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Journal of National Development

Aims and Scope

The Journal of National Development (JND) is an interdisciplinary bi-annual peer reviewed & refereed international journal committed to the ideals of a 'world community' and 'universal brotherhood'. The Journal is a joint effort of like-minded scholars in the field of social research. Its specific aims are to identify, to understand and to help the process of nation-building within the framework of a 'world community' and enhance research across the social sciences (Sociology, Anthropology, Political Science, Psychology, History, Geography, Education, Economics, Law, Communication, Linguistics) and related disciplines like like all streams of Home Science, Management, Computer Science, Commerce as well as others like Food Technology, Agricultural Technology, Information Technology, Environmental Science, Dairy Science etc. having social focus/implications.. It focuses on issues that are global and on local problems and policies that have international implications. By providing a forum for discussion on important issues with a global perspective, the *JND* is a part of unfolding world wide struggle for establishing a just and peaceful world order. Thus, the *JND* becomes a point of confluence for the rivulets from various disciplines to form a mighty mainstream gushing towards the formulation and propagation of a humanistic world- view.

Publication Schedule

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Status of Rice Production in Jammu and Kashmir : An Economic Analysis

Mysir Jeelani Kaloo* and Tapan Choure**

Jammu and Kashmir is well acknowledged for both agricultural and horticultural, and has maintained a first-rate status in all the States of India, but at the equivalent time rice being a staple food for almost intact population is losing its status. Present study was based on the secondary data in which linear multiple regression model used to understand the impact of area and irrigation on the production of rice in Jammu and Kashmir, the data has revealed that both the variables has shown 85% of variation caused in the rice production Jammu and Kashmir, but at the same time area under the rice production in Jammu and Kashmir is declining as there is continuously land diversion taking place from rice to horticultural one as a result every year government has to import at a large scale from the central pool.

[**Key words :** Rice, Jammu & Kashmir, Production, Multiple Regressions]

1. Introduction

Jammu and Kashmir's economy is predominantly dependent on agriculture and allied activities. The Kashmir valley is known for its sericulture and cold-water fisheries. Wood from Kashmir is used to make high-quality cricket bats, popularly known as Kashmir Willow. Kashmiri saffron is very famous and brings the state a handsome amount of foreign exchange. Agricultural exports from Jammu and Kashmir include apples, barley, cherries, corn, millet, oranges, rice, peaches, pears, saffron, sorghum, vegetables, and wheat, while manufactured exports include handicrafts, rugs, and shawls.

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Horticulture plays a vital role in the economic development of the state. With an annual turnover of over 3 billion (US$51 million), apart from foreign exchange of over 800 million (US$14 million), this sector is the next biggest source of income in the state's economy. The region of Kashmir is known for its horticulture industry and is the wealthiest region in the state. Horticultural produce from the state includes apples, apricots, cherries, pears, plums, almonds and walnuts. The Doda district has deposits of high-grade sapphire. Though small, the manufacturing and services sector is growing rapidly, especially in the Jammu division. In recent years, several consumer goods companies have opened manufacturing units in the region. The Associated Chambers of Commerce and Industry of India (ASSOCHAM) have identified several industrial sectors which can attract investment in the state, and accordingly, it is working with the union and the state government to set up industrial parks and special economic zones. In the fiscal year 2005–06, exports from the state amounted to 11.5 billion (US$190 million). However, industrial development in the state faces several major constraints including extreme mountainous landscape and power shortage. The Jammu & Kashmir Bank, which is listed as an S&P CNX 500 conglomerate, is based in the state. It reported a net profit of 598 million (US$10 million) in 2008. The Government of India has been keen to economically integrate Jammu and Kashmir with the rest of India. The state is one of the largest recipients of grants from New Delhi, totaling US$812 million per year. It has a mere 4% incidence of poverty, one of the lowest in the country. In an attempt to improve the infrastructure in the state, Indian Railways is constructing the ambitious Kashmir Railway project at a cost of more than US$2.5 billion. Trains run on the 119 km Baramula-Qazigund section. The 17.5 km Qazigund-Banihal section through the 11 km long Pir Panjal Railway Tunnel has been constructed. Udhampur-Katra section may be ready in 2013. The Katra-Banihal section is under construction. The route crosses major earthquake zones, and is subjected to extreme temperatures of cold and heat, as well as inhospitable terrain, making it an extremely challenging engineering project. It is expected to increase tourism and travel to Kashmir. Three other railway lines, the Bilaspur–Mandi–Leh railway, Srinagar-Kargil-Leh railway and the Jammu-Poonch railway have been proposed. Jammu and Kashmir is home to several valleys such as the Kashmir Valley, Tawi Valley, Chenab Valley, Poonch Valley, Sind Valley and Lidder Valley. The main Kashmir valley is 100 km (62 mi) wide and 15,520.3 km² (5,992.4 sq mi) in area. The Himalayas divide the Kashmir valley from Ladakh while the Pir Panjal range, which encloses the valley from the west and the south, separates

it from the Great Plains of northern India. Along the northeastern flank of the Valley runs the main range of the Himalayas. This densely settled and beautiful valley has an average height of 1,850 meters (6,070 ft) above sea-level but the surrounding Pir Panjal range has an average elevation of 5,000 meters (16,000 ft).

Percentage growth rate in GDP of India and Jammu Kashmir (2009-10 to 2012-13)
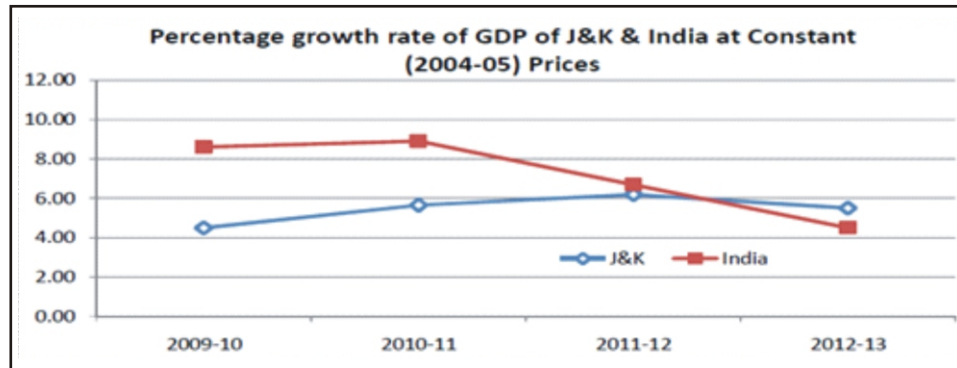
Gross State Domestic Product (GSDP) of J&K state during 2012-13 (at current prices) has increased to Rs. 75574.31 crore (quick estimates) from Rs. 65758.52 crore (quick estimates) of 2011- 12 registering a growth of 14.93% during 2012-13. The growth as per advance estimates for the state during 2013-14 at current prices is projected at 15.54%. Similarly the State economy is expected to grow at 5.88% (advanced estimates at constant 2004-05 prices) during 2013-14 as compared to achievement of 5.51% in 2012-13 (quick estimates).

2. Objectives of the Study

The objectives of this study are as follows :

1. To find out the Status, production and Productivity of Rice in Jammu and Kashmir from last one and half decade.
2. To find out the influence of area and irrigation (as variables) on the production of and productivity of rice in Jammu and Kashmir.
3. To find out the prevailing problems faced by the farmers in Jammu and Kashmir and finding out the possible solution to them.

3. Research Methodology

Present study was based on secondary data which has been collected from the Directorate of Economics and statistics government of Jammu and Kashmir (Annual Publication 2011-12) and consists time duration of fifteen years in which

multiple regression models used to find out the impact of area and irrigation on the production of rice in Jammu and Kashmir. Due to lack of data simple compound growth rate was used for to find out the area, irrigation and production for the year 2013 and 14.

4.   Status of Rice in the Jammu and Kashmir

Jammu and Kashmir has a unique distinction of introducing the land reforms. At that time about 1.82 lakh hectares of the land has been distributed. Out of which about 0.94 lakh hectares were distributed free of cost among the peasants with no much effort to be done. The state has abolished the absence of landlordism. Over the years a neo – land holders have come into existence which are comparable to absentee of land owners if not landlords holding large "jagirs". The reform period in the Jammu and Kashmir has got twin objective of giving the cultivators his rightful place in the social system and also ensure more efficient utilization of state resources with an objective to achieve the self sufficiency in terms of rice production, although leaped forward from mere few lakh tones to 0.89 million tonnes.

Rice production in the Jammu and Kashmir is predominantly a mono cropped activity with a very high consumption and most important staple food than other states of India. The area under the rice is distributed by both the regions in which about 40 percent of area is with Jammu division while as 60 percent of the area is with Kashmir division. Rice play an important role in the livelihood of the people in the state, although the area under the crop is very small as compared to other states of the India with only 0.27 m ha, but at the same time plays an important role in the state economy. Rice productivity in the state is very high with 2.2 t/ha compared with the national average productivity of about 1.9 t/ha, although with the passage of time the Area under rice in J&K is continuously decreasing. Rice in Jammu and Kashmir is grown only once in a year because of the extreme climatic conditions, further it can be said that the diversity in the agro climatic which when coupled with farmers preferences give rise to wide range of grain preferences from bold, coarse grains in temperature regions to fine, aromatic and basmati in subtropical areas. At the same time the Jammu region represents almost all the zones ranging from the subtropical one to mid hills extending to high hills constituting the temperature zone. Basmati rice is grown on more than 32000 (2010-11) hectors of the area of Jammu division particularly in the R.S Pora belt which is famous in the world for its famous for its high aroma. The business from basmati rice annually fetches more than forty five

(45) crore of rupees. Thus the cultivation of the rice in this region offers a great potential for its improvement, but at the same time there is a much worry to the State of J&K in terms of food grain deficiency as it has already touched to 40 percent which will grow in the future as the deficiency is the process which cannot be stopped, it is bound to happen as the farmers in the cash economy are more concerned about the benefits which derive them from investment in rice production to horticultural sector, it will be not surprising to see Kashmir growing Apples only and Bihar cultivating rice. The deficiency in food grains (Rice) can be reveled from the fact that the production of Rice in J&K is only seven (7) lakh metric tons where as the demand is eleven (11) metric tonnes hence there is a miss match in demand and supply which ultimately results in the inflation. The deficiency in the food grains has been attributed to rampant conversion of agricultural land and depleting efficiency of the land, as in Kashmir alone more than two lakh Kanals of agricultural land of the net sown area has been converted for commercial and other purposes, the only thing to cheer for the people of Jammu and Kashmir is that the net production of rice is increasing despite the land diversion as the methods of cultivation of rice has been shifted from traditional practices to the modern ones.

Table-1 : Production and productivity of rice Jammu and Kashmir
(1999–2000 to 2013-14)

Year	Production (ooo) lakh tonnes	Area (ooo) lakh hectares	Productivity	Growth rate In production	Growth rate in Area
1999-00	3915	250.63	15.62064	8.633461	-2.62538
2000-01	4253	244.05	17.42676	-0.70538	2.356075
2001-02	4223	249.8	16.90552	-0.21312	-5.44436
2002-03	4214	236.2	17.84081	19.79117	10
2003-04	5048	259.82	19.42884	-2.37718	-3.76414
2004-05	4928	250.04	19.70885	13.10877	3.587426
2005-06	5574	259.01	21.5204	-0.50233	-2.50569
2006-07	5546	252.52	21.96262	1.334295	4.249168
2007-08	5620	263.25	21.34853	0.302491	-2.13485
2008-09	5637	257.63	21.88022	-11.1052	0.877227
2009-10	5011	259.89	19.28123	4.490122	0.561776
2010-11	5236	261.35	20.03444	1.699771	0.309929

2001-12	5325	262.16	20.31202	3.286385	-0.72856
2012-13	5500	260.25	21.13353	4.727273	-0.35735
2013-14	5760	259.32	22.21194	-100	-100

Source : Government of Jammu and Kashmir, **Digest of Statistics (2010–11)**, Directorate of Economics & Statistics.[5]

As has already being mentioned that with the passage of the time the production of rice in Jammu and Kashmir is increasing at an increasing rate as the Table 3.1 gives a clear idea behind that during the year 1999-00 the production of rice was 3915 lakh tonnes which has now increased to 5760 in 2013–14. But at the same time there is a continuous decline in the area under the rice in Jammu and Kashmir.

Graph-1 : Trend line in the Production and Area in Jammu and Kashmir (1999-2000 to 2012-13)
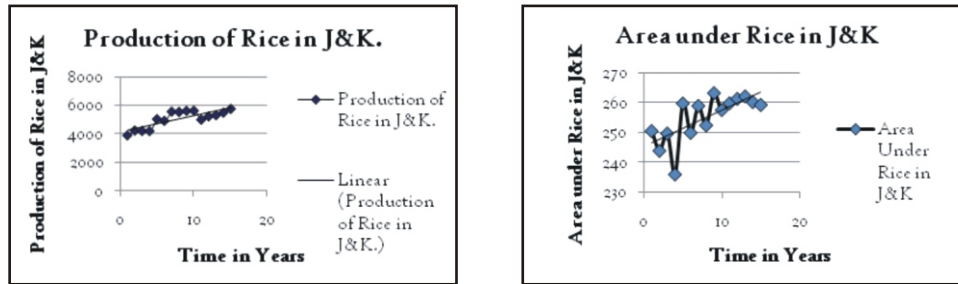
Out of all twenty two (22) the districts in Jammu and Kashmir, only twelve (12) districts are suitable for rice production in J&K in which four districts are coming under the high productivity group yielding more than 2,500 kg/ha under the triennium average of 1.03 lakh hectares where as the average production of rice under these districts is 3.16 lakh tonnes which was 55.3 percent of average triennium average production 5.72 lakh tonnes of rice in the state. The triennium average productivity of all the high productivity districts (4) is 3,068 kg/ha as against 3,068 as against 2,241 kg/ha triennium average productivity of the state. The average productivity of the medium productivity districts which are yielding 2000–2500 kg/ha comprising only one district with an area of 0.293 lakh hectares which is 11.5% of the average area of the state. The total production of the district is 1.74 lakh tonnes which is 11.5% of the average production of the state where as the total productivity of the district is 2,239 kg/ha as against 2,241 kg/ha average productivity of the state. The third group comes into the heading of medium low productivity which yields 1,500 – 2000 kg/ha which consists of

five districts under the area off 1.09 lakh hectares which is 42.7% of the average area under the state (2.55 lakh hectares). Whereas the production of rice under the group was 1.74 lakh tonnes which was 30.4% of the average production of rice under the state, the productivity of the rice under this group was 1,596 kg/ha as against the 2,241 kg/ha of the average production off the state.

Graph-2 : Production and Area under Rice in Jammu & Kashmir (1999-2000 to 2013-14).
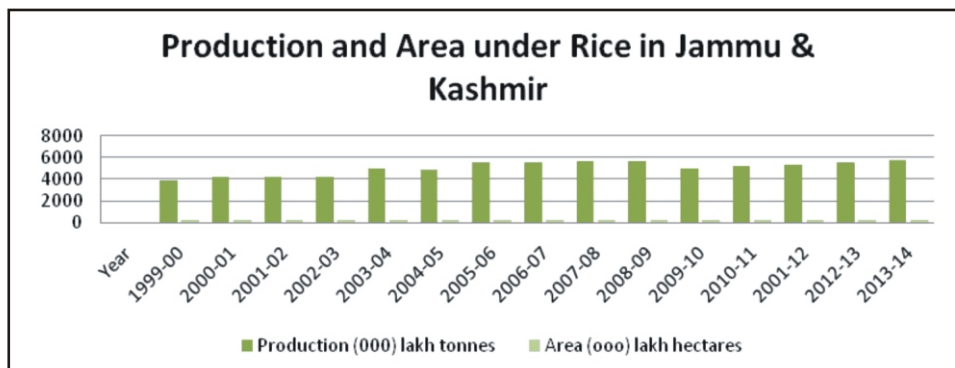
- ▶ High Productivity group. (>2500 kg/ha) [four districts]
- ▶ Pulwama (3,418 kg/ha), Anantnag (3,418 kg/ha), Srinagar (3,207 kg/ha) and Budgam (2,617 kg/ha).
- ▶ Medium Productivity group (2000–2500) [one district] Baramula (2,239kg/ha).
- ▶ Medium low productivity Districts (1,500–2000 kg/ha)[five districts]
- ▶ Poonch (1,750 kg/ha), Jammu (1,620 kg/ha), Kupwara (1,556 kg/ha), Kathua (1,547 kg/ha) and Kulgam (1,496 kg/ha).
- ▶ Low productivity Districts (1,000–1500 kg/ha) [one District] Udhampur (1,235 kg/ha).
- ▶ Very low productivity Districts (<1000 kg/ha) [one district] Doda (992 kg/ha).

About 40% rice area in Jammu and Kashmir is concentrated in high productivity group accounting more than 55% production of total rice production in the state. The productivity of high productivity group of Jammu and Kashmir is 3,068 kg/ha which is about 58% higher than the national average productivity of 2,747 kg/ha. Besides this the average productivity (2,241kg/ha) of the state is also higher than the national average of 2,747kg/ha.

Table-2 : Production and Area under Rice in different districts of the State

Districts	Area in ha	Production in t	Productivity t/ha
Anantnag	40375	105726	2.62
Baramula	32049	62904	2.03
Budgam	24734	40372	1.70
Doda	4203	4758	1.13
Jammu	54706	90148	1.68
Kathua	31611	51805	1.69
Kupwara	12013	17800	1.48
Poonch	3562	5225	1.47
Pulwama	23029	60261	2.62
Rajouri	5719	10231	1.79
Srinagar	11736	31402	2.68
Udhampur	10307	12100	1.17

Source : Gupta. B. B and Salgotra (2009), "Status Paper on Rice in Jammu and Kashmir". [Rice Knowledge Management Portal], division of Plant Breeding and Genetics. pp. 1 – 19.

The above data clearly indicates that Anantnag and Srinagar are the only districts in Jammu and Kashmir whose production is large as compared to the remaining districts of J&K as the area under these districts. Whereas Baramula when added to the former confirms the greater productivity districts of the state. Anantnag and Pulwama is called the rice Bowl of J&K as these districts are provided with rich natural and water resource management, apart from this both the districts of the valley has got the large area under the cultivation of rice and at the same time the productivity in these districts as greater as compared to other districts of the State. According to the above table 40375 ha is the area under the rice production in Anantnag and the total production is 105726t with a productivity of 2.62 t/ha coupled with the Pulwama District in the same ratio. It is being observed that with the passage of time the production of rice in these districts is declining as the land used under the rice is continuously is converted into commercial purposes which in turn has decreased the production of Rice in J&K state. The problem that lies in decreasing of land area under the rice is that there is a continuous land diversion taking place and the area under the rice is used for the commercial purposes and horticultural purposes. Still the productivity of rice in Jammu and Kashmir can be improved by tapping the

uncultivated land, including the waste land and fallow land as there is a large untapped land that needs to be addressed. At the same time there is a worst case that degrades the production of rice in the valley is that the farmers face the problem of dry and dismal picture owing to lack of rain and non availability of water for irrigation. Due to a major and most essential food staple in the valley there is a continuous rising problem of lack of rice production in the valley. The problem of land diversion and lack of timely availability of necessary inputs in the valley causes the mismatch in the demand and supply which results in inflation and hence the poverty class and middle class are deeply infected.

4·1 Calculation of trend line in the Production, Productivity and Area in Jammu and Kashmir From last Fifteen (15) Years
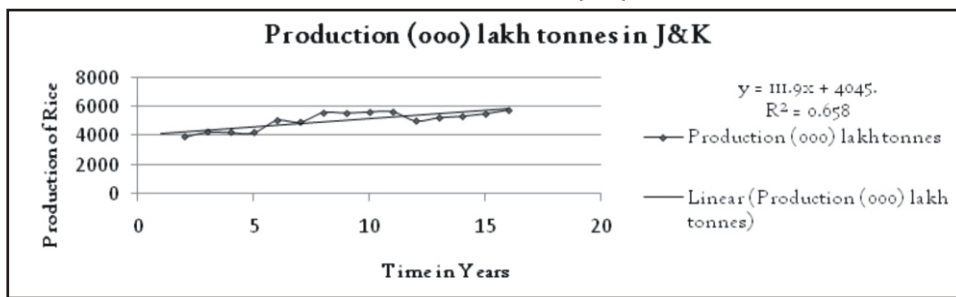
Trends line in the production of Rice in Jammu and Kashmir (1999-2000 to 2013-14)
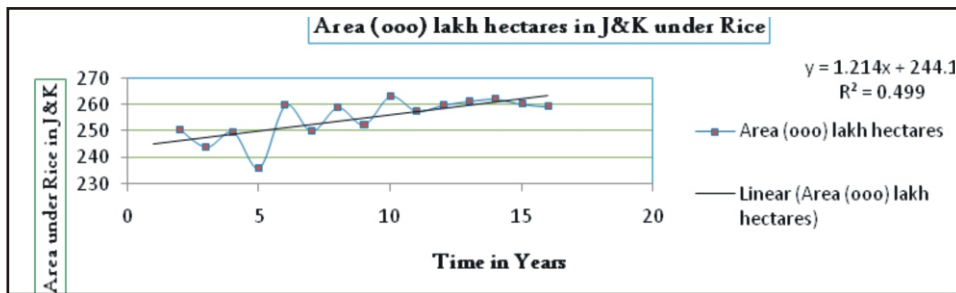
Trends line in the area under Rice in Jammu and Kashmir (1999-00 to 2013-14).
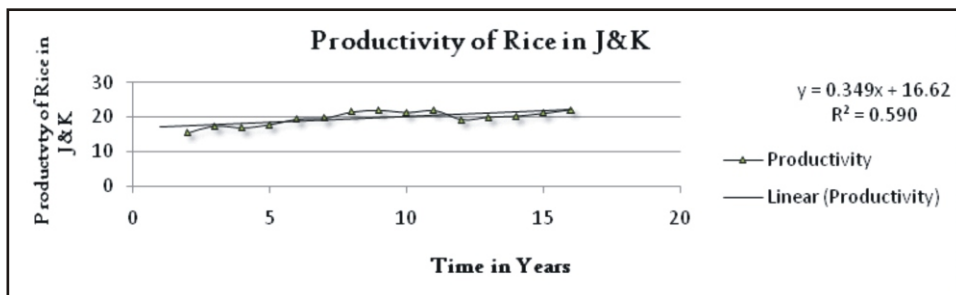
Trends line in the productivity of Rice in Jammu and Kashmir (1999-00 to 2013-14)

4·2 Multiple Regression Model explaining the Influence of different variables on the Production of Rice in Jammu and Kashmir

The production function is a statement of the functional relationship between inputs and outputs, in which an input is any good or service that goes into production and an output is any good or service that come out of production process. Thus the term Production function refers to the physical relationship between firm's inputs and/or resources and its output of goods or service that comes out of production process. In economic terminology production implies the creation of utility for sales. The act of creating utility is possible by transforming inputs into outputs. In the context of agricultural it is of great importance as because of the peculiar nature of business itself. In finding out the effect of different variables (inputs) on the production of rice, we have employed the production in which we have taken area, irrigation and prices as the inputs and production of rice as output. The logic behind taking these variables into the process is explained as under.

Area : Area is an important variable which influence the production of rice to a large extent as we know that with the increase in area the production is bound to increase, weather it has also happened in the production of rice we have taken it.

Irrigation : As we know that like Indian, Jammu and Kashmir agricultural is also a gamble of monsoons; irrigation is growing to play an important role in the output of any agricultural process. So we have also taken this variable to explain the effect of irrigation in the production of rice so our production function becomes as P = f (Area, and Irrigation).

Production is the function of Area and Irrigation $P = f(X_1, X_2)$

X_1 is Area and X_2 is irrigated area under rice.

The equation becomes $Y = \quad X_1 \quad _2X_2$

The above equation can be solved by the following three normal equations

$$Y = n \hat{}_1 \quad \hat{}_2 \quad X_2 \quad \hat{}_3 \quad X_3 \qquad \qquad ...(1)$$

$$X_2Y = \hat{}_1 \quad X_2 \quad \hat{}_2 \quad X_2^2 \quad \hat{}_3 \quad X_2X_3 \qquad \qquad ...(2)$$

$$X_3Y = \hat{}_1 \quad X_3 \quad \hat{}_2 \quad X_2X_3 \quad \hat{}_3 \quad X_3^2 \qquad \qquad ...(3)$$

For calculating the value of $_2$ $_1$ and we use the following three equations :

$$\hat{} \quad \overline{Y} - \hat{}_2\overline{X}_2 - \hat{}_3\overline{X}_3 \qquad \qquad ...(4)$$

$$\hat{}_1 \quad \frac{X_2y. \quad X_3^2 - \quad X_2X_3. \quad X_2y}{X_2^2 \quad X_3^2 - (\quad X_2X_3)^2} \qquad \qquad ...(5)$$

$$\hat{\beta}_1 = \frac{4483.130 \times 0.05520695 - 5.87177 \times 39.6224}{826.1917734 \times 0.5520695 - (5.87177)^2} = 1.01875$$

$$\hat{\beta}_2 = \frac{X_3y. \; X_3^2 - X_2^2 - X_2X_3. \; X_2y}{X_2^2 \; X_3^2 - (X_2X_3)^2} \qquad \text{...(6)}$$

$$\hat{\beta}_2 = \frac{39.6224 \times 826.1917734 - 5.87177 \times 4483.130}{826.1917734 \times 0.05520695 - (5.87177)^2} = 8.09734$$

$$R^2 = \frac{\hat{\beta}_1 \; X_2y + \hat{\beta}_2 \; X_3y}{y^2} \qquad \text{...(7)}$$

$$R^2 = \frac{0.01875 \times 4483.130 \times 8.09734 \times 39.6224}{59234.437}$$

For estimating the standard errors of $\hat{\beta}_1$ and $\hat{\beta}_2$ we need to estimate of σ_u^2

$$R^2 = 1 - \frac{ei^2}{yi^2} \text{ where } ei^2 = yi^2(1 - R^2)$$

$$R^2 = 1 - \frac{8759.32}{59234.437} = 0.852123.$$

The standard errors of the estimates are

$$SE(\hat{\beta}_1) = \sqrt{\text{variance of } \hat{\beta}_1} = 0.487 \qquad \text{...(8)}$$

$$SE(\hat{\beta}_2) = \sqrt{\text{variance of } \hat{\beta}_2} = 2.345 \qquad \text{...(9)}$$

Ho = there is no relationship between the production of rice and Area.

Ho = there is no relationship between the production of rice and net irrigated area of rice.

To prove the null hypothesis we have used the Students t - test as :

$$t^* = \frac{\hat{\beta}_1}{SE(\hat{\beta}_1)} = \frac{1.01875}{0.487} = 2.0918 \qquad \text{...(10)}$$

$$t^* = \frac{\hat{\beta}_2}{SE(\hat{\beta}_2)} = \frac{8.09734}{2.345} = 3.4530 \qquad \text{...(11)}$$

If t* > t (tabulated), we reject the null hypothesis and accept that the alternative one, which follows the t –distribution with (n - k) degree of freedom is statistically significant. Thus greater the value of t* the stronger the evidence that is statistically significant.

S.E ($\hat{\beta}$)	0.487	2.2345
t*	2.0918	3.4530

Hence we can conclude that there is a significant relationship between production of rice and Area under rice in Jammu and Kashmir at (15 – 3 =1.782) degree of freedom, and there exists a significant relationship between production of rice and total irrigated area under rice in Jammu and Kashmir at (15 – 3 =1.782) degree of freedom.

5.   Conclusion

Rice production in Jammu and Kashmir has virtually come down from last one and half decade, even though the government has taken some of the appropriate procedures in increasing it. Even though the green revolution has helped the state in increasing the production of rice but at the same time looking for the future of rice in Jammu and Kashmir will come under additional pressure from the intense competition of land and water due to changing climatic condition, high price for fertilizers. This requires a careful analysis for the current scenario and perspective with a view to identify researchable issues and the appropriate strategies to address them. However there is still a scope for improving rice production in this handicapped ecology through proper scientific intervention and policy decision

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Knowledge, Attitudes and Practices (KAP) towards Family Planning among Currently Married Women in Major States of India

Pramod K. Gupta* and Sarita Verma**

This paper is an attempt to find out knowledge, practice and attitude related to family planning methods among currently married women. It is important to have broad knowledge about family planning all methods in the context of Indian population growth. Several studies show that there is long gap between knowledge and practices while using family planning methods. Unmet pregnancies are a best example to non use of family planning method. There is also gap between traditional method and modern method of family planning methods, peoples who are using family planning method is not able to use modern method they still depend on traditional and spacing method. Prevalence towards family planning method is either less or it is just unplanned among women and man too. There is not organized planned among the couples for using specific methods. Very few of them are using spacing method and sterilization and it is varied from state to state and strata to strata.

[**Keywords :** Met and Unmet need, Contraceptive Method, Abortion, Emergency Pills]

1. Introduction

KAP is parameter to have information about specific population to gather what is known, believed and done in relation to a particular issue. Why it is that

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the place where most knowledge on structure organization and learning is allocated is also the place where the least of this knowledge gets put to use?

In 1952, the Indian Government was one of the first in the world to formulate a national family planning programme, which was further expanded to encompass maternal and child health, family welfare, and nutrition programmes.

India is committed to promoting a small family norm and supporting population control and development programmes. (Chandrasekhar, 1968 : 620-628) One of the fourteen Nations optimized their socio-demographic goals has to control over fertility regulation and contraception with a wide range of choices (Ministry of Health and Family Welfare, 2000). After 1976 government target young generation should associate with programme KAP (Knowledge, attitude, practice). Knowledge is a familiarity with someone or something which can include facts, information, description or skills acquired through experience or education; it can refer to the theoretical or practical understanding of a subject or things. It can be implicit (as with practical skill or expertise) or explicit (as with the theoretical understanding of a subject).

Sources of Knowledge
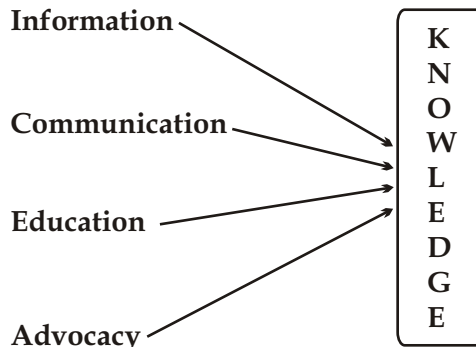
2.   Socio-Demographic Features of the selected States

In the present study six states of India has been chosen as major states on the basis of three parameters. Firstly, the states belong to north and central zone of India, secondly the states hold half of the population and thirdly the states covered maximum geographical area of India. The states were selected are as follows : Uttar Pradesh, Maharashtra, Bihar, West Bengal, Andhra Pradesh and Madhya Pradesh.

According to census of India 2011, these states are most populous with high decadal growth rate. Decadal growth rate of Uttar Pradesh, Bihar, Madhya Pradesh is more than 20 per cent, and another three populous state Maharashtra, West Bengal, Andhra Pradesh growth rate is below to 20 per cent, but as per as natural resources is concern it is too high in these states.

