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Hermann Schulze-Delitzsch

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Environmental Kuznets Curve

Discovering Thoughts, Inventing Future

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Environmental Kuznets Curve (EKC): Implications on Economic Growth, Access to Safe Drinking Water and Ground Water Utilisation in India

By Dr. Michael Von Hauff & Mr. Avijit Mistri
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Abstract- It is very tough trade-off between economic growth and environmental sustainability in a faster growing developing country like India. The Environmental Kuznets Curve (EKC) hypothesis proposes that environmental degradation initially increases with the income rise, and then begins to decrease once a certain threshold of income growth is achieved. The present study is an endeavour to explore EKC in relation to safe drinking water access, groundwater resource development and utilisation, as well as its correlation with waterborne diseases in 32 Indian States/Union Territories (UTs) within a period of 11 years, 2001-2012. Results from the panel analysis reveal that no EKC relationship exists with the considered indicators in the Indian context. Furthermore, income growth is observed to present no significant effect on all of the considered indicators. Income growth in lower-income States/UTs immensely helps to improve the access to safe drinking water compared to the higher-income States/UTs. Rapid expansion of irrigated agriculture and obsolete abstraction regulation tactically allows overexploitation of the groundwater resource.

Keywords: environmental sustainability, economic growth, environmental kuznets curve (ekc), safe drinking water access, ground water, waterborne diseases.

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Environmental Kuznets Curve (EKC): Implications on Economic Growth, Access to Safe Drinking Water and Ground Water Utilisation in India

Dr. Michael Von Hauff [α] & Mr. Avijit Mistri [σ]

Abstract- It is very tough trade-off between economic growth and environmental sustainability in a faster growing developing country like India. The Environmental Kuznets Curve (EKC) hypothesis proposes that environmental degradation initially increases with the income rise, and then begins to decrease once a certain threshold of income growth is achieved. The present study is an endeavour to explore EKC in relation to safe drinking water access, groundwater resource development and utilisation, as well as its correlation with waterborne diseases in 32 Indian States/Union Territories (UTs) within a period of 11 years, 2001-2012. Results from the panel analysis reveal that no EKC relationship exists with the considered indicators in the Indian context. Furthermore, income growth is observed to present no significant effect on all of the considered indicators. Income growth in lower-income States/UTs immensely helps to improve the access to safe drinking water compared to the higher-income States/UTs. Rapid expansion of irrigated agriculture and obsolete abstraction regulation tactically allows overexploitation of the groundwater resource. Lack of proper technological intervention or abatement measures, Indian industry widely deteriorates the quality of environmental indicators. Apart from these, climatic and geomorphological heterogeneity widely influences the distribution and utilisation of water resources.

Keywords: environmental sustainability, economic growth, environmental kuznets curve (ekc), safe drinking water access, ground water, waterborne diseases.

I. Introduction

Indian has experienced remarkable economic growth during the last two to three decades. The growth rate of income per capita (Net State Domestic Product) tripled from 1.5 percent during 1951-81 to 4.2 percent during 1981-2009 (Subramanian and Kumar, 2011, p.2). Within the latter period, the 2000s was the best ever decade for Indian macroeconomic performance with an observed growth rate 6.1 percent per annum increased from 4.2 percent in 1990s, and almost all major states recorded growth performance (Subramanian and Kumar 2011, p.2). The impetus has come actually from the rapid industrial and service sector growth. Although the agricultural sector growth has been diminished, it has continued its economic expansion during that period.

With the robust growth trajectory in India, the demand and availability of the factors of production as well as quality of the environment is a matter of concern. Environmental degradation is seriously undermining India's economic prospects. It is estimated that the financial costs of environmental damage in India around Rs 3.75 trillion (US$80 billion) equivalent to 5.7 percent of Gross Domestic Product (GDP) per annum (World Bank, 2013, p.1). Air pollution, emission of greenhouse gases, surface and ground water pollution, depletion of ground water storage and deforestation have serious economic and public health impact that ultimately downplaying the quality of life. Nearly 23 percent child mortality in India is linked to environmental degradation, especially for air pollution and inadequate water supply, sanitation and hygiene (World Bank, 2013, p.1). Near about 37.7 million Indian is estimated to be affected by waterborne diseases annually (Khurana and Sen, 2011, p.4). Near about 200 million person days of work are wasted, and the country loses about a Rs 366 billion each year due to the ill effects of water pollution and poor sanitation facilities (Parikh, 2004 cited in IDFC, 2011, p.228).The total amount of estimated expenditure for lack of safe drinking water, sanitation and its related diseases is nearly 470-610 billion Rs per annum (World Bank, 2013, p.16).

Diminishing per capita water availability from 1816 cubic meters (CM) in 2001 from 1588 cubic meters in 2011 (MOSPI, 2013, p.184) accompanied with increasing population, urbanisation and industrialisation augment the burden of the crisis of fresh water. Moreover, due to contamination of the sources of water, especially through industrial effluent and domestic sewage discharge, and poor water treatment facility, it is often difficult to get safe drinking water (CAG, 2011; PIB, 2012). The water quality of most of the Indian rivers crossed the desired standard. The monitoring result during 2011 of the Central Pollution Control Board (CPCB) reported that the organic pollution in terms of

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Biochemical Oxygen Demand (BOD) and Coliform bacterial count continued to be the predominant pollution of aquatic resources in different parts of the country. Another finding by CPCB (2009), 43 industrial areas/clusters out of the 88 are found to be critically polluted as per Comprehensive Environmental Pollution Index (CEPI). Critically polluted industrial areas are not only just an environmental challenge, but they are a public health challenge also. Nearly 85 percent of big industrial clusters in India are facing health hazards where air, water and land pollution levels are not fit for human habitants (PIB, 2009).

It is very tough trade-off between economic growth in one hand and environmental sustainability, on the other hand, in faster growing developing countries like India. In this context there is a widely recognised theory that in the early stages of income growth, degradation and pollution increases, but beyond a threshold of income, pollution drops down with the growth increase (Fig. 1). It is known as the Environmental Kuznets Curve (EKC) hypothesis. The EKC concept is traced from the original hypothesis of Kuznets in 1955 that is income equality rises first and then falls with economic development proceeds. The argument behind the EKC hypothesis is that the country assimilates new technologies, policies and programmes to its growth trajectory over the time that helps to reduce environmental degradation to a great extent. Implementation of new technologies and effective policies needs a substantial amount of investment or expenditure that crucially linked with the pattern of higher economic growth. Most probably that is why, the policy makers of developing countries keep environmental consideration as second objectives, prioritise 'grow first, clean up later'. However, there is wide contradiction regarding the validation of the hypothesis while it confronts with the emerging idea of sustainable economic development promulgated by the Brundtland Commission (1987) in 'Our Common Future'.

The EKC concept first draws its root from the path-breaking studies by Grossman and Krueger (1991), World Bank Development Reports (1992) and its background study by Shafik and Bandhyopadhya (1992). The Grossman and Krueger's study was based on three air pollutants, viz. sulfur dioxide (SO_2), smoke and suspended particulate of urban areas located in 42 countries during the time period 1977-1988. The study reveals that the concentration of two pollutants, such as SO_2 and smoke, increase with per capita GDP at low levels of national income, but decrease at higher levels of the same. Shafik and Bandhyopadhya (1992) began studying with ten diversified indicators[1] of environmental quality of 149 countries during 1960-90. Income has the most consisting significant effect on all chosen indicators of environmental quality and most of these (except access to safe drinking water and urban sanitation) deteriorate initially as the incomes rise and higher incomes assist to resolve the problem better ways. Only two indicators out of the ten, such as suspended particulate matter and ambient SO_2, follow the EKC hypothesis. The study also expresses that in most of the cases, high investment and rapid economic growth, create pressure on natural resources resulting in high levels of pollution. Trade, debt and other macroeconomics policy variable exert to little generalise effects on the environment. Apart from these, a plethora of studies on different aspects of environmental indicators (Hetteig et al., 1992; Selden and Song, 1994) in various parts of the world and its critical evaluation (Bruyn et al., 1998; Dinda,2004; Stern,2004) have also been carried on during the last couple of decades.

There are also few of studies in Indian context. Most appreciated one, Managi and Jena (2007), has brought out the EKC relation between environmental productivity of three pollutants, such as SO_2, nitrogen dioxide (NO_2) and suspended particulate matter, and income with the analysis of states level industrial data during 1991-2003. The results of the panel analysis unveil that the scale effect dominates over the technique effect and combined effect of income on environmental productivity is negative. The study of Mythili and Mukherjee (2011) denies the EKC kind of relationship between river effluents and per capita net state domestic product (NSDP) when dealing with three river effluents, such as BOD, dissolve oxygen (DO) and pH, during the period 1990-91 to 2005-06 in 14 Indian states. This study also expresses that the policy ordinance has not been implemented in many cases, and government should take mix measures such as command and control instruments, economic instruments like price based and quality based, and hybrid instrument. The study by Barua and Hubacek (2008) focus on the watershed level of the 12 states based on two parameters of riverine water quality, BOD and chemical oxygen demand (COD). The study has found the EKC relationship only four states out of the 12. A distinctive kind of study has been carried by Kumar and Viswanathan (2003) on indoor air pollution and income relationship at the household level based on the National Sample Survey (NSS) over the period from 1983 to 2000. The result validated the EKC hypothesis as appropriate for exploring observations in rural households.

However, whatever studies have been carried on Indian context are limited either on air pollution, such as CO_2, SO_2, NO_2 and suspended particulate matter, or

[1]Shafik and Bandhyopadhya's (1992) study includes wide range of environmental indicators such as lack of safe drinking water, lack of urban sanitation, annual deforestation, total deforestation, dissolved oxygen (DO), fecal coliform, ambient suspended particulates matter, ambient SO_2, municipal waste per capita, carbon emission per capita.

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riverine water pollution, such as BOD, DO, COD, pH and Coliform. None of the study has been done on the quality of drinking water, waterborne diseases and ground water utilisation and development, even if these have not been explored beyond India except lack of safe drinking water and urban sewage generation. The present study, therefore, is an endeavour to insight into the arena of drinking water and its related diseases and ground water storages with respect to a rapid growth trajectory in India.

II. Status of Drinking Water and Ground Water Storage

At first, it is very important to briefly introduce regarding the condition of drinking water and ground water storages in India. According to the periodical assessment of Central Water Commission (CWC,2012-13, p.14) total utilisable water potential is 1,121 billion cubic meters (BCM) against current water demand of 813 BCM in India. The current demand will rise 1,093 BCM by the year 2025, and it will be double(1,447 BCM) in 2050 (Table 1).Therefore, India will face a water crisis in the near future, if precaution is not taken immediately. Moreover, recent (in 2011) per capita water availability is 1588 CM, which has declined from 1816 CM in 2001 (MOSPI,2013, p.184), and it is estimated further decline to 1140 CM by the year 2050 (CPCB 2010, p.23). As per Falkenmark (1989) indicator, 1,000-1,700 CM per capita water usages considered as 'stress' water conditions in an area where India has already entered into 2010 onward.

The requirement of drinking water of the total demand in a country is small. In India, it is around six percent of the total fresh water consumption (Table 1). Universal coverage of safe drinking water is one of the basic provisions of a nation. India would not be able to provide safe drinking water to its cent percent households (HHs) till now, in spite of implementing a plethora of policies and programmes since the beginning of the Five-Year Plan. However, India has improved a lot (Table 2). Nearly 87 percent HHs enjoy the provision of safe drinking water based on data from the 2011 Census. The figure of National Sample Survey (NSS) in 2012 is a bit higher; about 91 percent HHs use improved source[2] of drinking water(Table 2).

Provision of safe drinking water within the premises is a sign of more gender empowerment as well as an indicator of a good quality of living status. A substantial proportion of HHs (18 percent) travel away from the premises[3] to fetch water in the 2011 Census, and it has increased from the previous Census, 2001 (Das and Mistri, 2013, p.156). The regional picture is far different from the gross. In West Indian States, namely Rajasthan, Central Indian States, namely Madhya Pradesh and Chhattisgarh, and East Indian States, namely Bihar, Odisha, Jharkhand and West Bengal, and North-Eastern States, namely Tripura, Manipur and Nagaland, where more than 25 percent HHs have to face water away from the premises (Das and Mistri, 2013). Moreover, on an average nearly 20 percent rural HHs in Western and Central Indian states do not get the sufficient amount of water for maintaining their activities throughout the year (NSS, 2012).

India is the largest ground water user in the world, estimated usages 245.05 BCM per annum (CGWB, 2014, p.88); more than a quarter of the global total (World Bank, 2010). For the drinking water purpose, India highly relies on the storage of ground water, and it is considered as a safe source also. More than 50 percent HHs directly[4] extract ground water for drinking in various rounds of NSS and Census of India. According to the World Bank (2010, p.ix) estimation, nearly 85 percent drinking water supply depends on ground water and especially rural Indian high depends on it.

The periodical assessment (in 2011) of the ground water in India by Center Ground Water Board (CGWB) reported that total ground water drafting (per annum) is 245.05 BCM, of these only 22.71 BCM (9.27 Percent) is used for domestic and industrial purpose and the rest 222.36 BCM equal to 90.74 percent of total drafting is used for irrigation (Table 3). The World Bank (2010, p.1) estimates that more than 60 percent irrigated agriculture depends on ground water withdrawal. Other sources like remote sensing data and NSS suggest that this figure would be much higher as 75-80 percent of the total irrigated area in India is served by groundwater (Shah, 2009, p.4). With the rapid expansion of the gross irrigated area of 38.2 million hectares (ha) in 1970-71 to 91.5 million ha in 2011-12 that is more than two fold (DOES, 2014); the stress on ground water has also been amplified. Since the 1970s, groundwater irrigation has expanded at a very rapid pace (UNICEF, 2013). During last eight years (2004-11), the ground water drafting for irrigation has been near about five percent increased (Table 3). Therefore, it is clear that when most of the Indian people depend on ground water for drinking, the maximum amount of that is allocated for irrigation.

[2] 'Improved source' of drinking water includes: 'bottled water', 'piped water into dwelling', 'piped water to yard/plot', 'public tap/standpipe', 'tube well/borehole', 'protected well', 'protected spring', and 'rainwater collection' in the different round of NSS such as 58th round (2002), 65th round (2008-09) and 69th Round (2012).

[3] Away from the premises refers to a water source located beyond 100 metres from the premises in urban areas and 500 metres in rural areas (Census of India, 2001 & 2011).

[4] Directly extract refers to using the sources of covered and uncovered well/protected and unprotected well, hand pump, borehole and tube well, etc., by the differs Census of India and NSS rounds

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Furthermore, according to the World Bank (1998) estimation, India uses nearly 13 percent of the total fresh water withdrawal for industrial usages[5], and the industrial demand along with energy production is expected to grow at the rate of 4.2 percent per year, rising from 67 BCM in 1999 to 228 BCM by 2025 (CSE, 2004, p.2).The industrial demand, therefore, is not negligible in India, and it is bound to grow in the coming years.

Ground water is a renewable resource. But the question is how much India is prepared for that in terms of replenishment and its management. The outcomes are far from satisfactory. 'Stages of ground water development'[6] that is a percentage of utilisation with respect to recharge has gradually increased to 62 percent in the latest assessment, 2011 from 58 percent in first assessment, 2004 (Table 3). It indicates extraction is higher than recharge processes. The regional figure is too uneven. In Punjab (172 percent), Delhi (137 percent), Rajasthan (137 percent) and Haryana (133 percent), indiscriminate withdrawal of ground water leading to overexploitation. In 12 States/Union Territories (UTs) out of the 35, stage of ground water development is higher than national average (62 percent).

The expert group on ground water assessment categorises the administrative blocks/ watersheds/ mandals/ firkas into four assessment units such as 'safe', 'semi-critical', 'critical' and 'overexploited' areas based on two criteria viz. stage of ground water development and long-term trend (10 years) of pre and post monsoon ground water levels. In the last assessment (in 2011), total 1985 units (30 percent)out of the 6607 assessment units in various States/UTs are categorised as assessment units under thereat (semi-critical + critical + overexploited) where people suffer different shorts of ground water crisis (Table 3). Among these, 1071 units equal to 16 percent of the total assessment units are defined as 'over exploited'. There is no sign of improvement of assessment units in the different assessments (Table 3).

Therefore, the unsustainable level of exploitation put the ground water resources at a great peril. Gradual depletion of ground water accompanied with population growth, rapid urbanisation and pollution of the surface water sources by industrial and domestic effluents, it is a very tough challenge for India to provide safe drinking water universally. Moreover, increasing prevalence rate of waterborne diseases, especially diarrhea and typhoid (MOHFW 2005- MOHFW 2005-13 [7]),and the huge environmental damage cost related to it that is 0.8 percent of the GDP equal to Rs 470-610 billion (World Bank, 2013)really pose questions on existing safe and sanitised drinking water in India.

Actually, the outright expansion of gross irrigated areas, rapid industrial growth and high energy consumption along with huge industrial effluent, and faster pace of urbanisation, all are the catalyst of faster economic growth in India which abruptly declines both the quantity and quality of fresh water in the country. As a result, different shorts of water-related issues have been intensifying gradually. The growth India has been experiencing, how much it is appreciated while considering the quality of environmental indicators as well as social and financial costs of environmental damage, is the basic concern to the policy makers. In this context, the argument of EKC hypothesis could be supportive or not at all. The present study, therefore, is an attempt to explore the relationship, especially for the quality of drinking water, prevalence of waterborne diseases and ground water utilisation and crisis, with income growth in India during the best ever growth decade after independence, 2000s.

III. Objectives of the Study

The scope of the present study is to examine the relationship between per capita Net State Domestic Product (NSDP) and five selective indicators related to drinking water, ground water and waterborne diseases such as lack of safe drinking water, stage of ground water development, administrative units(blocks/water sheds/mandals/firkas) under threats in terms of ground water crisis and the prevalence of waterborne disease, especially for typhoid and diarrhea. How the relationship varies across different States/UTs for different indicators and how demographic factors and macroeconomic policies affect the evolution of the environmental indicators are also brought in the gamut of the study. Total 32 out of the 35 States/UTs are included, only excluded Dadara and Nagar Havel, Daman and Diu, and Lakshadweep due to the lack of availability of proper date sets over the years. The study is carried on the time frame 2001 to 2012.

IV. Data Sources

The income data, per capita NSDP is at factor cost and constant prices of the year 2004-05 from the Central Statistical Organisation (CSO), Ministry of Statistics and Programme Implementation (MOSPI), Government of India (GOI). The data for all the years (2001 to 2012) of all the indicators are not available, there are some gaps. Hence, it is an unbalance panel

[5] In India, there is no accurate estimation of water demand in industrial sector. NCIWRD estimates (T.1), industry including energy production consumes 7.9 percent of the total demand and CPCB estimates, the figure may be eight percent.

[6] The stage of Ground water Development is computed as – (Existing Gross Draft For All Uses/Net Annual Groundwater Availability)*100

[7] As per the statistics of National Health Profile, 2005 to 2013 by Directorate of General of Health Service, Ministry of Health and Family Welfare (MOHFW)

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data. For the access to safe drinking water, five time point data, such as 2001 and 2011 from Census of India and 2002, 2008 and 2012 from different rounds of NSS, are available. For the NSS data, weight cases are considered to make these comparable to the Census figures. Lack of safe drinking water is measured by percentage of households (HHs) without access to drinking water from safe sources or improved sources[8]. In case of waterborne diseases, such as Diarrhea and Typhoid, continuous eight years data from 2005 to 2012 are taken from Directorate General of Health Services, Ministry of Health Family and Welfare (MOHFW), GOI. Both cases and deaths are included to compute the disease prevalence in a year. Three time data, such as 2004, 2009 and 2011, for stage of ground water development and administrative units under threats, are available from the Central Ground Water Board (CGWB), Ministry of Water Resources (MOWR). Both the indicators are in percentage terms. For administrative units under threats, the cumulative percentage of semi-critical, critical and overexploited units out of the total assessment units under different States/UTs are considered.

Apart from these, two demographic factors, such as density and literacy, are taken from the Census of India 2001 and 2011. Three macroeconomic policy variables, such as percentage growth (year of year) of gross state domestic product (GSDP) at constant price, outstanding public debt as percentage of GSDP and annual government expenditure as percentage to GSDP are accumulated from the CSO, MOSPI.

V. Methodology

Basic three models are tested- log-log, quadratic and cubic to explore the relation between income and each environmental indicator (EI).

$$ln\,(EI) = \alpha + \beta_1\, ln(NSDP/Capita) + \beta_2\,(Year)$$

$$ln\,(EI) = \alpha + \beta_1\, ln(NSDP/Capita) + \beta_2 ln\,(NSDP/Capita)^2 + \beta_3(Year)$$

$$ln\,(EI) = \alpha + \beta_1\, ln(NSDP/Capita) + \beta_2 ln\,(NSDP/Capita)^2 + \beta_3 ln\,(NSDP/Capita)^3 + \beta_3(Year)$$

In the study, five environmental indicators (EIs) or dependent variables are investigated. All dependent and independent variables are in logarithms. Time and entity fixed effect model that is dummy for the 32 States/UTs and time trend are incorporated in the right hand side of the equation to capture the State/UTs specific effect and time specific effect is adopted. It helps to explore the net effect of per capita NSDP on the outcome variable/EI. The time trend is added as a proxy of improvement in technology or measures. The basic relation between income and each dependent variable is examined first based on above mentioned three models (Table 4). The estimated parameters of the best fits models/equations help to assess the various forms of economic-environment relationship (Bruyn et al., 1998). It is mentioned as follows.

$\beta_1 > 0, \beta_2 = \beta_3 = 0$; *represent a monotonically increasing relationship*

$\beta_1 < 0, \beta_2 = \beta_3 = 0$; *represent a monotonically decreasing relationship*

$\beta_1 > 0, \beta_2 < 0, \beta_3 = 0$; *represent a quadratic relationship* (*i.e. EKC*)

$\beta_1 < 0, \beta_2 > 0, \beta_3 = 0$; *represent a quadratic relationship* (*i.e. U − shaped*)

$\beta_1 > 0, \beta_2 < 0, \beta_3 > 0$; *represent a cubic relationship* (*i.e. N − Shaped*)

$\beta_1 < 0, \beta_2 > 0, \beta_3 < 0$; *represent a cubic relationship* (*i.e. tilted S − shaped*)

Next, the consequences of other factors like demographic and policy are examined one by one based on best fits models (basic relation models) where effect of income is controlled and the functional forms of the hypothesised relationship between income and dependent variables are maintained. Finally, the concluding remarks are incorporated.

