

Volume 5, Issue 1(5), January 2016
**International Journal of Multidisciplinary
Educational Research**

Published by

Sucharitha Publications
8-21-4, Saraswathi Nivas, Chinna Waltair
Visakhapatnam – 530 017
Andhra Pradesh – India
Email: victorphilosophy@gmail.com
Website: www.ijmer.in

Editorial Board

Editor-in-Chief

Dr.K. Victor Babu

Faculty, Department of Philosophy
Andhra University – Visakhapatnam - 530 003
Andhra Pradesh – India

EDITORIAL BOARD MEMBERS

Prof. S.Mahendra Dev

Vice Chancellor
Indira Gandhi Institute of Development
Research
Mumbai

Prof.Y.C. Simhadri

Vice Chancellor, Patna University
Former Director
Institute of Constitutional and Parliamentary
Studies, New Delhi &
Formerly Vice Chancellor of
Benaras Hindu University, Andhra University
Nagarjuna University, Patna University

Prof. (Dr.) Sohan Raj Tater

Former Vice Chancellor
Singhania University, Rajasthan

Prof.K.Sreerama Murty

Department of Economics
Andhra University - Visakhapatnam

Prof. K.R.Rajani

Department of Philosophy
Andhra University – Visakhapatnam

Prof. P.D.Satya Paul

Department of Anthropology
Andhra University – Visakhapatnam

Prof. Josef HÖCHTL

Department of Political Economy
University of Vienna, Vienna &
Ex. Member of the Austrian Parliament
Austria

Prof. Alexander Chumakov

Chair of Philosophy
Russian Philosophical Society
Moscow, Russia

Prof. Fidel Gutierrez Vivanco

Founder and President
Escuela Virtual de Asesoría Filosófica
Lima Peru

Prof. Igor Kondrashin

The Member of The Russian Philosophical
Society
The Russian Humanist Society and Expert of
The UNESCO, Moscow, Russia

Dr. Zoran Vujisiæ

Rector
St. Gregory Nazianzen Orthodox Institute
Universidad Rural de Guatemala, GT, U.S.A

Prof.U.Shameem

Department of Zoology
Andhra University Visakhapatnam

Dr. N.V.S.Suryanarayana

Dept. of Education, A.U. Campus
Vizianagaram

Dr. Kameswara Sharma YVR

Asst. Professor
Dept. of Zoology
Sri. Venkateswara College, Delhi University,
Delhi

I Ketut Donder

Depasar State Institute of Hindu Dharma
Indonesia

Prof. Roger Wiemers

Professor of Education
Lipscomb University, Nashville, USA

Dr.B.S.N.Murthy

Department of Mechanical Engineering
GITAM University –Visakhapatnam

N.Suryanarayana (Dhanam)

Department of Philosophy
Andhra University
Visakhapatnam

Dr.S.V Lakshmana Rao

Coordinator
A.P State Resource Center
Visakhapatnam

Dr.S.Kannan

Department of History
Annamalai University
Annamalai Nagar, Chidambaram

Dr. Barada Prasad Bhol

Registrar, Purushottam Institute of
Engineering & Technology
Sundargarh, Odisha

Dr.E. Ashok Kumar

Department of Education
North- Eastern Hill University, Shillong

Dr.K.Chaitanya

Department of Chemistry
Nanjing University of Science and
Technology
People's Republic of China

Dr.Merina Islam

Department of Philosophy
Cachar College, Assam

Dr. Bipasha Sinha

S. S. Jalan Girls' College
University of Calcutta, Calcutta

Prof. N Kanakaratnam

Dept. of History, Archaeology & Culture
Dravidian University, Kuppam
Andhra Pradesh

Dr. K. John Babu

Department of Journalism & Mass Comm
Central University of Kashmir, Kashmir

Dr.T.V.Ramana

Department of Economics
Andhra University Campus, Kakinada

Dr.Ton Quang Cuong

Dean of Faculty of Teacher Education
University of Education, VNU, Hanoi

Prof. Chanakya Kumar

Department of Computer Science
University of Pune,Pune

Prof. Djordje Branko Vukelic

Department for Production Engineering
University of Novi Sad, Serbia

Prof.Shobha V Huilgol

Department of Pharmacology
Off- Al- Ameen Medical College, Bijapur

Prof.Joseph R.Jayakar

Department of English
GITAM University
Hyderabad

Prof.Francesco Massoni

Department of Public Health Sciences
University of Sapienza, Rome

Prof.Mehsin Jabel Attaya

Al-Mustansiriyah University
College of Education
Department of Mathematics, Iraq

Prof. Ronato Sabalza Ballado

Department of Mathematics
University of Eastern Philippines, Philippines

Dr.Senthur Velmurugan .V

Librarian
Kalasalingam University
Krishnankovil Tamilnadu

Dr.J.B.Chakravarthi

Assistant Professor
Department of Sahitya
Rasthritya Sanskrit Vidyapeetha, Tirupati

© Editor-in-Chief, IJMER®
Typeset and Printed in India
www.ijmer.in

IJMER, Journal of Multidisciplinary Educational Research, concentrates on critical and creative research in multidisciplinary traditions. This journal seeks to promote original research and cultivate a fruitful dialogue between old and new thought.

C O N T E N T S

Volume 5

Issue 1(5)

January 2016

S. No		Page No
1.	Waste Oils as an Alternative Fuel for Diesel Engines P.Vijaya Rao and V .V. R. L. S Gangadhar	1
2.	Normative Perspective of Human Right to Development: Relevance of Gandhian Ideas Varalakshmi.M	34
3.	Social Anxiety among Transgender Vijayalakshmi.S	59
4.	A Survey on Various Authentication Attacks and Database Secure Authentication Techniques Yatendra Kashyap and Raju Sharma	67
5.	Stress and Coping Strategies of Achievers and Underachievers - A Comparative Study Dilruba Syed and Mahmood Ahmad Khan	82
6.	Foreign Policy of Narendra Modi, Prime Minister of India N .Sreeramulu	97
7.	Empowerment of Women through Politics: Issues and Challenges Kandula Salaiah	128
8.	Programmes and Schemes of Narendra Modi, Prime Minister of India C.Ramanaiah	140
9.	The Emergence of Dalit Poetry in South India Mallikarjunaiah.K	155
10.	Ontario University Global Policy Nagaraja.N	162
11.	Body Mass Index Waist Hip Ratio among the Rural Adults P.Narendra and A B Subhashini	168

12.	The Narration of Haunting Memories of Childhood in Cat's Eye By Margaret Atwood	181
	Vinod Bhatt	
13.	Effect of Computer Aided Instructions (C.A.I.) on Achievement of B.Ed Teacher Trainees	188
	Manminder Kaur	
14.	साहित्यवाङ्मये काव्यप्रकाशस्य व्याख्यापरम्परा भास्करमिश्रस्य साहित्यदीपिका परिपोषिता	199
	H.G Arjun Kashyap	
15.	Historical Profile of the Yanadi Tribe	208
	K.Nettikallappa	
16.	An Enhanced Rainfall Time Series Modeling Using Parallel and Combined Approaches	219
	Tulasi Sunitha.M and C.Subramanian	
17.	Sandilya Samhitha Pancharath	228
	Harilal Korra	

Dr. K. VICTOR BABU

M.A., M.A., M.Phil., Ph.D., PDF, (D.Lit)
Faculty of Philosophy and Religious
Studies & Editor-in-Chief
International Journal of Multidisciplinary
Educational Research (IJMER) &
Sucharitha: A Journal of Philosophy and
Religion
Andhra University, Visakhapatnam
Pin - 530 003, Andhra Pradesh – India



ISSN : 2277 – 7881
Impact Factor :3.318(2015)
Index Copernicus Value: 5.16



Editorial.....

You will be happy to know that we have entered the fourth year of publication of IJMER, since its inception in April 2012. Focusing on many interdisciplinary subjects, the published papers are spreading the knowledge with fervent hope of upholding the holistic approach. With all my heart, I reiterate to echo my sincere feelings and express my profound thanks to each and every valued contributor. This journal continues to nurture and enhance the capabilities of one and all associated with it.

We as a team with relentless efforts are committed to inspire the readers and achieve further progress. Aim is to sustain the tempo and improve. We acknowledge with pleasure that our readers are enjoying the publications of Sucharita Publishers. We solicit to receive ideas and comments for future improvements in its content and quality. Editor – in-Chief explicitly conveys his gratitude to all the Editorial Board members. Your support is our motivation. Best wishes to everyone.

Dr.K.Victor Babu
Editor-in-Chief

**SOCIAL SCIENCES, HUMANITIES, COMMERCE & MANAGEMENT, ENGINEERING
& TECHNOLOGY, MEDICINE, SCIENCES, ART & DEVELOPMENT STUDIES, LAW**

www.ijmer.in



WASTE OILS AS AN ALTERNATIVE FUEL FOR DIESEL ENGINES

Prof.P.Vijaya Rao

Professor

Dept. of Mechanical Engineering

JJ Institute of Information

Technology

Hyderabad, Telangana, India

Prof.V V R L S Gangadhar

Professor

Dept. of Mechanical Engineering

Princeton College of Engineering &

Technology

Hyderabad, Telangana, India

INTRODUCTION

The threat posed by climate change and the striving for security of energy supply is issues high on the political agenda these days. Governments are putting strategic plans in motion to decrease primary energy use, take carbon out of fuels and facilitate modal shifts (Sebastian and Thomas, 2009). Throughout the world, many steps are being taken to alternate petroleum based fuel due to tires from automotive vehicles, restaurant and plastic have become increasingly hard. Waste management is the impact of increase in oil price and the reality of petroleum depletion. once a technical problem that has to be solved under thrifty, yet environmentally acceptable and hygienic conditions and preferably performed by skilled labor. Disposal of waste vehicle tires is one of the most important problems that should be solved. It is estimated that worldwide, over one billion waste tires are generated annually (Cumali and Hüseyin, 2011). Industrial and household wastes are produced on a daily basis and are managed in many ways, depending on their type. According to their combustibility, wastes are basically categorized as either burnable or unburnable. The burnable wastes are normally treated by combustion with or without heat production, while the unburnable

Wastes are treated by recycling, re-use, or land filling, depending on the material. Municipal and industrial wastes that contain high heat value,



such as waste plastics oil (WPO), waste cooking oil (WCO), and waste lubricating oil (WLO) are considered efficient feed stocks for energy production in a Waste-to-Energy regimen (Ampaitepin and Tetsuo, 2010). The main objective of this paper is to analyze by means of literature review the engine performance, combustion and emission characteristics of diesel engines fuelled with biodiesel produced from waste engine, waste cooking and waste plastic oil and/or its blends with petroleum-based diesel fuel.

WASTE OIL AS FUEL FOR DIESEL ENGINES

Waste engine oil

Waste lubricant oils and biofuels are two important alternative fuel sources proved to be the best substitutes for existing petrofuels, since waste generated oils represent more than 60% of used lubricant oils. Therefore, waste oils are one of the most abundant pollutant residues that are generated nowadays, reaching the value of 24 million metric tonnes per year (Fuentes et al., 2007). In recent years, recycling of the waste lubricant oils and utilizing of the products as fuels have become important topics for researchers. Most of the lubricant oils are generally obtained from petroleum resources. Petroleum-derived base oils currently account for about 97% of the total lubricant production (Bhaskar et al., 2004). However, these oils become waste oils harmful for environment after a certain time period. Recycling of the waste lubricant oils by purifying and converting them into fuels is very important in terms of protection of the environment. After waste lubricant oils are converted into fuels, they can be used as fuels in internal combustion engines. In recycling process, waste lubricant oils are exposed to various processes, and then used as fuel or they are converted into various chemicals in order to minimize the harmful effects of these wastes (Bhaskar et al., 2004).

Millions of tons of used oils are disposed through dumping on the



ground or in water, land filling, or non-energy-recovery (Bhaskar et al., 2004). The used or waste oils can be refined and treated to produce fuels or lubricating oil base stock. On the other hand, the waste oils pose an environmental hazard due to both their metal content and other contaminants (Nerin et al., 2000). The high-volume waste oils can be turned into valuable fuel products by refining and treating processes. Converting of the waste oils into diesel and gasoline-like fuels to be used in engines without disposing is very important. Utilization of the diesel and gasoline-like fuels produced from the waste lubricant oils, and blending of the produced fuels with gasoline or turpentine decrease consumption of petroleum based fuels, protecting environment from toxic and hazardous chemicals (Bhaskar et al., 2004). It also saves of foreign exchange, reduces greenhouse gas emissions and enhances regional development especially in developing countries (Demirbas and Demirbas, 2007).

Characteristics of any fuel are very important from the point of deciding whether the fuel can be used for desired application or not. Therefore, some characteristics of the produced diesel-like fuel and gasoline-like fuel are shown in Tables 1 and 2, respectively, together with standard values of a diesel and gasoline fuel. The table shows that some of the parameters of density, boiling point, viscosity, flash point and lower heating value are in the standard values of the diesel oil or reasonably close to the standard values. But, sulfur amount is considerably higher than that value. It should be decreased below the value of 50 ppm.

Waste cooking oil

Many researchers have tried to develop vegetable oil-based derivatives that approximate the properties and performance of petroleum-based diesel fuel. Esters of fatty acids (biodiesel), derived from the transesterification of vegetable oils have properties similar to



petroleum-based diesel fuel (Enweremadu and Rutto, 2010). Literature is replete with advantages derived using biodiesel: it helps to reduce the carbon dioxide emission to the atmosphere, it is renewable in nature and safer to handle, it has no aromatic compounds, practically no sulphur content, and oxygen atoms in the molecule of fuel may reduce the emissions of carbon monoxide (CO), total hydrocarbon (THC) and particulate matter (PM) (Lapuerta et al., 2002; Alamu et al., 2008). However, biodiesel is known to have some drawbacks when compared with petroleum-based diesel fuel such as worse low temperature properties, greater emissions of some oxygenated hydrocarbons, higher specific fuel consumption, decrease in brake thermal efficiency and higher production cost (Dunn et al., 1996; Canakci and Van-Gerpen 2001). The problem of production cost has been partially solved by the use of waste cooking or animal fats as the raw materials in the transesterification process (Dorado et al., 2003, 2004).

However, during frying, vegetable oil undergoes various physical and chemical changes, and many undesirable compounds are formed. These include free fatty acid and some polymerized triglycerides which increase the molecular mass and reduce the volatility of the oil. Therefore, fatty acid esters obtained from frying oil influences the fuel characteristics (such as the viscosity and it is believed that the burning characteristics reduce) leading to a greater amount of Conradson carbon residue (Kulkarni and Dalai, 2006). Comprehensive reviews on biodiesel production from used cooking oil (UCO) can be found in (Kulkarni and Dalai, 2006; Enweremadu and Mbarawa, 2009). Table 3 shows a comparison of fuel properties for a WCO biodiesel and diesel fuel.

Currently, compared to petroleum-based diesel, the high cost of biodiesel is a major barrier to its commercialization. It is reported that approximately 70-85% of the total biodiesel production cost arises from the cost of raw material. Use of low-cost feedstock such as WCO should



help make biodiesel competitive in price with petroleum diesel. Numerous studies have been conducted on biodiesel production and emission testing in the past two decades. Most of the current challenges are targeted to reduce its production cost, as the cost of biodiesel is still higher than its petro-diesel counterpart. This opens a golden opportunity for the use of WCO as

Table 1. Comparison of diesel-like fuel obtained from waste lubrication oil and diesel fuel (Arpa et al., 2010a).

Properties	Diesel fuel	DLF
Density at 15°C (kg/m ³)	820-845	818
Viscosity at 40°C (mm ² /s)	2-4.5	3.49
Flash point (°C)	>55	57
Sulfur (ppm)	50	3500
Water (mg/kg)	<200	130
Lower heating value (kJ/kg)	42.700	42.500
Temperature at 250°C, max. volume (%v/v)	65	20
Temperature at 250°C, min. volume (%v/v)	85	90
Volume at 95%, max. temperature (°C)	360	360

Table 2. Comparison of gasoline-like fuel obtained from waste lubrication oil and diesel fuel (Arpa et al., 2010b).

Properties	GLF	Unleaded gasoline
Density at 15°C (kg/m ³)	740	780
Flash point (°C)	25	-43
Lower heating value (kJ/kg)	43.000	43.890
Distillation range (°C)		
IBP (initial boiling points)	38	34
10 vol. %	68	53
50 vol. %	126	92
90 vol. %	223	154
End point	262	218



Table 3. Comparison of fuel properties for a WCO and diesel fuel (Enweremadu et al., 2010).

Characteristics	Waste cooking oil	Diesel
Density at 40°C (kg/m ³)	876.08	807.3
Specific gravity at 15.5°C	0.893	0.825
Distillation temperature		
10% recovery temperature	340	165
50% recovery temperature	345	265
90% recovery temperature	320	346
Flash point (°C)	160	53
Fire point (°C)	164	58
Kinematic Viscosity at 40°C (mm ² /s)	3.658	1.81
Calorific value (kJ/kg)	39767.23	42347.94
A.P.I gravity	26.87	39.51
Cetane index	50.54	46.21
Aniline point (°C)	NA	77.5

its production feedstock. Everywhere in the world, there is an enormous amount of waste lipids generated from restaurants, food processing industries and fast food shops everyday (Xiangmei et al., 2008). In China, with annual consumption of edible oils approaching 22 million tons, the country generates more than 4.5 million tons of used oil and grease each year, roughly half of which could be collected through the establishment of an integrated collection and recycling system. Those 2 million tons of "ditch oil" alone would guarantee the smooth operation of all current biodiesel production lines. Reusing of these waste greases cannot only reduce the burden of the government in disposing the waste, maintaining public sewers and treating the oily wastewater, but also lower the production cost of biodiesel significantly. Furthermore, biodiesel fuel has been demonstrated to be successfully produced from waste edible oils by an alkali-catalyzed transesterification process (Mittelbach and Gangl, 2001; Al-Widyan and



Al-Shyoukh, 2001a, b), and can be considered as alternative fuels in diesel engines and other utilities (Dorado et al., 2003, 2004; Al-Widyan and Al-Shyoukh, 2002a, b).

Table 4. Comparison of fuel properties from waste plastic oil and diesel fuel (Mani et al., 2009).

Property	Waste plastic oil	Diesel
Density at 30°C in gm/cc	0.8355	0.840
Ash content, %	0.00023	0.045
Gross calorific value (kJ/jg)	44.340	46.500
Kinematic viscosity. Cst at 40°C	2.52	2.0
Cetane number	51	55
Flash point, °C	42	50
Fire point, °C	45	56
Carbone residus, %	82.49	26
Sulphur content, %	0.030	0.045
Distillation temperature, °C at 58%	344	328
Distillation temperature, °C at 95%	362	340

Waste plastic oil

The last 30 years have witnessed an explosive growth of the plastic industry. The production of synthetic polymers represented by polyethylene (PE), polypropylene (PP), polystyrene (PS), and polyvinyl chloride (PVC) worldwide has increased more than 100 times in the last three decades. These plastics are widely used in many important day to day applications such as clothing, household appliances and in



automotive products and aerospace. While we enjoy the conveniences that plastics can provide, the treatment of waste plastics becomes an unavoidable and imminent issue. In this regard, it can be safely stated that we are in urgent need and effective ways to recycle waste plastics. Recently new ways of environmentally-friendly waste plastic recycling have been of interest, and among them, the use of waste plastics as a supplemental fuel with coal in the steel making industry has attracted interest (Mitsuhashi et al., 2001). Attention is also focused on using oil derived from waste plastics in diesel engines. Diesel engines are the most preferred power plants due to their excellent driveability and higher thermal efficiency (Williams and Williams, 1990).

Plastics are non-biodegradable polymers mostly containing carbon, hydrogen and few other elements. According to a nationwide survey conducted in India in the year 2000 approximately 6000 tonnes of plastic wastes were generated every day, and only 60% of it was recycled. In India alone, the demand for plastics is about 8 million tonnes per year. More than 10,000 metric tonnes/ day are produced in India and balance is imported from other countries. Most of the plastics are recycled and sometimes it is not done so due to lack of sufficient market value. Of the waste plastics not recycled about 43% is polyethylene and most of them is in the form of containers and packaging materials (Mani and Nagarajan, 2009b).

The extent of conversion of plastics or plastic derived waxes into light engine fuels can be increased by the application of stable hydro cracking catalysts. Similar to petroleum derived cracking products, the fractions from plastics processing contain appreciable quantities of aromatics and unsaturated hydrocarbons (Hai et al., 2001). Some of the properties and characteristics of waste plastic oil and diesel are compared in Table 4. Because of the olefin content, it would be reasonable to submit the derived fractions to the hydrogenation step, typical of pyrolysis or cracking gasoline hydro refining process.

Similarly, because of large quantity of linear n-paraffinic hydrocarbons it would be profitable to isomerise them in order to lower cloud and freezing points. The results showed that waste plastic disposal oil when mixed with heavy oils reduces the viscosity significantly and improves the engine performance (Soloiu et al., 2000). However, very little work has been done to test their use in high-speed diesel engines.

CONVERSION PROCESS

Conversion of waste engine oil

The high-volume waste oils can be turned into valuable fuel products by refining and treating processes. Converting of the waste oils into diesel and gasoline-like fuels to be used in engines without disposing is very

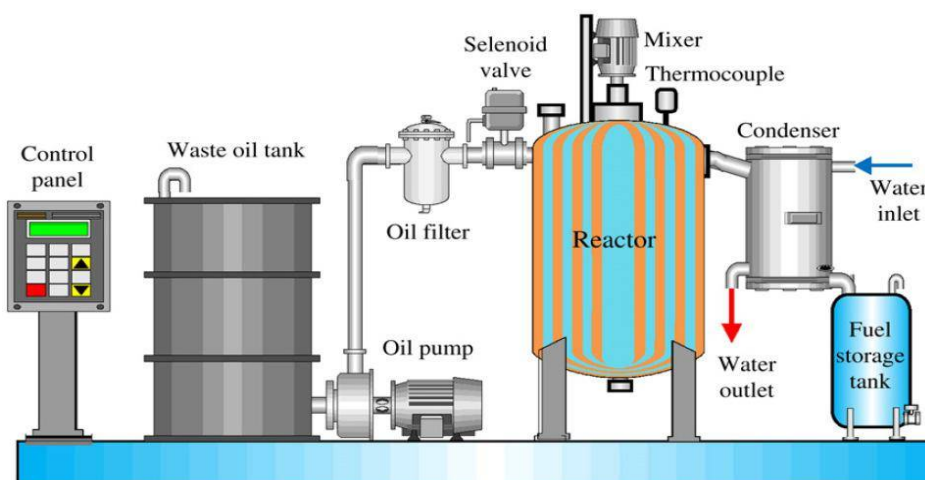


Figure 1. Schematic diagram of the purified and distillation system.



The turpentine is a biofuel obtained from the volatile fraction of resin extracted from pine trees. It has several advantages such as: a) it is a renewable and environmentally friendly alternative liquid fuel; b) its heating value and viscosity are higher than those of gasoline (Yumrutas et al., 2008; Karthikeyan and Mahalakshmi, 2007a, b); c) it can be used in any spark ignition (SI) engines as an additive to the gasoline (Yumrutas et al., 2008) or gasoline-like fuel (GLF); d) its self-ignition and boiling temperatures are higher than those of gasoline (Yumrutas et al., 2008; Karthikeyan and Mahalakshmi, 2007a, b). It can be produced from plentiful domestic cellulosic biomass resources such as woody plants, agricultural and forestry residues, and a large portion of municipal solid waste and industrial waste streams. It was used in early engines without any modification.

However, abundant availability of petrofuels stopped the usage of turpentine in internal combustion engines. Increasing cost of petrofuel prevailing today reopens the utility of turpentine in the internal combustion engines (Karthikeyan and Mahalakshmi, 2007a, b).

In the study of Arpa et al. (2010a, b) the authors used a recycling system for the waste lubricant oil. A recycling system was designed and manufactured in industry to purify waste oil from dust, small carbon soot and metal particulates, and reutilize the waste oil. Schematic representations and picture of the system are shown in Figure 1. In the recycling system, two fuels to be used in engines were produced by applying pyrolytic distillation. The fuels named as gasoline-like fuel (GLF) and diesel-like fuel (DLF) were obtained from waste lubrication engine oil. The oil was collected from gasoline and diesel engines. The recycling system was consisted of waste oil and produced fuel storage tank, pump, filter, a reactor, heaters, mixer, condenser and control unit. The waste lubricant engine oil was collected and stored in the storage tank. The oil pump was used to transfer waste oil in the storage tank to metallic filter. The waste oil was taken by the pump from the



storage tank, and it was filtered using a quality filter with 20 mm mesh size to purify it from heavy metal particles, carbon soot, gum-type materials and other impurities. After removing the purified oil from the filter, it was flowed into the reactor.

The reactor is the most important part of the recycling system, since pyrolytic distillation or thermal treatment of the waste oil is performed in the reactor. It has a cylindrical shape with dimensions of 30 cm in diameter and 40 cm in height. It has a capacity that will be able to produce 20 L of fuel. This volume is enough to do all tests, which include characteristics of the fuel, performance and emissions. The reactor was isolated with glass wool with a thickness of 5 cm to minimize heat loss from the reactor. It includes a mixer and electrical heaters. The mixer was used to blend the oil and additive to obtain uniform blend and temperature in the oil. The heaters were used to heat the mixture of the purified oil and additive in order to make thermal destruction more easily. The heaters with a total heating capacity of 5 kW were placed around the reactor container. They can be capable of heating the mixture up to 600°C. They were controlled by a controlling unit adjusting heating rate. Then, the reactor was used as a heater of a distillation unit, and fuel sample produced from the waste lubricant oil in the reactor was distilled. The distillation unit was named as condenser, which is shown on Figure 1. After being condensed of the fuel sample was collected in the fuel storage tank. In the recycling system, 80 wt. % of the total, waste lubrication oil was converted into useful fuel in the pyrolysis process. Remaining parts such as impurities smaller than 20 mm, sludge and solid additives in the reactor were named as residue. It was about 20 wt. %, and was rejected from the reactor. It is necessary to purify the waste oil to produce a valuable fuel.

Therefore, it was taken from the tank by the oil pump, and was flowed through the filters having 20 μ m mesh sizes. It was separated



from dust, carbon soot, metal and other particles, and then charged to the reactor. The oil was heated up to 330°C in the reactor, in which the pyrolysis process occurred, and it was treated for 1 h at this temperature. During the process, the mixer in the reactor mixed the oil-additive mixture. Heating process was continued by increasing the reactor temperature with electronic control unit in order to pass to the distillation process after the pyrolysis process. The vaporized fuel due to heating process was condensed through condenser in which water was used as cooling fluid. After the fuel become liquid, it was stored in fuel storage tank. Properties and distillation of the produced fuel should be tested to determine whether it can be used in a diesel engine or not, and they should also be compared with the diesel fuel commonly used in diesel engines (Table 1).

The produced fuel was segregated into light and heavy fuels according to characteristics and distillation test results, since some amount of the produced fuel was lighter than diesel fuel. That is why it was necessary to segregate the light fuel from the heavy fuel to eliminate detrimental effects of these fuels on an engine.

Conversion process of waste cooking oil

The conversion process presented in this section is the work of Xiangmei et al. (2008). The WCO was obtained from Restaurants. Every day this restaurant produces many WCO which used for frying beefsteak, French chips. So the WCO contain some food particles, phospholipids, grease and wax etc. WCO sample heated and filtered under vacuum to remove any different solid impurities. Then 40% phosphate acid washing and distilled water washing were adopted to eliminate phospholipids. And in order to avoid saponification reaction for high free fatty acid (FFA) content, the FFA was esterified with methanol by sulfuric acid. When the FFA content was lower than 1.0%, the sulfuric acid was drained and the sodium hydroxide was introduced



into the system to complete the transesterification. Transesterification method was used for methyl ester production from waste frying oil. This method is a chemical reaction, which refers to the conversion of an organic acid ester into another ester of the same acid so-called biodiesel using an alcohol in presence of a catalyst. The method depends on several basic variables, namely, reaction temperature, alcohol and catalyst type. In this study per liter, waste frying oil requires 200 ml methyl alcohol, 6.5-8.5 g NaOH that is determined with titration, and 1-2 g acetic acid. In the first stage, test applied the transesterification reaction is realized in the reactor tank at 651°C temperature during 1 h.

The second stage is composed of product rest and raw biodiesel separation from glycerin, then, washing process of obtained raw biodiesel is done by using the same volume of pure water, and second washing process follows and this washing process is carried out to increase the pellucidity of biodiesel by using bubble method. Lastly, water is separated from all products by evaporation with heating process (Zafer and Mevlüt, 2008) (Figure 2).

Conversion process of waste plastic oil

Pyrolysis

The technologies for WP recycling are grouped into three main categories: (1) material recycling, (2) chemical recycling, and (3) thermal recycling (or energy recovery). The primary and secondary recycling described above are considered material recycling; tertiary and quaternary recycling have the same meanings as chemical recycling and thermal recycling, respectively. Therefore, pyrolysis of plastics is considered tertiary recycling, which transforms the plastic polymers into their basic monomers or hydrocarbon (Lapuerta et al., 2002). The pyrolysis by direct heating (Figure 3) was adopted to produce the paraffin and crude oil from the plastic wastes in the 1990s. The pyrolysis process involves the breakdown of large molecules to smaller molecules. Produces hydrocarbons with small molecular mass (e.g.

ethane) that can be separated by fractional distillation and used as fuels and chemicals. This process gives on weight basis 75% of liquid hydrocarbon, which is a mixture of petrol, diesel and kerosene, 5 to 10% residual coke and the rest is LPG (Mani and Nagarajan, 2009b).

The small-scaled process is featured by facilitation, convenience and low equipment investment. The system consists of feed-supply, pyrolysis reactor, fractionating tower, heating and temperature controller and device for filling the plastics into the pyrolysis reactor. The capacity of this pilot plant is 1000 tonnes/annum. However, the temperature caused by pyrolysis is higher and all the reactive time is longer than the other methods else. The octane number of gasoline gained is relatively low and the pour point of diesel oil is high. More paraffin is produced in the process of pyrolysis. Although this process is simple and convenient, the converting rate and yield is still lower (Guang-Hua et al., 2007).

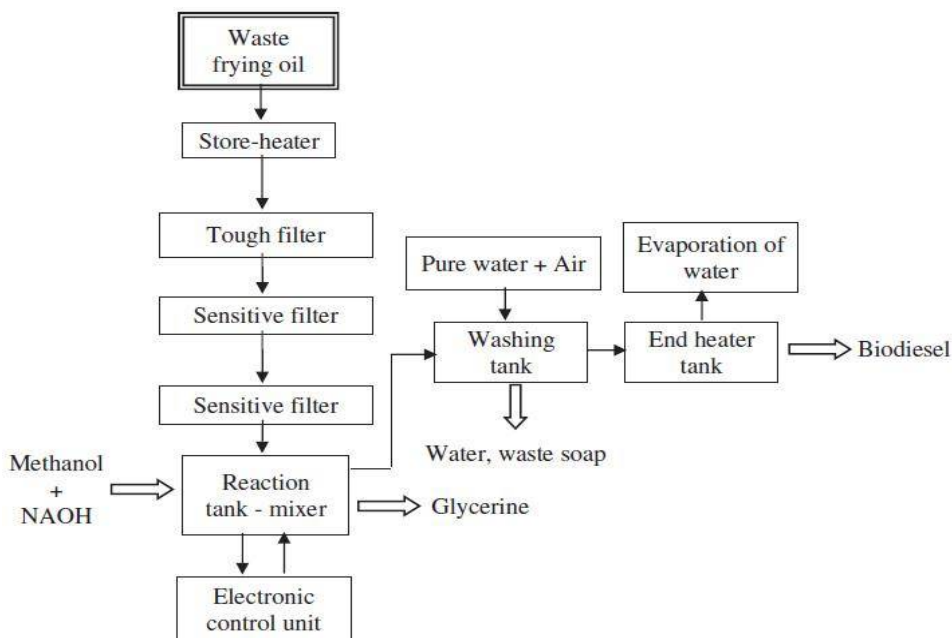


Figure 2. Schematic representation of biodiesel production system from waste frying oil.

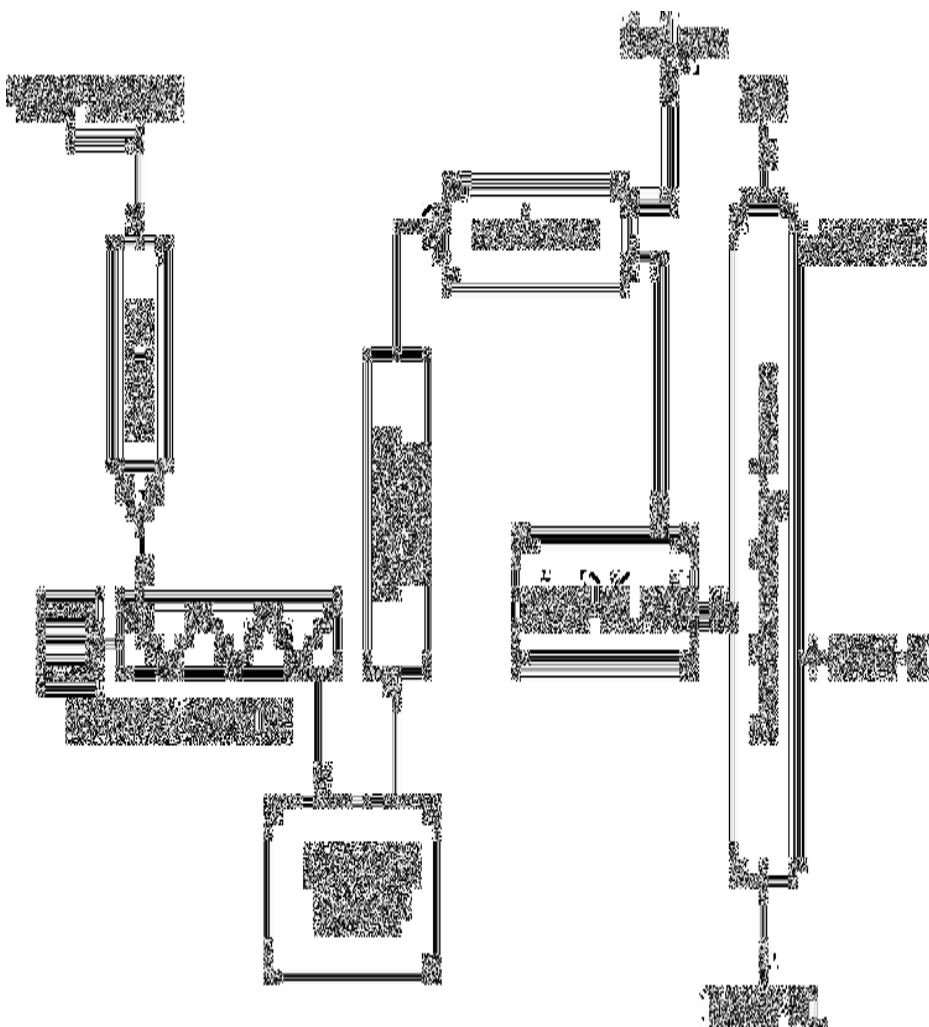


Figure 3. Pyrolysis-catalytic upgrades technique of plastic wastes.



The pyrolysis rate and yield should be promoted by a catalyst, like silica–alumina catalyst or diatomite, etc (Liu and Chen, 2001). Before the catalyst and plastic waste is mixed within the pyrolysis reactor, the plastic waste must be cleaned. The total yield of fuel oil is 50–65%, relying on the composition of plastic waste during pyrolysis. But, one problem is how to recycle the catalyst, carbon and other residua after pyrolysis. This process is also called the catalytic pyrolysis. The other problem for this process is the pyrolysis equipment's corrosion incurred by polyvinyl chloride (PVC) in mixed plastic wastes. Therefore, it is strongly recommended to establish a reasonable sorting system and apply a efficient technique to eliminate hydrochloric acid (Guang et al., 2007; Jerzy, 2002).

Pyrolysis-catalytic upgrade

Since the total yield of fuel oil with pyrolysis is still lower and the quality of oil is not satisfied as gasoline and diesel oil, the upgrade by catalyst for the crude products gained with pyrolysis can be used. Having improved the quality of finished oil, this process has been widely used in many factories (Li et al., 2002). Figure 4 shows the flowchart of pyrolysis-catalytic upgrade, which has been adopted in factories to treat the mixed plastic wastes. The system consists of the knapper, extrusion machine, pyrolysis reactor, catalytic upgrade reactor, fractionating tower, heating and temperature controller, separator of oil and water, and oilcan. The factory nearby Beijing used it to produce the fuel oil. The finished oil consists of gasoline (60%) and diesel oil (40%). The total yield reaches as high as 72.5% (Wang et al., 2003).

According to the yield of converting waste plastics to oil in China, the plastic wastes weighing 1.92 tonnes can produce 1 tonne of fuel oil. A plant with a capacity of 3 tonnes/day will need 1728 tonnes of plastic wastes annually. Supposing the average content of plastic wastes is that



the municipal solid wastes account for about 0.5% for cities and 0.3% for countryside, the economic transportation distance will be within 200 km or so. As the economic support from local government is short, and the whole process from collecting, transporting, sorting to converting must be in accordance with marketing rule, the plant has to face towards a big risk in converting plastic wastes to fuel oil (Guang et al., 2007).

RESULTS OF USING WASTE OILS AS FUEL IN DIESEL ENGINES

Results obtained from waste cooking oil

Effect on performances

Studies demonstrate that WCO and its blends has a lower ignition delay (Enweremadu and Rutto, 2010; Rao et al., 2008; Sinha and Agarwal, 2005). A possible explanation for lower ignition delay periods of WCO and its blends with increase in the percentage of WCO might be due to higher octane number of WCO and its blends compared to diesel. Another possible explanation may be the presence of oxygen present in WCO and the splitting of higher molecules of WCO such as oleic and linoleic fatty acid methyl esters into lower molecules of volatile compounds during injection which advances the start of combustion causing earlier ignition. The reduction in ignition delay with increase in load might be as a result of higher combustion chamber wall temperature at the time of injection and reduced exhaust gas dilution (Enweremadu and Rutto, 2010).

The peak pressure of WCO fuel and its blends is higher than that of diesel fuel (Enweremadu and Rutto, 2010; Rao et al., 2008; Sinha and Agarwal, 2005). C. C. Enweremadu gives three reasons of this: The reduction in ignition delay with increase in percentage of WCO which results in earlier combustion might lead to the slightly higher peak pressures. Another possible explanation of this may be the higher



oxygen content of WCO which favors better combustion. Also since WCO has lower calorific value, a large amount of fuel needs to be burned in premixed combustion stage and this may result in slightly higher peak pressure (Enweremadu and Rutto, 2010).

A detailed study on the effects of the percentage of used cooking oil methyl ester (WCO) on combustion characteristics (ignition delay, rate of pressure rise, peak pressure, heat release) has been undertaken (Rao et al., 2008) heat release of WCO and its blends were compared with that of diesel, the maximum heat release rate of $71.459 \text{ J/}^\circ\text{CA}$ was recorded for diesel at 68 BTDC, while WCO records $51.481 \text{ J/}^\circ\text{CA}$ at 88 BTDC. The results show that the maximum heat release rate decreases with increase in percentage of WCO in the blend. It can also be observed that maximum heat release rate occurs earlier with the increase in the percentage of WCO in the blend. The observations made for the rate of heat release may also be attributed to the reduction in ignition delay of WCO and its diesel blends and can be explained in a similar manner as the rate of pressure rise. Also, lower calorific value of WCO and its blends may contribute to lower heat release (Sinha and Agarwal, 2005). It is also possible that an increase in the oxygen fraction of the injected fuel provides an increase in the maximum heat release rate and in the fraction of fuel burned in the premixed combustion phase; this case is more obvious at a high engine speed (Enweremadu and Rutto, 2010).

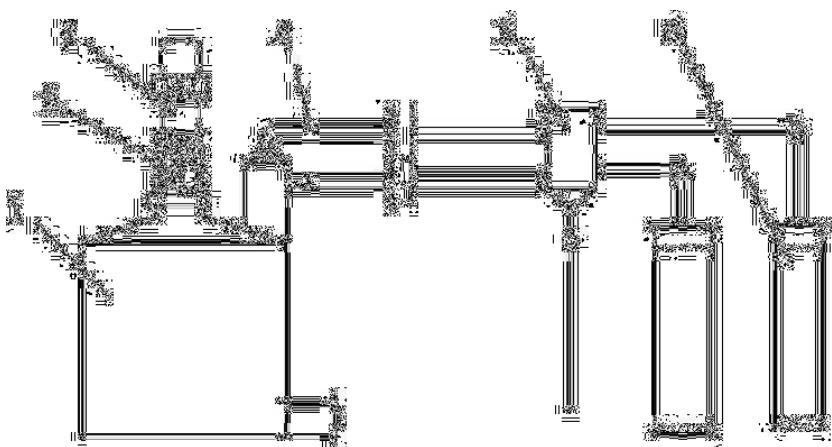


Figure 4. Flowchart of pyrolysis-catalytic upgrade (Pyrolysis equipment for mixture of plastic waste (1) Pyrolysis reactor; (2) Stirrer; (3) Motor; (4) Pipe; (5) Heavy oil separator; (6) Oil tank.

Effect on emissions

A relatively high disparity of results has been found regarding the emissions characteristics of used cooking oil biodiesel and/or its blends. Although, a dominant trend has been found in most cases, there have always been opposing trends proposed elsewhere by contrast. The precise features of the engines tested and their operating conditions, the different biodiesel fuels used, their characteristics, qualities and blends, measurement techniques and procedures, and instrumentations have a strong influence on the impact of WCO biodiesel hence, each study was specific (Enweremadu and Rutto, 2010).

Ulusoy and Tekin (2004) investigated the effects of biodiesel made from used frying oil on emissions in a Fiat Doblo 1.9 DS, four cylinder, four-stroke, and 46 kW power capacity diesel engine. Comparative measurements with diesel fuel were conducted on emission characteristics of each of the fuel used. According to emission tests, as a result of biodiesel consumption, a reduction of 8.59% in CO emission while an increase of 2.62 and 5.03% were observed in CO₂ emission and



NO_x emission, respectively. On the other hand, HC emissions and PM emissions decreased by 30.66 and 63.33%, respectively. It was concluded that these engine emission tests show that biodiesel is a more environment friendly fuel than diesel fuel.

Exhaust emission characteristics were evaluated in a Toyota van, powered by a 2 L indirect injection naturally aspirated diesel engine, operating on a vegetable-based waste cooking oil methyl ester by Gonzalez-Gomez et al. (2000). Tests were conducted on a chassis dynamometer and the data were compared with previous results conducted on the same vehicle using mineral diesel fuel. The data obtained included smoke opacity, CO, CO₂, O₂, NO, NO₂ and SO₂. These data showed that waste cooking oil methyl ester developed a significant lower smoke opacity level and reduced CO, CO₂, SO₂ emissions. However, NO₂, NO, and O₂ levels were higher with the waste vegetable oil based fuel (Gonzalez-Gomez et al., 2000).