Population share of major state

17% Uttar Pradesh

9% Maharashtra

9% Bihar

8% West Bengal

7% Andhra Pradesh

6% Madhya Pradesh

45% Rest of India's state
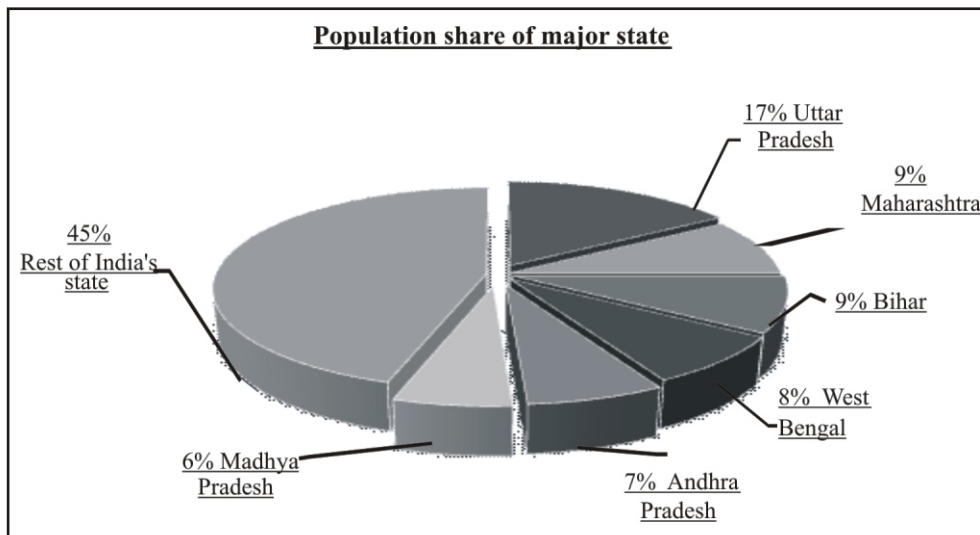
3. Need of the Study

Need of the present study is to have an information about gap between Knowledge Attitude and Practices towards family planning method within a currently married women. Earlier study gives us theoretical information about KAP towards family planning. So the present study will bring some facts and figure about the level of Knowledge, commitment and attitude and intend to have practices according to their background and other socio-demographic characteristics.

4. Objective of the Study

Broad Objective of the study is to find out the level of knowledge, attitude and practice (KAP) towards family planning methods among major states in India.

They are sub-divided into following four objectives :

To identify the family planning knowledge in all communities (Hindu, Muslims, Christians, Sikh, Jain, Buddhist/Neo Buddhist and other).

To identify the attitudes towards family planning I different religion.

To learn about the attitudes towards discussions and information about family planning methods among unmarried and married women and men themselves.

To identify contraceptive practices

5. Methodology

This study is based on both primary and secondary data. Primary data has been collected for the fulfilling of above objectives thus an interview has been organized to using interview schedule. First of all, house listing were done in selected area (Babuganj, Aliganj and Nishatganj) of Lucknow then on the basis of pilot survey a list of respondents are being made. So, on the basis of list of the respondents, purposive sampling was adopted for the selection of the representative unit of the universe. And an interview has been conducted through well structured schedule. So, the total sample size of the study were 25 couples and as per norm of the objectives and study currently married of women were selected for the study, separate interview of female and their husband were conducted and try to maintain the standards of the interviews. A secondary data has been compiled to provide a comparative scenario on family planning. So, the data has also been taken from National Family Health Survey (NFHS-2 & 3) which has conducted by the Ministry of Health and Family Welfare, Government of India and access by the International Institute for Population Sciences (IIPS), Mumbai. So far, with the help of various statistical methods, graphs, diagrams and chart has been introduced to analyze the tables.

6. Discussion

Indian cultural, social and religious aspects of a community have influenced on family planning knowledge, attitude and, practice. The cultural construct of Indian society which reinforces gender bias against men and women, with varying degrees and variable contexts against the opposite sex, has led to the continuation of India's strong preference for male children. (Monica Das : 2010 : 32-36). Its very strong reason families as well as couples are not using any contraceptive prevalence. Religious and cultural factors have the potential to influence the acceptance and use of contraception by couples from different religious backgrounds in very distinct ways. (Amirrtha Srikanthan, Robert L. Reid, 2007 : 129). In Islamic religion family and marriage are fundamental to Islamic society. Sex is permitted provided it is used within marriage and may be used for pro-creation and pleasure. The majority of Islamic jurists indicate that family planning is not forbidden. Contraception may be used only within marriage. Justifiable reasons for contraceptive usage include health risks, economics, preservation of the woman's appearance, and improving the quality of offspring (Ibid : 132-133). In Hindu religion marriage is viewed as essential for

the stability of social order. Reincarnation requires that children pray for the souls of ancestors; how-ever, a cultural emphasis on party lineage has created tremendous emphasis on the need for male children. Hindu religion regards the decision to use contraception as a personal matter for women that is not usually within the scope of religious injunction (Ibid :133).The Buddhist attitude towards family planning allows both men and women the right to use any non-violent form of contraception. Family planning is permissible and encouraged when the intention to use contraception is wholesome or non-maleficent. The Buddhist attitude towards family planning allows both men and women the right to use any non-violent form of contraception. (Amirrtha Srikanthan, Robert L. Reid, 2007 : 134).

6·1 Knowledge of Family Planning Method

Family Planning method basically, refers to the practices that help individuals or couples to avoid unwanted births, bring about wanted births, regulate the intervals between pregnancies, control the time at which births occurs in relation to the age of parents and determines the number of children in the family.

Table-1: Knowledge of contraceptive methods by major state

Percentage of currently married women who know any contraceptive method by specific method according to state										
State	Any method	Any Modern Method	Pill	IUD	Condom	Female Sterilization	Mal Sterilization	Any Traditional method	Rhythm	Withdrawal	Other Method
India	99.0	98.9	79.5	70.6	71.0	98.2	89.3	48.9	45.1	31.2	2.7
UP	98.4	98.3	84.7	73.5	83.1	97.4	92.5	60.2	54.8	33.0	3.0
Maharashtra	99.4	99.4	84.1	79.9	71.7	98.9	87.6	34.5	32.4	18.6	1.7
Bihar	99.2	99.2	74.9	58.7	64.3	98.9	97.3	39.5	36.2	24.4	3.4
WB	99.6	99.4	92.5	72.7	78.9	98.3	83.7	74.7	67.5	61.6	3.0
MP	97.8	97.8	67.0	50.1	55.5	96.6	80.6	31.1	29.5	13.6	2.3
AP	98.9	98.9	60.1	50.7	48.3	98.5	90.9	15.3	14.4	7.4	1.2

NFHS-3										
India	99.3	99.2	87.2	74.3	76.1	98.4	83.2	57.7	48.1	36.3	0.4
UP	99.5	99.5	95.1	88.0	93.5	98.9	91.2	73.2	69.0	42.4	0.4
Maharashtra	99.6	99.6	85.7	75.7	68.9	99.4	81.5	33.7	31.9	8.8	0.1
Bihar	100.0	100.0	95.7	79.1	81.9	99.9	92.3	75.3	50.8	51.4	0.2
WB	99.7	99.3	94.8	67.9	79.8	98.2	78.6	83.8	68.6	66.4	0.5
MP	99.8	99.8	92.7	71.3	83.6	99.7	97.0	71.3	60.9	46.6	0.0
AP	99.1	99.1	62.6	46.0	48.2	99.0	89.1	10.9	9.7	4.3	0.0

Source : NFHS-2 and NFHS-3, (India and State Report).

Inter-state variation in knowledge of contraception shows that knowledge of any contraception method as well as any modern method has been nearly universal in all states.

Graph-1 : Comparative knowledge of Any Modern Method: A Comparison
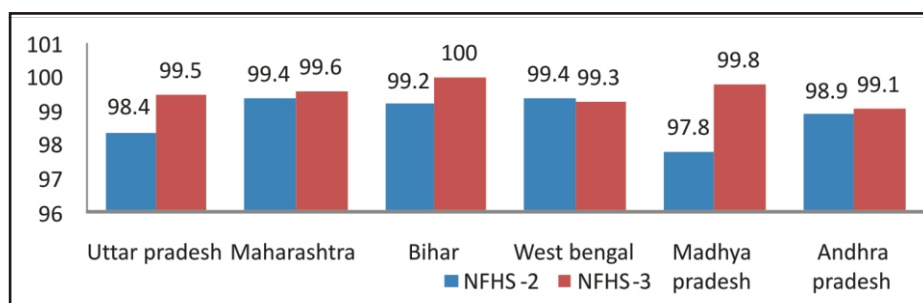
Since any modern method in NFHS-2 is nearly 99 per cent among currently married women and in NFHS-3 there is a substantially increased above 99 per cent. Data reveals that most of the states have more than 99 per cent knowledge regarding modern method in NFHS-3 and only Madhya Pradesh, Uttar Pradesh and Andhra Pradesh has less than 99 per cent of knowledge towards modern method.

The government of India promotes family planning programme to use these three temporary methods : Pill, IUD and Condom. Knowledge of these methods substantially increases from NFHS-2 to NFHS-3. In Madhya Pradesh and Bihar knowledge related Pill has been increased over 20 per cent and Uttar Pradesh recorded only 10 per cent increase in spacing method. But in another three states West Bengal from 92.5 per cent to 95.1 per cent, Maharashtra from 84.1 per cent to 85.7 per cent and, Andhra Pradesh from 60.1 per cent to 60.6 per cent has increased gradually with only 2 or 3 per cent in the same period of time.

In Uttar Pradesh, Maharashtra, and West Bengal, more than 70 per cent of women reported knowledge about IUD. Another important fact of these states having high density of population, and women are most likely to know about the pill and men are most likely to know about condom. In Maharashtra state knowledge about condom is decreasing but with high population growth rate Madhya Pradesh reported expansion in related knowledge.

Knowledge of male and female sterilization has been increasing since NFHS-2 to NFHS-3. Knowledge of female sterilization has been above to 95 per cent in NFHS-2, and became nearly universal with 99 per cent. Knowledge of male sterilization and any traditional method is less universalize as compared to the female sterilization and modern method. Only in West Bengal and Uttar Pradesh, currently married women have very precisely use the traditional method with 74.7 per cent 60.2 per cent respectively. Only in Andhra Pradesh, knowledge towards traditional method rates is decreasing.

Table-2: Use of Contraceptive Method by Major States NFHS-2 and NFHS-3

Currently married women with prevalence of contraceptive method according to major state, India,1998-99												
State	Any method	Any modern method	Pill	IUD	Condom	Female sterilization	Male sterilization	Any traditional method	Rhythm	Withdrawal	Other method	Not using any method
India	48.2	42.8	2.1	1.6	3.1	34.2	1.9	5.0	3.0	2.0	0.4	51.8
UP	28.1	22.0	1.2	1.0	4.2	14.9	0.7	5.7	4.1	1.6	0.4	71.9
Maharashtra	60.9	59.9	1.7	1.9	4.0	48.5	3.7	1.0	0.7	0.3	0.1	39.1
Bihar	24.5	22.4	1.0	0.5	0.7	19.2	1.0	1.6	0.9	0.7	0.5	75.5
WB	66.6	47.3	9.2	1.4	2.9	32.0	1.8	18.5	8.7	9.8	0.9	33.4
MP	44.3	42.6	1.0	0.8	2.9	35.7	2.2	1.4	1.0	0.4	0.3	55.7
AP	59.6	58.9	0.5	0.6	0.7	52.7	4.3	0.5	0.4	0.1	0.2	40.4
NFHS-3												
India	56.3	48.6	3.1	1.7	5.2	37.3	1.0	7.8	4.9	2.5	0.0	43.7

UP	43.6	29.3	1.7	1.4	8.6	17.3	0.2	14.3	11.3	2.5	0.1	56.4
Maharashtra	66.9	66.9	2.4	3.0	6.2	51.1	2.1	1.9	1.4	0.4	0.0	33.1
Bihar	34.1	28.9	1.3	0.6	2.3	23.8	0.6	5.2	3.0	1.8	0.1	65.9
WB	71.2	49.9	11.7	0.6	4.3	32.2	0.7	21.3	12.3	8.4	0.1	28.8
MP	55.9	52.8	1.7	0.7	4.8	44.3	1.3	3.2	2.0	0.8	0.0	44.4
AP	67.6	67.0	0.3	0.5	0.5	62.9	2.9	0.6	0.3	0.1	0.0	32.4

Source : Reports of NFHS-2 &NFHS-3

Graph-2 : Prevalence by contraceptive method in major states
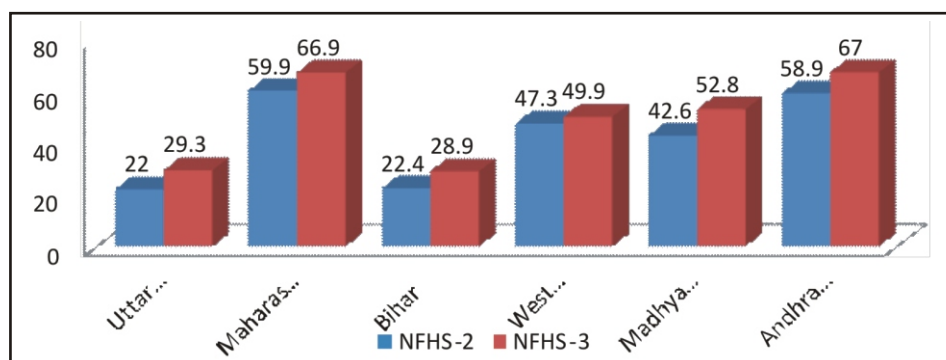
Table no.2 provides comparative data reveals that over all India past 7 years there has been a steady increase in the Contraceptive Prevalence Rate (CPR) from 48 per cent in NFHS-2 (1998-99) and further to 56 per cent in NFHS-3 (2005-06). The use of any modern method is increase 6per cent between NFHS-2 to NFHS-3. In the same period, the share of the any traditional method has been increased 5.0 per cent in NFHS-2 to 7.8 per cent in NFHS-3. Women are much more likely to have used a modern method (42.8 per cent in NFHS-2 and 48 per cent in NFHS-3) than a traditional method (5.0 per cent in NFHS-2 and 7.8 per cent in NFHS-3).

The data reveals current use of any method among major states varies widely from 24.4 per cent in Bihar to 66.6 per cent in West Bengal from NFHS-2 and 34.1 per cent in Bihar to 71.2 per cent in West Bengal from NFHS-3. Low rates in these major states have important implications for future population growth in India because these states together account for more than 50 per cent of India's population.

In major states condoms and female sterilization are equally popular between NFHS-2 and NFHS-3. In all the selective states female

sterilization is by far the dominant contraceptive method. Female sterilization method in Andhra Pradesh continues to be highly skewed, with 63 per cent of users sterilized in NFHS-3, compared with 52.7 per cent in NFHS-2, as well as followed by Maharashtra, Madhya Pradesh, West Bengal, and Bihar have increased 3 to 9per cent users of sterilization between same period of time, and Uttar Pradesh continues to be lowest position with 14.9 per cent in NFHS-2 to 17.2 per cent in NFHS-3. Uttar Pradesh, Bihar, and West Bengal states except Maharashtra, Madhya Pradesh and Andhra Pradesh, also have current contraceptive use rates below to national average.

Percentages of not using any contraceptive method among same group another three states namely Uttar Pradesh, Bihar and Madhya Pradesh higher than India's ratio. In these states majority (more than 50per cent) of currently married women has not used any contraceptive method. Population growth rate is very high in Bihar (decadal growth rate 25.07 per cent) due to 75.5 per cent women not using any contraceptive method in NFHS-2, followed by Uttar Pradesh with 71.9 per cent. Therefore these not users rate are decreasing gradually with 65.9 per cent in Bihar and 56.4 per cent in Uttar Pradesh from NFHS-3. People become aware towards family planning but thought that family planning is totally personal/individual matter so they do not want to talk about with outsiders even own family members. If we talk about women some social, religious factors are working behind their silence.

Table-3 : Knowledge of contraceptive method among respondents (Man & Women)

Contraceptive method	Women (%)	Man (%)
Any Method	100	100
Any Modern Method	100	100
Pill	100	100
IUD	84	92
Condom	100	100
Female sterilization	100	100
Male sterilization	72	100
Any Traditional method	56	68
Rhythm	48	32
Withdrawal	40	56
Any Other Method	24	32

Source : Reports of NFHS-2 &NFHS-3.

The data reveals that 100 per cent of respondents (male and female both) have knowledge about any contraceptive method or it's became universal. Knowledge related specific method like modern method or traditional method among the respondents; respondents have better knowledge about modern contraceptives in comparison of traditional method. Knowledge related spacing method(Pills, Condom) is nearly universal accept IUD, only 84 per cent women have well known about this method rest of 16 per cent women haven't knowledge of IUD, as well as 92 per cent man have knowledge about IUD. All female and male respondents know about female sterilization but only 72 per cent female respondents know about male sterilization. Knowledge of any traditional method is less well known among all male and female respondents. Only 56 per cent female or 68 per cent male have knowledge about any traditional method. With 32 per cent, male respondents have better knowledge related any other method in the comparison of female with 24 per cent.

Table-4 : Use of Contraceptive Method in specific area of Lucknow among respondents (men & women)

Contraceptive method	Women (%)	Men (%)
Any Method	88	-
Any Modern Method	88	-
Pill	64	-
IUD	28	-
Condom	-	24
Female sterilization	40	-
Male sterilization	-	-
Any Traditional method	20	-
Rhythm	12	-
Withdrawal	16	-
Any Other Method	12	32

Source : Reports of NFHS-2 & NFHS-3.

Data reveals that 88 per cent female respondents are using any method rest 12 per cent women are not using any method. 88 per cent female respondents are using any modern method in the comparison to all male respondents. Use of spacing method show different interest level among male and female respondents, generally female respondents like to prefer pill (64 per cent) and male respondents prefer condom. Modern method is more popular in the

comparison of traditional method among user respondents. Only 20 per cent female users are adopting traditional method. Only 12 per cent female and 32 per cent male respondents use other method. Data reflect larger deference in knowledge, attitude and practice, because respondent have knowledge about contraceptive method but they do not prefer to use.

In present scenario couples prefer only one child, but most of couple want a male child if they select only one child, if they select two child then they prefer female child as second child, if their first child is female child they must want another male child but if first child is male child they have very less likely to choose another one. 80 per cent respondents have two children and 60 per cent respondent's first child is female child. On this issue education level is not important because highly educated people think in same way as less educated people though.

Adoption of family planning method by a couple is subject to gender basis in Indian society. Study summaries that when a couple decides to choose a permanent method or spacing method, wife is more likely adopt. Adoption of family planning method viewed as a decision making process involving four stages. In the first step, a couple decides whether to practice family planning or not. Second step involves deciding between permanent methods and spacing method as a choice. In the third step, it is decided who among the two (husband and wife) will adopt family planning method. Finally, it is decided out of the available methods which one is the most appropriate to be adopted. Male respondents believe that family planning issue is totally female issue they do not prefer any type of male contraceptive method, that's way in this area female contraceptive user is greater than male contraceptive user, only 24 per cent male respondents are using contraceptive method (condom user). Male user thought that spacing method (especially Pill which women prefer most) is not good for women health also 100 per cent not convinced some risk factor is work at there. Study suggests that age, education of wife and place of residence are important in selection of male or female specific methods of family planning. Selection of appropriate family planning method by a couple involves many factors together. Findings of the study is important addition to present existing knowledge in this regard play important role in selection process in all possible ways.

Data also show success of government family planning oriented program. These program help to increase knowledge related family planning methods or issues, most of the respondents said that they get knowledge or become aware

with the help of government family planning program. Respondents said that through these programs they became aware toward contraceptive method as well as their health.

As well as knowledge is increasing implementation of knowledge also increase. Study shows that as well as knowledge related family planning is increasing, people behavior willingly or unwillingly towards use of method is also increasing. Because knowledge will became change in human behavior. On the basis of several norms Indian society is not open society for example- family planning issues, sexual behavior, use of contraceptive etc. People having higher qualification and situated reputed post do not like talk about these issues openly due to their own norms, some community pressure, religious barriers etc. Less educated people have great hesitation for consulting doctor on family planning matter.

6·2   Socio-economic Differentials and Background Characteristics towards KAP

In India lots of different factor are working behind Knowledge attitude practice towards family planning method. These factors or background characteristics is education, age, age of marriage, Residence, Religion, Caste/ tribe, Standard of living, and number of living child etc.

The contraceptive use among currently married women generally increases with education, there is however, little difference in contraceptive use between literate women who have and have not completed middle school. In the case of spacing methods, use also tends to increase with education. Women with at least a high school education much more use modern spacing methods or contraceptive method according to illiterate women. On the other hand, as well as women literacy rate is increasing use of female sterilization declines sharply. However, Illiterate women have some lower prevalence of sterilization than literate women. Contraceptive use increased between NFHS-2 and NFHS-3 among women of every educational level. The increasing rate, however, was much more rapid among illiterate women than literate women between NFHS-2 to NFHS-3.

The higher education levels have greater impact on family size and as well as rise in education level showed increasing awareness about different contraceptive methods and go up to use of these contraceptive methods among women. The outcome of female education mostly in increased age of marriage, which as a result reduces the pregnancies, or prefer undergo in very late

motherhood, and being more aware of available contraceptive methods helps in limiting family size. Low rate of child birth not only help the families in controlling their expenditures also helps women attaining the high level of health, and education facilities for their own.

The age of women is a very important factor to decide uses of contraceptive method, percentage of contraceptive users women are varies in different age group. Ever use of any method and any modern method increases with the woman's age 15-17 up to age 35-39 and after age 39-40 decreases subsequently. At age 35-39 mostly currently married women reported ever use of any contraceptive method or ever use of a modern method and then decreases for older women. Age factor has been almost similar in NFHS-2 to NFHS-3. More than half of women are married before the legal minimum age of 18. Among women age 20-49, the median age at first marriage is 17.2 years. Earlier married women have long period of fertility and it is very important that this age group must follow family planning method. By residence, the pattern of ever use of any method by age is similar in urban and rural areas, although urban women are more likely to have used contraception than rural women at every age. The extent of ever use of female and male sterilization, the rhythm method, and withdrawal is quite similar for urban and rural women in all age groups.

However, ever use of the pill, IUD, and condom by urban women percentage exceeds that among rural women. Women below age 25 are more likely to used modern and traditional spacing methods, where women age 25 and over are more likely to have undergone sterilization. Current use of all modern methods except male sterilization is higher in urban areas than in rural areas. The gap for condoms is especially wide in urban area, at their use of condom is four times more than rural use. Religion wise data shows that the highest contraceptive prevalence rate is among Janis, followed by Buddhists/Neo-Buddhists and Sikhs. The contraceptive prevalence among Hindus is higher than Muslims but lower than most other religions belonging women. Use of the pill is highest among Muslims and Sikhs, use of the IUD is highest among Sikhs, and use of condoms is highest among Sikhs and Jains. Male sterilization is rare for all religious groups except Buddhists/Neo-Buddhists. Use of female sterilization is lowest among Muslims and highest among Buddhists/Neo-Buddhists. Since NFHS-1, contraceptive prevalence has increased for all religious groups, but the largest increases have been for Buddhists/Neo-Buddhists and Muslims. Use of traditional methods is highest among Muslim and Christian women. Every religion have some values and

followers of that religion have great respect towards it, like Hindu religion accept that there is a duty to have a family during the householder stage of life, and so are unlikely to use contraception to avoid having children altogether. As well as Sikhs have no objection to birth control, Jains views on birth control has been more willing to allow greater exceptions regarding its use to fit better within modern society. In Buddhism and Muslims there is no widely recognized policy on birth control. Traditional and orthodox families are not using contraceptive method. But gradually traditional belief are changing, NFHS-2 & 3 reports reveals increasing process in different religions. By caste or tribe, contraceptive prevalence is highest among women who do not belong to scheduled castes, scheduled tribes, or other backward classes, followed by women from scheduled cast and other backward classes. Education level and economic status play important role behind use of contraceptive prevalence among caste and tribes. Contraceptive use is lowest among women from scheduled tribes. The prevalence of female sterilization is highest among women from other backward classes, but use of modern and traditional spacing methods is highest among women from 'other' castes. By economic status, use of contraceptive method by the families as is directly linked to economic factors of family. Well earning family is able to use any method of family planning, and other hand some families have not enough resource to purchase things so they can't use these methods or lower class people can't purchase good quality of relative things.

7.   Concluding Remark

The main objective of this study is to investigate about knowledge, attitudes and practices towards family planning among Major States of India, also description about previous and ongoing changes in KAP between NFHS-2 to NFHS-3.

7·1   Knowledge of Family Planning Method

From the above discussion, it may be concluded that though the knowledge and awareness of Family Planning Methods among major states by currently married women is so high but only half of the women adopts family planning. Traditional methods are more common in backward area of major state like West Bengal and Uttar Pradesh may be due to the lack of the complete information about the use or effects of the modern methods. Before applying in practice way it is important to have complete knowledge of related matter, if verify knowledge about the family planning methods, it's almost universal in all major states in selected period of time. Female sterilization is the most widely

known method. The government family planning programme promotes three temporary methods: the pill, the IUD, and condoms. Of these three methods, women are most likely to know about the pill (85percnt in NFHS-3) and men are most likely to know about condoms (93per cent in NFHS-3) Knowledge about contraceptive method is increasing gradually in all selected states, specific knowledge like traditional method like rhythm and withdrawal is common between older age group of women comparatively any modern method is widely known among young age group women.

7·2   Attitude and Practice about Family Planning Method

The positive attitudes toward contraceptives have a significant association with use of contraceptives. Unfortunately use of contraceptive method is nearly half of related knowledge; majority of women is not using any contraceptive method in all selected states. Users among currently married women use of any modern contraceptive method greater than use of traditional method women. Only in Andhra Pradesh and Maharashtra state has near to the national average, and in these states knowledge of traditional method is decreasing but use of traditional method increases gradually between NFHS-2 to NFHS-3. The IUD is retained for a limited duration in rural India where it is used mainly as a spacing device by lowly motivated young women who discontinue the method at the slightest feeling of discomfort or abnormality. The most common reason related to not using modern contraceptives among young women is the fear of side effects from modern contraceptives. Number of children, age and attitudes is significantly related to contraceptive use in this study. Women who were using a contraceptive method may be they had experienced any problem with their current method. This may be an underestimate of the extent of problems, however, because women who have experienced problems by pill like users are weakness/tiredness and headache/body ache/backache. Too much bleeding, abdominal pain, and headache/body ache/backache are reported as problems with spacing methods may have stopped using contraception altogether. Some other regions like-religion, family, partner attitude, age of marriage, education, residence and economical status etc. played important role in the use of contraception. Muslim women are less likely to use contraceptives than women of other religions Hindus and other religious groups. Women from the lowest wealth quintile and scheduled-tribe women are less likely to use family planning methods than most of other women. Women in India are more likely to use contraception if they already have a son.

The present study reflects towards the requirement of more awareness programmes/campaigns etc, which emphasizing on the positive effects of the use of contraception methods and clearing the misconceptions/doubts regarding the ill effects of the family planning Knowledge. This study reveals that education is one of the significant confounding factors to increase the knowledge and practice of family planning among women in India.

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3

Plasma Technology in Textile : A Step towards the Green Environment

*Arpita Kothari**

The textile industry is searching for innovative production techniques to improve the product quality, as well as society requires new finishing techniques working in environmental respect. Plasma surface treatments show distinct advantages, because they are able to modify the surface properties of inert materials, sometimes with environment friendly devices. The advantage of plasma treatments is that the modification turns out to be restricted in the uppermost layers of the substrate, thus not affecting the overall desirable bulk properties. The present paper is an attempt to explain plasma technology in textile. Its specific focus is on the plasma, its application, application techniques and recent undergoing development on the use of plasma physics. It has been shown that sputtering, etching, chemical functionalization, free-radicals generation and UV radiation are some of the most important effects conferred by plasma treatments to textiles. Plasma treatments are increasing their presence in the textile industry for several applications.

[**Keywords :** Plasma, Atmospheric pressure plasma, Corona Discharge, Textile Finishing, Hydrophobation]

1. Introduction

The textile industry is searching for innovative production techniques to improve the product quality, as well as society requires new finishing techniques working in environmental respect. Plasma surface treatments show distinct advantages, because they are able to modify the surface properties of inert materials, sometimes with environment friendly devices. For fabrics, cold plasma treatments require the development of reliable and large systems. Such

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systems are now existing and the use of plasma physics in industrial problems is rapidly increasing. On textile surfaces, three main effects can be obtained depending on the treatment conditions: the cleaning effect, the increase of microroughness (anti-pilling finishing of wool) and the production of radicals to obtain hydrophilic surfaces. Plasma polymerisation, that is the deposition of solid polymeric materials with desired properties on textile substrates, is under development. The advantage of such plasma treatments is that the modification turns out to be restricted in the uppermost layers of the substrate, thus not affecting the overall desirable bulk properties. [7]

Plasma, the 4th state of matter is not so a strange thing, It had been first developed by M. Faraday in 1880s and plasma concept was first proposed by I. Langmuir in 1926. In the 1960s, the main industrial applications of (low-pressure) plasmas have been in the micro-electronic industries. In the1980s their uses broadened to include many other surface treatments, especially in the fields of metals and polymers. In 1980s,in the textile field, low-pressure plasma treatments of a variety of fibrous materials showing very promising results regarding the improvements in various functional properties in plasma-treated textiles. In recent times, commercial applicable atmospheric-pressure plasma processing of textiles is under research.[7]

1·1 What is Plasma?

Plasma is any substance (usually a gas) whose atoms have one or more electrons detached when heat is applied and therefore become ionised. The detached electrons remain, however, in the gas volume that in an overall sense
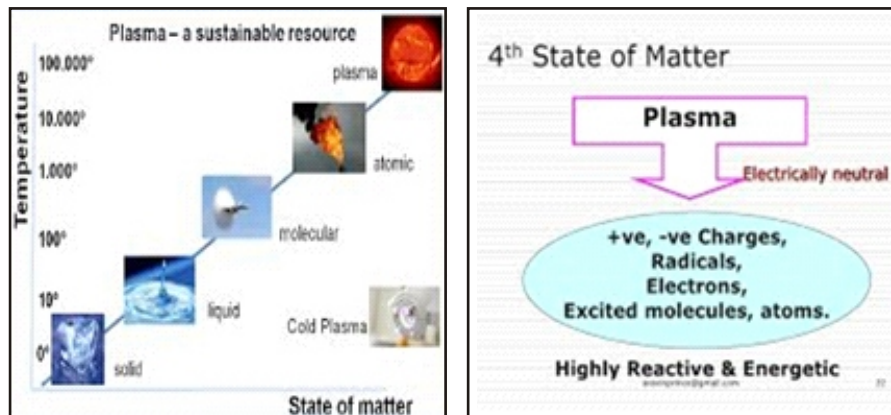
Fig. 1 : Plasma: 4th state of matter

remains electrically neutral. Thus, any ionised gas that is composed of nearly equal numbers of negative and positive ions is called plasma.

The conventional wet treatments applied in textile processing for fibre surface modification and others are associated with many constraints. These treatments mainly concern with energy, cost and environmental issues. Application of Plasma technology at low temperature in textile processing can prove to be the best alternative for these issues. Unlike conventional wet processes, which penetrate deeply into fibres, plasma only reacts with the fabric surface that will not affect the internal structure of the fibres. Plasma technology modify the chemical structure as well as the surface properties of textile materials, deposit chemical materials (plasma polymerization) to add up functionality, or remove substances (plasma etching) from the textile materials for better applicability. The functional properties of the fabric can be modified by Nano scale etching of surface by plasma gas particles. In textile processing, this technology can be explored in various areas like pre-treatment, dyeing and finishing through different methodology vis-à-vis Glow-discharge method, Corona discharge method and Dielectric barrier discharge method to add functionality and modification of surface properties of textile materials. Plasma technology is applicable to most of textile materials for surface treatment and is beneficial over the conventional process, since it do not alter the inherent properties of the textile materials, It is dry textile treatment processing without any expenses on effluent treatment, It is a green process and it is simple process. This technology can generate more novel products to satisfy customer's need and requirement.

1·2   Gases commonly used for Plasma Treatments

▶ Chemically inert (e.g. helium and argon).

▶ Reactive and non-polymerisable (e.g. ammonia, air, and nitrogen).

▶ Reactive and polymerisable (e.g. tetra fluoroethylene, hexamethyl disiloxane).

1·3   Principle of Plasma Processing

Plasma technology is a surface-sensitive method that allows selective modification in the nm-range. If a textile to be functionalized is placed in a reaction chamber with any gas and the plasma is then ignited, the generated particles interact with the surface of the textile. In this way the surface is specifically structured, chemically functionalized or even coated with nm-thin film depending on the type of gas.