VI. Basic Relationship

a) Access to safe drinking water

After controlling time and States/UTs specific effects in panel regression, the relation between per capita NSDP and each indicator as follows. Lack of safe drinking water indicates that it has improved first with incomes rise, and then deteriorated with higher incomes (Table 4).The relation is significant. The quadratic model fits the best than linear or cubic because, these do not add considerable explanatory power to the lack of safe drinking water. The curve is U-shaped, $\beta_1<0$, $\beta_2>0$, $\beta_3=0$; hence, the EKC hypothesis is not followed. The deterioration of the quality of safe drinking water at higher incomes begins (turning point) at per capita NSDP of around Rs 53,400. The Fig. 2 is the elasticity graph of the lack of safe drinking water with respect to per capita NSDP. The graph indicates the change of the lack of safe drinking water in respect to the change of per capita income less than one percent that means the lack of safe drinking water is found to be inelastic with respect to per capita income in the whole range. From the economic viewpoint, though it is inelastic the slope of the curve indicates that the changes are higher in lower income states compared to middle and high income states. The problem has improved at a faster pace in low income states with income rise.

[8] For more details regarding the indicators, refers to the section, 2. 'Status of drinking water and ground water storage'

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It is not surprising that the problem of access to safe drinking water is essentially solved with higher income as it helps to more invest for supplying water from safe/improve sources and better maintains. Households can also take own measures. But surprising is, in some high income States/UTs worsening the problem. It could be attributed by the issues related to management and technological inputs. If it is followed the States/UTs specific effect, some states, such as Kerala, Jharkhand, Manipur, Meghalaya, Mizoram and Nagaland, where the problem of access to safe drinking water have significantly increased during 2001-2011 with per capita income rise. During 2001-2012, Kerala, Jharkhand, Meghalaya, Mizoram, Nagaland and Manipur have recorded on an average 6.9, 6.0, 5.5, 5.5, 5.0 and 4.0 percent per year NSDP per capita growths respectively, where the national average is 5.6 percent per year (CSO,2014). Actually, in geographical view point, these are either hilly or plateau regions. Manipur, Meghalaya, Mizoram and Nagaland are North-Eastern hilly States and part of the Himalayan system; Kerala is in the Western Ghats system and Jharkhand is the part of the Chota Nagpur Plateau. Due to such geomorphological setup, the groundwater potentiality is very less. They highly rely on either the sources of unprotected spring, pond/tank, unprotected well or other surface water sources. In Kerala and Jharkhand, near about 61 and 26 percent HHs use unprotected well for drinking respectively (NSS, 2012). In the North-Eastern states, a substantial proportion of HHs use unprotected spring and well, tank/ponds and other surface water sources. However, it is obviously a question of management and technological investment, because with the implementation of proper programme and technological investment at household and community level could solve the problem easily. For an example in Kerala, 61 percent unprotected well users could be brought under the safe brigade, only needs some basic technological intervention at HHs level, such as the use of filters, using after boiling or chemically treated and so on so forth.

b) Ground water: utilisation and availability

Two measures of ground water, stage of ground water development and administrative units under threat, tend to decrease with rising per capita NSDP. The quadratic and cubic models are not best fit to describe the relationships (Table 4). Both the relation is not statistically significant. But the time trend is significantly different from zero and both the slope coefficients are positive.

Time trend is a proxy of improvement in technology. Owing to incorporate more technology with the time, the exploitation of ground water becomes higher than previous. Long-term exploitation results in the depletion of water table and runs the ground water crisis. Moreover, exploitation is highly associated with government policy and management. In India, ground water is considered as private resource and mutated with the land right. The Government has no direct control over it. Therefore, overwhelming exploitation is continuing. Since 1970 onward ground water irrigation has been expanded with rapid stride (Shah, 2009; UNICEF, 2013). Until 1960, Indian farmers owned just a few tens of thousands of mechanical pumps using diesel or electricity to pump water; today India has over 20 million modern water extraction structures (Shah 2009, p.4). According to the last Agricultural Census of India 2010-11, near about 9.8 million and 11.1 million wells and tube wells with pump sets (both electric and diesel) respectively, a total 20.95 million pump sets are used to extract ground water. Total 6.57 million pump sets are newly added from the Agricultural Census 2000-01. Moreover, during last two-three Five Year Plans, there were wide coverage of electricity in most of the rural villages that make easier to explore the ground water with electrical pump sets. According to the 2001 population Census of India, only about 44 percent rural HHs enjoyed the electricity facility, now (in 2011) it has increased to 55 percent. Total electrical pump sets have been increased about four million during 2000-01 to 2010-11, where diesel pump sets have been increased 2.5 million. Besides, governmental investment in irrigation during the last two to three decades has helped the farmers to use or install water abstraction technology as well as enhance the purchasing power. Every fourth cultivator HH has a tube well, and two of the remaining three use purchased irrigation service supplied by tube well owners (Shah, 2009, p.4).

Like agriculture or domestic ground water uses in India, obsolete law related to the ground water extraction often remains un-priced and unregulated for the industrial establishment compared to the supply from surface water sources through the municipality/ corporation/local bodies. It is absolutely absurd for industrial and commercial use. Furthermore, this poor pricing act as an incentive to extract more ground water for the industrial unit in the country.

The stage of ground water development and administrative units under threats, both have two facets, one extraction and another recharge and replenish. Punjab, Haryana, Delhi and western Uttar Pradesh where though replenishable resources are abundant, but there have been excessive withdrawals of ground water leading to overexploitation (CGWB,2014) resulting into very high level of ground water development and more blocks under threats. On the other hand, arid climatic influence states, namely Rajasthan and Gujarat where chances of replenish are very low. In peninsular India like Kerala, Karnataka, Andhra Pradesh and Tamil Nadu where due to poor aquifer both availability and recharge is very low. Therefore climatic and geomorphological set up influence a lot to the storages of ground water.

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c) Waterborne diseases: Typhoid and Diarrhea

The main health impact of unclean water and poor hygiene are typhoid and diarrhea. More than ten million cases are reported each year in India and its numbers have been increasing over the years. In 2013, 10.8 million and 1.5 million cases are reported for diarrhea and typhoid respectively, which have been increased from 9.0 million and 0.6 million in 2005 respectively (MOHFW, 2005-13). Though the deaths related to the typhoid and diarrhea has been declined, still these are the one of the top five causes of death in India (ORGI,2009, p.11). The children (under 5 years) are highly susceptible to the waterborne diseases. According to the reporting of the Office of Registrar General of India (2009), 13.8 percent of child mortality is caused due to Diarrheal diseases. The estimated morbidity cost of these two diseases is nearly Rs 480 billion and aversive cost/cost of the health risks of environmental burdens is about Rs 55 billion a total Rs 470-610 billion per year contributes to the dominating share of the health cost in India (World Bank, 2013, p.16).

Present study considered the total effected persons that are the sum of the cases and deaths for each disease. The models indicate (Table 4) that both the diseases decline with income growth; only typhoid is significantly related to the income. The time trend shows significant relation with both the diseases, but the direction of the relationship is opposite compared to income relationship. It is very straight forward that higher income means higher access to safe drinking water, sanitation and so on so forth, ultimately decline of waterborne diseases. But, when income is controlled the relation between time and waterborne diseases are positive and highly significant (one percent level). State specific effect indicates that the waterborne diseases are significantly increasing in all the States/UTs. It is most probably an indication of the management issues. Leakages or contamination from the out sources, recharge though industrial and domestic effluent, neat and clean collecting site, sanitised storages in households or public, sterilised container for carrying, etc., are important aspects of management both in community and household level. It should not only be the target to use safe/improved sources, but the quality of water should also be the concern of people; need time to time checking for this.

Besides, rural people in India think that ground water means safe drinking water. The ground water in different parts of India highly contaminated with Arsenic, Nitrate and Fluorides. The highly arsenic prone state is West Bengal accompanied with other States, namely Assam, Bihar, Chhattisgarh and Uttar Pradesh [9]. Rajasthan, Karnataka, Gujarat and Andhra Pradesh highly affected by Fluorides. Apart from the ground water, surface water pollution is the pathetic condition in India. Almost 70 percent surface water is contaminated by biological, toxic, organic, and inorganic pollutants (IDFC 2011, p.285). The monitoring result during 2011 by CPCB reports that Biochemical Oxygen Demand (BOD) and Coliform bacterial count are predominant pollutant and these have been increasing continuously in different parts of the country. Meanwhile, the generated waste water by domestic and industrial sector is hardly treated before discharged. According to the report of the Comptroller and Auditor General of India (CAG, 2011, p.2), near about 10 percent of the waste water is treated at present in India; the rest is discharged into water bodies and these enter into river, ground water and lakes. Therefore, with proper management, more investment and technological intervention are needed to incorporate to curb the high prevalence of waterborne diseases in India.

VII. Demographic Factor

The above discussions have focused on the changes of the water indicators with respect to per capita NSDP changes. In this section and the subsequent sections, it is examined how demographic and policy differences across the States/UTs affect the environmental indicators when income and other time-invariant factors remain constant over the years. The best fits from the table-4 are the core models around which the subsequent discussions are continued so that the functional forms of the hypothesised relationship with income are not affected by adding additional factors.

Now India is the residence of 1.2 billion people (Census, 2011) expected to be top ranked with 1.7 billion population by the year 2050 (PRB, 2010, p.2). Huge population is the important factor for the Indian economy. Two demographic factors, such as population density and literacy rate, are selected for the study purpose (Table 5). Population density helps to understand the pressure on common resources in an area. Higher density means higher utilisation of common resources, like ground water and other sources of water, and more environmental degradation as well as pollution. With the population growth, density has also increased to 382 people per sq km in 2011 Census from 342 people per sq km in 2001. But it is not uniformly distributed among the States and UTs. It varies ranges from higher density 1,102 people per sq km in Bihar to lowest 17 people per sq km in Arunachal Pradesh among the States and from higher 11,297 people per sq km in Delhi to lowest 46 people per sq km in Andaman and Nicobar Islands among the UTs. Therefore, population pressure highly varies states to states. On the other hand, literacy is a proxy of environmental

[9]Ground water quality scenario. Central Ground Water Board (CGWB), http://cgwb.gov.in/GW_quality.html. Accessed5 September 2014

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consciousness. It helps to better understand the management of resources and improve the environmental quality. India achieves a lot in terms of literacy during the last decade. It has increased to 74 percent in 2011 from 65 percent in 2011 (Census, 2011).

In the model of quality of drinking water (Table 5), higher density has an additional effect on it that cannot be explained by the per capita net income in the best fits model in table-4. One percent increase of density significantly increases nearly four percent lack of safe drinking water that means additional four percent households will suffer the problem to access of safe drinking water. Likewise, one percent density rising affects the Diarrhea prevalence by increasing nearly two percent. Apart from two, density has no additional effect on ground water development, administrative units under threat and Typhoid, but higher density is positively associated with the rests except stage of ground water development.

The literacy rate has additional effects on none of the indicators and the direction of the relationship far from the assumption. The reason may be the inability to capture the environmental conscious by the proxy. According to Indian Census, the 'literate' refers to the both ability to read and write in any Indian scheduled languages. Therefore, finest indicator is needed to be incorporated to capture the effect.

VIII. Economic Policy

Three macroeconomic policy variables are incorporated to the study such as the growth rate of GSDP, public debt and annual government expenditure (Table 6). The Indian economy has been experiencing rapid economic growth. Investment is also in higher proportion. Rapid economic growth and investment may worsen the environmental quality compare to the average for their income level if policies and regulations are slow to respond to the changing circumstances. On the other hand, if the investment is in pollutant abatement equipment and technology, the effect would be positive; then high investment and rapid growth may have better environmental quality than average growing economy. There is a dual argument regarding the public debt on economic growth. First one, traditional view considers the increasing debt is a burden on the economy in the log-run period. It forces people to be more relay on natural resources and rapid exploitation of the same. Another one, Ricardian view (Ricardian equivalence hypothesis) considers debt is equivalent to future taxes which implies the neutrality of domestic debt to growth. Studies (Bhattacharya and Guha,1990; Singh, 1999; Barik, 2011; MOF, 2013) suggest that Indian domestic debtis intensively used for investment purpose to achieve rapid growth.

The growth of GSDP has no additional effects on drinking water and ground water compare to the best fits models (Table 6). Waterborne diseases are influenced by the higher economic growth. The diarrhea prevalence significantly increases by one percent with the economic growth rise at the rate of 10 percent. With Typhoid, high economic growth rates are insignificant, but it is clearly associated with the higher disease prevalence. There is also another positive, but insignificant association is found between economic growth and water crisis at administrative units. Public debt has additional and significant effect with none of the water indicators. But, higher public debt indicates the improvement of the indicators except access to safe drinking water. Government expenditure significantly affects the groundwater development. Near about one percent ground water improvement is associated with the increase of government expenditure nearly two percent point of the GSDP. Though government expenditure has no significant effect on the rests, but all except typhoid are negatively related to it; that means more public expenditure helps to improve the indicators. Overall the macroeconomic policy variables have no such significant effects; these imply mixed effect in the models. When higher economic growth indicates the deterioration of environmental quality, public debt and expenditure help to improvement the same. The direction of relationships is not clear.

IX. Conclusion

Finally, it is concluded that no EKC kind of relation is found in drinking water, ground water and waterborne diseases in Indian context. Income has no significant effect on all of the indicators. It has only consistently significant effect on two indicators such as access to unsafe drinking water and typhoid. Although all the indicators are not significantly related to the income, the best fits models suggest that all the indicators improve with income rising except drinking water. The problem of the access to safe drinking water rapidly declines with incomes rising first, but again begins to increase in higher incomes. The reason could partially be the incapability to manage the effects of regional climatic and geomorphological diversity properly. The population pressure (density) has a clear negative impact on all of the indicators except stage of ground water development. There is no strong evidence that rapid economic growth puts greater pressure on natural resources, meanwhile these is no such robust evidence that the economy with higher investment and public expenditure help to improve the environmental condition. The overall effects of the macroeconomic policies are ambiguous. It infers two thinks, one, there is a very meager amount of investment and expenditure for environmental degradation abatement technologies and measures in India. Second, the latter (technologies and measures) is hardly properly implemented with the rapid economic growth during 2000s. If both had been

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properly, there would obviously have an imprint of the consistently significant positive effect of all of the policy variables. Moreover, government expenditure and investment highly depend on the government policy (Peacock and Wiseman, 1961). The contribution of technological inputs and its progress depend on how well environmental policies are designed and implemented (Jaffe et al., 2003; Managi and Jena, 2007). Most probably that is why, technological improvement or abatement measures, and its implementation proxied by 'time trend' clearly works throughout the models (Table 4-7) in the support of gradual degradation of environmental resources and its worst consequences.

Apart from these, safe drinking water and ground water are highly influenced by climatic and physiographical heterogeneity. When one part of the India suffers flood, and a huge proportion of water are wasted through run-off, another part of India suffers draught and acute water shortages. Owing to lack of sufficient rainfall or run-off, replenish of ground water is not possible in Western India. In spite of having abundant rainfall, in North-Eastern and Peninsular India, ground water potentiality is very less due to hard rock formation. In some States both the climatic condition and geological set up are favourable for ground formation, but due to voracious extraction the stage of development is very high resulting into most of the administrative units under threats. On the other hand, when most of the people depend on ground water for safe drinking, maximum proportion of that is used by agriculture and Industry. Moreover, discharge of huge untreated (more the 90 percent) industrial and domestic effluent pollute the surface water sources (almost 70 percent) and deteriorate ground water quality as well as supplies resulting into gradual increasing the prevalence of waterborne diseases. All these issues could be handled by proper management, policy implementation and investment. Its indication has been got from consistently significant time trend in the models.

Aplethora of policies and programmes have been implemented during different Five Year Plans in India since Fifth Five Year Plan (1974-79) to the present for universal coverage of safe drinking water. At a glance, these are Minimum Need Programme (MNP) and Accelerated Rural Water Supply Programme (ARWSP) during Fifth Five Year Plan, Rajiv Gandhi National Drinking Water Mission (RGNDWM) in 1991–92, 'Nirmal Bharat Abhiyan' (NBA) in 1991, the formation of new department, the Department of Drinking Water Supply (DDWS) under Ministry of Rural Development in 1999 and another important programme is 'Swajaldhara' in 2000. Owing to rigorous exercise, though it is far from universal coverage, the provision of safe drinking water has improved substantially. Besides, there are lots of acts and regulations in different arena of environment such as the Water (Prevention and Control of Pollution) Act 1974, the Water (Prevention and Control of Pollution) Cess Act 1977, the Air (Prevention and Control of Pollution) Act 1981, the India Wildlife (Protection) Act1972, and the Environment (Protection) Act 1986 and so on so forth.

But, in case of ground water, there are hardly found such kind of policies, programmes and acts. One law, a person who owns the land also owns ground water below it, exists related to ground water extraction. It is outright absurd both in terms of domestic and commercial use. All the regulation related to ground water is included under the overall Environment (Protection) Act, 1986. The Central Ground Water Authority (CGWA) has been constituted under sections 3(3) of this act. Its exercises of power are limited. It manly deals with quality and quantity, and status of ground water in the country. But they have no mandate to charge different sectoral uses. Besides, groundwater is the subject matter of the State Government as per Indian Constitution, where Center has no exclusive power to make laws with respect it. Till now, six States out of the 29, namely Andhra Pradesh, Goa, Tamil Nadu, Kerala, West Bengal, Himachal Pradesh and two UTs out of the seven, namely Lakshadweep and Pondicherry, have enacted and implemented ground water legislation. But those States, such as Punjab, Haryana, Delhi, Rajasthan, Gujarat and Uttar Pradesh, exploit the most are far away from the formation of legislation. Therefore, a strong regulation is also needed in all the States and UTs to manage the ground water properly.

Therefore, water conservation in agriculture should be highly prioritised in India. The Government should follow the mixed approaches**,** such as different constructive measures include water supply management through construction of dams, reservoirs and other surface water storages, rain water harvesting, river linkages or channelised excess water to the deficit regions; command and control (CAC) measures through not only introducing the polices, restriction, licensing or permitting, but also effectively implementation of these which is very tough in Indian context; and the economic instruments like various taxes, and non-compliance charges or fees. Moreover, persuasive instruments or voluntary commitments of the Indian people are also very important.

Better the management of the surface water helps to develop the groundwater as aquifers are hydraulically connected with surface water bodies. In this context, India should get experience from the United States of America (USA), how its different parts have made over the regenerative ability of the aquifers through sustainable utilisation strategies and adopting innovative approaches. Innovative approaches typically involve some combination of the use of aquifers as storage reservoirs, conjunctive use of surface water and ground water, artificial recharge of water through wells

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or surface spreading, and use of recycled or reclaimed water (Alley et al., 1999). Meanwhile, India should take effective endeavour in water efficiency in domestic as well as industrial usages. All these will help to resolve the problem of access to safe drinking water as well as curb the waterborne diseases.

The above mentioned recommendations are not so easy to achieve, because these are not only very expensive, but these also place certain requirements on institutional funding. India will have also to ensure the same.

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Figures

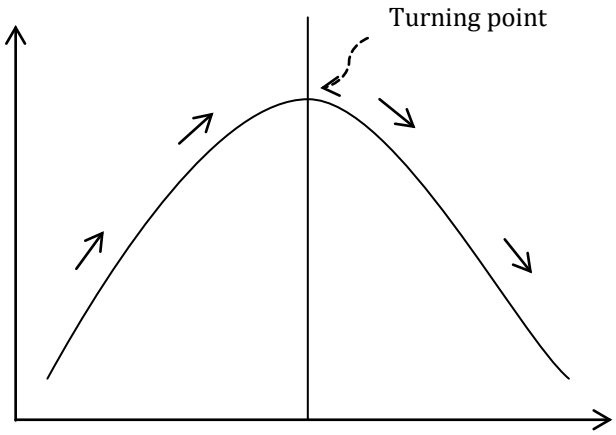


Figure 1 : The Environmental Kuznets Curve (EKC)

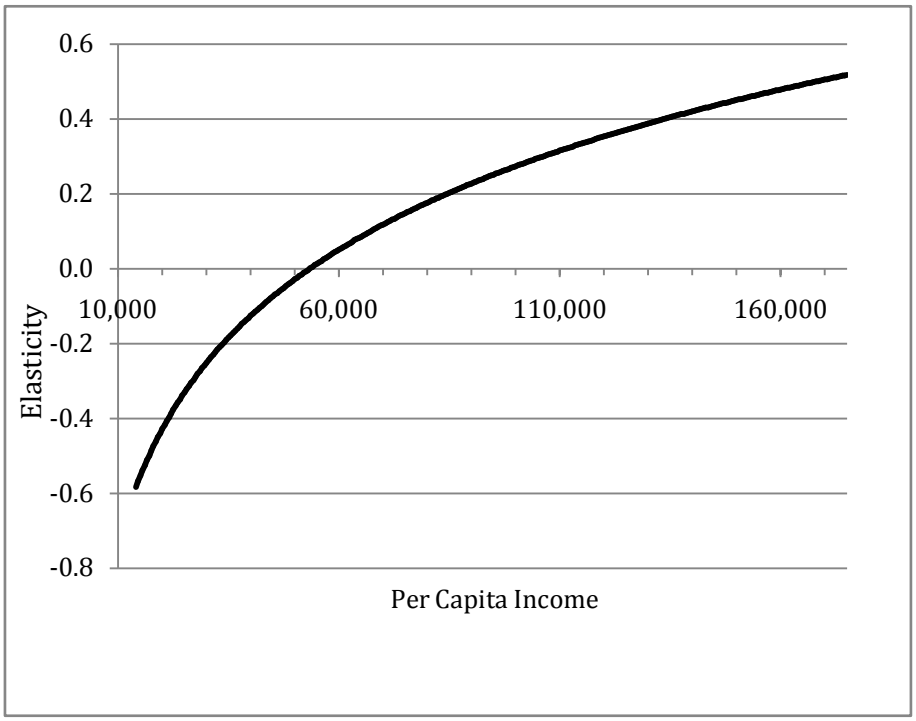


Figure 2 : Elasticity of lack of safe drinking water with respect to income per capita

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Tables

Table 1 : Projected water demand (BCM)of India by different use

Sector	Standing Sub-Committee of MOWR			National Commission on Integrated Water Resource Development					
	2010	2025	2050	2010		2025		2050	
	Total	Total	Total	Low	High	Low	High	Low	High
Irrigation	688	910	1072	543	557	561	611	628	807
Drinking water	56	73	102	42	43	55	62	90	111
Industry	12	23	63	37	37	67	67	81	81
Energy	5	15	130	18	19	31	33	63	70
Other	52	72	80	54	54	70	70	111	111
Total	813	1093	1447	694	710	784	843	973	1180

Source: Report of the Standing Sub-Committee on 'Assessment of Availability & requirement of Water for Diverse uses-2000'cited on MOSPI, 2013, p. 184

Table 2 : Households having source of drinking water

Years	Improved/safe sources (%)	Unimproved/unsafe sources (%)
NSS 69, 2012	90.6	9.40
Census, 2011	87.2	12.8
NSS 65, 2008	88.0	12.00
NSS 58, 2002	82.8	17.20
Census, 2001	77.9	22.08