The engine and road performance tests of biodiesel fuel derived from used cooking oil were evaluated in a Renault Mégane automobile and 75 kW Renault Mégane diesel engine in winter conditions for 7500 km road tests, and the results were compared with those using diesel fuel (Etinkaya et al., 2005). Results showed that the emission characteristics of biodiesel fuel produced from hazelnut soapstock/waste sunflower oil mixture and its blend with diesel fuel was investigated by Usta et al. (2005). The study showed that at full load, the CO emissions of the blend were higher at low speed and lower at high speeds than those of diesel fuel, while the blend resulted in higher CO₂ emissions in the experimental range. At partial loads, it was found that the blend did not cause significant changes in the CO and CO₂ emissions. There was a significant SO₂ reduction with the blends due to lower sulphur content of the biodiesel. NO_x emissions slightly increased due to the higher combustion temperature and the presence of fuel oxygen with the blend at full load. However, the increasing



amount of NO_x emission slowed down with decreasing load. Most of the literature reviewed showed (Gonzalez-Gomez et al., 2000; Etinkaya et al., 2005; Usta et al., 2005) that there was a slight increase in NO_x emissions when using WCO biodiesel. However, some other works found that NO_x increased only under certain operating conditions such as test conditions, load conditions, alcohol-base of ester (methyl, ethyl) and the effect of WCO in the blends. While some works found reduction in NO_x emissions when using WCO and its blends, other works did not find any differences in the NO_x emissions between WCO and/or its blends and fossil diesel. Various reasons have been given for the increase in NO_x emissions when using biodiesel and/or its blends. NO_x emission is primarily a function of pressure, temperature and total oxygen concentration inside the combustion chamber. One argument is that the increases in NO_x emissions obtained are in proportion to the concentration in biodiesel (Schumacher et al., 1994). It is has been argued that the increase in NO_x emissions with increase in the percentage of WCO in the blend maybe associated with the increased oxygen content of WCO. Invariably all biodiesel have some level of oxygen bound to its chemical structures. Hence, oxygen concentration in WCO biodiesel fuel might have influenced the NO_x formation.

Results obtained from waste engine oil

Effect on performances

Arpa et al. (2010a) conducted an experimental study on diesel-like fuel (DLF) on engine performance and exhaust emission. It is observed from the test results that about 60 cc out of each 100 cc of the waste oil are converted into the DLF. It is observed that the produced DLF can be used in diesel engines without any problem in terms of engine performance. The DLF increases torque, brake mean effective pressure, brake thermal efficiency and decreases brake specific fuel consumption of the engine for full power of operation.



The author found that T, Bmep, thermal efficiency and Bsfc trends for the DLF and diesel fuel are similar in nature. It is known that T and Bmep are directly proportional but Bsfc is indirectly proportional with the engine brake power given. The T, Bmep, and thermal efficiency values obtained for the DLF are slightly higher than those obtained for diesel fuel, but Bsfc is lower in all revolutions. Average increases of the T and Bmep values are approximately 0.69% for the DLF. This was due to high distillation temperature of the DLF than diesel fuel. In internal combustion engines, the T increases to a maximum point with the increase of engine speed. After that critical point, generally the torque decreases step by step (Mani and Nagarajan, 2009b). The maximum T and Bmep values obtained from the measured data for the DLF and diesel fuel in 2000 rpm are 33.86 and 33.71 Nm, 1048.21 and 1043.38 kPa, respectively. The corresponding thermal efficiency and Bsfc for the same fuels and the engine speed are 40.68 and 37.88%, 213.23 and 224.52 g/kWh respectively. After the maximum and minimum values of these parameters they decrease and increase with the engine speed gradually (Arpa et al., 2010a, b).

Cumali and Hüseyin (2011) conducted an experimental study on an alternative fuel performed by pyrolysis of waste vehicle tires. The authors used a pure DF and pure WEO and a mixture of them with different fractions. He found that power values of all fuel blends of WEO and diesel fuels showed increasing trends with respect to increase in engine speed. However, increases of power values have no linearity due to the increase in mechanical losses, especially in higher engine speeds. Power values of diesel operation were highest among all the test fuels. The higher the WEO amount blended in the fuel the lower the power of the engine at the corresponding condition of engine run. Namely, the lowest engine power values were obtained for the WEO100 fuel then for the WEO75 and WEO75 fuels, respectively. The reductions of power values of WEO and WEO blend fuels can be



attributed to slightly lower calorific value of the WEO fuel. However, the differences in power values of test fuels were low at lower engine speeds. Especially, at the 1500 rpm of engine speed the power obtained for all test fuels was quite similar.

It is expected that the Bsfc should decrease when the brake power increases up to engine speed of 2200 rpm. At high speeds, friction, heat losses and deteriorating combustion increase Bsfc (Arpa et al., 2010a) performance parameters for the DGL are similar to those of diesel and are parallel to them in a regular way. Arpa found that the torque, Bmep, and thermal efficiency for the DLF is higher than those of diesel while the Bsfc for the DLF is lower than that of diesel. This is an important criterion that makes the DLF advantageous.

Characteristics and distilled temperatures of fuels are the other effects on the performance parameters (Koç et al., 2009). The characteristics give better mixing and combustion characteristics of the fuels, which cause reduction in heat loss. It was also emphasized that higher distilled temperature gives better performance (Al-Ghouti et al., 2008; Koç et al., 2009). The distillation temperature makes it possible to explain these differences in performance parameters. Diesel fuel is lighter than the DLF. Distillation temperatures of the DLF are higher than those of the diesel fuel up to 80 cc of 100 cc volume. This indicates that DF is a more volatile fuel than the fuel obtained from waste engine oil. High volatility decreases volumetric efficiency and causes vapor lock on hot climate conditions (48). When low volatile fuels or fuels distilled at higher temperatures are burned in the combustion chamber of the engine gradually, temperature and pressure in the combustion chamber will increase, which improves performance parameters of the engine (Al-Ghouti et al., 2008; Koç et al., 2009). As a result, ignition timing, air-fuel ratio, characteristics and higher distilled temperatures for the DLF give slightly better performance parameters than the diesel fuel. Therefore, T , Bmep and thermal efficiency increase and Bsfc decreases.



Test results from the study have clearly shown that the DLF has a positive effect on the performance parameters of the engine, and it can be used as a fuel in the gasoline engine without any problems.

Cumali and Hüseyin (2011) found that the lowest torque values were obtained for WEO100, WEO75 and WEO50 fuels, respectively. The main reason of torque reduction is considered to be the slightly lower calorific value of the WEO fuel. Therefore, the reduction in the torque values of the WEO blends were linear with the WEO amount contained in the blend. The average bsfc of the test fuels obtained were 322.91, 322.81, 325.46, 325.86, 329.76, 333.64, 343.25, 354.21 and 367.17 gr/kWh for diesel fuel, WEO5, WEO10, WEO15, WEO25, WEO35, WEO35, WEO50, WEO75 and WEO100 fuels, respectively. Bsfc is directly affected by the fuel consumption, power value at corresponding engine speed and calorific value of the fuel. Since the calorific value of blend fuels of WEO and diesel fuel is lower than that of diesel fuel bsfc values of WEO blends were lower than that of diesel fuels. The exhaust gas temperature values ever increased with the increase of the engine speed, for all the test fuels. The lowest exhaust gas temperature values were obtained for WEO100 fuel. The highest exhaust gas temperature values were observed for WEO5, WEO15 and diesel fuels. Exhaust gas temperature is affected by the combustion temperature, in-complete and retarded combustion. Lower exhaust temperature of the engine operation with pure WEO and WEO blend fuels can be attributed to all the reasons given above.

Effect on emissions

When the DLF sample is used, the exhaust temperature is higher than that of the diesel sample, and it increases with the engine speed. The measured exhaust temperature varied between 414 and 515°C for the DLF as compared to 397 and 477°C for diesel indicating remarkable variation in exhaust temperature. The higher values in temperatures



for the DLF depend on the higher distillation temperatures, since any fuel distilled at higher temperature increases combustion temperature when it is combusted. As a result of the higher combustion temperature, exhaust gas temperature will increase. High temperatures in the exhaust are not desirable, for they cause higher energy transfer from the combustion chamber to the surrounding. High heat transfer decreases thermal efficiency of the engine at a finite value (Arpa et al., 2010a, b). Almost in all speeds of the engine the WEO100 gave the highest CO emission. At high speeds of the engine the lowest CO emissions were obtained from the diesel fuel. All the blend fuels of WEO and diesel fuel presented very similar CO emissions except for WEO100, WEO75 and WEO50. However, the increased engine speed caused to increase air movements in the engine cylinder which lead to more homogeneous air-fuel charge and thus resulted in an improved combustion and consequently lowered CO emissions. Therefore, when the engine speed increased CO emissions increased for all test fuels, especially WEO100 and WEO75 fuels (Cumali and Hüseyin, 2011; Arpa et al., 2010a, b).

The highest HC emissions were measured for WEO100 and following were WEO75 and WEO50 fuels, respectively. The lowest HC emissions were observed for diesel fuel, WEO5, and WEO10 fuels. However, the HC emissions for WEO25 and WEO35 fuels were quite lower than that of the WEO100 fuel, and were in acceptable values. Generally, WEO–diesel blends that contained high concentrations of WEO lead to a considerably high amount of HC emissions in the exhaust gasses. The main reasons, for increased HC and CO emissions for WEO fuels, are considered to be the poor atomization, lower cetane number and longer ignition delays. The higher density, of WEO caused more amounts of fuel to be injected in mass base, which lead to rich combustion condition is considered to be the most important reason of increased HC and CO emissions for WEO and blend fuels. Besides, the higher



final distillation temperature of WEO might increase HC emissions. All these reasons which lead to incomplete combustion also lead to increased HC emission and CO emissions (Cumali and Hüseyin, 2011; Arpa et al., 2010a, b).

At the lower and medium speeds of the engine diesel fuel and blends of lower concentration of WEO resulted in a larger formation of NO_x. It can be attributed to the higher combustion temperature with improved combustion. The lowest NO_x emissions were obtained for WEO100 fuel at the lower speeds of engine operation. However, at the higher speeds of engine operation WEO100 fuel resulted in higher NO_x emissions in comparison to other test fuels. The reason of this increase is considered to be the slower combustion of the WEO100 fuel that results in a larger period of combustion (Cumali and Hüseyin, 2011; Arpa et al., 2010a, b).

The amounts of SO₂ emissions found in the engine exhaust were almost linear with the WEO amount contained in the blend and considerably higher than that of diesel fuel since WEO contains a sulfur amount 4.5 times higher than that of diesel fuel. Therefore, it can be recommended that the sulfur amount of WEO fuel should be decreased (Cumali and Hüseyin, 2011; Arpa et al., 2010a, b).

Results obtained from waste plastic Oil

Effect on performance

From the study of Enweremadu and Rutto (2010); Mitsuhara et al. (2001); Williams and Williams (1990) and Mani and Nagarajan (2009b) it can be observed that the ignition delay of waste plastic oil is considerably longer than that of diesel. The longer delay period of waste plastic oil, results in a rise in-cylinder peak pressure. It may also be seen that the ignition delay is longer by about 2 to 2.5°CA for waste plastic oil than that of diesel and the peak pressure increases by 5 bar for waste plastic oil compared to diesel because of longer ignition delay.



Mani et al. (2009a), Mani and Nagarajan (2009b), Mani et al. (2011) found that the cylinder peak pressure for diesel is 67 bar at rated power and 71 bar in the case of waste plastic oil. Higher cylinder pressure in the case of waste plastic oil compared to diesel is due to the evaporation of waste plastic oil inside the cylinder by absorbing heat from the combustion chamber. Longer ignition delay at high load range increases the pressure of waste plastic oil than that of diesel. In other words, this period depicts the abnormal combustion or premixed combustion. However, this is the usual behaviour of high-octane fuel in high compression ratio engines. This can be controlled by proper selection of compression ratio (Mani and Nagarajan, 2009b). The authors studied the variation of cylinder peak pressure with brake power for waste plastic oil and diesel operation at different. They noticed that the cylinder peak pressure for the waste plastic oil is higher than the diesel. The cylinder peak pressure for diesel increases from 57 bar at no load to 67 bar at rated power and from 54 bar at no load to 71 bar at rated power in the case of waste plastic oil. In a CI engine, the peak pressure depends on the combustion rate in the initial stages, which is influenced by the amount of fuel taking part in the uncontrolled combustion phase that is governed by the delay period. It is also affected by the fuel mixture preparation during the delay period (Mani et al., 2009).

The maximum heat released in waste plastic oil is high compared to diesel. It can be noticed that in waste plastic oil, most of the heat release occurs only during the premixed combustion. Longer ignition delay results in higher heat release during the premixed combustion phase. The heat release rate is higher in the case of waste plastic oil due to the higher fuel-air ratio. The higher heat release rate leads to an increase in exhaust gas temperature (Enweremadu and Rutto, 2010; Mitsuhashi et al., 2001; Mani and Nagarajan, 2009b).



Effect on emissions

Generally, compression ignition engine operates with lean mixtures and hence the CO emission would be low. CO emission is toxic and must be controlled (Mani et al., 2009a; Mani and Nagarajan, 2009b; Mani et al., 2011). It is an intermediate product in the combustion of a hydrocarbon fuel, so its emission results from incomplete combustion. Emission of CO is therefore greatly dependent on the air fuel ratio relative to the stoichiometric proportions. Rich combustion invariably produces CO, and emissions increase nearly linearly with the deviation from the stoichiometry (Murugan et al., 2005). The Concentration of CO emission varies from 14.14 g/kWh at 25% of rated power to 5.75 g/kWh at rated power for diesel, whereas it varies from 18.51 g/kWh at 25% of rated power to 6.19 g/kWh at rated power for waste plastic oil. The results show that CO emission of waste plastic oil is higher than diesel. The reason behind increased CO emission is incomplete combustion due to reduced in-cylinder temperatures. The drastic increase in CO emission at higher loads is due to higher fuel consumption (Mani et al., 2009a; Mani and Nagarajan, 2009b; Mani et al., 2011).

CO₂ varies from 1305.97 g/kWh at 25% of rated power to 789.36 g/kWh at rated power for diesel. It can be observed that in waste plastic oil it varies from 1163.25 g/kWh at 25% of rated power to 888.715 g/kWh at rated power. From the results, it is observed that the amount of CO₂ produced while using waste plastic oil is lower than diesel. This may be due to late burning of fuel leading to incomplete oxidation of CO (Mani et al., 2009a; Mani and Nagarajan, 2009b; Mani et al., 2011).

The formation of NO_x is highly dependent on in-cylinder temperature, oxygen concentration and residence time for the reactions to take place. It can be noticed that the NO_x emission increases in the waste plastic oil operation. NO_x varies from 12.15 g/kWh at 25% of rated power to 7.91 g/kWh at rated power for diesel and from 14.68 g/kWh at 25% of



rated power to 8.93 g/kWh at rated power for waste plastic oil. The reason for the increased NO_x is due to the higher heat release rate and higher combustion temperature (Mani et al., 2009a; Mani and Nagarajan, 2009b; Mani et al., 2011).

Unburned hydrocarbon is a useful measure of combustion inefficiency. Unburned hydrocarbon consists of fuel that is incompletely burned. The term hydrocarbon means organic compounds in the gaseous state and solid hydrocarbons are the particulate matter (Mani et al., 2009a). At light load, large amounts of excess air and low exhaust temperature and lean fuel air mixture regions may survive to escape into the exhaust. Unburned hydrocarbon varies from 0.431 g/kWh at 25% of rated power to 0.1389 g/kWh at rated power for diesel. In the case of waste plastic oil it varies from 0.4393 g/kWh at 25% of rated power to 0.147 g/kWh at rated power. From the results, it can be noticed that the concentration of the hydrocarbon of waste plastic oil is marginally higher than diesel. The reason behind increased unburned hydrocarbon in waste plastic oil may be due to higher fumigation rate and non-availability of oxygen relative to diesel (Mani et al., 2009a; Mani and Nagarajan, 2009b; Mani et al., 2011).

CONCLUSION

This paper gives a brief review on the conversion process of the most waste oils available in now days in order to use them in Diesel Engine. From the results obtained from various studies we can summarize the following points:

(i) Results from using waste cooking oil as fuel for diesel engines showed that the fuel obtained has a higher viscosity and lower calorific value; this will have a major bearing on spray formation and initial combustion. The ignition delay of UCO biodiesel decreases. The peak pressure of UCO biodiesel and its blends is higher than that of diesel fuel. WCO showed a higher exhaust gas temperature compared to diesel



fuel. Increased oxygen content which improves combustion is a reason given for this. A relatively high disparity of results has been found regarding the emissions characteristics of used cooking oil biodiesel and/or its blends. Most of the reports recorded slight increases in NO_x when compared to diesel at rated load. The reasons most frequently given include higher oxygen content of biodiesel and its blends and advanced injection process with biodiesel. CO and unburned HC emissions were found to significantly decrease with biodiesel and its blends due to a more complete combustion caused by higher oxygen content.

(ii) Engine was able to run with 100% waste plastic oil. Ignition delay was longer by about 2.5°CA in the case of waste plastic oil compared to diesel. NO_x is higher by about 25% for waste plastic oil operation than that of diesel operation. CO emission increased by 5% in waste plastic oil compared to diesel operation. Unburned hydrocarbon emission is higher by about 15%. Engine fueled with waste plastic oil exhibits higher thermal efficiency upto 75% of the rated power.

(iii) Fuel obtained from waste engine oil can be used as fuel in diesel engines without any problems in terms of engine performance. The thermal and physical characteristics of the DLF are close to those values of a typical diesel sample. Moreover, its distillation temperature increases gradually, and its behavior is similar to that of diesel fuels used in engines. When the DLF was used, it was observed that torque, brake mean effective pressure and brake thermal efficiency were higher than those of the diesel sample while the brake specific fuel consumption was lower.

Abbreviation: **ATDC**, Before top dead centre; **Bsfc**, brake specific fuel consumption; **Bmep**, brake mean effective pressure; **CA**, Crank angle; **DF**, diesel fuel;

DLF, diesel-like fuel; **FFA**, free fatty acid; **GLF**, gasoline-like fuel;



PM, particulate matter; **Rpm**, revolution per minute; **SI**, spark ignition; **THC**, total hydrocarbons; **UCO**, used cooking oil; **WPO**, waste plastic oil; **WCO**, waste cooking oil; **WEO**, waste engine oil; **WEO100**, pure (100%) waste engine oil; **WEO75**, mixture of 75% WEO and 25% diesel fuel; **WEO50**, mixture of 50% WEO and 50% diesel fuel.

References

1. Alamu OJ, Akintola TA, Enweremadu CC, Adeleke AE (2008). Characterization of palm kernel oil biodiesel produced through NaOH-catalysed transesterification process. *Sci. Res. Essays* 3(7):308-11.
2. Al-Ghouti MA, Al-Degs YS, Amer M (2008). Determination of motor gasoline adulteration using FTIR spectroscopy and multivariate calibration. *Talanta* 76:1105-12.
3. Al-Widyan MI, Tashtoush G, Abu-Qudais M (2002a). Utilization of ethyl ester of waste vegetable oils as fuel in diesel engines. *Fuel Process. Technol.* 76:91-103.
4. Al-Widyan MI, Al-Shyouch AO (2002b). Experimental evaluation of the transesterification of waste palm oil into biodiesel. *Bioresour. Technol.* 85:253-256.
5. Ampaitepin S, Tetsuo T (2010). The waste-to-energy framework for integrated multi-waste utilization: Waste cooking oil, waste lubricating oil, and waste plastics. *Energy* 35:2544-2551.
6. Arpa O, Recep Y, Zeki A (2010a). Experimental investigation of the effects of diesel-like fuel obtained from waste lubrication oil on engine performance and exhaust emission. *Fuel Process. Technol.* 91:1241-1249.
7. Arpa O, Yumrutas R, Alma MH (2010b). Effects of turpentine and gasoline-like fuel obtained from waste lubrication oil on engine performance and exhaust emission. *Energy* 35:3603-3613.
8. Bhaskar T, Uddin MA, Muto A (2004). Recycling of waste lubricant oil into chemical feedstock or fuel oil over supported iron oxide catalysts. *Fuel* 83:9e13.



9. Canakci M, Van-Gerpen J (2001). Biodiesel production from fats and oils with high free fatty acids. *Trans ASAE*. 44(6):1429-1436.
10. Cumali I, Hüseyin A (2011). Fuel production from waste vehicle tires by catalytic pyrolysis and its application in adiesel engine. *Fuel Process. Technol.* 92:1129-1135.
11. Demirbas A, Demirbas I (2007). Importance of rural bioenergy for developing countries. *Energy Convers. Manag.* 48:2386-2398.
12. Dorado MP, Ballesteros E, Arnal JM, Gomez J, Lopez-Gimenez FJ (2003). Testing waste olive oil methyl ester as a fuel in a diesel engine. *Energy Fuels* 17:1560-1565.
13. Dorado MP, Ballesteros E, Mittelbach M, Lopez FJ (2004). Kinetic parameters affecting the alkali-catalyzed transesterification process of used olive oil. *Energy Fuels* 18:1457-1462.
14. Dunn RO, Shockley MW, Bagby MO (1996). Improving the low-temperature properties of alternative diesel fuels: Vegetable-oil derived methyl esters. *J. Am. Oil Chem. Soc.* 73(12):1719-1728.
15. Enweremadu CC, Rutto HL (2010). Combustion, emission and engine performance characteristics of used cooking oil biodiesel-A review. *Renew. Sustain. Energy Rev.* 14:2863-2873.
16. Enweremadu CC, Mbarawa MM (2009). Technical aspects of biodiesel production and analysis from used cooking oil: A review. *Renew. Sustain. Energy Rev.* 13:2205-2224.
17. Etinkaya CM, Ulusoy Y, Tekin Y, Karaosmanog˘lu F (2005). Engine and winter road test performances of used cooking oil originated biodiesel. *Energy Convers. Manag.* 46:1279-1291.
18. Fuentes MJ, Font R, Gómez-Rico MF, Martín-Gullón I (2007). Pyrolysis and combustion of waste lubricant oil from diesel cars: Decomposition and pollutants. *J. Anal. Appl. Pyrol.* 79:215-226.
19. Gonzalez-Gomez ME, Howard-Hildige R, Leahy JJ, O'Reilly T, Supple B, Malone M (2000). Emission and performance characteristics of a 2L Toyota diesel van operating on esterified waste cooking and mineral diesel fuel. *Environ. Monitor Assess.* 65:13-20.
20. Guang-Hua Z, Jun-Feng Z, Okuwaki A (2007). Prospect and current



- status of recycling waste plastics and technology for converting them into oil in China. *Resourc.Conserv. Recy.* 50:231-239.
21. Hai VP, Nishida O, Fujita H, Harano W, Toyoshima N, Iteya M (2001). Reduction of NO_x and PM from diesel engines by WPD emulsified fuel, SAE Technical Paper -01-0152.
 22. Jerzy W (2002). Engine fuel derived from waste plastics by thermal treatment. *Fuel.* 81:473-481.
 23. Karthikeyan R, Mahalakshmi NV (2007a). Performance and emission characteristics of a turpentine-diesel dual fuel engine. *Energy* 32(7):1202-1209.
 24. Karthikeyan R, Mahalakshmi NV (2007b). Performance and emission characteristics of turpentine-diesel dual fuel engine and knock suppression using water diluents. *Int. J. Energy Res.* 31:960-974.
 25. Koç M, Sekmen Y, Topgul T, Yucsu HS (2009). The effect of ethanol-unleaded gasoline blends on engine performance and exhaust emissions in a sparkignition engine. *Renew. Energy* 34:2101-2106.
 26. Kulkarni MG, Dalai AK (2006). Waste cooking oil – an economical source for biodiesel: A review. *Ind. Eng. Chem. Res.* 45:2901-2913.



NORMATIVE PERSPECTIVE OF HUMAN RIGHT TO DEVELOPMENT: RELEVANCE OF GANDHIAN IDEAS

Dr. Varalakshmi.M

Research Consultant

Centre for Economic and Social Studies

Hyderabad

Civilization is that the mode of conduct which points out to man the path of duty. Performance of duty and observance of morality are convertible terms. To observe morality is to attain mastery over mind and our passions. So doing we know ourselves. The Gujarati equivalent for civilization means, "Good conduct" (M.K.Gandhi, *Hind swaraj* (1909), p.56).

Since human being is scientifically considered as evolved human being, the *homospaiens sapiens*, the *Wiseman*, with well formed brain that is as big as the present day, he had shown concern for others and developed a society based on certain norms that evaluate the conduct of individuals in relation with others. Homospaiens sapiens the Wiseman too shown both the developments: conscious and unconscious; while unconscious growth is found in his ways of physical well being; his refined ways of life from cave dwelling and hunting stages, conscious development is found in his ways of socialization and evolution of states from primitive 'states of jungle law' to democratic states.

Human progress though proved scientifically, as an evolutionary process, human attitudes are still grossly in an involution-process; with their recoiling attitudes. Even the most affluent are unable to look at the deprived lot around. Human knowledge is used, misinterpreted for the benefit of a few selves and states alone. Even at familial level, the affluent member of the family is engrossed with his own interests only, leaving others behind. Apart from recognizing the primacy of individual as against political, impact of modernization and liberal theories

contributed for extreme tendencies as possessive individualism, narcissism, and disintegration of institutions and states.

The term development in modern times is evaluated in terms of industrialization, increased trade, and economies of nations that compete with each other. It is true that the process of industrialization provided more food, more clothing and shelter for more number of people. But it is also true that most nations lost their identity, nativity and essential culture and traditional-wisdom-practices in the process of industrialization, urbanization and due to higher form of globalization. For, it was the tradition of people and nations once upon a time to see that they advance themselves along with others around. But today we find only market orientation; at individual, institutional and state level. Earlier technology and trade were in terms of cooperation and mutual benefit; today trade is in trouble; to invite a new product means, closure of another trader's livelihood.

Today we reached a stage where the competitions in development lead to the death or deprivation of individuals and states as against the arrogance of affluence of a few people and states. While the high-income nations developed through industrial achievements, the low-income nations though learnt lessons from the political imperialism of these nations, also imitated their mode of development through industrial development alone. As a result, all the nations contributed for ecological imbalance and adverse, induced global climatic changes. We reached a stage where the earth and its biosphere are endangered due to human avarice; due to pollution and depletion in the ozone layer; due to excess heat and a slow process of melting ice that may submerge the entire earth and life on this blue planet.

This paper aims at evaluating the relevance of Gandhi's ideas of non-possession, bread-labour, economic equality and ideas on socialism within the back drop of significance of development based on norms and human values, and changing perspectives of development.



Thus this paper deals with Gandhian ideas on human right to development in the following lines:

1. State of global poverty as against global prosperity
2. Changing perspectives of human development:
From quantitative to qualitative to normative
3. Normative perspective of Human development
4. Right to Development
5. Relevance of Gandhian ideas for human development

1. State of Global poverty as against global prosperity:

If we look at the global poverty figures we find that over 1.3 million people in developing countries live on \$1.25 a day or less. Rural households are the most heavily burdened by the consequences of poverty and hunger. Over 30 percent of rural girls living in poverty are kept out of school to save money, opposed to the 15 percent of urban girls not in school. Studies have shown that lack of general education leads to higher adolescent birth rates; births that in turn over-burden an already economically strained community. 925 million people do not have enough to eat – more than the populations of USA, Canada and the European Union combined. 98% of the world's undernourished people live in developing countries. Two-thirds of the world's hungry populace lives in just 7 countries: Bangladesh, China, the Democratic Republic of the Congo, Ethiopia, India, Indonesia and Pakistan – that is 13.6 percent of the estimated world population of 6.8 billion. Nearly all of the undernourished are in developing countries.

The United Nations Food and Agriculture Organization (FAO) 2010 estimate, says that 925 million people were undernourished in 2010. FAO further on the status of 'under nutrition', held that, the number of hungry people has increased since 1995-97 and this increase has been due to three factors: 1) neglect of agriculture relevant to very poor people by governments and international agencies; 2) the current



worldwide economic crisis, and 3) the significant increase of food prices in the last several years which has been devastating to those with only a few dollars a day to spend (FAO, 2010).

Economic disparities so induced are not simply dividing international states but play a key role in the birth and upbringing of world's children; a divide in expenditure patterns of child education; where households in Cambodia devote 21 percent of their total expenditure on education, in United States children are guaranteed of 10 years of free education (Kagia, 2006). *The World Development Report 2012* calls for action in the following areas:

- Addressing human capital issues: excess deaths of girls and women, gender gaps in education
- Closing earning and productivity gaps between men and women
- Giving women greater voice within households and societies
- Limiting the perpetuation of gender inequality between generations.

2. Changing perspectives of Human development: From quantitative to qualitative to normative:

The word development connotes “a new stage in changing situation”. It also means “to advance”; “to make or cause to progress” (Oxford Reference Dictionary). Oxford dictionary refers to development also as having many industries and complicated economic systems. Thus development hitherto is evaluated quantitatively with accelerated race in terms of industrialization, increased trade, and economies of nations that raced with each other.

Research studies on development hitherto in the early days understood in terms of numbers alone leaving the significant importance on the aspects of the intricate factors that contribute for the quality of life of people. Macro level studies done in the broad categories speak of the



intensity of the problem has certain limitations in terms of the details of research. For example child education at broad categories like Census or NSS data deals with enrollment numbers and dropout rates but not the reasons.

Attempts done after macro level findings, to increase enrolment numbers and decrease dropout numbers by increasing number of schools and through introduction of certain schemes as operation blackboard could not solve totally the problem of education of child in terms of retention, learning ability and educational attainment. These will only be known through qualitative research done at macro and micro level studies; research in terms of reasons for drop out came out with findings that more number of students are not motivated to go to school/not interested in school for different reasons based on individual level. Other reasons broadly speaking are: child's involvement with wage labour, taking care of siblings; busy with domestic work etc (MICS 2000, NSS50th Round 1993-94 and discussions carried during preparatory process of *Right to Education bill*, Bhatta, 1998). UNESCO 2005 observes education that lacks a clear strong, clear respect for human rights cannot be said to of high quality.

Thus today we have a significant need also to look at the qualitative side of development but not simply in terms of health, education, housing and development based on industrialization alone. The present move is for development measured in those aspects that help humans to live qualitatively, happily and in dignity (See Box-1).



Box-1

Need for Qualitative Research

"With the rights of 65 million girls unmet and *Millennium Development Goals* in peril, change is clearly needed ... it is needed at many levels and will not be achieved through enrolments drives alone. To successfully remove the barriers... societies will inevitably have to deal with factors that are fundamental to the quality of the life of the whole community (UNICEF 2003, p. 11)".

There are some, immeasurable and qualified aspects that are also important for life along with development measured in major quantitative aspects as, health, education, empowerment and housing. In fact research study done since later millennium years is tuned toward qualitative aspects. For instance, while they are looking at education as an indicator, it is the quality of education and factors that contribute for the quality of education of the child that mattered in their research. As for example again, while today education of the child had been translated as a fundamental right to Indian child after a long struggle by researchers and activists. But, midday meals and other attraction are not taking the child coming from scheduled caste category, to school; else where it is reported that the teachers ask the child coming from scheduled caste to sweep the class room; to do domestic work in case the employed servant by the school administration absents from duty. Children coming from forward groups are making fun of such children in the lowest strata. Social scientists started dealing with social attitudes that determine the quality of life along with good infrastructure, development resources, empowerment etc. Thus they started to take social inclusion as an index for the Human development and social exclusion as an index for social poverty measurement. Hence the present movement is for empowerment of deprived categories for their development qualitatively.



Quantitative, qualitative and normative perspectives as complementary:

Now that researchers have realized that Human development is not just need-based and qualifying life in terms of finer tastes for food, shelter clothing, aesthetics and entertainment but value based too. For whatever historical and political reasons, the term development took its form in a narrow sense; development of few people and states. But already people and states have learnt lessons from evolutionary processes as well as their struggles due to tyrannical monarchies, trade monopolies; colonial struggles; misuse of scientific knowledge and technologies; industrialization processes; ruin of nativities; world wars; freedom movements; political hegemonies; affects of globalization and liberalization processes; narcissistic feminist movements; caste and class conscious behaviours, racisms, and what not –all that fragmented human societies to pieces.

Since the inception of World congress of oppressed nations in 1927; foundation of united nations organization in 1945 after the end of world war; the division of world into bipolar powers as USA and USSR , developing nations understood the importance of non-alignment with those powers and conceived the idea of development based on nativity. Yet the impact of western notion of development in terms of industrialization and modernization was not lesser in all international states. Nevertheless, the world realized how they went wrong and how arrogance of affluence affected all sectors of development, how familial, social and political values have been corrupted. It is in the new millennium, world nations sensitized themselves toward world poverty. Sooner the sensitive concerns attempted to translate human rights as legal rights; development as a right of deprived nations to share the resources, knowledge of science and technology of deprived nations from developed nations. World also realized how the excess, surplus and exploitation as affecting not simply at social and political level but at environmental level in form of excess heat and submersion of earth



area slowly and in form of depletion and damage of earth's biosphere. Hence definition and meaning of development is being understood carefully and comprehensively by all world nations. To understand development is to understand world poverty of 'have-nots', by those who 'haves', thoroughly, sensibly and sensitively. This is the present and significant need for application of human values to make lives lively and purposefully (See Box-2).

BOX-2

Eternal Human Values

An understanding of development in terms of human values by all is the emergent need. These values are the eternal values as justice/*dharma*, *samapathidan* or charity of one's prosperity, equality or '*samyavada*', fraternity or 'brotherhood', discipline of children through good and virtuous parenting, concern for others and love for nature etc. Apart from these, there are still other aspects that make human societies as humane societies. These are the values of, individual; families, civil societies and political values maintained by citizens and international states to make better societies.

Development indicators are not only in terms of physical health, education and housing and industrialization and measurable concepts as Gross domestic products and one's purchasing ability alone. There are other indicators that are evident in form of satisfaction, clear consciousness and sensitivity for others' pains and pleasures.

3. Normative perspective of Human development

Human values are not just need-based. Good theories of state are responses of sensitive and sensible minds of yester years. We have evolved good theories of state from jungle states to democratic states. But these states still suffer from deprivation, corruption and even terrorism. A gross injustice needs control by selves and states



contextualizing present state. Remember Plato in this regard: “When licentiousness and disease are rife, law-courts and dispensaries have always their doors kept open” (*Republic*).

This perspective looks at the human development differently and distinctly to come out with a Philosophical base for Human development and to study the normative side of human development depicted by philosophers and social scientists. World development hitherto, owes much to philosophical circles; from Thales to Marx and many communitarian and Marxian attempts in the east and from Vedic literary contributions to polity of Kautilya and aftermath social philosophy of Kabir, Nanak, Gandhi, and others. In each historical crisis it is philosophers who responded to the social and political problems through their ideas. An order in society is an order in the minds of people; from the ideas of Pythagoras’ harmonious society, through life, wisdom and death of Socrates, Plato’s Republic, Aristotle’s distributive justice, democratic states were thought, and constructed. Normative perspective considers how philosophy helped development of people and states, and how philosophy was silent and how post modern philosophy rekindles the spirit of philosophy in humanizing states in a systematic way. For without a respect for family norms, social laws and a good fear for authority state will end up in anarchy. However modern period rectified darkness created in the name of religion through efforts of Martin Luther. Philosophers like Feuerbach, Bruno, and Marx, questioned the flaws of all developments that are partial and for few; both in religious/medieval times and scientific and industrial times. Thus there were seeds of welfare states there in the west.

Late Prof K.S. Murthy once said, revolutions in the west are not only “scientific revolutions”, they are, “intellectual revolutions” too. Present day movements for social justice and translation of human rights as legal rights have moral and philosophical foundations in the theories of



philosophers of east and west. To Sir Radhakrishnan, a philosopher and a statesman:

“We can enjoy the world if we are not burdened by the bane of worldly possessions; we are the princes in the world if we don’t harbour any thought of covetousness. Our enjoyment in this world is in direct proportion to our poverty”. *Rg. Veda*, cited. S. Radha Krishnan, *Indian Philosophy*, Vol. I. P. 110

To Gandhi too, the top priority is to take care of the utmost deprived; a sensitive self is a combination of sensibility and concern and action. He said:

“I cannot imagine anything nobler or more national than that for, say, one hour in the day, we should all do the labour that the poor must do, and thus identify ourselves with them and through them with all mankind. I cannot imagine better worship of god than that, in His name, I should labour for the poor even as they do” (*Yeravada Mandir*, 1957, cited Prabhu and Rao(1967, p. 199).

Today we are in the world of rights. Whether it is the quest for rights of child, women or other deprived concepts have bases only in the political philosophy. Further more philosophical wisdom was taken as a basis for other disciplines as Economics, Psychology and even anthropology. Now it is time to philosophize each discipline as the early scientist/philosophers who aimed not simply knowledge in one particular field but at philosophical wisdom to spiritualize the world with serenity and beauty.

This perspective in fact deals with primarily study of Man’s Nature and Development: From Being to Becoming; contribution of philosophers for evolution of well defined states conceptually and pragmatically; present role of social scientists in re-conceptualizing human development. As for instance Amartya Sen’s studies on poverty and related issues are not aimed at market oriented economics; rather to



him famine in human society has its cause not in lack of resources but in the method of distribution. Schumpeter subscribes to the distinction between positive and normative economists; provides attention to historical and cultural conditions (Klamer, 2004). In fact early classical economists like Adam Smith himself questioned the wealth of nations. Economic development has its roots in Marxian efforts.

Thus one has to look into the areas as *Development versus quality of life; Human satiation-State control and Prosperity; Sustainable development and peace* through using broader categories of research. However the present paper focuses on the definitional aspect of normative perspective of development and relevance of Gandhian Ideas to translate human right to development.

Indicators for Normative Perspective:

Gasper (2004) distinguishes two kinds of meanings assigned to the word 'development': 'positive' (i.e. 'neutral' and 'non-evaluative') and 'evaluative' (that which shares ethical values). As for example if we understand development in terms of urbanization or high monetary income per capita without involving ethical values, it is positive side of development; if development is understood as a high quality of life that involves ethical values and a sort of satisfaction and peace among societies, it is evaluative in nature. To Allardt (1993) indicators of life include certain conditions: 'having' or 'material conditions for survival needs and for avoidance of misery; 'loving' conditions and 'being' conditions. 'Material conditions' are economic resources, housing, employment, health, and education and working conditions. 'Loving conditions' are attachments and contacts in the local community; attachment to family and kin, active patterns of friendship; contacts with fellow members in organization and relationship with work mates. 'Being conditions' are those dealing with, as to what extent a person participates in decision making, political activities, opportunities for leisure time and for meaningful work life and opportunities to enjoy



nature, either through contemplation; through, walking or gardening (Scandinavian welfare model of Erikson et al. (1987)cited Allardt(1993). Chambers (2007) finds approaches to poverty through participatory ways. As for example he finds poverty of women in mapping households with, where husband was drunkard; further empowering those who lack in power and other means of supporting them. Still further European models refer welfarism as an attempt to shift from 'charity and paternalism to solidarity and social integration' (Zupi, 2007). Proacci (2007) comes out with such conclusions that it is not marginalized poverty which is a confused concept but 'poverty de-socialized'. Through attitudes of humanitarian repairing and specialized social policies, development of socially excluded, is a possible phenomenon. Human Development Indicators (HDIs) according to *Human development Report, 2004*, of United Nations Development Programme (UNDP) are, 'a long and healthy life', 'knowledge' and 'decent standard of living'. Human Poverty Indicators (HPI) includes 'Social exclusion' also as an indicator. But still further this report attempts to understand another aspect called culture as an aspect to link up with poverty. The idea of freedom necessarily includes cultural liberty. Henceforth, practice of human rights is part of culture and civilization (UNDP, 2004). Recent research on development studies thus look development as about, sustaining positive outcomes steadily over time and, combating processes that impoverish people or underpin oppression and structural injustice. Equity, sustainability and respect for human rights are thus bases in this new developmental research (UNDP, 2010).

4. Right to development:

Since ages strange and pathetic paradoxes existed and are still continued to prevail however desperately each country races to be labelled as developed nation. There are disparities at social, state and global level. Preceded with international initiatives for rights viz.,



Universal declaration of Human rights 1948, Declaration of the rights of the child adopted by the General Assembly on 20th Nov 1959, Minimum age convention 1973 No 138, International convention on Economic social and cultural rights, 3 march 1966, International convention on Civil and Political rights 23 March 1968, Declaration of Alma Ata 1978 and Convention on the eliminations of All forms of Discrimination Against Women (CEDAW) 1979, came out the Declaration on the right to development, 1986 (Adopted by general assembly resolution 41/128 of 4 December 1986) . Earlier conventions prior to the UN Declaration on the Right to development provided broadly for survival rights as right to life, right to standard of life, health, nationality etc and protection rights namely right to freedom from all sorts of exploitation, inhuman or degraded treatment and from armed conflicts. Further care from these conventions include development rights as right to education, support through social security, and participation rights like right to express view, freedom for thought, conscience and religion and provision for other rights as equality before court and protection from discrimination and other rights. Yet, the U.N. general Assembly adopted this with other objectives to obligate the international states to respect for and observance of human rights and fundamental freedoms for all without distinction of any kind such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status. UN declaration 1986 came in to existence also by recalling the rights of people to exercise the relevant provisions of both the international covenants on human rights in full and complete sovereign over natural wealth and resources; also for the maintenance of international peace and security and promotion of friendly relations and co-operation among states. This international legal instrument also considers the importance of promotion of civil, political, economic and cultural rights in accordance with other human rights and fundamental rights. Further this reaffirms the significance of close relationship



between disarmament and development. It aims at a new international economic order. And above all it considers the right to development as an inalienable human right that confirms the right to development of nations and individuals who make up nations. Accordingly **Article 5** reads: States shall take resolute steps to eliminate the massive and flagrant violations of the human rights of principles and human beings affected by situations such as resulting from apartheid, all forms of racism and racial discrimination, colonialism, foreign domination and occupation, aggression, foreign interference and threats against national sovereignty, national unity and territorial integrity, threats of war and refusal to recognize the fundamental right of peoples to self-determination. **Article 8** insists on the responsibility of states to undertake at the national level, all necessary measures for the realization of the right to development and shall ensure, inter alia, equality of opportunity for all in their access to basic resources, education, health, services, food, housing, employment and fair distribution of income; also for effective measures to ensure that women have an active role in the development process and for appropriate economic and social and economic reforms to eradicate all social injustices. **Article 10** deals with the implementation of policy, legislative and other measures at national and international level.