1·4   Types of Plasma

Different plasma based on different things are shown in table 1.[6]

Table 1 : Types of Plasma

On the basis of pressure	Low pressure(0.01kpa) Atmospheric pressure(100 kpa)
On basis of the temperature of electrons and ions	Hot plasma(above 10000 degree) Cold plasma(below 100 degree)
On basis of frequency of power supply	Low frequency(40kHz) Radio frequency(13.56MHz) Microwave frequency(2.56GHz)

2.   Plasma Technologies

2·1   Low Pressure Cold Plasma Technology

Low-pressure cold plasma technology is also referred to as vacuum plasma technology. This technology has its origin in the processing of semiconductor materials and printed circuit boards (PCB). Soon after its introduction in the electronics industry, the path to incorporation into the textile and non-woven sectors has been and remains troublesome.

The plasma state of a gas–also considered as the fourth aggregation state of matter – can be reached if the gas is under sufficiently low-pressure and when electromagnetic energy is provided to the gas volume. Under those circumstances, the process gas will be partially decomposed into radicals and atoms and will also be partially ionised. Depending on the frequency of the electromagnetic energy, the pressure range in which equilibrium with a high density of charged particles is reached might be different. For the radio frequency range (typically 40 kHz or 13.56 MHz), normally the working gas pressure is kept in the lower 0.1 mbar range, whereas for microwave sources, a working pressure between 0.5 and 1 mbar is often used. In order to effect the plasma treatment in sufficiently pure process gas conditions, a base pressure in the lower 0.01 mbar needs to be reached. This can be done with two-stage roughing vacuum pumps (rotary vane type) or with a dry pump or with a combination of either of those pumps with a roots blower.

Plasma can bring several effects to substrates, depending on the plasma mode and the process gases used. There are five major effects fine cleaning, surface activation, etching, cross-linking and coating deposition.

Equipment based on this :
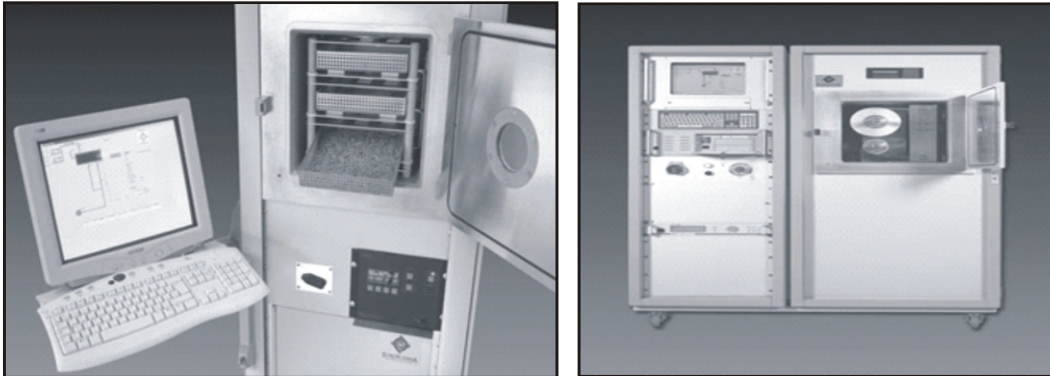
Fig. 2 : Rool-to-Roll batch plasma systems Fig. 3. : True roll-to-roll web treatment

Development of type of low pressure plasma is done by:

2·1·1 Glow Discharge

It is the oldest type of plasma technique. It is produced at reduced pressure (low-pressure plasma technique) and provides the highest possible uniformity and flexibility of any plasma treatment. The plasma is formed by applying a DC, low frequency (50 Hz) or radio frequency (40 kHz, 13.56 MHz) voltage over a pair or a series of electrodes. Alternatively, a vacuum glow discharge can be made by using microwave (GHz) power supply. [10]

2·2 Atmospheric-pressure Cold Plasma Processing Technology

Low pressure plasma processing has failed to make an impact in the textile sector because of a particular constraint, which is incompatible with industrial mass production. All the technologies developed to date are based on the properties of low-pressure plasmas.

The process must take place in an expensive, closed-perimeter vacuum system and cannot be used for continuous production lines operating at room temperature, with machines processing fabric 2 meter wide at high speed.

To overcome these restraints, Atmospheric Pressure Plasma Techniques are being developed. This technique provides the highest possible plasma density (in the range of 1 to 5 x 10^{12} electrons cm^{-3}), without the associated high gas temperatures and the cold plasma chemically treats fabric and other substrates without subjecting them to damaging high temperatures. The Atmospheric Pressure Plasma is a unique, non-thermal, glow-discharge plasma operating at atmospheric pressure. The discharge uses a high-flow feed-gas

consisting primarily of an inert carrier gas, like He, and small amount of additive to be activated, such as O_2, H_2O or CF_4.

The development of three types of APP that have relevance for textile treatment–the Corona Discharge, the Dielectric Barrier Discharge, the Atmospheric Pressure Glow Discharge.

2·2·1 The Corona Discharge

Corona discharges are plasmas that result from the high electric field that surrounds an electrically conductive spatial singularity when a voltage is applied. The high electric field around the singularity, i.e. the point of the needle or the wire, causes electrical breakdown and ionisation of whatever gas surrounds the singularity, and plasma is created, which discharges in a fountain-like spray out from the point or wire. Plasma types are characterized, inter alia, by the number, density and temperature of the free electrons in the system.

The discharge is so narrow that the residence time of the fabric in the plasma would be too short for commercial operation and, in addition, the power level that can be applied is extremely limited by the cross-section capacity of the wire and its ability to dissipate heat generated during treatment. Accordingly, in its pure form, corona is far from an ideal textile surface processing medium.
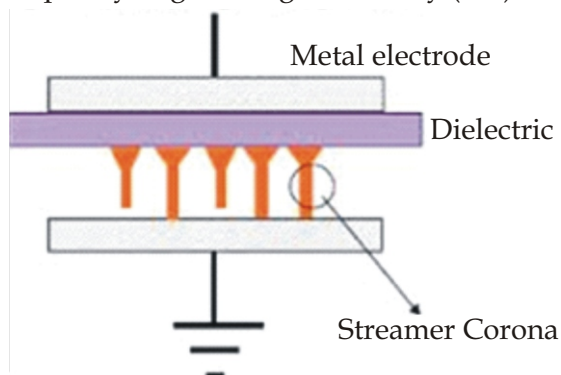
Fig. 4 : Corona discharge

2·2·2 Dielectric Barrier Discharge

In contrast to the asymmetry of the corona system, if a symmetrical electrode arrangement is set up comprising two parallel conducting plates placed in opposition, separated by a gap of ~10 mm, and a high voltage, 1–20 kV,

is applied, the gas between the plates can be electrically broken down and a plasma discharge generated. Generally, however, that plasma takes the form of a hot thermal plasma arc less than a millimetre in diameter, which jumps from one spot on one electrode plate to a spot on the opposing electrode. This is useless for textile treatment and would do nothing except burn a hole in the fabric. If, however, one or both of the electrode plates is covered by a dielectric such as ceramic or glass, the plasma finds it much more difficult to discharge as an arc and, instead, is forced to spread itself out over the area of the electrodes to carry the current it needs to survive. This type of plasma is called a Dielectric Barrier Discharge (DBD) and is large area, non-thermal and uniform. Because of charge accumulation on the dielectric, this tends to neutralize the applied electric field thus choking off the plasma, the DBD must be powered by a.c. and is typically driven by high voltage power supplies running at frequencies of 1 to 100 kHz. It is denser than the corona with a typical free electron density of about 10^{10} electrons/cm3 but the free electrons are slightly cooler at temperatures of 20 000 to 50 000 K. This is a much more attractive candidate for textile processing than the pure corona.

Electrode 2

Dielectric   Plasma

Electrode 1
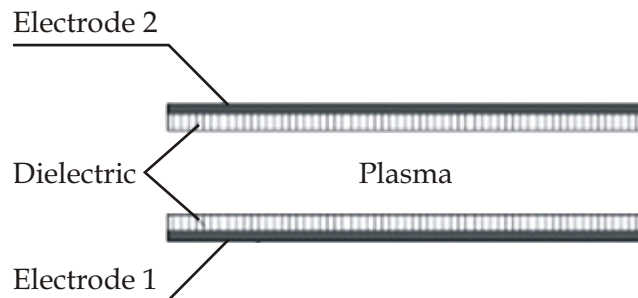
Fig. 5 : Dielectric barrier discharge

2·2·3 The Atmospheric Pressure Glow Discharge

The third APP type intrinsically capable of meeting the size and temperature constraints needed for textile processing is the Atmospheric Pressure Glow Discharge (APGD). This is analogous in its mode of generation and some key characteristics to the famous low-pressure glow discharge plasma that is the backbone of the global plasma industry and workhorse of a dozen major industries, in particular the omnipresent microelectronics industry, which would not exist without the glow discharge plasma. The APGD is generated by application of relatively low (~200 V) voltages across opposing symmetrical planar or curved electrodes, separated by mm at high frequency, or even very high frequency, radio frequencies 2–60 MHz, much higher than the other plasma

types. The electrodes are not covered by dielectric but are bare metal, a feature that enables significantly higher power densities (up to 500 W/cm3) to be coupled into the discharge than can be achieved with corona or DBD.

The APGD is denser than the DBD, with typical free electron densities of 1011–1012 electrons/cm3, but the free electrons are slightly cooler at temperatures of 10 000 to 20 000 K. Textile treatment temperatures can run at 25–50 °C. APGD plasma takes the form of a bright, uniform, homogeneous glow in the region between the electrodes. The application of voltage between metal plates would generally result in generation of a highly undesirable, very high current density and hot plasma arc. By control of the interelectrode gap and the frequency of the driving voltage and, above all, by the use of helium as ~99% of the generation gas, arcing is prevented and a large volume, non-thermal plasma is generated, which is both dense and a rich source of the chemical species needed to carry out textile processing. This amazing gas has several special properties that, in combination, make it uniquely suited for the generation of well-behaved, large volume, cool plasma at atmospheric pressure. Other gases, such as oxygen or nitrogen, are microscopically more complex with many different energetic modes.

All in all, helium has been and continues to be probably the best medium for non-thermal APP research as well as being technologically valuable as a route to useful large volume, cool plasmas.
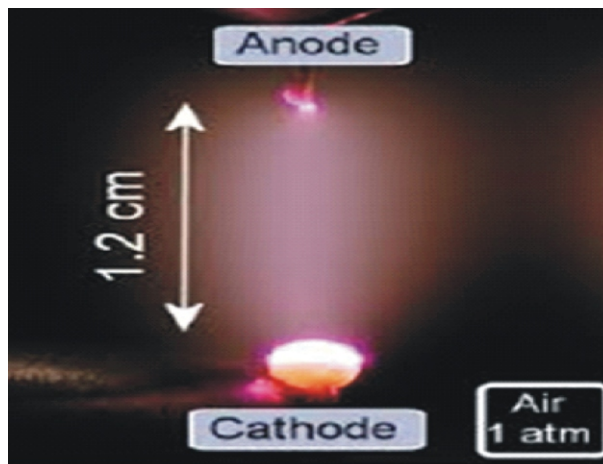
Fig. 6 : Atmospheric pressure glow discharge

3.   Effect of Plasma on Textile Surface

There are five major effects of which three will be described in detail: fine cleaning, surface activation, and etching, cross-linking and coating deposition.

3·1 Surface Activation by Plasma

Surface activation by plasma is also referred to as chemical grafting (Terlingen, 1993). It never occurs alone, but always occurs during/after plasma cleaning. Indeed, in the case of a substrate subjected to a soft secondary plasma which contains reactive species (e.g. oxygen atoms), the effect of those atoms will be twofold: they will react with organic contamination which is present on the substrate surface. Such organic contamination consists, in many cases, of loosely bound hydrocarbons. Both H and C will react with oxygen and will leave the substrate surface in the form of volatile H_2O and CO_2. Once the surface molecules of a polymer are freed from contamination, they can react with the oxygen atoms which will form carbonyl-, carboxyl- or hydroxyl functional groups on the substrate surface. It is said that the polymer surface has been chemically functionalised.

The effect of grafting carbonyl-groups onto a surface of PP, polyethylene (PE), or polyesters such as polyethyleneterephthalate (PET) or polybutyleneterephthalate (PBT) gives rise to an increase in surface energy to levels higher than 68 mN/m immediately after the plasma treatment. This effect is, however, not permanent: it has a certain shelf-life. Once the substrate has been removed from the plasma, and depending on the storage conditions, oxygen atoms will be released again from the surface molecules. This will happen slowly over time. After several days or even several months, the original surface energy of the substrate will have returned. The rate at which this happens depends on the type of substrate: e.g. PP has a fairly good shelf-life of a couple of weeks, whereas silicones show a shelf-life of less than one day. It further depends on the plasma conditions: an intensive plasma treatment will create a higher surface density of functional groups and, as such, the shelf-life will be longer.

Plasma activation is being used in several fabric and nonwoven applications in the textile industry:

▶ Fabrics for automotive and medical applications

▶ Pre-treatment before dyeing

▶ Activation of transportation textile before application of flame-retardant chemistry

3·2 Etching by Plasma

In order to perform an efficient etching process, a direct plasma is normally needed. In such a configuration, the substrate is bombarded with charged

particles (ions and electrons) and apart from a purely chemical effect; the substrate is subjected also to a physical sputtering effect. In the case of textiles and non-wovens, this effect of plasma treatment is not often used.

However, there is a certain potential even for fabrics. The textile market is trying to make deep, dark colours and this is not easy to achieve. One way to do this is to reduce the specular component of reflection of the fabric surface after dyeing. A plasma etching leads to a controlled Nano- or micro-roughness, increasing diffuse reflectance and minimizing the specular component. In consequence, the dyed fabric will have an intenser darker colour after plasma etching.

Etching requires the removal of several hundreds of nanometres and etching processes are therefore slow. Needless to say, this technique is only viable for very high-end textiles.

3·3 Thin Film Deposition by Plasma Polymerisation

A very important usage of low-pressure vacuum plasma technology is thin film coating deposition by plasma polymerisation. In this specific case, reactive precursor gases that can polymerise are being used as process gases (Yasuda, 1976). The precursor gases are broken into radicals that react with each other on the substrate surface. The nature of the precursor gases will very much determine the properties of the deposited coating. Coating thickness is normally in the 10–50 nm range (5–30 molecular layers).

The very first applications of plasma polymerisation were found in the medical device industry. There are many industrial applications of thin film deposition by plasma polymerisation in the technical textile and nonwoven industry. Roughly, the coatings deposited in those industries can be categorised under either (permanently) hydrophilic coatings or hydrophobic/oleo phobic coatings. In most cases, the deposited coatings give rise to unique products that are difficult or even impossible to produce using other technologies.

Application of deposition by plasma on textile:

▶ Hydrophobation of non-wovens for filtration applications
▶ Hydrophilic coatings on non-woven PP for battery separators

4. Application of Plasma Technology in Textile

Due to high restriction in the control of chemical processing of textile materials, the new and innovative textile treatments are demanded. In this

regard, plasma technology shows distinct merits due to its environmental friendly and better treatment results.

Various eras where this technology can be explored includes pre-treatments, other wet processes of textiles, technical textile and non-woven. Plasma can modify the surface properties of textile materials, deposit chemical materials (Plasma polymerisation) to add up functionality, or remove substances (plasma etching) from the textile materials and used to produce innovative functional textiles.

4·1 Desizing of Cotton Fabric

[Plasma technology](#) can be used to remove PVA [sizing](#) material from cotton fibres. In conventional desizing process we use chemicals and hot water to remove size. But desizing with plasma technology we can use either O2/He plasma or Air/He plasma. Firstly the treatment breaks down the chains of PVA making them smaller and more soluble. X-ray photoelectron microscopy results reveal that plasma treatment introduces oxygen and nitrogen groups on the surface of PVA which owing to greater polarity increase the solubility of PVA.

Of the two gas mixtures that were studied, the results also indicate that O2/He plasma has a greater effect on PVA surface chemical changes than Air/He plasma.

4·2 Dyeing

Several studies have shown that dye ability or printability of textiles can be markedly improved by plasma treatments. This effect can be obtained on both synthetic and natural fibres. Capillarity improvement, enhancement of surface area, reduction of external crystallinity, creation of reactive sites on the fibres and many other actions can contribute to the final effect depending on the operative conditions. Also production of colours on fibres exploiting diffraction effects has been attempted.

4·2·1 Dyeability of Natural Fibres

It has been reported that plasma treatment on cotton in presence of air or argon gas increases its water absorbency which in turn increase both the rate of dyeing and the direct dye uptake in the absence of electrolyte in the dye bath.

The contributory factors leading to this increase in dye uptake can be: i. The change of the fabric surface area per unit volume due to the surface erosion. ii. The etching effect of the plasma effect on the fibred mages the fiber surface and

also removes surface fiber impurities (e.g. cotton wax or any remaining warp size, etc.). iii. The chemical changes in the cotton fiber surface (leading to carbonyl and carboxyl groups in the fiber. iv. The possibility of the formation of free radicals on the cellulosic chains of cotton. v. Thus the action of oxygen and air plasma treatments modifies the surface properties of cotton and leads to an increase in the rate and extent of uptake of direct dye.

The dye exhaustion rate of plasma treated wool has been shown to increase by nearly 50%. It has been shown that O_2 plasma treatment increases the wetability of wool fabric thus leading to a dramatic increase in its wicking properties. Also the disulphide linkages in the exocuticle layer oxidize to form sulphonate groups (which are act as active sites for reactive dyes) which also add to the wetability. The etching of the hydrophobic epicuticle and increase in surface area also contributes towards the improvement in the ability of the fibers to wet more easily.

4·2·2 Dyeability of Synthetic Fibres

In the synthetic fibres, plasma causes etching of the fibre and the introduction of polar groups leading to improvement in dyeability. This has been evaluated through in situ polymerization of acrylic acid in case of polyester, polyamide and polypropylene fabrics. Plasma-induced surface modification of microdenier polyester produces cationic dyeable polyester fiber. The researchers believe that this technique can lead to a continuous flow system, low energy consumption, and more environmentally friendly consumption, low temperature dyeing technology on polyester substrates.

Polyamide (nylon6) fabrics have been treated with tetrafluoromethane low temperature plasma and then dyed with commercially available acid and dispersed dyes. Dyeing results showed that the plasma treatment slows down the rate of exhaustion but does not reduce the amount of absorption of acid dyes. The dyeing properties of disperse dyes on plasma treated nylon fabric charged markedly when compared with untreated fabric. A slight improvement in colorfastness was seen with the treated sample.

4·3 Textile Finishing

Unlike wet finishing processes, which penetrate deep into the fibres, plasma treatment is restricted to surface reaction and limited to a surface layer of around 100 A°. Because of this various functionality and properties can be imparted to both natural fibres and polymers, as well as to non-woven fabrics, without having any adverse effect on their internal structures.

This leads to produce various types of functional textiles. Various finishing applications of plasma in textiles are given in table-1.

Table 1 : Various Applications of Plasma in Textile Finishing

APPLICATION	MATERIAL	TREATMENT
Hydrophilic finish	PP, PET, PE	Oxygen plasma, Air plasma
Hydrophobic finish	Cotton, P-C blend	Siloxane plasma
Antistatic finish	Rayon, PET	Plasma consisting of dimethyl silane
Reduced felting	Wool	Oxygen plasma
Crease resistance	Wool, cotton	Nitrogen plasma
Improved capillarity	Wool, cotton	Oxygen plasma
UV protection	Cotton/PET	HMDSO plasma
Flame retardancy	PAN, Cotton, Rayon	Plasma containing phosphorus

Plasma can be used for grafting molecules on the fibre surface to impart special functionality to textiles. Hydrophobic character to lightweight cotton fabric can be done by polymerization using microwave plasma. A polymer layer of about 100 A^o thick is deposited on the cotton fibre surface as a result of this plasma assisted grafting and polymerization. Europlasma, CD Roll 1100/600, CD Roll 1800/600 are some machines based on plasma system tailored for textile surface finishing, developed in Belgium[14]. The costs of these devices are very high, If the cost factor is eliminated, this technology will be very important for textile finishing industry.

4·4 Bio-Medical Applications

New medical products, materials and surgical procedures keep improving current health-care practices. Plasma surface modification can improve biocompatibility and bio functionality. The use of synthetic materials in biomedical applications has increased dramatically during the past few decades. Although most synthetic biomaterials have the physical properties that meet Surface Modification Methods. Modifying the surface of a material can improve its biocompatibility without changing its bulk properties.

Several methodologies have been considered and developed for alter the interactions of biomaterials with their biological environments; plasma surface

modification is one of these methodologies. The Process In the plasma surface modification process, a glow discharge plasma is created by evacuating a vessel, usually quartz because of its inertness, and then refilling it with a low-pressure gas,. The gas is then energized using techniques such as radio frequency energy, microwaves, alternating current of direct current. The energetic species in a gas plasma include ions, electrons, radicals, meta stables, and photons in the short-wave ultraviolet (UV) range. Surfaces in contact with gas plasmas are bombarded by these energetic species and their energy is transferred from the plasma to the solid,. These energy transfers are dissipated within the solid by a variety of chemical and physical processes as schematically to result in the surface modification.

4·5   Antifelting of Wool

Felting is an essential issue of wool garment due to the fibre scales. Conventional anti-felting gives negative effects on hand feel and environmental issues. Oxygen plasma gives anti-felting effect on wool fibre without incurring traditional issues.

4·6   Water Repellent Fabric

Cotton or hemp fabric usually absorbs water immediately. Applying a low-pressure plasma process, the fibre's surface can be altered to make it repel water. After the treatment, drops run freely over the surface while mechanical properties, the visual appearance, and the permeability for water vapour remain unchanged. The surface modification is limited to a very thin layer. A treatment as short as 2 seconds can be sufficient to achieve this effect in a batch process. Continuous treatments with a speed of more than 20 m/min are conceivable.
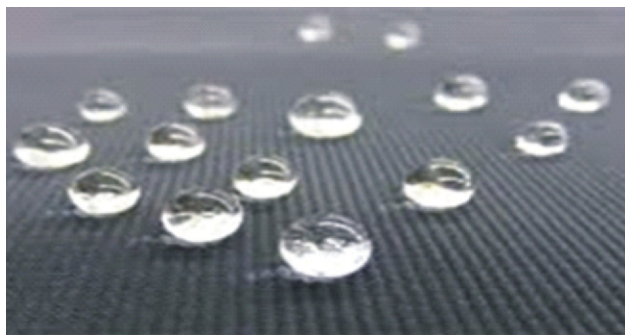
Fig. 7 : Water repellence of fabric

The stability of the modification can be seen in intermitted washing cycles of fluorocarbon treated cotton fabric. After an initial drop, the finishing

remains stable for at least two hours at 95°C. The quality of the repellent effect is evaluated by putting water drops to the fabric surface. A value of 1 means that the drops run freely over the surface and do not penetrate into the material while at a value of 3 the water does not penetrate but it needs vibrations to move the drop. Obviously this evaluation depends also on the nature of the fabric.

4·7   Adhesion Improvement in Laminates and Composites

In oxygen plasma the number of functional groups at the surface can be increased which can improve the adhesion to other material. The results are stronger laminates and better composite materials.
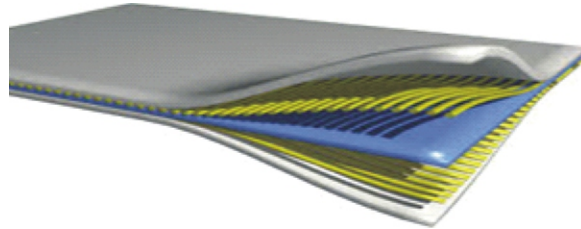
4·8   Flame Retardant Fabric

Currently, halogen-containing flame retardants are being banned for ecological reasons. The new kinds of flame-retardant chemistry, e.g. based on organic phosphonate derivatives, are much more expensive. Therefore, their usage should be limited to the absolute minimum. It has been shown that, in the case of plasma-activated fabrics consisting of both natural fibres and polymers, the concentration of flame-retardant chemicals can be reduced considerably without influencing the flame-retardant properties of the treated web. This again leads to considerable cost savings.

4·9   Hydrophobation of Nonwovens for Filtration Applications
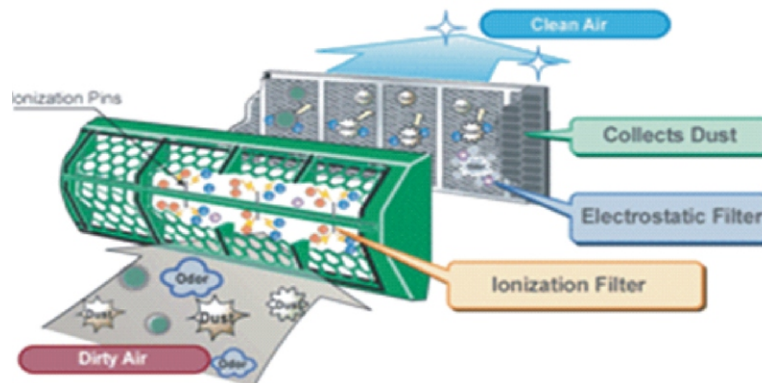
It is mainly plasma polymerisation for coating deposition that has found its way into the filtration industry. A first example of plasma coating can be found in air filter media both for respirator masks and for filters used in HVAC systems. Such filters consist of several layers of meltblown non-woven PP, which are electrically charged (electrets). Filtration efficiency for oily particles can be greatly improved by applying a hydrophobic/oleophobic coating prior to electrical charging.

4·10 Hydrophilic Coatings on Non-woven PP for Battery Separators

NiMhydride rechargeable batteries normally use a non-woven meltblown PP separator web. In order to improve wetting with the electrolyte, some manufacturers are using gamma rays to increase surface energy, but this is an expensive and even hazardous type of treatment. By applying a permanently hydrophilic type of coating out of gaseous pre-cursors, one can increase wetting behaviour of the battery separator considerably.

For a 1 min wicking of a plasma-coated material, values between 22 and 25 mm were obtained immediately after plasma coating, whereas the uncoated reference material gave 0 mm (no wicking at all). Commercial reference materials on the market, which were not plasma coated, showed wicking values of only 5 to 10 mm. The samples from the wicking test performed 21 days after plasma coating were immersed in a beaker with 30% KOH solution. The beaker was covered with aluminum foil and was then put in an oven at 70 °C for 7 full days. After this, the samples were rinsed in demineralized water and air dried. Then the wicking test was repeated, showing wicking values of 16–18 mm. Wash resistance of permanently hydrophilic coatings is better than for hydrophobic/ oleophobic coatings but is still limited to about 7 wash cycles. Again, in the battery separator application, this is not important.

5. Traditional textile Processing vs. Plasma Technology

The advantages of plasma technology over textile wet processing are shown in the following table :

Table 2 : Traditional Textile Processing vs. Plasma Technology

Medium	Plasma Processing	Traditional Wet Processing
	No wet chemistry involved. Water-based Treatment by excited gas phase	Water–based

Energy	Electricity – only free electrons heated (<1% of system mass)	Heat – entire system mass temperature raised
Reaction type	Complex and multi-functional; many simultaneous processes	Simpler, well established
Reaction locality	Highly surface specific, no effect on bulk properties	Bulk of the material generally affected
Potential of new processes	Great potential, field in state of rapid development	Very low; technology Static
Equipment	Experimental, laboratory and industrial prototypes; rapid industrial developments	Mature, slow evolution
Energy consumption	Low	High
Water consumption	Negligible	High
Handling and storage of bulk chemicals	No	Yes
Mixing of chemicals, formulation of baths	No	Yes
Raw materials consumption	High	Low
Drying ovens and curing operations	No	Yes
Need for solvents, surfactants, acid	No	Yes
Number of process steps	Single	Multiple
Waste disposal/ recycling needs	Negligible	High
Environmentally costly	No	Yes
Innovation potential	Very high	Moderate

6. Recent Research in Plasma Technology

In the textile field, significant research work has been going on since the early 1980s in many laboratories across the world dealing with low-pressure plasma treatments of a variety of fibrous materials showing very promising

results regarding the improvements in various functional properties in plasma-treated textiles.

Plasma technology is in itself a new research topic in textiles but from all the above discussion it is clear that it has a great potential in textile innovations and there are a lot of things and research has been going on, few of them are listed below.

6·1   Atmospheric Pressure Plasma Vapour Treatment of Thermo-sensitive Poly (N-isopropyl acrylamide)

Poly(N-isopropyl acrylamide) (PNIPAAm) is a new type of smart thermo-sensitive macromolecule material that is characterized by a sudden precipitation on heating, switching from a hydrophilic to a hydrophobic state. By using the self-made equipment of atmospheric pressure plasma vapour treatment running in the environment of argon, PNIPAAm was deposited separately to Polybutylene Terephthalate (PBT) melt-blown nonwovens and Polyester (PET) fabrics. It was found that the wettability and water permeability were significantly modified by changing the temperature above and below the Lower Critical Solution Temperature (LCST), according to the data derived from measurements of water contact angle, water permeability time and Scanning Electron Microscopy (SEM) images. Considering human body temperature is close to the LCST, these results are valuable for further application to thermo-sensitive textile materials.[1]

6·2   Multifunctional Textiles with High UV Protection

Plasma polymerization technique can be used on textiles with TiO2 and/or ZnO nanoparticles and such high UV protective or multifunctional fabrics can be developed.[8]

6·3   Antimicrobial Textiles with Metallic Effects

Research is going on for developing anti-microbial fabric by Metallization with Ag nanoparticles on textile surfaces by sputtering (PVD) i.e. Physical vapour deposition.

6·4   Atmospheric Pressure Plasma Processing System for Angora Wool (APPAW)

Recently, FCIPT-Institute for Plasma Research (IPR) and National Institute of Design (NID) carried out a pioneering research work by way of not only developing an innovative Atmospheric Pressure Plasma Processing System for Angora Wool (APPAW) but also successfully installing and establishing it in the Angora Cottage Industry at Kullu.

| Angora Fibre Before Plasma Treatment | Angora Fibre After Plasma Treatment |
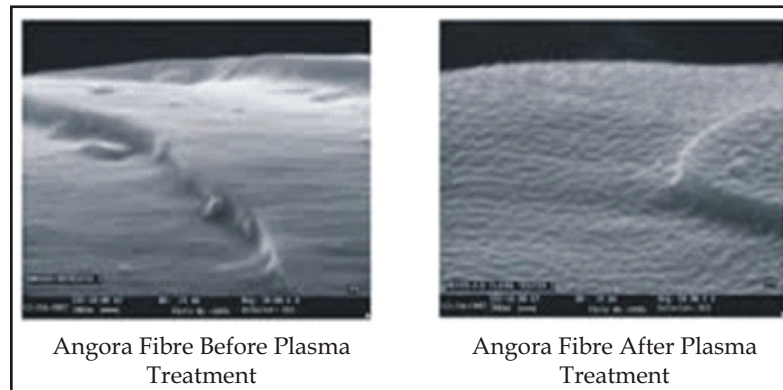
This plasma plant for surface modification of fibres, generates plasma at atmospheric pressure using air as plasma forming gas. This is a cost-effective green process. Also, it is the first Atmospheric Pressure Plasma System for Textiles developed in the country, for demonstration.[11]

Plasma treatment assists in increasing the friction and cohesion between the fibres. It forms a part of the movement on promotion of non-polluting techniques for mechanical processing of textile materials without any difficulties such as static, shedding, fibrosity. The plasma treatment caused a slight reduction in denier and increase in tenacity of Angora fibre while substantially increasing the friction between the fibres. The plasma treatment to Angora fibres also improves wettability and dye uptake.

7. Conclusion

▶ Plasma is a versatile technology to chemically and physically modify the surface of materials.

▶ Plasma technology is used to achieve new or improved properties to textiles. It is an alternative environmentally friendly technology to complement or substitute several conventional textile processes.

▶ Research and development of plasma treatments applied to textiles are still globally increasing. Different studies have been done on natural, artificial and synthetic fibers.

▶ Sputtering, etching, chemical functionalization, free-radicals generation and UV radiation are some of the most important effects conferred by plasma treatments to textiles.

▶ Plasma treatments are increasing their presence in the textile industry for several applications.