Source: compute from different NSS rounds and Census of India

Table 3 : Ground water availability, utilisation and development

	Annual Ground Water Draft (BCM/Year)				
Assessment Years	Irrigation	Domestic & industrial uses	Total	Stage of Ground Water Development (%)	Assessment units under threats (%) (no./out of)
2004	212.51	18.09	230.62	58.0	29.0 (1615/5723)
2009	221.42	21.89	243.32	61.0	26.0 (1494/5842)
2011	222.36	22.71	245.05	62.0	30.0 (1985/6607)

Source: Central Ground Water Board (CGWB), 2006, 2011 and 2014

Table 4 : Water indicators and per capita Net State Domestic Product (NSDP)

Dependent Variable	Intercept	NSDP/ Capita	(NSDP/ Capita)^2	(NSDP/ Capita)^3	Time (year)	Adjusted R^2	N	Curve Shape
Lack of safe drinking water	3.059 (0.993)	-0.009 (-0.027)	-	-	-0.070** (-2.133)	0.847	157	
	28.451 (2.492)	-4.746** (-2.284)	0.218** (2.306)	-	-0.044 (-1.291)	0.852		U- Shaped
	23.006 (0.233)	-3.160 (-0.111)	0.065 (0.023)	0.005 (0.056)	-0.044 (-1.287)	0.851		
Stage of ground water development	7.697 (2.172)	-0.482 (-1.356)	-	-	0.054** (2.181)	0.985	93	Monotonically decrease
	3.359 (0.186)	0.310 (0.096)	-0.036 (-0.245)	-	0.051 (1.855)	0.984		
	92.132 (0.730)	-25.241 (-0.700)	2.411 (0.700)	-0.078 (0.700)	0.052 (1.870)	0.984		
Administrative units under threats	10.933 (1.750)	-0.928 (-1.487)	-	-	0.093** (2.151)	0.943	96	Monotonically decrease
	-23.145 (-0.759)	5.329 (0.966)	-0.285 (-1.142)	-	0.074 (1.595)	0.943		
	-278.397 (-1.249)	78.649 (1.236)	-7.294 (-1.202)	0.223 (1.156)	0.070 (1.508)	0.943		

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Typhoid	21.500 (3.585)	-1.321** (-2.208)	-	-	0.227*** (5.330)	0.881	239	Monotonically decrease
	27.681 (0.772)	-2.458 (-0.376)	0.052 (0.175)	-	0.229*** (5.110)	0.880		
	-881.774 (-2.371)	252.467** (2.428)	-23.745** (-2.450)	0.740** (2.456)	0.206*** (4.561)	0.883		
Diarrhea	15.171 (4.471)	-0.349 (-1.031)	-	-	0.056** (2.316)	0.943	242	Monotonically decrease
	-6.500 (-0.321)	3.637 (0.986)	-0.182 (-1.085)	-	0.047 (1.867)	0.943		
	-859.305 (-4.200)	242.689*** (4.243)	-22.498*** (-4.219)	0.694*** (4.187)	0.026 (1.049)	0.947		
*Note: *** Significant at 1%; ** significant at 5%; t-Statistics are in parentheses*								

Table 5 : Water indicators, per capita NSDP and demographic factors

Dependent Variable	Intercept	NSDP/ Capita	(NSDP/ Capita)^2	Time (year)	Density	Literacy	Adjusted R^2	N
Lack of safe drinking water	12.022 (0.964)	-5.523*** (-2.712)	0.263*** (2.822)	-0.120*** (-2.830)	3.558*** (2.881)	-	0.861	157
	29.282 (2.546)	-5.732** (-2.286)	0.265** (2.290)	-0.056 (-1.468)	-	1.027 (0.706)	0.852	157
Stage of ground water development	8.197 (1.509)	-0.484 (-1.349)	-	0.056 (1.804)	-0.087 (-0.122)	-	0.984	93
	8.518 (1.668)	-0.495 (-1.364)	-	0.058 (1.876)	-	-0.166 (-0.225)	0.984	93
Administrative units under threats	5.603 (0.579)	-0.907 (-1.446)	-	0.069 (1.265)	0.918 (0.722)	-	0.942	96
	3.869 (0.445)	-0.847 (-1.353)	-	0.058 (1.118)	-	1.499 (1.162)	0.943	96
Typhoid	16.764 (1.478)	-1.330** (-2.218)	-	0.215*** (4.418)	0.861 (0.492)	-	0.880	239
	19.875 (1.916)	-1.327** (-2.210)	-	0.223*** (4.699)	-	0.398 (0.192)	0.880	239
Diarrhea	24.532 (3.916)	-0.335 (-0.994)	-	0.079*** (2.893)	1.693** (2.268)	-	0.944	242
	10.824 (1.871)	-0.364 (-1.073)	-	0.045 (1.680)	-	1.058 (0.928)	0.943	242
*Note: *** Significant at 1%; ** significant at 5%; t-Statistics are in parentheses*								

Table 6 : Water indicators, per capita NSDP and macroeconomic policies

Dependent Variable	Intercept	NSDP/ Capita	(NSDP/ Capita)^2	Time (year)	GSDP Growth	Annual Expenditure	Public debt	Adjusted R^2	N
Lack of safe drinking water	31.943 (2.452)	-5.376** (-2.270)	0.246** (2.292)	-0.040 (-1.109)	-0.028 (-0.275)	-	-	0.849	148
	-4.792 (-0.388)	1.515 (0.664)	-0.070 (-0.665)	- 0.091** (-2.584)	-	-0.063 (-0.508)	-	0.845	140
	-0.705 (-0.057)	0.464 (0.205)	-0.018 (-0.172)	- 0.081** (-2.395)	-	-	0.273 (1.936)	0.849	
Stage of ground water development	6.171 (3.736)	-0.316 (0.379)	-	0.043 (0.027)	-0.086 (0.069)	-	-	0.985	91
	12.196 (2.789)	-0.888** (-2.082)	-	0.105*** (3.015)	-	-0.392** (-2.140)	-	0.985	84
	7.707 (1.972)	-0.455 (-1.193)	-	0.051 (1.978)	-	-	-0.077 (-0.717)	0.984	88

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Administrative units under threats	11.572 (1.729)	-1.009 (-1.491)	-	0.100** (2.137)	0.051 (0.406)	-	-	0.940	94
	18.578 (2.244)	-1.636** (-2.026)	-	0.169** (2.562)	-	-0.498 (-1.436)	-	0.934	84
	13.276 (1.837)	-1.113 (-1.579)	-	0.100** (2.112)	-	-	-0.127 (-0.639)	0.936	88
Typhoid	21.633 (3.606)	-1.334** (-2.212)	-	0.223*** (5.125)	0.026 (0.268)	-	-	0.888	236
	17.755 (2.580)	-0.958 (-1.422)	-	0.186 (3.538)	-	0.151 (0.549)	-	0.879	211
	21.652 (3.274)	-1.261** (-1.972)	-	0.208*** (4.638)	-	-	-0.161 (-0.783)	0.873	223
Diarrhea	16.806 (4.968)	-0.533 (-1.568)	-	0.068*** (2.779)	0.113** (2.044)			0.946	239
	12.234 (3.100)	-0.040 (-0.105)	-	0.034 (1.114)	-	-0.000 (-0.002)		0.943	213
	13.470 (3.690)	-0.124 (-0.351)	-	0.030 (1.227)	-	-	-0.104 (-0.917)	0.942	225

*Note: *** Significant at 1%; ** significant at 5%; t-Statistics are in parentheses*

Table 7 : Summary model: water indicators, per capita NSDP, demographic factors and macroeconomic policies

Dependent Variable	Intercept	NSDP/ Capita	(NSDP/ Capita)^2	Time (year)	Density	Literacy	GSDP gr	Annual Expend.	Public debt	R^2	Adj.R^2	N
Lack of safe drinking water	-15.376 (-1.015)	0.688 (0.232)	-0.021 (-0.156)	-0.136*** (-2.979)	1.823 (1.234)	0.784 (0.503)	-0.030 (-0.299)	-0.083 (-0.579)	0.274 (1.853)	0.888	0.847	131
Stage of ground water development	12.643 (1.784)	-0.868 (-1.836)	-	0.100** (2.286)	0.293 (0.298)	-0.386 (-0.397)	-0.107 (-1.407)	-0.423** (-2.189)	-0.091 (-0.808)	0.991	0.985	83
Administrative units under threats	16.958 (1.250)	-1.966** (-2.174)	-	0.158 (1.887)	-0.284 (-0.151)	1.752 (0.942)	0.067 (0.460)	-0.630 (-1.707)	-0.209 (-0.972)	0.959	0.930	83
Typhoid	17.865 (1.397)	-1.180 (-1.713)	-	0.167*** (2.682)	-2.271 (-0.887)	3.639 (1.222)	0.049 (0.477)	0.154 (0.568)	-0.264 (-1.333)	0.906	0.888	208
Diarrhea	19.325 (2.759)	-0.388 (-1.019)	-	0.052 (1.497)	4.768*** (3.372)	5.337*** (3.239)	0.130** (2.263)	-0.042 (-0.279)	-0.159 (-1.447)	0.958	0.950	210

*Note: *** Significant at 1%; ** significant at 5%; t-Statistics are in parentheses*

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Conflicts of Interest in Agency Theory: A Theoretical Overview

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Abstract- Object of this research is to show that, within the framework of the current debate on the government of company, the starting point of the theory of agency is the divergence of interests between the owners and the leaders. It results a relation from it from agency, in which, one of the parts, indicated like agent, acts in the name of the other part, called the principal. So, principal and agency can have interest divergences. Our discussion thread throughout this research is the interest conflicts in the theory of agency.

Keywords: agency theory, principal, agent, asymmetry of information.

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Conflicts of Interest in Agency Theory: A Theoretical Overview

Hounaida Daly

Abstract- Object of this research is to show that, within the framework of the current debate on the government of company, the starting point of the theory of agency is the divergence of interests between the owners and the leaders. It results a relation from it from agency, in which, one of the parts, indicated like agent, acts in the name of the other part, called the principal. So, principal and agency can have interest divergences. Our discussion thread throughout this research is *the interest conflicts in the theory of agency.*

Keywords: agency theory, principal, agent, asymmetry of information.

I. Introduction

According to Shleifer A. and Vishny R. W. "the corporate governance relates to the means by which the suppliers of capital of the company can ensure themselves of the return on their investment ". Thus, the objective of the government of company, according to these authors is limited to the maximization of the richness of the shareholders. However, such a definition fits in a current with dominant Anglo-Saxon which is founded on the prevalence of the shareholder. Other definitions dispute this design of the government of the company.

Thus, for G Charreaux (1997, p. 1)" the government of the companies covers the unit with the organizational mechanisms which cause to delimit the capacities and to influence the decisions of the leaders, in other words which controls their discretionary space." The author specifies (Charreaux, 1997, p. 1) that this definition," centered on the role determining of the leaders "

Aims at exceeding the analysis, often privileged, of the only relations between leaders and shareholders. It "replaces the problem of the government of the companies in the whole of the contracts and relations which maintains the company (and its leaders) with its multiple partners ".This definition widens the government of company to the fascinating parts like the employees, the lenders, the customers, the authorities, etc. It thus relates to all the relations between the leaders and the whole of the fascinating parts.

For O Pastré (1994, p. 18), the government of company is consisted " the whole of the rules of operation and control which govern, within a historical and geographical framework given, the life of the companies." It refers to a legal and organizational device (rules of operation and control) which aims at framing the relations of the leaders of the company and the various fascinating parts and in particular those holders of " rights on the company ".

The need for setting up a system of government of company is due to the divergences of interests between the various parts and, in particular the owners and the leaders. Such is the case when the firm is directed by paid managers (or holders of a weak share of its capital).

It results a relation from it from agency, in which, one of the parts, indicated like agent, acts in the name of the other part, called the main thing. The main thing and the agent can have divergences of interest. To lead them to conform to their engagements, and especially to align the behavior of the agent on that of the main thing, of the costs known as costs of agency must be committed.

Thus, in the current state of the literature, three principal designs as for the connection between the performance and the structure of property seem to clash[1]: the thesis of the " convergence of the interests ", the thesis of neutrality and finally the thesis of " the rooting ". According to the first thesis, constant initially by Berle and Means and in particular taken again by Jensen and Meckling [1976], plus the percentage of capital held by the leaders is significant, plus the variation compared to the traditional objective of maximization of the value is weak. 1er page

The thesis of neutrality in its purest form is that of Demsetz [1983], according to which the structure of detention of the capital constitutes an endogenous response of the process of maximization of the profit, function of the characteristics of exploitation of the firm and pressures exerted by the environment (external markets); in other words, all the structures are equivalent.

Lastly, the thesis of the rooting supports on the contrary that the leaders who have a solid majority of the capital, escape any control and can thus manage from a contrary point of view with the maximization of the value.

The object of this research is to show that, within the framework of the current debate on the

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[1] Charreaux, G(1991) « property structure , agency relation, and financial performance »Economic review, flight 42, 1991.

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government of company, the starting point of the theory of agency is the divergence of interests between the owners and the leaders. Thus, our discussion thread throughout this research is the answer to the question:

How presents the conflicts of interests in the theory of agency?

The paper is organized as follows: Section 2 reviews the origin of the interest conflicts. Section 3 analyzes the divergence of the interests between leaders and shareholders. Section 4 presents effects of the conflicts of interests and in the end we have concluding remarks.

II. Origin of the Interest Conflicts

The need for setting up a system of government of company is due to the divergences of interests between the various parts and, in particular the owners and the leaders. Such is the case when the firm is directed by paid managers (or holders of a weak share of its capital).

It results a relation from it from agency, in which, one of the parts, indicated like agent, acts in the name of the other part, called the main thing. The main thing and the agent can have divergences of interest. To lead them to conform to their engagements, and especially to align the behavior of the agent on that of the main thing, of the costs known as costs of agency must be committed.

Thus, the theory of the agency, developed in particular by Jensen and Meckling, concentrates on the relation between the main thing, agent of an authority, and an agent to which is deputy the realization of a task. This delegation, in a context of asymmetry of information, generates conflicts of interests which should be channeled.

Jensen and Meckling (1976) and Fama (1980) reconnect three sources of conflicts. First of all, the leaders tend to misuse the free cash-flow in kind by granting advantages which harm the performance of the company (Jensen, 1986.) Thereafter, and contrary to the leaders who invest in human capital, the shareholders bring into play their financial capital. Consequently, the behavior of the shareholders and the leaders with respect to the risk differs (Amihud and lev, 1981). Finally, the conflicts can result owing to the fact that the leaders privilege the short-term investments considering their presence within the company is at limited horizon (Fama and Jensen, 1983).

a) The Separation between the property and capacity

Jensen and Meckling (1976) defined the relation of agency thus “as a contract for which one or more people (the principal) urges another person (the agent) to carry out on her behalf an unspecified spot which implies a delegation of some decision-making power to the agent”.

The theory of the agency, developed in particular by Jensen and Meckling, concentrates on the relation between the main thing, agent of an authority, and an agent to which the realization of a task is deputy. This delegation, in a context of asymmetry of information, generates conflicts of interests which should be channeled.

If S.A. Ross is the first speaking about agency theory, the concept is already present in the theory of the insurances. It gave rise to two currents distinguished by Jensen and Meckling:

- *The positive theory of the agency* which approaches management, milked in priority mechanisms actually implemented to treat relation of agency and to solve the conflicts. Jensen and Meckling are the founders.
- *The normative theory of the agency* is prescriptive. It is attached to the problems of economic modeling in imperfect information.

The starting report of the theory of the agency is simple: the individuals have divergent interests which make that the relations of collaboration do not go without conflicts. The cost of these conflicts reduced of as much the benefit drawn from the common action and draws aside the balance of the economic optimum.

The theory then aims either at explaining the organizational forms as mode of reduction of the costs of agency (positive theory), or to propose mechanisms of control and incentive aiming at reducing these costs (normative theory).

b) The relation of agency

Jensen and Meckling (1976) define " a relation of agency like a contract in which one (or several people) has recourse to the services of another person to achieve on her behalf an unspecified task, which implies a delegation of decisional nature to the agent ".

The relation between the principal and the agent includes several characteristics:

- It rests on a relation of authority. The agent accepts, realising remuneration, to yield part of its decisional rights to achieve the mission which was entrusted to him, by taking account of the objectives of the main thing.
- The relation of agency is asymmetrical. The main thing is not able to evaluate exactly the effort implemented by the agent. It is vis-a-vis a moral risk.
- It brings into play rights of propriété16. The main thing transfers to the agent, in a provisional way, part of its right of ownership on the credits implied in the deputy mission.

In this context of asymmetry of information and impossibility of writing complete contracts because of limited rationality and of dubious, the conflicts of agency can occur at the same time at the pre and post-

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contractual stages. This analysis joined the study of opportunism by Williamson.

Nicolas Curien summarizes in a sentence all the difficulty of the relation of agency: "[...] the actor in position of principal controls the rule of the game, without holding all useful information, while the actor in position of agent yields with the rule while controlling the margin of uncertainty which its advantage in term of information confers to him."

The relation of agency constitutes a standard elementary relation between two agents. The concept can be extended and gives place to rich developments.

c) Extensions of the relation of agency

i. *The dyadic relation of agency or collaboration*

Since 1976, Jensen and Meckling establish a widening with the relation of agency by considering that the relation of authority is not necessary. Their reasoning can more generally apply to any relation of co-operation:

" Let us notice, also, that the efforts of costs of agency appear in all the situations which imply an effort of co-operation [...] by two or more than two people even if there is no clearly definite relation main thing-agent ".

This vision makes it possible to not take into account the utility of the only main thing, but the interest of the two partners. The stake is not limited any more to reduce the conflicts, but to find the conditions of an advantageous co-operation.

ii. *The taking into account of the whole of the fascinating parts: the organization like node of contracts*

The interests concerned are not only summarized with those of contracting. Taking into account the externalities, the fascinating parts with the contract are much more numerous. For example, the relation shareholder-leaders has impacts on the employees or the consumers. This crossing between multiple interests leads to an explanation of the existence of the organizations.

The organizational forms can be explained by considering that they result from a minimization of the whole of the conflict costs, rising from the superposition of various relations of collaboration between the whole of the fascinating parts. Thus, part of the externalities can be internalisée by the constitution of a firm. The firm then becomes a "contracting nexus".

Jensen and Meckling deduce a theory from it from the organizational architecture, with which two significant dimensions are associated:

– The allowance of the decisional rights inside the organization, by distinguishing the rights related to management of the decision and those related to control from the decision;
– The systems design of control, which associates the system of evaluation and measurement of the performance and the system of incentive which, according to the measured performance, founds sanctions or rewards.

III. The Divergence of the Interests Between Leaders and Shareholders

The need for setting up a system of government of company is due to the divergences of interests between the various parts and, in particular the owners and the leaders. Such is the case when the firm is directed by paid managers (or holders of a weak share of its capital).

a) The nature of the divergences

The nature and the importance of the conflicts between the parts are an in particular function of the structure of the rights of ownership of the firm (Couret, 1987 and Fama, Jensen, 1983)[2]. The right of ownership of the shareholder supposes at the same time his appropriation of the profits released by the firm and the free transfer of its right of ownership.

However, the exercise of this right differs according to whether the company is of type "shareholder" (the leaders are the principal shareholders), from "controlled" type (the company is subsidiary of a group), of type "managérial" (the shareholding is dispersed), "mutuality or co-operative" (the shareholding is non-existent), "public" (the State exerts, sometimes with difficulty, its role of owner). In the case of the “firms managériales” - controlled by their leaders the right of ownership of the shareholders is attenuated and their limited supervisory powers.

b) The origin of the divergences

These divergences have three principal origins (Charreaux, 1999)[3].

Firstly, the shareholders wish to maximize the return on their financial investment, while the leaders are inclined to benefit from their position to perceive no pecuniary benefit of the control which they exert on the entrepreneurial resources. The seconds tend to seek the growth of the sales turnover to the detriment of the profitability of capital invested: that enables them to obtain a higher social status, a larger immunity compared to the shareholders, a stronger remuneration and a more significant satisfaction of the personnel since the prospects for promotion are more numerous.

Secondly, the shareholders can diversify their wealth of distributing it on various credits, whereas most of that of the leaders (their human capital and their remuneration in particular) is dependent on the evolution of the company. The leaders thus will test an aversion with the risk more significant than the shareholders,

[2] Quoted by Pluchartm J-J and Hamza, T(1994) « from the agency relation to the corporate governance »P. 304.
[3] City by Poulin-Rehm, T « corporate governance and employee ownership » financial review.

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which generates deviating behaviors: they can be encouraged to follow a policy of diversification in contradiction with the interest of the shareholders or to refuse a beneficial project because of the personal risks perceived like too high. Considering his increase in richness insufficient to compensate for the personal costs inherent in the realization of new investments, the leader adopts a position with tendency attentist.

Thirdly, the leaders have a decisional horizon limited to their presence in the company. However, the quoted value of a company takes account of the whole of the flows generated by each project and this, whatever their horizon. The richness of the shareholders is affected by all foreseeable flows of the company, whereas the leaders privilege the evaluation of the projects according to their contribution to the results in the short or medium term remaining and of the duration to run.

This opportunist behavior of the leaders and the divergence of interests with the shareholders which results is not the only condition to see being born a relation from agency. The second condition posed relates to the existence of a situation of informational asymmetry. Any conflict, to be proven, implies an imperfect absorbability of the efforts of the agent. The divergence of interests is not sufficient because, in a universe without uncertainty, it would be possible to draw up a contract making it possible to encourage the agent to act in accordance with the wishes of mandant. In all the cases, the existence of relations of agency is not without consequence on the value of the company.

c) Asymmetry in the distribution of information, the problem of opportunism

Asymmetry in the distribution of information associated with a divergence with the interests give rise to the problem of agency. Indeed, if there is not divergence in the preferences of the actors, informational asymmetry will not pose problems insofar as the agent chooses its action in agreement with the main thing. In the same way, in the absence of problem of informational asymmetry, the possible conflicts of interest will be easily overcome insofar as the main thing immediately detects any opportunist behavior on behalf of the agent. However, the relation of agency exists only because the principal one considers the agent placed better than him to manage its good. It recognizes capacities and knowledge private individuals to him. The asymmetry of information is thus at the origin of the contractual relation (P.Y.Gomez, 1996)[4].

The problems of agency are related the 2nd time to uncertainty, with the imperfect absorbability of the efforts of the agent like at the costs of establishment and execution of the contracts. The complexity of work managerial which cannot be the subject of a precise specification, the shareholder is exposed, consequently, with the opportunism of the leader. Thus, more the environment will be dubious, asymmetrical information and the measurement of the problematic individual effort, more will be the risk of negligence's prejudicial to the interests of the shareholders.