Further in 1999 a *World Conference on Science and Scientists from twentieth century* took place on 26th June, 1999 in Budapest and came out with *Declaration on science and the use of scientific knowledge*, adopted on 1st July, 1999. This declaration held the responsibility on scientists and Governments for restoration of knowledge, development and peace. **Article 19** holds that respect for human rights in accordance with Universal Declaration of Human Rights be maintained by states. **Article 28** insists on the need for a strong commitment to science on the part of governments, civil society and the productive sector, as well as an equally strong commitment of scientists to the



well-being of society. **Article 43** holds that Governments and scientists and civil society should address the problems of poor health and increasing inequalities in health between different nations (World conference on Science and scientists, 1999).

Despite this rich theoretical and legal perspective for human right to development, the said instrument on development is ineffective due to globalisation and liberalisation where the nations are forced to follow the guidelines of IMF and World Bank and to implement neo-liberal policies through structural adjustment programmes. Resultantly we only find the status quo of divide between rich and poor where still the world's richest 500 individuals have a combined income greater than that of the poorest million. And beyond these extremes, we find the 2.5 billion people living on less than \$2 a day only – 40% of the world's population – account for 5% of global income. The richest 10% almost all of whom live in higher – income countries, account for 54 %".

Hence there is a threat for equity and social justice within the national state and even among international states. It in this context the significance of normative perspective of development in general is emphasised here and in particular with relevance of application of Gandhian ideas through forced ethical policies – policies through regulating one's personal and political conduct. This 'moral force' in the words of Gandhi is 'truth force' or 'soul force'.

5. Relevance of Gandhian ideas for human development:

To Gandhi development is not that is given and provided by somebody or through an institution rather it is through self-respect and self-conduct by people who are already self-sufficient in material terms and through training the 'social have-nots' self sufficient . When H.G. Wells sought Gandhi's opinion on the 'Rights of Man' drawn up by him Gandhi was replying him in terms of 'Duties of Man'. He replied:

"As a young man I began life by seeking to assert my rights and I soon discovered I had none not even over my wife. So I began by discovering and performing my duty by duty by my children friends companions and society and I find today that I have greater rights, perhaps than any living man I know. If this is too tall a claim then I say I do not know anyone who possesses greater rights than I" (*Cable* to H.G. Wells, *Hindustan Times*, 16, April 1940, Raghavan Iyer (ed.), 1993).

Thus his idea of development is different from the general notion of development in terms of industrialization and urbanization and civilization. It is comprehensive and inclusive term where development is through social and moral conduct primarily at individual level and then through institutionalized social and economic policies that have an ethical basis. Thus in his *Sarvodaya* he defines civilization as the mode of conduct following root words of Gujarati which points out to man the path of duty. To Gandhi performance of duty and observance of morality are convertible terms; to observe morality is to attain mastery over mind and our passions. Gandhi says further that so doing we know ourselves. In fact to Gandhi development means from being to becoming not only a moral being but a spiritual being; becoming a yogi ; renouncing everything in search of truth or God. Gandhi was a liberated soul or a *jivanmuktha* by the time he was toiling with the idea of liberating the nation from British rule of India. But as a staunch follower of *Gita* he remained as a *Karmayogi* and lived with dispassionate attitude towards material world. At the same he took the responsibility to preach the world with what he was convinced; also he sensed that it is not an as easy task for everybody to transform as a spiritual being especially for the poor whose basic needs have not been gratified. More so he aimed at moralizing the materially well off sections of society before spiritualizing them. For, spiritual beings are the real persons who renounced everything. Though Gandhi's philosophy in its highest form ends up with spirituality here Gandhi's



ideas have been interpreted only at moral level and for ethical transformation of people and states in order to raise more people from BPL (Below the Poverty Line) and from MPL (Moral Poverty Line). Hence to Gandhi development is based on such eternal human values as dharma (justice), *satya* (truth), *ahimsa* (nonviolence) that never add harm by practicing them. To Gandhi it is through transformation of vice to virtue an individual learns to conduct one's self. For this purpose he speaks of his ideas on *Sarvodaya* (The Welfare of all) based on non-possession, bread-labour and socialism that enable development of all without any social exclusion. It is through making Gandhian ideas relevant we get distinct perspective to development:

- *Bread labour: Right to dignity of labour*
- *Non-possession: Sensitive concern for poverty and misery around*
- *Trusteeship: Economic equality/equity*
- *Sarvodaya : Socialistic development*

Bread labour: Right to dignity of labour:

Poverty we see today is related to social attitudes based on caste, race and ethnicity and thus made some occupations socially menial and some other jobs as highly esteemed. Ultimately these attitudes contributed to a big social class divide – the rich and the poor. But to Gandhi human right to dignity is related with his idea of 'Bread-labour'. This is a "law that to live man must work" that Gandhi learnt after reading Tolstoy's works. At the same time this word was first coined by a Russian writer T.M. Bondaref and popularised rather "advertised" by Tolstoy's writing on bread labour according to Gandhi. But after reading Ruskin's *Unto This Last* he respected Tolstoy more than earlier (Yeravada Mandir, Ch. IX Compiled, Navajivan Trust, 1951). Gandhi details the concept of bread labour as:

1. That the good of the individual is contained in the good of the all.



1. That a lawyer's work has the same value as the barber's, in as much as all have the same right of earning their livelihood from their work.
2. That a life of labour, i.e. the life of the tiller of the soil and handicraftsman is the life worth living (*Autobiography*, pt. iv, ch. XVIII, compiled, Navajivan, 1951).

To Gandhi those who eat without work are thieves and an idle man is a burden to the neighbour and a person who does not do body labour has no right to eat; rich or poor. At the same this bread-labour should take a productive form. Further we find a sense of wit in his wisdom when he says:

"A millionaire cannot carry on for long, and soon get tired of his life, if he rolls in his bed all day long, He therefore induces hunger by exercise... .No one asks a cultivator to take breathing – exercise or to work his muscles" (*Yeravada Mandir*, Ch. IX, *Sarvodaya*, 1951, compiled, Navajivan Trust).

When we apply Gandhian idea of bread labour we will practice to respect all sorts of professions and encourage all areas of knowledge and services. Today we are living in a social hierarchy which is supported by wage differentials and fascination for only certain professions. Wages are meant to provide for one's basic needs as well as to fulfil one's development rights to health, education and housing. Hence wages a person gets must be in proportion to fulfil these needs. Disproportionate wage differentials lead to covetousness, depression and antisocial activities in a society. For example when you go to any market place we find workers are overloaded that cause them unbearable pain and they seek to take liquor. This habit not only ruins the health of the worker but causes a great loss to the bread winner of the family. This is only a simple example based on which we can take major policy decision that wages of a manual labour be increased



especially for workers in the unorganised sector, workers doing domestic works and agricultural labourers. Where due to money people's purchasing capacity increases as Amartya Sen suggested there is a need to recognise Gandhian idea of bread labour and paying the labourers their due pay based on moral and economic grounds.

Non-possession: Sensitive concern for poverty and misery around:

Gandhi's idea of social transformation is through moral transformation. Sensing the undue accumulation of purchasing power in form of capital and land and other possessions that deprives the right to life of others Gandhi felt sensitive to help these others. In other words he also sensed that it was a [moral] burden to carry that material possession that is due to others. His idea of "non-possession is a principle applicable to a thought as well as things" (*Letter to Narandas*, Tuesday morning, August 26, 1930, From Yeravada Mandir, Raghavan Iyer (ed.), (1993). This is again based on a "golden rule" that is, "to refuse to have what the million cannot" (*Young India*, 24-6-1926, p.226, Prabhu and Rao (1967) compiled and Edited). Gandhi says that though it was painful even for him in the beginning to renounce the thing belongs to him but felt the "positive joy" of non-possession that gradually took a "geometric progression". Gandhi was convinced of that "if each retained of possession of only what they needed, no one would be in want, and all would live in contentment" (*Yeravada Mandir: Ashram Observances*, translated by Desai, V.G. 1933, Prabhu and Rao (1967) compiled and Edited). To rich he says, "Earn your crores by all means. But understand that your wealth is not yours; it belongs to the people. Take what you require for your legitimate needs, and use the remainder for society" (*Harijan*, 1-2-1942, p.29, Prabhu and Rao (1967) compiled and Edited). Further he rests the responsibility of trusteeship on the economically well off people that restore an economic equity.

Trusteeship: Economic equality/equity:



To Gandhi economic equality is to abolish the “eternal conflict between capital and labour”; the contrast between “few rich in whose hands is concentrated the bulk of nation’s wealth” and “the semi-starved naked millions” (*Sarvodaya*, compiled by Navajivan Trust, 1951). To Gandhi “trustee” is one who takes for himself only enough to satisfy the needs customary in his society and spends the rest for social service” (Answers to questions at Gandhi Seva Sangh Meeting, Brindaban – II (H) and Gandhi Seva Sanghke Panchama Varshik Adhiveshan (Brindaban, Bihar) ka Vivaran, pp. 50-9, Raghavan Iyer (ed.), 1991). Further to Gandhi, if capital is power so also work. Either capitalist or worker is dependent on the other. Hence worker is a co-sharer in the capital. The moment the worker realizes this there is an inevitable destruction. Gandhi calls this destruction of capitalist as the destruction of worker. To resist this state he lays the down responsibility of community welfare in the hands of capitalists:

“ I am inviting those people who consider themselves as owners today act as trustees, i.e., owners, not in their own right, but owners in the right of those whom they have exploited”(Yeravadamandir: *Ashram Observances*,pp. 23-6, V.G. Desai, translated 1933, Navajivan Publishing House, Ahmadabad, 1957 edition, compiled by Prabhu and Rao 1967 edition).

Sarvodaya: Socialistic development from individual to world federation:

Gandhi evolves a socialistic state at the same time his notion of state is not just utilitarian that aims at greatest happiness or good to the greatest number; rather his idea of state is founded by such individuals who are greater than utilitarian. For, an utilitarian is only logical and thus does not sacrifice himself in order to fulfil his goal according to Gandhi. But a votary of *sarvodaya* is an absolutist who will even sacrifices himself (The Greatest Good of All, Young India, 9-12-'26, *Sarvodaya*, Compiled by Navajivan Trust, 1951). Socialism is primarily for Gandhi through minimizing one’s needs and whatever earned



should be earned with the utmost honesty; further Gandhi was very much convinced with that idea: “Even single a single individual enforces this ideal in his life, he is bound to influence others” (The socialist ideal, Gandhi Camp, Patna, April, 18, 1947, Talk with Manu Gandhi (G), *Biharni Kmomi Agman*, pp. 201-2, Raghavan Iyer (ed.), 1993). Indian history witnessed how a single individual named Mohandas Karamchand Gandhi brought a social, historical and political transformation through his two powerful precepts namely nonviolence and truth. To Gandhi these are sides of the same coin that he practiced and brought the changes he aimed at.

Further, to Gandhi the word socialism is not only a beautiful word conceptually where “all the members of society are equal – none low, none high” (Gandhi Camp, Patna, April 15, 1947, Talk with Manu Gandhi (G.), *Biharani Komi Agman*, pp. 201-2, Raghavan Iyer (ed.), 1993, p. 411), but also a realizable precept that encompasses individuals, societies and transnational states His idea of building a stateless society is through social transformation primarily at individual level:

“If we erase the ‘I’s and the ‘Mine’s from religion, politics and economics, etc. we shall soon be free and bring heaven upon earth” (The Curse of “I” and “Mine”, *Young India*, 23 Sept. 1926, Raghavan Iyer (ed.), 1993, p. 414).

Though Gandhi dreamt of a world federation which is possible where nations do not suffer from passive resistance that acts as a preparation for active and armed resistance. On July 4, 1947 that is just prior to free-India times, he expressed his disgust for the social and political state of affairs that are similar to present-day times. For, just before realization of his dream for independent India Gandhi also witnessed how the evolved social transformation was recoiling that may sooner take a worsen form. He said:

"If people had learnt the lesson ahimsa which I had been trying to impart to them over the last 32 years, there would have been no need at present for rationing of food and cloth... If people learnt truthfully and help each other, there would be no need for us to look towards the Civil service... If civil servants could change with the times and run the administration to serve the people, then a truly democratic regime could be brought about." (Speech at Prayer Meeting (H), *Prarthana Pravachan*, Vol. I, pp.217-20, Raghavan Iyer (ed.), 1993, pp.410-411).

It is only through observing Gandhian ideas as non-possession, trusteeship and socialism alone we can mitigate poverty of people and nations. For poverty is the root of other issues on health, education and development.

Policy suggestions:

- Academic Research must be socially relevant and policy directed to further the lives of the deprived.
- Gandhi in 1915 in his *Un to this last: A Paraphrase* (p.9) remarked: "A curious fact in the history of human error is the denial by the economist of the possibility of so regulating wages as not to vary with the demand for labour".
- ILO's "decent standard of work" too values manual labour and informal economy of all kinds of labourers. It is also held that ILO's "decent standard of work" stresses the need to improve quality, productivity and remuneration for work in informal setting (ILO, 2003, cited.Prakasham, 2012).
- UN Millennium Development Goals are for Decent Work that is enshrined in ILO's original principles for promotion of social justice: More than one 1000 million in the world are unemployed and under employed for poverty wages(less than US\$1 per day.



- Considering the above and valid views and many more concerns for the deprived and manually hard working populace, it is suggested that it is time to revise wages for lowly paid workers; fix up just wages for workers in unorganized sector; also to make less wage differentials among all organizations of nation to promote equality and standard of living for all the classes of people.
- Conversion of Gandhian centres that are mostly hitherto working as only academic and research centres; these centres need to work also as extension centres for propagation of Gandhian ideas and awareness of rights of people and service for the unreached in Gandhian lines.

Acknowledgements: The author acknowledges her gratitude with reverence to Dr. Y.P. Anand, former Chairman to Railway Board and a Gandhian, for his valuable comments and suggestions to my paper.

References

1. Allardt, Erik (1993). 'Having, Loving, Being: An Alternative Swedish Model of Welfare
2. Research', in Martha C. Nussbaum and Amartya Sen (Eds.), *The Quality of Life*, A Study prepared for the World Institute for Development Economic Research (WIDER) of the United Nations University. Oxford: Clarendon Press.
3. Bhatta, Kiran (1998). Educational deprivation in India: a Survey of Field study investigation in *Economic and Political Weekly*, July, 11, 1998
4. Chambers, Robert (2007). 'Participation and poverty', in *Development Celebrating 50 years*,
5. Volume 50, Number 2, June 2007 www.sidnet.org/development , Sydney: SID; Society for International Development.
6. Empowering the women and men, *The Hunger Project*
7. http://www.un.org/millenniumgoals/pdf/MDG_Report_2010
8. Food and Agricultural Organization of United Nations (FAO)(14th September,2010). Rome, *925 million in Chronic*



- hunger worldwide*, Media centre, availed from, <http://www.fao.org/news/story/en/item/45210/icode/>
9. Gasper, Des (2004). *The Ethics of Development*. New Delhi: Vistar Publications:
 10. Gandhi, M.K.(1909). *Hind Swaraj or Indian Home Rule*, e-book retrieved from www.mkgandhi.org
 11. Gandhi, M.K. (1915) *Ruskin Unto this last: A Paraphrase*, Translated into Gujarati by
 12. Gandhi and re-translated into English in 2007 by Valji Govind Desai. Navajivan Publishing House Ahmadabad e-book retrieved from www.mkgandhi.org
 13. GOI (1997). *Economic Activities and School attendance by Children of India*, 1997. NSS Report No.412, NSS 50th Round, 1993-94
 14. Iyer, Raghavan (Ed.) (1993). *The Essential Writings of Mahatma Gandhi*. Oxford: Oxford University Press
 15. Kagia, Ruth (2006). *Securing the Future through Education: A tide to lift all boats*, Bhargava
 16. Vinay (Ed.): *Introduction to Global Issues for Global Citizens: An Introduction to Key Development Challenges*. Washington, D.C.: The World Bank.
 17. Klamer, Arjo (2004). 'Visualizing Economy' in *Social research an International quarterly of the social science*, vol 71: No. 2: Summer 2004, New York: Social research
 18. Maslow, Abraham, H. (1954), *Motivation and Personality*. New York: Harper and Row.
 19. Navajivan Trust (1951). *Sarvodaya Its Principles and Programmes* [A compilation of essays and letters of Gandhi], Ahmadabad: Navajivan Publishing
 20. Prabhu, R.K. and Rao, U.R. (eds.) (1945/1967). *The Mind of Mahatma Gandhi*. Ahmadabad: Navajivan Publishing House, 1967 edition.
 21. Proacci, Giovanna (2007). 'Genealogies of poverty: From inclusion towards exclusion' in *Development Celebrating 50 years*, Volume 50, Number 2, June 2007 www.sidnet.org/development , Sydney: SID; Society for International Development



22. Prakasham, Seepana (2012). Trade off between Growth and Decent work in *The Indian Economic Journal*, Special issue, December 2012
23. Radhakrishnan, S (1923). *Indian Philosophy*, Vol. 2, Oxford: Oxford University Press Sen, Amartya (1990). *On Ethics and Economics*. Delhi: Oxford University Press.
24. The Hunger Project (2012). Empowering the women and men, The Hunger
25. Project perpetuating a cycle of gender inequality, poverty and hunger.
26. UNDP (2004). *Human Development Report 2004: Cultural liberty in today's diverse world*.
27. New Delhi: Oxford University press.
28. UNESCO (2005). *EFA global Monitoring Report 2005* (see Chapter 6, Towards EFA: The quality imperative availed from http://portal.unesco.org/education/en/ev.phpURL_ID=36005&URL_DO=DO_TOP_IC&URL_SECTION=201.html. Accessed on 2/25/2006
29. UNICEF (2003). *The State Of World's Children 2004: Girls, education and development*.
30. New York : The United Nations Children's Fund.
31. Wold Conference on Science: science for the Twenty First Century (26 th June, 1999).
32. *Declaration on Science and the use of scientific knowledge: Definition Version*, Text adopted by the World Conference, 1st July 1999, Budapest: Hungary, 26th June http://www.unesco.org/science/wcs/eng/declaration_e.htm availed on 11/8/2012
33. Zupi, Marco (2007). 'The multi-D-Dimensions of poverty: some conceptual and policy challenges', in *Development Celebrating 50 years*, Volume 50, Number 2, June 2007 www.sidnet.org/development. Sydney: SID; Society for International Development



SOCIAL ANXIETY AMONG TRANSGENDER

Vijayalakshmi.S

Ph.D Research Scholar (F.T)
Bharathidasan University
Thriuchirapalli

Introduction

For many people, the terms Sex and gender are used interchangeably. However, although sex and gender are closely related, there is a subtle difference between the two. Sex refers to biological status as male or female. It includes physical attributes such as sex chromosomes, gonads, sex hormones, internal reproductive structures, and external genitalia. Gender is a term that is often used to refer to ways that people act, or feel about themselves, which is associated with male or female.

Transgender is a term for persons whose gender identity, gender expression or behavior does not conform to that typically associated with the sex to which they were assigned at birth. Gender identity refers to a person's internal sense of being male, female. Gender expression refers to the way a person communicates gender identity to others through behavior, clothing, hairstyles, voice or body characteristics. While transgender is generally a good term to use, not everyone whose appearance or behavior is gender-nonconforming will identify as a transgender person.

Transgender is the state of one's gender identity or gender expression not matching one's assigned sex. Transgendered persons usually live full or part time in the gender role opposite to the one in which they were born. The term trans man refers to female-to-male (FtM) transgender people, and trans woman refers to male-to-female (MtF) transgender people.

American Psychiatric Association (APA) and other groups have increased their advocacy on behalf of transgender people as well. In



2008, American Psychiatric Association's Council of Representatives adopted its Resolution on Transgender, Gender Identity and Gender Expression Nondiscrimination to support full equality and "the legal and social recognition of transgender individuals consistent with their gender identity and expression."The resolution also recognized the benefit and necessity of gender transition treatments for some people and called on insurance providers to cover these treatments when professional evaluations deemed them medically necessary. Lore m. dickey, professor at University of Southern Mississippi says that, Now, being transgender is being acknowledged as "part of the human condition,"

Causes of Transgender-ism

There is growing evidence that the transgendered conditions is due to a person's nature rather than the nurture received early in life. Scientific evidence has shown that certain brain-structures in the hypothalamus (the BSTc region) determine each person's core gender feelings and innate gender identity.

According to Israel and Tarver (1997), the most common mental health issues transgender persons experience are depression as well as adjustment, anxiety, personality, and post traumatic stress disorders. While the transgender state itself is not any longer considered to be unhealthy, the stress of dealing with the confusion and society's negative.

Need and Significance of the study

Transgender persons are group of people who have been marginalized in many societies. Although there is growing awareness in issues of transgender but there is lack researchers in attitude, anxiety among transgender among society. This study helps to understand the problems and needs of the transgender.



Weisman and her colleagues(2011) claim that people with social anxiety are overly concerned with social hierarchy, and struggle with what's called the affiliative side of relationships. Many times people with social anxiety prefer to be alone. Even when they are around familiar people, a person with social anxiety may feel overwhelmed and have the feeling that others are noticing their every movement and critiquing their every thought. Isolation can occur before a person comes out as transgender, or after gender-role transition.

Definition of the terms

Transgender

The most accepted definition currently for the term transgender seems to be "People who were assigned a gender, usually at birth and based on their genitals, but who feel that this is a false or incomplete description of themselves." (USI LGBT Campaign Transgender Campaign, 2007).

Social Anxiety

Anxiety is a form fear, whereas social anxiety is a form of fear towards the social situation.

Objectives of the study

To find the level of social anxiety among transgender

To find the social anxiety among transgender with respect selected demographic variables like age and educational qualification

Method of the research

Normative survey method was employed in this research.

Tools used for the study

A self-developed tool was used in this study. The tool was constructed and face validity was established by giving to the fields of experts like



psychologist, sociologist and gender studies. According to the suggestion by experts the correction were made. Reliability of the tool was established by tester-test method. Social anxiety questionnaire was give to 15 transgender and data were collected. After the interval of 15 days again the same tool was given to same sample and data collected. Scores between two tests was statistically treated with Pearson coefficient of correlation method. The correlation value was 0.71. Hence the reliability of the tool was established.

Social anxiety tool consists of 22 items in which 10 negative and 12 positive items. The responses are given in Likert type of questionnaire with four responses like “strongly agree, agree, dis-agree, strongly dis agree”. Scoring like 4 for strongly agree, 3 for agree, 2for dis-agree and 1 for strongly dis agree for positive items and reverse scoring given for negative items.

Sample for the study

Sample of 41 transgender were selected from Chennai city by adopting random sampling technique.

Hypotheses of the study

1. There is no significance difference in the level of social anxiety among transgender
2. There is no significance difference in social anxiety amongtransgender with respect to age
3. There is no significance difference in social anxiety among transgender with respect to educational qualifications

Analysis of the Hypotheses

1. **There is no significance difference in the level of social anxiety among transgender**



Table 1

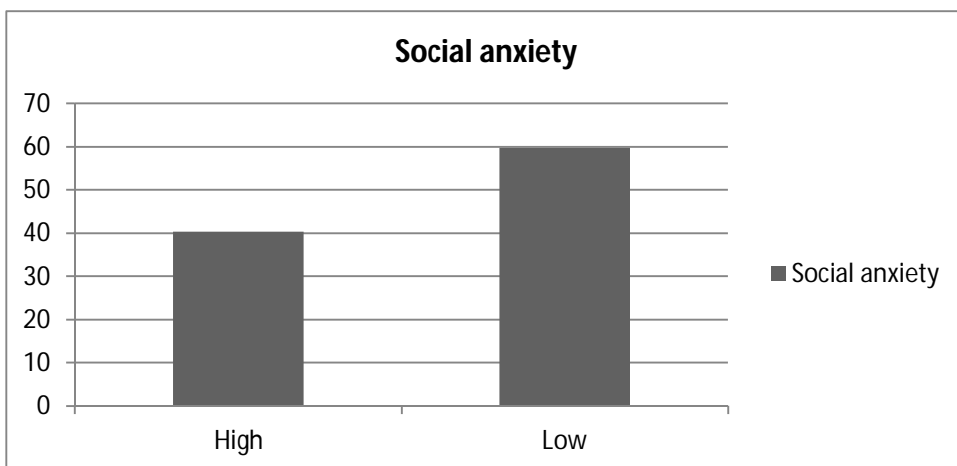
Level of Social anxiety among transgender

Variable	High	Low
Social anxiety	40.29 %	59.71%

From table 1 it is understood that 40.29% of transgender are having high level of social anxiety and 59.71% of transgender having low level of social anxiety.

Fig.1

Bar diagram shows the level of social anxiety among transgender



2. There is no significance difference in social anxiety among transgender with respect to age



Table 2

Mean and Standard deviation of social anxiety among transgender with respect to age

Variable	19-25 years N=19		25-35 years N= 10		36 and above N= 12	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Social anxiety	30.68	4.24	30.46	5.34	30.57	4.89

Table 3

Variable	Source of Variance	Sum of Squares	df	Mean Square	F	Significance
Social anxiety	Between groups	1.59	2	.79	0.03	NS
	Within groups	4627.43	38	23.49		

From table 3 it is inferred that the calculated F value 0.03 is lesser than the table value. There exists no significance difference among three age group of transgender in social anxiety. Hence the null hypothesis is accepted and it reveals that there is no significant difference in social anxiety among transgender with respect to age.



3. There is no significance difference in social anxiety among transgender with respect to educational qualifications

Table 4

Mean and Standard deviation of Social anxiety among transgender with respect to Educational qualification

Variable	Up to X class N=20		12 th class N=11		Degree and above N= 10	
Social anxiety	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
	20.97	8.92	24.54	11.27	26.89	11.20

Table 5

Variable	Source of variance	Sum of Squares	df	Mean Square	F	Significance
Social anxiety	Between groups	925.72	2	462.86	4.11	S
	Within groups	22196.23	38	112.67		

From the Table 5 it is inferred that that the calculated F value 4.11 is greater than the table value. There exists a significance difference among three different education qualification groups among transgender in social anxiety. Hence the null hypothesis is rejected and it reveals that there is a significant difference in social anxiety among transgender with respect to Educational qualification.



Suggestions

Functional literacy programmes can be conducted for transgender so that they can improve their employability. Providing more training opportunities which will help them to be self-employed is the need of the hour. The study shown that educational qualification shows a significant different in the selected variable hence the educational care in need can be provided to the transgender to improve their demographic in various forms. Counselors should be given more exposure to dealing with sex variant groups especially the transgender.

Conclusion

About 40.29% of transgender have high level of self-esteem. Age does not have a significant influence on social anxiety-esteem among transgender whereas educational qualification plays role in self-esteem among transgender.

References

1. American Psychological Association Lesbian, Gay, Bisexual, Transgender. Retrieved on June 24, 2015 from – <http://www.wpa.org/topics/lgbt/transgender.aspx>
2. Israel, G. & Tarver, D. (1997). *Transgender care: recommended guidelines, practical information, and personal accounts*. Philadelphia: Temple University Press.
3. Eve Glicksman. (April 2013). *Throughout history, transgender people have been misunderstood and seldom studied. That's beginning to change*. Monitor on Psychology. Vol. 44 (4). Pp.36. Retrieved on June 24, 2015 from-<http://www.apa.org/monitor/2013/04/transgender.aspx>
4. Golden Kisha&Balachandra, Aruna. (2014). *Psychosocial Problems of Transgenders and The Attitude of Society Towards Them*. Retrieved on June 24, 2015 from-<http://shodhgangana.inflibnet.ac.in/handle/10603/21174>
5. Weisman, Aderka, Marom, Hermesh, and Gilboa-Schechtman (2011). Social rank and affiliation in social anxiety disorder. Behaviour Research and Therapy



A SURVEY ON VARIOUS AUTHENTICATION ATTACKS AND DATABASE SECURE AUTHENTICATION TECHNIQUES

Yatendra Kashyap

Assistant Professor

Department of Computer Science
& Engineering

Corporate Institute of Science &
Technology Bhopal

Raju Sharma

Assistant Professor

Department of Computer Science
& Engineering

Corporate Institute of Science &
Technology Bhopal

INTRODUCTION

With the extensive growth of Computer networks usage and the huge increase in the number of applications running on it, makes network security very essential today, Data security has become a necessity for every individual who is connected to internet and uses the internet for any purpose. It is a requirement that is a must in every aspect of the operation performed on the internet. Almost each and every computer system is suffering from security vulnerabilities which are both technically tougher and economically expensive to be solved by the manufacturers. Computer system threats come in many different forms. Some of the most common threats today are software attacks, theft of intellectual property, identity theft, theft of equipment or information, sabotage, and information extortion. Most people have experienced software attacks of some sort. Viruses, worms, phishing attacks, and trojan horses are a few common examples of software attacks. The theft of intellectual property has also been an extensive issue for many businesses in the IT field. Intellectual property is the ownership of property usually consisting of some form of protection. Theft of software is probably the most common in IT businesses today. Identity theft is the attempt to act as someone else usually to obtain that person's personal information or to take advantage of their access to vital information. Theft of equipment or information is becoming



more prevalent today due to the fact that most devices today are mobile. Cell phones are prone to theft and have also become far more desirable as the amount of data capacity increases. Sabotage usually consists of the destruction of an organization's website in an attempt to cause loss of confidence to its customers. Information extortion consists of theft of a company's property or information as an attempt to receive a payment in exchange for returning the information or property back to its owner.

Data security is essential because they suffer from security threats that may prove harmful and disastrous if disclosed or accessed publicly. Below we will present some security threats that are suffered by the databases.

- **Privilege Abuse:** When database users are provided excessive privileges than their required functionality, then these privileges can be intentionally or unintentionally exploited.
- **Legitimate Privilege Abuse:** In this attack, the attacker with the legitimate privilege access to the database may abuse the information stored in the database for the malicious purposes.
- **Privilege Promotion:** The attacker in this attack takes advantage of the software vulnerabilities and errors and then elevates his clearance level to access the critical information stored in the database.
- **Operating System Vulnerabilities:** In operating system vulnerabilities, the attacker exploits the vulnerabilities in the operating system to gain unauthorized access to the database for malicious reasons.

In our paper we discuss some of the common security techniques that can be used in addition to the access control mechanisms to store the data securely



Below we list some common security schemes that can be applied to database security.

- **Cryptography:** Cryptography is the study and the practice of the techniques wherein the plaintext by encryption is converted to an obfuscated and no readable text.
- **Hashing:** Hashing is defined as the transformation of a variable length data into a fixed length string by using hash functions without which the retrieval of the data is not possible
- **Steganography:** Steganography is process of concealing sensitive information in any type of cover media.
- **Access Control:** Access control mechanisms restrict the access to the database and its information to outsiders except for the authorized users.
- **Integrity -** Integrity of information means that information should be complete and accurate it should not be modified without permission of it's legitimate user.
- **Confidentiality -** Confidentiality of information means information should not be access or used by unauthorized user. It should be secure.
- **Integrity Availability-** Availability of information means that whatever information is needed by the legitimate user/system at any time should be available to that user/system.

II VARIOUS DATABASE SECURITY TECHNIQUES

In this section we list common security techniques that may prove useful in fortifying the database.

2.1. Securing Database using Cryptography- Sesay et al. proposed a database encryption scheme. In this scheme the users are divided into



two levels: Level 1 (L1) and Level 2 (L2) [1], [2]. Level 1 users have access to their own private encrypted data and the unclassified public data, whereas Level 2 users have access to their own private data and also classified data which is stored in an encrypted form. Liu et al. proposed a novel database encryption mechanism [3], [4]. The proposed mechanism performs column-wise encryption that allows the users to classify the data into sensitive data and public data. This classification helps in selecting to encrypt only that data which is critical and leaves the public data untouched thereby reducing the burden of encrypting and decrypting the whole database, as result of which the performance is not degraded. Mixed Cryptography Database [5] scheme is presented by Kadhem et al. The technique involves designing a framework to encrypt the databases over the unsecured network in a diversified form that comprise of owning many keys by various parties. In the proposed framework, the data is grouped depending upon the ownership and on other conditions.

2.2. Securing Database using Steganography- Das et al. [6] explained various techniques in steganography that can be implemented to hide critical data and prevent them from unauthorized and direct access. The various techniques include still image steganography, audio steganography, video steganography, IP Datagram steganography. Naseem et al. presented a method that uses steganography to hide data [7]. In the proposed scheme the data is embedded in the LSB's of the pixel values. The pixels values are categorized into different ranges and depending on the range certain number of bits is allocated to hide the sensitive data. Kuo et al. presented a different approach to conceal data. In this scheme the image is divided into fixed number of blocks [8], [9], [10], [11]. Histogram of each block is calculated along with the maximum and minimum points to mask the data. This mechanism increases the hiding. capacity of the data. Dey et al. employs a diverse approach to



efficiently hide the sensitive data and escalate the data hiding capacity in still images [12], [13], [14]. The technique involves using prime numbers and natural numbers to enhance the number of bit planes to cloak the data in the images.

2.3.Securing Database using Access Control- Bertino et al. [15] explains an authorization technique for video databases. In the proposed scheme, the access to the database and to a particular stream of the video is granted only after verifying the credentials of that user. The credentials may not just be the user-id but it may be the characteristics that define the user and only after successful verification of the credentials the user is granted the permission to access the database

2.4 An authorization model is proposed by Rizvi et al [19], [20], [21], [22], [23]. In the explained technique is based on authorization views which enable authorization transparent querying in which the user queries are formed and represented in terms of database relations and are acceptable only when the queries can be verified using the information contained in the authorization rules. The work presents the new techniques of validity and conditional validity which is an extension of the earlier work done in the same area.

III AUTHENTICATION ATTACKS

Attacks regarding authentication are those which target a web site's method of validating the identity of a user, service or application. These are of the following types.

3.1 BRUTE FORCE ATTACK: It is an automated process of trial and error used to guess a person's user name, password, credit card number or cryptographic key. A normal brute force attack uses a single user name against many passwords. A reverse brute force attack uses many user names against one password. When a guessed password allows access to the system, the brute force attack has been successful and the



attacker is able to access the account. Brute Force techniques are highly popular and often successful in systems with millions of user accounts.

3.2 INSUFFICIENT AUTHENTICATION: This type of attack occurs when a website permits an attacker to access sensitive content or functionality without having to properly authenticate. Web based administration tools are a good example of web site providing access to sensitive functionality. Example: Many web applications have been designed with administrative functionality location directory off the root directory (/admin/). This directory is usually never linked to anywhere on the web site, but can still be accessed using a standard web browser.

3.3 WEAK PASSWORD RECOVERY VALIDATION: When a website permits to illegally obtain, change or recover another user's password. Conventional web site authentication methods require users to select and remember a password. The user should be the only person that knows the password and it must be remembered precisely. With the passage of time, a user's ability to remember a password fades. The complication increases further when the average user visits 20 or more sites requiring them to supply a password. A website is considered to have Password Recovery Validation when an attacker is able to foil the recovery mechanism being used. This happens when the information required to validate a user's identity for recovery in either easily guessed or can be circumvented. Password recovery systems may be compromised through the use of brute force attacks, inherent system weaknesses.

3.4 DICTIONARY ATTACK - A dictionary attack is a method of breaking into a password-protected computer or server by systematically entering every word in a dictionary as a password. A dictionary attack can also be used in an attempt to find the key necessary to decrypt an encrypted message or document. Dictionary



attacks work because many computer users and businesses insist on using ordinary words as passwords. Dictionary attacks are rarely successful against systems that employ multiple-word phrases, and unsuccessful against systems that employ random combinations of uppercase and lowercase letters mixed up with numerals. In those systems, the brute-force method of attack (in which every possible combination of characters and spaces is tried up to a certain maximum length) can sometimes be effective, although this approach can take a long time to produce results.

3.5 PHISHING ATTACK- Phishing is an e-mail fraud method in which the perpetrator sends out legitimate-looking email in an attempt to gather personal and financial information from recipients. Typically, the messages appear to come from well known and trustworthy Web sites. Web sites that are frequently spoofed by phishers include PayPal, eBay, MSN, Yahoo, BestBuy, and America Online. A phishing expedition, like the fishing expedition it's named for, is a speculative venture: the phisher puts the lure hoping to fool at least a few of the prey that encounter the bait

3.6 MAN IN THE MIDDLE ATTACK-A man-in-the-middle attack is one in which the attacker secretly intercepts and relays messages between two parties who believe they are communicating directly with each other. It's a form of eavesdropping but the entire conversation is controlled by the attacker, who even has the ability to modify the content of each message. Often abbreviated to MITM, MitM, or MITMA, and sometimes referred to as a session hijacking attack, it has a strong chance of success if the attacker can impersonate each party to the satisfaction of the other. MITM attacks pose a serious threat to online security because they give the attacker the ability to capture and manipulate sensitive information in real-time while posing as a trusted party during transactions, conversations, and the transfer of data.



3.6 KEYLOGGER-A keylogger is a type of surveillance software (considered to be either software or spyware) that has the capability to record every keystroke you make to a log file, usually encrypted. A key logger recorder can record instant messages, e-mail, and any information you type at any time using your keyboard. The log file created by the keylogger can then be sent to a specified receiver. Some keylogger programs will also record any e-mail addresses you use and Web site URLs you visit.

Keyloggers, as a surveillance tool, are often used by employers to ensure employees use work computers for business purposes only. Unfortunately, keyloggers can also be embedded inspywareallowing your information to be transmitted to an unknown third party.

IV COMPARATIVE ANALYSIS OF VARIOUS DATABASE SECURITY TECHNIQUES

In [1], [3], [5] cryptography is implemented to keep the data in the database secure by encrypting the data. In [1], the authors have categorized the users in two levels: Level 1 and Level 2. Based on the Level of the user the accessibility of data provided. Level 1 users are allowed to access their own private encrypted data and the public data, whereas Level 2 user is permitted to access both, the encrypted private data and the encrypted classified data. The advantage of this scheme is that the grouping of users and grouping of data into two levels avoids the burden of unnecessary encryption of the whole data. Only the classified data and the private data are encrypted and the public data is left unchanged. A rather different approach is followed by [3]. In [3], the authors perform column-wise encryption of the data that is defined as the sensitive data by the users. The column-wise encryption approach prevents the whole database to be encrypted but only the critical information, thus averting the performance degradation problem of the database during the retrieval of the data. A varied style is undertaken by the authors in [5]. In this scheme mixed mode



cryptography is employed to secure the database over the untrusted and unreliable network in a mixed form. Many keys are held by different parties who have the access to the database so that even when the database is attacked at multiple points by an insider or an outsider the database is not comprised. The authors in [7], [8], [12] have proposed steganography as a method that can be implemented to secure the data in the database. In [7] still images are used to hide the data. In the explained scheme the pixels in the image grouped based on their intensity to hide the data. The advantage possessed by this method is that based on the intensity of the pixels a varied number of bits can be utilized to conceal the data instead of fixed number of bits. Instead of grouping the pixels of the complete image based on the intensity, the authors in [8] divide the image in equal sized blocks and the histogram of these blocks is calculated. The maximum and minimum points of the histogram are recorded and the critical data is embedded in between these points. The benefit in this approach is that the embedding capacity of the image is enhanced. To achieve the same result of increase the hiding capacity of the image and to conceal the data the authors in [12] have followed a different approach. In this technique prime numbers are used to utilize not just the lower bit planes of the image but even the higher bit planes of the image, thereby extending the hiding capacity. Authorization techniques are presented in [15], [16], [19]. In [15], authorization techniques for video database are proposed. The scheme involves authorizing the users based on their credentials to provide access to the video database. The credentials may contain the characteristics defined for the users and not just their user identifications. A stricter approach is followed by [16]. In the method involves integrating the mandatory, discretionary and role-based models into a unified framework that grants access to the data in the database. Another technique based on access control mechanism is proposed by [19]. The authors in [19] use authorization views that enable transparent querying which are validated only when the



information is present in the authorization views otherwise they are not. The benefit provided by this approach is that only the information and rules present in the authorization views are accepted and only then the access is granted otherwise the access is denied to the database.

Table 1: A summary of the various Data Security Techniques

Security Technique	Description	Security Techniques Proposed
1. Cryptography	Cryptography is a technique to protect the data in which the plaintext or data is converted into a cipher text by applying encryption so that the resultant cipher text is in an unreadable form.	<p>1. In [1] the authors presented that only encrypts the classified data and the unclassified data is left unchanged. Access is granted to the data by grouping the users into two levels: Level 1 and Level 2.</p> <p>2. The authors in this technique [3] allow the users to classify the data based on the nature of the data as critical or public. Only critical data is encrypted column-wise which helps in avoiding the degradation of the</p>



		<p>performance.</p> <p>3. In [5] a novel approach of mixed cryptography is presented. The proposed is applied to databases that reside over the unsecured networks.</p>
2. Steganography	<p>Steganography is technique of hiding or concealing the sensitive data in any type of cover media.</p>	<p>1. The authors in [7] explained a method that focuses on utilizing the intensity of the pixels to hide data instead of the conventional approach where just 1 LSB bit is used to hide the critical data</p> <p>2. In the next approach a single image is divided into blocks of equal sizes [8] whose histogram is calculated and the data is hidden in the histograms of these blocks.</p>
3.	Access	<p>Access Control/</p> <p>1. Authorization</p>



Control/Authorization	<p>authorizations mechanisms restrict the illegal access to databases and those with valid credential and the authorized users are granted access to the database</p>	<p>technique for video database is proposed in [15]. In the proposed scheme a user is granted access to the video stored in the database only after verifying its credentials.</p> <p>2. In [16] a generalized framework is presented. In this method, mandatory, discretionary, and role based models are integrated into a unified framework to allow access to the database</p>
-----------------------	---	--

V. CONCLUSION

In this paper we talked about various security vulnerabilities that the database suffers from and the need for security to alleviate these vulnerabilities. We also presented some common security techniques that can be employed to augment and enhance the security of the database against some known attacks and security threats. In Section 1 we provided an introduction about the database and the security threats and need for security in the database. In the next section we



discussed various security techniques that may be implemented in the database. A Comparative Analysis of the techniques discussed in Section 2 is presented in Section 3.

References:

1. Samba Sesay, Zongkai Yang, Jingwen Chen, Du Xu, "A Secure Database Encryption Scheme", Second IEEE Consumer Communications and Networking Conference (CCNC), 3-6 Jan. 2005, pp. 49- 53.
2. Srikanth Chava, "A Security Protocol for Multi-User Authentication", arXiv: 0804.1970v1 [cs.CR].
3. Lianzhong Liu and Jingfen Gai, "A New Lightweight Database Encryption Scheme Transparent to Applications", 6th IEEE International Conference on Industrial Informatics, 13-16 July 2008, pp.135-140.
4. E. Anupriya, Sachin Soni, Amit Agnihotri, Sourabh Babelay, "Encryption using XOR based Extended Key for Information Security – A Novel Approach", International Journal on Computer Science and Engineering (IJCSE), vol. 3, issue 1, Jan. 2011, pp. 146-154.
5. Hasan Kadhem, Toshiyuki Amagasa, Hiroyuki Kitagawa, "A Novel Framework for Database Security based on Mixed Cryptography", Fourth International Conference on Internet and Web Applications and Services, 24-28 May 2009, pp.163-170.
6. Soumyendu Das, Subhendu Das, Bijoy Bandyopadhyay, Sugata Sanyal, "Steganography and Steganalysis: Different Approaches", International Journal of Computers, Information Technology and Engineering (IJCITAE), Vol. 2, No 1, June, 2008, Serial Publications, pp. 1-11.