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4

Education for the 21ˢᵗ Century : The Singapore Context

*Marc Jonet**

This paper focuses on the dichotomy between the Singapore Ministry of Education's stated desired outcome of education (DOE) and the realities faced by students and faculty alike. Since the British East India Company (EIC) established a trading post in Singapore in 1819 and despite the many reforms orchestrated by the Ministry of Education, which led Singapore's education system to be described as world-leading, students have not received an education that allows them to develop the skills needed to survive in the newly defined economy. The system itself, despite claiming to be inspired by the progressivism philosophical perspective - education should focus on the whole child - is, in fact, much more essentialist in its approach - common core knowledge must be transmitted to students in a systematic, disciplined way - and seems to be failing increasingly to prepare students for the 21st Century and equip them with the seven necessary survival skills, as defined by business leaders as well as character education skills, values and virtues.

[**Keywords :** Education, Skills, Politics, Leadership, Philosophy}

1. Introduction

As the Greek philosopher, Heraclitus (535-475 BCE) declared, "There is nothing permanent except change," and education, unfortunately, does not escape this trend. Education principles seem to head in one direction, but as soon as they do, there is a new wave of guidelines imposed on educators that tell them what they must do. Education, and many other broad concepts, has as many meanings as it has different contexts, and there is no real right or wrong definition of what education encompasses. The definition of education argument

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has been going on for ages. For Socrates, education was literally leading out, from the Latin e-ducere, what was within the pupils, but others felt it was necessary to give students the necessary tools to get a position, a job, in the city.[1]

For Plato, the purpose of education was "to develop in body and soul all the beauty and perfection of which they are capable" (Palmer, 2001). Since Plato, hundreds of individuals, like Maria Montessori, John I. Goodlad, Ralph Winfred Tyler, have had a tremendous influence on education, providing new ideas and new paradigms on what education should be. For most parents, though, education's purpose is to develop children and give them the proper skills and tools to find a job and earn a living. At the end of the day, what seems to be the biggest issue in Singapore's education is that it has not been the educators who have led the country into a bubble test, computer-scored obsession; it has been the political system. Education and schooling are parts of our society, and those in power make decisions that directly impact students and teachers daily.

In order to assess if an education system is performing well, our Ministry of education recommended a series of characteristics, skills, and knowledge, known as desired outcomes of education (DOE) - that each student should acquire upon the completion of formal education.

In Singapore, a student going through the education system can expect to receive an education based on the following DOE :

He has a good sense of self-awareness, a sound moral compass, and the necessary skills and knowledge to take on challenges of the future. He is responsible for his family, community and nation. He appreciates the beauty of the world around him, possesses a healthy mind and body, and has a zest for life. In sum, he is a confident person who has a strong sense of right and wrong, is adaptable and resilient. He knows himself, is discerning in judgment, thinks independently and critically, and communicates effectively. He is a self-directed learner who takes responsibility for his own learning, who questions, reflects and perseveres in the pursuit of learning. He is an active contributor who is able to work effectively in teams, exercises initiative, and takes calculated risks. He is innovative and strives for excellence; and, is a concerned citizen who is rooted to Singapore. He has a strong civic consciousness, is informed, and takes an active role in bettering the lives of others around him.

1. The paper was written as part of the requirements for my Master in Science of Education with concentration in counselling from Breyer State University, Panama.

In theory, these values are in line with the political movement called progressivism–referred to as progressive education because its ideas and practices intend to transform schools into effective agencies of a democratic society. In short, this implies that all citizens should actively participate in decisions that will affect all aspects of their lives, be it at the social, political, or economic level.

In order to achieve this noble goal, two essential conditions need to be present: the respect of each individual and those individuals' unique characteristics, such as cultural identity, interests, and abilities, and the development of a system that will engage each citizen in the development of his community while trying to achieve a common purpose. Unfortunately, this cannot be observed on a daily basis, resulting in the questioning of the education system in Singapore and whether it prepares students for the new economy.

2.   Philosophy of Education

As previously illustrated, the desired outcome of education should be in line with a child-centered or learner-centered learning approach. However, if we take a close look at what is taking place in our classrooms, at the micro level, we notice what John Goodlad described in his book, A Place Called School, as the five basic patterns in classroom culture:

1. The focus is not on the individual. The class is treated as a group, and the educator addresses it as a whole. We understand that this is probably the consequence of a need to keep a tight control of the group, but unfortunately, it leads to socialization;

2. Such tight control does not promote natural burst of joy, enthusiasm, or anger, and the general atmosphere is rather neutral;

3. The majority of the activities taking place in classes are comprised of listening to the educator, writing, and eventually, answering questions as well as taking tests at regular intervals. Subjects like art and physical education, where there is a little hands-on activity, are the exception;

4. Since the main objective is to score well on final exams or in international competitions, the type of teaching becomes more and more rigid as the students progress through their schooling; and

5. Very little, if anything, is done to encourage student's natural curiosity, to encourage them to think outside the box and explore the world around them. At best, the basic memorization of facts is at the core of most activities.

The results of such a practice is clearly in opposition to the initial intent stated by the educational policy makers as it creates a system that produces people who can ace examinations; unfortunately, it does not encourage the development of the skills needed to make rigorous decisions on fundamental aspects of life.

For Maria Montessori, the role of an education system is :

▶ Awaken the child's spirit and imagination;

▶ Encourage his normal desire for independence and high self-esteem;

▶ Help him develop the kindness, courtesy, and self-discipline that will allow him to become a full member of society;

▶ Help the child lean how to observe, question, and explore ideas independently.

These roles are similar to Piaget's idea of constructivism or social constructivism, where he proposed, "children construct their own beliefs and understandings from their experiences." Unfortunately, in Singapore, students have been spoon-fed information all their life, so when the students must think outside the box or when they are given the opportunity to express feelings and emotions, they are simply incapable of doing so. At best, these students express feelings and emotions in a very bipolar fashion: I like; I do not like. It is as if we want students to build their knowledge, but they need the opportunity to make discoveries for themselves and practice their skills in real situations, which also includes learning through failures and making mistakes, values that are diametrically opposed to the core values of success and performance at the core of Singapore society.

Jerome S. Bruner (1915) said, "Education is not simply a technical business of well-managed information processing, not even simply a matter of applying 'learning theories' to the classroom or using the results of subject-centered 'achievement testing.' It is a complex pursuit of fitting a culture to the needs of its members and their ways of knowing to the needs of the culture" (Jerome Bruner,). However, Richard Stanley Peters (1919) claims that for education, distinct from other things like training or indoctrination, to take place, three criteria must be met. The criteria are that :

▶ Education implies the transmission of what is worthwhile to those who become committed to it;

▶ Education must involve knowledge and understanding and some kind of cognitive perspective that is not inert;

▶ Education at least rules out some procedures of transmission, on the grounds that they lack willingness and voluntarism (Peters, 1966, p. 45, 119).

Let's have a look at those statements one by one.

2·1 Education implies the transmission of what is worthwhile to those who become committed to it

Depending on the sociopolitical background of a country, what is deemed worthwhile might have been determined by those in power in order to maintain better control over the population and the development of the nation. For instance, in Singapore, one of the most conservative South-East Asian countries, social values and education curriculum are highly dictated by the political system. As time progresses, radical shifts in the needs of the nation versus the needs of individuals may occur. Educational models from the past may no longer fit the needs of the present.

If the education system is analyzed, a system under an extreme amount of control is easily visible. In such context, the system does not respect a Socratic view of education, which seeks to bring out what students had within. Instead, the current system tries to focus on what is worthwhile, without consideration for the individual or his strengths, aspirations, and motivations. It is clear that what is worthwhile may vary from year to year. If there is a need for doctors today, for instance, by the time they complete their education, there might be a plethora of doctors, and they would have wasted their time and might become unemployable. What is even more obvious and regrettable is that the system seems to have forgotten to ask the opinions of one group of major stakeholders: the educators themselves. Rarely do educators have the opportunity to voice their concerns and observations, and when they were given this opportunity, educators' opinions are rarely well received.

2·2 Education must involve knowledge and understanding and some kind of cognitive perspective, which is not inert

Herein lies the concept of nature versus nurture. The cognitive perspective is by nature not inert, but at the same time, researchers–since Piaget's research–agree that cognitive development depends on physiological maturation. The brain undergoes a series of genetically controlled changes during infancy, childhood, and adolescence that allow increasingly sophisticated thinking processes; hence, genetic make-up also has a part to play. Education is not all about nurturing and developing an individual to fulfill his full potential.

Unfortunately, in today's world, education is also seen as a business, and students are perceived as customers. Education is a service, lecturers are service providers and textbooks are like apparel. Institutions are more interested in the number of students that apply for their courses, making their institution number one in the country.

Knowledge and understanding are no longer the main focus of education. The quantity of students receiving a passing grade is more valuable than the quality of education provided, and students' zones of proximal development are rarely challenged. Lecturers are also no longer allowed to fail a student, except in extreme cases, and grades are shifted according to bell curves. Educators are constantly reminded to do their best to help students articulate their transition to universities by being more generous (give better grades) to the top performers as it will have an impact on their GPA.

Polytechnics (Tertiary Institutions) have also embraced the International Organization for Standardization (ISO) with all its consequences. Unfortunately, such quality control system only looks at processes rather than results, and at best, it provides the user with a series of tools that assess conformance, not performance. Educators spend hours formatting documents and filling in templates to ensure that the establishment stays ISO certified. There hasn't been any correlative study that proves that ISO certification increases the number of students at a school or quality of students registering in these programs. Knowledge and understanding are, therefore, not assessed for the benefit of the person receiving the education.

2·3 Education rules out some procedures of transmission, on the grounds that they lack willingness and voluntarism

The methods of transmission used in education have nothing to do with any form of willingness and voluntarism. Students are at the mercy of an educator, and since he is the almighty in the eyes of most students, he is an authority to be respected. However, there is not much respect for teachers in classrooms any longer. From my observations, in some classrooms, teachers, lecturers, and professors promote the idea that they represent the knowledge. I do not see any willingness and voluntarism in that case.

In general, students are the one who have to fit in and conform to the education system; the education system does not have to serve the needs of its students.

Plato suggested that if children are allowed to learn about things they are genuinely interested in, a natural fit will be observed, and those children can be pushed in that direction. This is a reasonable claim. Plato also claimed that by enforcing learning, students are not actually being taught as the forced information will not stay in there mind, and they will miss the opportunity to learn about something they are generally interested in. Herein lies the dilemma and challenge of how to help students enjoy learning subjects and material that at first glance they felt no interest in.

3.   From Education to the Business of Education

If Plato had to be transported into today's society, he would surely disagree with our pedagogic methods. In the U.S.A., for instance, funding of high school is in general based on test results. In better schools, more students pass tests with higher grades, which means they receive more funding. The result is a transformation of the schools into test-oriented entities. Students who are not interested in simply memorizing facts might slowly lose interest and become disconnected from what they have learned and even from school in general. These students might lose opportunities to further their education at a higher level, and they may be dismissed from the education system entirely.

At the polytechnic level in Singapore, a similar phenomenon is observed. At these institutions, schools compete with each other to attract larger numbers of students, and these institutions create and offer new diplomas every year, but there is little concern for the quality of teaching or for students' support and welfare. In such environments, students rarely develop their thinking skills since they have been trained to memorize rather than apply concepts.

These students lack natural curiosity, and if they find importance to some subjects, assessments, and so on, it is mostly because it would benefit them from an academic point of view; they are not interested in gaining the knowledge for personal growth. The result of such an educational philosophy is that more and more students who are only interested in going through the system are enrolled. These students are not necessarily slow learners, but these students tend to lack maturity–at both an intellectual and emotional level–and most of them simply wait to receive orders from their teachers to start thinking, so to speak.

If society genuinely wants students entering polytechnics to be in line with the prescribed DOE, it is at primary school that the issues should be addressed. When sixteen-or seventeen-year-old students enter their polytechnic life,

cognitive patterns and methods for assessing issues have already been formatted in such way that it is a daunting challenge for students to shift their thinking patterns. If those issues are to be addressed, a review of philosophers or thinkers on education, like Montessori, Bereiter, Gardner, or Goodlad, who made several suggestions for improving schools in his book *A Place Called School* (1984), should be conducted.

For schools to be more successful, Goodlad provided a vision that encompasses the following principles:

1. Promote in all youth the dispositions, skills, and knowledge that will allow them to fully participate in the social and political development of the nation;

2. Ensure that all students have the same opportunity to learn, to learn how to learn and what they need to learn, regardless of their learning abilities;

3. Education is not just a job but a responsibility; hence, it is vital to ensure that all educators are equipped with this intrinsic vocation. All students should understand the need to build a relationship and create a conducive environment to promote learning;

4. Through personal experiences taking place at school, prepare students for democracy, allowing them to understand the rules and their rights and responsibilities as a citizen; and

5. Classrooms should represent a microcosmic society where educators must be empowered to stand up for what they believe in. This is what Goodlad refers as the educator serving as a steward at school.

Going a step further, in his book, *The Twelve Major Goals of American Schools* (Goodlad, 1979), Dr Goodlad recommends twelve goals that he felt "are important to allow the students, parents and teachers to have a greater part in developing the school's philosophy and working toward understanding the effect of social change in the schools." Those goals are:

A. Academic Goals :

▶ Mastery of basic skills or fundamental process because with technology at the core of all activities, it is vital for an individual to learn those basic skills in order to participate actively in the development of society; and

▶ Intellectual development because with the emergence of global trends and the increasing level of sophistication and complexity of societies, individual intellectual development is vital.

B. Vocational Goals :

▶ Career and vocational education because with an average of 40 hours spent at work each week, an individual will assess his level of satisfaction based mostly on how satisfied he is with his work. In order to make sound career choices, it is vital for individuals to assess their personal aptitudes and interests in regard to their career possibilities.

C. Social, Civic and Cultural Goals :

▶ Enculturation because the present must be approached by understanding the past, which at the same time, gives a sense of identity and direction for every student;

▶ Interpersonal relations because each child should learn how to appreciate his own ethnic group's values as well as the values of other groups;

▶ Autonomy because in order to survive in a fast–paced, changing world, schools should help children develop their capacity to assume the responsibility for their own needs;

▶ Citizenship because the process of democratization and the development of a democracy require the constant involvement of citizens of all creeds at both the social and political levels;

▶ Self-concept because this will serve as a feedback mechanism for personal goals and desires; it is also known as self-construction or self-perspective; and

▶ Moral and ethical character because Goodlad refers to the role that schools need to play in nurturing the development of the capacity of the evaluation of right or wrong behavior as well as moral conduct and integrity.

D. Personal Goals :

▶ Emotional and physical well-being because emotional stability and physical fitness are necessary for achieving the other goals;

▶ Creativity and aesthetic perception because Goodlad refers to the ability to create meaning while appreciating the creations of others as an essential skill in self-realization and a skill that the society would benefit from; and

▶ Self-realization because by making an effort to develop themselves, individuals will be more equipped to participate in the development of a better society.

As Goodlad pointed out, too often the importance of learning is not at the core of our education system. Parents, with the possible exception of Japan where parents perceive the activity of going to school as similar to going to work, often express their concerns of a learner-centered school system, stating that in such a system, the teacher does not assume his responsibility and passes that responsibility on to the student not realizing the value of self-discovery.

If we want our students to be sensitive to the world around them, it is vital to cultivate and develop their sensibilities at a high level. They must be sensitive to one another, so they will have successful relationships with others. This can only take place, if educators are willing to play their part and actively participate in school rejuvenation, so to speak.

For Dewey (1938),

"…Experience is primarily an active-passive affair; it is not primarily cognitive…the pervasive emphasis on cognition and its separation from affect poses a threat to our society in that our educational institutions may produce cold, detached individuals, uncommitted to humanitarian goals. Certainly, a modern society cannot function without ever increasing orders of cognitive knowledge. Yet knowledge per se does not necessarily lead to desirable behavior…unless knowledge is related to an affective state in the learner, the likelihood that it will influence behavior is limited" (Dewey, 1938)

From Dewey's perspective, education has two purposes: societal and individual. Education should focus on the development of the individual as well as the development of the society. Dewey (1938) maintained that, "education should be progressive and experiential." Dewey's ideas can be summarized by saying that education is not preparation for life; education is life itself; He said, "Give the pupils something to do, not something to learn and if the doing is of such a nature as to demand thinking; learning naturally results."

The concept of education itself has been revisited many times under the influence of Greek philosophers and their followers. The students are now, or at least should be, at the center of the dialogue as they are assigned individual tasks, keeping in mind their individuality.

4.   Education and Politics

The question that remains is why this is not happening in Singapore. I believe that the structure of the political situation is where the answer lies.

Singapore has an autocratic central government that has tight control over all aspects of life, be it economical, political, or social. This political situation minimizes individual rights while glorifying the nation.

Despite these critiques, the economic success of Singapore did not take place by accident. Strategic planning and strong political will were the key factors contributing to the development of Singapore's fast-growing economy, a modern city with high-tech infrastructures, a safe environment, and an organized country that is well maintained. However, none of this took place through public opinion.

Although there have been several attempts to engage Singaporeans in discussions of issues about making Singapore a better place, more specifically through a campaign called Singapore 21 launched in August 1997 by Prime Minister Goh Chok Tong, political leaders have always urged caution because there is a limit to how much they are willing to be challenged.

One might find this situation quite astounding, but as the socialization processes took place simultaneously, be it from the primary socialization level at home (where norms and values are received); the secondary level, which is what takes place outside the home (where behavior specifics are learned); or formal and information socialization (the army or by copying others behavior), most Singaporeans simply learned to follow their leaders with few complaints and little resistance to what was imposed on them.

The series of sudden protests following the last election also had an impact on education as we have seen an increasing number of Parliament sessions talking about issues regarding the education system in Singapore in the last few months. In a recent Parliament session, Dr. Intan Azura Mokhtar asked the Minister for Education if elitism still existed in schools, especially in better-performing schools or those having a majority of well-to-do students.

Mr. Lawrence Wong (Minister of State, Ministry of Defense, and Ministry of Education) replied:

> We recognize that every child is different and that learning needs and abilities are different. And that is why we have customized progression pathways that are different. Not just one single track, but multiple pathways to cater to the different abilities and needs of students. No single pathway is superior to another. That should not be the mindset. The diverse pathways are meant to cater to different learning needs and each

one customized for people with different needs. Somebody may be academically slower and they may need a longer time to study and to progress in their pathway, but they may be a slow learner initially and a faster learner later on. So, what we also want to do is to have many bridges and ladders across the different pathways, so that as you progress along one pathway and as you do well subsequently, you can move on to a different pathway–adapted, again, and customized to the needs of that individual (Parliament No 12, 2012).

During another, more recent session, Mr. Yee Jenn Jong, a non-constituency member from the opposition party (The Workers' Party), asked the Minister for Education what progress had been made on the holistic assessment approach for education at the lower primary levels that places less emphasis on semestral examinations, as recommended in the 2009 Report of the Primary Education Review and Implementation (PERI) Committee.

The Senior Parliamentary Secretary to the Minister for Education (Ms. Sim Ann) stated :

Sir, one of the recommendations of the Primary Education Review and Implementation (PERI) Committee was to introduce more holistic assessment to support learning. Holistic Assessment comprises the use of a variety of age-appropriate assessment modes. The emphasis is on skills development and to provide constructive feedback for meaningful learning (Parliament No 12, 2012).

Changes do not to occur over night; however, it is clear that there are at least some debates taking place at the Parliament level, and since a summary of those debates is broadcast every time they take place, and with an opposition stronger than ever, changes might finally be instituted.

5.   The Strawberry Generation

On April 29, 2011, I had the opportunity to attend a seminar series entitled "Transforming Education for the 21st Century," organized by Educare Singapore, which is a cooperative of the Singapore Teachers' Union (STU). One of the seminars that caught my attention was "Leading, Learning, and Teaching in the 21st Century" presented by Tony Wagner, Ed.D., Innovation Education Fellow at the Technology and Entrepreneurship Center at Harvard. I could not have been more thrilled to see someone who spoke at length to the CEOs of major

companies, asking them about the qualities they were looking for in future employees, and Dr. Wagner talked at length about the gap between what is taking place in our schools and global achievement. He was finally in Singapore to share his valuable insight.

What Dr. Wagner refers to as the global achievement gap is the gap between what we are teaching and testing versus the skills the students will need for careers, college, and citizenship in the 21ˢᵗ Century. During the short two-hour session, Dr. Wagner also talked about what the seven survival skills, which were the core of his talk. These skills are as follows:

5·1 Critical Thinking and Problem Solving

Critical thinking is the intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication that are used as a guide to belief and action (Scriven and Paul, 1987).

5·2 Collaboration across Networks and Leading by Influence

"The biggest problem we have in the company as a whole is finding people capable of exerting leadership across the board…Our mantra is that you lead by influence, rather than authority" (Chandler,). In short, it is all about collaboration, instead of commanding and controlling, as organizations are becoming more and more global.

5·3 Agility and Adaptability

This particular concept refers to how fast both organizations and people working in those organizations can adapt to the constantly changing environment. Adaptability is defined as the capability of reshuffling both the organization and the people working for it, in order to meet a different series of requests.

5·4 Initiative and Entrepreneurship

The sense of initiative and entrepreneurship refers to an individual's ability to turn ideas into action. It is all about being creative, innovative, and being a risk-taker as well as the ability to plan and manage projects in order to achieve objectives.

5·5   Effective Oral and Written Communication

"The biggest skill people are missing is the ability to communicate: both written and oral presentations. It's a huge problem for us" (Neal,).

5·6   Accessing and Analyzing Information

We can't talk about information literacy without first considering the paradigm shift resulting from the role of technology in the delivery of and access to information. Technology provides us with the ability to acquire a higher volume of information faster. Learning has shifted from linear to hypermedia as students move back and forth between different sources of information in a non-sequential way. The question that remains is how to process, analyze, and make use of that information effectively.

5·7   Curiosity and Imagination

Curiosity is an essential element of critical thinking. Michael Jung, senior consultant at McKinsey & Company stated, "The most successful worker will not merely adapt to working conditions that are given to him but be able to adapt in a way that creates a position that fits his own profile."

At first glance, it all makes perfect sense, and those so-called survival skills might have been at the core of the education system for a while, and they were probably implemented with some success. What has changed in the last decade, however, is the composition of students entering our institutions. Some called them the Net generation (Net Gen), others call them Generation Y, Generation Z, Millennial Generation, and Echo Boomers. In her book *Educating the Net Generation*, Diana G. Oblinger describe this generation with the following attributes:

Digitally literate : Having been immersed into the world of technology since birth, the Net Gen is able to intuitively use a variety of information technology devices and navigate the Internet. Although most of them can intuitively make use of technology, their understanding of the technology itself and how to fully make use of it tends to be shallow.

Connected : "As long as this generation has been alive, the world has been a connected place, and more than any preceding generation, they have seized the potential of networked media." While highly mobile, moving from work to classes to recreational activities, the Net Gen is always connected.

Immediate : They multitask, moving quickly from one activity to another, sometimes performing them simultaneously; unfortunately, this occurs with a limited attention span.

Social : Despite not being at ease in face-to-face interactions, when it is time to share personal information, opinions, and comments on social networks, the Net Gen seems to be in their element. Clearly not understanding what public domain means, they talk about everything and nothing, without any form of restrain, and they label people they do not even know as friends.

Teams : The Net Gen prefers to work in team, and we can often assist with a peer-to-peer approach, where students help each other. Often to their detriment, the Net Gen finds peers more reliable than teachers when they are selecting what is worth paying attention to.

Structure : They want parameters and procedures, and they have a preference for clear structure and guidance rather than vague instructions.

Engagement and experience : The Net Gen likes to receive information at a fast pace. In the classroom environment, this simply means that they will not pay attention if the educator does not make the lesson interactive and engaging or if the lesson is too slow. Unfortunately, this may also lead to a situation where they do not take the time to process and reflect on information.

Visual and kinesthetic : According to Oblinger, in a study that replaced text-based instruction with graphic instructions, the refusal to do the assignment dropped while test scores increased.

Things that matter : According to Jeffrey R. Young, when given a choice, this generation seems to prefer working on things that matter, such as addressing an environmental concern or a community problem (Young, 2003).

In Asia, the Net generation has been labeled the strawberry generation. Addressing the Singapore Scout Association's 100ᵗʰ anniversary dinner in February 2010, Senior Minister Goh Chok Tong described young Singaporeans as "fragile like strawberries." This was in reference to the Taiwanese expression "Strawberry Generation" that described children as overly sheltered, insubordinate, spoiled, not able to withstand pressure, and apathetic about what happens around them. Like the strawberry, they tend to bruise very fast. During the last thirteen years, a tremendous drop in the quality of students enrolling in our polytechnic has been observed. Despite the expected 5 to 10% of exception,

quite a number of them lack commitment, they harbor an overall apathy for learning, and they tend to lack curiosity.

6.   The Need for Change in Leadership Styles

Singapore is one of the most modern ASEAN cities. Its infrastructure is world class, its modes of transportation are efficient, its internet penetration is as high as it has ever been, its system of fiber optics is spreading to modest housing estates, and all its polytechnics are equally well equipped; they even have the capacity to conduct distance-learning.

Everything has been done to satisfy the most demanding of our customers, also known as students. If all the technology and infrastructures are in place and if, without a single doubt, Singapore has an amazing pool of dedicated educators who never cease to try to perform better, be inventive in their classrooms, and give their best to the students they teach, then why is there such a gap between our DOEs, the seven core skills stated earlier, and what we actually observe on a daily-basis. I believe that it is in our management style that results in the bulk of the problem; more specifically, it is in the way our managers tend to comply with anything that comes their way, without asking too many questions.

Compliance might produce managerial efficiency, but it does not promote a culture of inquiry. Leaders that intend to engage their employees need to encourage questions, debates, and dialogues. Unfortunately, most of those leaders tend to promote both a top-down managerial approach and an unchallenged buy-in. Although the top-down approach is still predominant in a number of corporations, the weaknesses of such an approach are becoming more and more obvious, leading corporations to mix both the top-down and bottom-up approaches. Too often, we assume that **top-level managers** are best suited to be influential and get things done.

However, it is not necessarily true that these people have the ability to lead and changes things and with clear vision and an innovative approach.

This particular style of management only promotes a detachment between the original objectives of the corporation and the daily practice of individuals who feel more and more disconnected from the top of the pyramid. Those small groups of individuals develop alternate ways of exercising management and develop their own micro-tasks, objectives, and visions. Although they practice all of the above very often with good intentions, they are seen as disloyal, dishonest,

and difficult to manage simply because they are too challenging for the people in power. The challenge for top management is to see that in those isolated groups, there might be some valid strategic value that should be heard.

If those same top managers were to apply a bottom-up managerial strategy, they would still provide the basic direction of the new initiative or policy they wanted to implement, but they would invite team members at lower level of management and end users to participate in each and every step of the management process. The entire team would work together, avoiding the need to enforce an unnatural buy-in. Each team member would then be allowed to come up with solutions and focus on practical ways of solving the problem or implementing the initiative, instead of being forced to apply abstract ideas. The reason such a managerial approach is more beneficial for all parties involved is because the more top-down, autocratic approach, usually causes resentment and often leads to little success. The laissez-faire approach does not promote sufficient monitoring of progress, which often leads to failure. This also often leads to confusion as the end user will always propose solutions to problems that were not clearly stated to start with.

How many times do we hear, "You should not have done it this way, this is not what I expected, you should not write this, say that…" and so on, simply because there was a total lack of clear directives to start with.

What seems to be missing in our schools is a more directed empowerment style of leadership. This leadership approach, described by Robert Waterman in *The Renewal Factor: How the Best Get and Keep the Competitive Edge* promotes autonomy and creativity (empowerment) within a systematic framework that stipulates clear, non-discretionary priorities and parameters (directed).

The reason corporate initiatives are very often not well received or simply fail, besides the fact that they are simply imposed on the educators, is because they are often not explained well, and the end user sees very little connection between what he has been forced to do or implement and the relevance to his work as educator.

The directed empowerment approach would keep the educators' practice in line with the original intended initiative, but it would provide a platform for both the administrative team and the team of educators to gather together in an effort to find a solution, to find practical ways to implement policies that would satisfy both parties.

This is what Elmore called reciprocal accountability in his book *School Reform from the Inside Out: Policy, Practice, and Performance* (Richard F. Elmore, 2003). In order for such a practice to succeed, leaders need to learn how to let go, so they can help build the capability of each member of the group to accomplish the task they have been working on.

The person at the top of the pyramid should ask himself the following question: "What can I do to give people in this organization the tools and skills to ensure their eventual success as they undertake this challenge?"

In a country like Singapore, which still practices some form of Confucianism, where one prefers the harmony to the truth, the status quo to changes, and the leader tends to surround himself by yes men and yes women, which does not promote change, development, or creativity. Most often, people at the top of the pyramid "ignore the invisible leadership of lower-level staff members" (Murphy, 1988 : 655).

Promoting educators into leadership roles has been common practice for quite some time, and educators are promoted to positions such as department heads, curriculum developers, course managers, and section heads. In theory, those specific positions provide an opportunity for educators to promote their decision-making processes.

According to Nickse (1977), there are four reasons why promoting educators as agents of change has a great opportunity for success:

1. Teachers have a vested interest. "They care about what they do and how they do it and feel a sense of responsibility for their efforts";
2. Teachers have a sense of history, they are "aware of the norms of their colleagues";
3. Teachers know the community, "have information concerning the values and attitudes of the community"; and
4. Teachers can implement change. They "are where the action is…in the position to initiate planned change on the basis of need."

However, it seems that despite the attempts to promote educators into leadership positions so they become leaders of change and extend their leadership's roles, these educators do not see themselves as leaders simply because they are never consulted when it is time to develop new plans and initiatives. Their contribution is still limited to what they are allowed to

contribute. Often, they feel pressured to comply with cumbersome of rules and regulations and fill out an increasing amount of unnecessary paperwork. Therefore, these educators feel that they have a title but no real power, and they are given very few opportunities to voice their real concerns.

What I feel is lacking is, in fact, a personal vision, and without a vision, those so-called leaders are merely playing a role of managers. It is vital for all leaders to start with a personal vision as it will allow them to forge a shared vision with their coworkers and will empower their teams to act according to this common vision.

Leaders of educational change have a clear picture of what they want to accomplish; they have the ability to visualize one's goals. Their vision of their school or district provides purpose, meaning, and significance to the work of the school and enables them to motivate and empower the staff to contribute to the realization of the vision (Mazzarella and Grundy, 1989).

According to Manasse (1986), vision includes the "development, transmission, and implementation of an image of a desirable future…sharing of a leader's vision may differentiate true leaders from mere managers" (p. 151). Sergiovanni stated, "School leaders have not only a vision but also the skills to communicate that vision to others, to develop a shared vision, a shared covenant.

The development, transmission, and implementation of a vision is the focus of leaders of educational change" (Sergiovanni, 1990). Sergiovanni has described this aspect of leadership as bonding; leader and followers have a shared set of values and commitment "that bond them together in a common cause" (p. 23) in order to meet a common goal.

In Chrispeels's (1990) report of effective schools, she stated, "if a school staff has a shared vision, there is a commitment to change" (p. 39). The shared vision becomes a "shared covenant that bonds together leader and follower in a moral commitment" (Sergiovanni, 1990 : 24). "These teachers' visions included changes in the classroom, such as interdisciplinary curricula, varied student grouping patterns, and instruction that included basic literacy as well as critical thinking, creativity, inquisitiveness, and independence of thought" (Murphy, Everston and Radnofsky, 1991 : 144).

Compared to the general adult population, who identify a good salary and job security (Feistritzer, 1986 : iii) as the most satisfying aspects of a job; teachers identify the three most satisfying aspects of teaching as :

1. "A chance to use your mind and abilities";

2. "A chance to work with young people–see young people develop"; and

3. "Appreciation for a job well done" (Feistritzer, 1986 : iii).

4. According to Greenfield (1991), teachers' work is not "motivated by bureaucratic mandate or directives from superiors, but by a moral commitment to children rooted in their awareness of the needs of these children and their belief about the significance of their roles as teachers, in these children's lives" (p. 8). "The primary rewards for most teachers come from students' academic accomplishments–from feeling certain about their own capacity to affect student development" (Rosenholtz, 1987 : 188).

I can, without a doubt, agree with the last two statements as I have seen how proud and moved colleague educators were while attending a graduation ceremony of students they had in their classes. Unfortunately, the educators seem to be the only ones addressing the needs of students as students and not as customers.