The relations of agency thus let foresee with new the problems of moral risk, unfavorable selection and opportunism. Indeed, the leaders who have the load of the business management have information privileged on its operation. Moreover, the shareholder always does not have necessary competences allowing him to know if a transaction serves its own interests or those of the leaders. It is then possible to the manager to adopt an opportunist behavior by handling the information of which it has management, communicating only what serves its interest. The opportunism of the manager can lead it to divert for its personal profit decreasing by as much the residual profit of the owner. The main thing will have to thus set up a system of incentive and mechanisms of control if it wishes to limit the losses caused by a divergence of interests (Mr. Jensen and W Meckling, 1976; E Fama, 1980). The installation of techniques of control and systems of incentive to ensure the good unfolding of the contracts will generate costs of agency. Those can be included like costs of organization and represent symmetrical costs of transaction.

IV. Effects of the Conflicts of Interests

The need for setting up a system of government of company is due to the divergences of interests between the various parts and, in particular the owners and the leaders.

These "divergences of interests" and the "asymmetry of information "between shareholders and managers, involve "costs of transaction" (Williamson, 1965) where" costs of agency " (Jensen, Meckling, 1967).

a) Costs of agency

The costs of agency are born in any situation which causes a co-operative effort between two or several people, even if it does not have there clear relations principal/agent. As previously established, it is impossible for "the principal" to ensure null cost that the agent will make optimal decisions from the point of view of the main thing.

In the majority of the relations of agency, the main thing and the agent will undergo costs of monitoring and obligation. Mr. Jensen and W Meckling (1976) distinguish three types of costs:

- Costs of monitoring supported by the main thing to limit the opportunist behavior of the agent and costs of incentive (systems of profit-sharing) engaged by the main thing to direct the behavior of the agent.

[4] City by Demsetz, H « confidence and governance », 6 march 2005.

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- Costs of obligation or costs of engagement which the agent can itself have incurred to put the main thing in confidence (cost of motivation). *" the costs of engagement result from the drafting by the firm of financial reports/ratios and from the realization of audits by experts external at the firm "* H. Gabrié and J.L. Jacquier (2001, p.248).
- The third type of cost is an opportunity cost, called " residual loss ", which is assimilated to the loss of utility undergone by the main thing in consequence of a divergence of interest with the agent, like the cost undergone by the main thing following a management by the unfavorable agent with the interests of this one. Thus, in spite of control and engagement, there will always remain a certain divergence between the decisions taken by the agent and those which would maximize the wellbeing of the main thing.

This definition of the costs of agency is connected with the problem of the cheating and the monitoring of a production line team. The costs of agency vary according to the firm, they depend on the tastes of the managers, the costs of monitoring of the performance of the manager and finally of the cost of the design and the application of an index to compensate the manager who satisfies the wellbeing of the owner.

In order to fight against these deviations, the governance of company brings into play levers of alignment of the behavior of the leaders. Since the theory of the agency regards the firm as a legal fiction being used as nodes for a whole of contractual relations inter individual (Mr. Jensen and W Meckling, 1976), one can apprehend it as a system of incentive where the direction plays a hinge role.

b) The performance of company

The study of the problems involved in the relation of agency originates in the interrogations of Adam Smith (1776) on the inefficiency of the companies whose direction was entrusted to an agent not-owner. *" the directors of these kinds of companies (joint stock companies) being the managers of the money of others rather than of their own money, one can hardly expect that they bring this exact and concerned vigilance there that associates often bring in the handling of their funds. The intendants of a particular rich person, they are carried to believe that the attention on the small things would not be appropriate for the honor of their Masters and they are very easily exempted to have it. Thus, the negligence and the profusion must always more or less dominate in the administration of the businesses of company "* A. Smith(1776, p.401).

Berle and G Means (1932) will prolong the reflexion by showing that separation between the property and the control led to a situation where the divergence of the interests between owners and leaders is problematic. Indeed, the large modern companies would be directed by managers who would not have any reason to have the same objectives as the owners of the capital. The relation actionnaire/dirigeant is then presented as a particular case of the relation of agency

The design of the firm according to the theory of the agency is connected with that proposed by the theory of the rights of ownership which represents the firm like a form of organization of the production in team (A. Alchian and A. Demsetz, 1972). Mr. Jensen and W Meckling (1976) will do nothing but widen the design of A. Alchian and H. Demsetz (1972) by including in their analysis the whole of the contracts drawn up between the organization and his environment, and not only the contracts related to the function of production. Complementary to the economy of the rights of ownership, the theory of the agency constitutes today the framework dominating of analysis of the firm (Mr. Jensen and W Meckling, 1976). *" the firm is designed there like a whole of contracts which, in a universe of imperfect information, ensure the management of the individual conflicts and channel the behaviors through the installation of suitable incentives "* P. Cohendet and P. Llenéra (1999, p.211).

This current proposes to regard the organizations as a node of contracts. The gasoline of the firm is in the contractual relations (employed, suppliers, customers). This one is not assimilated to an individual; it is a fiction which is used as hearth with a complex process in which the conflict objectives of the agents are brought to balance through a whole of contractual relations. Its starting point is thus the analysis of the relation.

V. Conclusions

This research constitutes an attempt at analysis of the divergences of interests in the theory of the agency in the light of the theoretical and empirical basic elements.

Our objective consisted in studying the conflicts of interests in the theory of agency. In a first stage, we were concerned with analyze the theoretical framework of the conflicts of interests. In a second stage we tried to bring some remedies suggested for the relation of agency. Lastly, we primarily treat the divergences of interests in the agricultural cooperatives by taking account of the co-operative mechanisms contributing to reduce where to solve these conflicts.

Indeed, the theory of the agency, through the model "shareholder" is useful to describe the contractual relations between all the speakers and to explain the government of the agricultural cooperatives. However, the agricultural cooperative is a "contracting nexus" which is the place of crossing of several fascinating parts, whose interests can diverge.

Thereafter, the economic theories of the contract contribute to characterize the relations between these fascinating parts and to propose an interpretation of it.

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So some problems arising from the conflicts of interest within the framework of these relations can be to regulate by the bodies of government of the co-operative: the general meeting of associated and the board of directors.

Thus, it is deduced that the conflicts between the associated owners and leaders are limited in the agricultural cooperative:

Initially, the conflicts between associated co-operators and administrators (including the president) are of a weak range because of the low divergence of interest between the parts (economic identity of situation, even professional culture and homogeneous group).

Then, the conflicts between owners and director (or top executives), the strategies of rooting of the leaders are difficult to implement, for several reasons. Initially, the participation, with the daily newspaper, of associated the activity and the operation of the co-operative, which enables them to supervise the business management. Then, the activity of monitoring of the administrators and the president, who are also decision makers. Lastly, the director incarne not the function of contractor which returns to associated and with their elected officials.

Lastly, as for the conflicts of interest with the lenders, the latter often belong to the co-operative movement (co-operative banks in particular) and finalize the contracts with the president of the co-operative. In addition, the practices of these organizations and the values shared contribute to reduce the costs of agency.

The theoretical examination of the operation of the agricultural cooperatives makes it possible to conclude temporarily that their specificities and their operation make it possible to reduce the conflicts of interest and the problems of governance.

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Hermann Schulze-Delitzsch: The Cooperative Idea in German Liberal Thought

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Abstract- The paper analyses Hermann Schulze-Delitsch's contribution to the cooperative idea and economic thought of the second half of the 19th century. Schulze-Delitsch has recently been described as a leftish liberal at the exhibition about the German Labour Movement in Mannheim's Technomuseum (2013), but was placed more centre with publications under the hospice of the Friedrich Naumann Stiftung. During his life (1808-1883) he became the founder of cooperatives in Germany and various forms of associations. Schulze-Delitsch placed the main emphasis on self-help to deflect the danger that the industrialisation posed to small and medium sized companies. It is shown that liberal ideas were the main Leitmotifs for Schulze-Delitsch's cooperatives. The paper illustrates Schulze-Delitzsch's position with regards to trade unions, wage funds and political economy.

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Hermann Schulze-Delitzsch: The Cooperative Idea in German Liberal Thought

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Abstract- The paper analyses Hermann Schulze-Delitsch's contribution to the cooperative idea and economic thought of the second half of the 19th century. Schulze-Delitsch has recently been described as a leftish liberal at the exhibition about the German Labour Movement in Mannheim's Technomuseum (2013), but was placed more centre with publications under the hospice of the Friedrich Naumann Stiftung. During his life (1808-1883) he became the founder of cooperatives in Germany and various forms of associations. Schulze-Delitsch placed the main emphasis on self-help to deflect the danger that the industrialisation posed to small and medium sized companies. It is shown that liberal ideas were the main Leitmotifs for Schulze-Delitsch's cooperatives. The paper illustrates Schulze-Delitzsch's position with regards to trade unions, wage funds and political economy.

I. Introduction

In 2013, the Technomuseum Mannheim featured a 150 year retrospective of the German workers' movement between 1863 and 2013 (*Durch Nacht zum Licht? – Geschichte der Arbeiterbewegung* 1863-2013). The exhibition defined workers' movements beyond the usual political and trade unionist movements, and also included cultural and social concerns as Leitmotifs. In that way, both the liberal movement as well as the creation of cooperative associations were featured as impulses for workers' movements. In particular does the exhibition pay tribute to Hermann Schulze-Delitzsch (1803-1883) and his contribution to the cooperative idea. Economic cooperatives started to exist at around 1833 within the secondary sector and usually followed the principle of cooperation. In 1859, Schulze-Delitzsch became one of the leading figures of the German cooperatives as chair of the *Zentralstelle der Genossenschaften*.

The exhibition was strongly influenced by concepts of the Bielefelder School. According to the curators, the workers' movement rests on three pillars: political parties, trade unions and associations (Welskopp, 2013). The Bielefelder School of History (also known as the School of Historical Social Sciences) places emphasis on the significant contribution of social movements towards the creation of political structures.[1] Historical change is thereby explained through a reciprocity and mutuality of forces of various areas within society (such as economics, politics, and culture). Such forces are understood as processes which are the result of dynamics created by particular social and economic structures (Nathaus, 2012). Critics of the Bielefelder School demanded a relaxation of the cultural axiom and a stronger weight to be placed on the actual structures within society. The explanation of history should foremost be approached through functions (Mommsen, 1972.)

Within the tradition of the Bielefelder School, Welskopp (2013) considers cooperative associations both as a result and a pillar of the workers' movement. He further asserts that the influence of the German workers' movement spread into the formation of the SPD (*Godesberger Programm*) and influenced the creation of trade unions and consumption associations. German workers' movement is conceived as a social movement in its first stages resting on voluntary unionisation without a clear institutional structure.

This paper does not attempt to enter a historiography debate, but it aims to a) place the writings of Hermann Schulze-Delitzsch into economic thought and b) show that SD's cooperative association had a strong institutional character that aimed at an economic as well as a social purpose. It will be shown that the place in German economic thought is that of liberal economic and political thought, and that the curators might have been correct in including SD in terms of his important contributions to institutional history. It must be noted though that SD saw the cooperative as a vehicle on the grounds of liberal principles rather than a means to establish an equitable society or lead to workers' empowerment.

II. Principles and Economic Processes: Function and Constitution

Schulze-Delitzsch used arguments of economic processes as the main drivers for the establishment of cooperatives. Self-help and self-accountability are explored as constitutional and functional factors rather than aiming at a defined end situation. These principles place SD directly into the mainstream liberal spectrum. Schulze-Delitzsch' political involvement with the left liberal Progress Party distracts from the liberal-economic convictions he displays in his writings. His passionate

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[1] The Bielefelder School refers to the historical understanding of historians at Bielefeld University such as Hans -Ulrich Wehler, Reinhard Rosseleck, Thomas Welskopp et al. The focus of the Bielefelder school is the history of events and politics.

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dispute with Ferdinand Lassalle, he continued even until after Lassalle's death, reflects the strong opposition to state intervention and the social state. The passionately proposed concept of self-help forms the basis for the cooperatives; this is built on the principle of self-responsibility and its constitutional requirement that no individual becomes a burden to others; a strong foundation of the classical liberal school of thought. There are no traits to be found of a welfare orientated state policy or communal responsibility which is sometimes subscribed to the term liberalist in the US American sense (Watrin, 1999). Instead Schulze-Delitzsch follows a classical libertarian perspective in the wider sense of Anglo-Saxon liberal thought. That notwithstanding, it is noteworthy that he does not address the wellbeing of society in the way that Smith and other classical liberalists did. He follows some Aristotelian ideas of natural liberty and sets the scope of individual freedom within the limits imposed by the freedom of society or others. Individual liberty excludes dependability as it would destroy self-respect, honour and self-motivation. Respect and honour are seen as constitutional principles, whereby self-motivation rests on a functional principle which SD employs largely to support education as well as savings.

III. SD's Membership in the Nationalverein and the Kongress Deutscher Volkswirte

The pre-revolution period of the 19th century (1800 - 1848) was demographically and socially characterised by increasing population growth and pauperism amongst the land population (Marquardt, 1969; Kocka, 1990). The early 19th century is also typical for a general trend towards liberalism, in Germany highlighted by the creation of the Zollverein in 1834. The demographic implication was increased urbanisation and a rise in the number of people seeking employment within the crafts and trades. This was further accentuated by the elimination of work restrictions within those sectors as a result of the demolition of the guilds. In 1848, at the time of the failed German revolution, the first workers' associations were founded.

Schulze-Delitzsch (SD) argued that the formation of the crafts associations were based on the general economic trend and in that regards a response to the increasingly more difficult economic and social situations that many workers found themselves in. SD was a member of the *Nationalverein*, a club of the worker education associations. He was also a protagonist of the Progress Party which pursued a small German state under Prussian leadership. Schulze-Delitzsch was not only politically active; he also pursued a path that would make his economic ideas be heard: he became a leading influence in the foundation of the *Kongress deutscher Volkswirte* (Congress of German Economists). The congress was founded in 1858 and remained the institutional basis for the free trade movement in Germany until it was dissolved in 1885.[2] It is considered the most important *gesamtdeutsche* association with political-economic influence (Erdmann, 1968).[3] The congress consisted of scholars and academics, lawyers, publicists, craftsmen/traders and public servants (Stalmann, 1926). The objective of the congress was to achieve the general support for the principle that free markets and liberal economic activity would enable economic prosperity and alleviate economic hardship. The congress further set itself the aim to support the creation of institutions that would facilitate the economic progress resting on the aforementioned principles (Volkswirtschafticher Kongress, 1857). Schulze-Delitzsch accounts that it is the

> "*...task ...not only to explain the main lessons of academia, but to translate them into practical life ...*" (1863c, p. 90).

The *Kongress deutscher Volkswirte* had no representatives from industry or owners of physical capital. The latter comes to no surprise as the congress emphasised its purpose of serving the common good. It accentuated the notion that the liberals felt responsible for the representation of the working classes and their position regards the privileged traders and capital/share owners (Raico, 1999).[4] This general notion of the constituents does however not represent the motivation or position of Schulze-Delitzsch. In contrast, Schulze-Delitzsch understands the freedom of workers in the liberal sense as free mobility and responsibility. Although he addresses class within society and aims at a class-less society, this is done on the grounds of self-responsibility rather than the notion that a certain class requires representation, protection or elevation. The social position of a particular class is not his primary concern; he does not address the issue of social divide, neither does he define the common good. His focus is the establishment of the institutional frame that allows self-help and social rise.

The *Kongress deutscher Volkswirte* became the platform for German national liberals outside of parliament. The party used the congress a) as a platform and a means for public relations and b) an advisory organ towards trade and policy in support of a liberal economic policy (Erdmann, 1968). In contrast to the important free-trader and liberal Prince-Smith,

[2] It renounced some of the free trade principles at the time of Bismarck's disassociation with the national liberal principles.

[3] The German free trade movement itself goes back to John Prince-Smith who also became the second president of the *Kongress deutscher Volkswirte* (Roscher 1874 [1924]; Erdmann, 1968).[3]

[4] Some liberals referred to the working classes as those who pursue work but not only in the sense of being employed (wage labour) but also as craftsmen (self-employed).

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Schulze's motive was that of establishing the associations as a programme for the congress (Schulze-Delitzsch, 1858a). Schulze-Delitzsch provides liberal arguments on the microeconomic level in support of education, savings and self-help, whereby economists such as Boehmert focused on the macroeconomic implications of free goods and factor markets (see Boehmert, 1884). Schulze-Delitsch's argument was that these microeconomic behavioural forms could be best facilitated through the institutional structure of the cooperatives. Schulze-Delitsch is therefore known as the founder of the German cooperative movement and the banking associations in particular. However, he adjusted his views over the years (from the inauguration of the congress toward the early 1860s) in response to some strong criticism he received from Max Wirth (quoted in Aldenhoff, 1984, p. 113) with regards to his conception of the production associations. In his later open dispute with Lassalle he displayed the most fervent disdain for the production associations on the basis of their capital guarantee through the state.

In 1863 the *Allgemeiner Deutscher Arbeiterverein* (ADAV) was founded under the presidency of Ferdinand Lassalle. Lassalle supported what was so much repulsed Schulze-Delitzsch; Lassalle sought active economic state intervention with the state acting as a guarantor for his production associations. Schulze-Delitzsch's work must be considered in connection with his party-political membership of the Progress Party, his membership of the Kongress deutscher Volkswirte and presidency of the Cooperative Association. In 1863, SD held numerous speeches addressing the ADAV, which form most of the basis of this attempt to understand and analyse SD's particular cooperative concept, the liberal motivation and the economic soundness of the arguments.

IV. Schulze-Delitzsch's and the Cooperative Argument

a) Liberal Principles of Nature and Self-Accountability

Schulze-Delitzsch derives microeconomic patterns of economic motivation and macroeconomic cycles from the liberal principles of the nature of man in the sense of self-responsibility and the belief in the natural law of regularity.

The nature of man is understood in the sense of "*self-confidence and self-determination, with intelligence and intention*" (SD, 1863a, p. 31). The main principle for the material and existential position of the individual within society is the "duty to self-sufficiency (Selbstsorge)" (ibid, p.32). Schulze-Delitzsch continues to explain that fate lies 'in each individual's hand', here the 'worker's hand'. It is paramount that the individual looks after himself and does not become a burden to society. The duty to be self-sufficient is linked to the notion of self responsibility. Some of the terminological differences are a little hazy in SD's writings, but the latter term of self responsibility is used mainly with respect to the classical liberal principles that form the basis for all human action: a) liberty and b) limits to liberty. Both principles are derived from the notion of man been born as a free man in the naturalist – philosophical context; the limits to liberty are imposed by the imperative that no man's freedom or right must be curtailed by other's actions (ibid, 33; 1863b, p. 71). SD makes no reference to Immanuel Kant (1788), but it can be argued that he perceives the limit to liberty in the tradition of the categorical imperative. The scope of action must not be restricted by the actions of others, the notion that forms the basis for the constitutional state. It is the state's responsibility to protect the individual's liberty through the use of supreme power (Staatsgewalt), this power is to be exerted through laws and regulations in the later ordo-liberal sense. Schulze-Delitzsch already produces a framework for the later Freiburger School of ordo-liberalism with its protagonist Walter Eucken and the serial publications of *Ordnung der Wirtschaft*. The principles of liberty and equality necessitate equality before law but do not require social equality; he considers the latter impossible due to the varying abilities and characteristics of people. People are considered by nature different and this law of diversity cannot be defied (SD, 1863c, p. 106). "*It is those predispositions and natural talents that success in life depends upon, they give power, ownership...*" (ibid). Economic freedom is required as are voting rights and private property rights; theses rights form the conditions for the guarantee of people's liberty. Schulze-Delitzsch is proud of his liberal convictions, and when Ferdinand Lassalle called him by the name of Bastiat (the epitome of French liberal economists), he recalled this with flattery (SD, 1866).

b) Production Function and Economic Progress

SD recognises the principle of liberty not only as a principle that requires to be guaranteed for the purpose of the individual itself, he also acknowledges its paramount relevance as a principle for the flourishing of a moral society, a nation's politics and economy (SD, 1866,. 177). The natural law of regularity and circular flows points towards SD's recognition of physiocratic thought as he sees needs and wants as a regular occurrence following the dynamics of perpetuity. Within this cycle, man seeks a secure position which is provided through labour. Labour is perceived as a provider for future wants and needs (1863a, p. 31) but production is only possible if natural resources (*Naturresourcen*) are combined with natural resource. Both labour and natural resources are defined as input factors that cannot be substituted for:

> *"Human labour and power of nature are the necessary comrades in production...they move alongside each*

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other...nature provides us with the material...as subject for further cultivation, without which [nature] labour would be unfathomable, because nothing could be created from nothing" (1863a, p. 34, 35).

The naturalistic emphasis on natural powers becomes even more pronounced when he states that capital is made from nature and exemplifies the steam engine as a result of the energy of wind (ibid). This far reaching pushing aside of capital comes to no surprise as he conceives technology, progress and know-how as factors that are outside of the production function. Inventions and innovations as well as technology and progress are considered external shocks which can have a positive effect on labour as they can reduce labour's effort in the process of production which is commonly known as an increase in labour productivity (1866, p. 181). Technological change is a natural occurrence of industrial progress as "*men have always endeavoured the reduction of strenuous effort through making improved use of natural powers"* (ibid). Unfortunately, industrial progress creates regular states of distress which "*are a result of the industrial conditions themselves, and cannot be conceived as a random occurrence*" (1863c, p. 92). It is important to note here that this is by no means an anti-capitalist rhetoric, instead he emphasises the danger that the industrial development poses towards the smaller enterprises, in particular the craft enterprises. His position could be interpreted as opposed to *Grosskapitalismus*, but predominantly from a pro competition standpoint rather than a capital exploitative argument. Further macroeconomic cycles are exemplified through trade crisis, recessions, credit limits, political tensions and wars and the growing world market. There is a "*steady tendency*" to reduce the influence of these external shocks through "*cultural advancement of humankind as a whole, as well as through the individual's education and entrepreneurial proficiency*" (1866, p. 183).