7. M. Naseem, Ibrahim M. Hussain, M. Kamran Khan, Aisha Ajmal, "An Optimum Modified Bit Plane Splicing LSB Algorithm for Secret Data Hiding", International Journal of Computer Applications, Vol. 29, No. 12, 2011. Foundation of Computer Science, New York, USA, pp. 36-43.
8. Wen-Chung Kuo, Dong-Jin Jiang, Yu-Chih Huang, "A Reversible Data Hiding Scheme Based on Block Division", Congress on Image and Signal Processing, Vol. 1, 27-30 May 2008, pp. 365-369.
9. Yih-Chuan Lin, Tzung-Shian Li, Yao-Tang Chang, Chuen-Ching Wang, Wen-Tzu Chen, "A Subsampling and Interpolation Technique for Reversible Histogram Shift Data Hiding", Image and Signal Processing, Lecture Notes in Computer Science, vol. 6134, 2010, Publisher: Springer Berlin/Heidelberg, pp. 384-393.
10. Chyuan-Huei Thomas Yang, Chun-Hao Hsu, "A High Quality Reversible Data Hiding Method Using Interpolation Technique," IEEE Fifth International Conference on Information Assurance and Security, vol. 2, 18-20 Aug. 2009, pp. 603- 606.
11. Che-Wei Lee and Wen-Hsiang Tsai, "A Lossless Data Hiding Method by Histogram Shifting Based on an Adaptive Block Division Scheme", Pattern Recognition and Machine Vision, River Publishers, Aalborg, Denmark, pp. 1-14.
12. Sandipan Dey, Ajith Abraham, Sugata Sanyal, "An LSB Data Hiding Technique Using Prime Numbers", IEEE Third International Symposium on Information Assurance and Security, Manchester, United Kingdom, IEEE Computer Society press, USA, 29-31 Aug. 2007, pp.101-106.
13. Sandipan Dey, Ajith Abraham, Bijoy Bandyopadhyay and Sugata Sanyal, "Data Hiding Techniques Using Prime and Natural Numbers" Journal of Digital Information Management, vol. 6, no. 3, 2008, pp. 463-485.



14. Sandipan Dey, Ajith Abraham and Sugata Sanyal "An LSB Data Hiding Technique Using Natural Numbers", IEEE Third International Conference on Intelligent Information Hiding and Multimedia Signal Processing (IIHMSP), vol. 2, Nov 26-28 2007, pp. 473-476.
15. Elisa Bertino, Moustafa A. Hammad, Walid G. Aref , Ahmed K. Elmagarmid, "An Access Control Model for Video Database Systems", Proceedings of the ninth international conference on Information and knowledge management, 2000, pp. 336 – 343.
16. Naren Kodali, Csilla Farkas, Duminda Wijesekera, "An authorization model for multimedia digital libraries", International Journal on Digital Libraries, vol. 4, no. 3, 2004, pp. 139-155.
17. Béchara Al Bouna, Richard Chbeir, "Multimedia-based authorization and access control policy specification", Proceedings of the 3rd ACM workshop on Secure Web Services, 2006, pp. 61–68
18. Shermann S.M. Chan, Qing Li, José A. Pino, "Access Control Mechanism for Collaborative Video Database Production Applications", Proceedings of IEEE Sixth International Symposium on Multimedia Software Engineering, 13-15 Dec. 2004, pp. 396- 402.
19. S Rizvi, A Mendelzon, S Sudarshan, Prasan Roy, "Extending query rewriting techniques for fine-grained access control", Proceedings of the ACM SIGMOD international conference on Management of data, 2004, pp. 551 – 562.
20. Q Wang, T Yu, N Li, J Lobo, E Bertino, "On the Correctness Criteria of Fine Grained Access Control in Relational Databases", Proceedings of the 33rd international conference on Very large data bases, 2007, pp. 555-566



STRESS AND COPING STRATEGIES OF ACHIEVERS AND UNDERACHIEVERS-A COMPARATIVE STUDY

Dilruba Syed

Ph.D. Research Scholar
Faculty of Education
University of Kashmir, Srinagar

Prof (Dr.) Mahmood Ahmad Khan

Professor, Dean and Head
Faculty of Education
University of Kashmir, Srinagar

INTRODUCTION

Academic achievement is of paramount importance, particularly in the present socio-economic and cultural contexts. In fact, great emphasis is being laid by the schools on achievement right from the beginning of formal education. Therefore, the goal of every educationist is to maximize the academic achievement within a given setup. However achievement of an individual depends on his mental and physical potentialities or the experience he has gained in day to day learning. If we consider a group of students, some students can be high achievers and some among them can be underachievers. Research studies have examined different factors like academic self perception, attitude towards school, teachers or classes, motivation, and goal valuation which actually distinguish achievers from underachievers.

Achievement significantly affects the entire personality of the students. Under achieving students generally suffer from inferiority complex, frustration and manifest other forms of deviant behavior. They lack self-confidence and find themselves misfit in the company of other students. This seriously affects their entire personality which has far reaching repercussions throughout their lives. Achievement on the other hand facilitates the recognition of achievers by parents, peer groups, teachers, neighbors and society at large. It boosts their morale and develops feeling in them that they are useful in their family, school and society.



Various investigations have explored numerous factors which are found responsible for academic success and failure. Research studies of (Dowdall and Colangelo 1982; Reis and Mc Coach, 2000; Whitmore, 1980.) have examined various factors like academic self perception, attitude towards school, teachers and classes, motivation and goal valuation which actually distinguish achievers from underachievers. Studies have been conducted on achievers and underachievers by researchers like Kossowska (1999), Joo (2003), Khan and Najar (2005), Mroczek and Little (2006), Smith Fernandes (2007), Ong *et al.* (2010) and Muhammad *et al.* (2012) on personality characteristics, intelligence, self-concept, study habits, achievement motivation, creativity, Socio-economic status and environment, but only few studies have been conducted on stress and coping strategies in India. And in Kashmir no such study has been conducted yet. It is with this background the present investigators have made humble attempt to find out the stress and coping strategies of achievers and under achievers of the rural District of Kashmir i.e., Ganderbal.

OBJECTIVES

1. To identify the achievers and underachievers.
2. To study the Stress among achievers and underachievers.
3. To study the Coping Strategies of achievers and underachievers.

HYPOTHESES

1. In comparison to achievers, underachievers possess high Stress.
2. There is a significant difference between achievers and underachievers on Coping Strategies. (Factor wise).

OPERATIONAL DEFINITION OF VARIABLES

1. **Achievers:** Subjects whose mean achievement scores, of the previous two examinations (6th and 7th) lie minus 10 percentiles and



above of their intelligence percentile scores will be considered achievers.

2. **Underachievers:** Subjects whose mean achievement scores, of the previous two examinations (6th and 7th) lie 10 percentiles or more below their intelligence percentile scores will be considered underachievers.
3. **Stress:** Stress in the present study would mean the scores gained by sample subjects on Cohen *et al.* (1983) perceived stress scale.
4. **Coping Strategies:** Coping Strategies in the present study would mean scores gained by a sample subjects on Folkman and Lazarus (1988) ways of coping questionnaire.

PLAN AND PROCEDURE

Initial sample

There are ten districts in Kashmir Division. out of these districts one district namely Ganderbal was randomly selected for selection of initial sample. There are four educational zones in district Ganderbal. Out of these educational zones two educational zones were selected randomly for collection of data. The initial sample of the present study comprised of 869 8th class students of (age range: 13-14 years).

Final Sample

Mental measurement test-Raven's Advanced Progressive Matrices (Non-Verbal) was administered to all the 869 sample subjects in different sittings after building a rapport with the subjects and the concerned teachers and headmasters of respective schools. Mean of the two annual examination results 6th and 7th was considered as a criterion for academic achievement. The subjects whose academic achievement scores lie minus 10 percentile and above of their intelligence percentile scores were considered as Achievers and the subjects whose academic achievement scores lie 10 percentile and below their intelligence



percentile scores were considered as underachievers. The same technique of extreme scores has been adopted by Gowan (1960), Mohan and Nehru (1972), Mohan and Khera (1978), Khan (2001), and Samia and Khan (2012). The final sample comprised of the 556 Achievers and 313 underachievers.

TOOL USED

1. For the measurement of stress Cohen et.al (1983) perceived stress scale (PSS) has been administered.
2. For the measurement of coping strategies of the sample subjects Folkman and Lazarus, (1988) scale has been administered.

Analysis of data

Tests were administered as per the instructions provided in the test manuals. The collected data were analyzed through statistical techniques viz: Mean, S.D and t-test. The analysis is given in table 01 and 02.

Table 01: Significance of mean difference between achievers (N=556) and underachievers (N=313) on stress

Group	N	Mean	SD	t-value
Achievers	556	25.13	4.73	3.84**
Underachievers	313	26.32	4.19	

Note: **Significant at 0.01 level



Table 02: Significance of mean difference between achievers (N=556) and underachievers (N=313) on coping strategies (factor wise)

Factors	Group	N	Mean	SD	t-value	Level of Significance
Confrontive coping	Achievers	556	2.13	0.48	5.88**	0.01
	Underachievers	313	1.93	0.50		
Distancing	Achievers	556	2.04	0.41	3.41**	0.01
	Underachievers	313	2.15	0.48		
Self Controlling	Achievers	556	1.98	0.44	8.43**	0.01
	Underachievers	313	1.74	0.38		
Seeking social support	Achievers	556	2.14	0.71	3.58**	0.01
	Underachievers	313	2.01	0.44		
Accepting Responsibility	Achievers	556	2.20	0.56	2.15*	0.05
	Underachievers	313	2.10	0.74		
Escape Avoidance	Achievers	313	1.87	0.48	4.05**	0.01
	Underachievers	556	2.011	0.50		
Planful problem Solving	Achievers	556	2.24	0.44	3.03**	0.01
	Underachievers	313	2.14	0.49		
Positive Reappraisal	Achievers	556	2.20	0.38	2.22*	0.05
	Underachievers	313	2.14	0.39		

INTERPRETATION AND DISCUSSION

Comparison between Achievers (N=556) and Underachievers (N=313) on Stress.



The Perusal of table 1 makes it clear that Achievers and underachievers differ significantly on stress. The mean score of achievers is 25.13 while as the mean score of underachievers is 26.32. The difference between their mean scores has been found statistically significant at 0.01 levels. These results reveal that underachievers are in stress than achievers. The results seem to be justified on the ground that low achievement of underachievers is due to the stress of academic work load and external pessimistic- motivators such as pressure for success. They also remain deprived of healthy family care, attention, love, warmth and discipline while as achievers possess high achievement as they have the potential to handle the academic work and receive support and affection from their parents.

Comparison between Achievers (N=556) and Underachievers (N=313) on coping strategies factor- 1 (confrontive coping)

The perusal of table 2a makes it clear that the mean scores on factor confrontive coping of achievers (2.13) is higher than underachievers (1.93). The mean difference is significant at 0.01 levels. The results reflect that achievers and underachievers differ significantly so far as their confrontive coping is concerned. The results seem to be justified on the basis that achievers achieve high as they are more cooperative, sociable, helpful, outgoing and are able to make personal relationships with their teachers and classmates, who, helps them to confront the problem they face. On the other hand, underachievers possess low achievement as they are not cooperative, sociable, helpful, outgoing and are not able to make personal relationships with their teachers and classmates, who, helps them to confront the problem they face.

Comparison between Achievers (N=556) and Underachievers (N=313) on coping strategies factor-2 (Distancing).

The perusal of table 2b makes it clear that the mean score of achievers (2.04) is lower than the mean score of underachievers (2.15) on factor 2



(Distancing). The obtained 't' value is significant at 0.01 level. Which implies that the mean score favors underachievers group. These results reveal that underachievers have low achievement as they always try to keep distance with their peers and spend more time alone and become habitual of loneliness. They do not built rapport and personal relationships with their classmates. On the other hand, achievers possess high achievement as they have been found more friendly, cooperative, built rapport and personal relationships with their classmates. They do not keep distance with their peers and avoid isolation.

Comparison between Achievers (N = 556) and underachievers (N = 313) on coping strategies factor – 3 (Self-control).

The perusal of table 2c makes it clear that the mean score of Achievers (1.98) is higher than the underachievers (1.74) on factor 3 (self-control). The obtained 't' value is significant at 0.01 and. The results seems to be obvious on the ground that achievement of achievers is high as they are higher on self controlling factor and they do not get easily involved in unnecessary social activities. They always try to keep others from knowing about the bad things. While as achievement of underachievers is low as they possess low self controlling factor and get easily involved in unnecessary social activities.

Comparison between Achievers (N = 556) and underachievers (N = 313) on Coping Strategies Factor-4 (Seeking social support).

The perusal of table 2d makes it clear that the mean score of Achievers (2.14) is higher then the mean score of underachievers (2.0). On factor 4 seeking social support the obtained 't' value is significant at 0.01 level. A look at this table reveals that achievers and underachievers differ significantly on factor-4, seeking social support. The results seem to be justified on the ground that achievement of achievers is high as



they always try to acquire more information and seek social or emotional support from others. They have been found more open about any situation to get a concrete solution. They are friendly, helpful, sociable, and sympathetic in dealing with people. They take professional help and ask others for advice. While as achievement of underachievers is low as they do not acquire more information and seek social or emotional support from others. They are not friendly, helpful, sociable, and sympathetic in dealing with people. They do not take professional help or advice from others.

Comparison between Achievers (N = 556) and underachievers (N = 313) on Coping Strategies Factor – 5 (Accepting Responsibility)

The perusal of table 2e makes it clear that the mean score of Achievers (2.20) is higher than the mean score of underachievers (2.10) on factor– 5 accepting responsibility. The obtained 't' value is significant at 0.05 level. The results indicate thereby that Achievers achievement is better as they criticize or lecture themselves in bringing the problem on themselves. They are able to accept the responsibility of the problems and find out the solution of the problems. On the other hand, underachievers possess low achievement as they escape from the problem and are not able to find the solution of any problem.

Comparison between Achievers (N = 556) and underachievers (N = 313) on coping strategies factor – 6 (Escape avoidance).

The perusal of table 2f makes it clear that the mean score of Achievers (1.87) is lower than the mean score of underachievers (2.011) on factor – 6 (Escape avoidance). The obtained 't' value is significant at 0.01 level. A look at this table reveals that achievement of underachievers is low as they stay focused under pressure and hope that miracles would happen and escape from the problems to find out the solution. They believe in fantasies or wishes and try to make themselves feel better by



eating, drinking, smoking, using drugs, or medication etc. On the other hand achievers show better achievement as they have been found more sociable, cooperative, friendly, built rapport and make personal relations with others who helps them in confronting the problems or assignments they are assigned.

Comparison between achievers (N = 556) and underachievers (N = 313) on coping strategies factor – 7 (Planful problem solving)

The perusal of table 2g makes it clear that the mean score of achievers (2.24) is higher than underachievers (2.14) on planful problem solving. The obtained 't' value is significant at 0.01 level. On this factor it has been found that achievers are successful as they make certain plans and follow them. Their concentration and double efforts helps them to make things work well. They use past experiences in solving new problems with a couple of different solutions. While as underachievers do not make plans or do not involve themselves in solving new problems. They always try to escape from the problem and the achievement remains low.

Comparison between Achievers (N = 556) and underachievers (N = 313) on coping strategies factor – 8 (Positive reappraisal)

The perusal of table 2h makes it clear that the mean score of achievers (2.20) is higher than the mean score of the underachievers (2.14). The obtained 't' value is significant at 0.05 level. The result seems to be genuine on the ground that achievers possess high achievement as they always try to rediscover what is important for their lives. At times they are inspired to do something creative. They try to change themselves and grow as a person in a good way. While as achievement of underachievers is low because they believe in outside support for



dealing with the problems. They believe more in the help of others and have faith in God than their self effort.

In view of the above results the hypothesis No.1 and 2 which reads as:

1. In comparison to achievers, underachievers possess high stress.
2. There is a significant difference between achievers and underachievers on coping strategies. (Factor Wise) are accepted.

CONCLUSIONS

1. Underachievers are more in stress than that of achievers because underachievers are unable to control the important things in their lives and are not able to handle their personal problems or could not cope with all the things that they had to do. Underachievers are more aggressive, less cooperative and less sympathetic; these children become victims of many problems and remain in stress.
2. Achievers have been found more sociable, helpful, outgoing responsible, cooperative and built rapport or make personal relationships with their teachers and classmates, who help them to confront the problem they face. They are able to pay more attention to the worries and concerns of others. They are able to take a big chance or do something very risky. While as reverse is true about underachievers.
3. Underachievers always try to keep distance with their peers or spend more time alone and become habitual of loneliness. They do not built rapport and personal relationships with their classmates. While as Achievers are more friendly and outgoing. They built rapport and personal relationships with their classmates.
4. Achievers are higher on self controlling factor of coping strategies. Achievers used to keep their feelings to themselves. They always try to keep others from knowing about the bad things in comparison to underachievers.



5. Achievers have ability to seek social support. They always try to acquire more information and emotional support from others. They have been found more friendly, helpful, sociable, sympathetic and open about any situation to get a concrete solution. While reverse is true about underachievers.
6. In comparison to underachievers, achievers are able to accept the responsibility and to criticize or lecture themselves about the problem they suffer and try to find out the solution of the problem.
7. Underachievers stay focused under pressure and hope that miracles would happen and problem would be solved themselves. They believe in fantasies or wishes and try to make themselves feel better by eating, drinking, smoking, using drugs, or medication etc and also they use to sleep more than usual. While reverse is true about achievers.
8. Achievers make certain plans and follow them. Their concentration and double efforts helps them to make things work will. They use past experiences in solving new problems and are able to solve the problem with a couple of different solutions. While as underachievers do not make plans and are not able to solve day to day problems.
9. Achievers always try to rediscover what is important for their lives. At times they are inspired to do something creative or try to change themselves and grow as a person in a good way. While as underachievers believe in outside support or in the help of others for dealing with the problems. They have faith in God then their self effort.

INFERENCEIAL SUGGESTIONS

1. Underachievers should be involved in co-curricular activities and projects in order to make them stress free.



2. For better academic achievement, curriculum should be flexible and diversified.
3. Underachievers should be taught by employing teaching aids in order to raise their interest and improve their academic achievement.
4. Underachievers should be involved in different activities and in group discussions so that they may be able to develop friendly attitude towards each other. This may help them in confronting their day to day problems.
5. Teachers and parents along with administrators should help to find solutions to the problems faced by underachievers.
6. Teachers and parents should encourage the underachiever students by involving them in learning process in and outside the classroom.
7. The enhancement in the teacher-student relationship will help the later to confront the problems they face.

References

1. Asha, C.B. (1980). Creativity and academic achievement among secondary school children. *Asian Journal of Psychology and Education, Vol. (1), Cit. in Fifth Survey of Research in education, Vol. I, p.182-183.*
2. Balasubramaniyam, P.S (1997). A Trend report on correlates of achievement, 723-735. *Fifth survey of Educational Research 1988-92, Vol. I.*
3. Brar, S.S. (1986). A comparative study of the performance in bachelor of Education Examination of High Creative and low Creative Boys and Girls at different levels of general intelligence



- and socio-economic status, *Ph.D.Edu; Kur. U. cit. in Fifth survey of Educational Research*, Vol. I, p.182-183.
4. Chandha, N.K. and Chandna, Sunanda (1990). Creativity, Intelligence and Scholastic achievement: A residual study *Indian Educational Review*, vol. 25 (3),81-85 *cit. in Fifth Survey of Research in education*, Vol. I, p.724, NCERT, New Delhi.
 5. Chaturvedi M. (2009). School environment, achievement Motivation and academic achievement. *Indian Journal of Social Science Research*, Vol.6, No.2, pp.29-37 ISSN: 0974-9837.
 6. Davanesan, Paul P. (1990). Socio-economic status, achievement motivation and scholastic achievement of higher sec. students in Pasumpon Thevar Thrumagan District, *M.Phil, Edu, Alagappa Univ.*
 7. Deary, I.J., Strand, S., Smith, P., and Fernandes, C. (2007). Intelligence and educational achievement. *Intelligence*, 35(1), 13-21.
 8. Deshpande, S. (1986). Interactive Effects of intelligence and socio-economic status of students and home work on the achievement of students, Department of Education Kar, U; *Cit. in, Buch M.B. (Ed) Fourth Survey of Research in education, 1983-88*, Vol. 1, p.820.NCERT.
 9. Dowdall, C.B., & Colangelo, N. (1982). Underachieving gifted students: Review and Implications. *Gifted Child Quarterly*, 26, 179-184.
 10. Gowan, J.C. (1960). Factors of achievement in high school and College. *J. Counselling Psy.* 73, pp. 91-95.
 11. Gupta, D. (1990). A study of frustration in relation to adjustment and achievement of adolescents in Lucknow *cit. Ph.D, Edu, University of Lucknow.*



12. Joo Teng No, (2003). Possible Factors relating to poor performance of underachievers in primary schools . *Thesis (M.Ed) National Institute of Education, Nanyang Technological University.*
<http://respository.nic.edu.sg/ispui/bitstream/10497/1319/3/No.TengJoo.htm2>.
13. Khan, M.A. (2000). Gifted achievers and underachievers- on personality, need achievement and socio-economic status variables:- a factor analytical study (*Indian educational Review Vol. 36, No.2, pp. 48-61.*
14. Khan, M.A. (2005). Gifted achievers and underachievers- An appraisal, *New Delhi Discovery Publishing House.*
15. Kossowska, C.R., (1990). Learning styles: differential effects of self-control and deep level information processing on academic achievement. *Personality Psychology in Europe (7), 263-281.*
16. Mohan ,V. and Nehru, K. (1972). Differentiation of over and underachievers on 16 P.F. *Psy. Studies, 17. pp 52-55.*
17. Mohan, V. and Khera (1978). The relation of over and under-achievement to socio-economic status and 16 P.F. in school children. *Educational Trends, Vol.13, No.1, pp. 13-23.*
18. Mroczek, D.K., and Little, T.D., (2006). *Handbook of personality development.* London : Routledge.
19. Najar, G.N. (2005). Personal and social adjustment of overachievers and underachievers: A comparative study, *M.Phil. Dissertation. Kashmir University.*
20. Ong, L.C., Chandran V, Lim Y.Y, Chen A.H, Poh, B.K. (2010). Factors associated with poor academic achievement among urban primary School children in Malaysia Singapore, *Med.J.51(3):247.*



21. Reis, S.M., & McCoach, D.B. (2000). *The Underachievement of gifted students: What do we know and where do we go? Gifted child quarterly*, 44, 152-170.
22. Samia, J. and Khan, M.A.(2012). High achievers and low achievers Need achievement, Self-concept, Creativity and Emotional Intelligence - As correlates of Academic Achievement. *Upb Ph.D. Thesis. Department of Education. Kashmir University, Srinagar.*
23. Smith, T.C., Smith, B.L., and Dobbs, K. (1991). Relationship between the peabody picture vocabulary test-revised, wide range achievement test-revised, and weshler intelligence scale for children-revised. *Journal of school Psychology*, 29(1), 53-56.
24. Whitmore, J.R. (1980). *Giftedness, conflict, and underachievement*. Boston: Allyn and Bacon.



FOREIGN POLICY OF NARENDRA MODI PRIME MINISTER OF INDIA

Dr.N .Sreeramulu
Academic Consultant
Dept.of Political Science
S.V. University, Tirupati

The **foreign policy of Narendra Modi** concerns the policy initiatives made towards other states by the current Modi government after he assumed office as Prime Minister of India on 26 May 2014. The Ministry of External Affairs, headed by External Affairs Minister Sushma Swaraj (the first woman to hold the office since Indira Gandhi), is responsible for carrying out the foreign policy of India. Modi's foreign policy is currently focused on improving relations with neighbouring countries in South Asia,engaging the extended neighbourhood in Southeast Asia and the major global powers. In pursuit of this, he has made official visits to Bhutan, Nepal and Japan within the first 100 days of his government, followed by the United States, Myanmar, Australia, and Fiji.Swaraj has also made official visits to Bangladesh, Bhutan, Nepal, Myanmar, Singapore, Vietnam, Manama, Bahrain, Afghanistan, Tajikistan, United States, United Kingdom, Mauritias, Maldives, United Arab Emirates, South Korea, China, Oman and Sri Lanka.

While Chief Minister of Gujrat, and under sanction from Western states like the United States, Modi made several foreign trips to foster his business links with major Asian economic powers. This included meeting Japanese Prime Minister, Shinzo Abe twice in 2007 and 2012 and building a personal rapport. He also reached out for investment deals with China and Israel,who sought to increase economic ties beyond defence and agriculture, according to outgoing Israeli Ambassador Alon Ushpiz. He was widely appreciated for his



endeavour to organise Vibrant Gujarat, a biannual international business summit, to welcome investment in his home state which also helped build a pro-development and business friendly image.

2014 General election

Though Modi made no major foreign policy speeches during the general election campaign in 2014 except calling out China's potential aggression along the border with India and making "illegal immigration" from Bangladesh an election issue specially during the later part of his campaign in eastern states like Assam and West Bengal. He also asserted that Hindus outside the country would be able to seek asylum in India should they require it. But time and again he had emphasized the fact the he (born in 1950) was going to be the first post-independence-born Prime Minister of India therefore it would be natural to expect a shift in the world view from his predecessors. He also pledged to have a "strong" foreign policy, including engaging with China. He had asked for External Affairs Ministry to focus more on trade deals instead of other geopolitical initiatives. Modi's first foreign policy outlook were revealed during the run up for the Prime Ministerial candidature in his party in 2013 when he in a Network 18 program called 'Think India, dialogue forum' had outlined the following points.

Improving relations with immediate neighbours would be his priority as peace and tranquillity in South Asia is essential for realizing his development agenda. Significantly he pledged to introduce the concept of para diplomacy in India where each states and cities would have liberty to forge special relation with countries or federal states or even cities of their interest. Bilateral trade going to dominate the relations with most countries except few important global powers with which India shares a strategic partnership. Modi further responded to the



many congratulatory messages and phone calls from most world leaders that he received in the aftermath of his historic election victory.

Approach of P5 nations

Soon after the new govt took over the office important world leaders expressed their willingness to work with Modi govt to strengthen their relations with India as it provides them a big market. All 5 permanent member state of United Nations Security Council sent their envoy with to India within the first 100 days from inauguration which is significant given India's long standing bid to get a permanent membership at UNSC. To take the early movers advantage China was first to send its envoy to India after Modi govt came into power, Chinese Foreign Minister Wang Yi visited new Delhi on 8 June and held bilateral talks in with his counterpart and also called on PM Modi. In other reactions, China indicated a willingness to reach a final settlement over the contested border disputes. Russian Deputy Chairman Dmitry Rogozin visited India on 18–19 June 2014 to reach out the new govt led by Narendra Modi. Where the two sides discussed the cooperation in joint defence production which is one of Modi's top agenda. Later Modi met President Vladimir Putin in July on the sidelines of 6th BRICS summit in Brazil.

French Foreign Minister Laurent Fabius made an official visit to India from 29 June to 2 July and held high level talks with both External Affairs Minister and Prime Minister. Strategic and defence cooperation was top on his agenda and he expressed hope of speedy completion of Dassault Rafale Jet deal as part of the much delayed Indian MMRCA project under the new govt.

British Foreign Secretary William Hague visited India on 7–8 July. During his meeting with Modi he lobbied hard again for Eurofighter Typhoon as a last minute alternative for Dassault Rafale which is yet to be signed. Prior to his India trip U.S. Secretary of State John Kerry



emphasized the importance of US-India in twenty first century and interestingly he borrowed "**Sabka saath, Sabka vikaas**" a Hindi slogan from Modi's campaign meaning "together with all, development for all" (or simply, inclusive growth) and said America shared this goal and willing to work in full cooperation with the new govt to realize it. He arrived in New Delhi on 1 August and held bilateral talks with his Indian counterpart to made the groundwork ready for Modi's upcoming USA visit and also bided a strong lobby to gain support from India for sanctions on Russia amidst the 2014 Ukraine crisis. Swaraj said in regards to the appeal: "There is no change in our policy. We think that foreign policy is in continuity. Foreign policy does not change with the change in the government."

Foreign policy team

Sushma Swaraj, one of the senior most leader of BJP, was given the portfolio of External Affairs which is going to be a very important ministry with India's growing role in international affairs. She is the first woman to hold the office. Earlier on her capacity of leader of opposition in Lok Sabha from 2009-2014 She met a galaxy of visiting foreign leaders which apparently helped her understanding of foreign relations. Modi appointed Ajit Doval, a seasoned intelligence officer, as National Security Advisor. Doval is believed to be close to the RSS, an organization Modi comes from. On 28 January 2015, only a day after the US President Barack Obama's successful India visit Modi govt sacked Foreign Secretary Sujatha Singh and appointed Subrahmanyam Jaishankar in her place, Jaishankar was then serving as India's ambassador to the United States. Modi himself is believed to be unhappy over Singh's ability to lead the foreign office and on the other hand impressed by Jaishankar's diplomatic skills in turning the flagging relationship with US into a flourishing partnership.



Policy initiative - Act East policy

From the very beginning the Modi led govt made it ample clear that India would focus more and more on improving relations with ASEAN and other East Asian countries as per India's Look East Policy which was formulated during PM Narasimha Rao's govt in 1992 for better economic engagement with its eastern neighbours but successive govt later successfully turned it into a tool for forging strategic partnership and security cooperation with countries in that region in general and Vietnam and Japan in particular. In her recent visit to Hanoi, Vietnam Sushma Swaraj has stressed on the need for an **Act East Policy**¹ that she said should replace India's over two decade-old **Look East Policy** emphasizing a more proactive role for India in this region.

Neighbourhood first policy

One of the major policy initiatives taken by Modi govt is to focus back on its immediate neighbours in South Asia. Even before becoming the Prime Minister, Narendra Modi hinted that his foreign policy will actively focus on improving ties with India's immediate neighbours which is being termed as **neighbourhood first** policy in the media and he started well by inviting all heads of state/heads of government of South Asian countries in his inauguration and on the second day on office he held bilateral talks with all of them individually which was dubbed as a mini SAARC summit by the media. Later during a launch event at ISRO he has asked Indian scientists to take the endeavour to develop a dedicated SAARC satellite to share the fruits of the technology like tele-medicine, e-learning etc. with the people across South Asia to complement the currently operating Indian Technical and Economic Cooperation Programme program in the region.

Indian Ocean outreach

The Indian Ocean region (IOR), which is long been considered as India's nautical backyard, steadily turning into a hotspot thanks to



growing Chinese strategic presence over the region's numerous strategically located archipelagos. To counter the recent moves made by China on the name of President Xi's pet Maritime Silk Road project, India started to reach out its maritime neighbours in the IOR with proposals of enhanced economic and security cooperation. The policy towards IOR started to unfold during Sri Lankan president's visit to New Delhi in early February 2015. Following that Modi embarks on a three nations *Yatraa* (travel) to Mauritius, Seychelles and Sri Lanka, although Maldives was also initially part of this putreach but recent political turmoil in that country led to last-minute cancellation of the scheduled visit. It is interesting to see that ahead of Modi's scheduled visit to Beijing in May 2015, India wants to project that it commands a strategic supremacy over the IOR and its relations with its maritime neighbours are far more cordial than that of China's with particular reference to South China sea.¹

Project Mausam

On the back of growing Chinese naval activity in the Indian ocean region, which India considers its area of supremacy, the Modi administration have introduced **Project Mausam**, which is believed to rival the Chinese Maritime Silk Road (MSR) initiative. *Masuum* which means weather or season in many South and Southeast Asian languages is highlighted because of its profound role in cultural exchanges in region as in ancient time maritime trade used to depend on seasonal monsoon winds. The project which is still in the evolving phase, is being worked on with the Cultural Ministry, will focus on the ancient trade and cultural linkages and emphasize on future maritime cooperation in the Indian ocean region stretching from Southeast Asia to East Africa with the central location of India, from where the ocean derived its name.



Cooperation with Pacific Islands

Modi chose to visit Fiji soon after democracy was re-established in the island country after 8 years. There apart from bilateral meeting, he also met heads of state/government from 14 pacific island states to enhance India's engagement in the region and proposed a 'Forum for India-Pacific Islands Cooperation' (FIPIC) be held on a regular basis. He conveyed there India's keenness to work closely with Pacific Island nations to advance their development priorities in this regard a number of measures to strengthen India's partnership in the region were proposed which include setting up of a 'special fund of \$1 billion' for adapting climate change vis-a-vis clean energy, establishing a 'trade office' in India, 'Pan Pacific Islands e-network' to close the physical distance between the islands by improving digital connectivity, extending visa on arrival at Indian airports for all the fourteen Pacific Island countries, 'space cooperation' in space technology applications for improving the quality of life of the islands, 'training to diplomats' from Pacific Island countries to increase mutual understanding. He also expressed his willingness to host the leaders in any of India's coastal town for the next summit in 2015. It was quite significant to see Chinese President Xi following Modi's trail visited Fiji on 21 November (just 2 days after Modi's trip) to meet a similar gathering of leaders indicating a struggle for influence between the two Asian giants in the island countries of south pacific.

Fast-track Diplomacy

On completion of the first 100 days of Modi govt the External Affairs Ministry published a booklet called **"Fast Track Diplomacy"** showcasing the achievement made in the foreign policy arena. In her first media interaction the minister Sushma Swaraj said the catchphrase for her tenure was "fast-track diplomacy" and said it had three faces - proactive, strong and sensitive. Since taking office the External Affairs



Minister held round-table meeting with all Indian heads of missions to the SAARC region, ASEAN region and Middle East separately as a follow up measure to carry forward the leads gained by high profile visits and exchanges.

Para Diplomacy

One of the innovative idea of Modi govt is the introduction of elements of para diplomacy in India's foreign policy where each states and cities would be encouraged to forge special relation with countries or federal states of another country or even cities of their interest in order. During the upcoming visit of Chinese President Xi Jinping Town twinning agreement between Mumbai and Shanghai, Ahmedabad and Guangzhou and a similar 'sister states' agreement between Gujarat and Guangdong province of China will likely to be signed. Earlier Varanasi signed partnership agreement with Kyoto, Japan.

East Asia policy

From the very beginning the Modi led govt made it ample clear that India would focus more and more on improving relation with ASEAN and other East Asian countries as per India's Look East Policy which was formulated during Narasimha Rao's govt in 1992 for better economic engagement with its eastern neighbours but successive govt later successfully turned it into a tool for forging strategic partnership and security cooperation with countries in that region in general and Vietnam and Japan in particular. In her recent visit to Hanoi, Vietnam Sushma Swaraj has stressed on the need for an Act East policy that she said should replace India's over two decade-old Look East Policy emphasizing a more proactive role for India in this region. East Asia being the major focus area of his foreign policy, Modi and his foreign minister chose several Asian countries for their initial bilateral visits. He has made state visits to Bhutan and Nepal and Japan within the first 100 days of his government followed by visits of Myanmar and



Australia and also hosted Asia leaders like Australian Prime Minister Tony Abbott, Chinese President Xi Jinping and Vietnamese Prime Minister Nguyễn Tấn Dũng apart from inviting SAARC leaders in his inauguration ceremony. External Affairs Minister Swaraj has also made official visits to several Asian capitals like Dhaka, Bangladesh, Kathmandu, Nepal, Naypidaw, Myanmar, Singapore, Hanoi, Vietnam, Manama, Bahrain, Kabul, Afghanistan, Dushanbe, Tajikistan, Male, Maldives, Abu Dhabi, United Arab Emirates Seoul, South Korea and Beijing, China.

South Asia policy

Even before becoming the Prime Minister Narendra Modi hinted that his foreign policy will actively focus on improving ties with India's immediate neighbours which is being termed as **neighbourhood first** policy in the media and he started well by inviting all heads of state/heads of government of South Asian countries in his inauguration and on the second day on office he held bilateral talks with all of them individually which was dubbed as a mini SAARC summit by the media. Later during a launch event at ISRO he has asked Indian scientists to take the endeavour to develop a dedicated *SAARC satellite* to share the fruits of the technology like tele-medicine, e-learning etc. with the people across South Asia to complement the currently operating Indian Technical and Economic Cooperation Programme program in the region.

West Asia policy

Indian External Affairs Ministry refers the region of 'Middle east' as West Asia and not as Middle East which is a more popular attribution, particularly in the western countries. The region plays a vital role in India's economy as it supplies nearly two third of India's total oil import, bilateral trade is also flourishing in recent years particularly with UAE and other gulf states. Over the years millions of Indian



mostly working class has migrated to the gulf looking for jobs and they account for a sizeable share in the total remittances received from abroad.

Link West policy

In an attempt to strengthen ties with India's western neighbours specially the gulf countries Modi proposed this policy to complement his Act East policy concerning East Asia. Although it is called 'Link West' (west of India) which gives it a bigger geographical connotation, it is most likely to focus on the middle-east and some of the India's strategic thinkers are calling it as Modi's middle-east policy. The West Asia Approach of India is working successfully and its relations with Middle East are improving since Modi came in power. The West Asia Approach" of India is now its key strategy to win Middle East. Indian foreign policy makers say that India's interests in the GCC countries are intimately linked with its energy security, trade, employment for Indians and remittances while Middle Eastern foreign policy experts believe that India has showcased itself as "Security Partner" during Modi's visit to UAE. Given the economic and human security interests, the stability and security of the GCC countries is crucial for India because huge flow of remittances that comes from GCC to Indian economy.

Stand against ISIS

On 16 December 2014, Home Minister Rajnath Singh announced in the Parliament that ISIS is banned as a terrorist organization under the United Nations schedule. Following the arrest of few Indian individuals with ISIS connections, on 26 February 2015 India put fresh bans on 'The Islamic States/Islamic States of Iraq and Syria/Islamic States of Iraq and Levant' with all its manifestation and all its affiliates under the Unlawful Activities (Prevention) Act. There were also unverified



claims that India may send its Air Force to fight against the group in Iraq.

2014 Israel-Hamas conflict

At the height of the tension between Israel and Hamas in July India offered a rhetorical condemnation holding both sides responsible for erupting violence and asked Israel to stop "disproportionate use of force" in Gaza which was read by many as departure from tradition of more vocal supports for the Palestinian cause. External Affairs Minister Swaraj insisted that "there is absolutely no change in India's policy towards Palestine, which is that we fully support the Palestinian cause while maintaining good relations with Israel. " clarifying India's current position on the issue. That might sound like fence-sitting, but it is a policy shared by all Indian governments of the past 20 years following the establishment of formal diplomatic relation in 1992. Sushma Swaraj, a seasoned parliamentarian, had herself blocked the opposition demand in Rajya Sabha for passing a resolution condemning Israel for 2014 Israel-Gaza conflict by saying that "India has friendly relation with both Israel and Palestine and therefore any such move may impact its friendship negatively". Although later in a symbolic gesture India joined others BRICS nations in voting at the United Nations Human Rights Council for a probe into the alleged human rights violation in Gaza. Which generated mixed response among media and analysts in India

Overseas Indian crisis - Iraq

With the rise of ISIL in northern Iraq, where hundreds of thousands of Indian migrant workers live, the security of those overseas Indian came under threat. On 16 June, the Ministry of External Affairs (MEA) set up a 24-hour helpline at the Indian embassy in Baghdad for assistance of Indian nationals stranded in the conflict cities. It has been reported that 46 Indian nurses were abducted from the Iraqi town of Mosul who



were later freed and flown back to India. Moreover, 39 Indian workers from mainly from Punjab were taken hostages and the fate of those workers still not known. There were wide spread speculations about their lives and on 27 November 2014 *ABP News* reported, citing Bangladeshi migrant co-workers, death of all the 39 men. Although the following day External Affairs Minister (EAM) Swaraj made a statement to the parliament neither rejecting nor confirming such possibility and re-assured the nation about MEA's commitment for continuing search for the Indians in Iraq

Libya

A similar situation occurred in Libya where many Indian nationals are stranded because of the armed conflict that broke in Benghazi and other parts of the country. Swaraj informed parliament that her ministry was evaluating all possibilities to secure the safe evacuation of all Indians stranded in both Iraq and Libya. A chartered flight from Djerba, Tunisia brought over 200 nationals back to India. A further 216 national left on 8 August, with a total of another 1,500 nationals having been evacuated. About 3,000 more nationals registered with the embassy in Tripoli in order to return. On 5 August 44 nurses returned to India on a special Air India flight; they were predominantly from Kerala with some from Andhra Pradesh and Tamil Nadu. A further three Goans were reported to be safe in Libya with full employment and had not requested repatriation. Goa's Director of NRI Affairs U. D. Kamat said that it was ascertaining whether there were Goan workers in the country.

Yemen

After the outbreak of areal attacks by the Saudi led coalition following the coup by the Houthi rebels in Yemen, Govt of India launched a massive rescue operation called *Operation Raahat* (meaning: Relief) to save hundreds of non-residential Indians located there. Minister of



State for External Affairs Gen. V K Singh himself overview the entire rescue operation right from the battle ground town of Saana and Aden in Yemen and the Indian base of operation in Djibouti. In the process the Indian Navy deployed its front line ships such as INS Mumbai, INS Sumitra and others while the Indian Air Force too deployed its C-17 Globemaster tactical airlifter to airlift the stranded Indians there, in this process the national carrier Air India also took active part by ferrying passengers. The operation was highly successful and received huge acclamation from across the globe as it rescued not only Indians but thousands of foreigners stranded in the war torn country too.

Relations with North and South America

During the run-up to the general election there was wide ranging scepticism regarding future of the strategic bilateral relation under Modi's premiership as in 2005 he was, while Chief Minister of Gujarat, denied a US visa during the Bush administration for his alleged poor human rights records.^[78] However sensing Modi's inevitable victory well before the election, the US Ambassador Nancy Powell had reached out to him as part of greater re-approachment from the west. Moreover, following his 2014 election as the Prime Minister of India President Obama congratulated him over telephone and invited him to visit the US. US secretary of States John Kerry visited New Delhi on 1 August to prepare the grounds for Modi's first ever US visit as Prime Minister. In September 2014, days before visiting the US in an interview to CNN's Fareed Zakaria, Modi said that "India and the United States are bound together, by history and culture" but acknowledged that there have been "ups and downs" in relations. Modi travelled to US from 27–30 September 2014, beginning with his maiden address in the United Nations general assembly followed by attending a gala public reception by the Indian American community in New York's Madison Square Garden before heading Washington, D.C. for the bilateral talk with Obama. While there, Modi also met several American business leaders



and invited them to join his ambitious Make in India program in a bid to make India a manufacturing hub. Later President Obama greeted Modi by calling him a "Man of Action" during their brief interaction at the Gala dinner hosted by Myanmar's President on the eve of ninth East Asia Summit this was their second meeting since Obama hosted a rare dinner for Modi at the White House on 29 September 2014. On 9 December 2014 US Senate confirmed Richard Rahul Verma as the US Ambassador to India, the first Indian American to hold the office, signalling the Obama administration's will to elevate the relation with India to a newer height. He assumed office in the US Embassy in New Delhi on 19 December 2014.