The rest of the structure around them seems to have only one objective, to please the customer by constantly finding new ways to entertain them–organizing events of all kinds–and prioritize the building of structures to accommodate their needs. Higher levels of management even turn against their educators if they feel the image of the school might be in danger. An educator may reprimand a student or exercise another form of discipline, and management may begin to turn against the educator in order to avoid losing face due to fear that the brand–the school–will suffer from bad publicity.

This prioritization of students to academic staff has led many educators to the conclusion that they do not count, that the management team does not care about them, and they feel neglected. "To lead change the leader must believe without question that people are the most important asset of an organization" (Joiner, 1987 : 2). This can only take place if, the leader first values the professional contributions of the staff, which depend on the leaders' ability to relate to people.

Finally, a good leader must be capable of fostering collaborative relationship. "One finding to emerge repeatedly in studies of leaders, including studies of educational leaders, is that leaders are people oriented" (Mazzarella and Grundy, 1989 : 16). Gorton and McIntyre (1978) found that effective principals had "an ability to work with different kinds of people having various

needs, interests, and expectations" as their strongest asset (Mazzarella and Grundy, 1989 : 16).

Niece (1989 : 5) found that "effective instructional leaders are people oriented and interactional." "Change must be initiated by leaders who are willing to risk their reputations for the future benefit of their companies" (Joiner, 1987 : 4).

A good leader should possess the following qualities :

▶ Has a vision;

▶ Believes that schools are for learning;

▶ Values human resources;

▶ Is a skilled communicator and listener;

▶ Acts proactively; and

▶ Is willing to take risks.

7. Top-Down Leadership Style and its Impact on Students

Singapore's school systems, with its top-down approach to discipline strategies, strongly encourages group identity and conformity. However, when the students graduate from these schools, they are expected to become creative, original in their approaches, and demonstrate unique characteristics. Too often, we stress conformity both in terms of behavior and in the approach to learning. Learning through taking risks and failures are definitely not encouraged, and often, students prefer to play-it-safe and obtain a passing grade instead of venturing outside the box and risking failing or acing a subject.

If we want to fully embrace the 21ˢᵗ Century and its challenges, we need to develop a new attitude toward adversity. It is vital to help our students develop the ability to treat failures and mistakes as valuable experiences. As a fervent believer in the concept of synchronicity, dear to the Swiss Psychiatrist Karl Gustav Jung, I would say that there is no such thing as a coincidence. Everything is just a meaningful event taking place in time and space, from which we can learn valuable lessons. Jung invented the word synchronicity to describe what he called "temporally coincident occurrences of a causal events." Synchronicity is, in fact, nothing less than a meaningful coincidence.

If, for just one moment, we were to stop the constant noise taking place in our brain and start to analyze events taking place in our life using Jung's theory, it might help our students :

1. Understand that they only use a small percentage of their full capacity, which will enforce their self-belief, the idea that they can accomplish what they desire to accomplish and much more;

2. Make use of their intuition and ability to innovate;

3. Learn from each and every experience, be it a success or a failure, and learn how flexible they can be and how quickly they can adapt to changes and new environments.

Mastery of any skill creates a feeling of contentment. It makes us happy, and psychological and educational researchers from Abraham Maslow to Martin Seligman point out the intimate connection between our emotions and our ability to learn and remember. Also, certain types of learning make us happier, which helps us to learn more effectively.

The top-down approach of management has nothing to do with what we are talking about here. As human beings, we develop our learning process through evolution, by interacting with our environment and by extending our zone of proximal development. In a time of such a high-level of complexity, with access to a never-ending flow of new information, schools will have to adapt their teaching pedagogy and offer new mode of learning while transforming and preparing learners to be more adaptive to the world unfolding in front of them. As Beetham and Sharpe (2007) found, this process involves engaging learners in apprenticeships for different kinds of knowledge practice, and it will require new processes of inquiry, dialogue, and connectivity.

Innovative new teaching pedagogies will need to include:

▶ Digital competencies that focus on creativity and performance;

▶ Strategies for meta-learning, including learner-designed learning;

▶ Inductive and creative modes of reasoning and problem-solving;

▶ Learner-driven content creation and collaborative knowledge-building; and

▶ Horizontal (peer-to-peer) learning and contributions to communities of learning.

Pedagogy 2.0–a framework derived from Web 2.0–offers a series of guidelines to promote effective learning:

▶ Content should consist of micro units of content that augment thinking and cognition and may include a wide variety of learner-generated resources that are accrued from students creating, sharing, and revising ideas;

▶ Curriculum should not be fixed but dynamic, open to negotiation and learner input, consisting of bite-sized modules, and interdisciplinary in focus, and it should blend formal and informal learning;

▶ Communication where students are offered multiple opportunities for open, social, peer-to-peer, and multi-faceted forms of visual, verbal, and auditory communication using multiple media types to achieve relevance, immediacy, and clarity;

▶ Learning processes should be situated, contextualized, reflective, integrated with thinking processes, iterative, dynamic, and performance and inquiry-based;

▶ Resources should include multiple informal and formal sources that are media rich, interdisciplinary, and global in reach;

▶ Platforms, through a network of peers, teachers, experts, and communities, should be open to students;

▶ Learning tasks should be authentic, personalized, experiential, learner-driven and designed, and enable the creation of content and innovative ideas from learners.

These principles represent the intersection between established instructional design principles for the creation of constructivist, student-centered learning environments.

In *Nine Characteristics of High-Performing Schools*, G. Sue Shannon and Pete Bylsma (2007), offer resources to improve student learning. In 2002, specialists from the Office of the Superintendent of Public Instruction (OSPI) reviewed more than 20 studies on successful schools.

All the successful schools had the following attributes in common:

1. A clear and shared focus is required, so everybody knew where they are going and why. The focus was on achieving a shared vision, and all – be it educators or administrators - understand their role in achieving the vision. The focus and vision are developed from common beliefs and values, creating a consistent direction for everyone involved;

2. High standards and expectations for all students where teachers and staff believe that all students can learn and meet high standards are required. While recognizing that some students must overcome significant barriers,

these obstacles are not seen as insurmountable. Students are offered an ambitious and rigorous course of study;

3. Effective school leadership where effective instructional and administrative leadership is required to implement change processes. Effective leaders are proactive and seek help when it is needed. They nurture an instructional program and school culture conducive to learning and professional growth. Effective leaders have different styles and roles–teachers and other staff, including those in the district office, often have leadership roles;

4. High levels of collaboration and communication are required, so there is strong teamwork among teachers across all grades and with other staff. Everybody is involved and connected to each other, including parents and members of the community, to identify problems and work on solutions;

5. Curriculum, instruction, and assessments aligned with state standards are necessary, so the planned and actual curricula are aligned with the essential academic learning requirements (EALRs). Research-based teaching strategies and materials are used. Staff understands the role of classroom and state assessments, what the assessments measure, and how student work is evaluated;

6. Frequent monitoring of learning and teaching are necessary, and a steady cycle of different assessments identify students who need help. More support and instructional time are provided, either during the school day or outside normal school hours, to students who need more help. Teaching is adjusted based on frequent monitoring of student progress and needs. Assessment results are used to focus and improve instructional programs;

7. Focused professional development is necessary, so a strong emphasis is placed on training staff in areas that are in needed the most. Feedback from learning and teaching focuses on extensive and ongoing professional development. The support is also aligned with the school or district vision and objectives;

8. Supportive learning environment is necessary, so the school has a safe, civil, healthy, and an intellectually stimulating learning environment. Students feel respected and connected with the staff and are engaged in

learning. Instruction is personalized and small learning environments increase student contact with teachers;

9. A high level of family and community involvement is required, so there is a sense that everyone has a responsibility to educate students, not just teachers and staff in schools. Families and community also play a vital role in this effort.

In our new world of constantly shifting possibilities and opportunities, the problems we are preparing our students for might not be the ones they will encounter in real life. It is no longer important for them to state what they know; it is more likely that what they can do with what they know will be required in their curriculum vitae.

As David Chiem and Brian Caswell so brilliantly stated in their book *The 3-Mind revolution*; in order to survive in our new economy, the students will need to learn how to develop what they call the champion mind, the learning mind and the creative mind.

The champion mind is simply a different way of thinking, made of equal parts of emotional intelligence, communication skills, self-awareness, and self-confidence. As for the learning mind, if we can develop it so that we maintain our natural curiosity about the world around us, to store and make use of information effectively, we will be able to identify how we learn. If we can develop the creative mind and apply creativity to the problems we face, and if we strive to give creativity the emphasis it deserves in our schools, we might be able to give each and every child the opportunity to contribute to the world around them.

8.   Summary and Conclusion

Fortunately and unfortunately, the dichotomy between the stated DOE from the Singapore Ministry of Education and the reality faced by students and faculty is not unique to Singapore, and neither is the global achievement gap between what we should teach our children and what is really covered in our curriculum, or how we teach. However, in conservative Asian societies, it is probably the top-down approach that constitutes the biggest of all challenges. Colleague educators from Singapore and neighboring countries have all shared the same feelings of disconnect between what they face on a daily basis and the

policies dictated by their Ministry of Education, the President of their university, their Boards of Trustees, and other decision makers.

Our school leaders seem to fail to provide the educators with adequate tools to carry out their missions, focusing most of their time on key performance indicators, the success of ISO certification, and other irrelevant statistics that, at best, demonstrate some level of conformity but do not say much about performance. Compliance, as we have seen, is a bureaucratic tendency, but it does not promote or enable the intellectual inquiry and engagement required for sustainable improvement. At best, it promotes a climate of resentment, cynicism, and sarcasm.

To become architects of change, educators need to be fully engaged in educational improvement efforts; they need to be allowed to voice out their concerns, ideas, and disagreement in a supportive climate without fear of reprisal. We need a new kind of leader; one that is willing to focus on helping the team share knowledge, one that is willing to give the team members a voice. We need a new kind of administrator; one that can both run our schools and understand the challenges faced by educators on a daily basis.

Leaders should stop spending their time with other leaders, focusing on strategic issues. Sure, strategic plans are important, but over time, leaders become out of touch with the reality and problems faced by educators who are the ones that get the work done. By isolating themselves, leaders become out of sync with reality and tend to focus on and cater solely to issues related to other leaders and managers.

Slowly things are changing, and there are an increasing number of educators expressing the same message. Unfortunately, we have not yet reached a critical mass. Educators need to stand united and dare to express their concerns while offering solutions. Let's not be passive-aggressive but pro-active and work together to develop a new way of addressing the issues we face in our classrooms and with our managers. For some, teaching is just a job, but for most, it is a vocation, a calling. Things will not change overnight, but without a doubt, it starts with a reflection, followed by some concrete action. Transformation education is an ongoing task, but it has already started through the work we are doing every day.

"We've bought into the idea that education is about training and success," which is defined monetarily rather than by the students' ability to think critically

and to challenge. We should not forget that the true purpose of education is to make minds, not careers. A culture that does not grasp the vital interplay between morality and power, which mistakes management techniques for wisdom and fails to understand that the measure of a civilization is its compassion not its speed or ability to consume, condemns itself to death (Chris Hedges, 2009).

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5

The Efficiency of John Dewey's Teaching Method in relation to Tourism and Leisure

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This paper is an attempt to analyze the efficiency of John Dewey's teaching method in relating to tourism and leisure. It has been shown that John Dewey's teaching method can be used for teaching leisure and tourism courses, because it is based on such important elements like thinking, flexibility, thoroughness, profoundness, responsibility and change. As the subjects of tourism and leisure courses are very varied and expanded, Dewey's teaching method could provide effectiveness and coherence in the students' learnt matters because it consists of elements like realism, responsibility, activeness, research and stimulation.

[**Keywords :** Teaching method, Tourism and leisure, Efficacy, Reflective thinking, Reflective experiences]

Certainly the teaching method is very important in education and has a great effectiveness in learning process. In other words, using an appropriate teaching method helps the students not only to acquire information, thoughts, and skills, but also helps them to profit from these treasures to develop their social skills and to deepen their understanding of environment and themselves too.

In the courses concerning tourism and leisure, using effective teaching methods is even more important, because the nature of these courses not only relates them directly to varied subjects, but also associates them with social,

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ecological, historical, artistic, cultural and international changes. Thus, the correct and comprehensive teaching methods must be used to arrive at a good result in the important fact of education. The teaching methods containing practical and theoretical procedures help the students to attain an organized cognition of unknown facts. The expanding and varied subjects are the main characters of tourism and leisure courses. And for teaching them effectively and coherently, it is necessary to explore the principles and structures of appropriate teaching methods and profit them to design appropriate teaching methods for tourism and leisure. Practical aspect is one of the most important points in designing teaching methods, but the practical aspect is based itself on a theoretical fundamental.

John Dewey's teaching method can be used for teaching leisure and tourism courses, because it is based on such important elements like thinking, flexibility, thoroughness, profoundness, responsibility and change.

Considering the mentioned points, the intention of the authors of present paper is to take the attention of the individuals who are responsible in tourism and leisure education, to the suitability of Dewey's teaching method for tourism and leisure. Surely applying his method in courses concerning tourism and leisure will develop the student thinking and innovation, and this way an effective step in teaching these courses could be taken.

John Dewey, American pragmatic philosopher and educator, according to himself, is an instrumentalist. He thinks knowledge is the result of research. The research method and its different steps in Dewey's view are the different steps of reflective thinking and reflective experience. The research method and its steps are the steps of reflective thinking and experience. And reflective thinking can be defined as active, careful and continuous examination of each idea or every imaginative form of knowledge that leads to practical results, and this kind of thinking and experience occur only in the atmosphere that exist an interaction between the individual and his environment

Reflective thinking and experience is the base of Dewey's educational theory. Reflective thinking that in fact is his educational theory, according to Dewey occurs in a reflective experience framework and situation. Dewey says: education is from experience, by experience and for experience. But emphasis only on experience is not enough, the quality of experience is very important too. According to Dewey, reflective experience consists of two principles: affinity and bilateral impact. The affinity principle of experience means every experience is

connected to other experiences, and continues in the later experiences. From educational point of view every experience that is connected to other experiences and makes other experiences possible, is more important. Thus the experience that stimulates experiencing the other new experiences is a good experience and the experience that makes the students dislike the other new experiences, is a bad experience, because it prevents them from new experiences and in result prevents their development.

Therefore, it is clear that the affinity principle of experience is attached to the previous experiences but it is not separated from the later experiences either. According to this principle every experience must be such an experience that gets the student ready for future experiences.

The bilateral principle of experience also means every experience gainer influences the environment at the same time that the environment influences him; on the other hand every experience contains both internal and external facts. The contact between these facts is called situation, hence according to bilateral principle of experience, Dewey says:

This sentence that the individuals live in a unique world means they live in series of situations. It means that they have bilateral relation with other individuals and other things. The terms of situations and bilateral impact are inseparables. Therefore it can be concluded that reflective thinking also begins always by experiencing certain situations and in fact the reflective thinking is the reflections of these situations.

One of the conclusions that Dewey draws from the unstable and changing state of situations, is that, as it is not possible to foresee the future problems and situations, then presenting any total solution to the students is impossible too. Thus instead of presenting any problem and finding solution for it, we must develop his problem solving ability. For this purpose the student must confront with the problem himself and solve it by his proper effort, because as it was said before, thinking process occurs in the situations that make problems.

In Dewey's point of view learning is the behavior change caused by experience, or, on the other hand it is the very reflective thinking and the best way to develop it, is using scientific research method that the student must use it himself. The student must use the same method that a researcher or a scientist uses for finding a response for his problem.

The different steps that he follows are :

1. At first he confronts with an ambiguous situation.
2. He asks himself precise questions about the problem.
3. He gathers information concerning the problem.
4. Profiting from the gathered information he tries to find a solution for his problem.
5. Finally he tries to examine and evaluate his response.

For example: we imagine we want to teach a subject like religious tourism in consumer behavior in tourism. According to Dewey's teaching method, at first, the student encounters with an ambiguous situation. Then he asks himself some questions like: What is religious tourism? What are the particularities of a religious atmosphere? What does the religious tourist look for? To find responses for his questions he tries to search for and to gather information. After referring to books and other documents, when the needed information was gathered, perhaps he tries to experience himself he situation of a religious tourist, according to the same questions that he has in mind. Or he ties to meet some religious tourists in different places to ask them some questions concerning their experiences. At last he finds responses for his questions using his experiences and the obtained information. But the experience obtained from this situation will certainly open the way for other experiences, because the student experiences the total atmosphere that a religious tourist lives in. Perhaps this experience leads the student to the conclusions like: to produce a total religious atmosphere, isn't it necessary the driver of the religious tourists' bus be religious too, or isn't it necessary that a spiritual atmosphere dominates the bus, and isn't it necessary that the meals and the whole group be religious? This experience links to the student's previous experiences in his mind and prepares the ground for new experiences. As the student can't foresee the future, this experience will help him to use his creativity and innovation to arrive at new experiences, confronting the future situations. Therefore instead of presenting and solving certain problems for the student, we try to develop his ability to solve the problems, so that confronting the problems, could be able to use his creativity to solve the encountered problems, because as it was told before, thinking process develops in the situations that make problems.

Thus, it can be concluded that teaching process is planning and providing reflective thinking and reflective experiences which lead the student to an ideal learning.

As the environment is always in change and variation, the individual must always put himself in new positions of thinking and experience so as to confront with imbalance, caused by the changing environment. Therefore in such situations a student reconstructs continuously his experiences to arrive at better new experiences to lead him toward a better development. The process and continuity of these reconstruction and organization are so that it could be considered as an education process. By applying Dewey's teaching method in a reflective thinking and reflective experience, teaching process will take a research form and the class will change to a research class, and the books and textbooks become as research documents. In result the educational center will become a research centre that the teacher's role will be just leading the research process.

The reflective thinking and in result of it, the reflective experience are interconnected matters that between them there are connection and succession. The succession and connection between different steps of reflective thinking and reflective experience are such important that we must prevent from any separation among them, and at the same time it is necessary to prevent any mixture between the steps too.

In these succession and connection every step originates from the previous step and result in the later one. Concerning this point Dewey writes : Teaching art must consist of unity, coherence, innovation and flexibility to arrive to an end like every pure artistic work.

Therefore, in Dewey's teaching method, organizing of learning contexts and activities is so that the presented subjects mustn't be separated from each other, and the different steps must consist of necessary unity and coherence. In other words, in his method every step depends on the previous step and is the base and fundamental of later one. Thus the educational activities are leaded so that the present experiences and course subjects be in relation with future experiences and subjects, and teaching process mustn't take an incoherent and inhomogeneous form, because if not, the student will feel that the teaching process has not the necessary coherence and affinity. And this feeling will spoil the student confidence in teaching method and in result causes discordance in his mind. Perhaps respecting the coherence and affinity in leisure and tourism varied course subjects could be compared to a precious finely-woven carpet. As the varied details of such a carpet are in deep and close relationship with each other and with the total plan of the carpet, the different subjects of tourism and leisure courses must also be related together to establish similar connection and coherence in the student's mind.

Such a concept that originates from reflective thinking not only causes more development in the student's thinking, but also develops their aesthetic conception in an ideal form, because such an artistic plan of teaching will eliminate both teacher's and student's tiredness and will multiple their motivation.

Therefore, the knowledge obtained by research and exploration in reflective thinking method, replaces the knowledge obtained from ready-made subjects, in result with the oldness of subjects and thoughts, the thinking ability will not decline, on the contrary, day by day it will become more effective, more productive and more innovative.

In conclusion, considering the reflective thinking particularities, the course plan, consisting of coherence and continuity principles must possess an artistic structure too, because it is necessary for coordination between work and recreation. Co-ordination is necessary to establish balance and interaction between purposefulness and playfulness of teaching process. In this way as the important fact of teaching begins with thinking and research, it will have such an attraction that in later steps also will result in thinking and research.

As the subjects of tourism and leisure courses are very varied and expanded, Dewey's teaching method could provide effectiveness and coherence in the students' learnt matters because it consists of elements like realism, responsibility, activeness, research and stimulation.

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Public Administration in Terms of Productivity and Efficiency : Innovative Practices in Service Delivery

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The present study will be carried out with some specific objectives like public administration efficiency and its productivity; to impart with consonance of philosophy of state; to probe into the conceptual deficiencies of productivity and efficiency in public administration etc. will be studied within the political independence which has envisaged for India a socialist economy, the responsibility for which in terms of planning, resource mobilization and implementation. Further, the paper explores that, it is a well-known fact an average probationer of the Indian Administrative Service has hardly exhibited an abiding interest, in the acquisition of more knowledge as a precondition for serving society. Finally the paper concludes highlighting administration should evolve its agricultural and industrial policies on the principle of fairness both to labour and management. A political executive developed in the art of statesmanship will be a valuable asset to administration in democratizing its own management in order that the public sector may overcome its inhibition to adopt measures aimed at enhancing the productivity of labour in the tune with the time and in consonance with the philosophy of the state. Considering all the above aspects the paper will conclude training and education needs should be addressed to ensure optimum levels of performance and motivated employees and it matters influences the entire country and referred to this issue by academia and administrators. The improvement of these issues will not only produce

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happier and more productive employees, employees morale, employees efficiency but would probably also lead to cost reduction and savings in the entire public sector of this country.

From a purely technical point of view, a bureaucracy is capable of attaining the highest degree of efficiency, and is in this sense formally the most rational known means of exercising authority over human beings. It is superior to any other form in precision, in stability, in the stringency of its discipline, and in its reliability. It thus makes possible a particularly high degree of calculability of results for the heads of the organization and for those acting in relation to it. It is finally superior both in intensive efficiency and in the scope of its operations and is formally capable of application to all kinds of administrative tasks.
                                                                                    —***Max Weber***

The key problems in public administration — legality — and public management — efficiency — refer to contractual difficulties between the principal and the agent, resulting from incentives, asymmetric information and incomplete contracts.
                                                                                    —***Jan-Erik Lane***

1.   Introduction

As a relatively new and applied field, public administration is constantly adapting to changing socio-political and economic conditions, and as a result is not easy to classify. The most popular approach to teaching public administration theory is to trace its evolution throughout time, putting different theories in their historical context. The pursuit of effective public sector administration may be explained as a series of ideas, each representing a step, or increment, towards a complete theory of public administration. Viewed over time, they have helped build a substantial reservoir of knowledge.

Public Administration as independent Subject of a social science has recent origin. Traditionally Public Administration was considered as a part of political science. But in Modern age the nature of state underwent change and it became from police stale to social service state. As a consequence, the Public Administration, irrespective of the nature of the political system, has become the dominant factor of life. The modern political system is essentially 'bureaucratic' and characterized by the rule of officials. Hence modern democracy has been described as 'executive democracy' or 'bureaucratic democracy'. The administrative branch, described as civil service or bureaucracy is the most significant component of governmental machinery of the state.

As an intellectual enterprise, public administration has reached a point of radical departure from its own past. Public Administration's Eighty Years in a Quandary Public administration's development as an academic field may be conceived as a succession of four overlapping paradigms. As Robert T. Golembiewski has noted in a perceptive essay on the evolution of the field, each phase may be characterized according to whether it has "locus" or "focus." Locus is the institutional "where" of the field. A recurring locus of public administration is the government bureaucracy, but this has not always been the case and often this traditional locus has been blurred. Focus is the specialized "what" of the field. One focus of public administration has been the study of certain "principles of administration," but, again, the foci of the discipline have altered with the changing paradigms of public administration. As Golembiewski observes, the paradigms of public administration may be understood in terms of locus or focus; when one has been relatively sharply defined, the other has been relatively ignored in academic circles and vice-versa. We shall use the notion of loci and foci in reviewing the intellectual development of public administration [1, p. 386].

2.   The Measures of Efficiency and Efficiency Promotes

There is no accepted or reliable way of measuring the relative efficiency of the public sector [2]. This problem is acknowledged internationally and is a crucial factor when considering alternatives to the existing Efficiency Dividend or how to encourage efficiency more broadly. Some of the main obstacles to measuring public sector efficiency are the difficulty of accounting for changes in quality and lack of a market price for many public sector outputs. Bench-marking of common functions and services offers some opportunity to develop better measures of efficiency. Many agencies consulted during the review noted the value of bench-marking services or activities common to a group of agencies as a way of encouraging efficiency through sharing information about best practice. The review proposes that the bench-marking of common functions be pursued in a more coordinated manner. This is a difficult but necessary task, since the devolved nature of the Australian Government has over time led agencies to develop different business systems and processes.

Overall, the review found that agencies were pursuing efficiency as a matter of necessity, so that they can continue to improve services, retain and attract staff, manage the impact of the Efficiency Dividend, accommodate general increases in costs, and respond to emerging ministerial priorities. Although departmental outlays have grown in real terms since 2000–01, agencies argued that growth in actual workloads has been higher still. The review notes that generally agencies have flexibility in terms of their outputs and outcomes — in particular, in policy, coordination and research areas. In the public sector this means managers tend to maximize the quality of outputs for a given price, rather than reducing the price for a given output, as is more likely to occur in the private sector. Given this paradigm, an external mechanism is required if a reduction in the cost of a output is the desired outcome.

3.   Reviews

Public Administration and Management has an admirable clarity of its arguments in the third edition volume on 'Public Management and Administration: An Introduction.' [3, p. 3-6]. It does not suffer from the limitations of country-specific studies, treating the NPM as an international phenomenon. The new public administration in recent years there has been a transformation in the management of the public sector. The rigid, bureaucratic form of public administration which dominated for most of the 20th century has been replaced by a flexible, market-based form of public management. Public Management and Administration introduces and assesses the principles and theories underlying changes in the management of the public sector. Systematically revised and updated throughout, the third edition of this highly successful text includes an entirely new chapter on the impact of e-governance and expanded coverage of financial and performance management.

It is important to discuss theories and tenets of public administration from the viewpoint of their impact on the development of the field, the rhetoric that justified their embrace by the public, and the factors that shaped them. For this reason we find it useful to present five great ideas that shaped the field, combining their historical importance and theoretical distinctiveness. Public administration is a subject of human inquiry with ancient roots. Contrary to present practice, the ancients were preoccupied with governance of public affairs as opposed to business, and very often, as in Greece, had disdain for commerce

and management of business enterprise. Ancient empires created elaborate state structures, and effectively operated an apparatus overseeing huge territories [4]. China gave the world the first civil service system some two thousand years ago, while the Roman Empire set the structures of governance (e.g., the organization of the executive branch into five main agencies) that many modern European states borrowed in their development [5].

The study and systematic development of public administration in America, however, is only scarcely more than a century-old phenomenon [6, p. 145]. It is a field of study that continuously adapts-both in practice and theory-to the changing nature of the government in the twentieth century. Public administration is often characterized as an application of social and other sciences to public problems, thus bridging disciplines. Constantly trying to define itself, public administration draws from multiple sources, with an effort to reconcile often contradicting views.

During the evolution of American public administration, these questions were often framed through public discourse in a much simpler, sharper and sometimes conflicting pattern, often rejecting an established mentality or casting it in dichotomous terms (i.e., administration is different from politics, public management is different from private management), and often used as powerful rhetoric to advance the development of the field [7, p. 225].

4. Innovation and New Forms of Public Administration

The ideas and practice of the NPM produced increased efficiency and during the period of their dominance overall increases in productivity 'externalities' were significant. New forms of disadvantage arose, however, and many discourses were excluded from the policy and management arena [8]. In this article we concentrate on the exclusion and revival of ideas and practices from community knowledge [9, p. 16]. This knowledge is re-emerging not just in the public administration literature but also in economics' 'cluster theory' [10] and in geography's new regionalism [11]. Essentially these theories all have a focus on the significance of local area networks and their dynamic contribution to innovation, wellbeing and prosperity. The key factors at play include local leadership; institutional capacity; trust relations; the significance of history and narratives; local area data; network relations and recognition of interdependence between the worlds of social, economic, natural and human capital. These

changes are not sweeping away the NPM nor are they likely to. Instead they are being grafted onto the NPM ideas and instruments. A straightforward example of this grafting is seen in the shift from contracts to Public Private Partnerships where the shell of NPM is seen in the use of the contract but the elements of social value may also be factored in.

Do such narratives of new concepts and practices in public administration provide evidence for the emergence of a new paradigm? We're not sure and certainly much more comparative and international work is needed to determine the extent to which this might be the case. At the very least, however, our experience in Victoria of the move to balance the NPM ideas and instruments shows social factors coming strongly back into public policy and management.

5. Conclusion

It is difficult to measure efficiency in the public sector, particularly because of the problems associated with measuring changes in quality and outputs of public administration. The 'productivity gains in the public sector are very difficult if not impossible to measure'. This poses a major obstacle to developing a budget process that focuses on inefficiency. The problem also prevents us from determining objectively what a suitable Efficiency Dividend rate should be. An efficiency agenda that aims to engender substantial change should form part of a long-term fiscal strategy: it would help place the Governments in a position where it can respond flexibly to emerging priorities and manage budgetary pressures. It is important to strike the right balance between necessity that encourages efficiency and the re-sourcing that allows agencies to perform effectively.

In practice the experience of moving to some of these new practices in public administration has had both radical and conservative aspects. In terms of the latter much of the new practice has been an overlay of gains built up during the period of NPM. In this vein it may be seen as a re-balancing of the sources of knowledge relevant to public management. The 'resistant discourse' of community re-entering a domain dominated by market and bureaucratic discourses.

A more radical interpretation would focus on the implications this re-balancing has had for our understanding of how policy happens and therefore for the skills and instruments it requires. Some of those involved in particular

aspects of the move towards the new practices we have called 'community governance' report that it 'introduces conflict, heterogeneity and unpredictability into decision-making processes and challenges government and its agencies to be less rigid and more adaptive.' Our own view is that the new practices are based on types of knowledge which have not historically been part of public administration and for this reason it is driving forms of public management innovation which may prove to constitute a new administrative paradigm. Here the economic, social and human capital objectives are entwined; distributive leadership is seen to be at work; local knowledge comes to the fore to co-produce social and economic benefits simultaneously; networks are the agency for action; and the reciprocal relations between participants create bonds that foster creativity and competitive advantage. In short the endowments from all forms of capital become interdependent instruments of policy making and implementation. Understanding the relations between these factors and the implications they have for public management- its knowledge frames, structures, instruments and skills-is the challenge.

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7

Human Resource Management in PSBs : The Need of the Hour

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Human resource management in the banks is indispensable as the bank is a service as well as knowledge based industry, but the management of human resources has been neglected by the public sector banks. The present paper is an attempt to explain the main issues which are concerned with the management of human resources in public sector banks in the present era. It has been emphasized that the banks need to attract right talent and take a holistic employee cycle approach to develop human capital. Banks should have a proactive and transparent placement policy in order to provide smooth flow of human resources to deficit areas, optimize human resource utilization, provide varied work exposure to its employees, achieve cost effectiveness and minimize hardship to employees.

[**Keywords :** Human resource management, Banking sector, Recruitment policy, Compensation policy, Reskilling]

1.   Introduction

The liberalization, privatization, globalization wave sweeping through the Indian economy has changed all the sectors of the economy particularly the banking sector. In today's volatile, uncertain, complex and ambiguous times, the human resource needs of the organizations have changed drastically. The management of human resources has become a challenging task. The management of risk today is closely intertwined with the quality and management of the people. The management of men is getting increasing attention in the present era due to the advancement in telecommunications, synthesis of information and advanced computer technology. The role of the

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employees has changed. The competent and committed employees can improve the operational efficiency of the banking sector, strengthen the financial health of the banks and can help the banks to meet the challenges ahead. The human resource management involves preparation of proper life cycle approach for the employees i.e from recruitment to retirement. Human resource management in the banks is indispensable as the bank is a service as well as knowledge based industry, but the management of human resources has been neglected by the public sector banks. The following are the main issues which are concerned with the management of human resources in public sector banks in the present era:

1·1 Challenges going to be faced due to the opening up of Banking Sector

The global scenario is changing rapidly and the concept of global village is coming into prominence. It means opening up of the banking sector to internal as well as foreign players. In that case there will be a huge demand for experienced talent as the new players would need people, who can start off the job right from day one, the resultant impact would be a huge raid on talent especially from the old generation private sector banks as well as the New generation private sector banks to public sector banks.