V. Proficiency, Economic Principles and the Role of Cooperatives

On the basis of the natural law and the acceptance that God endowed men with identical instincts, Schulze-Delitzsch derives two innate driving forces for man's engagement in work: a) needs and wants, and b) skills and talents. The satisfaction of needs and wants requires labour engagement, and this sequence is one that fills every man's life. This "*instinct is the essential energy force which brings man into motion with view to achieve the goal and to sustain himself*" (1863a, p. 31). He identifies the survival instinct as the strongest instincts of all amongst living creatures. In that respect he asserts "*that all labour is directed towards the satisfaction of wants*" (1863b, p.69). He does however not address the satisfaction of non material wants or indeed the possibility that work provides a merit in itself (Weber, 1920). Quite the opposite in fact, SD portrays man as a creature that is by nature inert and therefore pulled into two opposite directions: sluggishness and activity for the sake of the satisfaction of wants (1863b, p. 69). Both directions are seen with tenderness for man, man pursues both out of self-love. Indeed, the concept of self-love builds a link towards the care for oneself in the truest humanist tradition. To pursue self-interest and engage in self-care (*Selbstsorge*) is in accordance with the primitive impulses referred to by David Hume (1740). SD accepts the impulse of the want and the motive that creates the subsequent action. SD further argues, implicitly though, that this impulse can be made use of to create a new organisational form, namely that of the cooperative. SD does however not articulate this extensively, nor does he make references to the idea of self-interest as a main motivator, his focus is more on the idea of self-preservation which necessitates love for oneself. Self-love becomes the means to achieve the purpose of self preservation. Despite using similar arguments as Hume, he also accepts notions of Benthamite (Bentham, 1789) utilitarianism by stating that people aim "*to have as much as possible and do as little as possible to obtain*" (1863b, P. 71). His positivist interpretation of the possible satisfaction of wants and needs lies in the belief that man himself possesses the power to achieve the end result. It could be argued that he ignores circumstantial and social situations towards the internal capabilities (not to be confused with external circumstances) and narrowly observes psychological impulses on the basis of the assumptions about the human condition. Psychological impulses are seen as endowed by God, but by no means does SD place any value judgement on types of behaviour. There is no virtuous behaviour; instead the focal point is effort, efficiency and frugality (1863a, p. 34). As a result his writings remain directed at finding practical solutions rather than identifying the right behaviour or indeed the construction of the just society. Schulze-Delitzsch is an entirely pragmatic liberal. He does not construct ideal scenarios.

The practical organisation of the economy is drawn up as a private economy without a social state. This private economy should pursue the following practical principles of reward: a) excellence and hard work must be awarded, b) indolence must be negatively awarded, such behaviour must have negative outcomes, c) fruits of one's labour are the property of who produced them, and d) effort justifies the extent of pleasure. In that sense Schulze-Delitzsch supports a meritocracy with no welfare system. Furthermore these principles must respect natural limits:

"*The individual productivity builds the natural barrier towards one's individual needs and wants, ... it is the moral obligation of each reasonable man not to allow these to exceed one's abilities*" (1863e, p. 125).

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Schulze-Delitzsch further uses this argument to defy the socialist planned state. He affirms that people have different needs and wants by nature, so "*no administrative office can dictate, what I need...*" (1863c, p. 105). Such planning is considered synonymous with a state monopoly which effectively curtails the individual personality. It becomes clear that the reward for the individual is Schulze-Delitzsch's main focus instead of notions of national well-being. Self-accountability becomes the motif for self-betterment, an incentive for proficiency.

Proficiency can be obtained through two means: a) education, and b) savings. The pragmatic liberal Schulze-Delitzsch recognises that behaviour follows certain motivations and presumes a rational and a future-oriented perspective. He subordinates current temptations and motives to those which are directed towards a future gain (1863d, p. 49). Future gains are often focused towards the family, so that one's sacrifices today are made to benefit one's children and grandchildren. Economic improvement is dependent on two factors: human talents and willingness to sacrifice. Progress and improvement of one's material well-being is therefore not a random occurrence (1866, p. 177). Human talents can be improved through education and the motivation to save (sacrifice) can be stimulated through the institutional form of the cooperative. Both aspects, education and savings, are conceived as external forces that can amend internal capabilities; they are outside of the human 'God given disposition': they have to be facilitated. SD recognises a dynamic relationship between a man's endowment with talents and his being influenced by outside factors. Man with lesser talents is relatively more dependent on the external world. Schulze-Delitzsch supports the notion that man's dependence on external factors must be decreased and identifies such a reduction as synonymous with gaining liberty. The cooperative can provide exactly this in Schulze-Delitzsch's view.

For Schulze-Delitzsch, it is the state's obligation to provide for the public's education; he demands an extension of the compulsory school education (1863e, p. 127). He supports the extension of the compulsory public *Volksschule* beyond the primary school years in favour of the guild schools that traditionally provided much of the secondary school education in relation to the particular craft or trade. Schulze-Delitzsch recognises the educational achievements of the German workers' education movement and asserts that "no one is allowed any longer to doubt the full human equality [of the workers]..." (ibid). He places a strong emphasis on the function of craft and trade cooperatives to provide education through further educational establishments.[5]

The second pillar upon which proficiency can be gained is savings. Schulze-Delitzsch's argument is that savings are dependent on income; hence they can only be created through labour. "*Labour alone creates all value which leads us back to the primary source of wealth, luxury and consumption goods..."* (1863d, p. 49). This notion extends the inter-temporal consumption model beyond a one-generation model and allows inheritance of wealth to originate in the primary source of labour. Within a life time, savings are however bounded which Schulze-Delitzsch assert with a reference to Rastignac's dilemma in Balsac's Le Pere Goriot: "*A lawyer must vegetate for 10 years ... and will not earn enough to get to the top. But there is another route: the dowry of a rich woman."* (ibid). Despite this acknowledgement, Schulze-Delizsch extensively praises the charging of interest and emphasises the importance of the capital rent. Savings that are not needed within the saver's enterprise shall be lend and thereby generate a rent on capital. Credit creation is necessary because *"if no one gives me credit, I cannot undertake the work and the prospect of income is lost"* (1863d, p. 55). He rests the notion of useful capital rent on a principle of justice and asserts that capital rent is simply the price of usage of money over a certain period of time. Furthermore, SD considers capital rent to allow for self-help in old age; wage income can be sufficient to allow subsistence during working and non-working age. It is noteworthy that he still refers throughout these deliberations to the entrepreneur as the worker. It is apparent that the separation between contract labour and self-employed labour remains vague. In contrast to SD, it could be argued that wealth creating savings are foremost relevant to the self-employed worker.

SD writes very much in relation to the tradition of the crafts and trade which he sees as endangered through industrial development. The latter is also considered a threat to the contract labour (wage earning labour) in smaller sized firms (1863c, p. 92). He proposes that cooperatives can facilitate individual betterment and proficiency. SD puts certain conditions forward: members of a cooperative must have savings und must prove their moral qualifications; they must renounce current temptations of consumption and thus be willing to make sacrifices today for the sake of the future (1863f, p. 151). Both means for proficiency, education and savings, are seen as factors that address weaker inner capabilities through which a correction of inequality can be achieved. Schulze-Delitzsch's cooperative can therefore serve as a means for social [entrepreneurial] mobility by equipping the worker with education and capital (1866, p. 172). This conclusion is based in SD's particular conception of the production function and the creating force of capital.

[5] Compulsory school education was only awarded constitutional status under the Weimar Republic, although schooling became compulsory in Sachsen in 1835 and in Prussia in 1717.

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VI. Linear Production Function: Capital as the Creative Phoenix

Schulze-Delitzsch perceives the production process from the viewpoint of the capital owner who requires three necessary inputs: natural resources, tools, and subsistence means for the duration of labour (1863d, ps. 41-45). The first two factors of production are conventional, the third expression of the input is based upon the wage fund theory. The wage fund theory requests a financial capital fund that allows for the wage payments for hired labour and for the subsistence of the self-employed. He implicitly assumes that no current payment is required for natural resources and production equipment, they are assumed to be owned. In contrast, it is labour that requires a factor payment as it is hired. The wage fund becomes an unconventional factor within the production function; one would usually include quality and quantity of labour instead. This stands further in contradiction to accepted production theory because the fund itself does not create anything. Despite the weakness of this notion, it becomes clear that the wage fund theory is used as the fundamental reference point for the request of the creation of the cooperative fund and the associates' contributions. The wage fund is defined as a wealth fund created through the foregone consumption upon which the owner draws to pay labour. He maintains that "*this consumption is a productive consumption, e.g. it is a consumption that leads towards the production of output that has value.*" (1863d, p. 47). This is based on the notion that all production is a fundamental destruction of capital (both physical and financial) and that it is this utilisation of physical and natural capital as well as financial capital for the payment of labour creates new value. Capital is given the mythical status of Phoenix: it burns itself on the pyre but rises from the ashes and lives through another cycle.

> *"Capital, that is destroyed by labour, is replaced by new values, in one word: capital is created anew out of its destruction..." (ibid).*

There are two fundamental assumptions within this statement that portray Schulze-Delitzsch's economic position as a pragmatic and capitalist liberal. He assumes: ownership of resources (capital, natural resources, financial capital for the wage fund), and ownership of output. This can be explained with his focus on the smaller firms within the crafts and trade, but also highlights the liberal principles of private property and that the owner of the firm is the natural owner of value created (output). The production aim is that the value of output will exceed that of the inputs, which acts as a motivating force in the utilitarian sense. SD sees this objective as motivator and links it to *"the economic aspirations for the creation of capital [which] lie with the more noble parts of human nature"* (1863d, 49). He further states:

> *"...[The] unavoidable truth comes into consideration, that capital [and] the sum of previous labour output that we require for our business, pay for nothing else but for labour...Capital in its ultimate purpose is indeed nothing else than a wage fund, and each capital investment aims at the payments of labour wages"* (1863d, p. 59).

This notion is common amongst liberals of the second half of the 19th century. Marx (1867) reflects with irony upon this: *"How did the owner become possessed of it? 'By his own labour and that of his forefathers' answer unanimously the spokesmen of Political Economy"* (ibid, p. 322).

Only in very limited form does Schulze-Delitzsch transfer the above microeconomic notions onto the macroeconomic level. Where savings and wealth creation are necessary for production within the firm, the macroeconomic development could be further facilitated through the creation of cooperatives and the extension of their relevance within the financial market. The creation of a thriving middle class within the crafts and production sector is linked to an improvement in well-being. Profit sharing within the production associations is considered as sharing welfare within a growingly class-less society (Gall, 1976a).[6] With regards to the creation of wealth, Schulze-Delitzsch asserts that "that capital or wealth in general can only be created ...through labour and savings" (1863d, p. 50). There is no explanation to which extent value changes or cyclical variations affect wealth. In that respect, the argument is narrow and does not foresee the financial crisis of 1873 that was influenced by post war reparation payments by the French (Keynes, Ashley, 1919). It is here surmised that wealth is therefore mainly considered as physical capital wealth rather than financial capital wealth. Again, this is commensurate with the focus on the entrepreneurial form of the small or medium sized privately-owned firm.

VII. Labour and the Working Classes

The rhetoric in his speeches, when addressing the ADAV, is that 'labour creates capital'. This is somewhat misleading as some of his arguments approach the labour question predominantly from the perspective of the self-employed labourer or entrepreneur. It is the perspective of the proprietor of a small firm within the crafts or trade sector who works within the company. He under-emphasises the form of outside ownership that is linked with large scale firms and *Grosskapitalismus* and thereby the position of the wage earning contract labourers. The poor material

[6] Marx himself saw cooperatives as a "great social experiment" (Neubauer, 2013).

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wellbeing of these workers at that time is however mainly linked to their position within large firms and, in this point, he misses the larger issues at hand or those that Lassalle (1864) refers to.

Given those conceptual limitations, SD asserts further that the combination of capital with work will facilitate employment and benefit the worker. He stresses that work will become "*easier and more productive*" which leads him to express it as inconceivable that capital is seen as "*a fiendish power, which some fractions try to convince the workers of*" (1863d, p. 57). He argues that the rise in productivity of labour as a result of increased capital input will lead to a rise in output which in turn will lower prices of consumption goods and thereby improve the workers' material well-being. This is seen as equivalent to a rise in real wages. But he further stresses, that the ease of labour

> "*makes the workers' discontent with their human destiny irrelevant, they are now given time and effort to engage in a betterment of the more noble talents alongside their work to earn their bread..."* (1863d, p. 61).

The betterment is conceived as an engagement in public life and a furthering of education, seen as factors to promote proficiency and improve the workers' non-material welfare.

Schulze-Delitzsch' argues that improved capital usage will lower product prices with no nominal wage adjustment. In other sections, SD foresees an employment effect due to increased labour productivity (general expansion and limited substitutability of factors), yet he states that the labour saving production changes will result in total wage savings (in relative terms with respect to output); as a result the entrepreneur experiences a surplus in the wage fund. Capital improvements and changes in the production methods therefore

> "*never have the effect that less is worked, instead the same effort of work will create more than before which will attract more [work]...leading to a considerable increase in the wage fund because the entrepreneurs draw more profit and therefore add more to their capital"* (1863d, p. 62).

He assumes a reinvestment of profits and evidences such development with historic examples of the British cotton industry and the respective wage increases between 1804 and 1850. His arguments do not distinguish sufficiently between real and nominal wage increases, and an explanation of how the increase in the wage fund is allocated is entirely vague. Is the marginal surplus paid in wages or is it used for further capital expansion? In any case, SD follows Say's law and assumes that the increased output will create its own demand, however at given lower prices.

These thoughts are poor echoes of the Ricardian labour theory of value and the iron law of wages: the law would expect wages to rise due to an increase in capital but eventually return to their natural rate due to population expansion (Ricardo, 1821 [1951]). There is however an important shared notion between Ricardo's theory and SD's thought: all capital is the result of previous labour. SD is critical of Lassalle's adoption of the iron law and considers his arguments as incorrect (1863f); instead he concedes towards the natural wage, which is the equilibrium wage, subject to possible increases due to capital growth. In terms of the return of capital, SD extends that capital gains will be reinvested or contributed to the wage funds. The wage fund must be placed within the firm and not be designed as a social fund, which he considers to be 'dead capital' as these funds are not allocated towards a productive purpose. This points towards the political discussion of the role of the state.

VIII. Political Economy of the Cooperative Society

SD's political position as a member of the liberal Progress Party is his opposition to a military or absolute state and a class-based society; in more detail he opposes restriction of free markets and 'industrial policing' which he associates with the guild party (1863e). SD maintains that the national economic organisation rests on the principles of exchange, competition, private ownership, input factor hire, and free movement and separation of labour. SD identifies labour in its creation of capital as the surplus generating force which contributes positively to society. Such organisation allows increased utilisation of capital which facilitates the positive income effect that instigates a reallocation of the workers' time to "*higher public and private tasks*" (1863b, p. 63). Within the circular flow, surplus production creates new capital which leads to improved welfare, conceived as a "*natural course*" (ibid). SD does not use the term 'human capital', it could be argued that he implicitly means that surplus capital creates new physical and financial capital, but also allows an improvement in human capital. This could be strongly supported by the two driving forces in his writings: savings and education. Savings are required for the first, education for the second, both of which are propagated as achievable through the organisational form of the cooperative. He equates

> *"capital accumulation of man with their ability to gain cultural proficiency; the growth of the people's mental and vocational capital causes necessarily the general perfection of human conditions in intellectual, moral and economic terms" (ibid, p. 67).*

Schulze-Delitzsch asserts that capital accumulation benefits society as a whole, and the poor in particular. The division between the educated and

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uneducated will diminish and so will the welfare gap between the working classes and other classes. SD's assertion of this dynamic development as a result of capital accumulation and savings is designed to create a more or less class-less society. It is paramount here to notice that SD once again defines workers in the form, where he distinguishes between two classes of workers: *"workers, who operate a business on their own account"* and workers *"who are in an extraordinarily difficult situation ... which causes their more or minor dependence of particular employers"* (1863c, p. 91). It is inferred that the time saving capital accumulation allows the latter to migrate towards the first group of self-employed. This notion rests deeply in his liberal conviction, the self-employed individual exercises self-help and is self-accountable. He sees the *"civilisation of the workers"* and the *"elevation of the working classes"* achievable through the political economy of the cooperative principles, which identifies the *"competent effort of the individual to be the aim of the historical development of our human race"* (1866, p. 174, 176, 179). Production has to be placed within a cooperative society because the individual is not capable to produce enough to satisfy his wants and needs. The cooperative organisational form and liberal principles can be maintained through a cooperative society.

The cooperative society rests upon the notion of reciprocity. Schulze-Delitzsch rejects the notion of the brotherhood of men as a principle for the cooperative society because it cannot be used as an economic principle or as a basis for the order and maintenance of the public household, neither is it the basis of the "*common life of people*" (1863c, p.106). Individual self-responsibility and accountability, and reciprocity provide for the possibility of a people living alongside each other within society, it also provides the foundation for the alliance of states.[7] Self-responsibility in the sense of SD's self-help contains a social notion, as no one should expect someone else to provide for them, instead it is the responsibility of each person to care for themselves and not become a burden to society. Human material wants and needs are based on basic animalistic instincts that can easily corrupt man and could *"introduce war on the field of acquisition* (*Erwerb*)" (1863a, p. 32, 33). He later asserts that man will naturally seek his integration into society, and that instincts and talents will lead man towards his natural destination. Although the notion can be related to Hobbes' idea of the social contract, SD does not provide reasons why a peaceful cooperative organisation should be sought. He rejects the Hobbesian social contract and the sovereign's provision of charity to those who cannot look after themselves. Where Hobbes declares

> *"And whereas many men, by accident inevitable, become unable to maintain themselves by their labour; they ought not to be left to the charity of private persons, but to be provided for...by the laws of the Common-wealth"* (Hobbes, 1651, p. 387).

SD rejects this form of social equalising. Instead, he denies "*that the natural instincts and talents of man do not suffice to secure the existence of all, the working classes, and that they therefore need to be supported from another side [that of the social state]"* (1863c, p. 93). Self-help instead rests on the Kantian principles of a Republican constitution where liberty can only extend as far as it can coincide with the liberty of others. Where Kant illustrates "*the formal practical principles of pure reason ... as the only thing possible, which serves as the categorical imperative ...*" (1788, p. 56, 57) SD chooses the following title when addressing the ADAV: "*practical means and ways for the elevation of the working classes"* (1863c) and places "*the social question above the political, like the state's rationale is placed above its constitution"* (1863f, p. 171). In his work on legal and criminal self-determination SD equates such determination with economic responsibility. He asserts that responsibility requires the rights of acquisition and thereby derives the right of private property and appropriation of the fruits of capital or labour. In more general terms:

> *"The appreciation of the right of the other finds its expression in one's own interests, under the condition of the equal respect of one's own rights, in the principle of reciprocity"* (1863b, p. 71).

In this liberal or later ordo-liberal fashion, it is the role of the state to provide limited public services such as the transport system, to serve the public interest and to guarantee personal liberty so that the individual can serve for himself (ibid). The social self-help in its form of self-responsibility makes the state beyond its constitutional responsibilities unnecessary.

IX. Appraisal: Cooperatives and the Betterment of the Working Classes

Schulze-Delitzsch builds his argument for the cooperative organisational form and a cooperative society largely on the idea that the interest rate as a capital rent will benefit workers. Savings are transformed into capital investment and wage funds which allow a return that is shared amongst the working entrepreneurial associates. It thereby alleviates firstly, the uncertainty of income in the case of the employee (as labour demand is derived from the firm's fortune), and secondly, the insufficiency of income as it is not commensurate with demands to satisfy wants and

[7] The Prussian Progress Party was in support of the unification of the northern German states rather than a Prussian-Austro-Hungarian union. It is important to note that this is not political-theoretical concept, it is a micro concept directed at the question of the creation of the unified Germany in 1871.

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needs. It is also conceived that members of the working class may become subject to illness and unfortunate events which can cause income deficits to a far greater extent than in comparison to those workers who are self-employed (1863c). The cooperative can bridge this gap in vulnerability and create a social adjustment, again through the two main factors of education and savings. This correction of the status quo can be achieved through "*the care for the more noble talents*", usually neglected by the wage earning classes or *"exposed to external states of distress due to circumstances ... and wasted away"* (1863, p. 92). He displays a positivist conception of human nature and ascribes ability to each man; however, this ability can be destroyed through external circumstances. He argues that the cooperative form can further the inner abilities (in that respect SD ignores the possibility of an innate inability). His ethical consideration is directed towards behaviour and thereby towards the achievable result. The starting point is ignored, indeed the social divide at origin is rejected, and instead the behaviour can lead to a class-less society. His positivist appraisal of human nature recognises envy, ill-will and jealousy, but does not derive negative outcomes for society from those. Instead they are approached in terms of the negative implications these traits have only for the individual. As such, capital return as a surplus is placed into the wage fund rather than taken out for consumption purposes by the owner. This is narrow and thereby misses some of the arguments presented by the workers' movement. It is SD's assumption that external circumstances can be overcome through the cooperative organisation and the individual's responsibility for self-help from which he derives the individual right for liberty but also the responsibility to secure his own existence. He rejects the social state on grounds of national economic limits, so that it will be not be possible for some to care for all. Further he contrives that the origin of all distress is the lack of engagement and motivation, a provision through the state "*will not block the source of distress*" (1863c, p. 94). He goes further and also discredits corporate social programmes which provide housing, medical care etc simply as a reaction to the 'fear of the red ghost'.

The overall effect of the cooperative is that the sum total of the knowledge of those joined by the association will exceed the sum of individual knowledge. The argument is further amplified due to the improved credit rating of the cooperative. The individual default becomes negligible as the risk is diversified due to the mutual collateral. SD places large emphasis on the credit cooperatives that allow the self-employed worker to become an associate and the wage earning workers to benefit from the increased output and possible savings (1863e). The cooperative is seen by SD as an institution that can elevate the working classes and thereby act as a facilitator. The cooperative principles are based on a first case and a second case scenario:

1. Each one strives to meet the acquisition of capital, intelligence and competence;
2. Should the external conditions not allow someone to exert one's powers to achieve the objectives oneself, the free association can act as a facilitator (1863f).

The cooperative is seen to join free individuals, in contrast the socialist state subordinates individuals as subjects. The cooperative shall not compensate for the lack of inner qualities (idleness, lacking intelligence etc), but facilitate in view of external difficulties such as a dominance of large corporations, a lack of financial capital etc. Associates have to prove their competence and their inner qualities as it is necessary that the "mental fund" is used to counteract the external conditions. In his speeches during 1863 he acknowledges that educational cooperatives already exist and that the innovative cooperative form is directed at the credit associations as the facilitator of the "material side". The material side is seen as a force that can counteract large scale businesses; this is achieved in the case whereby the associates operate on the principle of joint responsibility rather than in isolated legal form. Here the members share profits and losses as a principle of social self-help. Members are required to contribute a membership share, carry out administrative functions and are jointly liable for the cooperative's debt. SD supports the concept of allowing the wage labourers to receive a percentage share of the profits; this can create additional efficiency due to linking the workers' motivations with the business. SD expresses admiration for the pioneers of the Rochdale Co-operatives who applied profit sharing practices. The main emphasis is the creation of capital and the rejection of Lassalle's production associations. Despite these positive notes in the case of the cooperative association, SD is opposed to any innate right of the workers toward the appropriation of profit, as only those who carry the risk of capital investment have the right to the positive return (1883f). Furthermore, with regards to Lassalle's production associations, SD argues that membership within an association must not be random; SD places doubt into the workers' ability to manage business areas without previously having received a training.