2015 Republic Day Guest

Modi invited President Obama to be the first US President to grace the 66th Republic Day celebration as Chief guest, an honour typically reserved for India's closest ally. President Obama was the first US President to visit India twice in office and the two leaders now scheduled to hold back to back summits within six months which is being referred as Modi's diplomatic coup by the media. "This Republic Day, we hope to have a friend over... invited President Obama to be the 1st US president to grace the occasion as chief guest."-Modi tweeted.

Brazil

Narendra Modi met the Brazilian President, Dilma Rousseff on the sidelines of the 6th BRICS summit in Brasilia, Brazil, in July 2014. Describing Brazil as a key global partner for India, Modi noted that as two democracies and major emerging economies, India and Brazil not only had vast potential for bilateral cooperation, but also to strengthen each other in international forums and advance the interest of the developing world at large. President Rousseff emphasized the special place this relationship enjoyed in Brazil's foreign policy, because of the potential for bilateral cooperation and the international significance of



their partnership. She congratulated Narendra Modi for his victory in the elections and wished him all success for India's progress and development. The two leaders also agreed to take steps to further expand and diversify trade and investment flows and deepen cooperation in agriculture and dairy science, conventional and renewable energy, space research and applications, defence, cyber security and environment conservation.

Canada

In April 2015 Modi visited Canada and was the first bilateral visit to that country by an Indian Prime Minister in 42 years. India made nuclear deal with the Canada's biggest producer of uranium, Cameco, signed a \$280 million, five-year deal to supply uranium to fuel Indian nuclear reactors. The long-term deal announced later that Cameco will sell 7.1 million pounds of uranium to India, through 2020. Modi held bilateral talks with Canadian Prime Minister Stephen Harper and signed various MoUs like in areas of cyber security, skill development, cooperation in the railways and civil aviation front. Modi received "rockstar" reception in Canada, he addressed a crowd of over 10,000 at the Ricoh Coliseum Stage in Toronto.

Relations with European Nations/France

France is a valuable strategic partner of India in western Europe. Both countries have invested political capital to deepen collaboration in the cultural, economic, social, technological and military realms. Modi met French President Francois Hollande at the 2014 G-20 Summit in Brisbane, and discussed bilateral strategic, space and defence issues besides committing to global cooperation against terrorism. Following the January 2015 *Charlie Hebdo* terror attack in Paris, Modi condemned the act of terror and called Hollande to convey condolences on behalf of the people of India as well as express solidarity with the people of France. French foreign minister Laurent Fabius made several



visits to New Delhi to unlock stalled negotiations regarding Dassault Rafale fighter aircraft for Indian Air Force and the 9900 MW nuclear power plant in Jaitapur by the French firm Areva. In April 2015 Modi choose Paris as his first destination in Europe as part of his *Link West* outreach. Modi's visit resulted in a government-to-government deal for 36 Dassault Rafale fighter aircraft in fly-away condition. India and France signed an initial agreement between Nuclear Power Corporation of India and Areva regarding the setting up of Jaitapur nuclear power plant. Modi toured the aircraft assembly facilities of Dassault Aviation in Bordeaux and Airbus in Toulouse where he promoted the *Make in India* campaign by urging the aerospace giants to cultivate manufacturing opportunities in India (Airbus committed to increase its outsourcing from India from current level of US\$400 million to US\$2 billion by 2020). Modi travelled to Lille in the north of France to pay homage at Neuve-Chapelle Indian Memorial dedicated to the remembrance of 4742 soldiers of the British Indian Army who died during World War I & II.

On 30 November 2015, Indian Prime-Minister Narendra Modi travelled to France for a 2-day visit to attend the *COP 21* 2015 United Nations Climate Change Conference in Paris.^[102] Narendra Modi and François Hollande jointly invited over 100 world leaders to join *InSPA* (International Agency for Solar Policy & Application) - a global initiative to promote low-carbon renewable solar energy technologies. India has invited French President Francois Hollande to be the chief guest at the Republic Day parade in New Delhi on January 26, 2016. The invitation was conveyed through the visiting French Foreign Minister Laurent Fabius, making France the only country to be invited a record setting 5 times to the highly symbolic national ceremonial event.



United Kingdom

UK Prime Minister David Cameron was one of the first world leaders to congratulate Modi soon after his landslide victory in the election. The two leaders met for the first time on 14 November 2014 in the sidelines of G20 leaders summit in Brisbane. Where the British Prime Minister said improving relations with India in the "top priority" of UK foreign policy. He also invited Modi to visit his country at the earliest. Earlier Deputy Prime Minister Nick Clegg attributed the growth story of South Asia, which is going to grow fastest in 2014-15 outside the East Asia region, to the election of Prime Minister Modi and his recent efforts to turnaround the economy. UK hailed Modi's Make in India policy and is all set to invest in Rajasthan.

Germany

In April 2015 Modi visited Germany where he held bilateral talks with German Chancellor Angela Merkel. Modi also inaugurated Hannover Fair 2015-world's largest industrial fair,^[112] where India was the partner country. Modi made strongest pitch for the Make in India initiative in Hannover fair. He said, "The entire world is looking at India. Demography, democracy and demand are attracting the world to India." There were announcements of strengthened cooperation in sectors like energy, skill development, science & technology and the Modi government's initiatives like Digital India and Clean India.

Relations with Eurasia/Russia

Russia, India's long term strategic ally for more that half a century, enjoys a special privileged strategic cooperation unparalleled in India's foreign relation. But over the years specially after the end of cold war the relation experienced strain as India started diversifying its defence purchases from an totally Soviet dominated one. But with Putin and Modi, both with strongman image at their home country, at the helm of affairs in their respective foreign policy it is expected to get a push.



During the 20th 'India-Russia Inter-Governmental Commission on Trade, Economic, Scientific, Technological and Cultural Cooperation' (IRIGC-TEC) held on 5 November 2014 in New Delhi Modi met the Russian deputy Prime Minister Dmitry Rogozin and had reassured the visiting side that the new dispensation in New Delhi will continue to attach very high importance to the time-tested and special strategic partnership with Russia. The annual commission meeting have identified new areas of cooperation including prioritising the International North South Corridor Project (INSTC), start negotiating on a Free Trade Agreement between India and the Euresian customs union, focusing on enhancing economic partnership in areas like energy, civil aviation and diamond trade along with Russian participation in Modi's smart city project. Earlier on his first meeting with Putin, emphasising Russia's indispensable position in India's foreign policy Modi went on to saying that even a child in India considers Russia as its *best friend*. This meeting in Brazil at the sidelines of BRICS summit served well as the familiarisation between the two leaders.

President Putin visited New Delhi on 11 December 2014 for the annual summit, first after Modi assumes office. Trade and energy cooperation dominated the talks as they set a target of US\$30 billion of bilateral trade by 2025 with equal amount of investment in each other's economy. On the backdrop of increasing western sanctions Putin earlier signed a gas deals with China worth US\$400 billion believed to be heavily tilted in China's favour. India too was keen to strike an energy agreement on line of above. During the summit both sides agreed for a joint feasibility study of building gas pipeline through China. The two sides signed a total of 16 agreements and memorandum of understanding on various fields. Agreements on long term oil and gas cooperation have been signed between ONGC Videsh and Essar Oil of India and Russia's Rosneft, Gasprom Putin also vowed to install 10



more nuclear reactors in next 20 years including adding more units to Kudankulam plant. Another burgeoning aspect in bilateral relations emerged in the form of Diamond trading, While Russia is the largest producer of raw diamond, India is the global hub of cutting and polishing raw diamonds. Russia has agreed to export raw diamonds to India directly bypassing mediators like Dubai and Belgium. On this occasion the two leaders also attended a *World Diamond Conference* held in New Delhi.^[126] The Crimean leader Sergey Aksyonov, who accompanied Putin in New Delhi, met several business delegation to discuss opportunity in the Black sea region although it was termed as unofficial. This has once again raised concerns in Washington, D.C. regarding India's stand on Crimea.

Defense ties

In the summit Modi mentioned about his experience with the Russian built carrier INS Vikramaditya as an example of burgeoning military cooperation and remarked that "even as India's options have increased Russia will continue to remain its top most defence partner" signalling a long term defence relation. The two sides agreed on joint production of Mil Mi-17 and Kamov Ka-226 helicopters with Russian technology in India in compliance with Modi's *Make in India* program and also fast forwarding the long pending major projects like the joint development and production of light transport aircraft. The final design contract of fifth generation joint fighter platform Sukhoi-HAL FGFA is expected to be signed soon as it already lagging by more than 2 years. India to lease a second nuclear powered Akula-class submarine from Russia after INS Chakra which is already in service. Weeks before Putin's visit news of Russian Defence Minister Sergei Shoigu's Pakistan visit on November 20, 2014, first such visit in more than 40 years, when the two sides inked a defence cooperation pact. Media reports suggested that Russia was mulling a possible sale of Mi 35 attack copter, the first ever combat platform, to India's arch rival Pakistan. These developments have



raised concerned in the Indian strategic community as some see this as a counter move of growing Indo-US defence collaboration. Although the official response was much restrained as they termed it 'significant'. Such apprehensions in India about Russia's strategic goals in the region was by the Russian Ambassador Kaladin as he said that it will not do anything detrimental to India's security. Later Putin himself in an interview with India's *PTI* news agency said that 'Russia-Pakistan ties in India's long-term interest'.

Relation with Africa

Former Tanzanian President Jakaya Kikwete was the first African Head of State to make a state visit following Modi's election victory. The third summit in a rotation basis was scheduled to be held in New Delhi, India in December 2014. But lately Syed Akbaruddin, the official spokesperson of Indian Foreign Ministry told the media that the scheduled summit is now postponed to 2015 and will include more no. of African leaders unlike previous two occasion where the event was restricted to only 10-15 African countries. Although media reports claimed that Ebola outbreak in Western African nations played key role behind the postponement of the summit. The summit is now rescheduled on 26–30 October 2015uy

Mauritius

Modi with Mauritius Prime Minister Anerood Jugnauth. Mauritius was the only country outside South Asia whose head of government attended Modi's swearing-in ceremony in Delhi. With people of Indian origin constituting a large share of its population Mauritias has a very good bilateral relations with New Delhi. Swaraj made her maiden trip as Foreign Minister to the island country on 2 November 2014 to attend the celebration of Apravasi Divas, marking 180 years since the first Indian indentured labourers arrived in Mauritius. There she had called on President Rajkeswur Purryag and Prime Minister



Navinchandra Ramgoolam to discuss bilateral and regional issues of common interest. On top of her agenda was talk on cooperation between Indian Navy and Mauritian Coast Guard to ensure the safety and security of the strategically vital Indian Ocean region. In support to her stress on the importance of maritime cooperation three major Indian war ships were docked in Mauritian waters including a destroyer INS Mumbai, a frigate INS Talwar and the fleet tanker INS Deepak. Modi made his first state visit to the island country in March 2015 as part of his larger outreach to India's maritime neighbours in the Indian Ocean where he participated in the Mauritias National Day celebration in Port Louis on 12 March 2015. He was also present during the commissioning ceremony of MCGS Barracuda, the offshore patrol vessels (OPV) that Mauritius bought from Kolkata based GRSE shipyard. The ship was earlier handed over on 20 December 2014 which marked India's first warship export.

Multilateral Engagements

India, as one of leading developing countries, plays an active role in important multilateral forums for global governance such as United Nations, World Trade Organization, G20 leaders summit, East Asia Summit, BRICS summit of emerging economies, Commonwealth of Nations and often seen as a 'third world voice'. Apart from these big platforms India also engaged in many regional groupings like the BASIC, Shanghai Cooperation Organisation, Indian Ocean Rim Association, IBSA Dialogue Forum, South Asian Association for Regional Cooperation, Mekong–Ganga Cooperation, BIMSTEC among others.

BRICS summit

Putin, Modi, Rouseff, Xi and Zuma. Modi in his maiden speech at the BRICS, a group of emerging economies comprising Brazil, Russia, India, China and South Africa, called for brotherhood among the



member states citing *Vasudhaiva Kutumbakam*, an ancient Indian concept meaning the entire world is one family, to unitedly face the global challenges.

India together with its BRICS partner working toward launching of a financial institute rivalling the western dominated World Bank and IMF which was first proposed during the New Delhi summit in 2012 by the then Indian Prime Minister Manmohan Singh. In the 6th BRICS summit held on 14–26 July in Fortaleza, Brazil the group have agreed to establish the bank with a corpus of US\$100 billion. The bank would be named the New Development Bank as suggested by the Indian side but Modi govt has failed to bag the bank's headquarter for New Delhi which would be located in Shanghai, China. Later at an event in Brasilia BRICS leaders met the UNASUR heads of state/heads of government. At the same time, the Ministry of External Affairs added Spanish to its list of available languages, which the *Hindustan Times* read as "indicative of the government's intent to go beyond Europe, Asia and the US to forge diplomatic and trade ties with Latin American nations."^[144] He travelled there via Germany.

Shanghai Cooperation Organization summit

India is not a full member of the Shanghai Cooperation Organisation, which is known to be a China backed bloc for military and energy cooperation, holds observer status from 2005 and publicly expressed its wish for a full membership. Although Russia has all along backed India's entry it was Beijing's reservation which held it so long. But recently Chinese president Xi Jinping has informed Modi during BRICS summit in Brazil that it is ready to welcome India together with Pakistan in order to project a united front against Islamic extremism in Central Asia including Afghanistan specially after NATO withdrawal. On 11–12 September EAM Sushma Swaraj attended the Dushanbe summit in Tajikistan where India formally put its paper for a full



membership and now it is likely to be granted soon according to Chinese officials. And if everything goes well Modi could participate at the heads of government summit in Astana, Kazakhstan in December.

United Nations general assembly

Modi delivered his maiden speech in the sixty-ninth session of the United Nations General Assembly on 27 September 2014, where he called for reform and expansion of United Nations Security Council including India's long standing demand of a permanent membership. He expressed his concerns over the relevance of a 20th-century setup in 21st century and the need to evaluate UN's performance in the past 70 years. He had also argued why UN should serve as **G-AII** for global governance instead of several parallel sub-groupings like G7, G20 etc. In the wake of ISIS threat in West Asia and similar in other parts of the globe he urged for immediate implementation of 'Comprehensive on International Terrorism' by the UN and offered India's pro-active role in it citing India as a victim of terrorism for decades. Prior to his speech he along with External Affairs Minister Swaraj met UN Secretary General Ban Ki-moon and discussed UN governance relating issues. Ridiculing the possibility of any multilateral intervention, a demand Sharif has made in his address at the UNGA on 26 September, on Kashmir related matter he stated that his govt is ready for 'bilateral talk' to Pakistan provided Pakistan should cultivate suitable environment for talks by giving up terrorism policy against India. Modi commented briefly on climate change and use of clean energy, in this regards he also asked world leaders and UN officials for observing **International Yoga Day**, emphasizing the importance of incorporating Yoga in modern-day life style. At the sidelines he held bilateral meetings with Bangladeshi Prime Minister Sheikh Hasina, Sri Lankan President Mahinda Rajapaksa and Nepali Prime Minister Sushil Koirala taking his 'neighbourhood first' policy forward even in New York. But there was no meeting with Pakistani Prime Minister



Nawaz Sharif following the recent low in the relation. Later he also met where Benjamin Netanyahu, in a first meeting in 11 years between the two heads of government, the Israeli Prime Minister who had highlighted the potential of the bilateral relation saying "sky is the limit".

ASEAN-India summit - PM Narendra Modi addressing the 12th ASEAN-India Summit in Nay Pyi Taw, Myanmar Association of South East Asian Nations or ASEAN is the 10 member block, it is one of the most successful regional block in the world. India started looking toward the group seriously from 1992 with the launch of 'Look East policy' and now it occupies the central position in India's policy Southeast Asia. From 2002 onward India and ASEAN started holding annual summit at the sidelined of ASEAN summit showing the growing level of engagement between the two sides.

At the 12th India-ASEAN summit, which was Modi's first appearance in an ASEAN meet, he called for greater connectivity with the Southeast Asian countries and mentioned that "India and ASEAN can be 'great partners'". Stressing on the importance ASEAN commands in India's foreign policy Modi has repeatedly remarked that his govt has in the last 6 months made relation with ASEAN a top priority and turned India's two decade old 'Look East policy' into 'Act East policy' which reflects a renewed momentum in India's approach toward ASEAN nations. The two sides also discussed the scope of extending the existing free trade agreement on service sector as well and ways to increase India-ASEAN trade which is expected to reach US\$100 billion in 2015. Modi also stressed on three 'C's to strengthen the relation and those are commerce, connectivity and cultural links. In the sidelines of ASEAN summit Modi also held several bilateral meetings with his counterparts including Thai Prime Minister Gen Prayuth Chan-ocha, Singapore's Prime Minister Lee Hsien Loong, Sultan of Brunei



Hassanal Bolkiah, Malaysian Prime Minister Najib Razak and South Korean President Park Geun-hye.

ASEAN Regional Forum

Earlier Swaraj had attended the 2014 ASEAN Regional Forum followed by the related EAS Foreign Ministers meeting, held from 8–11 August in Naypidaw, Myanmar, which was her first ever appearance in multilateral forums after becoming India's foreign affairs head. At the sidelines of the multilateral meetings she had also held bilateral meetings with her counterparts from seven countries including China, Australia, Canada, Vietnam, Philippines, Brunei and Indonesia. In regards to controversy of territorial ownership in the South China Sea, a contentious issue impacting most ASEAN member states, where ONGC Videsh has investment in oil blocks, MEA spokesperson Syed Akbaruddin said: "India is not a party to the dispute in the South China Sea. We feel that the dispute should be resolved between those who are party to it in a peaceful manner and it should be in accordance with international law".

East Asia summit

East Asia Summit (EAS) which is an ASEAN led dialogue forum comprises 18 countries, 10 core ASEAN nations along with Japan, China, South Korea, India, Australia, New Zealand, Russia and United States. Over the years EAS has become the most important multilateral body in the Asia pacific region for discussing security, trade and commerce, environment and others unlike APEC which is purely economic in nature. Modi participated in the ninth East Asia Summit in Nay Pyi Daw, Myanmar in November which was his second major multilateral even after BRICS in July. Describing the importance of the EAS in managing regional security, Modi mentioned "No other forum brings together such a large collective weight of global population,



youth, economy and military strength. Nor is any other forum so critical for peace, stability and prosperity in Asia-Pacific and the world"

With a veiled reference of the issue of South China Sea Modi has asked the global community for respecting maritime norms and regulations and stressed on the importance of maintaining free and secured sea-lines of communication for regular trade and commerce. He made a remark that "In a world of interdependence and globalisation, there is no option but to follow international laws and norms. This also applies to maritime security. For this reason, following international law and norms is important for peace and stability in South China Sea as well". Modi also focused on the role of EAS member countries to tackle the menace of terrorism in the region.^[163] Modi also highlighted the re-opening of Nalanda University and the role of all EAS member states into it to showcase the joint effort of the block. Among others the issue of Regional Comprehensive Economic Partnership (RCEP) was discussed in details during the summit. In the sidelines of EAS Modi also held several bilateral meetings with his counterparts including Russia Premier Dmitry Medvedev, The Philippines President Benigno Aquino, Chinese Premier Li Keqiang and Indonesian President Joko Widodo

G-20 leaders summit Modi (*third from left*) with national leaders at the 2014 G-20 summit.

G20 or the Group of 20 leading economies (advanced and emerging markets) of the world formed after the 2008 financial crisis for international financial governance. India which ranks 9 in terms of nominal GDP and the second fastest growing major economy plays an important role in the group since it began in 2008. For the first time in 2014 India was represented by Prime Minister Modi unlike all the previous summits when Dr. Manmohan Singh, a renowned economist, used to be the Prime Minister. The host and President of 2014 summit



Australia's Tony Abbott intended the summit to focus exclusively on revamping the crisis prone fragile economy and to add US\$2 trillion in the global economy by additional 2% global GDP growth rate for the next five years but countries like US was more keen to discuss issues of Climate change and reduction of Carbon emission as it sealed a similar pact with China. India's interest was also aligned with Abbott as it wants to reboot its economy and return to the high growth trajectory soon. In Modi, a chaiwallah (roadside tea vendor) turned politician eventually became the Prime Minister of world's largest democracy winning the highest number of votes in the history, was the most sought after world leader at the G20 in Brisbane and *The Guardian* called Modi the *G20's political rock star* commenting on Modi's popularity in Brisbane. His personal rapport with host Australian Prime Minister Tony Abbott was something to watch out for. Abbott who was meeting Modi for the third time, after his New Delhi trip in September and in Nay Pyi Daw just 2 days back, extended a warm hug toward Modi while welcoming world leaders in the summit venue in Brisbane. This also generated in the Australian media circle as there was 'no hug' even for Abbott's long-time friend Cameron. Modi, on his longest trip of 10 days to three different countries, met leaders from 40 different countries and even his Australia trip didn't end at Brisbane thereafter he visited Sydney, Melbourne and Canberra what is being referred as his 'diplomatic juggernaut'. The issue of black or unaccounted money kept in tax heavens (countries that allow foreigners to dump huge unaccounted money) abroad was also raised by Modi which is also a burning issue in India's domestic polity. He also stressed on the need of changing laws in certain countries to allow better information sharing of black money kept abroad as it is also linked to the terror funding. India the world's largest recipient of remittances with \$71 billion sent last year, pushed hard for the reduction in the remittance costs of non-residents at the G20 summit, asking it to work on steps to reduce costs in sending money home from



abroad which is as high as 10 per cent in some countries. Earlier India has been able to convince Saudi Arabia to reduce it to 3.5 per cent. G20 agreed to bring down the global average cost of transferring remittances to 5%. In the sidelines of G20 Modi also held several bilateral meetings with his counterparts including British Prime Minister David Cameron, German Chancellor Angela Merkel, French President François Hollande, European Union President Herman Van Rompuy, Saudi Crown Prince Salman bin Abdulaziz, Canadian Prime Minister Stephen Harper and also attended a special dinner hosted by his friend Shinzo Abe, Prime Minister of Japan. Even before the G20 summit formally begins all five leaders of the BRICS grouping gathered in Brisbane for an informal meeting at the invitation of Brazilian President Dilma Rousseff to discuss issues concerning the group like the New Development Bank.

South Asian Association for Regional Cooperation

Relations with the immediate neighbours in South Asia, which have allegedly long been neglected by the previous governments, became a priority feature in Modi's foreign policy. He started well by inviting all the heads of states/governments of the neighbouring countries at his inauguration and then pushed for of an early summit to encourage cooperation in many regional issues like trade, connectivity, infrastructure, transit facility among the member states. In his maiden SAARC summit in Nepalese capital Kathmandu he had focused on greater people to people contacts, better connectivity, commercial linkages within the region. China, which holds an observer status in the group, was represented by Vice Foreign Minister Liu Zhenmin seen actively promoting a more active role for itself in the region including infrastructure funding through its proposed Asian Infrastructure Investment Bank (AIIB) and extending its ambitious Maritime Silk Road project to South Asian nations. Pakistan, China's all weather friend, also vouched for a more participatory role for the observer



nations in the summit process, indirectly advocating for a more Chinese involvement. Although no such proposal was accepted because of India's reservation. India had earlier advanced three proposal to boost connectivity in the region and those were the 'Regulation of Passenger and Cargo Vehicular Traffic amongst SAARC Member States' for seamless vehicular movement beyond the national borders the 'SAARC Regional Agreement on Railways' for international rail service and the 'SAARC Framework Agreement for Energy Cooperation (Electricity)' for energy trade in the subcontinent which is often regarded as world's most energy starved region. Pakistan which is the second largest economy in the block threatened to jeopardise the entire summit by not agreeing any of the three proposed agreements. Indian Foreign Minister Sushma Swaraj had a brief interaction with Sartaj Aziz, Pakistan's foreign affairs advisor which was seen as possible ice-breaker but later the Indian side termed it as 'courtesy call'. The Nepalese delegation including Prime Minister Koirala, the summit host, tried hard to mediate between India and Pakistan to rescue the summit from total failure which led to a hand-shake between Modi and Sharif at the end. Finally all the sides agreed to sign the 'SAARC Framework Agreement for Energy Cooperation (Electricity)' only as a face saving measure for the Kathmandu summit. In the sidelines of the main summit Modi also held bilateral meetings with leaders of Afghanistan, Bangladesh, Bhutan, Nepal, Maldives and Sri Lanka with a notable exception of Pakistan due to ongoing stand-off between the two countries.

Asia Pacific Economic Cooperation

Although India is not a member of APEC, Chinese president Xi Jinping, the host of the 2014 APEC summit, invited Modi to attend the event in Beijing as a guest and also showed willingness to support India's bid to join APEC. India already enjoys such support from other member states such as Russia and Vietnam.¹ However, Modi did not participate



in the meeting as a host partner country on the line of Pakistan and Bangladesh on the account of busy diplomatic schedule and a likely state visit to China next year.

References

1. Harsh V. Pant. "Out With Non-Alignment, In With a 'Modi Doctrine'". The Diplomat. Retrieved 1 February 2015.
2. Christophe Jaffrelot. "A Modi Doctrine?". Carnegie Endowment for International Peace. Retrieved 1 February 2015.
3. Lakshmi, Rama. "Modi's speech in Nepal shows India is paying attention to its neighbors". The Washington Post. Retrieved 6 August 2014.
4. Rajeev Sharma. "Modi's equation with Shinzo Abe will make Mission Japan a success". Firstpost. Retrieved 15 June 2014.
5. "Sino-India ties set for "big boost" under Modi: Chinese media". Zeenews.india.com. Retrieved 15 June 2014.
6. Moskowitz, Jeff (23 May 2014). "Is Narendra Modi, India's New Prime Minister, Israel's New Best Friend?". Tablet Magazine. Retrieved 28 July 2014.
7. "Israel to expand ties with Modi govt, offers help in Ganga clean-up". The Indian Express. Retrieved 15 June 2014.
8. "Vibrant Gujarat Summit 2013: Ratan Tata praises Narendra Modi". The Times of India. 11 January 2013. Retrieved 5 August 2014.
9. "In Arunachal, Narendra Modi warns China". The Indian Express. 23 February 2014. Retrieved 15 June 2014.
10. "Why Modi is right on the Bangladeshi migrants' issue". Oneindia.in. 13 May 2014. Retrieved 6 August 2014.



11. "India's 2014 Elections: Narendra Modi Says Some Illegal Immigrants From Bangladesh Are Better Than Others". International Business Times. 11 September 2001. Retrieved 15 June 2014.
12. "Modi pledges strong foreign policy". IOL.co.za. 9 June 2014. Retrieved 15 June 2014.
13. Busvine, Douglas (16 May 2014). "Election landslide to embolden India's Modi on world stage". Reuters. Retrieved 23 June 2014.
14. Aswathy (17 May 2014). "World leaders, media react to Narendra Modi led BJP's election victory". Oneindia.in. Retrieved 23 June 2014.
15. Krishna Uppuluri (25 May 2014). "Narendra Modi's swearing in offers a new lease of life to SAARC". Daily News and Analysis. Retrieved 15 June 2014.
16. "PM swearing-in: US media praises Modi for inviting all SAARC leaders". Firstpost. 27 May 2014. Retrieved 5 August 2014.
17. "China Tries to Woo India's Prime Minister Narendra Modi". Businessweek. 10 June 2014. Retrieved 15 June 2014.
18. Iftikhar Gilani (10 June 2014). "Chinese Foreign Minister Wang Yi seeks Narendra Modi's company to dominate the world". Daily News and Analysis. Retrieved 15 June 2014.
19. "Visit of Deputy Chairman of the Government of the Russian Federation to India (June 18-19, 2014)". Ministry of External Affairs, Government of India.



EMPOWERMENT OF WOMEN THROUGH POLITICS: ISSUES AND CHALLENGES

Dr.Kandula Salaiah

Assistant Professor in Commerce
Government Degree College
Ramannapet, Nalgonda District, T. S

INTRODUCTION

Women constitute half of the humanity .Besides bearing and rearing of future citizens, they play significant role in every walk of life. Yet they suffer from the secondary social status and their participation in the development process is marginalized .In India as per 2011 census, women account for 586 million and represent 48.46 per cent of the total population, in North east also women Represent 48.86% of the total population. Thus without betterment of women's socio economic condition and their effective participation, the development of the country cannot be ensured effectively. The women are both the agent and the target of development process.

The term 'political participation' refers to those voluntary activities by which members share in the selection of rulers and, directly or indirectly, in the formation of public policy. These activities are like casting vote, seeking information, holding discussions, attending meetings, making financial contributions to political parties, staging strikes and demonstrations, communicating with the legislators and other leading figures and the like. It follows that political participation is the involvement of the individual at various level in the political system. Political activity may range from non-involvement to office-holding. It is also important to stress that participation may result in the motivation for increased participation, including the highest level – that of holding various types of offices, which involves the process of political recruitment.



The idea of political justice and equality is explained in 'Article 1' of the Universal Declaration of 1948 in these words, "All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in spirit of brotherhood". Broadly there may be two ways for bringing about gender equality and women empowerment (a) through inducting women in the mainstream of development and assuring their access to productive assets and (b) through legislation for ensuring them equal social and political status and assuring their participation in political decision making and thus providing them a platform for venting their grievances, integrating their issues into the mainstream of the decision making process and fighting for the cause of female community in general and of the poor and oppressed women in the society in particular. However in both the strategies providing education is the crucial link which holds the key.

The best way of empowerment is perhaps through inducting women in the mainstream of development. Women empowerment will be real and effective only when they are endowed income and property so, that they may stand on their feet and build up their identity in the society. Development warrants the eradication of the feeling of dominance and dependence of whosoever is associated with inferior economic status. Development improves quality of life through the process of expansion, ensures freedom from hunger, exploitation, discrimination and oppression and also infuses a sense of self belief and provides the strength to stand up against violence. "Development effectiveness is an act of transformation to end violence, poverty and discrimination". Economic independence is the basic premise behind empowerment through development. While women's participation in the development process provides them employment opportunity and the opportunity to get out of the clutches of poverty, malnutrition,



illiteracy etc, and Economic independence imbibes confidence and the strength to stand up and think about their future.

Employment generating schemes in rural areas providing preferential treatment to poor women workers may prove to be a good move in this direction, but it needs a definite preconceived development strategy and pattern. Growth itself does not guarantee gender equality and women empowerment. The present mode of production based on the market system has no inbuilt system of minimizing gender disparity, rather it thrives on opportunities created by gender relations for power and profit. Development strategy for empowerment will mainly be concerned with employment and asset generation coupled with skill oriented education and vocational training. A preconceived development strategy studded with emphasis on employment, education, health, nutrition, sanitation etc, Critical elements that contribute to the quality of human life, more so in the rural sector, may prove to be effective in the long run to raise the status of women. But, in men dominated societies with social and political institutions biased in favour of gender discrimination, may not prove to be effective enough to take them out of the downward gravitational pull. Economic empowerment can be a handy tool in as much as enabling a woman to lead a graceful existence in her family and society but may not prove too potent a weapon in the larger more grim battle against social, political and even economic oppression, which warrants collective strength. In a democratic setup collective strength emanates from political participation.

It requires some legislative compulsions for mending the working of political and social institutions, which if left to them are unlikely to change in favour of women. It thus calls for, essentially, an active participation of women in the decision making process. Empowerment of women through legislation then provides the women with a constitutional platform to stand up to men, to raise their voice



on issues concerning women oppression, subjugation and related issues and thus in effect, providing them with an identity in an orthodox male dominated sociopolitical setup, in addition to providing a much needed forum to seek redressal of problems directly affecting them. In a decentralised federal structure, with growing emphasis on the implementation of various employment and income generating schemes, participation of women in the decision making process at the Panchayat Raj institution level becomes imperative if they are to seek any meaningfully significant gains for themselves.

The 73rd Constitutional Amendment: A New Chapter for Women's Empowerment

The 73rd & 74th amendment to the constitution of India in 1992 was a major step towards democratic decentralization. It has led to greater participation & empowerment of Schedule Castes/Schedule Tribes and women in PRIs in the country .The reservation of seats in the 1993 - 94 election has brought in about eight lakhs women into political process in large numbers. Panchayat Raj Institutions have ushered in qualitative changes in the process of governances.

OBJECTIVES OF THE STUDY

The primary objectives of the study are:

1. To examine the fact as to whether inadequate representation and participation of women in the Politics.
2. To examine as to how far the participation of women has been successful in integrating the issues concerned with the women community in the mainstream of decision making.
3. To substantiate the existence of disparity and disadvantages faced by women in their participation in the Panchayat Raj institutions.



4. To examine the complementarities of the legislative measures and developmental measures in raising the status of women.

METHODOLOGY

The present paper is based on the secondary data collected from the secondary source i.e. published literature of the subject concern. Moreover classification and tabulation of data have been prepared by applying various mathematical and statistical methods.

The Concept of Empowerment of Women

As per the Universal Declaration of Human Rights “Women’s equality in power sharing and active participation in decision making, including decision making in political process at all levels will be ensured for the achievements of the goals of Empowerment”. Empowerment of women is a critical issue that is being debated all over the world. This concept has its root in the women’s movement throughout the world and particularly by the Third world feminists it is since the mid 1980s that, this term became popular in the field of development, especially with reference to women. Empowerment as a concept was introduced at the International Women’s in 1985 at Nairobi. In the present study women empowerment is presented as a concept that includes political level spheres of women’s lives.

Representation of Women in Panchayat Raj Institutions

The below table shows that, women’s participation before PRIs was very low in most of the states, after Panchayat Raj Institutions it is increasing day by day. They are not only enjoying their one third quotas but in various places they are defeating male members also. They are actively participating in local matters.

Representation of Women in Panchayat Raj Institutions

State	Reservation for Women in PRIs (%)	Number of Women Elected	Representation of Women (%)
Karnataka	33.3	37676	43.60
Andhra Pradesh	33.3	74019	33.04
Assam	33.3	8714	50.38
Chhattisgarh	33.3	42914	33.75
Gujarat	33.3	42653	49.30
Kerala	33.3	5535	57.24
Tamilnadu	33.3	28124	36.73
Uttaranchal	33.3	19293	37.85
West Bengal	33.3	20509	35.15

Source: Census of India, 2011.

As per the above table, women representation is high in Kerala state (57.24%) as first place followed by the state of Assam. In Andhra Pradesh the number of elected women are more (74019) compared to other states and enjoyed their 1/3 quota of political reservation.



ISSUES AND CHALLENGES

Women in Panchayat

The goal of decentralization of powers through enactment of the 73rd Constitution Amendment Act would have been half achieved without removing gender imbalance and bias in the institution of local self-government at the grassroots level. Moreover, women in India have been waiting for this rightful share in political power. Constitutional guarantee of equal political rights has been achieved only partially due to socio-economic set-up of Indian polity. Women were exercising only right to vote meekly. Equal opportunity to hold political posts and positions rarely came to them. They remained marginalized politically, socially and economically and subjected to various types of oppression.

Stepping Forth as Leader

In the first, after election, women participate in a Women's Leadership activities that, (a) Awakens women to their selfhood and human rights, (b) Educates them about their powers and responsibilities as Panchayat leaders, (c) builds their capacity to create a vision and plan actions to achieve it and (d) links them with government and other resource people in their area. This is reinforced through needs-based programmes that women request to strengthen their skills in communication, finance, knowledge of laws and government programmes.

Leadership for Development

In the second, they work with Panchayat to create bottom-up plans ("Micro Plans") for villages to meet basic needs. These plans are not a wish list; bottom-up planning means assessing available resources and creating strategies for actions that people can take themselves. When resources from local government are required, such as for



improving schools or health clinics, planning includes establishing good partnerships with local officials.

Creating Federation for a Great Voice

In third, as villages take action, they inevitably run up against bureaucratic obstacles. The best way to overcome these obstacles and to sustain villages' process of empowerment on their own is to form federations of elected women representatives. These are formed at the block, district and state levels. Block-level federations are able to provide regular monthly forums for mutual support, and state federations are able to rally massive numbers of elected women annually to demand change at the policy level.

Changing Policies / Delivering Results

By four, with plans and federations in place, The Hunger Project focuses on ensuring that Panchayat have successfully implemented their plans and that lives have truly improved on a sustainable basis. In addition, where leaders have run up against major legal obstacles, this is a year when women are powerful enough to demand policy changes and sometimes even engage in public-interest litigation. For example, in Bihar in 2004, The Hunger Project mobilized 2,000 women to protest the failure of the state government to implement key provisions of the 73rd amendment, and then followed up with successful litigation for change.

Increasing Women Participation in Election

In the run-up to elections, The Hunger Project carries out massive campaigns to encourage the participation of women both as independently minded voters and as candidates. As the reserved seats rotate to different areas each term, new women are encouraged to step forward to run for those seats. In addition, women who have already



served are encouraged to stand for reelection against men in unreserved seats.

Implementation via partnership

India is enormously diverse with 22 official languages and hundreds of dialects. In addition, since the Freedom Movement days of Mahatma Gandhi, India has been blessed with the existence of more than 35,000 local Non-Governmental Organizations (NGOs) with highly committed leadership. "Determinant of political participation: women and public activity" explained that, participatory and non-participatory orientations results from the environmental stimuli and the psychological resources of the relation between these resources and political activity.

SUGGESTIONS

In Indian Constitution, there are provisions for equal rights for all citizens irrespective of their social, economic and gender status. However, such provisions exist only in pen and paper for millions of economically and socially disadvantage people especially in case of Women. Therefore the role of PRIs is significant in the empowerment of women in the following ways:

1. By creating a positive environment for women development in social and economic sphere and enabling them to realize the full potential.
2. By providing access and opportunities to women for equal participation in decision making with respect to planning and implementation of socio-economic development programme at local level.
3. Gradually changing social attitude towards women through new practice and behavior by strengthening collaboration with civil society and Panchayat in women related activities.



4. Enhancement of training facilities and capacity building programmes of Elected Women Representatives (EWRs). The Elected Representatives of the people, especially women, need training to enable them to discharge their duties because of their lower literacy levels and limited exposure to public affairs. Though, the Ministry of Panchayat Raj has some training modules under schemes like Panchayat Mahila Evam Yuva Shakti Abhiyan (PMEYSA) and Rashtriya Gram Swaraj Yojana.
5. Steps must be taken to ward off proxy participation of male members related to elected women representatives in Panchayat meetings.
6. Special quorum of women in Panchayat meetings- Reservation of seats alone cannot ensure the active participation of women in Panchayat Raj Institutions. Therefore certain provisions should be made which mandates a minimum quorum of women in every Gram Sabha meetings.
7. The provision should be made for rotation cycle of reserved seats for women to two terms.
8. Involvement of NGOs in strengthening PRIs - NGOs should be involved in the Training and the Capacity Building of elected representatives. They should be engaged by the States in carrying out need assessment and preparing participatory plans at the Panchayat level.
9. The media both print as well as electronic can also play an important role in creating awareness among the elected women representatives. It can act as an agent of political socialization for inculcating the values of gender equality and gender justice.



CONCLUSION

However, the prevailing situation in clearly asks for serious thinking and programmes to realize the provision of the 73rd constitutional amendment opened gates of opportunities in different fronts for women. The policy of political empowerment of women aims at eliciting their active participation in decision-making process in these institutions. However, the goal of political empowerment of women does not end up only with their induction into the power positions in PRIs. After getting elected for positions in these institutions, their real role begins. Since access to political opportunities and participation in political decision making process are important components of capability and autonomy in exploration of women's talent and efficiency which are necessary for all around development of the country. Therefore, to achieve the women empowerment, advancement can be facilitated with the co-ordination of different sections of the society such as male gentry, religious heads, political leaders who should come forward and shun their interpersonal interest even ego to understand and appreciate that the women are equally as important segments of society as men.

References

1. Jayasimha K, Kumar, Kiran R, "The Anatomy of Gram Panchayat: A Study of Dharwad District" TIDE Development Research Foundation, Bangalore, 1997.
2. Bannerjee, Ruma, "Women in Panchayat Raj: A study in West Bengal", Development Dialogues, Calcutta, 2000.
3. Narayanan P, "Empowerment through Participation: How Effective is this Approach", Economic and Political Weekly, 2(4): 84-88, 2003.



4. Mohan Shantha, "Women and Political Participation in India", Baseline Report, International Women's Rights Action Watch Asia Pacific, Malaysia, 2004.
5. Ambedkar S N, "Panchayat Raj and Grass-root Politics: Issues and Perspectives", Journal of Social Development and Justice, 6(3): 72-76, 2004.
6. Tran, Hoa Phuong, "Gender- The View from Below". United Nations Division for the Advancement of Women (DAW), Expert Group Meeting, 2005.
7. Kumar A, "Indian Women in Politics". New Delhi: Anmol Publishers, 2006.
8. Bajpai, "Women Empowerment and Panchayat Raj Institution" PD/Oct/2006/611,2006
9. Kumatar K, "Governance and Representation: A Study of Women and Local Self Government", Indian Journal of Public Administration, XLIX(3), 2007
10. Gochhayat Artarrana, "Political Participation of Women in Gram Panchayat Elections in Odisha", International Journal of Humanities and Social Science Invention, 2(2), 2013.



PROGRAMMES AND SCHEMES OF NARENDRA MODI, PRIME MINISTER OF INDIA

Dr.C.Ramanaiah

Academic Consultant

Department of Sociology

Sri Venkateswara University Tirupati

The General Elections 2014 were significant in two important ways; firstly, a new party i.e. Bhartiye Janta Party (BJP) under the leadership of Shri Narendra Modi came into power and secondly, after 30 years, a single party got majority in the Lok Sabha- BJP secured more than 280 Lok Sabha on its own. On 26 May 2014, Prime Minister Shri Narendra Modi and his cabinet took oath and the new Government came into existence. To fulfill its vision and for the welfare and development of the country, acting on its motto: "Sabka Saath Sabka Vikas", the new Government decided to launch several new programme and schemes such as Jan Dhan Yojana, Pradhanmantri Jeevan Jyoti Bima Yojana, Atal Pension Yojana, Beti Bachao Beti Padhao Abhiyan etc.

Only recently i.e. on 26 May 2015, the new Government completed its first year in the office; let's have an overview of different schemes launched in past one year.

Programmes, Scheme and Yojana Launched by Prime Ministers Narendra Modi

Pradhan Mantri Jan Dhan Yojana (PMJDY)

Pradhan Mantri Jan-Dhan Yojana (PMJDY) was launched as a National Mission for Financial Inclusion. Its theme is: "Mera Khata, Bhagya Vidhata".

