. Cast system prevailed and fisher men were considered low caste as they were involved in killing animal life. In scene VI two police men strike a man without knowing the fact and abuse him as pickpocket. The fisherman is again and again requesting them that he is not a thief, but police men laugh sarcastically abusing him.

“The two policemen (striking the man): Now, pickpocket, tell us where you found this ring. It is the king’s ring, with letters engraved on it, and it has a magnificent great gem. Fisher man (showing fright):

Be merciful, kind gentlemen. I am not guilty of such a crime...
Chief (laughing): You have a sweet trade.
Fisherman: Don’t say that, master. You can’t give up a low down trade that your ancestors began; a butcher butchers things, and yet he’s the tenderest-hearted man.”(6)
We see cruelty of police in the following lines:

‘Suchaka: Januka, my fingers are itching (indicating the fisherman) to kill this cutpurse.
Fisherman: Don’t kill a man without any reason, master.
Januka (looking ahead): There is the chief, with a written order from the king.
(To the fisherman) Now you will see your family, or else you will feed the crows and jackals” (7)

As soon as the policemen find out that king is kind enough towards that fisherman, there is change in the attitude of the police which shows how much corruption prevailed at that time.

Further poor fisherman is requesting to police that they can take half of the gift for entertaining with drinks. Police i.e. Januka says to him that you are biggest and best friend I have got. It is desirable that celebration of our friendship will be with a pledge of brandy. So we should go there.

William Shakespeare’s plays are also concerned with the intricacies of human corruption. In The Merchant of Venice; the asymmetrical nature of power is first evidenced in an exchange between the merchant Antonio, and the money lender Shylock.

Shylock is a despised and ostracized member of society because he is a Jewish. Antonio is vulnerable, even as a wealthy Christian, because of his need for money. Like any businessmen, Antonio is dependent upon credit to survive, so he must placate Shylock. Antonio wishes to make a lone to his friend Bassanio, so that Bassanio can woo the wealthy Portia.

Women’s day, women empowerment; these are the words in vogue. The very fact highlights the misery, the sufferings, the discrimination etc, even in The Merchant of Venice; Portia is powerful due to her money but powerless because as woman, she is beholden to her dead father’s wishes that she use a complicated ‘screening’ method for all future husbands’. Portia cannot choose whom she wants to marry:

“But this reasoning is not in the fashion
To choose me husband.
O’m the word choose!
I may neither choose whom I would,
Nor refuse whom I dislike.
So is the will of a living daughter curbed
By the will of a dead father.
Is it not hard, Nerissa,
That I cannot choose one, nor refuse none.”

Also upon marriage, she confers some of her powers to her husband, especially control over her future:

“Happiest of all is that her gentle spirit
Commits itself to yours to be directed,
As from her lord, her governor, her king,
Myself and what is mine to you and yours.
Is now converted………..
This house, these servants and this same myself are yours, my lord” (9)

In Macbeth, one of Shakespeare’s later tragedies, Macbeth obtains the throne to which he aspires. At the opening of the play Macbeth appears to be an honorable man, a formidable warrior loyal towards Duncan and victorious against rebellious Scotsmen in league with a foreign power (Norway) against the Scottish king. Not long after the opening scene Macbeth comes with his own ambition.

The witches’ prophecy that Macbeth will be “king hereafter” (10) forces him to confront consciously the darker side of his nature. His reluctance to murder Duncan is worn down by his loving wife, Lady Macbeth, who pushes him until he agrees that Duncan will not leave their castle alive.

She takes upon herself the entire responsibility of the deed, she advises:

“To beguile the time
Look like the time; bear welcome in your eye, your hand, your tongue; look like the innocent flower,
but be the serpent under it.” (11)

Both Macbeth and Lady Macbeth are fired by passion of ambition. She says at one time “The sleeping and the dead are but as pictures.” (12) and that “A little water clears us of this deed.” (13)

In Measure for Measure, Angelo is appointed deputy to duke of Vienna, as nominal ruler of Vienna, Angelo must bring order to a political entity. Angelo is actually being tested by the Duke and inevitably he fails the test. Where Isabella an attractive young woman about to become a nun, pleads with Angelo for the life of her brother
Claudio, Angelo tells her that he will spare her brother’s life if she yields to his sexual advances.

Like Angelo, Shakespeare’s king Richard II is a man in power who places his own interests above his country and his subjects. Richard is guilty of many corrupt practices. He spends lavish amount of money on himself and his friends. He is arrogant and corrupt and threatens the well being of England. He ignores what is best for his country and residents but gratifies his whims and pleasures.