X. Conclusions

Schulze-Delitzsch is here identified as a pragmatic liberal who searches for the organisational form that could create a class-less society on the basis of liberal principles of self-help and self-accountability. As he acknowledges insufficient internal talents and external circumstances that can act to stall a person's betterment, he focuses on two main factors to promote

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the latter: savings and education within the cooperate firm.

Schulze-Delitzsch was not a macroeconomist. He addresses 'external shocks' such as the industrialisation, monopolisation and the general business cycles as unavoidable any liberal state's order. The state's role is limited to constitutional requirements; it must provide a liberal and legal framework that can support the positive individual development. Unfortunately, SD falls short of an extensive consideration of welfare issues which other liberal thinkers did. He does not link individual well-being to the calculation of social well-being apart from accepting the utilitarian utility concept. He is weary of public expenses and points towards possible state bankruptcy if the large working class is continuously supported through the public sector. He then foresees tax rate explosions and a moral and economic demise. His rather unfortunate choice of words that "*such public expenses would destroy the industrial capital of the nation*" intended to pay for the workers' wages, is misleading as he is vehemently against state owned industrial capital (1863a, p. 34). On the microeconomic level, Schulze-Delitzsch discusses the various possible effects that capitalisation and a cooperative organisational form can create. The focus is the betterment of the workers' position, in his sense of the term, the self-employed and the employed workers. Within his liberal argumentation, capital growth can cause positive employment and income effects within the boundaries of population growth which leads to an acceptance of the natural wage rate. In terms of economic expansion, the proposed rise in financial and physical capital (savings) and labour quality (education) encourages an increased start up of businesses pushing up the number of self-employed and creating a rise in the demand for employees. This is seen to create a positive wage effect. Capital growth benefits the workers through the wage fund theory. A substantial limitation is that SD denies for the most part labour substitution through capital growth; instead he assumes a given degree of compatibility of input factors and thereby leaves the argumentation within a static-dynamic model. Although he assumes output growth through capital increase, the increase is assumed to be linear. The process of industrialisation and a closer observation should have allowed him to investigate the returns to scale more closely, i.e. non-linear production functions with substitutability of factors. A more than proportionate increase in output could have created a higher rise in surplus product and had wage fund implications. The discussion of reinvestments also falls short of the consideration that owners within the non-cooperative business might choose not to reinvested, and consume instead. As he could not delude himself that all production would in future years take place within cooperatives, he fails to explain any possible betterment of workers who are not employed within cooperatives.

Much of Schulze-Delitzsch's writing resonates in the later ordo-liberal principles by Eucken (1939 [1989]) and the wider Freiburger Schule or even the Austrian School. The social state is in SD's view "*a costly bureaucracy" ... "that causes a reduction in the number of productive workers"*, ... and "*reduces the overall output of the nation*" (183c, p. 105). His anti-socialist writings resound in Hayek, especially when SD argues that the central institution of the state cannot take on the role of distributing the output amongst the people (ibid; Hayek, 1944). On the revolution of 1848 SD asserts: "*It was the fear of the red ghost, of the collapse of all ownership and economic structures, which disengaged the owning classes ... with the [cooperative] movement ...the sad class struggle lead to the sacrifice of the merely conquered liberty in favour of imperialism and imperial military force*" (1866. P. 172).

Schulze-Delitsch deserves an important place within German liberal economic thought of the 1860s. He contributed immensely to the cooperative idea and the cooperative institution. In that sense he might have aided the workers' movements through initiating discussions, this would be in support of his inclusion in the Technomuseum's exhibition. However, his main focus was functional and constitutional rather than social. His writings on cooperatives focus on their economic function and their constitutional character and the fundamental liberal principles that are meant to serve. In that regard an appraisal of the Schulze-Delitzsch contribution to the functionality and purpose of the cooperative functionality is more appropriate than his contribution to the workers' movement.

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Gender Relation and Economic Resources

By Anita Shrestha
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Abstract- The study was conducted to explore the gender relation in regarding their access on economic resources. The study was conducted among the 390 respondents of five ethnic groups of Kathmandu valley, Nepal in 2014. Study was based on the descriptive design. Simple random sampling technique was adopted to select the respondents. Structured self-reported questionnaires were administered in field. Data shows that female has more authority than male in routine household expenditure, selling livestock and purchasing the clothes of children whereas final authority was found holding by male in finalizing the business plan, taking the final decision in social activities and overall access on economic resources. Perceptually people are ready to transform the equal authority to female but in practice, it is not found in real ground. Equality aspect of gender relation in any decision level is found different between the theory and practice.

Keywords: economic, gender, relation, resources.

GJHSS-E Classification : FOR Code: 340299



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Abstract- The study was conducted to explore the gender relation in regarding their access on economic resources. The study was conducted among the 390 respondents of five ethnic groups of Kathmandu valley, Nepal in 2014. Study was based on the descriptive design. Simple random sampling technique was adopted to select the respondents. Structured self-reported questionnaires were administered in field. Data shows that female has more authority than male in routine household expenditure, selling livestock and purchasing the clothes of children whereas final authority was found holding by male in finalizing the business plan, taking the final decision in social activities and overall access on economic resources. Perceptually people are ready to transform the equal authority to female but in practice, it is not found in real ground. Equality aspect of gender relation in any decision level is found different between the theory and practice.

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I. Introduction

Meaning of gender is the socially constructed which makes the stratification between male and female. Gender is a socio-economic and cultural construct for differentiating between roles, responsibilities, constraints, opportunities and needs of women and men in a given context. A basic distinction between men and women which is socially and culturally determined creates unequal power relation in our social life. Thus, an understanding of the unequal power relations between women and men is necessary to be familiar with the basic problems in gender relations. Power is directly related to gender with regard to the access, distribution and use of resources, which are unequally distributed between women and men (Lazim, 2011, p. 168). Equity and equality are the issue of discussion in relation to the gender relation. Equity describes about the need based distribution of resources and equality describes the right based distribution of resources. Gender specialists are also divided into these both schools. In every society, economic resources cause the gender conflict in family and society. In Nepalese society, in rural society household property is found hold by the majority of males; but in city areas where both husband and wife are educated and involved in earning, in such family; household property is found hold by majority of females.

In many societies, the ownership of property can also be very unequal. Even basic assets such as homes and land may be very asymmetrically shared. The absence of claims to property can not only reduce the voice of women, it can also make it harder for women to enter and to flourish in commercial, economic and even some social activities (Sen A., 2001, p. 468). Economic and social issues are closely intertwined, one reinforcing the other. For example the key issue of access to land for women is closely linked to the socially determined inheritance rights and religiously ritualized need to give away daughters from one's own clan to some other clan. The major issues related to women in the economic field include their limited access to productive assets- the land and property, credit and modern avenues of knowledge and information; concentration of women in low productivity agriculture and high and increasing work burden without concomitant increase in access to resources, child labor, lack of access to training, technology and education; concentration at lower levels jobs, poor working conditions and lack of child care facilities at work places; trade union's neglect of women's problems; risk to personal security and sexual harassment in the formal sector and low level of technology, limited market access, low income and progressive loss of proprietorship in informal sector (Acharya M. , 2001, pp. 19-20).

The article is focused to identify the gender relation in relation to the economic resources. Researcher identify the access of male and female in routine household expenditure, selling livestock, purchasing clothes for children, discussing on business plan … etc. in Nepalese context.

II. Methodology

The study was based on cross-sectional descriptive design. The study was conducted in Kathmandu valley (Kathmandu, Lalitpur and Bhaktpur district) of Nepal among the 390 respondents of five ethnic groups; Newar, Magar, Tamang, Rai/Limbu and Brahmin/Chhetri. Simple random sampling technique was used to select the respondents. Self-reported structured questionnaire was administered in the field.

III. Results

In this study, 50.3% male followed by 49.7% female were participated. Data shows that 4.6% wife were illiterate followed by 1.8% husband. Similarly, regarding the higher degree, 7.7 husbands had master and above degree followed by only 2.1% wife. Mean age of wife was 35.46 years followed by 39.13 years of husband. Marriage age of wife was found in between the 15-31 followed by husband had in between 16-35

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ages. The mean age of wife during her marriage was 21.53 years followed by husband had 24.84 years.

a) Routine household expenditure

Generally, it is well understood that routine household level expenditure is used to manage by female. So regarding this understanding, respondents were asked that who was responsible to decide the expenditure of household level goods. The data shows that 41.3% said that both husband and wife mutually decide the household level expenditure followed by 40.5% said that wife and 10.4% said husband. In total, in majority families, females decided the routine household expenditure.

Table 1 : Routine household expenditure cost

Routine household expenditure cost							
Responses		Caste of Respondents					Total
		Newar	Magar	Tamang	Rai or Limbu	Brahmin or Chhetri	
wife	Count	26	34	35	35	26	156
	% of Total	6.8%	8.8%	9.1%	9.1%	6.8%	40.5%
Husband	Count	4	16	6	7	7	40
	% of Total	1.0%	4.2%	1.6%	1.8%	1.8%	10.4%
Both	Count	40	19	31	31	38	159
	% of Total	10.4%	4.9%	8.1%	8.1%	9.9%	41.3%
Others	Count	8	5	6	4	7	30
	% of Total	2.1%	1.3%	1.6%	1.0%	1.8%	7.8%
Total	Count	78	74	78	77	78	385
	% of Total	20.3%	19.2%	20.3%	20.0%	20.3%	100.0%

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	24.117[a]	12	.020

Correlation test				
	Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Pearson's R	.001	.051	.017	.986[c]

Sources: Field survey, 2014

Caste wise data shows that among the 40.5%, 9.1% female of Tamang, 9.1% Rai/Limbu followed by 8.8% Magar, 6.8% Newar and 6.8% Brahmin/Chhetri had authority to decide the household expenditure. Slightly Tamang, Rai/Limbu and Magar community had given more authority to female than Newar and Brahmin/Chhetri. Among the 41.3%, 10.4% Newar communities' wife and husband mutually decided the household expenditure followed by 9.9% Brahmin/Chhetri. Very few (only 4.9%) Magar community reported the mutual decision.

There was significant association and correlation ($r = .001$ at $p = .05$) found between the routine household expenditure and caste of respondents.

b) Selling livestock (goat, cow, buffalo, chicken …etc) in house

Basically in rural areas, raring of livestock are common. In general understanding, male decides the selling or purchasing of livestock. So, regarding this understanding, researcher asked respondents about the access on selling of livestock (table 2).

Table 2 : Selling livestock in house

Selling live stocks (goat, cow, buffalo, chicken …etc) in house.		Caste of Respondents					Total
		Newar	Magar	Tamang	Rai or Limbu	Brahmin or Chhetri	
wife	Count	14	12	15	15	17	73
	% of Total	3.9%	3.4%	4.2%	4.2%	4.8%	20.6%
Husband	Count	5	5	2	3	3	18
	% of Total	1.4%	1.4%	0.6%	0.8%	0.8%	5.1%
Both	Count	38	32	40	30	44	184
	% of Total	10.7%	9.0%	11.3%	8.5%	12.4%	51.8%
Others	Count	16	17	17	17	13	80
	% of Total	4.5%	4.8%	4.8%	4.8%	3.7%	22.5%
Total	Count	73	66	74	65	77	355
	% of Total	20.6%	18.6%	20.8%	18.3%	21.7%	100.0%

Sources: Field survey, 2014

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The data shows that 51.8% said that the both husband and wife had equal access on selling of livestock. Similarly 22.5% said that other family members had access on selling of livestock followed by 20.6% said wife had access and only 5.1% said that husband had access.

c) Purchasing clothes for children and make up articles

Table 3 : Purchasing clothes for children and make up articles

Purchasing clothes for children and make up articles		Caste of Respondents					Total
		Newar	Magar	Tamang	Rai or Limbu	Brahmin or Chhetri	
Wife	Count	21	20	22	38	23	124
	% of Total	5.5%	5.2%	5.7%	9.9%	6.0%	32.4%
Husband	Count	3	4	7	5	1	20
	% of Total	0.8%	1.0%	1.8%	1.3%	0.3%	5.2%
Both	Count	52	48	43	33	49	225
	% of Total	13.6%	12.5%	11.2%	8.6%	12.8%	58.7%
Others	Count	1	2	6	1	4	14
	% of Total	0.3%	0.5%	1.6%	0.3%	1.0%	3.7%
Total	Count	77	74	78	77	77	383
	% of Total	20.1%	19.3%	20.4%	20.1%	20.1%	100.0%

Sources: Field survey, 2014

The table no. 3 shows that in comparison of male and female, 32.4% female (wife) had purchased the clothes for their children and make up articles followed by only 5.2% male (husband). Majority (58.7%) said that they purchased by both (wife and husband) mutually followed by 3.7% said that it was purchased by other members of house like father-in-law or mother-in-law.

It is understand from the above data that women have more domination than male in household level economic resources.

d) Finalizing the business plan

Table 4 : Finalizing the business plan

Finalizing the business plan		Caste of Respondents					Total
		Newar	Magar	Tamang	Rai or Limbu	Brahmin or Chhetri	
Wife	Count	2	3	4	5	6	20
	% of Total	0.5%	0.8%	1.0%	1.3%	1.6%	5.2%
Husband	Count	19	29	23	21	15	107
	% of Total	5.0%	7.6%	6.0%	5.5%	3.9%	28.1%
Both	Count	50	36	42	48	52	228
	% of Total	13.1%	9.4%	11.0%	12.6%	13.6%	59.8%
Others	Count	6	4	9	3	4	26
	% of Total	1.6%	1.0%	2.4%	0.8%	1.0%	6.8%
Total	Count	77	72	78	77	77	381
	% of Total	20.2%	18.9%	20.5%	20.2%	20.2%	100.0%

Sources: Field survey, 2014

When we talk about the business plan, in Nepalese culture, it is understood as the work of male only which is represented from the above data also. In comparison of wife and husband, 28.1% husband followed by only 5.2% wife had access on finalizing the business plan. 59.8% said that they used to finalize in mutual understanding (with the mutual discussion of wife and husband) followed by 6.8% said that it was decided by other members of house.

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e) Under modern economic conditions with women being active outside the home

Table 5 : women being active outside the home

Under modern economic conditions with women being active outside the home, men should share in household tasks such as washing dishes and doing the laundry				
Responses		Sex of respondents		Total
		Male	Female	
Strongly Agree	Count	153	161	314
	% of Total	39.6%	41.7%	81.3%
Agree	Count	34	27	61
	% of Total	8.8%	7.0%	15.8%
Neutral	Count	4	2	6
	% of Total	1.0%	0.5%	1.6%
Disagree	Count	3	0	3
	% of Total	0.8%	0.0%	0.8%
Strongly Disagree	Count	0	2	2
	% of Total	0.0%	0.5%	0.5%
Total	Count	194	192	386
	% of Total	50.3%	49.7%	100.0%

Sources: Field survey, 2014

From the above data (table no. 5) shows that the practice and perception was found different in respondent. Researcher had collected the opinion of respondents regarding the equal access on economy. 81.3% strongly agree followed by 15.8% agreed that women should be active in outside of home also in comparison of male in modern economic conditions.

In data, out of 194 male; 153 strongly agree that women should had equal access on economic resources outside of home also but in practices, still male domination was found high in out of home activities.

f) Women should have access on household property

Researcher also tried to know the people perception regarding the level of access of male and female in household property.

Table 6 : Women should have access on household property

Women should have access on household property							
		Caste of Respondents					Total
		Newar	Magar	Tamang	Rai or Limbu	Brahmin or Chhetri	
Less than Male	Count	5	3	4	1	5	18
	% of Total	1.3%	0.8%	1.0%	0.3%	1.3%	4.7%
Equal to Male	Count	72	75	69	77	68	361
	% of Total	18.7%	19.4%	17.9%	19.9%	17.6%	93.5%
More than male	Count	1	0	3	0	3	7
	% of Total	0.3%	0.0%	0.8%	0.0%	0.8%	1.8%
Total	Count	78	78	76	78	76	386
	% of Total	20.2%	20.2%	19.7%	20.2%	19.7%	100.0%

Sources: Field survey, 2014

The above data presents that 93.5% said that women had to access on household property equal to the male followed by only 4.7% said that women should had less than male and only 1.8% said that women should get access more than male.

From the above data it is understood that very rare people want to give more power to female than male.

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g) Categories of total values of economic access

Table 7 : categories of total values of economic access

Categories of total values of economic access								
			Caste of Respondents					Total
			Newar	Magar	Tamang	Rai or Limbu	Brahmin or Chhetri	
Categories of total values of economic access	Wife	Count	1	1	2	4	3	11
		% of Total	0.3%	0.3%	0.6%	1.2%	0.9%	3.2%
	Husband	Count	18	20	24	24	19	105
		% of Total	5.2%	5.8%	7.0%	7.0%	5.5%	30.4%
	Both	Count	44	36	39	33	44	196
		% of Total	12.8%	10.4%	11.3%	9.6%	12.8%	56.8%
	Others	Count	9	5	6	4	9	33
		% of Total	2.6%	1.4%	1.7%	1.2%	2.6%	9.6%
Total		Count	72	62	71	65	75	345
		% of Total	20.9%	18.0%	20.6%	18.8%	21.7%	100.0%

Symmetric Measures					
		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Interval by Interval	Pearson's R	-.055	.054	-1.029	.304[c]

Sources: Field survey, 2014

Total values of economic access on the basis of gender, it is found that only 3.2% wife (females) had access on economic as compared with the 30.4% husband (males). It shows the great gender disparity on access on economic resources.

There was significant negative correlation (r = -.055, p = .054) found between the access on economic resources and gender disparity. It gives the clear understanding that, if access on economic resources will be increased then gender disparity will be decreased in the same ratio.

IV. Discussions

In Nepal, the MulikiAin (code of the country) was promulgated in 1963. It was more like a Hindu religious book rather than the code of conduct. The whole social order was based on the cast system. However, MulukiAin was based on the Mitakshara School, the wife and sons had been defined as heires and co-parceners of the father. The daughters were excluded from becoming heiress or co-parceners. In 1950, the autocratic Rana rule was overthrown by a popular movement and then the New MulukiAin was formed. This code was relatively better but daughters were again denied recognition as sons (Sangroula, Law and Existing Reality fo Nepalese Women, 2001, p. 62).

The increased life expectancy of women and school enrolment of girls has contributed to improving gender disparities, but these are still stark, and for women from excluded groups even more so. Only 6% of women are employed in the formal sector, and women's agricultural wages as a percentage of male wages has actually declined. Diversity in government jobs is low. For example, in education civil service posts, 8% are women and 81% are Brahmin/Chhetri(Bennett L. D., 2008). In the 2001 Census, only about 11 percent of households reported any land in female legal ownership. Only seven percent recorded female ownership of livestock. Overall, less than one percent of households reported female ownership of all of the three assets: house, land and livestock ("Unequal Citizens", WB & DFID, p. 24).According to the one study related with Gender and Social discrimination in Nepalese context shows that out of total 60 Dalit respondents 85% respondents reported that the land of their households is registered in the male head of the household. Likewise out of 60 Non Dalit respondents 83% reported that the land is registered in the male's name. In the case of Janajati, 70% land is belongs to male of their households (SAMUHIK ABHIYAN, Mar 2008, p. 27).The present study shows that 51.8% said that the both husband and wife had equal access on selling of livestock. Similarly 20.6% said wife had access and only 5.1% said that husband had access. The findings of present study shows that in comparison of land, access of female is found high in selling of livestock in different ethnic communities of Kathmandu valley, Nepal.

As stated in one collection of 11 case studies, covering 7 countries of the Hindu Kush–Himalayas (HKH) region Afghanistan, Bangladesh, Bhutan, China [including the Tibetan Autonomous Region], India, Myanmar, and Nepal), has made visible the "hidden perspectives" of women's lives, especially in terms of the opportunities and constraints they face. This article shows that agricultural development interventions based on cash cropping and involvement in the market economy typically target men; women are thus relegated to the undervalued subsistence sector. Income-generating projects directed at women tend to favor low-earning and slow-growing activities, which

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thereby broaden the gender gap in the market. Women's ability to raise collateral for loans to expand farm activities and to earn cash incomes is stifled by their lack of formal ownership and tenure rights to critical land-based resources. Moreover, their involvement in political activities is limited, and in all instances, their involvement is less than men's (Mehta, 2001, p. 301).In the present study also, authority and decision power is hold by female in only for small scales activities and household level expenditure. Regarding the routine household level expenditure, 40.5% said that wife and 10.4% said husband had authority to decide the level of expenditure in present study. But regarding the business plan, in comparison of wife and husband, 28.1% husband followed by only 5.2% wife had access on finalizing the business plan. So, it is found that big amount and higher level property and decision are still hold by male in every community.

Often there are fundamental inequalities in gender relations within the family or the households. This can take many different forms. Even in cases in which there are no overt signs of anti-female bias in, mortality rates, or male preference in births, or in education, or even in promotion to higher executive positions, family arrangements can be quite unequal in terms of sharing the burden of housework and child care. It is quite common in many societies to take for granted that men will naturally work outside the home, whereas women could do so if and only if they could combine such work with various inescapable and unequally shared household duties. This is sometimes called a 'division of labor' (Sen A., 2001, p. 468). Theoretically, equality between the male and female is accepted by all individual and organizations but in practices, it is not found in real ground. From the perceptual analysis regarding the access of male and female in household property among the 390 respondents of different ethnic groups of Kathmandu valley shows that 93.5% said that women had to access on household property equal to the male followed by only 4.7% said that women should had less than male and only 1.8% said that women should get access more than male. But in real practices, from the present study it is found that only 3.2% wife (females) had access on economic as compared with the 30.4% husband (males). It shows the great gender disparity on access on economic resources.

V. Conclusions

Gender disparity is closely connected with the socio-cultural orientation and inherent transformation of practices so it is difficult to establish the culture of equality. From the whole discussion of primary and secondary data, it is found that females are authorized only for the small scales business and daily household expenditure. Males are holding the supreme power and high level decision in majority household of ethnic communities of Kathmandu valley, Nepal. There are various factors effecting the capacity of women; educational level, exposure, socio-cultural orientation and participation, political awareness, women rights, women empowerment and social inclusion policy of Government …etc. Besides these, self-consciousness and confidence is major factors which affects the personality and leadership capacity of people. The further researcher can study to access the capacity of female and affecting factors to develop the leadership capacity.

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Peasants Socio-Economic Scenarios and Technology use Dynamics in Bangladesh

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Peasants' social organizations, traditional cultures, cultivation technologies and peasant economics (agro economics) are changing and moving toward mechanized capital intensive agriculture that creates inequality and injustice in the society among poor peasants by rich peasants in Bangladesh. Peasant joint family structure is changing to single family. Peasant festivals, customs and cultures are decaying.