The objective of the scheme is to ensure access to various financial services like availability of basic savings bank account to everyone in



the country, accessibility of government credit facilities to needy, facility of remittance, benefits of insurance and pension to the weaker sections of the society.

The Yojana was first announced by PM Narendra Modi on 15 August 2014 in his speech from Lal Kila; however, it was formally launched by Mr Modi on 28 August 2014 in New Delhi.

The PMJDY is to be implemented in two stages:

- Phase I: From 15 August 2014 to 14 August 2015
- Phase II: From 15 August 2015 to 14 August 2018

Benefits to be provided in first phase:

- With the object of universalization of banking services, it has been provided that every account holder will be provided with zero-balance Savings Bank Account with RuPay debit card.
- Along with the account, an accidental insurance cover of Rs. 1 lakh will be provided which is to be given by 'HDFC Ergo'.
- Those who open accounts between 28 August 2014 and January 26, 2015 they will be given life insurance cover of Rs. 30,000 (given by LIC).
- After satisfactorily working of accounts for six months, holders can avail Rs. 5,000 overdrafts from the bank. Account holders will get Direct Benefit Transfer (DBT) of various Governmental schemes.
- There will be provision of issuing of Kisaan Credit Card in the form of Ru Pay Kisaan Credit card.

Benefits to be provided in second phase:

- Providing micro-insurance to account holders.
- Provision of pension schemes such as Swavlamban.



The PMJDY is being monitored on mission mode under the supervision of Finance Minister Shri Arun Jaitley. The Yajana is a very ambitious project of the Government and the same is implemented with great zeal.

Under the Yojana the preliminary target of achieving 7.5 crore accounts till 26 January 2015 was surpassed even before the chosen date and records show that up till 17 January 2015, 11.50 crore accounts were already opened. Even on the day when PM Modi started the Yojana, 1.5 crore accounts were opened on that very day; in fact the number of accounts opened in a week (23-29 August 2014) is a world record and the same has been registered in Guinness Book of World Records.

Thus, the PMJDY is a much needed step in right direction in order to give financial security and confidence to all section of society including the poorest of poor through zero-balance account, insurance cover, overdraft facility and Ru Pay Debit card etc.; financial inclusion is necessary so that the benefits of Government services and programme should reach to everyone without fail. The Yojana also tries to fulfill the Constitutional promise of providing socio-economic justice and equality.

Pradhan Mantri Beti Bachao, Beti Padhao Yojana

This programme was launched by PM Narendra Modi on 22 January 2015 in Panipat, Haryana. It is a very significant programme and campaign because of country's poor record on women related indicators such as child sex ratio, female infanticide, female foeticide and female education etc; especially alarming is the data for child sex ratio i.e. the sex ratio of children 0 to 6 years. The census data of the year 2011 shows child sex ratio at 918 which is lesser than the previous census (2001) data of 927. Thus, child sex ratio (0-6 years) is showing a declining trend which is not a very healthy sign for social development of India.



Therefore, 'Beti Bacha Beti Padhao' campaign is one of the most important programmes being initiated by the new Government. The main features of the programme are as follows:

- This initiative is a joint venture of three ministries of the central government, viz. Ministry of Women and Child Development, Ministry of Health and Family Welfare and Ministry of Human Resource Development.
- According to the Government, the campaign has three main objectives:

Prevention of gender based sex selective elimination.

Ensuring survival and protection of girl child.

Ensuring education and participation of the girl child.

- The long term objective of the programme is to build an environment of gender equality in the country through creation of employment opportunities, safety and security, mobility and speedy justice for women.
- This scheme or programme will be first implemented in 100 chosen districts of the country which are gender critical i.e. where child sex ratio is at alarming point.
- There are eight monitorable targets for the programme which are as follows:
 1. To improve sex ratio at birth by 10 points in a year in the chosen 100 districts.
 2. In case of Under Five Child Mortality, reduction in gender differentials from 8 points in 2011 to 4 points in 2017.



3. To improve the nutrition level of girls by reducing the numbers of underweight and anemic girls below 5 years of age.
 4. By utilizing ICDS NRHM Mother Child Protection Cards, ensuring universalization of ICDS; attendance and equal care of girls.
 5. To increase the enrollment of girls in secondary education from 76% in 2013-14 to 79% in 2017.
 6. To ensure and promote a protective environment for girls through stricter implementation of Protection of Children from Sexual Offenses (POCSO) Act 2012.
 7. To ensure toilet for girls in every school by the year 2017.
 8. To train Elected Representatives/ Grassroot Functionaries as community champions to mobilize communities to improve child sex ration and promote girls' education.
- The Government has appointed cine actress Madhuri Dixit as brand ambassador of the campaign.
 - PM Narendra Modi, in his speech, has asked the people of the country to follow several practices such as rejoicing the birth of a girl child; celebrating National Girls Child Day; and to shed away the archaic idea of considering a girl child as 'Paraya Dhan' etc.

Atal Pension Yojana

Financial security in the old age is one of the main concerns of everyone. Though there are various pension schemes both in public and private sphere for employees of organized sectors but as far as unorganized sector of the work force is concerned there are no such



universal schemes. Work force employed in unorganized sector consists of 88% of the total labour force of the country as per 66th Survey Report of NSSO of 2011-12.

Thus it's a major portion of total labour force of around 48 crore of India and being in unorganized sector, this section of society is largely poor without having any social or financial security; therefore, it was all the more necessary to provide them with an opportunity to save for their retirement and give them a sense of social as well as financial security in their old age.

Thus to universalize the pension scheme for citizens of India, the Government of India has launched a new pension scheme focusing specially on unorganized sector work force. This new scheme has been named after our ex-PM Shri Atal Bihari Bajpai as: "Atal Pension Yojana".

Main features of APY are as follows:

- It will be focused on unorganized sector work force who would join the National Pension Scheme (NPS) which is being administered by the Pension Fund Regulatory and Development Authority (PFRDA) of India.
- The APY will substitute the earlier Government's Swavalamban Yojana for the same purpose; the subscribers of Swavalamban would be automatically migrated to the APY.
- Subscribers to the APY will get guaranteed monthly pension of Rs 1000 to Rs 5000 after the age of 60 years depending upon their contributions.
- The minimum and maximum age of joining the scheme is 18 and 40 years respectively.
- The Government will co-contribute for 5 years from 2015-16 to 2019-20 50% of the subscriber's contribution or Rs 1000 per



annum whichever is lower for those subscribers who join the scheme before 31st December, 2015 and who are also not already covered by any other Statutory Social Security Schemes and are not income tax payers.

- One subscriber can open only one APY account which will be unique.
- For more details, the Government of India website: www.jeevansuraksha.gov.in may be visited by interested people.
- The scheme has come into effect on 1 June, 2015.

Thus, the Atal Pension Yojana is one of most needed schemes for the poor and insecure work force of unorganized sector so that they can also be included and integrated in the socio-economic development of the country.

Pradhan Mantri Suraksha Bima Yojana (PMSBY)

It is a government of India initiative; it's an insurance scheme for accidental death and disability. The scheme has been envisaged to provide citizens of the country accidental insurance on nominal annual premium. Its main objective is to bring in its fold even the poorest of poor under the cover of accidental insurance and to give them a sense of social security.

Main features of the scheme are as follows:

- The scheme would be administered through Public Sector General Insurance Companies (PSGICs) and other General Insurance Companies with required tie ups and approvals with Banks for the purpose.
- The scheme is a renewable scheme, from year to year basis; however, the subscriber would have an option of opting it for



longer term and his account will be auto-debited by the Bank accordingly on year to year basis.

- PMSBY is available to the all persons in the age group of 18 to 70 years who have a Saving Bank account in the participating Bank.
- Subscriber's Adhaar Number should be linked to that account.
- The premium to be paid is Rs 12 per annum which will be auto-debited from the Bank Account of the subscriber.
- Risk coverage in the Bima is: Rs 2 Lakh for accidental death or full disability due to accident and Rs. 1 Lakh in case of partial disability.
- For more details, the Government of India website: www.jeevansuraksha.gov.in may be visited by interested people.
- The scheme has come into effect on 1 June, 2015.

Thus, it is another Yojana initiated by the new Government under PM Modi to fulfil its mission of "Sabka Saath, Sabka Vikas"; if implemented well, it will be another right step in the direction of financial inclusion of all the citizens of India.

PM Jeevan Jyoti Beema Yojana (PJJB Y)

PJJB Y is a Life Insurance Scheme for the citizens of India; it offers insurance cover for death due to any reason. It is also a new initiative taken by the Modi Government for providing life insurance to the masses on very small amount of premium of just Rs. 330 per annum. The objective of the scheme is to bring the common masses of the country under the cover of life insurance so as to give them and their families a sense of financial security.

The main features of the Yojana are as follows:



- The scheme provides one year life insurance cover but is renewable on year to year basis on payment of required yearly premium of Rs. 330.
- Benefit under the scheme is: Rs 2 lakh on death of the subscriber due to any reason.
- Persons in the age group of 18 to 50 years holding a Savings Bank Account in the participating Banks shall be eligible to subscribe for the Jeevan Jyoti Bima Yojana.
- Though a person may join the scheme only up-to the age of 50 years but he/she can avail the risk coverage till 55 years of age subject to payment of required premium.
- The scheme will be administered through LIC and other Life Insurance Companies willing to offer the said insurance cover with the required approval of participating Banks.
- The premium will be auto-debited from subscriber's account on yearly basis.
- For more details, the Government of India website: www.jeevansuraksha.gov.in may be visited by interested people.
- The scheme has come into effect on 1 June, 2015.

Therefore, the PMJJBY is also one of the positive steps taken by the new government in its first year in office for providing financial as well as social security to the common people of the country.

Saansad Adarsh Gram Yojana (Saanjhi)

Despite large scale urbanization in last few decades, India still is a country of villages and it is said that the soul of India lives in its villages. But the true fact is the condition of Indian villages are not very good; they are very poor in infrastructure, sanitation, communication, health care and other social and economic indicators.



Therefore, after coming into office, one of the priorities of the new government was the development of villages in a holistic way and to achieve this objective PM Narendra Modi envisioned an scheme or Yojana in the name of Saansad Adarsh Gram Yojana also known as Saanjhi.

The Yojana was formally launched on the birth day of one of independent India's most influential leaders, Lok Nayak Jai Prakash Narayan on 11 October 2014 by PM Narendra Modi.

The scheme proposes to create Adarsh Grams or Model Villages at the national level. The Yojana is being implemented by the Gramin Vikas Mantralaya or Ministry of Rural Development for the overall development of villages in India.

The schemes of things under Saanjhi are as follows:

- As the basic unit of development a Gram Panchayat would be chosen.
- Each MP would chose and adopt a Gram Panchayat to develop it into a model village.
- The criteria of selecting a village is: in plain areas, a village having a population of 3000 to 5000 persons and in hilly and difficult areas, a village having a population of 1000 to 3000 would be adopted.
- MP's of Lok Sabha would chose a village panchayat from his/her constituency; MP's of Rajya Sabha would chose a village panchayat from the State from where he or she got elected and Nominated MPs can chose a Gram Panchayat from any district of the country.
- In a purely urban constituency where there are no Gram Panchayats, a gram panchayat from the nearby areas may be chosen.



- As a preliminary step, the aim of the Yojana is to develop three Model villages by March 2019 among which one would be developed by the year 2016. After that 5 such villages would be chosen so as to develop them by 2024.
- Development planning process in the chosen Gram Panchayat would be done by the District Collector of the area with the active help and role played by the concerned MP.

Some of the focus areas of the Saanjhi are as follows:

- To increase the pace of development so as to achieve the holistic development of chosen Gram Panchayat.
- To improve the quality of life and status of each and every person.
- To focus on community participation so as to achieve objectives such as: reducing alcoholism, smoking, drug abuse etc.
- To strengthen democracy at the local level by making activities of Gram Panchayats and Gram Sabhas more transparent.
- To increase participation of women in the decision making; to hold Mahila Sabhas and Bal Sabhas to discuss the issues related to women and children.
- To ensure universal access to education and health care facilities.
- To pay attention in the development of infrastructure such as schools, toilets, libraries, health care centers, sports centers etc.
- To encourage and create a vibrant society by organizing folk art festivals, cultural fests etc.

Thus, the Yojana envisages holistic development of villages in the country which in-turn would go a long way in the overall development of the country.



Image Credit: makeinindia.com

Make in India initiative is PM Modi's one of the most ambitious projects for the development and growth of India. In his Independence Day speech on 15 August 2014 from Lal Kila, he made a pitch for "Make in India" initiative and asked both local and foreign manufacturers to come to India and manufacture their products here.

But the project or initiative took a concrete shape on 25 September 2014 when the PM formally launched the project at Vigyaan Bhavan, New Delhi in the presence of topmost business stalwarts of the country such as Cyrus Mistry, Mukesh Ambani, Azim Premji and Kumar Mangalam Birla etc.

As a nodal agency, the scheme is being implemented by the Ministry of Commerce and Industry and Department of Industrial Policy & Promotion.

The major objectives of this initiative are:

- Investment facilitation in the country.
- Fostering or promoting innovation.
- Skill development in the country.
- Protection of Intellectual Property rights.
- Building best manufacturing infrastructure.
- Creation of jobs.

The initiative focuses mainly on 25 sectors of the economy: Automobiles, aviation, chemicals, IT & BPM, pharmaceuticals, construction, defense manufacturing, electrical machinery, food processing, textiles and garments, ports, leather, media and entertainment, wellness, mining, tourism and hospitality, railways, automobile components, renewable energy, mining, bio-technology, space, thermal power, roads and highways and electronics systems.



The aim is to project India as a manufacturing hub to the outside world. For this purpose various measures have already been taken by the Government such as:

- FDI cap in several sectors has been relaxed, for instance: 49% FDI in Defence and 100% in Railways Infrastructure; earlier, only 26% FDI was allowed in Defence whereas no FDI was allowed in railways.
- Apart from Defence (49%), Space (74%) and News Media (26%), in rest of the 22 sectors 100% FDI has been allowed.
- For industrial licence and tenders, an e-Biz portal is established to provide online services 24 × 7.
- Invest India Cell has been formed with the help of State Governments and FICCI (Federation of Indian Chamber of Commerce and Industries) to act as the first reference point for guiding foreign investors on all aspects of regulatory and policy issues and to assist them in obtaining regulatory clearances.
- The services of all Central Ministries and Departments have been linked to a single window IT platform.

Thus, the Make in India initiative is truly a step in positive direction to make India a manufacturing hub of the world and in the words of PM Modi it really is a 'Step of a Lion'.

Digital India

Digital India is a government of India initiative to transform India into 'a digitally empowered society and knowledge economy'. The initiative is another pet project of PM Narendra Modi and the idea is to change India into an electronically empowered economy and to prepare India for a knowledge future



The major goals of the programme are:

- To have effective governance in the Country, the plan is to connect all Government departments and the people of India with each other digitally or electronically.
- Making all the Government services available to the people electronically so as to reduce paperwork.
- Connecting all villages and rural areas of the country through internet networks.

There are three components of Digital India:

- Creating Digital infrastructure.
- Imparting Digital literacy and
- Digital delivery of services.

On 1 July 2015, PM Modi will formally flag off Digital India scheme and will also announce the road map for digitising India through related schemes such as Digital Locker, e-education, e-health, e-sign and a national scholarship portal.

The first week of July will be celebrated as 'Digital Week' to create awareness amongst common people about the Digital India project and how they can reap its benefits in coming times.

As a first step, BSNL has already started the work of laying Fibre Optic Network cable across the country for connecting 2, 50,000 gram panchayats through broadband internet. Thus, this ambitious scheme would be very effective in making India a knowledge superpower in the 21st century.

References

1. "Look East, Link West, says PM Modi at Make in India launch". Hindustan Times. 25 September 2014. Retrieved 27 February 2015.



2. "India pips US, China as No. 1 foreign direct investment destination - The Times of India". *Timesofindia.indiatimes.com. Times News Network. Sep 30, 2015*. Retrieved 2015-10-01.
3. "India Pips China, US to Emerge as Favourite Foreign Investment Destination: Report - NDTVProfit.com". *Profit.ndtv.com*. Retrieved 2015-10-01.
4. "Pay-off time for Modi: India displaces US, China as the top FDI destination in 2015". *Firstpost. 2015-07-29*. Retrieved 2015-10-01.
5. "Centre, States to ready 'Make in India' plan". *The Hindu. 28 December 2014*. Retrieved 28 February 2015.
6. "Focus on 'Make In India'". *Business Standard. 25 September 2014*. Retrieved 27 February 2015.
7. "7 facts not known about PM Modi's Make In India". *Newsroom Post. 27 May 2015*. Retrieved 27 May 2015.
8. "Modi for 'zero defect' Make in India products". *The Hindu Business Line. 29 December 2014*. Retrieved 27 February 2015.
9. "Revealed: Man behind PM's Make in India campaign". *DNA India. 18 November 2014*. Retrieved 27 February 2015.
10. "Modi Launches 'Make in India' Campaign, Portal and Logo". *The New Indian Express. 26 September 2014*. Retrieved 27 February 2015



THE EMERGENCE OF DALIT POETRY IN SOUTH INDIA

Mallikarjunaiah.K

Research Scholar

Dept of English

Dravidian University, Kuppam

INTRODUCTION

Dalit literature emerged within the Indian literature as associate outburst of exploitation and protest against the discrimination that dalit were subjected to since ages. Dalit writers were galvanized by Buddha, Mahatma Jyotiba Phule and Dr. B.R.Ambedkar to fight against the oppressive caste system that was instrumental in segregating dalits from the Hindu society. The term Dalit literature dates back to the primary Dalit literature in 1958 within the state of geographical region in Asian nation. The word 'Dalit' came into manipulation when Independence, which suggests down-trodden, subjugated or broken, it absolutely was employed in the Nineteen Thirties as a Hindi and Sanskrit translation of 'depressed classes'. The word classically used was "Untouchable" or "Shudra". Dalit, we can say, isn't a caste however an emblem of amendment which will bring revolution within the therefore known as 'Society'. It includes schedule tribes, poor peasants, ladies (who square measure thought-about below men), and every one those that are being exploited politically, economically within the name of faith. They live perilously insecure existence, avoided by abundant of society owing to their ranks as "untouchables" or "Dalits" The present paper explores the theme of exploitation and protest in the designated Sanskrit Dalit poems rendered into English. tho' dalit literature is a lot of dominant and forceful in autobiographies, it's no less important in articulating their cry against injustice in poetry.

As the paper focuses on Dalit poetry it's necessary to grasp the Dalits' position in Indian society. to grasp however the Dalit society emerged



it's necessary to grasp the caste system (varnavyavastha). The class structure, that has dominated Indian society for over three,000 years, was developed by the Brahmins (Hindu priests) to keep up their superiority over the less educated and fewer trained. Over time, the class structure was formalized into four distinct categories (varnas). At the highest of the hierarchy square measure the Brahmins, United Nations agency square measure thought of arbiters in matters of learning, teaching, and faith. Next in line square measure the Kshatriyas, United Nations agency square measure warriors and administrators. The third class is Vaisyas, United Nations agency belong to the craftsman and industrial category. Finally, the Sudras (Backward Caste) square measure farmers and peasants. These four castes square measure socially and religiously necessary as a result of they're aforementioned to possess divine origins—they came from totally different parts of the Hindu god Brahma, the creator. The Brahmins came from the mouth of Brahma, the Kshatriyas from his arms, the Vaisyas from his thighs, and Sudras from his feet. attributable to this caste system Dalits had to suffer lots within the hands of higher caste Hindu society and for hundreds of years have undergone tremendous pain, suffering, anguish, torture and exploitation

“Those who eat goats, foul and tiny fish:

Such, they call caste people.

Those who eat the Sacred Cow

That showers frothing milk for Shiva:

Such, they call out-castes”.

In present time, as a result of the inheritance of sage Phule and Babarao Ambedkar, Dalit literature got impetus in Maharashtra. But before the name came into being within the Sixties, such folks as Baburao Bagul, Bandhu Madhav, Shankarao Kharat were already



creating Dalit literature. In its typeal form it up out of a progressive movement known as very little Magazine that was a form of rebellious manifestation of the educated youth of these days against the institution. These Dalit youths found inspiration in the movement of blacks within the distant land of North America; their black literature and Black Panther became the role models of types for them. This protest gained its 1st expression within the style of a new literature known as Dalit Literature.

Poems, short stories, novels and autobiographies written by Dalit writers provided helpful insights on the question of Dalit identity. currently the subaltern communities found a brand new name by coming beside the angle 'Dalit is dignified' thereby rejecting the sub-human standing obligatory on them by the Hindu social order.

The Dalit movemen~ in Andhra was associate autonomous struggle against the hegemonic ideology of the higher caste rulers, accompanied by a colossal forceful literature. As associate organic collective articulation, Dalit literature has recent communicative comprehension and distinct intellectual vigour. Its distinctness "lies in its authentic unity of language and content. In it the sophistication and disgust of young Dalits, usually in the midst of a need for revenge, come alive. h revives the memory of the pain and suffering of the past generations." Further, "it confronts centuries of hypocrisy, deceit and violence sustained within the name of tradition". one The hegemonic caste ideology that debarred the Dalits not solely from all material possessions, however consistently scrawny their mental development. They were alienated and condemned by the social laws. Their historical socio-cultural position was dissimulated and disfigured by caste as a task master.

The Dalit movement in Karnataka state is characterized by an extended and systolic variety of social progression. Excluding



fashionable historical processes some medieval upheavals were additionally moderately liable for delivery a few amendment within the elegant and sensitive altitude of the Dalits within the state. despite the fact that they continuing to be silent sufferers they were assured that each one. Bestowed at the jubilee Seminar on 'Karnataka. Society. Economy and Politics at the Institute for Social and Economic amendment, Bangalore, in Nov 1996. Thanks ar thanks to Ti.V. Rao and alternative participants at the seminar for his or her comments. The views expressed within the paper ar those of the author and not essentially of the organisation to that he belongs.

Dalit poetry as a particular mode arrived in Malayalam literature at the top of the Eighties of the last century. Not that poetry with a definite Dalit sensibility by Dalitwriters was absent in Malayalam literature before that. Pandit Karuppan's Jathikkummi (Caste Songs) were written in 1904. Karuppan, a Dalit from a fishing community called Dheeveras from Cheranalloor, a village in Ernakulam district, went on to become one in all the first Dalit poets within the language. Poykayil Yohannan (Apachen) or Kumaraguru who was Associate in Nursing activist and a author wrote many hymns that announced the ideology of his Prathyaksha Raksha Daiva Sabha (PRDS), a dissident sect that had split from the Mar Thoma Church. His poems are compiled during a volume titled Ratnamanikal. The political energy free by early Dalit poet-activists like Karuppan and Poykayil Kumaran looks to possess dissipated before the primary half the 20 th Century over. What is outstanding concerning the poetry of those early Dalit poets is that the political vigour that galvanized it. Readers WHO aren't cognizant with the history of Malayalam literature in the half of the 20 th Century has got to be told that these poets operated at least twenty years before Changampuzha wrote Vazhakkula (1936) that was later hailed by the literary institution because the initial literary composition to protest against the oppression of the Dalit peasants by Savarna



landlords. it might take another decade for the Left-leaning Progressive Literary Movement to achieve a footing in Malayalam literature.

Tamil Dalit literature blossomed solely within the early Nineteen Nineties once the birth centenary of revolutionary Dr. Babasaheb Ambedkar was celebrated. That amount saw political wakening of the Dalits and also the creation of Tamil Dalit literature. Bama's problem book winning Karukku was written at this point, likewise as Sivakami's Pazhaiyana Kazhithalam (which has currently been translated into English because the Grip of modification and printed by Orient Longman).

Like all different Dalit literature, Tamil Dalit literature too has associate degree way over autobiographies. Critics condemn these literatures of lament, however they too have a central place among the artistic core. Tamil Dalit literature is characterised by the decision for self-identity and assertion. It tramples all conventions with its intensely personal expression; thinks about with the lifetime of the subaltern, and deals out a stark brutality. This literature ought to be viewed not as a literature of retaliation or a literature of hate, however a literature of freedom and greatness.

In this choice we've printed fifteen poets, each well-established likewise as some rising ones. Why did we elect poetry, rather than biography or short-stories? it's as a result of we tend to wished to hold the essence of a factor, that is what art is all regarding. The poems ar raw, powerful and honest; and during a strange means they convey what thousands of words of prose would conceive to do. The poets come back from various backgrounds, one among them is associate degree MLA (elected representative), another may be a academician of arithmetic, yet one more a letter carrier, but then, here, solely their poems speak. Most of those poems are performed on stage in political conferences and public gatherings (which may be a Tamil tradition, despite 'performance



poetry' being touted solely currently within the West) and became a part of the Tamil Dalit consciousness.

CONCLUSION

From the higher than given quotations we are able to deduce that a lot of and a lot of Dalit writers are tuned in to the design during which they write. they fight to mention one thing new in a very more enticing method however at constant time they still wish to decision Dalits to resistance and strengthen Dalit identity. For this goal they often select a subject that have been till recently unmarked or maybe censured by different writers or Dalit thinkers. We can assume that they mirror in their writings the developments of the society. It cannot be thought of any abrupt amendment, rather it ought to be understood as a a lot of or less slow natural development. when the foundational criteria are set, still more and a lot of writers try and surpass their predecessors, return up with one thing new, and overcome rather slender profile underneath that the primary works of Dalit literature had inherit existence.

Reference

1. Arun, Joe C., Constructing Dalit Identity. Jaipur: Rawat Publications, 2007.
2. Beth, Sarah, 'Hindi Dalit Autobiography: An Exploration of Identity', Modern Asian Studies, vol. 41, no. 3, 2007, pp. 545-574.
3. Cauhān, Sūrājpal, Tiraskrit. Gaziyaḅād: Anubhav, 2002.
4. Gros, François and M. Kannan, 'Tamil Dalits in Search of a Literature', South Asia Research, vol. 22, no.1, 2002, pp. 21-65.
5. Ilaiah, Kancha, Why I am not a Hindu. A Sudra Critique of Hindutva Philosophy. Kolkata: Samya, 1996.



6. John, Simon S., 'From Culture to Politics: The Changing Context of Parai in Tamil Nadu', *South Indian Folklorist*, vol. 7, 2004, pp. 57–70.
7. Limbale, Sharankumar, *Towards an Aesthetic of Dalit Literature*. Mukherjee, Alok K. (trans.), Hyderabad: Orient Longman, 2004.
8. Mendelsohn, Oliver and Marika Vicziany, *The Untouchables. Subordination, Poverty and the State in Modern India*. Cambridge: Cambridge University Press, 1998.
9. Pāmā, Taḷumpukaḷ kāyaṇkaḷāki. Karukku, caṇkati. Kōyamputtūr: Viṭiyal patippakam, 2001. Rao, Kalyana, G., *Untouchable Spring*. New Delhi: Orient Black Swan. Translated by Alladi Uma and M. Sridhar, 2010 [2000].
10. Omvedt, Gail, *Understanding Caste. From Buddha to Ambedkar and beyond*. New Delhi: Orient Blackswan, 2011.



ONTARIO UNIVERSITY GLOBAL POLICY

Nagaraja.N

Research Scholar
Dept of Political Science
Magadh University
Bihar

Over the past decade, the govt of Ontario has hyperbolic investment in postsecondary education considerably, including increasing in operation grants by eighty per cent since 2002–03. These investments helped to enhance access to postsecondary education, supported vital entrance growth at universities and schools, and drove community and economic development. The tremendous growth of Ontario's postsecondary education system was created potential because of the commitment of our postsecondary education establishments to access, and their willingness to reply to the demand.

The 2008 economic downswing and therefore the succeeding precarious state of the world economy have created Ontario's business setting challenging. Substantial new investment by the govt at levels akin to the previous decade isn't possible. Also, as entry growth is predicted to slow within the close to future therefore too will operational grant funding. With institutions' prices outpacing growth in revenues from operational grants and tuition, existing cost structures ar besieged. Measures that facilitate to mitigate these pressures ar required so as to make sure the continuing sustainability of our postsecondary education system.

We need to form changes to shield the gains of the last 10 years, and to make sure that Ontario's postsecondary education continues to get pleasure from a productive and promising future. With active collaboration among government, key postsecondary stakeholders, and students, there's a chance to deal with the challenges facing the system. Central to the current pursuit is that the would like to preserve and



enhance instructional quality and institutional excellence among a property value structure and to make sure postsecondary education in Ontario continues to own a powerful impact on communities. this can need a careful leveling act between government place and institutional leadership, and a strengthening of transparency and answerability between the government, establishments, and therefore the public.

Ontario's Post secondary Education System

Vision

Ontario's schools and universities can drive ability, innovation, knowledge, and community engagement through teaching and analysis. they're going to place students initial by providing the best doable learning expertise for all qualified learners in a reasonable and financially property manner, guaranteeing high quality, and globally competitive outcomes for college students and Ontario's artistic economy.

Priorities in Government

Postsecondary education is a very important driver of social and economic development. the govt acknowledges the dear contributions that faculties and universities build towards job creation, increased productivity, and therefore the vitality of communities and regions throughout the province. Postsecondary education additionally delivers important social and economic edges to people. Graduates of postsecondary education expertise have improved labour market outcomes compared to those while not teaching, as well as higher employment rates and larger earning levels over time. This is especially important to making sure Ontario's social development and economic prosperity.



High-Quality Educational

The Ontario government acknowledges that high-quality teaching is tied to improved student outcomes. the govt sees this as a key priority and is committed to making sure that postsecondary education in Ontario provides students with the information and skills required to achieve their personal and career aspirations, and as engaged voters.

Financial Sustainability

The government is committed to operating with faculties and universities on making a financially property, high-quality postsecondary education system in each the short and future. This priority can facilitate make sure that Ontarians have access to a full vary of reasonable, high-quality postsecondary education options, currently and within the future.

Access for All Qualified Learners

Recognizing the worth of postsecondary education to a private and to Ontario's future, the govt. can still hinge upon the gains it's created in increasing access to education for all qualified students over the past decade. A differentiated postsecondary education system can maintain access as a key priority of postsecondary education. the govt. can still concentrate on making postsecondary education accessible on the premise of a student's ability to learn, not ability to pay. Institutional specialization are going to be key to increasing the postsecondary education participation, retention, and success of Aboriginal students, students with disabilities, initial generation students, and increasing programming opportunities for Francophone students to review in French.

World Class Research and Innovation

Universities and schools square measure engines of innovation that grow Ontario's data economy through applied, commercialized, and



pure analysis. the govt is committed to supporting analysis and innovation to make sure that Ontario's postsecondary education system contributes to the economic success of the province.

A differentiated postsecondary education system can focus investments to boost research capability and performance in areas of institutional strength. The government acknowledges the key role of analysis and graduate education in each niche areas and on a broader scale and can work to strengthen institutions' competitive advantage in analysis excellence, any serving to to boost Ontario's profile and sharpening its forefront across the nation and internationally.

Collaboration and Pathways for Students

The government is committed to supporting and up collaboration to make sure that postsecondary education in Ontario provides a full time of relevant learning opportunities that may reply to the arising desires of scholars in their academic methods and career destinations. Innovative collaboration among institutions will give increased opportunities for college kids and helps to make sure we focus our collective resources and avoid extra duplication.

A differentiated postsecondary education system can place a premium on collaboration between establishments, inside and across sectors. the govt. can work with universities and schools to maximise recognition for previous learning and strengthen pathways in order that students will higher navigate learning choices between sectors, establishments and credentials.

Proposed Differentiation Framework

The Ministry of coaching, schools and Universities is proposing a balanced and collaborative approach to institutional differentiation to raised support the government's vision and priorities for postsecondary



education, and support institutions in building on their distinctive strengths.

The proposed framework outlines eight components:

- Teaching and learning,
- Student population,
- Jobs, innovation and economic development,
- Strategic enrolment,
- Research,
- Program offerings,
- Institutional collaboration and
- Sustainability

Reporting by faculties and universities to the ministry continues to be associate integral a part of the government's relationship with institutions. The ministry can work with the arena to innovate consolidated and efficient reports. The ministry can re-profile the Multi-Year answerableness Agreements (MYAAs) because the interim answerableness coverage mechanism for Strategic Mandate Agreements. parts in the report-back guide are going to be reviewed to scale back duplication and coverage burden.

Reference

- 1 General FE and tertiary colleges
- 2 Sixth form colleges
- 3 Specialist colleges (mainly colleges of agriculture and horticulture and colleges of drama and dance)
- 4 Adult education institutes



5 Councils include: Arts and Humanities Research Council, Biotechnology and Biological Sciences Research Council, Economic and Social Research Council, Engineering and Physical Sciences Research Council, Medical Research Council, Natural Environment Research Council, and the Science and Technology Facilities Council.

6 As a point of reference consider the US has 30.3% of the top 500 universities, taking 23.3% of the GDP, and educating 4.5% of the population. Canada has 4.4% of the top 500, spending 2.3% of the GDP for .5% of the population.



BODY MASS INDEX WAIST HIP RATIO AMONG THE RURAL ADULTS

P.Narendra

Research Scholar
Dept. of Anthropology
S V U College of Sciences
S V University, Tirupati

Prof Dr.A B Subhashini

Professor
Dept. of Anthropology
S V U College of Sciences
S V University, Tirupati

INTRODUCTION

The prevalence of obesity and its associated coronary heart disease (CHD) risk factors, mortality and morbidity due to non-communicable diseases, are increasing in developing countries (Doll et al. 2002; Reddy et al. 2002). Globally, about 58% of diabetes mellitus and 21% of ischemic heart diseases are attributable to BMI is above 21 kg/m² (WHO 2002). Developing countries are increasingly faced with a double burden of hypertension and other cardiovascular diseases, along with infections and mal nutrition (WHO 2003). An increasing number of developing nations are acquiring atherogenic lifestyles which include the adoption of atherogenic dietary habits similar to those seen in industrialized societies. This appears to be consistent with the economic development (Beaglehole 1992). Major coronary risk factors are smoking, hypertension, dislipidemia, diabetes and obesity. Other risk factors that are considered to be important are fat distribution, family history of premature CHD and life style risk factors (Wilson et al. 1998). In this regard, the World Health Organization has recommended the development of national programmes for the prevention and control of CHD through the simultaneous adoption of several strategies (WHO 2003).

Obesity and hypertension have been shown to increase in parallel across populations along with their degree of development and acculturation (Cooper et al. 1997). Research results to date claim that,



developing countries have a higher susceptibility of blood pressure (BP) to excessive adiposity than Western populations and will be more severely affected, particularly in terms of hypertension driven cardiovascular morbidity and mortality, by the current global upward trend in obesity (Cooper and Rotimi 1997; Forrester et al. 1998; Wilks et al. 1998).

This assumption has to be tested against the background of existing knowledge about the hypertensive effect of obesity. Since long-term cohort studies are difficult to conduct and the magnitude of its effect in a given population is generally assessed by examining the cross sectional association between measures of obesity and BP levels after adjustment for potential confounders. Usual anthropometric measures of adiposity are body mass index (BMI) and waist circumference (WC), reflecting total body fat and abdominal fat deposition, respectively. Additionally, the ratio of waist to hip circumference (WHR) is frequently used as an index for abdominal adiposity. All these adiposity parameters have been shown to correlate significantly with systolic blood pressure (SBP), diastolic blood pressure (DBF) and hypertension at an individual level over a broad spectrum of socio-economic conditions (Reddy et al. 1997; Ledoux et al. 1997). Age has to be considered as a potential confounder because; both adiposity and BP are generally increasing over the course of life. In the light of this background the present study is aimed at determining the relationship among body composition and its prevalence in different life style factors in populations where the prevalence of obesity is growing rapidly.

Aims and Objectives

The present study aimed at assessing the body mass index, abdominal adiposity in free living community rural adults of Chittoor District, Andhra Pradesh.



- To assess the prevalence of obesity in adults, by using the criteria of Body Mass Index (BMI) and waist-hip ratio.
- To compare the prevalence of obesity in different income, education, occupation groups

MATERIALS AND METHODS

A cross sectional study was designed among the rural population nearby Tirupati town, Chittoor District of Andhra Pradesh. The selected rural village is about 10 km away from the town limits of Tirupati. The investigator made house to house survey and explained the importance of the study and requested them to participate in the study.

A total of 502 subjects (198 males and 304 females) have been investigated for the present study. Detailed interviews were performed with the help of a questionnaire prepared according to the guidelines of Indian Council of Medical Research. The proforma included age, sex, education, occupation, income, and life styles.

Anthropometric components included height, weight, waist and hip circumferences. Height was measured using anthrop meter and weight with calibrated weight box. Body mass index (BMI) was calculated using formula- weight kg/ height m².

Subjects were divided into four groups based on the BMI as bellow:

<18.5	lean
18.5-25.0	normal weight
25-30.0	overweight
>30.0	obese.

Waist measurement was taken as abdominal circumference at midpoint between the costal margin and anterior superior iliac spine. Hip circumference taken as maximum diameter at the greater



trochanter. Waist Hip Ratio (WHR) was calculated in each case. WHR was considered abnormal, if >0.95 for males and >0.8 for females.

STATISTICAL ANALYSIS

All the data were computed and statistical analyses were performed using SPSS 16.0. All continuous variables were reported as Means \pm Standard deviation. The prevalence rates were given in percentages. Continuous variables were compared by 't-test' and 'one way annova' analysis. Alpha levels were set at $p < 0.05$.

RESULTS AND DISCUSSION

A total of 502 subjects have been screened for the present investigation. Among the screened sample 198 comes under male category and 304 comes under female category. The age range in the present study is between 20 and 80 years. 38 percent of the males and 29 percent of the females fall below the age of 35 years. 29 percent of males and 41 percent of females comes under 35 to 50 years age group. About 32 percent of the males and 30 percent of the female's age is recorded as above 50 years. 21 percent of males and 51 percent of females are illiterates and 54 percent of males and 44 percent of females attained primary education. A total of 24 percent of males and 5 percent females attained higher education.

31 percent of males and 6 percent of females are officials in their occupation. 17 percent of males and 5 percent of females are in teaching field. 45 percent of males and 21 percent of females are laborers. 68 percent of females are house wives. Regarding the economic status, 43 percent of males and 58 percent of females are having bellow Rs. 2, 00, 000/- income per annum. 37 percent of males and 36 percent of females are belongs to the income range of Rs. 2, 00, 000/- to Rs. 5, 00, 000/-. 21 percent of males and 6 percent of females are the above Rs. 5, 00, 000/- income group. 71 percent of males and 72 percent females are



living in nuclear family and 29 percent of males and 28 percent of females are living in joint family.

Physical activity is categorized in to four grading like sedentary, mild, moderate and heavy activity and accordingly the sample is distributed in to different levels. 17 percent of males and 11 percent of females are belonging to sedentary life style. 28 percent of males and 43 percent of females are mild life style category. 35 percent of males and 32 percent females are spending moderate life. 20 percent of males and 13 percent of females are belongs to heavy physical activity. Habit of smoking is recorded to an extent of 33 percent and alcoholism up to 38 percent in males. None of the females noticed with smoking and alcoholism. Habit of tobacco chewing is observed in 11 percent of males and 26 percent of females. Self health rated is categorized in to four grading - very good, good, fair and poor. 22 percent of males and 12 percent of females are said very good. 64 percent of males 61 percent of females are said as their health are good. 13 percent of males and 27 percent of females are having felt fair. 2 percent of males and 3 percent of females feel like their health is poor. 10 percent of males and 6 percent of females are belongs to lean BMI. 34 percent of males and 32 percent of females are belongs to normal weight. 17 percent males and 10 percent of females under gone to overweight and 39 percent of males and 52 percent of females have obese.

Descriptive statistics for body composition is shown in table 3. The mean age in males is 42.34 ± 15.3 and in female 42.32 ± 13.7 . Mean height in males is 1.64 ± 7.3 and in females is 1.52 ± 6.5 . Mean weight in males is 63.5 ± 12.2 and in females is 57.30 ± 11.8 . The mean value of BMI in males is 23.8 ± 4.1 and in females is 24.7 ± 4.8 . Mean waist circumference in males is 81.4 ± 9.5 and in females is 77.8 ± 8.6 . Mean hip circumference in males is 93.9 ± 9.1 and in females is 97.4 ± 10.5 . Mean value for WHR in males is 96.7 ± 5.2 and in females is 80.05 ± 4.4 .



Discussion

In the present study no significant differences were observed in the mean levels of body mass index and waist hip ratio between males and females. However, body mass index and waist hip ratio negatively correlated with age indicating that age is independent risk factor in the development of obesity. Further there is a strong positive association between body mass index and waist hip ratio in both males and females. These findings are in good agreement with other studies, supporting a stable relationship between body mass and abdominal adiposity with age (Kaufman et al. 1996; Reddy et al. 1997). The above evidence presented supports a common general physiopathological mechanism linking the excessive fat deposition due to environmental background. The mechanism of obesity-associated risk factors appears to be an inadequate vasodilatation in the face of the increased blood volume and cardiac output, which are the natural consequences of an increased body mass. This defect in control of vascular resistance has been attributed to increased activity of the sympathetic nervous system, abnormal renin-angiotensinaldosterone relations, and insulin resistance (Dustan 1990). Obesity seems to accentuate the development of a cluster of metabolic disorders (including hypertension and dislipidemia) among the subjects presenting the syndrome X, referred to as the insulin resistance syndrome (Schmidt et al. 1996; Srinivas et al. 2000).

Correlation coefficients for each of the adiposity markers indicate that males dominate females, suggesting a greater male responsiveness in overall weight. Significant correlation of BMI to SBP and DBF, in men and women, was reported by studies in Tanzania and Nigeria (Kadiri et al. 1999; Njelekela et al. 2001). Significant associations among body composition have also been documented in various populations (Hu et al. 2000). The prevalence of obesity increased with increased economy, educational status and sedentary life



styles. Majority of the obese people claim that their self rated health is poor. This clearly indicates the impact of environmental factors in predisposing the populations towards developing obesity. In conclusion, the results demonstrates that the observed steady and age-dependent linear association of obesity and life style factors, favors the population approaches attempting to shift the whole distribution of obesity in a more favorable direction by improving the population body composition as measured by anthropometric parameters (BMI and WHR).

SUMMARY AND CONCLUSIONS

The prevalence of obesity and its associated coronary heart disease (CHD) risk factors, mortality and morbidity due to non-communicable diseases, are increasing in developing countries (Doll et al. 2002; Reddy et al. 2002). Globally, about 58% of diabetes mellitus and 21% of ischemic heart diseases are attributable to BMI is above 21 kg/m² (WHO 2002). Developing countries are increasingly faced with a double burden of hypertension and other cardiovascular diseases, along with infections and malnutrition (WHO 2003). An increasing number of developing nations are acquiring atherogenic lifestyles which include the adoption of atherogenic dietary habits similar to those seen in industrialized societies. This appears to be consistent with the economic development (Beaglehole 1992). Major coronary risk factors are smoking, hypertension, dislipidemia, diabetes and obesity. Other risk factors that are considered to be important are fat distribution, family history of premature CHD and life style risk factors (Wilson et al. 1998). In this regard, the World Health Organization has recommended the development of national programmes for the prevention and control of CHD through the simultaneous adoption of several strategies (WHO 2003). In the light of this background the present study is aimed at determining the relationship among body composition and its prevalence in different life style factors in populations where the prevalence of obesity is growing rapidly.