1·2 Recruitment Policy

Banks require fit and suitable people. In their search, banks have been visiting top universities and B-schools for recruitment mostly as 'Specialists' in HR, Finance and Marketing etc. Most of these institutions are situated in metro towns and cities and their students have a bias to work only in metropolitan towns and capital cities. The majority of the students perceive a job in a bank as a desk job in air-conditioned offices. Marketing assignment and rural postings are looked down upon and such offers have either been rejected or officers start looking for lateral movements soon after their joining. The recruitment process should be modified in a manner that it is successful in getting the right people for the right jobs. PSBs could adopt innovative and different hiring avenues, given their existing compensation structure. The hiring norms in banking sector have changed drastically in the present millennium. The scores of CIBIL (Credit Information Bureau Ltd.) are checked as a part of pre-employment screening process by private sector banks. Some private sector players are doing this only for some positions viz compliance and governance roles, client facing and other sensitive roles in the organization while others are doing it for all the jobs. The players in the public sector also need to follow the same practice.

1·3 Lateral Recruitment

The other serious challenge in the times to come will be the threat of lateral hiring by public sector banks. With the increase in complexities in the banking operations, there is an emerging need for skilled personnel for various critical functions. PSBs are finding it increasingly difficult to recruit highly skilled personnel at the existing levels of remunerations. Lateral recruitment has helped PSBs to attract talent and provide opportunities for their growth and contribute towards the growth of the organization. As already qualified personnel are available so there is no need for extensive training. As per the Khandelwal Committee recommendations, the public sector undertakings are going to face a serious resource crunch to support their expansion plans as they will be facing massive retirements in the coming years. Almost all the public sector banks had recruited a sizeable chunk of their workforce during the post nationalization period. It has been reported that an estimated six lac people will be required to fill in the talent requirements of public sector banks within the next 4-5 years. The Khandelwal Committee had recommended that PSBs be allowed to go for lateral hiring to address their talent requirements so as to bridge the gap arising due to large scale retirements and to support their massive expansion plans. The public sector banks will be hunting for both experienced as well as younger workforce into their stream and the challenges to retain them will be enormous as most of the experienced bankers belonging to old generation private sector banks will move on to a culture which supports their upbringing i.e. to public sector banks. Moreover public sector banks would have to go for massive resource mobilization and create a talent pool to address the brain drain which they might encounter in the coming years. The banks would be going in the lateral recruitment of technical, specialized and managerial staff.

1·4 Multi-generation Engagement

One of the main characteristic of public sector banks is that they have wide mix of people belonging to different age profiles. There are a large junk of people who have been recently recruited and there are these veterans who have worked with the institution for a pretty long period of time. Having this diverse mix of people in their work environment poses both an opportunity as well as a threat. The opportunity is that the younger resources can be trained and passed on the knowledge of the senior functionaries and the threat is that both communities have different value systems, work culture and addressing this generation gaps due to value differences, culture differences is going to be a serious challenge

which organizations would be facing. Banks need to create conditions and multi generation engagement mechanisms which will aid in tapping the blend of experience and energy. If both communities are not acclimatized properly, it will lead to serious internal conflicts. The challenge is to devise strategies, engagement programs, which will help bind people belonging to various age groups and understand each others value systems behavioral requirements so that they co-exist in the same ecosystem.

Some of the key factors which will help organization in creating multi-generation engagement are the following:

1. Create a mechanism which will constantly communicate the big picture and the role of each member of a community is playing in the wider frame of events.

2. Creating a structure that increases collaboration among diverse work communities and reduction of hierarchical grades.

3. Strong emphasis on Career and Leadership development.

4. Work life integration.

1·5 Number of the Employees

Even though the public sector banks have started using the alternative delivery channels, but still the no. of employees of the public sector banks have shown increasing trend from 752627 to 801659 employees in 2012-13.

Table-1 : Total Number of Staff

Public Sector Banks	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Total of Public Sector Banks	752627	748711	738638	729172	715408	731524	734594	755102	771388	801659

Source : Performance Highlights of Public Sector Banks.

1·6 Compensation Policy

The compensation is currently being determined according to wage negotiation by the IBA. So the compensation is not playing an effective role in attracting the right talent. PSBs are not in a position to offer higher remuneration for the highly skilled personnel and so they appoint the talent available to them. Hence, there has to be an industry-wide debate about the compensation policy of the PSBs if they want to attract talent as well as continue to grow at higher levels of profitability. The issue is not limited to low initial package. The incremental

growth at PSBs is also slow and not many people are willing to wait long when other sectors are offering better initial as well as incremental package. Moreover, it is not just the compensation alone that attracts talent.

1·7 Training and Development to build Leadership and Frontline Capabilities

The human resources can be developed through continuous interaction. The interactions, interrelationships and activities performed, all contribute in some way or other to the development of human potential. Organization productivity, growth and development are to a large extent contingent upon the effective utilization of human capacities. Hence, it is essential for PSBs to take steps for effective utilization of these resources, develop leadership and functional skills of human resources to sustain banks competitiveness. Special efforts could be made to provide various trainings with innovative course contents.

1·8 Managing Role Changes through Career Path

Banks need to implement clear policies focused on ensuring an optimal mix of specialist and general cadre officers and develop a value proposition for employee retention. Job rotations should be based on individual aspirations and business needs and transfer policies need to be unambiguous and transparent.

1·9 Appraisal System

PSBs need to design a gair appraisal system in a well-calibrated manner. More than ever before, PSBs must be prepared to be collaborative, supportive and focused on nurturing their people while being more exacting at the same time. They should make efforts to offer better perks to employees performing better than the expected levels. It is also important that the employees are well informed and clear on the criteria on which they would be graded from the beginning to avoid dissatisfaction later. Performance appraisal in the public sector banks suffer from the lack of objectivity. Donkeys and horses are all considered equal. This needs to be rectified so that meritorious personnel are given their due 360 degree appraisal is very important for senior level management positions. The public sector banks calculate average business per employee, average deposit per employee, average advance per employee, average profit per employee but they do not calculate for the individual employees.

Table-2 : Business Per Employee

Public Sector Banks	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Total of Public Sector Banks	1072.93	1245.93	1466.63	1408.23	1500.62	1274.67

Source : Performance Highlights of Public Sector Banks.

Table-3 : Deposit Per Employee (Rs. in Lakhs)

Public Sector Banks	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Total of Public Sector Banks	343.00	425.52	502.56	579.05	648.44	716.73

Source : Performance Highlights of Public Sector Banks.

Table-4 : Advance Per Employee (Rs. in Lakhs)

Public Sector Banks	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Total of Public Sector Bank	251.24	307.65	367.73	437.61	502.73	557.95

Source : Performance Highlights of Public Sector Banks.

Table-5 : Profit Per Employee (Rs. in Lakhs)

Public Sector Banks	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Total of Public Sector Banks	2.75	6.05	6.72	7.91	6.42	6.31

Source : Performance Highlights of Public Sector Banks.

The business per employee is showing increasing trend. The deposit per employee has almost doubled from 2007-08 to 2012-13. The advance per employee is more than double. Profit per employee has almost increased threefold in the period of six years.

1·10 Culture Factor

The camaraderie of the people in the public sector banks with the generation of customers is giving a tough competition to the private sector players. The employees of the public sector banks have personal relationships with the customers. The public sector banks are putting up a brave front to woo the customers by compiling the personal and professional profile of the

customers, which is possible only when employees actually interact with the customers.

1·11 Technology

The banks have adopted the advanced technology and have provided alternative delivery channels to the customers like technology based delivery systems, Electronic Clearing System (ECS), Indian Financial System Code (IFSC), Magnetic Ink Character Recognition (MICR) Code, National Electronic Funds Transfer (NEFT), Real Time Gross Settlement (RTGS), Cheque Truncation System, Mobile Banking, Automatic Teller Machine (ATM), Internet Banking, Tele Banking, Call Centres, Plastic Money, Indian Financial Network (INFINET) and Core Banking Solution (CBS) etc. These technological changes have changed the face of banking industry in India. So the banks need to change the human resources according to the changing scenario.

Table-6 : Total Number of Branches

Public Sector Banks	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Total of Public Sector Banks	47094	47794	48660	50542	53557	56109	59976	63199	68902	75843

Source : Performance Highlights of Public Sector Banks.

The number of branches of public sector banks has increased but there has been rapid increase in the branches in 2012-13.

Table-7 : ATMs of Scheduled Commercial Banks in India

S. No.	Type of Banks		2010-11	2011-12	2012-13
1.	Public Sector Banks	On Site ATMs	29795	34012	40241
		Off Site ATMs	19692	24181	29411
		Total No. of ATMs	49487	58193	69652
2.	Private Sector Banks	On Site ATMs	10648	13249	15236
		Off Site ATMs	13003	22830	27865
		Total No. of ATMs	23651	36079	43101
3.	Foreign Banks	On Site ATMs	286	284	283
		Off Site ATMs	1081	1130	978
		Total No. of ATMs	1367	1414	1261
Total Number of ATMs of Scheduled Commercial Banks			**74505**	**95686**	**114014**

Source : Report on Trend Progress of Banking in India.

The public sector banks have more ATMs as compared to private and foreign sector players. Even though the ATMs are showing increasing trend of all the banks but ATMs of public sector banks have increased tremendously in the period of three years.

Table-8 : Credit and Debit Cards Issued by Scheduled Commercial Banks

(In millions)

S.No.	Type of Banks	Outstanding Number of Credit Cards			Outstanding Number of Debit Cards		
		2011	2012	2013	2011	2012	2013
1.	Public Sector Banks	3.08	3.06	3.50	170.00	215.00	260.60
2.	Private Sector Banks	9.32	9.67	11.10	53.00	60.00	67.30
3.	Foreign Banks	5.64	4.92	5.00	3.90	3.80	3.30
Total of all SCBs		18.04	17.65	19.50	228.00	278.00	331.20

Source : Report on Trend Progress of Banking In India.

The noteworthy observation in the table is that the credit cards of private sector banks and foreign banks are more than the public sector banks. But the debit cards of public sector banks are more.

1·12 Challenges being faced Internally

The public sector banks are required to build a positive work climate around the resource, where performance is rewarded, motivated and sustained so that the work force gets emotionally engaged with the organization. Hence the Banks would need to shift from a conventional to a competency based model and create an integrated HR Model which will drive HR Transformation in the days to come.

The demand for experienced talent is increasing day by day and once the sector gets opened up the industry would see a wide transition just like the way IT/ITES industry has undergone. There will be a huge potential and plethora of employment opportunities for experienced as well as younger cadre talent.

1·13 Building a Human Capital Business Plan

First, it is imperative that banks identify their organization structure catering to the present as well as future needs to understand the talent requirements. Secondly, based on the future growth expectations, PSBs should have a clear understanding of existing and future manpower requirements.

Finally, based on the gap, the PSBs should have a recruitment and succession plan designed with a clear execution plan.

1·14 Performance Management

To develop a robust performance management system, banks need to link compensation to performance. Any performance linked compensation system must ensure clear and measurable targets, and a tight and fair process of performance evaluation. It is necessary that banks adopt the right mix of 'push'-motivation, recognition, career progression and capacity building and 'pull'-more tangible factors like higher pay, better benefits and attractive perks.

The performance of the PSBs depends not just on the sum total of their human capital but also on how effectively they draw out the best from their talent bank at any point of time, through effective placements, performance appraisal, rewards and recognition mechanism.

1·15 Reskilling

A new set of skills and knowledge are required to manage the emerging challenges faced by banks. As banking techniques and technology are ever changing, there is a need for continuous development of individual as well as organizational skills to meet market requirements. Equipping bank personnel with requisite knowledge and skills for coping with the present and future banking needs is one of the biggest challenges for banks. Even the best candidate selected is rarely 100-percent skilled. The banks need to re-skill their staff and adopt better customer relationship management strategies to retain the existing customers. The banking industry is losing 15% of the customers every year and the cost of acquiring new customers is 5 times more than the cost of retaining the existing customers so there is a need to develop the skills of customer relationship management and e-customer relationship management in the human resources of the public sector banks.

2. Conclusion

Banking industry is the backbone of every economy. Human resources which have been the strength of public sector banks are now set to pose. The banks need to attract right talent and take a holistic employee cycle approach to develop human capital. Banks should have a proactive and transparent placement policy in order to provide smooth flow of human resources to deficit areas, optimize human resource utilization, provide varied work exposure to its employees, achieve cost effectiveness and minimize hardship to employees.

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Rural Society and Health Facilities

Rangoli Chandra*

India is a developing and agricultural based society where 65 percent of population live in 68 percent of villages which maximum population directly or indirectly engaged in agricultural occupation which is essential for nations development. Therefore, rural society cannot be neglected because it is enriched with immeasurable sources of manpower. To maintain this manpower, the health of people of village is important, which is the main problem of rural society.To solve the problem of health in India, an attempt has been made to established first health and family welfare Ministry' and one headquarter is also established in every state through which different programmes and planning are running successfully, that are providing different health facilities to rural society. It has helped many people in improving their health. But in rural society, issues related to health is still is the subject of concern like birth rate, death rate, child death rate, infectious diseases and emergency health services etc. With focus on these issues from time to time, health facilities are given by different programmes running by central and state government But, in rural society, health reforms are still not reached to its expected level to increase the level. The present paper is an attempt to know about, to rural people are benefitting from the health facilities given by government. They are benefitted by these facilities or not it can be cleared by statistics.

[**Keywords :** Health, Population, Government, Child, Census]

1.   Introduction

Development is defined as the process of growth or new information or an event. Development is very important for progress of any society. Mainly three levels of human society's development come into being. tribal level, rural level and urban level, these three levels within society, represents society in three ways. These society have their own features, functions and specific environment. In this way, these three societies are different from one another but among these

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rural society is more important as a point of universally developed society community. Rural society have their own cultural, economic, social and political framework.

The nature, framework, organization of rural society is contrary to urban society. Rural society economics, social, cultural or political framework and system have their own features that separate rural society from other societies, by rural or agricultural society, means those societies whose members source of earning is based on agriculture. We can not separate agricultural and rural society from each other, they are complementary of one-another, inseparable parts, whose features has maintained the enduring identity of rural society. Smith has written that, ''Peasant and rural oftenly are synonyms word. In other words, little community, and rural community are complementary to each other'' (Smith, 1953 : 18).

The word 'village' has been used from ancient period. Foremost, village had been used in the meaning of providing stability to social relations. In Rigveda, the form of family was stated as very ancient. After that, the rise of word 'Grriha' has been determined from the meaning of grriha or mund. In this way, Gotra has been originate as form of Grriha and construction of village has started according to Gotra. The word village has been used in manuscripts, units of social organization is also used in the meaning of village. A. R. Desai writes that village is the unit of rural society. It is the theatre, where in the quantum of rural life unfolds itself and functions. "Village is the first establishment of collective residence system which is the production of agriculture economic system" (Desai, 1994 : 127) village is the place where ancient men has given stability to his unstable life lastly, village can be called as the title of providing statics to speed of collective life and village is called as the important unit of social framework of rural, where agriculture is started because agriculture has provide stability to human and establishment based on this stability is entitled as 'village' those elements resonance from the word 'village' are collectiveness, agriculture and distinctiveness etc. on the basis of these elements, the existence of village is possible. (Desai, 1994 : 127). From very long period of time, in India, no attention has been given to the studies related to rural community. After Independence, rural development has been accepted as the main aim and many researchers started taking interest in the studies related to rural community. In this respect, A. R. Desai (1994 : 1) has written that ''A systematic study of the rural social organization of its structure, function and evaluation has not only become necessary but also urgent after the advent of Independence.''

According to Sanderson (1942 : 278-79), ''Rural Sociology is Sociology of life in the rural environment.'' It is clear from the definition that, the scientific study of social life of people living in rural environment or village is called rural sociology. Merrill and Eldredge (1955 : 336) hold that the rural community comprises the constellation of institution and persons grouped about a small centre and sharing common primary interest. According to Merrill and Eldredge, as a community, the size of village is very small, according to Census of 2011, about 69 percent population live in approximately 6 lac villages of India, out of which more than 4 lac villages are there, whose population is less than one thousand.

## 2.	Health Facilities

Public health is very important for nation's development.The module of power of individual and production capacity of any nation is health. nation's industries and capacity of production of agriculture depends on population. Lack of disease is not only considered as health but it is a re-conciliation of individual's natural and social external environment and is also a situation of development according to human's physical and mental capacity.

Problems related to health found in rural India are as follows :

▶ Due to lack of nutrition, approximately 80 percent below 5 years are undernourished. Among pregnant women, about 50 percent of women are suffering from anemia.

▶ Some communicable diseases like leprosy, tuberculosis, cholera etc. are main diseases in villages.

▶ Lack of sanitation, diseases and death especially is children and women are foremost general reasons.

With the aim of providing treatment facilities for the health of rural population, government has started giving more emphasis on the basis of health facilities in rural areas under the minimum necessary programme.

Different planning and programmes conducted by government for making health society are : Establishment of central health and family welfare. communicable disease control programme, National programme for eradication of leprosy-1955, Health policy-1983, Health for poor, National programme for control of blindness-1976, through all these programmes government tried to concentrate on health development (India, 2005 : 486).

In present time, different health facilities, planning and programmes are conducted by government in rural areas. which are as follows :

2·1   National Rural Health Mission

Asha, Patient/welfare association-till now 31694 is established and 5.03 Lac VHSNC had established, Human as form of resources, 8871 doctors, 2025 specialities, 76643 ANM, 41609 nurse staff, in 459 districts 2024 MNV is running in all over the country. Toll free number is also available for free ambulance services. Under the subjection of NRAHM 12000 basic and emergency patent vehicle is also provided. Janani sishu surakrsha programme for the institutional delievery, free transportation, free food and blood has been also provided (India, 2014 : 387-388).

Family planning insurance plan India is first country family planning India is the first country which started international family planning programme in 1952 which provided medical facilities and money for wages loss to those who go under sterilization process. For vasectomy from 6800 to 1500 and for tubecolomy Rs. 800 to 1000 common facilities and Rs. 1500 for personal health has been given by government. Family planning insurance planning 29 Nov. 2005 , Health insurance planning-for BPL families (1 unit of 5) provide per year smart card of Rs. 30,000 based on free health insurance.

Delivery centre-some guidance are running for delivery for basic and supplementary care-build capacity of health services of conferee, rural health and nutrition day for providing health facilities for mother and children 871 Lac established social health personnel (Asha) are appointed for health care services and facilities for demand of community.

2·2   Child Health Programme

Establishment of care facilities and facilities based on integrated management for diseases of infancy and nutritious. Integrated management for newborns and child diseases and facilities before IMNCI. Home base nursing of newborn. Universal immunization, adequate management and early identity of intense respiratory infection, diarrhea and other infections. Boosting breast-feeding for infants and small children. Management of children's nutrition. Providing vitamin A supplements, iron and folic acid supplements.

2·3 Initiative of Child Health

Facilities based on infants and child care. facilities based on integrated management for newly borns and diseases of children (IMNCI) Home based new born care (HBNC).

2·4 Nutritional Rehabilitation Centre

(NRC) for the treatment and management of malnourished childrens under RCHM/NRHM programme, there is a planning of about 650 nutritional rehabilitation centres. Among which till September 2012, 577 nutritional rehabilitation centres of 14 states are running in all over the country.

2·5 Universal Vaccination Programmes

Indian government have provided 7 vaccine preventable diseases in the programme like Diphtheria, Pertussis, tetanus, polio, measles and tuberculosis and Hepatitis B.

2·6 Prevention of Pulse Polio

National vector disease control programme, revised national tuberculosis control programme, National iodine deficiency disorder control programme, National programme for prevention and control from cancer, diabetes, cardiovascular diseases and strokes, Checkup of diabetes and hypertension, national mental health programme, district mental health programme, establishment of trauma facilities, national aid control programme,

According to present NSSO survey currently there are 291 person per lac of population suffering from weakness facilities given by government to improve health programme in rural areas some data are given below:-

Table-1 : Child Sex Ratio Rate : 1971-2011

Year	1971	1981	1991	2001	2011
India	964	962	945	327	914
U. P.	923	935	927	916	899

Table-2 : Average Child Sex Ratio Per 1000 Boys in India

Year	1971	1981	1991	2001	2011
Girls	964	962	945	927	914
Boys	1000	1000	1000	1000	1000

Table-3 : Average Child Sex Ratio Per 1000 Boys in Uttar Pradesh

Year	1971	1981	1991	2001	2011
Girls	923	935	927	916	899
Boys	1000	1000	1000	1000	1000

Table-4 : Maternal Mortality Rate-Annual Health Survey

Year	2007-2009	2010-2011
India	212	-
Uttar Pradesh	359	345

Table-5 : Child Health Index under RCH/NRHM

Child Health Index	Present condition (1000 per live birth rate)
Child Mortality Rate	47
Infant Mortality Rate	33
Death rate below 5	59

Table-6 : Cases of Polio

Year	Polio	No. of Disticts
2010	42	17
2011	01	07
2012	00	00

Table-7 : Life Expectancy

Year	2001-2006	2010-2011
Male	63.87	64.34
Female	66.91	68.87

<div align="center">Table-8 : Vaccination</div>

Sates	B.C.G.	OPV-3	DPF-3	Khasra	FI	Polio (by birth)	No vaccination
Uttrakhand	91.9	83.2	83	82.6	75.4	75.8	5.8
(U.P.)	83.4	58.5	55.9	60.5	45.3	65	8.6

Source : Indian Health Survey-2011

3. Conclusion

The child sex-ratio rates in India and Uttar Pradesh during 1971-2001 are given in Table-1. It shows the child sex-ratio from 1971-2011in India. It is seen that from 1971, the child sex-ratio gradually decreases and goes down from 964 to 914, whereas, in Uttar Pradesh in 1971 it was 923 and Census goes up to 935 but after 1981, it gradually decreases and shows adverse situation in 2011 i.e. 899. In table no. 2 in India average child sex ratio means no. of female child per 1000 male child, gradually decreases by 964 (1971) to 914 (2011). In table-3, in Uttar Pradesh, the average child sex-ratio in 1981, Census data show some enhancement in 1981 in comparison to 1971 but after that it continuously goes down to 899 (in 2011). In table-4 according to annual health survey, in India in 2007-2011, it is no mortality rate. In Uttar Pradesh, it is 359 (in 2007-2009) and decreased to 345 (in 2010-2011). In table-5, child health indicator under RCH/NRHM suggest that in present condition child mortality rate is 47 (counted) on the base of per 1000 live births), infant mortality rate is 33 and mortality rate below 5 years is 59. Table-6 shows that there are 42 polio cases, found from11 offered districts in 2010, whereas in 2011, only 1 case is found from 7 districts and in 2012, no polio cases is found in any district. The life-expectancy is shown in table no. 7 suggests that during 2001-2006, the life expectancy of male is 63.87 and it increases to 64.31 in year 2010-2011 whereas in case of female it is 66.91 (in 2001-2006) and it increases to 68.87 in year (2010-2011). Table no. 8, shows the Indian health survey 2011-vaccination in two states Uttrakhand and Uttar Pradesh. In Uttrakhand, the percentage of vaccination of BCG is 91.9, OPV-3 is 83.2, DPT is 83, khasra 82.6, FI is 75.4, polio (from birth) is 75.8 whereas in U.P. the vaccination of BCG is 83.4, OPV-3 is 58.5, DPT-3 is 55.9, khasra is 60.5, FI- 45.3, polio from birth is 65 so it can be said that Government is providing day to day health facilities for rural masses in villages.

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Sedition Law and its Draconian Effects

*Geetika Garg**

Sedition laws were used to curb dissent in England, but it was in the colonies that they assumed their most draconian form, helping to sustain imperial power in the face of rising nationalism in the colonies including India. The law of sedition has been formulated as a constitutional weapon to safeguard the state by preventing a person from creating a sense of 'disaffection'. The present paper is an attempt to analyze the draconian effects of Sedition laws. By removing sedition from the terms included in Article 19(2) the Constitution makers signaled their wish to move away from the colonial order where legitimate dissent was denied to Indians.

[Keywords : Sedition law, Draconian effects, Constitutional weapon, Freedom of Speech]

A law should create a social framework for individual freedoms to be realized. The State is only an institution through which law flows; it cannot use law to perpetuate itself. The law on sedition serves the state and not the community. It has become the slave of the State turning against society and therefore it poses serious problems for the functioning of democracy in our country.[1]

While sedition laws are part of a larger framework of colonial laws that are now used liberally by both the central and state governments to curb free speech, the specificity of these laws lie in the language of 'disaffection' and severity of the punishment associated with them. Sedition laws were used to curb dissent in England, but it was in the colonies that they assumed their most draconian form, helping to sustain imperial power in the face of rising nationalism in the colonies

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including India. History is witness that some of the very prominent people have been victims of this law like Mahatma Gandhi, Bal Gangadhar Tilak and Annie Besant. It is ironic that these laws have survived the demise of colonial rule and continue to haunt media personnel, human rights activists, political dissenters and public intellectuals across the country.

Firstly, let us understand what does the word 'sedition' means. In [law](#), sedition is overt conduct, such as [speech](#) and [organization](#), that is deemed by the legal authority to tend toward [insurrection](#) against the established order. Sedition often includes [subversion](#) of a [constitution](#) and [incitement](#) of discontent (or [resistance](#)) to lawful authority. Under Section 124, of the Indian Penal Code, '[Sedition](#)' has been defined as "Whoever by words, either spoken or written, or by signs, or by visible representation, or otherwise, brings or attempts to bring into hatred or contempt, or excites or attempts to excite disaffection towards the Government established by law in India, shall be punished with imprisonment for life, to which fine may be added, or with imprisonment which may extend to three years, to which fine may be added, or with fine."

Section 124A was introduced by the British colonial government in 1870 when it felt the need for a specific section to deal with the offence. It was one of the many draconian laws enacted to stifle any voices of dissent at that time. Mahatma Gandhi was prescient in recognizing the fundamental threat it provided to democracy when he called it the 'prince among the political sections of the Indian Penal Code designed to suppress the liberty of the citizen.'[2] The framework of this section was imported from various sources-the Treason Felony Act (operating in Britain), the common law of seditious libel and the English law relating to seditious words. The common law of seditious libel governed both actions and words that pertained to citizens and the government, as well as between communities of persons.[3]

In 1898, section 124A was amended to reflect Justice Strachey's interpretation. The British included the terms 'hatred' and 'contempt' along with disaffection. Disaffection was also stated to include 'disloyalty and all feelings of enmity'. While debating these amendments, the British Parliament took into account the defence's arguments in the Tilak case and the decisions in two subsequent cases to ensure loopholes did not exist in the law.[4] The debates in Parliament demonstrate how 'diverse customs and conflicting creeds' in India were used to justify the amendments.[5] These amendments also introduced

section 153-A and section 505 of the IPC. The colonial government, particularly the Bombay government, followed the changes in the law with a spate of prosecutions against native newspapers.

Jawaharlal Nehru's views were totally against this provision when he said in 1951, "Take again Section 124 (A) of the Indian Penal Code. Now so far as I am concerned that particular Section is highly objectionable and obnoxious and it should have no place both for practical and historical reasons, in any body of laws that one might pass. The sooner we get rid of it the better."[6]

The law of sedition has been formulated as a constitutional weapon to safeguard the state by preventing a person from creating a sense of 'disaffection'. It is a machinery to control the advent of agitation against the state. It also imbibes the very idea of 'Freedom of speech' guaranteed under Article 19 in the Constitution of India. In fact, it is the legitimate right of every citizen to expose the misdeeds of the government it disapproves of, create disaffection and disloyalty among the people and work for throwing it out of power. Disloyalty to a government is different from disloyalty to the State. Of late this provision is being used by the State to suppress the peaceful people's movements and Human Rights activists.

But, the scenario has changed now, as this law has been blandly interpreted by the media as well as the government. The law of sedition extends to those situations only, where there is a tendency to cause public disorder by use of violence.

The irony of the sedition law used against nationalists like Gandhi and Tilak continuing in the statute books of independent India was not lost on those drafting the Constitution. While in their Draft Constitution, the Constitutional Framers included 'sedition' as a basis on which laws could be framed limiting the fundamental right to speech (Article 13)[7], in the final draft of the Constitution sedition was eliminated from the exceptions to the right to freedom of speech and expression (Article 19 (2)). This amendment was the result of the initiative taken by K. M. Munshi, a lawyer and an active participant in the Indian independence movement. Munshi proposed these changes in the debates in the Constituent Assembly.[8] The way in which the sedition law has been used as a convenient medium to stifle any form or expression of dissent or criticism mirrors the fears and concerns expressed by some of the constitutional drafters regarding the ease with which the sedition law can be misused and abused. Thus the framers of our

Constitution were clearly aware of the tainted history of sedition laws and did not want the right to free speech of independent Indians restricted by these draconian provisions.

The idea of having a Fundamental Right of freedom of speech seemed rather inconsistent with the offence of sedition and that serving as a restriction on speech as it did via the Privy Council interpretation in Sadashiv.[9] Thus in the final draft of the Constitution it was seen that the restrictions to the right under 19(1)(a) did not contain sedition within them.

However, sedition laws remained on the statute books post independence and was used repeatedly by both central and state governments to stifle political dissent. The first major constitutional challenge to sedition laws arose in the fifties when the sedition law was struck down as being violative of the fundamental right to the freedom of speech and expression in a trilogy of cases:-Tara Singh Gopi (1950),[10] Sabir Raza,[11] and finally Ram Nandan in 1958.

In Tara Singh's case, referring to the sedition law, Chief Justice Eric Weston wrote: "India is now a sovereign democratic State. Governments may go and be caused to go without the foundations of the State being impaired. A law of sedition thought necessary during a period of foreign rule has become inappropriate by the very nature of the change, which has come about."

In Ram Nandan's the constitutional validity of section 124A of the IPC was challenged in an Allahabad High Court case[12] that involved a challenge to a conviction and punishment of three years imprisonment of one Ram Nandan, for an inflammatory speech given in 1954. The court overturned Ram Nandan's conviction and declared section 124A to be unconstitutional.

However, this decision was overruled in 1962 by the Supreme Court in Kedar Nath Singh v. State of Bihar,[13] which held that the sedition law was constitutional. The Court, while upholding the constitutionality of the judgement distinguished between "the Government established by law" and "persons for the time being engaged in carrying on the administration". The court ruled that the charge of sedition can only be slapped if the accused incited violence through his speech. Otherwise, invoking the sedition law would violate freedom of speech and expression guaranteed by the Constitution under Article 19, the apex court had added.

But then again, the journalists, activists and writers fall prey to this loophole in the judicial enactment of the same. The biggest irony is how the High

Courts have gone against the Supreme Court's ruling that clearly demarcates sedition from other acts by stating that "prosecution under the sedition law requires incitement to violence". And at no given point of time did Aseem Trivedi resort to violence or propagate any such activity. More so, such an archaic law even jeopardizes the International Covenant on Civil and Political Rights ratified by India in 1979, which ensures full freedom of expression and prohibits any kind of restrictions. Unfortunately, the sedition law is at the discretion and mercy of those illiterate power holders who misuse the same to victimise those who raise their voices against prejudiced and discriminatory systems and corrupt practices.[14]

Thus, the very fundamental right of 'Freedom of Speech and Expression' is misconstrued as it does not restrain a citizen from criticizing a political statement given that the statement shall not incite or hurt the emotions of people against the state. This does not include the appeal or protests done by the activists which happens to be bona fide and is of purpose. Activists like Dr. Binayak Sen, had been put under trial under the charges of sedition. Binayak Sen MBBS, MD; is an Indian pediatrician, public health specialist and activist was found guilty of sedition.[15] He is the national Vice-President of the People's Union for Civil Liberties (PUCL). On 24 December 2010, the Additional Sessions and District Court Judge B.P Varma Raipur found Binayak Sen, Naxal ideologue Narayan Sanyal and Kolkata businessman Piyush Guha, guilty of sedition for helping the Maoists in their fight against the state.They were sentenced to life imprisonment.However he got bail in Supreme court on 16 April 2011.[16] This is an example where there is a misuse of this draconian law by political leaders in power to suppress the representation of the society for a given cause. And whenever the law fails its purpose, it must be repealed or removed.