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Peasants Socio-Economic Scenarios and Technology use Dynamics in Bangladesh

Dr. Kazi Abdur Rouf [α], Md. Liaquit Ali [σ] & Mohammad Saifullah [ρ]

Abstract- Capitalistic profit motive economy forced traditional agriculture move toward commercialization of agriculture in Bangladesh. However, Bangladeshi traditional peasants are suffering from getting their crop duly prices in commercialized market relations. These peasants are unable to fulfill their basic needs; hence they cannot cross the poverty line. The objectives of the paper are (1) to acquaint readers with the issues and conditions of life that Bangladeshi peasants are facing from crop marketing and to environmental degradation in Bangladesh and (2) to understand the causes and consequences of peasants' poverty. This paper is written by the authors from their own experience. The paper uses secondary data from different studies conducted in Bangladesh.

Peasants' social organizations, traditional cultures, cultivation technologies and peasant economics (agro economics) are changing and moving toward mechanized capital intensive agriculture that creates inequality and injustice in the society among poor peasants by rich peasants in Bangladesh. Peasant joint family structure is changing to single family. Peasant festivals, customs and cultures are decaying. Chemical agricultural green revolution is oriented to economic profit that totally ignored ecological and social factors. Westerguard, a peasant economist, studied the Bangladesh peasant society and he finds in his Bangladesh research that rich peasants' fragmented their lands because of population increase. For example, density of population was 668 in 1942, it was 1066 in 1957. First average peasant farm size was 6.2 acres, and then declined to 4.9 acres. Landless population was 4% in 1942; it increases to 30% in 1975. More than 10 acres of land household were 16% in 1942, but it stands 9% in 1975. The above statistics show land fragmentation is increasing that affects peasant socio-economic life.

Moreover, in Bangladesh, land tenure system has created exploitative and uneven power structure and patron-client relations (Hall, 1973) between Zamindars (Landlords) and Ryots (tenants). Bangladesh Institute of Development Studies (BIDS) study shows that marginalized peasants and landless people have risen. The market economy alarmingly defeated peasant subsistence economy. Although the commercialized peasants' economy becomes dominant in the capitalist market relations, marginalized peasants are in the periphery of the market economy. Hence they are exploited in the capitalistic market relations in Bangladesh. Many peasants and their children have been trying to co-opt with the commercial market relations. However, marginalized peasants are victims of pauperization (forced sale) process. They use modern agriculture technology to get benefits from the market since 1970s; however, competitive capitalist market put them out from the privilege of commercial market. Hence state should come forward to support the peasant economy and peasant culture in Bangladesh.

This paper helps readers to know the patterns and scenarios of peasants' socioeconomic life, dynamics of technology use and peasants' different issues that they are sufferings from undergoing sustained deprivation in Bangladesh. Hence the peasants' salient aspects of the paper wish to draw the attention of Bangladeshi peasant economists, researchers and policy makers to address the issues that they are suffering from and thus to redress their distress as much as possible.

Keywords: Commercial market relations; green evolution; land tenure system; peasant culture; peasant economy; poverty; rayots; subsistence production; surplus production; and zamindars.

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I. Introduction and Importance of the Study

Bangladesh's main economy is agriculture. Peasants of Bangladesh have their own distinct agricultural economy, social organizations, land tenure system, cultures, cultivation technology, economy and life styles which have been changing drastically for the last few decades. Capitalistic consumer economy hugely forced traditional agriculture to commercializing agriculture. Few rich peasants are able to invest capitals to agriculture, co-opt with mechanized cultivation, commercial agriculture market and make profit from their agriculture production. However, maximum peasants are unable to fulfill their basic needs from their substance economy and hence they are suffering from absolute poverty in Bangladesh.

a) Objectives of the Study

The objectives of the paper are (1) to introduce the readers with the issues and conditions of life that Bangladeshi peasants are suffering from crop cultivation, modern technology use and crop marketing in rural Bangladesh and (2) to understand the causes and consequences of peasants' poverty.

b) Methodology of the Study

This paper is written by the authors from their own experience in Bangladesh. The paper uses secondary source information and data of different

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studies conducted in Bangladesh. The paper also contains peasant economists and social scientists (Anawarullah, 1978; Areefen, 1986; Atiar Rahman, 1986; Chynov, 1986; Humphrey, 2014; B. K. Jahangir, 1978; Mahabub, 1987; Patnaiak, 1976; Shannin, 1984; Wood, 1978; etc) thoughts on peasants' socio-economic life.

II. Peasant and Peasant Society

In Bangladesh, a peasant is a member of a traditional class of cultivators and farmers, either laborers or owners of small lands and cultivating them. Peasants have their distinct society which is different from urban social life. Anthropologist Caroline Humphrey (2014) says, "Peasant society has plantation economy" In short, peasants are rural people involves in cultivating land for crop production and their livelihood based on crop production economy.

Many researchers classify peasants into several classes in Bangladesh. For example Hashmi, Taj Ul-Islam (1994) classifies peasants into four groups-landless poor, poor peasants, middle class tenants and land lords. B. K. Jahangir (1978) considers peasant society as a "little community". Peasant society is relatively widespread entity which contains peasant family, clan, group, kinship, household or home, and maintained them through their different relations, activities events and festivals.

Peasant society means a collection of group of families, clans and a collective feeling where different households of neighborhood connected. Peasant society is the combination of many family units (farms). Peasants have intensive relations and create social solidarity among them. Humphry (2014) says, "Peasant society is a moral institution which includes peasants and different craftsmen mainly involved in land cultivation and making household crafts." Peasant society maintains its social solidarity through different festivals, events, customs and traditions. Peasants orally transmit their agriculture technology to their neighbors, relatives and to their next generations. Caroline Humphry (2014) emphasizes on influence of nature on agricultural production. Areefen (1986) describes, "It is beyond kinship relational organization that has social collectivity and political bondage (civil rights) and its members have mutual bondage relationships. The plantation agriculture (sowing) uses land as subject labor which is opposite to industrial labor.

III. Peasant Social Organizations

Peasant society is a mixed social organization entity in a social structure because peasant society has many relationships with different social organizations. Family, clan, group, kinships, household and home etc. are elements of peasant society. Traditional peasant society characteristics are using manual labor, individual means of production, unplanned labor division, easy available land from the family and use natural raw materials and attain self-sufficiency. Traditional agricultural system is based on clan and lineage relationship among peasant family members. Traditional peasant economy is self-consumed subsistence agriculture. However, in the materialist society, mechanical agricultural production and accumulation of agricultural resources are important than self-consumed biological reproduction. Recently market relations takes place oriented role instead lineage relations in Bangladesh. However, Bangladeshi peasants are in halfway (transition) in the use of modern agricultural technology. However, Bangladeshi peasants are suffering from the following issues and challenges that need to be addressed at micro level, mezzo level and macro level by local and national organizations.

IV. Issues of Peasants in Bangladesh

- Integration and attachment of traditional peasants with capitalistic market relations and the peasant economy.
- Accessibility of agricultural inputs, access to credit facilities, access to agricultural technological knowhow and access to improved technology and poor peasants' involvement in the process of modernization of agriculture.
- Relationships between the land tenure system and the problems of improved agricultural practices
- Pattern of unequal income rise and unequal economic income distribution among different classes of peasants
- Emerging unequal power and authority of leadership structural development in villages and its impact on ordinary peasants' life
- Agricultural development or agricultural productivity structure increases influenced by population growth and population diversity
- Modernized agriculture destroy ecological balance.

Eric Wolf (1966) discovers peasant society varies according to geography. He finds peasant society has two different families: Nuclear family and extended family. This dyadic relations occurred by husband, wife, children mother and father. It depends on influence of gender relation in the family. Dyadic relations have importance to agricultural production and social, economic and biological reproduction. Both single family and extended family are integral part of production strategy for peasants' survival in the traditional peasant society. However, joint family uses more its family members to agriculture production. Eric Wolf (1966) considers extended family contributes to peasant development cycle- the structure of extended family continues when parents, children, husband wife and grand children live together and work together. The leadership of father ended after his death and then it passes to brothers which creates tendency to build

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single family. In single family, family labor demand is different from extended family members' demand. Aziz (1983) mentions this is a *family development cycle* that continues, but reverse is rare. However, through this cycle, single family system is increasing.

V. Peasant Social Stratification in Bangladesh

Social stratification and social class division can be seen in peasant society in Bangladesh based on religious traditions, social class division, land tenure system and occupation. Social stratification and social class division can be seen in Hindu religion; aristocracy status can be seen also in Muslim families, but now social status is determined by ownership of wealth in Bangladesh in addition to above sociality. Anawarullah (1978) finds four types of social stratification in Muslim family. Sayed, Sheik, Moghul and Pathan. However contemporary social stratification structure is Khanda, peasant cultivators, day labors, weavers, doctors (Baiddi). Khandan is in first row, they have less participation in agriculture although they have enough lands. However, cultivators' basic features are they use labor in their agriculture. Day labor has no land, but they sell their manual labor to other places for their livelihoods. Weavers and doctors are in lower strata. Monirul Islam Khan (1991) mentions Khandan and cultivators have separate relationship in marriage. Khandan people usually do not marry cultivator families. In Hindu religion, there is no marriage between higher cast and lower caste. In Hindu religion, Brahmin is the higher caste; Shaha, Dhopa and Napit are lower caste. Fishermen, blacksmith and masons are scheduled caste. Higher castes people have land. They get crops from share croppers. Now lower caste people have good economic condition in the village. However, this ascribed generational family status, occupation, and economic situation of villagers is changing in Bangladesh.

Non-agriculture occupational mobility rapidly changes among peasants in Bangladesh. For example, a study was conducted in Hathazari UpZilla by Fatimatu-Zohra (2013), a student of Sociology, Chittagong University, Bangladesh on peasant occupational mobility. The study finds 92% peasant family members expressed they like to involve in non-agricultural jobs (driving, auto mechanics, plumbing, electricians, constructions, typists etc jobs) in their life. This study respondent thinks income from agriculture is less than income from non-agriculture occupations in their area. Moreover, the study also finds second generation of peasants has less land than their first generation because of fragmentation of land ownership.

Many Indian sociologists and economists put contribution to Indian agriculture system analysis. Ram Krishana Mukhrjee, Daniel Throner, and Utshe Pat Nayek are prominent researchers who studied Indian peasant society. Mukherjee ((1978) studied six villages in Bogra six decades ago. He divided peasants into five classes: Jotdar, rich peasant, Rayot, unproductive land owner and Rayot sharecropper. Throner (1984) mentions three classes: land owners, peasants and labors. Some lands are fertile and some are not. Hence peasant class categories are not fair according to land ownership.

Arefin classifies marginal farmer if he has .01-.99 acres of land, but Westerguard (1978) mentioned .1-2.99 acres. Siddiqui, Kamal (1978) and Wood (1978) gives importance to land tenure system for identifying peasant class position that determined by land owning, land leasing and sharecropping criteria. Wood did not label peasant classification although he categorized peasants on the basis of land size-group; however, he agrees that land owners can produce surplus those have 2.4 acres of land. Patnaik (1976) divided peasants according to land ownerships which are based on Indian survey. His peasant class classification is based on how much labors they receive from outside labor or not receive labor from outside or they themselves provide labor in agriculture. Pat Nayek class divisions are: Land lord, rich peasant, middle class peasant, small peasant, poor peasant, and landless labor. However, petty cultivators' number is increasing; therefore, Patniak's peasant class classification based on land ownership is not 100% accurate in Bangladesh. He finds land lords receive tax from their tenants and buy cheap labor from the society; however, he himself is not directly involved in agriculture work. Patnaiak's (1976) study shows rich peasants exploit labor wages by giving peasants less wage for their job.

Many scholars divided peasant society into different categories. Eric Wolf (1966) makes three types of society: primitive society, peasant society and industrial urban society. In Europe, peasants were divided into three classes according to their personal status: slave, serf, and freeman. Vilen Van Scandal emphasizes class analysis based on economic categorization. His class classification based on food purchasing capacity and standard of living.(A) class of people is unable to collect full year food and their standard of living is poor, (B) class of people are able to purchase food but standard of living is poor, (C) the middle class people who is able to produce little surplus. (D) Rich people are able to maintain their family with scarcity. Rich peasant, middle class peasant, poor peasant are results of peasant economic class division that is encouraged by land tenure system and modern commercial agricultural system.

Recently the class division emerges through market competition success and failure and cumulative resource accumulation in Bangladesh. Marxism calls it the process of power dynamism and differentiation. This process becomes strong in the capitalistic society. This

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economic inequality exists in peasant society, but polarization process starts when capitalistic relations are wide spreading. Atiar Rahman and Borhanuddin Jahangir (1978) find differentiated socio-economic polarization process happens in the advanced villages in Bangladesh based on land ownership. For example, Borhanuddin (1978) finds in the studied village it has 34% land was owned by top 10 families in 1951, but in 1981 it increases to 50.28%. On the other hand, bottom level peasants were 60% which was 24% in 1951, but now they own only 10% land. It means rich become richer and poor become poorer in Bangladesh. However, Atiar Rahman study (1986) shows these economic differentiations include non-crop production other elements. For example, the cattle farm owners are the non-crop production group in Bangladesh. The authors find cattle ownerships are less among the peasants than it was before 1970s in Bangladesh.

Anawarullah Chowdhury (1978) analyzes Bangladesh village social stratification and his analyses are related to agriculture structure. His analysis of social stratification based on three elements: (1). Strengthening of production ownership ability, (2) Social status and (3) Power. He divided household members based on agriculture occupation and non-agriculture occupations. His main three classes of peasant are based on agriculture system (1) Land owners, (2) Share croppers or tenants, (3) Landless labors. Non-agriculture occupations are petty traders, paid employed, craftsmen, blacksmiths, fishermen, barbers etc. in the villages, but agriculture and non-agriculture occupants have relationships with each other because many businessmen have lands in villages. Businesspeople earn money from both lands and other business.

Class division also exists among landowners. For example, some peasants own 80 bighas land; some own 20 bighas of land. Again Anawarullah (1978) divides peasants based on labor relations: (1) one class never involve in agriculture cultivation even they do not supervise agricultural activities. They leased their lands to other cultivators and collect leased money. Small peasants cultivate their own lands for their livelihoods. In the village he finds 48 people are share cropper peasants. These sharecroppers have little lands, but they cultivate lands by paying tax to other land owners. Here Anawarullah's (1978) social stratification and social classification based on persons main occupation as well as main source of income. However, poor landless people exist in villages which he does not include in his peasant agriculture stratification and peasant classification.

VI. Peasant Economics

According to Danial Thorner (1984) peasant economics is an area of economics that have a wide variety of economics used in peasant society. The traditional peasants are partly integrated into the market economy. Modern peasant economic assumptions are about the maximization of profits, risk aversion and drudgery (hard work); however, they have subsistence agriculture production and consumption. Chayanov argues (1986) that peasants would work in order to meet their subsistence needs, but they have no incentive beyond those needs and therefore traditional peasants would slow and stop working once their need meet. However, in consumerism society, peasant family members are surrounded by non-subsistence demand which is totally different and opposite to corporate agricultural economy. Peasants are satisfied if they can feed and meet their basic needs from subsistence crop production; however, corporate consumption economy is greedy of maximizing profit by exploiting peasants' market relations. Moreover, the consumer economy does not care for environmentalism.

There are two types of peasant economy: peasant agricultural economics and commercialization of capitalist agriculture. Now traditional economy is treated as peripheral economy that neglects universal rationality' of the neo-classical economy. However, in Bangladesh context peasant economy needs to be considered within the major main economy.

A.V. Chaynov (1986) peasant theory is based on demographic economy. According to A. V. Chynov peasant reduce his hired labor because his family has more capable labors. Fragmentation of land size and fragmentation of land ownerships is acute in Bangladesh because of increasing family members in the peasant society in Bangladesh. Moreover, industrial plants, housings and public works capture huge lands in Bangladesh.

T. Shanan (1973) says," Agriculture enterprises are (ferme) and the household is the basic economy unit (menge) of the peasant society." He highlights the capitalist peasant entrepreneurs lack the freedom action, they regulate the labor force. It is inhuman. However, traditional peasant family is trying to maximize the labor input rather than profit. A.V. Chaynov's (1986) thinks the intensity factor in agriculture is depending on the availability of labors and technological level is determined for the reproduction of the family and the unit of production. However, Chaynov is unable to retain distinct agricultural economy through agricultural production in Bangladesh.

VII. Peasants' Subsistence Production Economy and Commercial Production Economy

Eric Wolf (1966) says, "Peasants are those who are involved with cultivation." However, in capitalistic society polarization is going on in peasant society–the landless poor and the rich commercialized peasants.

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Big farmers run their agriculture commercially, they are selling their products in the commercial market. However, the traditional peasants aim is to feed the family (subsistence agriculture). Peasant produces agriculture for his family need and his primary aim is to fulfill his own family need and the secondary target is to sell surplus products in market. However, the traditional peasants have intra-family agri-cultivation system that lacks of surplus production. Their agricultural productions are for self-consumption and family consumption. They do not produce agriculture for-profit. There is no absentee landlordism in peasant society. In peasant society, peasants need to produce crops for his family and to continue his agricultural production. If he fails subsistence agricultural products, he might be in challenge to survive himself and his family. Therefore, there is no sharp class differentiation, economic exploitation and to influence to other weak people. Moreover, no social dependents and no economic exploitation observe in traditional peasant society. They have no bindings for industrial production and ownership. Their ownership pattern is local and familial.

Agricultural food production is essential for peasants' physical survival and for the continuation of his agriculture (seed, plough and cattle). A portion of his agriculture production is used for his future agriculture. According to Eric Wolf (1966) the excessive agriculture production is surplus. Peasant involved in surplus production for carrying their expenses of ceremonial fund where all need to contribute fund for it. He says, "As farms are not only an economic unit rather it is a house which has a big role in peasant family. It is a place not only for production, but also consumption unit of agriculture products. All family members contribute to labor. However, division of class exists in peasant and it is influenced by capitalism. A.V. Chaynov (1986) thinks traditional peasant society is static because they are not aware of social dynamic.

Eric Wolf (1966) mentions society has dualism-traditionalistic and modern society. Traditional society's main character is uniformity, static and firm integrity. On the other side, modern society main character is labor division. Clover finds peasant society is in between two societies. Shanin (1984) talks about the peasant familial farm characteristics. This family farm has both production and consumption relationships. Although family head is the owner of the land, but all the family members have rights to the family land. Family members have gender division of labor and they have gender identity. Similarly male/female has specific responsibility in the family. Father has the highest status in the family. Usually children raise cattle and youths involve in agriculture labor. Here his economic status is high in the family. Moreover, father's opinion/decision is final in the family economic sphere.

VIII. Commercial Agriculture

The capitalistic and feudal peasant economy becomes remnant/rapidly disappear because of rapid growth of commercial agricultural and manufacturing. The commercial agriculture encourages modernization. What, how and how much to produce and what to do with the product obtained to move to substantial agriculture or commercial agriculture. However, traditional agriculture contradicts how much to produce for maximizing rates of profits and accumulations. Hence it is necessary to think about distinct forms of social organization of production. Moreover, traditional and commercial agriculture classified by scale of production for securing/sustaining means of production-'factor cost'- market price of inputs, land rent, wages of family wages and value of input purchased from market.

Commercial agriculture is about a simple mercantile economy'. This market economy is –on- the-spot consumption economy or self-sufficient economy transfer to material requirement for its reproduction economy inputs or final consumption goods must be acquired from the market by using money. For this purpose, the family unit is formed to join the market for goods and services as a supplier of product or for labor power. Here the decision what to produce is based on the marketability of the product. Selling products what has produced is part of peasant economy.

One of the special features of the peasant society is that it makes use of labor force which would not create value in other production sector-the children, old people, women and the head of the family and his adult children- all are working unsystematically. This is one reason for the ability of the family unit to bring product to the market at lower prices than communal production and prices. Marginal labor force is using in the traditional agriculture, but they are not regarded labor force in the commercial sector, but these marginal labor force contributing to net increase in the family income. However, traditional peasant society risk internalization is occurring to co-opt with entrepreneurial behavior of profit making in Bangladesh. Entrepreneurs have risk or uncertainty in their profits that can be derived from alternative applications of their capital, but these uncertainty views as probability functions (Shanin, 1984). They calculate this risk and profit probability that might zero game by adverse situations. Lipton views it "survival algorithim", which lead them to avoid risks despite the potential profits. They internalize this risk and uncertainty through they generate lower incomes and lessen expected outputs. For example, many peasants do not cultivate certain high yielding crops to avoid complex technology use and buy high yielding variety (HYV) seeds from complex distance marketing mechanism.

In the commercial society, there is a clear separation between capital and labor power, between

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owners of means of production, land owners and labor power. The commercial society principal aim is to secure at least average profit. Here peasants articulate with the market economy by linking them with the rest of the economy-exchange of goods and services (or values) between sectors: exchanges ad transfer of surpluses from the peasant sector to the rest of the economy-the capitalist agriculture and the urban industrial complex.

IX. Commercializing Peasant Economy

In commercial agriculture production society, land ownership is the prime but lands are concentrated to few people hands. In peasant society, peasants are not specialization in mechanized agriculture production. Children informally learn agriculture from their families. However, traditional cultivation is changing and peasants are using chemical fertilizers, pesticides, and mechanics for plough and for irrigation. Many whole buyers and middleman traders buy products at cheap prices from peasants. Hence peasants are not able to get their crop production costs by selling their crops in the market.

Shanin (1973) comments peasant economy has relation with the village community in addition to family farming. Family is not a separate entity in peasant society rather family is a part of village community and work for it. Peasant labor relation has link with village. They exchange their labor receiving money or in kinds. Family tree (Lineage), clan and group has active role in peasant economy and social control. Shanin (1984) uses the term market in two different ways (1) market is a place where people meet and exchange their products with mutual bargaining, and (2) market is an economic institution where people supply, demand and sell products. However, market social context should consider for peasant economics in Bangladesh.

Village market is social gathering for peasants. For example, rural peasants gather in the market, chat, discuss and exchange information there. However, now peasants also have connections with external world through market. Competition, opportunity and individuality are market relations (Scott,1985) which is rare among traditional peasants. In capitalistic society, production universality and profit are market principle. Shanin (1984) says, "Peasant society power structure control ownership of land." Land owners and land users are always not one individual. Land users are subordinate of land owners, but this relation is a process of exploitative system. This exploitation system continues through tax system. In this way peasant society becomes stratified and people (serfs) are exploited and subordinated through land lords. According to Shanin (1984), "It is about patron-client relations. Robert Redclif says (1973) says, "Currently peasant society emerged for the need of urban society and economy. He treats peasants as rural natives. These two rural and urban societies have mutual relationships and they are dependent on each other. It is because peasant uses many urban industrial products (chemical fertilizers, pesticides, hybrid seeds) for their crop production. Urban dwellers also use peasant products. However, urban society controls peasants' socio-economic life through different economic agencies, social organizations and political institutions. For example, Bangladesh has Shalish (informal arbitration, justice system) performed by *Mattabor*s (informal village arbitrators) in villages in addition to Union Parishad and Upzlla Parishad who control the villages.