A cross sectional study was designed among the rural population nearby Tirupati town, Chittoor District of Andhra Pradesh. A total of 502 subjects (198 males and 304 females) have been investigated for the present study. Detailed interviews were performed with the help of a questionnaire prepared according to the guidelines of Indian Council of Medical Research. The proforma included age, sex, education, occupation, income, and life styles. Anthropometric components included height, weight, waist and hip circumferences. Height was measured using anthrop meter and weight with calibrated weight box. Body mass index (BMI) was calculated using formula- weight kg/ height m². All the data were computed and statistical analyses were performed using SPSS 16.0. Alpha levels were set at $p < 0.05$.

A total of 502 subjects have been screened for the present investigation. Among the screened sample 198 comes under male category and 304 comes under female category. The age range in the present study is between 20 and 80 years. 21 percent of males and 51 percent of females are illiterates. 31 percent of males and 6 percent of females are officials in their occupation. Regarding the economic status, 21 percent of males and 6 percent of females are the above Rs. 5, 00, 000/- income group. 17 percent of males and 11 percent of females are belonging to sedentary life style. Habit of smoking is recorded to an extent of 33 percent and alcoholism up to 38 percent in males. 17 percent males and 10 percent of females under gone to overweight and 39 percent of males and 52 percent of females have obese.

No statistical significant differences were observed in the mean levels of body mass index and waist hip ratio between males and females. Strong positive correlations were observed age and body composition in both sexes. In conclusion, the results demonstrates that the observed steady and age-dependent linear association of obesity and life style factors, favors the population approaches attempting to shift the whole distribution of obesity in a more favorable direction by

improving the population body composition as measured by anthropometric parameters (BMI and WHR).

Table 1: Demographic characters of the study population

Variable	Male (n= 198)		Female (n=304)	
		%	No	%
Age group				
< 34	76	38.4	89	29.3
35-50	58	29.3	123	40.5
> 50	64	32.3	92	30.3
Education				
Illiterate	42	21.2	154	50.7
Primary	107	54.0	134	44.1
Higher	48	24.2	14	4.6
Occupation				
Official	62	31.3	17	5.6
Teaching	34	17.2	14	4.6
Labor	89	44.9	65	21.4
House wife	13	6.6	208	68.4
Income				
< 2,00,000	85	42.9	176	57.9
2,00,000-5,00,000	73	36.9	109	35.9
> 5,00,000	40	20.2	19	6.2
Type of Family				
Nuclear family	141	71.2	218	71.7
Joint family	57	28.8	86	28.3

Table 2: Habit of smoking, alcoholism, physical activity and CHD risk factor prevalence in adult males and females

Variable	Male (n= 198)		Female (n=304)	
		%	No	%
Physical activity				
Sedentary	34	17.2	34	11.2
Mild	55	27.8	131	43.1
Moderate	69	34.8	101	32.2
Heavy	40	20.2	38	12.5
Habit of Smoking				
Yes	65	32.8	0	0.0
No	133	67.2	304	100.0
Alcoholism				
Yes	75	37.9	6	2.0
No	123	62.1	298	98.0
Tobacco Chewing				
Yes	22	11.1	80	26.3
No	176	88.9	224	73.7
About your health				
Very good	44	22.2	35	11.5
Good	126	63.6	185	60.9
Fair	26	13.1	81	26.6
Poor	2	1.0	3	1.0
BMI				
< 18.5	20	10.1	19	6.2
18.5-22.9	67	33.8	97	31.9
23.0-24.9	34	17.2	29	9.5
>25.0	77	38.9	159	52.3

Table 3: Body mass index and waist hip ratio in adult males and females

Variable	Male		Female		t-value
		±SD	Mean	±SD	
Age	42.34	±15.3	42.32	±13.7	0.017
Height	1.64	±7.3	1.52	±6.5	18.1
Weight	63.50	±12.2	57.30	±11.8	5.73
BMI	23.80	±4.1	24.70	±4.8	-2.31
Waist	81.40	±9.5	77.80	±8.6	4.4
Hip	93.90	±9.1	97.40	±10.5	-3.83
WHR	96.70	±5.2	80.10	±5.4	13.76

Table 4: Bivariate relations ships of age, body mass index and waist hip ratio in adult males and females

Males Females	Age	Heigh t	Weigh t	BMI	Waist	Hip	WHR
Age	-	-0.176*	-0.111	-0.032	0.141*	0.081	0.146*
Height	-0.186**	—	0.451**	-0.019	0.203**	0.205**	0.070
Weight	-0.144*	0.349**	-	0.881**	0.835**	0.838**	0.284**
BMI	-0.068	-0.061	0.911**	-	0.832**	0.833**	0.284**
Waist	0.147*	0.114*	0.720**	0.709**	-	0.863**	0.569**
Hip	0.109	0.112	0.770**	0.767**	0.821**	-	0.079
WHR	0.073	0.005	-0.023	-0.036	0.366**	-0.226**	-



References

1. Doll S, Paccaud F, Bovet P al. Body mass index, Abdominal adiposity and blood Pressure: Consistency of their association across developing and developed countries. *Int J Obes Relat metab Disord* 2002; 26:48-57.
2. Singh RB, Beegom R, Mehta AS et al. Social class, coronary risk factors and under nutrition, a double burden of disease, in women during transition, in five Indian cities. *Int J Cardiol* 1999; 69: 139-147.
3. Engstrom G, jerntorp I, Pessah-Rasmussen H et al. Geographic distribution of stroke incidence within an Urban population: relations to Socioeconomic circumstances and prevalence of cardiovascular risk factors. *Stroke* 2001; 32:1098-113.
4. Reddy KK, Rao AP, Reddy TPK. Socioeconomic status and the prevalence of coronary heart disease risk factors. *Asia Pacific J Clin Nutr* 2002; 11: 98-103.
5. Tesfaye F, Nawi NG, Van Minh H, Byass P, Berhanel Y, Bonita R, Wall S. Association between body mass index and blood pressure across three populations in Africa and Asia.. *J Hum Hyper* 2007; 21: 28-37.
6. World Health Organization. World Health Report 2002: Reducing risks, Promoting healthy Life. World Health Organization: Geneva, 2002.
7. Pi-Sunyer FX. Medical hazards of obesity. *Ann Intern Med* 1993; 119:655-660.
8. Murray CJL, Lopez AD. Global Health Statistics. Global Burden of Disease and Injury Series. Harvard School of Public Health: Boston, MA, 1996.
9. World Health Organization. Diet, Nutrition and the Prevention of Chronic Diseases, Report of a joint WHO/FAO Expert Consultation. WHO Technical Report Series No.916 World Health Organization: Geneva, 2003.
10. Beaglehole R. Cardiovascular Diseases in developing countries, an epidemic that can be prevented. *BMJ* 1992; 305: 1170-1171.



11. Wilson PWF, D' Agotino RB, Levy D, Nelanger AM, Silbershatz H, Kannell WB. Prediction of coronary heart disease using risk factor categories. *Circulation* 1999; 97: 1837-1847.
12. Collins R, Peto R, McMahon S, Herbert P, Fiebach NH, Eberlein KA et al. Blood Pressure, stroke, and coronary heart disease. Part 2. Effects of short-term reduction in blood pressure: overview of randomized drug trails in an epidemiological context. *Lancet* 1990; 335:827-883.
13. MacMahon S, Neasl B, Rodgers A. Hypertension – time to move on. *Lancet* 2005; 365:1108-1109.
14. Reddy KK, Rao AP, Reddy TPK. Low prevalence of CHD risk factors in an Indian Tribal Population. *Ann Natl Acad Med Sci (India)* 1998; 34: 119-128, 1998.
15. Reddy KK, Reddy TPK, Reddy BK, Rao AP, Singh RB. A socio cultural perspective of centenarians in a tribal community of south India. *Res Dev J (Help age India)* 2006; 12: 30-36.
16. Reddy KK, Rao AP, Reddy Tpk. Serum vitamins E, A and lipid per oxidation levels in Kurichias, an Indian tribal population. *Ind J Biochem Biophys* 1999; 36: 44-50.
17. Reddy KK, Papa Rao A, Reddy TPK. Effect of age, sex life styles on CHD risk factors: Influence of obesity and body fat distribution, *J Hum Ecol* 1998; 593-601.
18. Singh RB, Ghosh S, Naiz MA, Rastogi V. Validation of physical activity and socioeconomic status questionnaire in relation to food intakes for the five city study and proposed classifications for Indians. *J Assoc physicians India* 1997; 45:603-607.
19. Reddy KK, Reddy BK and Papa rao A: Interaction among body composition, self-rated health and functional status of the elderly in an Indian population. *Asia Pacific J Clin Nutr*, 13: 78-85, 2004.



THE NARRATION OF HAUNTING MEMORIES OF CHILDHOOD IN *CAT'S EYE* BY MARGARET ATWOOD

Dr. Vinod Bhatt

Assistant Professor
Amity School of Languages
Amity University, Madhya Pradesh
Gwalior, India

Her writing is full of the adventurous episodes; sometimes she goes way back into 18s; finds and study a woman who was accused and imprisoned for 15 years. Sometimes she sketches a character that goes into woods in search of her missing father, the journey removes her guilt and she discovers herself and finally she was able to connect with the society. Sometimes she is in a different state of mind with different views about a dystopian society where Gileads are forced to live a life like hell. Sometimes she draws a character that shows her inabilities to survive in male dominated society; adopts marriage as a survival tool; after a long struggle finally she escapes from these illusions. Very often, her female characters use their creativity as a tool of survival, makes their efforts to reconnect with the gaps and finally leads to the victory. The process of rejection of victimization was not so easy to them; some of them were castigated by myriad ways and two of them lost their life.

Cats Eye depicts the process in which a successful artist Elain, become reconcile to a critical friendship she had as a child as well as destructive relationship with a man she had as a young woman and put up her own vision as an artist. *Cat's Eye* is a story about a girl named Elain Risley who came back to Toronto where she spent her early days, for a retrospective of her art. Elaine becomes preoccupied by the memories of the city brings up for her. She was obsessed by the memories of Cordelia; her best friend and the one who besieged in her childhood.



Cat's Eye is a story about a girl child who was brought into urban life. She is upset by the brutal treatment she receives by her friends. The novel follows the chain of incidents and accidents from her childhood to adult, also delineates the consequences of her early days occurrence on her rest of her life. Margaret Atwood adjusts her narrative back and forth through time to tell Elaine's story, just to show the effects of her early days on later life. Her father practices as an entomological research in Canadian backwoods and spends most of the time in remote areas. Because of her father's job in remote areas, she spent her most of early days time in either isolation or with her family. Elian used to have only one companion that is her brother, Stephen. When she is eight, the family decided to settle in Toronto where she would have an opportunity to intermingle with girls of her own age. Her interface with her first two friends, Grace Smeath and Carol Campbell led her to a state of confusion about the society and its customs. These two girls swell her problems to an extent where she dropped her desire to fit into them. The situation gets worst when the third girl, Cordelia, joins the group. She turns out to be the leader and soon started a campaign of criticism and cruelty toward Elaine, whose lack of self-assurance Cordelia has sensed from the start.

Depicted child life in the novel can be discovered in view to patriarchal culture where the society makes its rules in the interest of male community against the woman class to make them realize inferior. Elaine's early life with her brother, as she remembers, depicts a typical power patterns hold over women where women from their early childhood instructed to follow laid rules so that they will be habitual to follow them in future. Elaine recollects her companionship with her brother where she was most of the time defensive even she was not guilty. Very identical situation is demonstrated in *The Edible Woman* in which Marian's and Ainsley's techniques of hiding their identity just for the sake of survival. The novel depicts the existent situation of the patriarchal hierarchical power patterns where the woman has to accept set of laws laid by the man



for the woman. Women are supposed to wear clothes and act in ways that help them to be fit in male dominated society. Atwood continues this theme in this novel and explores it through children and their practice of making socio-economic territories.

Elaine memorizes her childhood as a despondent time where she thrashed about to establish herself in an alien society. She remembers the process how she struggled hard to make her identity in the society as a child. She was born and brought up in rural part so that this sophisticated class of the society was unfamiliar to her and very difficult to be resisted. As she confessed in the beginning that she was happy until she moved to Toronto. In this new setting she was consistently being forced to socially camouflage. Elaine's memory may be biased and selective, but what she bears in mind is sufficient to exhibit how nasty children can be, and how sometimes they are hardened brutally by their peers and the adults with whom they come in contact. Elaine's fragmented childhood confirms how a child must obey the rules in order to survive. Through Elaine's discerning memories, Atwood is able to show a base of childhood, and how this base is unavoidable later, during adulthood, because of the long-term effects of childhood socialization.

Atwood highlighted social pressures in the form of typical children behavior. Elaine as a child living a very simple rustic life in village without any artificial sophistication, however, in urban setting she has to hide her natural attributes and has to adopt practical and synthetic society, inclusive with its ills.

Atwood discovers Elaine's life especially childhood in detail. Elaine's attitude is highly negative towards urban life. As she spent her early life in rural so she was deeply touched by the beauty of nature and the nature fascinated her a lot. She adopted rural life as a child in its original form. She disclosed her disliking about urban life to her parents when they were travelling to Toronto. She admitted many times in the



discourses that this city made me unhappy otherwise she was a happy girl. It was very necessary to Elaine to adopt new life as early as possible so that she could restart her life with new settings. The process of adoption new life was very throbbing and inevitable.

Elaine narrates in the beginning of her move to city life to have girlfriends. She, unfortunately, spent her early childhood alone without having a friend. Elaine's desire to have a girlfriend sometimes seems very dubious because she does not know how to conduct with them and how much should they be allowed to disturb her life. She sometimes does not accept the companionship of her brother. Elaine recounts their fighting with fondness. When, Elaine wishes she could have girlfriends, it is reasonable to expect that she might again be willing to sacrifice self-defense for companionship. Elaine's need for companionship is stronger than her need for defense.

It is noteworthy to point that Elaine wishes to have girlfriends is the outcome of her study school books. She made every picture about her girlfriend as per she was instructed by the books. Books always glorified and fictionalized the term friendship which led to her in a fictional world of friendship and her experiences with three friends realized later how this fictitious world differs to the real one. Elaine study is highly unclear about the real society where she was forced to live.

Elaine felt disappointment when she moved to Toronto with her family in her new house. The reasons for disappointment are lying in her school readers which filled her mind with fantasies and imaginations about the new house in a big city. Elaine's discontents cannot be attributed to sufferings caused by moving because she has moved about all her life. Her discontent is an effect of the huge gap between the society which she keeps in her fantasy learned through the education system and the actual one she was forced to adopt it. She can have a good life if she



gives up her ideology about her previous life because she always considered her previous life is far better than the life she is having now.

The theme of survival is continued in Cat's Eye also. Elaine and her family spent a long time in bushes so it was equally difficult to them to survive in new setting. To survive in new city, Elaine and her family must conceal themselves. The new city teaches them how costumes change the opinion of people by simply seeing them how you are dressed up. Elaine's description of her father is very simple; well dressed person but not matched to his profession. Her description about her mother is gauche. Her mother was a simple, orthodox and old fashioned woman but she was forced by this new society to hide herself under heavy makeup. Her determination of survival and the fear of rejection from the society always prepared her to accept the new society by its own unwritten rules and regulations. Elaine makes out the camouflage, but she does not feel comfortable with it. To hide herself, she uses new patterns of dresses, accessories and make up materials. Elaine is still anxious with camouflage when her life's work is being shown in a retrospective at a gallery in Toronto. She finds herself very concerned about the dress she was supposed to wear in opening ceremony. She wants to hide her aging body under the design and the pattern of the dress. Elaine obtains the social beliefs of color of the dress and the pattern that effect very seriously.

When Elaine entered a new city, she was emotionally oppressed by other children and their parents. She underwent a hostile behavior of two of her initial girlfriends Carol and Grace. Initially, when Elaine used to play with them, she was taken as outsider and was always humiliated by being called unpolished. There were many instances where these two kids showed their hostility for her especially when Elaine was taken to Carol's house, she was emotionally strained by being shown the twin sets of sweater of her mother, her parents' twin beds, cold wave of her mother, the gloves and nozzle of her mother she used to use while washing



dishes. These belongings replicate her grade in the society but her motive behind showing all these accessories was ailing. As a child Elaine did not distinguish how these things make difference to the other people especially who were little lower to them. She is ignorant of the strain caused by constantly striving for social acceptance through possession of material goods. Elaine agrees to Carol's family as a standard to which she should conform. However, Elaine has nothing to show her in competition because her family is newly shifted to this new colony moreover they don't have any artificial show off. She did not have anything to glamorize her ownership. When Elaine showed her home to Carol, it did not meet with her standard. This visit made her life more pathetic because now the whole school came to know about her family and other things. Carol criticized everything about her home like dressing sense of her parents, clothing, decoration, accessories even the location of her home was explicitly criticized. Elaine was always neglected by her classmates because she was treated as an alien and this feeling of detachment never let her familiar with urban student. Cat's Eye is a master piece of Margaret Atwood which demonstrates a complex behavior of children towards others.

By the time, Elaine was in high school, she learnt how to hold power over others by using malice methods. This transformation credited to her another girl friend Cordelia whom she met during her second year in Toronto. She is the one who taught her how to lead others because Cordelia takes over Grace and leadership of the group and forces the other children to be modest towards her to be remained in the group. Without rejecting this behavior, each child supports it by keenly ganging up on whoever happens to be the victim of the day. Finally Elaine started dominating Cordelia. The best example, Cordelia had to be modest herself in front of her high school peers when she ruined a play by bouncing a cabbage across the stage during a performance of *Macbeth*. Here, Margaret Atwood revisits her unique concept of showing woman in her



writing. The theme of victim to victor reenters when Elaine rejects her authority over her and adopts her own creativity to subvert the thesis of victim to victor.

As she matures, she rejects her victimization; moreover, she regains her spiritual and physical powers to avoid discrimination and helplessness. When someone tries to steal her purse, she did not surrender herself, contrary, she fought with the man, did whatever she could do to protect that. This shows how she is now ready to come back in her normal life which removes the shadows of her past memories. Most important, she is able to recognize the power struggles as unavoidable, put uncomfortable and disturbing past events behind her and took to the future without intolerance. As an adult, she remembers Cordelia as a friend, rather than her counselor. Finally, she acknowledges the reasons of her victimizations as a child, she realized that her friends are not the only reasons of her disturbed life, it is something within me. This feeling led to her own powers, by using those, she changed her life.

References:

1. Atwood, Margaret.1998. Cat's Eyes. Toronto: Ontario. McClelland & Stewart Limited: The Canadian Publishers.
2. Atwood, Margaret.1972. Survival: A Thematic Guide to Canadian Literature. Toronto: House of Ansasi Press Limited.
3. Goetsch, Paul. 2000. Margaret Atwood: A Canadian Nationalist. Margaret Atwood: Works And Impact. (ed). Reingard M. Nischik. New York: Camden House.
4. Ingersoll, Earl G. 1991. Margaret Atwood's Cat's Eye: Re- Viewing Women in a Postmodern World. Ariel: A Review of International English Literature 22.
5. Rigney, Barbara Hill.2000. Alias Atwood: Narrative Games and Gender Politics. Margaret Atwood: Works and Impact. (ed.) Reingard M. Nischik. New York: Camden H.



EFFECT OF COMPUTER AIDED INSTRUCTIONS (C.A.I.) ON ACHIEVEMENT OF B.ED TEACHER TRAINEES

Dr. Manminder Kaur

Assistant Professor

B C M College of Education, Ludhiana

The present globalized society is witnessing a paradigm shift from teaching content to competency; the emphasis is on continuous learning and learning how to learn. Technology is playing an important role in closing the achievement gap. With the assistance of technology, teachers and students can both improve their learning and refine skills necessary for tomorrow. Keeping pace with students who are becoming more techno-savvy, we visualize our future classroom as fully digital-a new education technology that assist both teachers and students in digital formats. Computer technology has effectively revolutionized Indian society. The whole field of education is in a process of change. The modern world is confronting with two general problems i.e. 'information explosion' and 'population explosion'. Our country is facing a number of educational problems, which need immediate attention and appropriate solution. Present educational system of India is highly group oriented. Normally a class consists of 30 to 40 students who are grouped together and are taught together by traditional method irrespective of individual differences in their intellectual abilities, motivation, interest and emotional developments etc. Lecturing is the heart of the traditional method. In order to cater the needs of the individual learner one of the important methods of individualized instructions which is gaining momentum in many countries is the Computer Assisted Instructions (CAI), which can be introduced practically in to our school and colleges to meet the educational needs. Today CAI activities exploit improved technology to produce highly interactive learning environments,



providing effective support for the acquisition of listening, speaking, reading and writing skills. The researcher explored and evaluated these new instructional options to establish a relationship between education and computers by finding the answer of the question 'How can they best integrate both of them into effective pedagogy'? Learning through CAI is rapidly evolving concept in academic field that explores the role of Information and Communication Technologies in teaching and learning process.

NEED AND IMPORTANCE OF THE STUDY

Development in computers, electronic devices and telecommunication are bringing information to the people around the world. These developments are focusing on attention on the storage, retrieval and use of information. Therefore, students are getting the opportunity to acquaint themselves with the tools of information technology. In teacher preparation program there are compulsory papers which are comprised of a compulsory unit of content of papers like the learner, their nature and their development. This is also very important from the view point that it helps the teacher trainees to be associated with the latest content matter of the subject. As they have to teach the students related content, they should also be well acquainted with the subject matter. The teacher should know about the heredity, environment, learning, intelligence, personality, growth and development etc. The inclusion of subject content in a pre-service teacher preparation program has a great utility as it helps them to grow properly in their profession. The phenomenal developments in computers are exuding enormous impact on the ways in which instructional materials are created, stored, acquired and delivered to potential end- users. Traynor, Patrick L. (2003) conducted a research work



about the Effects of CAI on different learners. The purpose of the study was to determine how CAI improves student performance among various types of students. Regular education students were found to have made greater pre-test and post-test gains than special education students. Joy, B.H.H. and Shaiju, S.L. (2004) conducted a research on Development of computer assisted teaching material in history at higher secondary level and its effectiveness and found that CAI is more effective than lecture method. Sharma, A. & Sharma, R. (2013) conducted a study on the Effectiveness of CAI, Programme Instruction and Interactive Instruction on Students' achievement and found that CAI plays a vital role in increasing the achievements of students. Kumar and Kumar (2013) conducted a study on effect of computer aided instructions in educational psychology on achievement of student-teachers and it was concluded that the performance of Experimental Group taught by CAI was better than the control group taught through traditional method of teaching.

OBJECTIVES OF THE STUDY

1. To develop the Computer Aided Instructions in paper II (The Learner Nature and Development) on selected content for teacher trainee program.
2. To study the efficacy of teaching through traditional method of teaching.
3. To study the efficacy of teaching through computer aided instructions.
4. To compare achievement scores of teacher trainees teaching through Computer Aided Instruction and traditional method of teaching.



HYPOTHESES

The following Null Hypotheses were formulated:

1. There will be no significant difference between pre-test achievement scores of students taught through CAI and Traditional method of teaching.
2. There will be no significant difference between post-test achievement scores of students taught through Computer Aided Instruction and Traditional method of teaching.
3. There will be no significant difference between pretest - posttest mean gain scores of students taught through Computer Aided Instruction.
4. There will be no significant difference between pretest - posttest mean gain scores of students taught through Traditional method of teaching.

METHOD

Design of the study

In the present study, pretest-posttest control group experimental research design was followed.

Sample

In the present study the investigator selected the purposive method of sampling. The population of present study consisted of students of B.Ed. Course studying in college of Education affiliated to Panjab University, Chandigarh. The sample comprised of 60 student-teachers of BCM College of education, Ludhiana selected on purposive basis. **Measures**

- Self constructed CAI related to content was used as an instructional tool.



- Achievement test in paper II, 'Learner, Nature and Development' developed by the investigator was used as pretest and posttest.

Procedure

Before giving the actual treatment, both the groups were well oriented with what they were going to do. The experiment was conducted in four different phases. The first step before conducting the experiment was to make two parallel groups. 30 pairs of pupil teachers were arranged in ascending order of their academic achievement of graduation. All the 60 student-teachers were divided into two groups as normal procedure of the college. One student from each pair was randomly assigned to experimental group and another one to control group (names given to groups by the investigator). In the second phase investigator administered pretest on all the students. In the third phase the CAI programme was applied to experimental group only whereas control group was taught through traditional method of teaching. Both the groups were taught the compulsory selected content in the methodology periods i.e. twice in a week for four months. In the last phase, after the treatment, achievement test as post-test was administered on both the groups.

Statistical techniques used

- Descriptive Statistical techniques like means and S.D. for the achievement scores.
- Inferential Statistical technique like t-ratio to find the significance of the difference between means.



PROCEDURE

Phase	Group T1	Group T2
Phase-I Preparation of groups	Experimental Group	Control Group
Phase-II Pre-test	Achievement test as pre-test	Achievement test as pre-test
Phase-III Treatment	Use of CAI as Instructional Tool	Use of Traditional Method of teaching
Phase-IV Post-test	Achievement test as post-test	Achievement test as post-test

ANALYSIS AND INTERPRETATION OF DATA

Table 1 Summary of Pre-Test scores of two groups

Group	Number of students	Mean	S.D.	t-ratio	Level of Significance
Experimental Group(T1)	30	28.4	4.28	1.55	Not Significant
Control Group(T2)	30	26.8	3.19		

Table 1 shows the difference between mean gain scores of pretest of two groups i.e Experimental Group and Control Group. It is further revealed from the table that the calculated value of t-ratio is 1.55 which is less than table value 2.66 at 0.01 level and 2.00 at 0.05 level. Therefore, it can be concluded that there is no significant difference in the mean scores of the two groups before the conduct of experiment. This shows that the students of both the group at pre-test have the same achievement level. Therefore, the concerned null hypothesis that



there will be no significant difference between pre-test achievement scores of students taught through CAI and Traditional method of teaching is retained.

Table 2 Summary of Post-Test scores of two groups

Group	Number of students	Mean	S.D.	t-ratio	Level of Significance
Experimental Group(T1)	30	36.14	4.87	3.75*	Significant
Control Group(T2)	30	28.25	3.80		

Table 2 shows the results of significance of difference in post achievement test scores of students taught with CAI (T1) and the group taught with traditional method of teaching (T2). The calculated value of t-ratio is 3.75 which is higher than the table value at 0.01 and 0.05 level of confidence. Thus, the results shows that there is a significant difference between mean achievement scores of the group (T1) i.e. experimental group and the group (T2) i.e. control group .Table further revealed that the mean gain score of Experimental Group is more than that of the mean gain score of Control Group i.e. the students gained more through CAI than the traditional method of teaching. Now, it can be concluded that the CAI is more effective than the traditional method of teaching for teaching content part of paper II, Learner, Nature and Development' to teacher trainees. Therefore, the concerned null hypothesis that there will be no significant difference between post-test achievement scores of students taught through Computer Aided Instruction and Traditional method of teaching is not accepted.



Table 3 Summary of scores of Experimental group

Test	Number of students	Mean	S.D.	t-ratio	Level of Significance
Pre-test	30	28.4	4.28	4.28*	Significant at 0.01 level
Post-Test	30	36.14	4.87		

Table 3 shows the results of significance of difference in pre-achievement test and post-achievement test scores of students of Experimental group taught through CAI (T1). The table shows that the calculated value of t-ratio is 4.28 which is higher than the table value at 0.05 and 0.01 level of confidence. It means that there exists a significant difference between pretest and posttest scores of Experimental Group. Therefore the concerned null hypothesis that there will be no significant difference between pretest - posttest mean gain scores of students taught through Computer Aided Instruction is not accepted. It is also seen that mean posttest score of Experimental Group is more than that of its mean pre-test score. Therefore, it can be concluded that students gained significantly after their exposure to CAI. It means that CAI is more effective for teaching content part of paper II, Learner, Nature and Development' to teacher trainees.

Table 4 Summary of scores of Control group

Test	Number of students	Mean	S.D.	t-ratio	Level of Significance
Pre-test	30	26.8	3.19	2.85*	Significant at 0.01 level
Post-Test	30	28.25	3.80		



Table 4 shows the results of significance of difference in pre-achievement test and post achievement test scores of students of control group that is taught through traditional method of teaching (T2). The table shows that the calculated value of t-ratio is 2.85 which is more than the table value at 0.01 and 0.05 level of significance which means that there exists a significant difference between pretest and posttest scores of control group. Therefore, the concerned null hypothesis that there will be no significant difference between pretest - posttest mean gain scores of students taught through Traditional method of teaching is not accepted. It is further seen that mean post test score of Control Group is more than that of its mean pretest score. Now, one can conclude that students gained significantly after their exposure to traditional method of teaching. It means that traditional method of teaching is effective for teaching content part of paper II, Learner, Nature and Development' to teacher trainees.

CONCLUSIONS AND DISCUSSION

The traditional method of teaching was found effective for teaching different topics from the content part of paper II, Learner, Nature and Development' to teacher trainees and also the CAI were found to be effective to teach the same. But, at the same time CAI were found more effective than the Control Group taught through traditional method of teaching. Therefore, it may be concluded that the performance of Experimental Group taught by CAI is better than the Control Group taught through traditional method of teaching. The results of the study are supported by the studies conducted Kumar and Kumar (2013) and Sharma & Sharma, (2013) as they also found that CAI is more effective than the traditional method of teaching.



EDUCATIONAL IMPLICATIONS

- Computer Aided Instructions are found to be more effective than the traditional method of teaching. Teaching through computer helps in improving the student's achievement as it helps the students to go deeper into a subject and can immediately find additional materials for learning therefore Teacher-Educators should get orientation in teaching through computer and pupil-teacher should be oriented to the computer based learning to face the challenges of technological era.
- Workshops by prominent educationists, experienced computer teachers and technical experts should be arranged frequently to train the teacher educators, to develop CAI and make their use in classroom.
- There must be provision for free Internet, Video and Audio Conferencing for teacher educators as well as for teacher trainees in the education colleges.
- Theoretical and practical aspects of CAI should be included in pre-service and in-service training programme for teacher-educators.

References

1. Jothikani, N. and Thiagarajan, A. P. (2004). Effectiveness of computer assisted instruction in mathematics among B.Sc. degree students. *Indian Educational Abstracts*, 4 (2), 7-8.
2. Joy, B.H.H. and Shaiju, S.L. (2004). Development of computer assisted teaching material in history at higher secondary level and its effectiveness. *Indian Educational Abstract*, 5 (1&2), 26-27.



3. Kumar, S. & Kumar, S. (2013). Effect of computer aided instructions (C.A.I.) In Educational Psychology on achievement of student-teachers. *BCM Research Colloquium*, 1(2)1-5.
4. Sharma, A. & Sharma, R.(2013).A Study of Effectiveness of Computer Assisted Instruction, Programme Instruction and Interactive Instruction on Students' Performance *Journal of Educational Planning and Administration volume XXVII(2)* , 157-168.
5. Soe, K., Koki, S., and Chang, J. M. (2003). *Effect of computer assisted instructions (CAI) on reading achievement: a meta analysis*. Hawaii: Pacific Resources for Education and Learning. Retrieved March 26, 2008, from www.prel.org.
6. Traynor, P.L. (2003). Effects of computer-assisted-instruction on different learners. *Journal of Instructional Psychology*. Retrieved March 21, 2008, from http://findarticles.com/p/articles/mi_m0FCG.



साहित्यवाङ्मये काव्यप्रकाशस्य व्याख्यापरम्परा भास्करमिश्रस्य साहित्यदीपिकाया परिपोषिता

H.G Arjun Kashyap
Research Scholar
Department of Sahitya
Rashtriya Sanskrit Vidyaprrtha, Tirupati

संस्कृतं संस्कृतेर्मूलं ज्ञानविज्ञानवारिधिः।

वेदतत्त्वार्थसञ्जुष्टं लोकालोककरं शुभम्॥

स्वयं संस्कृता, अन्यानपि संस्कारयतीति संस्कृतम्।
अत्यन्तज्ञानसम्पत्परिपूर्णं भाषा प्राचीनकालादारभ्य अद्यतनपर्यन्तं,
वैदिककालादारभ्य आधुनिकयान्त्रिकयुगपर्यन्तं सकलप्रान्तेषु समस्तेषु च
कालेषु सुसंस्कृतेः मूलभूता जगज्जननीति सिद्धोऽयं विषयः। सा च भाषा
वेदभाषा इत्येव प्रतीतिः। वेदवेदाङ्गादारभ्य आयुर्वेदभाषाविज्ञानादीनि
सर्वाण्यपि शास्त्राणि संस्कृतभाषागतान्येव।

तादृशोऽस्मिन् संस्कृतवाङ्मये दृश्यश्राव्यादिकाव्यानां
लक्षणनिर्णायकशास्त्रमेव अलङ्कारशास्त्रम्। तस्यैव सौन्दर्यशास्त्रं,
काव्यशास्त्रं, साहित्यशास्त्रमित्याद्यपरपर्यायाः। साहित्यशास्त्रस्य च
स्थानं काव्यप्रकाशस्य सङ्केतटीकागतप्रस्तावने अत्यद्भुततया
वर्णितास्ति। यथा च –

सङ्गीतमथ साहित्यं सरस्वत्याः स्तनद्वयम्।

एकमापातमधुरं अन्यदालोचनामृतम्॥¹

यथा च मातुः स्तनपानात्शिशुः नन्दति। तथैव सकलविद्यामूर्तिभूतायाः सरस्वत्याः पवित्रस्तननिस्सृतं अमृततुल्यं साहित्यपयः संसेव्य रसज्ञो शिशुः ब्रह्मानन्दमवाप्नोतीत्यत्र न कोऽपि संशयः। तच्च साहित्यस्य गुणं विशिष्टत्वं चाह -

कटुकौषधवच्छास्त्रमविद्याव्याधिनाशनम्।

आह्लादयमृतवत्काव्यमविवेकगदापहम् ॥²

इत्यतः लोकोत्तराह्लादजनकसुमधुरपदसरणित्वं फलितं लक्षणं काव्यस्य। तादृशकाव्यानां लक्षणनियमादिप्रतिपादनपुरस्सरं निस्सृतं शास्त्रमेव अलङ्कारशास्त्रमिति प्रतीतिः । एवंभूतसाहित्यशास्त्रे, अलङ्कारशास्त्रे वा भरतभामहवामनमम्मटादिभिर्लक्षणकारैः अलङ्काराः(Rhetoric), ध्वनिरसादयः(Aesthetics), नाट्यलक्षणानि (Dramaturgy)च अतिप्रधानसोपानत्वेन सविस्तरं प्रतिपादिताः।

एतेषु अंशत्रयेषु नाट्यलक्षणानि विहाय अलङ्काररसध्वन्यादीनां समग्रं सविस्तरं विवेचनं कृतं मम्मटेन स्वकीयकाव्यप्रकाशे। मम्मटः अलङ्कारध्वनिनिरूपणावसरे काव्येतरतत्त्वान् गुणदोषादींश्च सुस्पष्टं प्रतिपादयतीत्यत एव आलङ्कारिकग्रन्थेषु काव्यप्रकाशः मौलिमुकुटप्रायलक्षणग्रन्थेति अद्यापि कीर्तिमावहति।

¹सङ्केतटीकाभूमिका, प्राच्यविद्यासंशोधनालयः, मैसूरु विश्वविद्या निलयः, १९७४.

²वक्रोक्तिजीवितम् १ - ७

अयं खलु मम्मटः काश्मीरदेशीयः वाग्देवतावतार इति सुप्रसिद्ध एव। भीमसेनोक्तभूमिकाभागेनेदं सपष्टं भवति यदस्य पिता जैय्यटः, कैय्यतौवटौ चास्यानुजाविति। ततोऽयं मम्मटः काश्मीरदेशं प्राप्य सकलशास्त्रपारङ्गतोऽभूत्। ततः पश्चत्काले तावदखिशास्त्राणां सारभूते च साहित्ये अधिकया अभिरुच्या तत्शास्त्रीयं काव्यप्रकाशमेनं विरचयामास। अस्यानुज औवटः वेदभाष्यकारत्वेन प्रकीर्तिमवाप। कैय्यटस्तु व्याकरणमहाभाष्यस्य प्रदीपनाम्नीं व्याख्यां सल्लिख्य महद्यशोऽलभत। कैय्यटस्तावत् जैय्यटस्यैव सूनुरिति विषये महाभाष्यप्रदीपारम्भस्थमिदं पद्यमेव मानम्। यच्च –

महाभाष्यार्णवावारपारीणं विवृतिप्लवम्।

यथागमं विधास्येऽहं कैय्यटो जैय्यटात्मजः॥³

अत्र प्रसङ्गे कैय्यटस्य तु जैय्यटात्मजत्वं सिध्यति। अपि तु सुधासागरकारेण प्रतिपादितं मम्मटापरानुजस्य औवटस्य जैय्यटात्मजत्वं न तावत्सिद्धम्। यतो हि औवटस्य जनकः वज्रट इत्यपि क्वचित्परामर्शः श्रूयते। इतिहासकाराणां वादप्रतिवादैः सन्दर्भोऽस्मिन् मम्मटस्यापि जैय्यटात्मजत्वेऽपि क्वचिद्भ्रान्तिरुपपद्यते। अस्मिन्विषये तावत् चरित्रविमर्शकानां नानाविधविकल्पा अद्यापि लोके अवशिष्टा एव। भीमसेनवचनानाञ्च बहुत्र व्यतिरेक एव साधितः दृश्यते। अतस्स्पष्टतया निर्णीतुमसाध्योऽयः विचारः। हंसक्षीरन्यायेन उचिताश्चात्र गृहीतव्याः। एष मम्मटः स्वकाव्यप्रकाशे भोजराजं, अभिनवगुप्तं, महिमभट्टं च स्मरतीत्यतः

³महाभाष्यप्रदीपः/कैय्यटप्रणीतः/p.1

हेतोः, तथैव द्वादशशतकारम्भकाले तदीयकाव्यप्रकाशस्य व्याख्यानञ्च उपलब्धित्वाच्च कारणादयं क्रिस्तब्ध- एकादशशतकोत्तरार्धवर्ती (A.D 1050-1100) इति विदुषां मतम्।

यानेव शब्दान् वयमालपामः यानेव चार्थान् वयमुल्लिखामः।

तानेव विन्यासविशेषभयैः सम्मोहयन्तो कवयो जयन्ति॥⁴

लोकव्यवहारे तावद्ये शब्दाः प्रयुज्यन्ते, ये चार्थास्तैर्निष्पद्यन्ते तानेव कविवरेण्याः स्वविन्यासैः चमत्कारशैल्या मौक्तिकहारवत् सज्जीकृत्य सामाजिकानां रसानन्दावाप्तये प्रददति। तेषामेव काव्यानां कर्तव्यत्वाकर्तव्यत्वरूपनियामादिविधायकत्वेन प्रणीताश्च सर्वे लक्षणग्रन्थाः भरतभामहवामनादिभिः काव्यलक्षणकारैः। तेषु साहित्यकारेष्वन्यतमः काव्यप्रकाशकारः मम्मटाचार्यः चक्रवर्तिसमानभाजः।

यावच्च विषयाः काव्यप्रकाशटीकारैः स्वग्रन्थेषुल्लिखिताः तावदेव मम्मटस्य अस्तित्वसाधने मानभूताः। यथा च अनेके विद्वांसः काव्यप्रकाशमनुसृत्य तट्टीकां प्रणीतवन्तः, अन्ये केचन स्वमतस्थापनपूर्वकं काव्यप्रकाशस्य खण्डनग्रन्थान्विरचयामासुः। पुनस्तादृशखण्डनग्रन्थानां मण्डनग्रन्थाश्चोपलभ्यन्ते। एतादृशविधया अतीवविस्तृता इयं काव्यप्रकाशपरम्परा। यतो हि काव्यप्रकाशकारस्य मम्मटस्य विषये अनेका विमतयस्सन्ति तथापि सुपरिचितोऽयं काव्यशास्त्रजगति।

⁴शिवलीलार्णवः १ - १३

काव्यप्रकाशः

तदीयदशोल्लासेषु

काव्यशास्त्रीयमहत्त्वपूर्णानेकविषयान् ससन्दर्भं सविस्तरं सुस्पष्टं च निरूपयति। अस्मिन् १४३ कारिकाः समुल्लसन्ति यासां संक्षेपरूपेण वृत्तिश्चात्रोपलभ्यते। यथोचितं लक्षणप्रतिपादनावसरे तत्सम्बद्धान्युदाहरणानि उल्लिखितानि। ग्रन्थेऽस्मिन् समग्रतया ६२० विविधाकरेभ्य उद्गता उदाहरणश्लोकाः समुपलभ्यन्ते, तेषु अत्यधिकतया प्रकृतभाषागतश्लोका एव।

तत्कालीनकाव्यलक्षणग्रन्थेषु

अत्यधिकव्याख्याः

काव्यप्रकाशस्यैवोपलभ्यन्ते। विद्यावतां भागवते परीक्षा इति या वरिष्ठोक्तिः सा काव्यप्रकाशविषयेऽपि समन्वययोग्या इति मदभिप्रायः। काव्यशास्त्रप्रवेष्टृणां कृते अयं काव्यप्रकाशः मुखद्वारवत्सहकरोति। काव्यप्रकाशटीकाटिप्पणीनां परम्पराविषये अनेके व्याख्याकाराः स्वव्यख्यासु स्वाभिप्रायान्प्रकटीचक्रुः। यावन्तो हि टीकाग्रन्था ग्रन्थस्यास्य प्रणीता न तावन्तोऽन्यस्य कस्यापि काव्यशास्त्रीयग्रन्थस्य प्रणीताः सन्ति। प्रसिद्धेयमुक्तिः या महेश्वरभट्टाचार्यस्य आदर्शटीकायां उपलभ्यते।

यथा –

काव्यप्रकाशस्य कृता गृहे गृहे टीका तथाप्येष तथैव दुर्गमः।

सुखेन विज्ञातुमिमं य ईहते धीरः स एतां विपुलं
विलोकताम्॥⁵ इति

एवमेव तद्विषयकं कमलाकारभट्टोऽपि स्वव्याख्यायामुल्लिखति। यत् -

काव्यप्रकाशे टिप्पण्यः सहस्रं सन्ति यद्यपि।

ताभ्यस्त्वस्या विशेषो यः पण्डितैस्सोऽवधर्यताम्॥⁶

(Kamalakara Bhatta says that there are a thousand commentaries on the Kavyaprakasa. This is a record which is certainly unequalled by any other work in Sanskrit.)