In its current state, the yardstick that gauges the amplitude of disaffection and the resultant violence is very vaguely defined and is highly subjective. Raising its voice against such inhuman law, especially during times where people around the world are being made freer in terms of expressing their views, the International Human Rights Watch requested the Indian Parliament to immediately repeal the sedition law, which local authorities are arbitrarily using to silence peaceful political dissent.

If we take a glance on the examples from around the world related to this law then we see that in September 2010, even the Ugandan judiciary ruled that its

sedition law was inconsistent with the principles of freedom of speech and ruled in favour of Press freedom by declaring the criminal sedition offence as being unconstitutional. The sedition law in Malaysia is used to curb criticism of the state by non-Malays and to protect political elitism. However, this law is being criticised considerably in that nation and is under review. In Singapore, the maximum jail term for distributing a seditious publication is three years and not a lifetime.While in developed countries like the UK, the last prosecution for sedition occurred in 1972, by 1977, the common law offence of sedition was abolished. The Sedition Act of 1798 in US that was used by the powers-that-be and the elite classes of society for political and other benefits was abolished by Thomas Jefferson after he came to power. Similarly, it was repealed in New Zealand in 2007.[17]

While the United Kingdom abolished sedition laws in 2010, sedition became a big issue in India the same year as noted writer Arundhati Roy, amongst others, were sought to be charged with sedition[18] for advocating independence for the disputed Kashmir region. This is by no means the only instance of sedition laws being used in contemporary India. Many human rights activists have found themselves charged with sedition.[19] On 10 September 2012, Aseem Trivedi, a political cartoonist, was sent to judicial custody till 24 September 2012 on charges of sedition over a series of political cartoons against corruption. Though the cartoons were derogatory to National Emblem and the Constitution of India, the arrest of Aseem Trivedi under sedition has been questioned by experts.[20]

Going through the many names that appear when one looks through the recent history of how section 124A is being applied also gives weight to the charge that a great divide presently exists between the Supreme Court and the lower courts, one which is resulting in many instances of injustice for the judges seem ignorant of the position of law in many parts of the country. The problem is more so at the level of the trial court and the investigating authorities, with a number of cases showing that the High Court grants bail or acquits the accused in many ostensible cases of 'sedition'.

It is a matter of utter disgrace that the world's largest democracy is having laws, which were once hurdles in the path of its own freedom struggle and which are blatantly against the very definition of democratic rights in today's context.

The punishment of those accused of sedition begins with the legal process. Even if they are ultimately freed, they have to go through a long legal process, which serves as a punishment and a deterrent for those who dare to speak up. The Hindu while discussing cases under sedition in 2010 also highlights the bizarre case of a lecturer in Srinagar being arrested under section 124A because he added questions on the unrest in Kashmir Valley in an examination.[21] This is not an isolated incident. The Times of India's resident editor at Ahmedabad, Bharat Desai, faced charges along with a senior reporter and a photographer, for questioning the competence of police officials and alleging links between them and the mafia.[22] This was preceded by charges against one Manoj Shinde, the editor of an Eveninger in Surat for 'instigating people against a duly elected government'. He had blamed Chief Minister Modi for the disastrous floods which had occurred in the city.[23] Students who cheered for Pakistan during Asia Cup were charged under sedition is its current example of misuse. Cricket between India and Pakistan indeed incites great passion in both countries and followers of the two teams patriotism often gets unduly mixed with love for the game. However, for its sheer perversity and unreason, the action of the Meerut police in booking a group of students from Jammu & Kashmir on a charge of sedition beats all previous instances of the misuse of this penal provision. The charge of sedition under section 124A of IPC has been dropped, but only after strong outrage evoked by this irrational act.[24]

The rampant misuse of the sedition law despite the judicial pronouncement in Kedar Nath's case circumscribing the scope of the law has meant that there is a serious case for repealing this law. The above examples demonstrate that Article 19(1)(a) continues to be held hostage by Section 124A which has indeed proved Gandhi right in being the 'prince of the political sections of the IPC.' There is no justification for a draconian law of this nature, created to squash peaceful and non-violent dissent, to operate in a country, which claims to be the world's largest democracy.

India, however, still retains the law. Sedition is like war against people. India has had a history of draconian laws. Such laws have been made and withdrawn not because government understands democratic values but because the government cannot sustain draconian provisions for long. So it keeps changing their formal appearance. TADA which has been withdrawn had a conviction rate of 0.1 per cent. TADA was replaced by POTA. It was equally dangerous and was also withdrawn. Now we have UAPA 1967 which has been

amended to include the provisions of POTA. Such misuse of laws shows how the state is at war against its own people. If the law is repealed it will be the biggest victory of civil liberties.[25]

The current situation demands that we challenge this law. It is time to question the kind of democracy prevalent in India. Democracy comes from the French Revolution which reflected upon the art of making a Constitution. It had successive Constitutions in 1789, 1791 and 1795 but most important was the Constitution of 1792. It contained the right to resist against the government as a fundamental right of the citizens. Resistance is natural in the course of history; sedition makes it unnatural.

Seth Govind Das, a freedom fighter and, subsequently, a distinguished Parliamentarian, was another supporter of removing 'sedition' from the Article. He said: "I would like to recall to the mind of honourable Members of the first occasion when section 124A was included in the Indian Penal Code… It is a matter of pleasure that we will now have freedom of speech and expression under this sub-clause and the word 'sedition' is also going to disappear."[26]

Thus the framers of our Constitution were clearly aware of the tainted history of sedition laws and did not want the right to free speech of independent Indians restricted by these draconian provisions. By removing sedition from the terms included in Article 19(2) the Constitution makers signaled their wish to move away from the colonial order where legitimate dissent was denied to Indians.

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Overview of Work Life Balance and Workers Performance in Bali

Dewi Puri Astiti*

Cultural mores is a form of Balinese characteristic related trust and confidence into the spirit for every family in Bali. Mores translated into a specific ritual in Banjar or family and village temple. Community workers in Bali loaded with three aspects of the work that must be balanced against that is beyond the job to make money, work at home and work-related social customs in Banjar. This balance is known as work life balance (WLB). Work life balance is a balance between how workers can work outside the home produces incentives, work at home and extended family as well as the need for self-indulgence (Schien, 2010). Results of previous studies show that the work life balance will affect the performance of the resulting worker. Based on the above researchers wanted to see the work life balance and community workers in Bali and worker performance. In psychological research related to quality of life and quality of work, while sociologically, high or low level of work life balance affects the development of Balinese workers and community interaction influence on employee performance leads to a society of economic sociology . This study uses quantitative and qualitative methods. The subject was taken private and domestic workers who are Hindus and is a native resident of Bali. Overview of work life balance of the results of the study found the greatest percentage of low scores in the categories of work life balance, supported by the results of a qualitative analysis indicates that respondents felt that the life of work, family and social well-balanced yet. Associated with performance held by the respondents on average were and qualitative results of a decline in performance, not the spirit, unproductive feel and feel disturbed when working.

[**Keywords :** Quality of life, Work life balance, Performance]

1. Background

Until now, people in Bali maintain and uphold the religion, culture and traditions well. Balinese attachment to their local culture and traditions tend to

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clean from outside influences. Religious ceremonies and customary sort of *ngaben* (cremation), *otonan* (anniversary ceremonies themselves based on the Hindu calendar), temple ceremony (temple anniversary ceremonies every six months) and *metatah* (tooth filing ceremony) is a daily activity for Balinese society.

The concept of the extended family (extended family) adhered to Balinese influence on the intensity of the rituals and traditions that they carry. Every large family has a temple in Bali family, that each part of the family are bound to be present and involved in the ceremony each of its members. In addition to engagement with a large family, the people of Bali also has ties to the social environment outside the family. The Balinese also have to follow the rituals and customs are held in *Banjar* (traditional village in Bali).

The concept of extended family (big family) adopted by the Balinese influence on the intensity of the rituals and traditions that they carry out. Every large family in Bali has a family temple so that every part of the family are bound to be present and involved in the ceremony each of its members. In addition to engagement with a large family, the people of Bali also has ties to the social environment outside the family. Balinese people also have to follow the rituals and customs are held banjo (traditional village in Bali).

High intensity Balinese in maintaining and caring for religious rituals and customs are not without problems. For, as community workers, community workers in Bali have an attachment with the professionalism of the organization in the workplace. Therefore, this study was intended to see how WLB (balance between work outside the home, domestic activities in the family, and the relationship with the social environment) community workers in Bali and how the performance of public workers in Bali ?.

This research is important because it can be used to see how the characteristics of the WLB in society viscous maintain local knowledge and traditions customs. Therefore, individuals with low WLB potentially cause conflict of roles in domestic and social life.

Work life balance (WLB) is a picture of the situation of the balance between work responsibilities with family responsibilities and personal life. Another definition indicates that work life balance is an overview of the rules of individuals associated with the need for time and passion in work, family life and personal life and social life (fisher-McAuley, Stanton, Jolton and Gavin, 2003).

Another opinion, work life balance is a balance between how workers can work outside the home produces incentives, work at home and extended family as well as the need for self-indulgence (Schien, 2010).

Work life balance refers to the reduction of conflict between work life with family life be it personal or social. Reduced conflict between work and personal life, will lead to the satisfaction, comfort and happiness of the individual's own career and personal life.

Work life balance is a concept that can support workers to share their time and passion between work and other important aspects in life.

Work life balance is an attempt to provide time for family, friends, social community, spirituality, self-development, attention to yourself and other personal activities so as to increase the satisfaction and happiness in the workplace (Chandaria, 2013). One way to improve the performance of individuals within the organization.

Employee performance is a measure of the success of the individual in carrying out job duties. The task can be solved with good jobs because of factors associated with knowledge and skills skill, experience, sincerity and time (Simanjuntak, 2005).

Therefore, the performance is determined by how an individual can balance the time and energy of work and personal life. The issue of work-life balance is important to the people of Bali, given the current Balinese women have the same opportunity to work with men. Family income comes from two sources, namely the income of husband and wife, as a representation of modern society seeking stability in family economics and family avoid financial shortfall.

For another, the activity of customs as a spirit that must be guarded and do in everyday family in Bali. Of course, the activity of financial mores also requires quite a bit. Associated with work - life balance, working people in Bali loaded with three aspects of the work that must be balanced against that is beyond the job to make money, work at home and work -related social customs in Banjar.

Work at home for the people of Bali are loaded with engaging in a large family (extended family) is not only related to the husband/wife and children but also related to the family customs. For social life in Banjar, there will tangguang attachment socially responsible individuals in the community. Simultaneously, the existence of sanctions in the community if the individual or family does not run rules Banjar.

2. Research Methods

This study uses quantitative and qualitative methods. Quantitative methods of data collection was obtained by using a questionnaire or a questionnaire to be filled by the respondents, the analysis used is descriptive analysis using SPSS. Subjects were drawn using random sampling method from the number of the working population and the Hindu Balinese living in Bali on public and private companies. Total sample was 200 respondents. The new data can be analyzed is 63 respondents.

Quantitative data collection tool using a 15 item scale adapted from tools used Fisher-McAuley et al (2003) which includes the three dimensions of work interference personal life (WIPL), personal life interference with work (WIPL) and work/personal life enhancement (WIPL). Measurements were taken of the performance measurement tool used by each of the companies where the respondents worked.

Qualitative data were taken by using open ended questionnaires. The same number of respondents from the quantitative data. The question in qualitative research is associated with private life, family life, social and work life. Anything that disturbs, what is felt when disturbed and what will be done to overcome them.

3. Results

While respondent data were analyzed by the researcher is as much as 63 Respondents, with the minimum score is 21 and the maximum score is 88. Average score of the respondents was 47.86 with a standard deviation is 12.472. Furthermore, researchers categorization levels WLB scale to see the respondents using the formula categorization scores, scores kategorian WLB variables and their frequency and percentage. Highest percentage was found in the category of low scores, which means that as many as 36.5% of the study are in the low category of work life balance.

Descriptive data for the allocation of time spent for working and in personal and social activities. Employees showed that most of the time working is 8 hours, 6 hours for sleep, whereas time for childcare and marital affairs as well as yourself no more than time for customs affairs and great family time exceeds 3 hours. This means that customs affairs and extended family for the Balinese people enough time for consuming.

Performance data can be seen the level of performance of the respondents, amounting to 44.4% of respondents with moderate performance level, 23.8% of respondents with a low level of performance, 19% of respondents with a high performance level, 7.9% of respondents with very high levels of performance, and 4.8% of respondents with very low levels of performance.

In Personal Life, respondent states that it is his private life that interfere with matters relating to 1) Economics: cost of living, accounts payable, 2) Family : wife and child issues, disagreements with his wife, the problems related to household affairs and health. 3) Problems in the social mores.

Respondents mentioned that it felt when his personal life is interrupted, are :

1. Psychological disorders : confusion, negative emotions, stress, uncomfortable, happy, anxious, upset, regret, irritability, difficulty concentrating worked to depression.
2. Physical disorders : dizziness, sick, tired or exhausted, unable to sleep.

Respondents mentioned that done to take personal time is refreshing as a walk, especially for women is shopping (shopping), personal care or relaxation, reading books like philosophy books, doing sports activities, hobbies such as watching tv conduct, fishing, surf, play games, raising cattle, doing housework, parenting and rest or sleep.

On work life, respondents mentioned that the thing that bothers her life's work is related to the existence of personal problems that brought the current work, such as personal and family life, personal debt, work is piling or amount of work that has not been resolved because it is difficult to divide the working time and family, the atmosphere is not conducive working environment both in terms of leader/supervisor, from colleagues or from the workplace, the company targets high that experienced pressure or high-pressure jobs and the rules are quite strict working hours and health problems.

Respondents mentioned that it is perceived as working life is disrupted : Decreased performance: not spirit, lazy work, feeling unproductive work time feel disturbed, psychological disorders : stress, emotional upset, uncomfortable and ill at ease in working. Physical disorders is physical fatigue, sleepiness, and sore.

This is done if the respondent is interrupted working lives like refreshing the streets or relaxation, Looking for a new job, joking with colleagues, Estella

with family members, pray and invoke the guidance of God, doing a hobby while working or at recess as listening to music, chatting, playing games.

Family life, respondents mentioned that it is disrupting the lives of his family is related to economic issues related to the cost of living family, gossip from neighbors, problems with large families, family member illness, poor communication in the family, especially the husband-wife.
According to the respondents felt when family life is disrupted for example Stress, the burden of thinking, fatigue, anxiety, hurt, guilt feelings in the family (feel uncomfortable with the family).

Work life balance implies the extent to which individuals are equally involved in and equally satisfied with their work role and family role (Greenhaus and Singh, 2003). This means that if someone is having stess at work or at home will show up discontent in his personal life.

Respondents mentioned that done if family life is disrupted to be ignore and continue the activity as usual, trying to communicate to find a bright spot or a good settlement, spending time with the family with the streets or home village, Trying to be patient and pray, trying to balance the all matters in order to avoid the intersection. Social Life, respondents mentioned that annoying thing is the social life of things related to the gossip of neighbors or no neighbors envy, and lack of time socializing with the environment.

Respondents mentioned that it is perceived as social life is distrupted feeling uncomfortable, the burden of thinking, Feeling guilty and embarrassed, denting or confused split time, less confident when dealing with the environment and Shame because rarely socialize.

Respondents mentioned that done if social life is disrupted as silent and calm down, move the environment, to apology if trouble with neighbors, pray for fortitude, Limiting relationships with the community and try to positive communicate.

Respondent's life satisfaction data showed that 42.9 % of respondents do not feel satisfied with life now, 33.3% of respondents are satisfied with their lives now and feel grateful for what you already have, as well as 23.8% of respondents undecided. Criteria life satisfaction according to the respondent, namely living needs are met, can help others, economic adequate, good physical health, have time for family and work balance and customs.

4. Conclusion and Discussion

Picture of work life balance of the results of the study found the highest percentage of low scoring categories, which means that as many as 40 % of the study are in the lower category of work life balance, supported by the results of the qualitative analysis showed that 54.0 % of respondents felt that life work, family and social well-balanced yet.

Factors influential in determining the low work life balance because of the division of time between family, social life and customs like *mebanjar* and another ritual activity especially personal and unbalanced labor, economic conditions are less well established manageman followed by poor financial, health-related physical condition is not good.

Referring to the opinion of Robert Taylor (2007), related to the imbalance between life and work caused by :

"Over work in our society is seen as a primary cause of growing ill health, both physical and mental".

For Balinese respondents were quite bonded with customs activity, lack of time for socializing and indigenous activism sufficient psychological effect on the employee, where the employee feels uncomfortable, the burden of thinking, Feeling guilty and embarrassed, denting or confused split time, lack of confidence when dealing Shame because the environment and rarely socialize.

This phenomenon is in line with the result of research of McDonald et al, (2005), Employee work life balance priorities are considered to fall within three general categories: working time arrangement (total working hours and flexibility, and for those with parenting or other care responsibilities parental leave entitlements (maternity, paternity, parental and carers) and childcare (subsidies or direct provision).

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11

Comparison of E-image and True Image of Printed Cotton Fabrics

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This paper describes a comparison of the e-image and true image of printed cotton fabrics. Documentation of different methods of creating e-image for printed cotton fabrics was done by using the secondary sources and informal interviews with fashion designers, graphic designers and merchandisers from ten randomly selected apparel industries of Ludhiana. According to their three popular techniques were selected for the study. These were designing software, Digital camera and Scanning the fabric. To have more variety and options, three models of each selected technique was taken on the basis of their usage in various apparel industries and e-images were created. While taking the printout all variables like background colour, quality of paper, type of printer, ink etc will be kept as control. A panel of judges was asked to rank the models as I, II and III depending upon clarity and closeness of e-image created by them with original fabric sample. The most preferred model for each technique was used for further study. The final data was collected from ninety college going students and twenty professionals by using an interview schedule. The sample was selected by using sample random sampling technique. The results revealed that the majority of the student respondents belonged to the age group of 16-20 years. As far as their education was concerned, it was found out that 67.77 percent of the respondents were graduate. Ninety three percent of the students were aware of various e-images as they were computer savvy and used internet quite often. As for as professionals were concerned the results revealed that the majority of the professional respondents belonged to the age group of 30-35 years. As far as their education was concerned, it was found out that 60 percent of the respondents were post graduate. Fifty percent of the respondents were teachers from department of apparel and textile science PAU, Ludhiana and majority of the respondent had 10-20 years experience. According to the collected data, scanning the fabric samples was considered

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to be the best technique of creating e-image of printed cotton fabric followed by designing on Adobe Photoshop and lastly by clicking photographs through digital camera. Both professionals in designing field and students who are well aware of e-image feel that the e-image created by scanning the fabric sample was the best method for creating e-image of printed cotton fabrics as far as clarity and closeness of the image is concerned with respect to the original fabric sample.

1.   Introduction

Computers are now part of our lives, they play important role in business, education, health care, fashion etc. Computer technology has become so much a part of our lives that imagining a day without it has become out of question. It is there in all spheres of life. Even our enjoyment is being controlled by the computer technology. It can be regarded as the greatest contribution of science, a realization of the dream, "global village". In the high profile world of fashion design, the emphasis is increasingly placed on selling a dream rather then on describing the cut and construction of garments. The image of a fashion designer sitting up all night with a sketch pad and pencil, some fabric, a sewing machine, a model, and a dream is a romanticized one from past. In today's fashion world, CAD has become a major part of the design process. CAD stands for Computer-Aided Design. The design and production of garments is the work of a team of individuals, each of whom specializes in a different process. A designer or design team will first produce sketches of garment to obtain different styles. The artistic rendering of a garment is there to create a mood and is typically supplemented with precise line drawings called flats. With more frequent use of computers, a designer sketches and manipulates the result with image scan or editing software or draw directly onto computers interface with sensor equipped pen and special tablet. Since computers can store and project various styles, fabrics and colours can be interchanged at the click of a button, the design of a garment can be altered with much ease and comfort. Due to this, even the product development team and merchandisers also become involved in design process. Once the styles are determined, the biggest challenge for a designer is to have an image with fabric, accessories, trims and other detailing so that final look of garment can be conceived and finalized with the buyer.

There are many methods of creating e-image of the paper designs and their details. For example, scanning the design and even fabric to be used, taking

photographs of physical objects and transferring the image on computer or CAD software for direct drawing (Pascal and Thalmann, 2000).

A photograph or photo is an image created by light falling on a light-sensitive surface, usually photographic film or an electronic image such as a CCD or a CMOS chip. Most photographs are created using a camera, which uses a lens to focus the scene's visible wavelengths of light into a reproduction of what the human eye would see. The process and practice of creating photographs is called photography.

Computer scanners are used to transfer images or text into a computer. There are special models for scanning fabrics and other three dimensional objects. In the computer, the signal from the scanner is transferred to a digital image. This image can then be edited, printed, etc. All scanners have special parts which are used to take a picture from an object. Charge-coupled device or contact image sensor parts take the light from the object and change it to a digital signal. The digital signal is then transferred to the computer memory or is read in scanner's processor. With some software it can be changed to compressed digital image, like JPEG or PNG.

The uses for CAD software are almost endless, to create blueprints for a building, to design a machine, or to create layouts for a fashion piece. CAD is most often used in the drafting of architecture and contracting, or technical designing by engineers. It has just recently been adopted by the fashion industry, but its popularity is growing. Very fast with CAD software, a designer can not only see her creations as a digital image, but also create scale on her pieces and denote dimensions of sleeves and hems. This saves time by limiting the need for tailoring and other later adjustments. Another benefit of using CAD when designing clothes is a designer can see her design on a virtual model and then play with color and fabric choices to perfect that design. Time constraint is very important in any application which can be effectively achieved by CAD where less time is required to achieve good quality product as reported by Anbumani *et al* (2001).

CAD is used in fashion industry. Although most designers initially sketch designs by hand, a growing number also translate these hand sketches to the computer. CAD allows designs of clothing on virtual models and in various colours and shapes, thus saving time by requiring fewer adjustments of prototypes and samples later (Anon, 2005).

Technological advancement has brought automation and computer aided designing/computer aided manufacturing (CAD/CAM) systems in all the areas of manufacturing including textile and garment industry. Automation can be achieved by shortening the process, by using electronics, computer and innovative techniques and by eliminating the conventional processes Singh (2002). The simplest and most widely used full-reference quality metric is the mean squared error (MSE), computed by averaging the squared intensity differences of distorted and reference image pixels on computer along with the related quantity of peak signal-to-noise ratio (PSNR). These are appealing because they are simple to calculate, have clear physical meanings, and are mathematically convenient in the context of optimization. But they are not very well matched to perceived visual quality. In the last three decades, a great deal of effort has gone into the development of quality assessment methods of e-image that take advantage of known characteristics of the human visual system (HVS) (Wang et. al., 2004).

Today, IT gives the designer various options without actually wasting time, money and efforts towards expensive sampling. Value addition can now be achieved through innovative designs both in the fabric and garment processes to meet consumer demands which make it imperative for a garment supplier to invest in garment manufacturing tools. Design software for knits allows the creation of knit structures, knit design simulations etc. Fabric information on CAD is then converted into movement of needles; arrangement of feeders etc. IT plays the role of transmitting this information to the knitting machine and thereby making the handling of even difficult jacquard easy. Colour Information Management Systems (CIMS) enable retailers, product developer and designers to create and electronically communicate precise colours with their suppliers anywhere in the world (Marwaha, 2002).

Computer is capable of performing many designs related tasks. Designers now have access to computer networks that connect with large computer processing systems, making exact amount of information available instantly for design application (Allen and Stimpeon, 1990).

Computers have also changed the production time and cost of designing. CAD system permit designers to see a pattern or garment design on computer screen, print on paper without having to knit a sample. Computerized designs can be made in few minutes rather than hours Stephens (1999). Designers use

computers to save time and labour. Without the use of CAD, designers took 3 to 6 days to finish a design manually on a graph sheet of size 288 square inches, whereas it took just one day to get the finished design using computer. Computer is considered to be one of the important tools for apparel designing Kumar and Nerli (2001).

2.   Objectives

Objective of this study is to document different methods of creating e-image for printed cotton fabrics. This is further sub-divided into two :

1. First, to create e-image of selected fabric samples using different techniques.
2. Secondly, to study the preference of professionals and college going students for the most suitable technique of creating e-image for selected fabrics.

3.   Methodology

Ninety students from three different colleges of Punjab Agricultural University, Ludhiana and 20 professionals were selected randomly to find out the best technique of creating e-image for printed cotton fabrics.Five different cotton samples viz: plain, floral, geometrical, abstract and nursery print of size 6"×6" was taken and each design was created and rendered on computer using different and most popularly techniques, which were selected on the basis of the survey and preference of the panel of judges, five e-images were created each for the three most preferred techniques using the selected model. Thus total of fifteen e-images were developed through different techniques like scanning, digital photography and using designing softwares. Therefore, 15 different designs were made. All variables like background colour, quality of paper, type of printer, ink etc. was kept as control while taking printouts of created designs.

4.   Results and Discussion

Amongst the respondents, 50 % were professionals from apparel industry of Ludhiana (fashion designers, graphic designers) and the remaining 50% were teachers of Department of Apparel and Textile Science, PAU, Ludhiana.
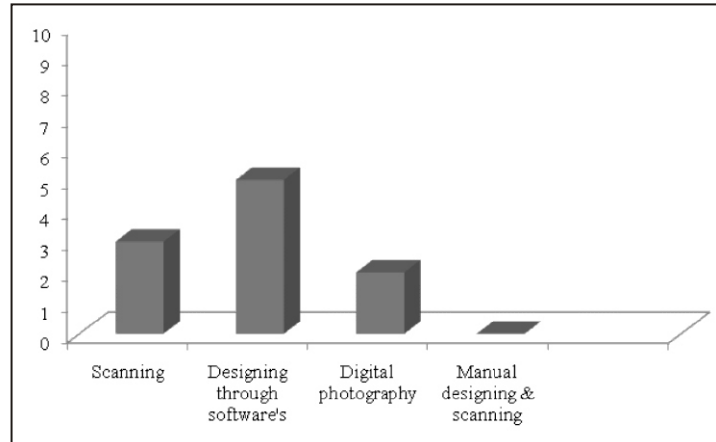
Fig-1 : Methods of Creating E-image for Printed Cotton Fabrics used in Apparel Industries of Ludhiana

The e-image of selected samples were made using three different and most popularly techniques, which were selected on the basis of the survey and preference of the panel of judges, five e-images were created each for the three most preferred techniques using the selected model. Thus total of fifteen e-images were developed through different techniques like scanning, digital photography and using designing software. The first e-image of selected samples were made using three different models of scanners. The first scanner was Epson-7511, the second was Hp PSC-1410 and the third was Epson L-200. The e-image of selected samples were made by transferring images from different models of digital camera. The various models were Canon Power Shot A810, Sony DSC-S650 and Nikon S 3100. The first designing software was Adobe Photoshop, the second was Corel draw and the last was Adobe Illustrator. The respondents were asked to rank the each technique as I, II and III for each cotton sample with respect to its closeness to original fabric samples.

Table-1 : Order of Preferences for using Scanner Model Epson-7511

Sample No.	Fabric Sample	I	II	III	WMS	Ranks
1.	Plain fabric	8	2	_	2.8	2
2.	Floral print	10	_	_	3	3
3.	Nursery print	10	_	_	3	3
4.	Geometrical design	10	_	_	3	3
5.	Abstract design	9	1	_	2.9	1

Kruskal Wallis H-test- 4.5; Weighted Mean score-WMS
*Not significant at 5% level

There were various reasons for using scanner model Epson-7511 as indicated in table-1. The data revealed that abstract design sample of the e-image was best (weighted score 2.9) and ranked 1. Plain fabric sample with weighted score 2.8 was given rank 2. Nursery print, floral print and geometrical design (weighted score 3) was given rank 3. So, it can be concluded that abstract design, plain fabric sample and other printed fabric samples were getting good result for creating e-image of the fabric sample by using the Epson-7511. The Kruskal Wallis H-test- 4.5 shows that there were no significant differences between all printed cotton fabrics.

Table-2 : Order of Preferences for using Digital Camera Model Canon A-810

Sample No.	Fabric Sample	I	II	III	WMS	Ranks
1.	Plain fabric	10	_	_	3	1
2.	Floral print	4	5	1	2.3	4
3.	Nursery print	5	5	_	2.5	3
4.	Geometrical design	2	2	6	1.6	5
5.	Abstract design	7	3	_	2.7	2

Kruskal Wallis H-test- 4.42 ; Weighted Mean Score- WMS
*Not Significant at 5 per cent level

There were various reasons for using digital camera model Canon A-810 as indicated in table-2. The data revealed that plain fabric sample of the e-image was best (weighted score 3) and ranked 1, abstract fabric samples with weighted score 2.7 was given rank 2 and nursery print weighted mean score 2.5 was given rank 3. Other fabric samples floral printed sample with weighted score 2.3 was given same rank 4 and geometrical sample with weighted score 1.6 was given same rank 5. The Kruskal Wallis H-test - 4.42 shows that there is no significant difference between all the printed cotton fabrics.

There were various reasons for using designing software Adobe Photoshop as indicated in table-3 on next page. The data revealed that abstract design fabric sample of the e-image was best (weighted score 3) and ranked 1. Nursery and geometrical design fabric samples with weighted score 2.8 was given rank 2.5. Plain and floral print (weighted score 2.4 and 2.6) was given rank 4 and 5. The Kruskal Wallis H-test- 3.130 showes that there were no significant differences between all printed cotton fabrics.

Table-3 : Order of Preference using Designing Software Adobe Photoshop

Sample No.	Fabric Sample	I	II	III	WMS	Ranks
1.	Plain fabric	6	2	2	2.4	5
2.	Floral print	6	4	_	2.6	4
3.	Nursery print	8	2	_	2.8	2.5
4.	Geometrical design	8	2	_	2.8	2.5
5.	Abstract design	10	_	_	3	1

Kruskal Wallis H-test- 3.130; Weighted Mean score -WMS

*Not Significant at 5 per cent level

4·1 Preference for best Technique of creating E-image for Printed Cotton Fabric

A survey method was used to study the preferences of the respondents for best technique of creating e-image for printed cotton fabric. Preference of 20 professionals and 90 college students were taken to find out the best technique of creating e- image with respect to its clarity and closeness to original samples. According to the collected data, scanning the fabric samples was considered to be the best technique of creating e-image of printed cotton fabric followed by designing on Adobe Photoshop and lastly by clicking photographs through digital camera.
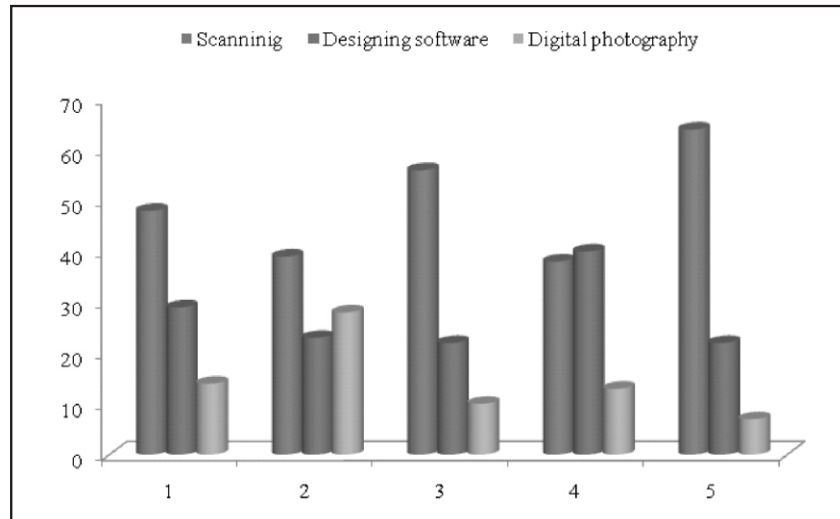

Fig-2 : Comparison of different Techniques of creating E- image by Students
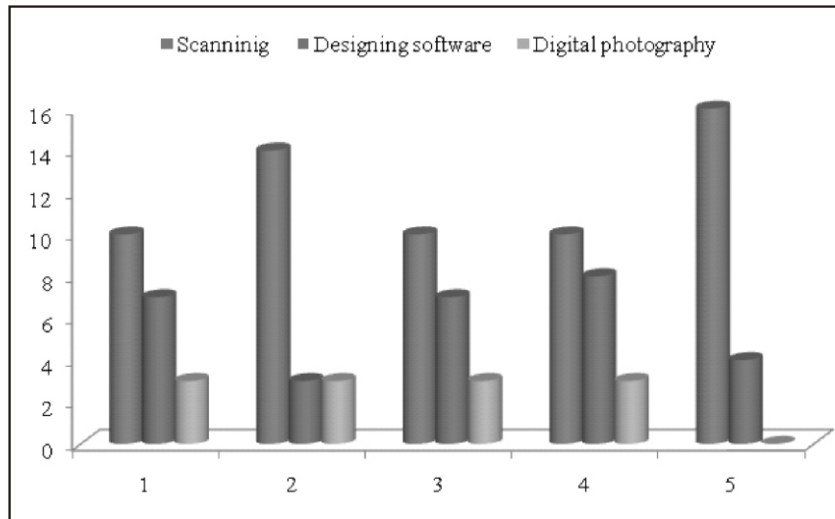
Fig-3 : Comparison of different Techniques of creating E- image by Professionals

As evident from the above fig. 2 and 3, both professionals in designing field and students who were well aware of e-image feel that the e-image created by scanning the fabric sample was the best method for creating e-image of printed cotton fabrics as far as clarity and closeness of the image is concerned with the original fabric sample.