Premchand, one of the greatest writers of modern India, has depicted the tragedy and pathos of dark lives, their sorrows and sufferings, frustrations and hopes due to corruption in society. Godan, a story of stark realism highlights the contemporary socio-economic, religious and political problems. Zamindars were so corrupt that people who were in their debt were ejected from their land. Horiram says to his wife Dhania:

“It’s all due to keeping on good terms with the master that trouble has remained at arm’s length from us. Otherwise we would have been out of existence long ago. Out of scores of people in the village can you name one who has not been ejected from his land or been served with attachment orders. When your neck is being trampled under the tyrant heel the rapist course is to keep on tickling of his feet.”(14)

In Godan Premchand has drawn a realistic picture of the poor peasants. Lower class was exploited by greedy zamindars. In Godan Raisaheb fined Hori for Cow’s death, though he did not kill it.

Poor peasants are always in debt. Zamindars are corrupt and the debt of poor peasants multiplies day by day with the passage of time. Mr. Khanna, an industrialist owns a sugar factory. When Raisaheb says, “You charged 7% interest from Surya Pratap Singh, from me you want 9% and you have the cheek to say you are doing me a favor” (15)

Khanna brushed away his remarks with a laugh “you can have a loan on the same terms,” he said “did you know he mortgaged his property with the bank? Perhaps he will never be able to redeem it.”(16)

Election system is also corrupt. “ Elections are a nuisance. I have lost faith in democracy. You labor like a mountain and bring forth a rat.”(17) says Mirza. Again he says: “What we call democracy is really nothing more than a cloak for the machination of monopolists and landlords. Only those with money win election.”(18) Again he says: “Democracy is organized loot!”(19)

Exploitation of women was inherent in the society. In Godan Dhania, Jhunia, Seliya, Roopa all are exploited by their partners. Caste system is one of the reason for corruption in the society. Datadin represents the uppermost caste. He exploits the lower caste villagers with his religious sanctions. Hori, Bhola, Seliya represent different hierarchies of lower caste.

Nirmala is one of the well known literatures of Munshi Premchand about the corruption of the dowry system. Story portrays the life of Nirmala from her childhood to old age. Due to shortage of money in the house her mother marries off to a widower 20 years older than her and already had 3 children from his first wife. Nirmala develops friendly relationship with the eldest son, who was of the same age as Nirmala. At this her husband puts allegations on him and sends to live in a hostel where he dies and there comes the downfall of the family.

**Conclusion**

Thus Premchand represents various sanctions of corruption inherent in Indian society as caste segregation, exploitation of lower class, exploitation of women, corruption due to greedy industrialists, corrupt political scenario etc in his literature.

Human nature of any material man by and large is same; some degree of corruption is throughout the world whether it is the time of Chandragupta Vikramaditya or Shakespearean time or 20th century i.e. time of Premchand.

Chetan Bhagat, A writer of 21st century on the maker of religion says, “Simplest description of secularism is letting all religions coexist. How? Like oil and water? Or like milk and sugar? We have to strive for the latter.”(20) We have lamented the occurrence of corruption. But it is necessary to evaluate the way ahead. So it is important that one has to inculcate morals on an individual basis.
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ನೃಗೇದೇ ಸಂನಿಹಿತಾಂ ಅಧಿಕಾರಾಧಕಾಯಾರುಾಂನಿ, ಸಮಾಜ ತೇಜಾವಳಾದನ
ಬಾಲ ಜ್ಞನ ಪ್ರಜಾತಿ,
ಶಾಸ್ತ್ರೀಯ ಎಸ್.ಜಿ. ರ.ಸ. ಮಹಾವಿದ್ಯಾಲಯ, ಗಂಜಬಸಿತ್ತಾ
ಜಿಲ್ಲಾ— ವಿದ್ಯಾ (ಮ್ಸ್ )

ಭಾರತೀಯ ವಾಸ್ತವಾಧ್ಯಾಯದ ಸಾಮಾಜಿಕವಾಧ್ಯಾಯ ಸ್ಮೃತಿಗಳ ಕ್ರಿಯೇ ಮುನ್ನಲ್ಲ ಬರೆಯಲು? ಕೆಲವು ಸಾಮಾಜಿಕವಾಧ್ಯಾಯದವರ ಶಿಕ್ಷಣ ಉತ್ತರಕ್ಕೆ ಸಮಾರೋಹಿಸಬಹುದು? ಇತರ ಸಾಮಾಜಿಕವಾಧ್ಯಾಯದವರ ಎಲ್ಲವ ಸಾಮಾಜಿಕವಾಧ್ಯಾಯ ಅಧಿಕಾರಾಧಕಾಯಾರುಾಂ ಸಂಶೋಧನೆಗಳನ್ನು ಸಂಕೇತಿಸುವ ಮೂಲಕ ಒಂದು ಸಮಾಜಿಕವಾಧ್ಯಾಯದವರ ಶಿಕ್ಷಣ ಉತ್ತರಕ್ಕೆ ಬರೆಯಲು? ಎಲ್ಲವ ಸಾಮಾಜಿಕವಾಧ್ಯಾಯದವರ ಎಲ್ಲವ ಸಾಮಾಜಿಕವಾಧ್ಯಾಯದವರ ಶಿಕ್ಷಣ ಉತ್ತರಕ್ಕೆ ಬರೆಯಲು?

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