विवेचनरीतिमाहात्म्यात् ग्रन्थोऽयं विद्वत्सु अतीवलोकप्रियोऽभूत्।
मम्मटाचार्यस्य वैदुष्यं, वैदग्ध्यं चात्र पदे पदे प्रतिभाति। अत एव
काव्यप्रकाशस्य अनेके टीकाकारा अभवन्। अस्य टीकाकृत्सु
काव्यशास्त्रस्य प्रतिष्ठिताचार्यो रुय्यकः, विश्वनाथः, महावैय्याकरणो
नागेशभट्टश्च, जैनाचार्यो माणिक्यचन्द्रः, नैय्यायिको जगदशः
परमानन्दश्च, मीमांसकः कमलाकरभट्टः, तान्त्रिकः गोकुलनाथश्च
विद्यन्ते। तथैव गोविन्दठक्कुरस्य काव्यप्रदीपः, भीमसेनस्य सुधासारः,
भट्टगोपालस्य साहित्यचूडामणिश्च मूलसंवादिनो ग्रन्थाः सन्ति। ये हि
खलु मूलग्रन्थप्रणयने प्रभवाः समर्थाश्च तेऽपि काव्यप्रकाशटीकाप्रणयने
गौरवं सम्मानं च मन्यन्ते स्म। एवमेव काव्यप्रकाशस्य अशीत्यधिकान्
टीकाग्रन्थान्नामतो उल्लिखति वामनाचार्यः
स्वकीयबालबोधिनीव्याख्यायां।

⁵आदर्शव्याख्या उल्लास-१०

⁶Gajendra gadkar edition of Kavyaprakasa- p.27

यथा -

टीकाः काव्यप्रकाशस्य बहवः सन्ति यद्यपि।

उपलब्धासु टीकासु लभ्यन्ते नामतो यथा॥⁷

तेषु माणिक्यचन्द्रस्य सङ्केतः, श्रीधरस्य विवेकः, चण्डीदासस्य दीपिका, विश्वनाथस्य दर्पणः इत्यादिप्रभृतयः अशित्यधिकटीकाग्रन्था उल्लिखिताः। येषु भास्करमिश्रस्य साहित्यदीपिकाप्यन्यतमा। इयं च प्रसिद्धा प्राचीना अप्रकाशिता च टीका साहित्यदीपिका।

एवमेव काव्यप्रकाशव्याख्याविषयप्रतिपादकानां दृष्टान्तान्तान्युपस्थाप्य इदानीं साहित्यदीपिकाकर्तुः भास्करमिश्रस्यापि तत्परतया व्याख्यानं अत्र प्रस्तूयते।

टीकाः काव्यप्रकाशस्य सन्तु नाम परः शताः।

किं ताभिस्सुगमग्रन्थमात्रव्याख्यानचुञ्चुभिः ॥

साहित्यदीपिका नाम टीका भास्करसूरिणा ।

मधूपमानकाव्यानां तेजनाय विरच्यते॥⁸ इति

यद्यपि काव्यप्रकाशस्य पश्शतं व्याख्याः लोके ग्रथिताः। सर्वेषां व्याख्याग्रन्थानां सारभूतप्रमेयान्संगृह्य सङ्कलय्य च सामाजिकानां सुगमावबोधार्थं इयं व्याख्या विनिर्मिता भास्करमिश्रेण इति स्ववचनमेव प्रमाणम्। “ विदुषां ध्वनिकारादीनां विभिन्नो, विकीर्णोऽप्यभिन्नरूपं एकत्र सङ्कलितः प्रतिभासत इति। यत्र विचित्रम्। यद्यस्मात्कारणात् अमुत्र

⁷बालबोधिनीव्याख्याp.14

⁸साहित्यदीपिका १-२,३

ग्रन्थे सम्यग्विनिर्मिता, संघटनेव हेतुः। येन ग्रन्थेन विकीर्णं प्रमेयजातं सङ्कलय्य प्रतिपाद्यते। स ग्रन्थस्सन्दर्भः कृत इत्यर्थः। तेषु तेषु ग्रन्थेषु विकीर्णानां प्रमेयाणामेकत्र सङ्कलमेव ग्रन्थस्य प्रयोजनमिति तात्पर्यार्थः॥“इति। इदं च वाक्यं काव्यप्रकाशस्य साहित्यदीपिकाव्याख्यायाः समापनभागे उल्लिखितमस्ति। अनेनैव भास्करस्य मूलग्रन्थं अन्यव्याख्यांश्च प्रति परमादरोऽपि ज्ञायते।

मम्मटकाव्यप्रकाशस्य प्रसिद्धः टीकाकारः झळकीकरोपनामभाजः वामनाचार्यः स्वकीयकाव्यप्रकाशव्याख्यायाः बालबोधिण्याः प्रस्तावने स्वस्य मूलग्रन्थं, व्याख्यां, व्याख्याकारान्तरांश्च प्रति आदरं प्रकटयन् एवं सल्लपति।

प्रयत्नेन च संगृह्य समालोक्य च तत्त्वतः।

सारं ताभ्यः समुद्धृत्य टीकेऽयं क्रियते मया॥

दोषाः भवेयुर्बहवः कृतौ मे तथाऽप्युपेक्षा न बुधैर्विधेया।

न केतकी किं बहुकण्टकाऽपि संधार्यते मूर्ध्नि
नितम्बिनीभिः॥⁹

इयमेव विधिः साहित्यदीपिकाकारेणापि स्वव्याख्याप्रणयने अनुसृता इति सुस्पष्टं भाति। व्याख्यान्तराणां समालोकनेन, तद्गततत्त्वानां च संग्रहणेन व्याख्येयं विनिर्मिता भास्करमिश्रेण। तदेवोक्तं –

यद्यस्ति तत्र सारांशस्सोऽपि सङ्गृह्यते मया ।

तेन टीकान्तरालोककौतुकं त्यज्यतां तमाम् ॥¹⁰

⁹बालबोधिनीव्याख्या/ प्र.भा प.(३)



एवं काव्यप्रकाशस्य अनेकाः व्याख्याः जगति प्रसिद्धाः। तासां च परम्परा अत्र मया प्रतिपादिता। एवमेव काव्यप्रकाशस्य व्याख्यासमूहेषु अप्रकाशिताय अन्यतमायाः साहित्यदीपिकायाः परिचयः कृतः। तत्कर्तुः भास्करमिश्रस्य वचनान्युद्धृत्य काव्यप्रकाशस्य क्वचिद्वैशिष्ट्यमपि अत्र प्रतिपादिपादितम्। इदं च शोधपत्रं संस्कृतशोधकानां विशेषतः काव्यप्रकाशप्रेमिनां च अत्युपयोगकारी भवतीत्याशयेन उपसंह्रियते।

अयुक्ता यास्त्वह प्रोक्ताः प्रमादेन भ्रमेण वा।
वाचोमया दयावन्तः सन्तःसंशोधन्तु ताः॥

उद्धरणग्रन्थाः –

1. बालबोधिनी काव्यप्रकाशव्याख्या/वामन झलकीकर/BORI, Pune
2. काव्यप्रकाशहृदयप्रकाशः/ डा. एस्.वि रङ्गरामानुजा चार्यु लु/ 2011/RSVP Tirupati.
3. सङ्केतटीकाभूमिका/प्राच्यविद्यासंशोधनालयः/मैसूरु विश्वविद्यालयः/1974
4. भीनसेनकृत-सुधासागरव्याख्या/सम्पादकः नारायणशास्त्री/1927
5. भास्कमिश्रस्य साहित्यदीपिका काव्यप्रकाशव्याख्या/अप्रकाशिता



HISTORICAL PROFILE OF THE YANADI TRIBE

Dr.K.Nettikallappa

Post Doctoral Fellow (UGC)

Department of History

Sri Krishnadevaraya University

Anantapur (AP.), India

Introduction:

India is a land of various ethnic and cultural races. In spite of the assimilation and integration of certain groups, they are still observed some distinct pockets wherein reside people with peculiar customs and almost a distinct way of life. The pressure of traditional forces, as also the relative isolation of many communities has retained their customs and traditions in an old socio-cultural heritage. Communities with more or less distinct characteristics are met with different parts of the country. Apart from caste Hindus and other communities, the tribal population of India keeps on perpetuating certain cultural traits.¹ The Indian cultural heritage comprises a wide variety of complex as well as rich folklore found among the tribal living in the forest clad mountains and hilly tracts of India. The oral traditions, mythologies, folktales, and historical evidences reveal their hoary past. Tales which are customarily distinguished from myths because of their secular character are often regarded as an unwritten record of tribal history².

The tribal population of the country, as per the 2011 census, is 104.3 million constituting 8.6% of the total population. There are over 705 Scheduled Tribes notified under Article 342 of the Constitution of India, spread over different States and Union Territories of the country. Many tribes are present in more than one state. Each tribe has its own distinct characteristics, life patterns indicating wide variations in their cultural heritage. Andhra Pradesh in south India has the



highest tribal concentration with a population of 59.18 lakh (2011 census) constituting about 7 per cent of total population of the state and there are 35 notified tribes. The present paper attempts to discuss the historical background of the Yanadi tribe inhabiting mainly in Nellore, Chittoor and Ongole districts of Andhra Pradesh. It is also found in small numbers in the districts of Kurnool, Krishna, Cuddapah, East and West Godavari. Its highest concentration is found in the coastal districts of Nellore followed by Chittoor and Ongole.

Historical background: Yanadi of Sriharikota Island for the first time came to the notice of British officials of the Madras Presidency in 1864 (the present Andhra Pradesh except Telengana are was then part of Madras Presidency of British India). Whatever the British officials wrote about 'Yanadi' cannot be really considered as the history, because, they touched a few cultural as[pects of the tribe, because there was nothing available either in the form of material evidence or in the form of written records to write the history of Yanadis. According to Short, Sriharikota Island of Sullurpet coast of Nellore District is the original habitation of Yanadi. He calls the Yanadis of Sriharikota Island as the 'true Yanadis'³. According to Stokes, neither their language nor their religion indicates their origin⁴. The Yanadis have no separate dialect of their own but speak the local language 'Telugu' only.

The history of the Yanadis living in Sriharikota Island is better documented during the British period, particularly after the Indian forests were brought under Reservation Act. Then there is a gap after India's independence till the Indian Space Research Organization (ISRO) established its centre in the Island in 1968-70⁵. However, during this gap two minor studies, one M.A. dissertation and another a village study by the Department of Census, Andhra Pradesh were undertaken⁶. But these writings provide very little information on the historical as well as socio-cultural aspects of Yanadi. After ISRO was established, the Yanadis of Sriharikota were uprooted and programme



was worked out to rehabilitate them outside the Island, but unfortunately after dislocation, the Yanadis were unable to take the advantage of the rehabilitation of the programme and the families dispersed throughout the Nellore District. The dislocation was well documented by an Anthropologist, P. Sudhakar Reddy in a book⁷. My effort to meet the displaced Yanadi families of Sriharikota proved futile because no one exactly knows where each family went named settled. The then British officers of Madras Presidency in the District Manuals and Gazetteers made no historic account of Yanadis living outside Sriharikota Island particularly in Nellore District except for a few references. After India's independence one important study, a part history, based on conjectures and assumptions and part ethnography, written by V. Raghavaiah⁸ was published. He was a lawyer and social worker of Nellore District who did yeomen service in the cause of the Yanadis of the District.

Studies on Yanadi during the British period tell that tribe was divided into innumerable sub-tribes. For example, Bosewell in 1873 said that the Yanadi was divided into numerous sub-tribes based on diet, occupation and residence⁹. Two decades later Rangarao, wrote that Yanadi was divided into 89 sub-tribes and interestingly he says the most important among them were Chenchus and **Manchi** Yanadis¹⁰. Subsequently, decade by decade decreasing numbers of sub-tribes were mentioned. For example, 1921 census returned 59 Yanadi sub-tribes purely based on occupations. Of them, the most important were Chenchu or **Reddy** Yanadis and **Manchi** or good Yandis¹¹. Only explanation one could give about the proliferation of sub tribes of Yanadi during the British period was that the British offices and Census personnel went on subdividing the tribe as per their own conception of different occupations, diet and residence without even talking to the Yanadis. Interestingly one Yanadi sub-tribe is named as '**Somari Yanadi**', meaning 'Lazy Yanadi'. Infact this is a stereotype



used during the British period as well as today that yanadis are lazy fellow, not interested in hard work. Another possibility of mistake was that the British writers including Thurston have mistaken '*intiperlu*' (Surnames) as sub-tribes.

If Yandi were to be divided into sub-tribes, it would be only two. They are Manchi Yanadi otherwise also called Reddy Yanadi and **Challa** Yanadi or **Adavi** Yanadi (Forest Yanadi). **Manchi** means good and they are also called Reddy Yanadi because traditionally they have been serving the Reddy caste agriculturists as agricultural labour as well as domestic servants in Nellore District. **Challa** means 'refuse eating' Yanadis because they are supposed to forage in the refuse thrown out by the neighbouring agricultural community. They are also called **Adavi** (forest) Yanadi because they are foragers in the forest for vegetable gathering and small game hunting. **Reddy** or **Manchi** Yanadi claim that they do not intermarry with **challa** Yanadi. But it was recorded that **Manchi** Yanadi families also depended on forest to a certain extent for their livelihood, particularly in the District of Chittoor¹².

Settlement pattern: Yanadi living huts are very simple round and conical huts made with surrounding bamboo and wood with a low entrance. One has to almost crawl into the hut through the entrance. Since they have very few material equipment worth the name they have no fear of theft and no doors are fitted to the houses. Even in the middle of 18th century and in the beginning of 19th century, the settlement pattern and huts were similar¹³. Even in 1960s, Raghavaiah found similar settlement pattern among Yanadis¹⁴. The huts of Challa Yanadis are simple. As observed in the field, they can be dismantled in half an hour and carried head loads by the members of a family or even abandoned. Because of their nomadism they travel light and huts can be raised in half a day with locally available material. In Yanadi colonies established by the Government as well as by a few Yanadi and



non-Yanadi and non-Yanadi social workers they live in pucca houses but small in size built by bricks and stone.

Yanadi of Sriharikota Island before they were displaced lived in two types of huts, semi-circular or beehive shaped huts called 'gudise' and rectangular huts called purillu. Semi-circular hut was the traditional hut while the rectangular was non-traditional. Both are small and simple but more durable than the dwellings found in the main land Yanadis. Commenting on the dwelling of Sriharikota Island, Sudhakar Reddy writes that the Yanadi "dwelling was an exemplification of adjustment to the geographical conditions such as heavy rain fall and stormy winds and nomadic habits"¹⁵.

Pattern of Dress and Ornaments: The fact that some Yanadis of both sub-tribes Manchi and Challa still have the surname "**Chokka**" meaning shirt probably indicates that the Yanadis once did not use any upper garment. Probably the first Yanadi man in an area who had a shirt to cover his upper body came to acquire the surname "**Chokka**" (shirt). The Yanadi men in the past and among Challa Yanadi men particularly those living on road sides and on the fringes of forests still do not use any upper garments and only use "**gochipatha**" (a piece of cloth) to cover their private parts. The women in the past simply tied a piece of cloth wound around their lower and upper body. Neither in the past nor today except the settled Yanadis have any type of ornaments. Only married women wore a thin necklace made of black beads. Their only ornaments both men and women consist of wild flowers. While the men's ear lobes were adorned with wild flowers the women tucked the flowers in the hair knotted behind¹⁶.

It is noticed that even today Yanadi women and men in rural areas of Nellore District use flowers in their hair and ears respectively. But even among Challa Yanadis one can come across today men wearing cheap shirts or banians and short or dhoti (a long cloth used as



garment to cover the waist downwards, common in the surrounding repopulation) and women wearing inexpensive populations but they cannot afford to buy them. No doubt, the Yanadis living in colonies both men and women cannot be distinguished in their dress and ornaments from their neighbouring populations. The men wear a shirt and dhoti while women wear saree, blouse and gold and silver ornaments in their necks, noses and ears.

Economic Organization: Before the first Indian Forest Act was enacted in 1883 majority of the Yanadis were nomads and hunters and gatherers. They roamed in thick jungles and collected roots, tubers, fruits and green leaves and hunted small birds and animals with their snares and nets. Forest Yanadis even produced fire by friction and this technique still continues. Even after the enactment of the forest Act, the mainland yanadi life did not change much. At the beginning of 20th century, they remained nomadic and hunters and gatherers. During this period, they ate “almost raw animal food which they eat after merely heating or scorching the flesh of the game they kill; this indicates that the Yanadis have not yet emerged from the Paleolithic stage of culture”¹⁷.

In Yanadi family, husband, wife and their small children constituted a production unit. They moved as a group in collecting vegetable food and hunting small animals and birds and fishing in streams. There was no clear-cut division of labour between the husband and wife, both participated in all the activities. Their equipment was simple, they carried a digging stick, snares and small nets to gather and hunt. It is not necessary to cite any authority of the past to say the Yanadis lived nomadic life and gathered and hunted in the forest, because even today in Udayagiri and Kanigiri areas of Nellore District, one can still see a Yanadi accompanied by his wife and small children carrying snares, nets and a digging stick roaming the small bushy forests in search of wild fruits, roots, tubers, green leaves, birds and



rabbits. They hunted small animals like rabbits, forest goats, deers, and different varieties of lizards, wild pigs. In addition, they also caught rats and bandicoots both inside the forest and outside and ate them after roasting them on fire. No bird escaped their nets, their nets caught all types of birds. Major part of their food was fruits, green leaves and tubers than the meat as it was easier to gather vegetable food than hunt an animal or a bird.

The Yanadis are experts in locating honey combs and extracting honey from them without getting stinged by the bees. Honey constituted an important part of their diet. They also collected Vusullu (winged termites) during the rainy season. These termites are roasted in a pan and consumed. Even today, Yanadi relishes eating of winged termites. The mud's operendi is very simple. During the rainy season on a rainless day the Yanadi accompanied by his wife and children goes to a nearby fallow agricultural field and lights a torch made of cloth dipped in kerosene attached to a long stick. The winged termites, which are present in the holes, come out in thousands attracted by the light. Within no time, they lose their wings and fall on the ground, which are gathered by the family and brought home.

It was started from the middle of nineteenth century; pressure from outside, from non-tribal began on the natural resources once enjoyed by the Yanadis in abundance. Population growth, spread of agriculture into fallow and forest areas, deforestation and the competition from the non-tribal for forest edible produce both vegetable and game gradually made the simple life of Yanadi difficult. Added to this, Forest Reservation Act in the last decade of the 19th century prevented the Yanadi free access to the forest food and they were forced to change or diversify their livelihood pattern to a certain extent. They began practicing snake catching, collection of fuel wood and bartering it or selling it, rearing one or two pigs for sale, keeping one or two goats for the same purpose, practicing as quakes, now and then working as



agricultural labourers. During this transitional period a few of them took to small crime, like stealing food from the agricultural field of the ryote etc¹⁸.

Their pattern of livelihood has been changed by the 1947 when India gained its independence. They began working as agricultural labourers, and a few of them became attached agricultural labourers. Domestic service for Yanadi women in non-tribal households became one of the important livelihood resources in the rural areas of Nellore District. Keeping goats, rearing pigs and even poultry became common with many Yanadi families. Still many Yandi families supplemented their economy by collecting food in the forest now and then, catching rats and bandicoots and snakes, birds and rabbits etc.

During the first five year plan period, Colonization of Yanadis was began. These colonies were called Yanadi **Sanghams**. According to Raghavaiah¹⁹. More than two hundred colonies or **Sanghams** came into existence in Nellore District itself. The aim of the colonization was to persuade the Yanadis to take to settle life and take to agriculture as a way of life. To a certain extent these colonies succeeded in giving settled life to Manchi Yanadis but failed in the case of Challa Yanadis. Today they live in pucca houses, practice agriculture, they send their children to school and the Yanadis living in this colony are not distinguishable from their neighbouring non-tribals. Even though Constitutional safeguards and special development measures initiated after India's independence even today majority of the Yanadis remain poverty stricken and have no accessibility to their traditional resources. A large number of them still live in their traditional type of huts practicing semi-nomadism and foraging in the forests and even in urban areas.

Family: In Yanadi's tradition, husband, wife and their unmarried children always constituted a unit of production as well as



reproduction. Yanadis call the family "Kutumbam". A Yanadi girl after marriage goes with her husband while a youth after marriage invariably establishes a separate household of his own. Establishing a separate household among Yanadi is the easiest thing because it does not involve any property division, since they have no properties worth mentioning, except digging sticks, nets and snares and the living hut raised by a man, his wife and children. A son after marriage could raise his own hut with the help of his wife. In a traditional Yanadi family division of labour between the sexes was minimum. Both wife and husband along with their children participated in all the economic and domestic activities. Even the food was consumed at a time by all the members in the family, usually sitting around the food.

It is noted that in the past there was no tradition of polygamous family among the Yanadi,²⁰ but today one finds here and there polygamy and establishing polygynous families is a tradition though not practiced much among the agricultural castes which was no doubt influenced the Yanadis also. The eighty and above years old Yanadi about whom mention was made in the preceding pages says that when he was young no one in the community had more than one wife, in fact he said for a nomadic community depending on hunting and gathering having more than one wife is disadvantageous. According to him once a Yanadi man is settled with assured income a few men do go for polygamous marriages and polygamous families, they are exceptions rather than a general rule. It can be noted that even today, nuclear families are predominant. According to various observations made by scholars, in Yanadi settlements joint families if found are invariably vertical joint families of husband, wife, married son, his wife and children but non horizontal joint families of brothers, their wives and children²¹.

Conclusion: There is a change in interpersonal relations, in Yanadi family from the past to the present. This change can be observed among the settled and colonized Yanadis. Among the nomadic Yanadi



of past gender equality between wife and husband in almost all aspects was practiced. For Yanadi children in the past, their parents were not authoritarian and did not direct their activities. The moment a boy or a girl comes to the age of nine or ten, they are free if they want to roam the surrounding environment to gather food. They were rarely punished. They can choose their own life partners and leave the family to establish separate households, parents had no say in the mate selection. But today among the settled Yanadis the equation has changed between husband and wife and parents and children. Among settled and colonized Yanadis, a man is considered bread winner even if his wife and Children are working. He has authority to control his wife's and children's behaviour. Children has to obey the father and in most of the cases when the children come to the age of 10 or 11 they will be employed in labour to earn daily wages. Perhaps this type of change is expected in hunting and gathering nomadic community when it settles down amidst a patrilineal and patrilocal caste and agricultural communities.

Reference

1. N.N.Vyas, R.S. Mann, Indian Tribes In Transition, Jaipur-Delhi, 1980, p.15.
2. Deogaonkar, S.G. & Sailaja Deogaonkar, 'The Banjara' Castes and Tribes of India, Vol.3, New Delhi, 1992.
3. Short, John, 1864. "An Account of Some Rude Tribes, the Supposed Aborgines of Southern India". Transactions of the Ethnological Society of London, Vol. III, New Series (1865), pp.373-394.
4. Stokes, H.E., 1867. Proceedings of the Madras Government. Papers relating to the Sriharikota Yanadis. Madras : Govt. of Madras, pp. 36-64.)
5. Reddy, P.C., 1949. "Yanadis of Madras Presidency". Unpublished Dissertatin, Lucknow, Lucknow University.
6. Chandrasekhar, A., 1965. 'A Monograph on Rettamala', Vol. II, Part-II, Andhra Pradesh, New Delhi, Census of India.
7. P. Sudhakar Reddy, 1995. 'Displaced Population and Socio-cultural Change'. Commonwealth Publishers, New Delhi.



8. Raghavaiah, 1962, "The Yanadis", Bharatiya Adimjati Sevak Sangh, New Delhi.
9. Bosewell, Alexander, C.M.J., 1873. The Nellore District Manual, Government Press, Madras.
10. Ranga Rao, T.R., 1901. The Yanadis of Nellore District, Bulletin of the Madras Government Museum, Vol. IV, No. 2, pp. 87-113.
11. Subba Rao, R., 1931. Scope of Anthropological Research in Agency Division of A.P. Districts, The Yanadis "Journal of the Andhra Historical Research Society", Vol. 5, pp. 155-162, Rajahmundry.
12. Aiyappan, A., 1948. A Report on the Socio-economic Conditions of the Aboriginal Tribes in the Province of Madras, Government of Madras.
13. Thurston Edgar and Ranga Rao, 1909. Castes and Tribes of Southern India, Vol. VII, pp. 416-434.
14. Raghavaiah, V., 1962, "The Yanadis", Bharatiya Adimjati Sevak Sangh, New Delhi.
15. Sudhakar Reddy, P., 1995. 'Displaced Population and Socio-cultural Change'. Commonwealth Publishers, New Delhi.
16. Raghavaiah, V., 1962, "The Yanadis", Bharatiya Adimjati Sevak Sangh, New Delhi.
17. Ranga Rao, T.R., 1901. The Yanadis of Nellore District, Bulletin of the Madras Government Museum, Vol. IV, No. 2, pp. 87-113.
18. Subba Reddy, B.V., 1980. Tradition and Transition : A Study of Socio-cultural Change among the Yanadis of Andhra Pradesh. Unpublished Ph.D. Dissertation, S.V. University, Tirupathi.
19. Raghavaiah, V., 1962, "The Yanadis", Bharatiya Adimjati Sevak Sangh, New Delhi.
20. Thurston Edgar and Ranga Rao, 1909. Castes and Tribes of Southern India, Vol. VII, pp. 416-434.
21. Subba Reddy, B.V., 1980. Tradition and Transition: A Study of Socio-cultural Change among the Yanadis of Andhra Pradesh. Unpublished Ph.D. Dissertation, S.V. University, Tirupathi.



AN ENHANCED RAINFALL TIME SERIES MODELING USING PARALLEL AND COMBINED APPROACHES

Tulasi Sunitha.M

Research Scholar
Jain University, Bangalore

Dr. C.Subramanian

Adjunct. Prof. of CSE
Jain University, Bangalore

I. INTRODUCTION

Time series modeling is a process of analyzing and fitting a model over time series data in order to extract the hidden patterns. Time series forecasting is a process of using the derived model to predict future values based on past values. Time series modeling approaches are broadly categorized into Qualitative and Quantitative. Qualitative approach is a process of exclusively considering the forecaster's perception and familiarity, without using an explicit model. Quantitative approach is a process of applying a statistical technique to build a mathematical model to forecast. This approach uses numerical details and previous knowledge to predict forthcoming events. Quantitative forecasting mainly categorized into explanatory and time series. The exploratory approach attempts to correlate two or more variables and the time series approach uses past data to make forecasts. In the time series method, the prospect values of a current input single variable are definitely related in some form to its past values. Time series approach consists of three groups of models, stochastic, neural networks and support vector machine. The approach stochastic modeling is a process of finding the correlation or distribution parameters among the points of time series and using those parameters to forecast the future values. The current research work exclusive deals with stochastic approach of time series modeling of rainfall data inputs.

Rainfall forecasting is basically a stochastic process of analyzing the characteristics of past rainfall data to develop a most appropriate



model, study internal structure of the data and use the developed model to forecast future rainfall events on a day, weekly or monthly basis. The uncertainty of atmospheric conditions adversely affects overall development of business enterprises and agriculture. The agricultural output is primarily dependent on one of the factors of climate, rainfall and is an important parameter in assessing national growth. The small variations in the quantity and timing of rainfall have the potential to great impact on agricultural output. The prior knowledge about the behavior of rainfall will be helpful in many such sectors, every stakeholder from government to retailer would require timely rainfall forecasts of high accuracy to plan and progress activities profitably. The reliability of information from rainfall data analysis is very crucial in getting accurate forecasts. Several methods for formulating time series forecasting models to generate rainfall forecasts are available in the literature. These models are having their own strengths and weakness but all are quite successful in various applications of forecasting for small scale of data sets [1]. The rainfall data to be processed is accumulating at large scale and its analysis is facing the problem of scalability and speed of process with the traditional approaches. These approaches have become very time consuming and cumbersome. Due to the lack of similarity in the structure of several datasets, these approaches cannot handle the volume, variety, speed and complexity inherent in large volumes of data [1]. The research work proposes combined and parallel approaches to analyze and forecast the large scale data to speed up the process and make any decisions in competitive time.

The remainder of the research work is organized as follows. Section II describes related work, Section III presents details about computational approaches for enhancing the performance of time series model, Section IV describes the results of experiment and eventually section V describes conclusion and future scope.



II. RELATED WORK

Authors in [1] concluded that the performance of the various time series models like ARIMA, Neural Network Auto Regressive (NNAR) and Exponentia Smoothing (ETS) is varying based on the chosen time series data inputs, chosen metrics, size of the data sets and frequency of the data and results in high variability in the final forecast values and accuracy. They proved that the significance of the parallel and combined techniques on massive volumes of data results in better performance of forecasting. They concluded that the need of building scalable and efficient hybrid forecast model on large scales of time series data. Authors in [II] concluded ARIMA model is best for prediction of rain attenuation based on the measures such as Mean Square Root Error (MSE), Mean Absolute Percentage Error (MAPE) and Root MSE (RMSE). Authors in [III] discuss two approaches of modeling ARIMA and adaptive neuro fuzzy inference system (ANFIS) which applies on institutional network data and concluded that ANFIS performs better than ARIMA but its accuracy is achieved at the expense of computational complexity and suggested to use ANFIS approach only in the huge computations.

The literature survey [II,III,IV] carried out concluded that the ARIMA is best for time series modeling and its significance is primarily due to its less error, flexibility and simplicity. It works mostly based upon the assumption that the input time series follows a known statistical distribution and is linear. It selects the best model manually by applying iterative process. The technique can not fit the better model automatically. It cannot use parallelism framework implicitly for data analysis and then forecasting of analysis results based on time constraints. It cannot handle the volume, variety, speed and complexity inherent in large volumes of data due to the lack of similar structure in several datasets. It requires movement of data to bring it close to the analysis. The technique can do disk based data analysis, which is time



consuming. The authors in [V, VI] described the importance of processing of large scale time series data for better forecasting technologies.

III. METHODOLOGY

The main objective of research is to incorporate the techniques of parallel computing and combining approach to the ARIMA modeling to enhance the performance of forecasting the rainfall events in the selected region.

A. *ARIMA-Time Series Modelling*

The ARIMA model was popularized in 1970s, by George Box and Gwilym Jenkins for the applications of time series analysis and forecasting [12]. The model ARIMA works based on constructing a model using history data and use that model to forecast the future values. The fundamental hypothesis to build this model is that the input time series data is linear and follows a specific known statistical distribution, such as the normal distribution. ARIMA model is very flexible to represent several varieties of time series data with effortlessness as well as the associated Box-Jenkins methodology for optimal model building process. The research work is using auto. arima function in R tool to atomize the process of building ARIMA model based on the values of AIC, BIC etc.

B. *Parallel Approach*

The main aim of parallel approach is executing the task of time series modeling using multi core technology. Multicore technology is an architecture with a single physical processor contains the core logic of two or more processors. Multi-core enables the computing system to perform multiple tasks with a greater overall system performance. The research work is performing ARIMA modeling using

the technique of multi core processing. The steps are shown in below figure 1.

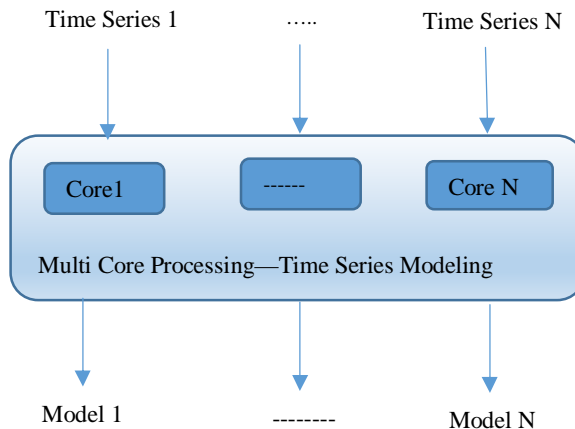


Figure 1 Parallel Approach of Time Series Modeling

C. Combined Approach

The main aim of combined approach is combining rainfall data acquired from multiple stations into a long time series, fitting the best ARIMA model on long series and use that best fitted derived model to fit the models separately on each series. This approach is results in getting less error while doing forecast. The steps are shown in figure 2 below.

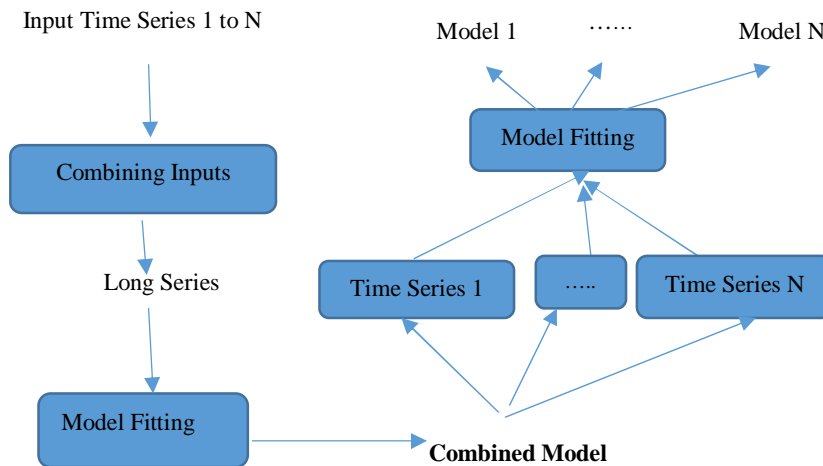


Figure 2 Combined Approach of Time Series Modeling

D. Forecasting Evaluation Measure

The accuracy of the forecasting results is measured using Akaike information criterion (AIC). AIC measures the accuracy in terms of the relative quality of statistical model of a given data set. Let L be the maximized value of the likelihood function for the model and k be the number of estimated parameters in the model. Then the AIC value of the model is $AIC = 2k - 2\ln(L)$. [1]

IV. RESULT ANALYSIS

Experimentation is performed using two approaches parallel and combined. The data sets from Australian Government Bureau of Meteorology are used.

1) Parallel Approach

ARIMA forecasting model is applied sequential and parallel on the various group of time series data series and the execution time values are tabulated in the below table I.



TABLE I

ARIMA MODEL USING SEQUENTIAL AND PARALLEL APPROACHES

S. No	No. of Time Series	Execution Time (secs)	
		Seq.	Parallel
1	3	80.45	11.74
2	4	90.23	15.21
3	5	118.61	17.60

It is observed that parallel approach showed the better performance compared to sequential process. This work showed that parallelizing the ARIMA function reduces the execution time to build the models.

2) Combined Approach

ARIMA forecasting model is fitted over the combined long rainfall data time series and used that best fitted derived model to fit the models separately on each rainfall time series. The AIC values obtained with combined and non-combined model are tabulated in the below table II.

TABLE III

ARIMA MODEL USING COMBINED AND UNCOMBINED

No. of Time Series	AIC Value Combined Model	AIC Value Series Model
1	165470.1	165466.1
2	227211.2	227256.2
3	296914.5	297015.2
4	305417.2	305543.3
5	167613.2	167752.3



It is observed that the AIC values of combined approach is less than the AIC values of individual series model. The accuracy of forecast is better with the less AIC values. Combined approach showed the better performance than individual series model. It results in getting less error while doing forecast.

V. CONCLUSION AND FUTURE SCOPE

The parallel and combined approaches are incorporated to time series modeling to apply over multiple rainfall time series data sets. ARIMA modeling is applied sequential and parallel over different sets of time series and results are compared. It is observed that incorporating parallel approach gave better performance compared to sequential approach by reducing the execution time of modeling and forecasting. ARIMA modeling is fitted using combined approach and results are compared to non-combined approach. The results shown a decrease in AIC values using combined approach compared to non-combined. However, the future scope is showing the more effectiveness of parallel and combined approaches on large scales of data.

Acknowledgment

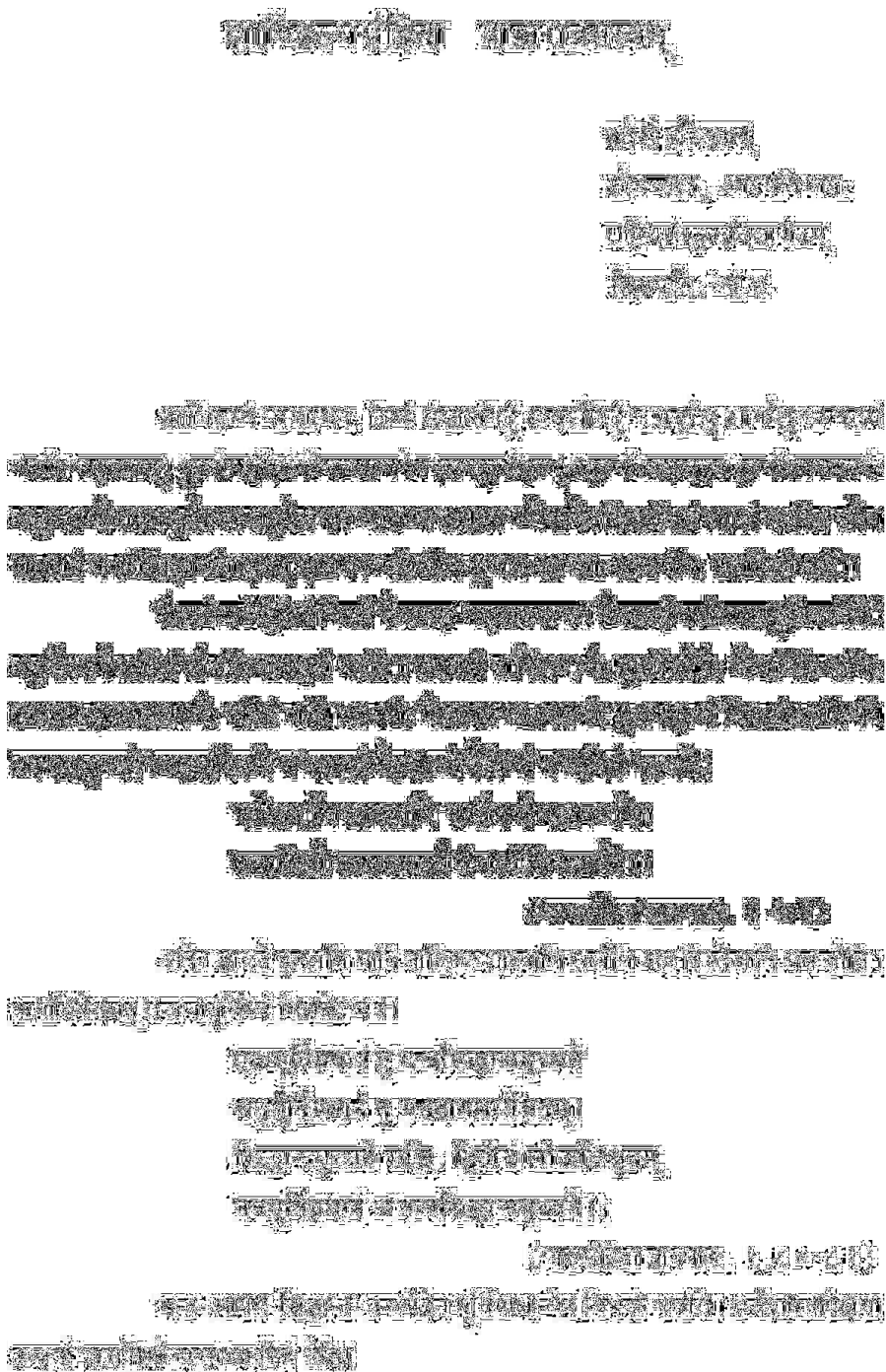
The work uses daily rain fall data obtained from the Australian Government Bureau of Meteorology and incorporated 60-70 years of rainfall data for the nearest bureau stations BELMONT AGFORCE, GLENLANDS, GRACEMERE - LUCAS ST, MOONMERA and BROADMEADOWS of weather station rock Hampton.

References

- [1] Tulasi Sunitha M , Dr. C Subramanian," Analytical Study of Significance of a Parallelized Combined Approach to improve Forecast Accuracy", International Journal of Multidisciplinary Educational Research(IJMER),ISSN:2247-7881,Volume 4,Issue8(5), August 2015.Pg No 40-52.
- [2] Dhaval P. Patel¹, Mitul M. Patel², Devendra R. Patel³ ,"Implementation of ARIMA model to predict Rain Attenuation for KU band 12 Ghz



- Frequencgy"IOSR Journal of Electronics and Communication Engineering (IOSR-JECE) e-ISSN: 2278-2834,p- ISSN: 2278-8735.Volume 9, Issue 1, Ver. III (Jan. 2014), PP 83-87.
- [3] Rajnish K Yadav and Manoj Balakrishnan, "Comparative evaluation of ARIMA and ANFIS for modelling of wireless network traffic time series ", Yadav and Balakrishnan EURASIP Journal on Wireless Communications and Networking 2014, 2014:15.
 - [4] Sawsan M Ali,"Time Series Anlysis of Baghdad Rainfall Using ARIMA Method" Iraqi Journal of Science, 2013, Vol 54, Supplement No.4, pp: 1136-1142.
 - [5] Prashant Shrivastava¹, S. Pandiaraj² and Dr. J. Jagadeesan³," Big Data Analytics In Forecasting Lakes Levels", International Journal of Application or Innovation in Engineering & Management (IJAIEEM), Volume 3, Issue 3, March 2014.
 - [6] Leixiao Li,Zhiqiang Ma,Limin Liu and Yuhong Fan,"Hadoop Based ARIMA Algorithm and its Applications in Weather Forecast", International Journal of Database Theory and application,Vol.6,No 5,2013.
 - [7] Hai Qian¹, Schengen Yang¹, Rahul Iyer¹, Xixuan Feng¹," Parallel Time Series Modeling - A Case Study of In-Database Big Data Analytics".
 - [8] Ryan R. Rosario," Taking R to the Limit, Part I: Parallelization, July 27, 2010, Los Angeles R Users' Group.
 - [9] Yaser Jararweh, Izzat Alsmadi*, Mahmoud Al-Ayyoub and Darrel Jenerette," The Analysis of Large-Scale Climate Data: Jordan Case Study", 978-1-4799-7100-8/14 /\$31.00 ©2014 IEEE.
 - [10] Simon Urbanek. Multicore: Parallel processing of R code on machines with multiple cores or CPUs, 2010. R package version 0.1-3.
 - [11] R.T. Clemen. Combining forecasts: A review and annotated bibliography. International Journal of Forecasting, 5:559{583.}
 - [12] Ratnadip Adhikari R. K. Agrawal, "an Introductory Study on Time Series Modeling and Forecasting".
 - [13] J. Scott Armstrong. Combining forecasts. Principles of forecasting: A handbook for researchers and practitioners, pages 417{439.}
 - [14] J. Scott Armstrong. Combining forecasts: The end of the beginning or the beginning of the end? International Journal of Forecasting, 5:585{588}.



229

230