5. Conclusion

The purpose of this study was to compare the e-image and original sample of printed cotton fabrics using different techniques. This study will help in understanding the best technique of creating e-image for cotton fabrics and would be of great help for producers, marketers and online shoppers as well. One of the biggest problems for the apparel companies in promoting their products online is the dissatisfaction of the customers when they see the original product because it looks very different from its e-image which they might have seen earlier. Dissatisfaction of the customer influences the relationship between the customer and the company negatively. To avoid this reaction, the e-image has to be made such that it is the exact replica of the original product. So, the apparel manufacturers, designers and merchandisers will be benefited by knowing which designing software for creating e-image of printed cotton fabric designs is preferred the most.

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Research on Agricultural Products Trade Current Situation and its Competitiveness in China under Financial Crisis

Shasha Li*

This paper analysis the current trade situation of agriculture products in China under financial crisis from the following three aspects : change of import and export of agricultural products, trade structure of agricultural products, distribution of trade competition advantage of major agricultural products varieties. Analysis results show that currently China's agriculture products exports expanded faster than imports, there are noticeable trends that agriculture products self-sufficiency declined and agriculture products foreign trade market multilateral distribution, agriculture products foreign trade mainly focus on land intensive and labor-intensive agricultural products, vegetables, tea, coffee hold the absolute advantage in agriculture products foreign trade in China, however, grain, animal and vegetable oil in the dry tree.

[**Keywords** : Trade, Advantage, Disadvantage, Import, Export]

1. Introduction

China's agricultural product trade maintain sustained growth momentum since entry WTO in 2001, According to the data issue by ministry of agriculture, agricultural product trade value has raised to $175.7 billions in 2012 from 27.9 $billions in 2001, the average annual growth rate is 12.06%; look from the absolute number, total value of trade, import value and export value of agricultural products all showed a trend of increase year by year; however, look

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from the relative quantity, agricultural products export growth is lower than import, And net exports decline significantly.

The influence of the external environment and domestic agricultural products markets supply-demand relationship changed since 2004 lead to China's agricultural product trade pattern began to change, Agricultural imports scale larger than exports, China become agricultural product net importer who used to be trade net importer exporter. meanwhile, Imports scale and trade deficit are Showing a trend of growing. Affected by the outbreak of the financial crisis hit in 2007, as a result of the contraction in external agricultural product demand and rising trade protectionism, China's agricultural product trade still faces a grim picture. It is obvious that China's agricultural trade is facing a series of risks and challenges currently in the context of the financial crisis, For instance, the imbalance of population explosion and Soil and water resources shortage has worsened, upward pressure on the Renminbi, Global climate changes, frequent natural disasters, Agricultural labor force cost rise, much uncertainty in International trade environment change and so on. How to take measures to eliminate adverse effects led by financial crisis, it is urgent for us to think and solve the problem of the adjustment the foreign trade strategy at present and in the years to come to Turn challenges into opportunities, promote modern agriculture process, upgrade Comprehensive agricultural productivity and agricultural products international market competitiveness.

2.   Review of Literature

At present, there are lots of literatures carried out extensive and in-depth research on agricultural products foreign trade, for example ,Niu baojun(2001) Analysis of agricultural products foreign trade policy adjustment along with great change in the international economic situation from both aspects of Southeast Asian financial crisis and China's accession to the WTO[7]. Sun dongsheng, Liu heguang (2011) analyzes structure, characteristics and comparative advantage of the agricultural products trade between China and South America, The results show that South America is the main source of agricultural products trade deficit with China, there are obvious complementarity characteristics and potential trade expansion between China and South America countries.[8] Chen longjiang (2012) research on China's agricultural products export environment status and change trend under financial crisis from three aspects : Global economy and the agricultural product

trade development trend, the change trend of trade liberalization, trend of trade barriers.[9]

Looking from research methods of the agricultural products foreign trade, Most scholars carry out the research by using the econometric model and the mathematical functions, for instance, Sheng bin,Liao mingzhong (2004) evaluate export potential of china to more than 40 major trading partners by using the gravity model, Inspected decision of Export trade flows of emerging marketing economy.[2] Gao yin,Tian weiming (2008) carried out quantitative analysis on the soybean trade influencing factors in our country based on gravity model, the results prove that soybean import prices, industrial policies of trading partners, China's soybean market openness have a significant impact on China's soybean trade patterns change;[3] Lin jian,Huo shangyi (2008) establish gravity model for fruit export trade, analyzes the influence factors of Chinese fruits export trade empirically, the study shows that the GDP of fruits importer, value of China agricultural production, The bilateral real exchange rates, whether the two sides are the Asia-pacific economic cooperation (APEC) member countries, Whether China's accession to the WTO have a marked impact on China's fruit export trade.[4]Chen longjiang, Huang zuhui (2005) conducted empirical research on China's agricultural economy and agricultural products foreign trade growth by using export expansion type of aggregate production function model, Conclusion shows that after joining the WTO, agricultural products foreign trade makes more and more contribution to the agricultural economic growth.[5]Pan su,Tan yanwen (2011) Has analyzed the relationship between import and export of agriculture and agricultural economic growth by using Modern economy economic approach. The results show that our country import and export of agricultural products and agricultural economic growth have been in virtuous circle.[6]

With a review of the existing literature at home and abroad and summarizing, the author found that there are three shortcomings. First of all, most of the literature only focus on the agricultural products trade between China and some agricultural products Trading partners, very few paper combined China with several agricultural products Trading partners to carry out research at a macro level; Secondly, the existing literature is only consider trade competitive advantage of major agricultural products variety, rarely considered distribution of trade competition advantage of china's major agricultural products variety; Thirdly, there are few literatures comparing Export trade competition of the major agricultural products variety in the import and export

structure of agricultural products for China and its agricultural products trading partners.

To make up for a lack of the study, this paper research on current china agricultural products trade in the context of financial crisis. the author not only combined china and its major agricultural products trading partners at a macro level, but also analyzed the export trade competitiveness of the major agriculture products variety in china from both Agricultural products export structure and Different agricultural products trade region by using trade comparative index.

3.   The Current Trade Situation of China's Agriculture Products under Financial Crisis

China is a big trading nation rather than trading power. look at the value of agriculture products trade, now China has already become the world's third largest agricultural trade big country and the largest trading nation in developing countries, Agricultural trade is an important part of the whole foreign trade system in our country. China's agricultural products trade patterns are changing in the context of the global financial crisis and Irreversible trend of economic globalization and trade liberalization. Overall, both Import and export scale of agricultural products show growth tendency, but the growth rate is falling, trade deficit trend is obvious (As shown in figure 1). China's agricultural products suffer from technical trade barriers, green trade barriers and anti-dumping investigation in foreign trade among developed countries such as South Korea, Japan, United States and Russia. Meanwhile, the imbalance between rigid demand for agriculture products grow with domestic population surge and agriculture production restrained by resources and environment resulting in increasing agriculture products external dependency. Agricultural exports scale reduction and import growth are the overall pattern of China's agricultural products trade under current financial crisis, the main characteristics are as follows :

3·1   Agricultural products trade maintain sustainable growth, Imports grew faster than exports

Both import and export trade of agricultural products in China continues to maintain sustainable growth since entry WTO in the year 2001, agricultural products trade deficit continued to maintain within the scope of $8 billion before the outbreak of the financial crisis in 2007. As the financial crisis deepened, the United States faces a fiscal cliff and euro-area suffers from debt crisis, trade

declined in developed economies, external demand of developing countries represented by China has reduced, China's agricultural products foreign trade were affected by varying degrees. We began to stepped into agricultural products trade deficit phase since 2007. The agricultural products trade deficit scale expand rapidly from 2008 to 2011, showing the characteristics and laws with agricultural products imports growth rate higher than the export scale, agricultural products trade deficit normalization tendency is obvious.
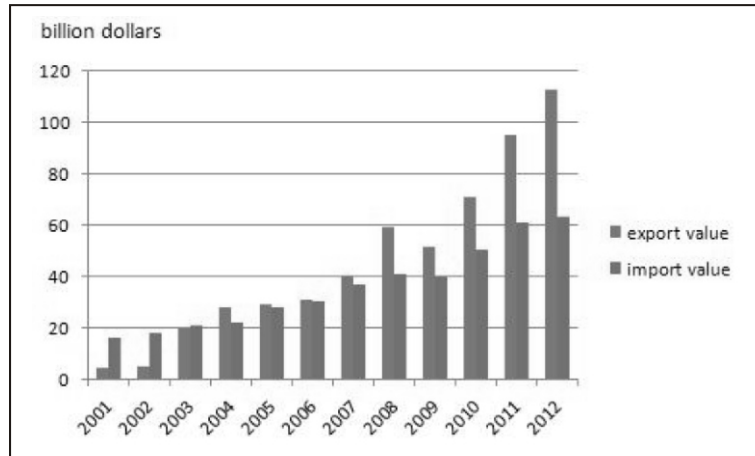

Figure-1 : Comparison of import value and export value of China 's agricultural products from 2001 to 2012 (Data source : China customs data)

3·2   Main agricultural products trade transferred from net exports to a state of net imports, self-sufficiency rate decline is obvious

Comparing the year 2005 with 2012,we can see the foreign trade patterns of bulk agricultural products such as grain, rapeseed, vegetable oil, cotton and sugar has transferred From net exports to net imports from figure 2. the net imports of rapeseed growth is the largest among them, followed by the grain and vegetable oil, Although the amplitude of variation of cotton and sugar is unremarkable, the tendency of net imports is quite obvious.

The Tendency of net import growth of bulk agricultural products reflected the agriculture products self-sufficiency rate headed downward, Especially the crops that lack flexibility in demand such as food crops and oil crops, the self-sufficiency rate of which lower than the average of bulk agricultural products. The tendency of China's agricultural products rely on international markets are becoming increasingly apparent.
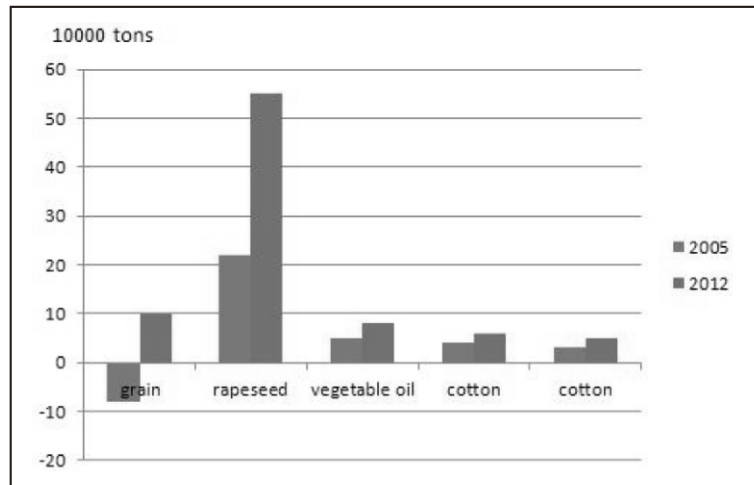
Figure-2 : Comparison of the net imports of agricultural commodities in china between year 2005 and 2012 (Data resources : China Business Year Book)

3·3 Maintain sustained trade growth with major trading partners on the whole

Under the background of the financial crisis haze, the agricultural products foreign trade on the whole maintained sustained expansion trend£¨ As shown in figure 3. The bilateral trade volume of agricultural products between China's and its trading partners such as The association of Southeast Asian Nations (ASEAN), European Union, USA, Japan, Australia respectively are $13.36 billion, $9.08 billion, $16.73 billion, $7.94 billion and $1.67 billion in the year 2008; the value has raised to $23.97 billion, $13.04 billion, $25.66 billion, $11.18 billion and $3.01 billion in 2011. We can see from figure 3 that China's agricultural products foreign trade with The association of southeast Asian nations and USA Stay relatively slow growth, however, the trade down to varying degrees with other trading partners from 2008 to 2009 due to the financial crisis. Trade of agricultural products began to presents fast growth momentum between China and The association of southeast Asian nations (ASEAN) , European Union, USA, Japan; yet, the agricultural products foreign trade volume between China and Australia keep slow growth from 2008 to 2010. China with its major agricultural products trading partners began to enter the fast growth stage since 2010, agricultural products trade between China and The association of southeast Asian nations (ASEAN), European Union, USA, Japan, Australia respectively increased its year-on-year volume by 42.3%, 26.8%, 20.1%, 16.7% and 32.7%.

Overall, the financial crisis in the early had an adverse effect to our country agricultural products foreign trade, however, the agriculture products trade between China and its trading partners has gradually recovered as governments introduced a series of measures to stimulate economics growth. Especially in the year 2011, agriculture products trade is showing a strong growth momentum. In terms of bilateral trade figures, Japan is China's largest agriculture products trading partner in Asia, the bilateral trade volume of China-Japan is $11.7 billion in the year 2011, up 24% year-over-year. the United States is China's first agricultural trading partners, the bilateral trade volume of China-America is $36.1 billion in the year 2012, up 19.6% year-over-year.[1] The ten ASEAN countries has become China's second largest trading partners of agricultural products, he bilateral trade volume of China- ASEAN is $16.1 billion in the year 2012, up 5.3% year-over-year. The European Union is China's third largest trading partners of agricultural products, the bilateral trade volume of China-EU is $26.7 billion in the year 2012, up 7% year-over-year.
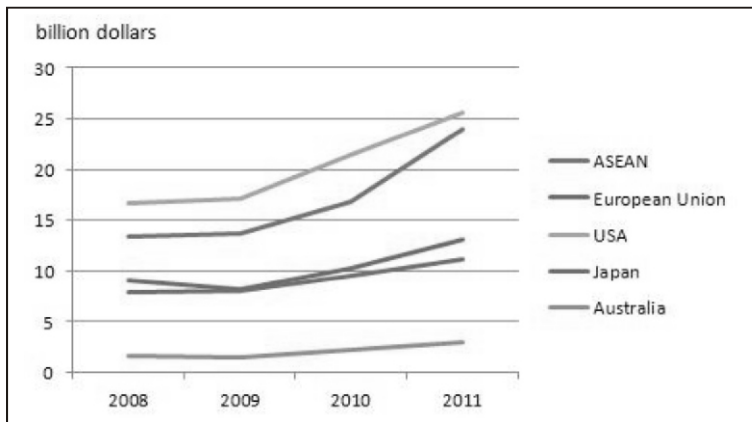
Figure-3 The bilateral trade volume between china and its agricultural products Trading partners (**Data resources** : China Business Year Book)

3·4 Agricultural products trade deficit position and surplus status remained stable

From the point of view of trade relations, our relationship with agricultural products trading partners mainly based on comparative advantage complementary ties. The European Union and Japan are two of the largest agricultural export market in our country(As shown in figure 4). The European Union is one of the major agricultural products trading partner of China, China's agricultural products net exports to the European Union has been dropping gradually year by year.

Since the outbreak of the financial crisis. which has close relationship with The European Union demand for farm products fell due to both financial crisis and debt crisis create a double whammy and technical barriers, green barriers. Bilateral agricultural products trade between China and Japan had been affected to a certain extent either in the financial tsunami. Net exports scale from China to Japan had dropped slightly from 2008-2009,however, the net exports scale maintain gradually expand.in the year 2009, the agricultural products net exports value is $7.16 billion, it had risen to $8.45 billion in 2010, with the rapid expansion of agricultural products trade scale, the net exports had soared to $10.52 billion, with an average annual growth rate of 21.2.

Since the outbreak of the financial crisis, our country has been in a trade deficit position among China-United States, China - Australia, China -ASEAN agricultural products trade, In 2008, the agricultural products trade deficit are $6.69 billion, $530 million, $530 million respectively, then, The trade deficit scale between China and The United States continue to expand, the agricultural products trade deficit is $12.42 billion in 2011,which increased 1.9 times than in that of in 2008. Agricultural products trade deficit between China and Australia maintain stability in the rise situation, in the year 2011 the bilateral agricultural products trade deficit is $1.25 billion, with a nearly 3 percent increase compare with that in 2008. Agricultural products trade deficit scale between China and the Association of Southeast Asian Nations unchanged after experiencing slide and boost, the bilateral agricultural products trade deficit is $4.79 billion, the same as the year 2008.
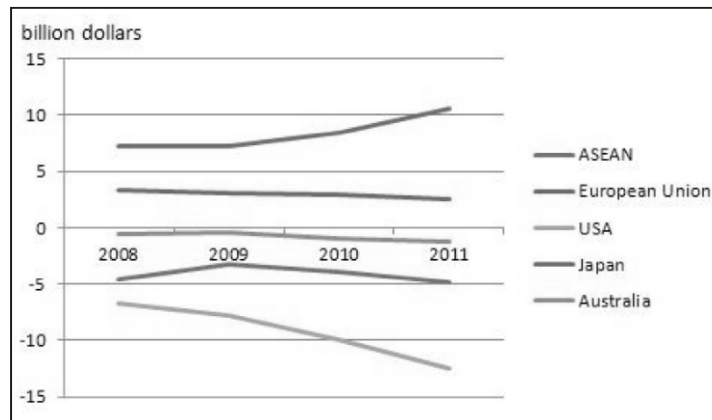

Figure-4 The change in agriculture products net export between China and its trading partners (Data resources : China Business Year Book)

3·5 China's agricultural products foreign trade market multilateral distribution trends is noticeable

Japan, the European Union, the association of southeast Asian nations (ASEAN), the United States, South Korea, Hong Kong is China's six major agricultural products exports sales market. Looking from our country agricultural product export market distribution, Japan is China's largest export market of agricultural products, followed by the association of southeast Asian nations (ASEAN) and the European Union. The amount of China's agricultural products exports to Japan in 2011 accounted for 17.9 of total export of agricultural products, The association of southeast Asian nations (ASEAN), the European Union were 15.8% and 12.9% respectively (see table 1).

At the same period, The China's agricultural products imports from Japan are relatively few. Comparing with the agricultural exports, imports of agricultural products in China market mainly concentrated in the United States, The association of south-east Asian nations (ASEAN) and the European Union. The amount of China's agricultural products imports from the United States accounted for 20.0% of total imports of agricultural products, the association of southeast Asian nations (ASEAN) make up 15.2%, European Union account for 5.6%, Australia share 2.2% (see table 2)

Table-1 : The Structure of Agricultural Products Export in our Country in 2011

(Unit ： billion dollars)

Variety	ASEAN	EU	USA	Japan	Australia
Total	9.59	7.82	6.61	10.85	0.87
Live stock	0.11	0.03	0.00	0.00	0.00
aquatic	0.88	2.10	1.78	1.95	0.11
Dairy	0.28	0.11	0.01	0.10	0.01
Vegetable	2.86	0.87	0.58	1.41	0.07
Fruit	1.51	0.35	0.12	0.18	0.05
Coffee, tea	0.24	0.28	0.19	0.19	0.02
Grain	0.06	0.02	0.00	0.07	0.00
fats	0.07	0.08	0.08	0.03	0.01
Sugar	0.35	0.08	0.18	0.02	0.06
Others	3.25	3.90	3.67	6.91	0.56

Data resources : China Business Year Book.

Table-2 : The Structure of Agricultural Products Import in our Country in 2011

(Unit ： billion dollars)

Variety	ASEAN	EU	USA	Japan	Australia
Total	14.38	5.23	19.04	0.33	2.13
Live stock	0.00	0.69	1.36	0.00	0.17
aquatic	0.37	0.21	1.13	0.15	0.10
Dairy	0.03	0.47	0.29	0.00	0.14
Vegetable	1.41	0.01	0.03	0.00	0.00
Fruit	1.66	0.06	0.50	0.00	0.02
Coffee, tea	0.11	0.02	0.01	0.00	0.00
Grain	0.39	0.09	0.72	0.00	0.64
fats	8.29	0.17	0.32	0.01	0.24
Sugar	0.24	0.03	0.07	0.00	0.02
Others	1.89	3.49	14.62	0.16	0.81

Data resources : China Business Year Book.

3·6 Our country Foreign Trade of agricultural products mainly focus on land intensive and labor-intensive agricultural products

From net exports of agricultural products varieties (see table 3), in China-ASEAN agricultural products trade, we mainly import fruits, grains, animal and plant oil from ASEAN, and export Livestock and poultry products, aquatic products, dairy products, vegetables, coffee, tea, sugar to it. In the Bilateral agricultural products trade between China and the European Union, the agricultural products such as Livestock products, dairy products, cereals, animal and plant oil etc are mainly import from the European Union, and we out put Aquatic products, vegetables, fruits, coffee, tea, sugar to UN. America provide China with Livestock products, dairy products, fruits, cereals, animal and plant oil, at the same time, we offer them Aquatic products, vegetables, coffee, tea and sugar in the China-USA Bilateral agricultural products trade. Japan is China's major importer of agricultural products which import Livestock products and aquatic products, dairy products, vegetables, fruits and other agricultural products from China. Australia export livestock products, dairy products, grains, edible oil to China and import aquatic products, vegetables, fruits, coffee, tea, sugar in China-Australia Bilateral agricultural products trade.

From net imports of agricultural products varieties (see table 4),the export agriculture products in China mainly focus on labor-intensive agricultural products such as vegetable fruit, coffee, tea, sugar which has the comparative advantage of resources, while, the import agriculture products mainly concentrate upon Land intensive agricultural commodities such as Dairy, grain, animal and plant oil, livestock products. Import and export structure of agricultural products reflects objective reality of the growing contradiction between people and land (See table 1 and table 2).

From the viewpoint of exports, the association of southeast Asian nations (ASEAN), Japan and the European Union are China's top three export markets of vegetable, fruit, coffee and tea. From the viewpoint of import, the association of south-east Asian nations (ASEAN) ,and the European Union are China's major trade partners of land intensive agricultural products such as grain ,animal and plant oil, livestock products (see table 1 and table 2) .

Table-3 : China's Net Exports of Agricultural Products Varieties in 2011

(Unit : billion dollars)

Variety	ASEAN	EU	USA	Japan	Australia
Total	-4.79	2.59	-12.43	10.53	-1.26
Live stock	0.11	-0.66	-1.36	0.00	-0.17
aquatic	0.52	1.88	0.66	1.79	0.01
Dairy	0.24	-0.36	-0.28	0.10	-0.13
Vegetable	1.45	0.87	0.55	1.41	0.07
Fruit	-0.14	0.29	-0.38	0.18	0.02
Coffee, tea	0.13	0.26	0.17	0.19	0.01
Grain	-0.33	-0.07	-0.72	0.07	-0.64
fats	-8.22	-0.09	-0.25	0.02	-0.23
Sugar	0.11	0.05	0.11	0.02	0.05
Others	1.35	0.41	-10.94	6.76	-0.25

Data resources : China Business Year Book

4.   Trade Competitiveness Comparison

Trade competitiveness, usually measured by trade competition index (TC), trade competition index represent net exports accounted for the proportion of trade, the trade competition index (TC) = (exports - imports)/(imports + exports),the value ranges for TC is (-1,1). It is commonly believed that when TC

value is 1,indicating that export product is in a state of absolute export With the strongest trade competitiveness; if the TC value between 0 and 1,showing that the export products with trade competitiveness; if the TC value is 0, saying that Export products without trade competitiveness on account of import and export trade balance; if the TC value less than zero, indicating that export products are weakly competitive in the trade; when the TC value is -1, showing export products is in a state of absolute import with the most significant trade competitive disadvantage.

Overall, our country has strong agricultural product trade competitiveness Comparing with Europe and the United States and Japan (see table 4). Agricultural product trade competitive power index in China against japan has been kept above 0.88 under the financial crisis, the competitive power index raised to highest level 0.94 since the outbreak of financial crisis in 2011, there are increasing tendency of trade competitiveness Raise. We has relative strong agricultural product trade competitiveness against European Union, however, along with the financial crisis deepening, the agricultural product trade competition index has declined from 0.36 in 2008 to 0.19 in 2011 year by year, showing us that China's agricultural product trade competitive advantage against European Union gradually weakening.

From year 2008 to 2011,China has been at a competitive disadvantage situation in the Agricultural product trade with The association of southeast Asian nations (ASEAN), Australia and the United States. With the global financial crisis to spread, China's competitive disadvantage situation become better than that in 2008 in the agricultural product Trade with The association of southeast Asian nations (ASEAN), but it is still in a state of lack of competitive. China has been in a disadvantage position For a long time and the disadvantage in strengthening year by year in China-America agricultural product trade; China's agricultural trade competition index has been less than 1 in the foreign trade of agricultural products between China and Australia, which indicate a significant competitive disadvantage for export for China.

Overall, our country hold the weakest agricultural product trade competitiveness against the United States, followed by Australia.

Look from the agricultural products trade varieties (see table 5), The varieties of agricultural products with trade competitiveness are aquatic product, vegetables, coffee, tea and sugar in China and America agricultural products trade. Some of them such as vegetables, coffee, tea hold high level above 0.75 of competitive advantage index, indicating that vegetable industry and tea industry

in China has the absolute competitive advantage in the China-USA agricultural products trade. The trade competition index of aquatic products and sugar is above 0.2, which means that those agriculture products had a certain competitiveness against the United States.

Table-4 : comparison of Agricultural Competitiveness Index between China and its Trading Partner

Country	2008	2009	2010	2011
ASEAN	-0.34	-0.24	-0.23	-0.20
EU	0.36	0.37	0.29	0.20
USA	-0.40	-0.45	-0.47	-0.48
Japan	0.91	0.90	0.88	0.94
Australia	-0.32	-0.28	-0.42	-0.42

Data resources : China Business Year Book.

China has been at a disadvantage state in livestock products, dairy fruit, grain, animal and plant oil trade with USA, the trade competition index of those Agriculture products is always negative. Among them, Livestock products, dairy products, cereals are in absolute trade disadvantage.

Overall, expect those agriculture products with comparative advantage of agricultural resources such as Vegetables, coffee, tea, other agriculture products are lack of trade competitiveness, even some of them are in absolute competitive disadvantage.

Table-5 : Comparison of Agricultural Product Trade Competitive Index between China and America

Variety	2008	2009	2010	2011
Live stock	-0.99	-0.99	-0.97	-0.99
aquatic	0.22	0.40	0.40	0.23
Dairy	-0.74	-0.86	-0.91	-0.92
Vegetable	0.89	0.90	0.86	0.90
Fruit	-0.30	-0.43	-0.56	-0.61
Coffee, tea	0.75	0.86	0.88	0.86
Grain	-0.48	-0.99	-1.00	-1.00
fats	-0.78	-0.21	-0.66	-0.62
Sugar	0.64	0.70	0.58	0.45

Data resources : China Business Year Book.

From the comparison result of main agricultural products trade competition index of China and ASEAN (see table 6), showing trade competitiveness of agricultural products including: Aquatic products, dairy, livestock products, fruits, vegetables ,coffee and sugar, Among them, the trade competitiveness index of livestock products have been equal to 1 from year 2008 to 2011, indicating livestock products in China have absolute competitive advantage in the China-ASEAN agriculture products trade; meanwhile, the trade competitiveness index of Aquatic products, coffee, tea and sugar are all above 0, showing strong competitive advantage.

The agriculture products in China which have been lack of trade competitiveness in the China-ASEAN trade are grain and animal and vegetable oil, both of them hold relatively low trade competitiveness index, Especially the animal and vegetable oil, which have been keep a high level of -0.97 during the period of 2008 and 2011, reflecting the grain and animal and vegetable oil in china have been keeping the absolute disadvantage for a long time in the agricultural products trade with ASEAN.

In general, Apart from land-intensive agricultural products like grain, the majority of agriculture products in our country hold strong trade competitive-ness In China-ASEAN agricultural products trade.

Table-6 : Comparison of Agricultural Product Trade Competitive Index between China and ASEAN

Variety	2008	2009	2010	2011
Live stock	1.00	1.00	1.00	1.00
aquatic	0.25	0.27	0.24	0.41
Dairy	0.82	0.41	0.04	0.78
Vegetable	0.27	0.14	0.26	0.34
Fruit	0.07	0.01	-0.01	0.05
Coffee, tea	0.45	0.53	0.43	0.37
Grain	-0.52	-0.70	-0.77	-0.75
fats	-0.97	-0.99	-0.98	-0.98
Sugar	0.53	0.49	0.76	0.18

Data resources : China Business Year Book.

In China-EU agricultural product trade, agricultural products such as vegetables, fruits, coffee, tea with traditional advantage in China Showed a significant trade competitive advantage (see table 7), among them, the trade

competition index of vegetables, coffee and tea are all above 0.9,showing those agricultural products are in the absolute competitive advantage. The trade competition index of aquatic products and sugar is above 0.4, which tell us that those agriculture products has a certain competitiveness against the European Union.

The agriculture products which are in the trade competition disadvantage include livestock products, dairy products, grains, animal and plant oil, Among them, the trade competition index of livestock products have been keep below -0.9 during the year 2008 to 2012,indicating that China has been in in absolute disadvantage situation for a long time in China-EU livestock products trade. then, the trade competition index of Dairy products, grains are Less than 0.6 in the long run, reflecting the serious shortage of those agricultural products in China-EU trade competitiveness.

On the whole, in China-European Union agricultural trade, agricultural products with Chinese traditional advantages Showed the absolute trade competitive advantage, while, labor-intensive agricultural products include grain, animal and plant oil show weak trade competitiveness in the trade.

Table 7 : Comparison of Agricultural Product Trade Competitive Index between China and EU

Variety	2008	2009	2010	2011
Live stock	-0.92	-0.92	-0.90	-0.91
aquatic	0.65	0.77	0.77	0.82
Dairy	-0.61	-0.59	-0.53	-0.62
Vegetable	0.99	0.99	0.99	0.99
Fruit	0.74	0.76	0.73	0.71
Coffee, tea	0.90	0.90	0.90	0.91
Grain	-0.60	-0.83	-0.82	-0.66
fats	-0.26	-0.15	-0.36	-0.34
Sugar	0.40	0.41	0.43	0.46

Data resources : China Business Year Book.

Above all, by comparing trade competition index of Agricultural products variety between China and its top three trading partner America, The association of south-east Asian nations (ASEAN), and the European Union, we can draw a conclusion : the agricultural products with the strongest trade competitive advantage in the foreign trade of agricultural products are Vegetables, coffee, tea;

with general trade competitive advantage agricultural products varieties turn to sugar and aquatic products; the fruit, which Respectively showed weak trade competitive advantage and strong competitive advantage in China-ASEAN and China-European Union agricultural products trade, however, it lie in a disadvantageous position.

Other agriculture products in China are always at the varying degrees disadvantageous position in agriculture products foreign trade, among them, the grain and animal and vegetable oil are in a state of absolute competitive disadvantage; livestock products, which are in a state of absolute imports in both China-USA and China-UN agriculture products trade, while ,it is in the absolute export state in China-ASEAN agriculture products trade.

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