X. Peasants Market Relations

Peasant produces crops for his family need and the surplus (if any) for market for buying non-agricultural family necessary goods. However, rich farmers produce cash crop products which have market relations.

Peasant economy is treated '*petty commodity produce*' (Scott, 1985). However peasant products go to urban merchants. Merchants processed agricultural products and sell them at higher prices in the market. Currently peasant economy is saturated and integrated in the world market. The capitalist society forced middle class peasant or marginal peasant to produce products for market because these peasants are dependent on market in various ways. Marginal peasants are compelled to repay their due or livelihoods costs from investors' loans. Through capital economy, capital accumulated by market production system. However, in Bangladesh many peasants' loss their production cost in the competitive market.

Peasant economy market relations expand with the expansion of new technology. Bangladesh and India peasant economy market relations expanded by agricultural technology development through green revolution. Mahbub Hossain (1987) finds that agricultural labor market increases with the expansion of production. As a result labor market becomes active. But labor demand increases with expansion of production. Rich peasant hires labor from outside market. Lower middle class peasants also depend on labor. Peasant economy is intensively (closely) related to commodity production. Hence agriculture labor demand and use is increased in rural area. However, very few peasant families use their own family members' labor; so many crop producers find agriculture production as capital intensive than before. Therefore' rich peasants lease lands to petty peasants for cultivating their lands.

Recently it is observed that there are many intermediate organizations existing in capitalist production process among producers and consumers For example, the Gold Leaf cigarette company reaches its products through its many wholesalers and retailers

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in Bangladesh. However, these market agents wholesalers and retailers rarely influenced the Gold Leaf production company. However, the non-agriculture occupation people has huge role to link peasant society with market. In this way market interlock relationships develop between peasants and intermediate marketing group.

Rich peasant has control over two market sources. (1) Land Market and (2) Capital Market. As profit gain from these two sources of markets, their control over share croppers also become powerful. Wholesalers and brokers exist in villages that control crop products and capital market. In Bangladesh, peasants consume surplus agricultural production. Wholesalers and brokers are businessmen and capital investors. Peasants sell their crops in advance to wholesalers and brokers before starting crop harvesting seasons. Even poor peasants receive advance loans for spending family expenditure. Small peasants repay these loans after crop harvesting.

Peasants get less prices from selling their crops to Mahajons and loan investors because peasants are forced to repay their crop loans that they received from money lenders and loan agencies. Wholesalers and brokers make profits through this catch. Wholesalers and brokers are widespread in cities and villages across Bangladesh. Wholesalers control peasants by providing advance capital to them. Loaned peasants are bound to repay their loans immediately after crop harvesting, but the crops price is low when peasant sell their products in market and repay their loans. This '*forced commercialization and forced loan repaying'* process cannot give peasants economic relief/salvation. The reason is *distress sale*-crop sell is immediately done after harvesting for peasant family need. Recently micro finance institutions (MFIs) in Bangladesh provide crop loans to poor farmers, but MFIs put pressure to borrowers to repay loans immediately after crop harvesting. MFIs think loan receivers shall not be able to repay loans or divert the agriculture loans if MFIs are not brisk to collect crop loans immediately after crop harvesting.

XI. Peasant Culture

Cultural changes and moral changes occur in peasant society. Peasant moral values are different from capitalistic norms and values. According to Chyanov (1986) and Dobrowolski Kazimierz (1984) peasants have one kind of static mentality and that static mentality is responsible for subsistence production and they become happy with this limited agricultural production; hence progressive capitalist economy does not exist among majority peasants in Bangladesh. Peasant society is described as static-unchanging or slowly changing society, but now peasant society ties peasants and urban peoples, ties cities and villages. Moreover, there exists a cultural lag among peasants because peasants need time to catch up or adjust cultural innovation and to solve social problems and social conflicts that is happening within their spheres. However, it needs time to adapt urban culture. So the cultural lag keeps peasant old-fashioned. However, through socio-religious and economic networks, Bangladeshi peasants maintain close contact with their neighbors that results peasant community which is again a part of wider rural unity. However, traditional economy is voluntary economy that has risk for modern commercial sustainability.

Usually traditional culture receives superstitions knowledge, values, customs from past. For example, many peasants do not like to pay or get money at night period. Traditional culture appreciates colorful past. So there is an objection to follow modern culture, norms, values and customs. Traditional culture continues without barriers transmitting to next generations. However, when past tradition become unpopular or irrelevant then it creates a certain situation where change is inevitable. It is seen that the poor women come out from their home for employment or for work outside home by breaking traditional Purda (seclusion) system in villages in Bangladesh. Purda system is related to economic need, economic ability (congruity) or economic inability. Hence it is not correct that peasant culture is always stagnant in Bangladesh which is applicable only in primitive society.

Peasant society has many cultures. By market relation with other society, cultural interaction is occurring in society. By using improved technology, many peasants of Bangladesh have exposed themselves to new outlooks, developed new attitudes and create a new social relationship that weakens the old traditions. Lower technology weakens total economy that also weakens social mobility that favors to continue traditional culture.

If a leader/Matabbar is leading a society from a rich family or from the same class it becomes an informal tradition, customs/practices in the society. However, if there is an opportunity a leader can come from different families at different periods, then the society could be dynamic and can be changing. In a dynamic society, the culture and the social mobility could be varied and increased. New view-point/outlook is necessary for a new leadership development and for emerging dynamic social mobility.

XII. Pauperization and Polarization of Peasants in Bangladesh

Westeguard (1978) discusses pauperization/ iproverishment (going out, flowing out, escape) process in rural Bangladesh. He researches pauperization process in Bogura, Bangladesh. Westergard compared contemporary social structure (1970s) and social

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system with 1940s social structure; he observed pauperization process happened more than polarization. Westergard (1978) finds rich peasants loss their lands because of population increase. Density of population was 668 in 1942, it was 1066 in 1957. First average peasant farm size was 6.2 acres, then decline to 4.9 acres. Land less population was 4% in 1942; it increases to 30% in 1975. More than 10 acres of land household were 16% in 1942, but it stands 9% in 1975. However, middle class peasant family increases. In such situation Westergard does not support polarization process that affects peasants in Bogura.

XIII. Power and Authority Structure of Peasants in Bangladesh

The term 'peasant class alignment' Westwood uses to explain peasants acceptance of others' leadership to revolt against Zamindars and Jotdars. However, in Bangladesh context, factionalism (division), patron-client relation (service providers and receivers relationships) ideas are more important to analyze rural power structure and political relations (Wood, 1978). Lower class people are unable to organize and unite themselves for fulfilling their own needs and interest rather they make difference among them. They accept others' leadership, but there are no relations with leaders with their materialistic interest. Poor peasants, landless labors become aware of their own rights and revolts against Zamindars and Jotdars. Many people think that Bangladesh peasant class awareness emerges because of agriculture modernization. Villagers are aware of many public rights (Rouf, 2012). Although currently Zamindars and Jotdars groups are not prominent in Bangladesh; however peasants are exploited by money lenders. Alavi and Bayers Scott (1973) observed class based group solidarity among marginalized peasant. They predicted marginalized people realize that politically unite/group has no significance if material interest is different from upper class people.

Power and authority is unequally distributed in almost all society, but distribution pattern is changing based on social type. The power and authority vary mainly on economy. Power and authority is closely related to politics. Max Weber mentions power and authority in society influence other social institutions. It is about imposing ones will upon the behavior of other persons." These rich advanced peoples are Powerful person authority is like a lord. Atiar, Rahman (1986), Gazi Saleh Uddin (1996) finds that during British period, influential Zamindars, and Jotdars have gangster forces for protecting them and forcibly collect land tax from tenants if any peasants don't pay tax. Likewise European Vassals or tributary lords created in feudalism for maintaining landlords authority. However, in Bangladesh, village powerful elites forced marginal peasants to have subordination relations with them. However, subordination relations become a tool of exploitation to marginalized peasants by the rural elites.

Hamza Alvi (1973) comments on peasant society power and authority. He thinks peasant society is not a separate entity like primitive society rather it is a part of state society. It has links with urban society. Now in Bangladesh, peasant politics are active and they are not separate entity rather class division and economic inequality are obvious/explicit in Bangladesh. However, in order to understand village power and authority structure, it is important to realize the peasant encapsulation (inclusion) system and factionalism (division) process, patron-client relations patterns and class relations in rural Bangladesh. Moreover it needs analyzed them to know the peasant society power structure and political structure in Bangladesh.

XIV. Use of Modern Technology in Agriculture

In modern agriculture, "Total planning is important which is absent in traditional peasant agriculture society, but peasants run their family lands in a traditional way. However, modern economic system depends on expert farm management that is lacking in traditional agriculture. Here capital investment risks does not exist. Agriculture family consumption is the main features of the traditional peasant economy, but accumulation of capital is slow.

The traditional agriculture inputs per unit land are lower. Ramkrishna Mukerjee (1971) study finds advanced technology uses village incomes have increased than backward/ underdeveloped villages.

Table 1 : Farm Size and Productivity of Land in Rice Cultivation In Technology Advanced and Backward Villages, Results of a Farm Survey, 1982, Paddy Yield in Tons Per Hector

Farm size	Backward villages	Advanced villages	Percent difference (advanced over backward)
Small farm	1.80	2.72	51
Medium farm	1.43	2.32	62
Large fram	1.32	2.13	61
All farm	1.59	2.55	60

Source: Hossain, M. Nature and Impact of Modern Rice Technology in Bangladesh, International Food Policy and Research Institute, Washington DC, 1988, cited from Khan, A. R. and Hossain, M. 1989

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Bangladesh Institute of Development Studies (BIDS) surveys (1987) villages and it finds technology advanced village per head income is TK. 3304 which is higher than 29% than technologically less advanced village. The survey finds rich farmers' incomes have increased 34%, but marginal peasant incomes have increased 22%. The study finds small peasants are expert in using green revolution technology. They cultivated HYV rice more than average users. Intensive farming or intensive agriculture is characterized by generally the high use of inputs such as capital, labor, or heavy use of pesticides and fertilizers to agriculture production. Intensive crop farming is a modern form of intensive farming that refers to the industrialized production of crops. Intensive crop farming's methods include innovation in agricultural machinery, farming methods, genetic engineering technology, techniques for achieving economies of scale in production, the creation of new markets for consumption and patent protection of genetic information.

With intensification, energy use typically goes up provided by humans, or supplemented with animals, or replaced with machines. The intensive crop intensity increased based on agriculture irrigation in dry seasons since 1960s in Bangladesh,. The following table shows modern irrigation increases over time.

Table 2 : Land use in irrigation

System	1981	1984	1987
Modern irrigation	2,496	3,355	8,549
Traditional irrigation	1,555	1,449	890

Source: The agriculture sector I Bangladesh – a data base, USAID/Bangladesh, 1989, p. 64.

The use of high inputs of fertilizers, plant growth regulators or pesticides, and mechanization is increasing in Bangladesh. However, rich farmers or rich business men have capital for modern intensive farming by using agricultural machinery; they can afford modern farming methods and genetic technology. They are able to manage techniques for achieving economics of scale in production and the creation of new markets for consumption.

However, use of technology by marginalized peasants is an issue in Bangladesh. The reason is that technology use is expensive. Therefore, marginalized peasants are not able to manage the use modern technologies in their crop cultivations. Moreover, technology is not safe. For example, spraying pesticide in the crop fields is unhealthy and environmentally unfriendly. Many birds, animals and marine resources are destroyed because of spraying pesticide in the crop fields. Chemical fertilizers pollute soil and water. For example, by using chemical fertilizers the micro-nutrient values of soil have been destroyed in many places in Bangladesh. However, subsistence agriculture uses traditional eco-friendly technologies and these traditional rural agricultural technologies are transmitting to post generations by orally and informally in Bangladesh.

XV. Consequences of Green Revolution

After the green revolution, when the technology and the notion of chemical agriculture were introduced, it seems that the gross production of main grain rice has increased. However, It has, created a large negative impact on rural farmers and the environment. Chemical agriculture is only oriented to economic profit; however, ecological and social factors are totally ignored. Chemical agriculture is totally anti-natural and destructive. Consequently this agricultural chemical technology creates many problems in the environment. Prominent problems among these are topsoil depletion and degradation, and groundwater contamination; moreover, it declines of family farms, continued neglect of the living and working conditions for farm laborers, increasing costs of production, and the disintegration of economic and social conditions in rural communities. Chemical use green evolution creates health hazards due to food degradation and environment (soil, air and water) pollution because of agricultural poisons.

XVI. Modern Agriculture and Ecological Problem

Modern agriculture creates ecological problems in Bangladesh. The uses of inorganic fertilizer and pesticides cause a lot of problems to the soil, water and air. Soil become hard and degraded, water holding capacity reduced, soil PH become imbalanced that cause some micro-nutrient deficiency, reduce soil microbial activities result in less availability of plant nutrients. Increasing pest use in agriculture in Bangladesh that degraded soil becomes unhealthy. Unhealthy soil grows unhealthy plants. The products grown with excessive chemical fertilizers and pesticides are low in quality resulted degradation of food quality. This low food quality has become of less taste and has less nutrition food value of the food products. Chemically grown products have less nutrient contents (protein, vitamins and minerets) and higher water content. The high water content may be one of the main reasons for lack of taste and low preserving capacity of chemically grown product.

Use of chemical pesticides results pollution of the environment as they are chemical poison. They are very much effective in killing living things and have long term residual effect (some cases more than 10 years). The poison pollute the product first and then soil, air and water consequently. This pollution results in poisoned product, soil degradation, and the extinction of fish, birds and other animals. However, use of the organic

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fertilizer enriches organic matter supply to soil and can produce healthy food.

XVII. Land Tenure System and History of Land Tenure System of Bangladesh

The Mughul Raj had introduced land tax through Mughul Land Tenure System. Tenants have no land ownership during Moghul period. The Moghul Raj collected land tax through village Mattabors in India who had contact with Moghul Raj. After Mughul Raj, East India Dewani Prarti land tenure system had been introduced by the British East India Company in 1765. The East India Company got Bengal land tax collection attorney from Moghul Raj in 1765. In a memorandum, it was mentioned Rayots shall not increase by British company rather it'll protect Raiyats from tax exploitations and injustice. However, British East India Company exploited Krishok (peasants) much more than it was during in Moghul Raj. The land tenure system was not developed although land tax increased. British introduced the Land Tenure Permanent Settlement Act in 1793. Before permanent Settlement Acts, Zaminders were the agents of land collectors of the Moghul Raj and for the East India Company. Peasants have no land occupying rights; however, after Permanent Settlement Act, Zamindars got land occupying rights and they were the owner of lands. Previously they are the agent of land collectors from independent Krishoks (peasants) for the Moghul Raj. Afterword, Zaminders got rights to collect land tax from Krishok and control Prajas (tenants). The British Settlement Act made provision for 90% of the land tax should send to Company by Zamindars.

Sher-E-Bangla A K Fazlul Hoque is a non-official pioneer in Krishak Praja Party activities and a starting point of Krashak Rajniti (peasant politics), but it was risky to relate peasants great leaders political and official activities to rural development and to peasant development in Bengal. Fazlul Hoque had contributed to the welfare of Bengal peasantry and to the welfare of the Bengal educated class. Fazlul Hoque was famous for passing the Bengal agriculture debtors Acts of 1935, Bengal Tenancy Act of 1938, the Act of 1885, 1929 and 1938 are all amending Acts of the Permanent Settlement Act of 1793. All these acts are about rights of Ryots (tenants), under-Ryots and occupancy-Ryots. Occupancy-Ryots exempted from payment of a transfer fee. The right of preemption was taken away from the landlord and given to the co-sharer tenants. Moreover, provision of rent increase was suspended for a period of ten years. However, there was no improvement occurred in agriculture and that effect without securing the tenures of the peasant on his land.

Sriniketan: Establishes the Pally Mongal Samitty (Village Development Committee) by Tagore. It is a cooperative provided by the adult education centers to serve health care services. Tagore introduced training camps (Look Shava) for village workers and landless people. It organizes folk festivals as part of rural reconstructions.

Several peasants revolted against land tenure tax imposed by British Raj (regime) and other rulers in Bengal. Followings are descriptions of different Movements in Bengal.

Krishak was not involved in politics until Khilafat movement and non-cooperation movement and emerging of communalists in the nineteenth century. Baserkillah (bamboo) Fort was organized by Sariatullah during British is a historical event in Bengal. There was a movement against Nill cultivation by Bengal peasants. However, Krishak issues were not visible in Indo-Pak mainstream politics. Politics were limited to feudal elites. In 1935, the tax payers of six areas voters organized against British during Macdonald Rayadad period. This movement was against Jotdars and land lord elites who exploited and were unjust to Krishak. Muslim Bourgeois politicians used Krishoks for their own interest. Therefore, many local peasant leaders' revolts and campaigns against British tax system. However, Indian Congress Natioal Party was mute to avoid Hindu Muslim communal sensitivity issues.

XVIII. Fazlul Hoque Movements and Abolition of Mohajoni Pratha

In 1935 a new Act (1937 Election Act) introduced where Fazlul Hoque talked about Krishok rights through his Krishok Praja Party. This act and campaign was for the competition with Muslim League. In 1929-31, Bengali Krishok citizens were suffering from economic crisis and suffering from loss of their lands. The reason was money lenders forcibly collecting loans and cumulating interest from Krishoks. Fazlul Hoque campaigned against the British Permanent Settlement Acts. In the election Fazlu Hoque was unable to get majority votes; however, he made a cabinet in collaboration with Muslim League. However, the cabinet was unable to fulfill the demands/rights of the Krishok. Although he changed some laws of Muhajongs (Money Landers), there was no radical change in Krishok life. Unfortunately later Fazlul Hoque was ousted by Muslim League.

Krishok Shava was another Indian peasants' platform that changed few clauses of the peasant land tenure acts through communist influence. Many Krishoks were organized under the leadership of Krishok Shova. There was an alliance among Krishok and labors of Bengal under the Krishok Shava banner.

a) Tevaga Movement

Tevaga Movement becomes alive against Permanent Settlement Act before and after Indo-Pak partisan. After 1947, the Communist Party politics and Tevaga movement were inactive. However, then

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increased bourgeois politics that impacted negatively to the Krishok rights in Bengal. Mowlana Vasani was a spokesperson for the peasants' rights and peasant socio-economic development in Bangladesh. Many places Krishoks had organized under Krishok Samitty leaded by Vashani. Vashani conducted many meetings; processions for the rights of Krishok, but he did not use Krishok for voting him or for his party. However, it was his personal strategy and it was against pretty bourgeois exploitations and injustices. However, organizationally Krishak Samiltty was not successful to achieve its manifesto.

b) Nankar Movement

There was another Krishok revolt and movement against Nankar (payment of tax against agriculture products and labors) and it is called Nankar movement in Bengal history. *Nankar* was the name of a type of land tenure characterized by payment of rent in produces or labours during the *Zamindari* period. This system prevailed in Sylhet/Assam areas. The term Nankar is derived from *Nan* (bread) and K*ar* (tax or rent). Nankar may not be confused with *Malikana (ownership) rather it is* an allowance usually ten per cent payable to the state on the gross revenue demand for ownership right for peasants/labors subsistence. The Nankar system of land tenure has a relationship with the modes of production and payment. Zamindar collects the Nankar allowance for maintaining his establishment. Moreover, since Zamindar did not pay his officials in cash, he gives them Nankar or a land assignment in lieu of salary to officials. In return, the officers engaged people as laborers, bearers, cleaners, servants, lathials (clubmen), etc. on Nankar term. These people were paid for in nankar assignment of land. Landholders give *raiyati* rights to the Nankar peasants. At the end of the British colonial rule, the Nankar peasants began to assert their rights on the land they had been cultivating from generation to generation. They demanded that Zamindars must recognize their rights on land as normal Rayots. The reason is Zamindars abused Nankar people was common practice of Zamindars. The conflicts between the landlords and Nankar Raiyats came to surface in 1922-23. Series of uprisings took place later included the Shukhair rising, Kulaura uprising (1931-32), and Bhanubil uprising (1933-35). Under pressure, many Zamindars recognized the rights of nankar raiyats. The nankar rebellion continued even after the Partition of Bengal (1947). Finally, the movement died down when the Zamindari system was abolished in 1950.

XIX. Krishoks after Liberation of Bangladesh

After Bangladesh, land tenure system amended two times. During Majib period, the highest land ceiling was 100 bigha and Ershad time 50 bigha. Last land tenure adornment committed Khas land will distributed to landless people. Sharecropper dead should be at least 5 years. The share cropping system should be one share for land owner, one portion to share copper ad one share to who provides inputs. Many researchers think the sharecroppers are exploited by the Tevagha system.

After 1971, Bangladeshi people organized under a new dimension. Different organizations and political parties were trying to organize Krishoks. However, many divisions happened in contemporary politics, but there was a need for new strategy to activate Krishoks. According to Badaruddin Omar (1974), Krishok must be aware of bourgeois politics and correcting political leadership, but they (Krishoks) should not be involved in direct confrontation with them. The politics need to be aligning with Krishok and they must be away from feudal and bourgeois politics. He suggests labor leaders must know Bangladesh land tenure system, its nature and structure if they want to act politically. Omar (1974) suggests politicians should know Krishok past history, present situation, their current issues and demand. If not, Krishok movements will not be successful.

XX. Peasant Poverty and way Forward

Absolute poverty is seen in Bangladesh everywhere. Bangladeshi poor peasants are suffering from absolute/acute poverty, deprivation of resources and subsistence-the basic conditions that are not fulfilled. Marginalized peasants spend miserable life in their livelihoods, they are suffering from malnourishment and clothing, become illiterate and homeless etc. problems. Hence many peasants are unable to fulfill their basic needs-food, housing, cloths, education, health and other fundamental essentials. As a result, increases social, economic and environmental inequalities and injustice among peasants in Bangladesh.

Moreover, their life is suffering from threat of physical unhealthy existence. Peasants live below standard life. Social inequalities, misdistribution of resources, deprivation of resources, injustice and unethical human accumulation of resources, lack of food security and lack of social safety nets are responsible for acute poverty among marginalized peasants in Bangladesh. Lack of total socio-economic and political planning is responsible for peasant poverty. Sometimes natural disasters, draughts, flood, earthquakes, cyclones, hurricanes, climate change, water pollution, environmental pollution, epidemic diseases, soil erosion etc. destroy crops, destroy resources and peasants are unable to recover their resources that are destroyed.

Usually widower, divorced, separated women, older people and children do not have enough land for cultivation; they do not have enough scope for income

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for their livelihoods in Bangladesh. Usually they depend on other members of the family for their livelihoods. State does not support them enough. Peasants are suffering from lack of social safety net, food security and other support services from the state because capitalistic profit motive exploitative market mechanism and commercialization of agriculture lead them to deprivation of fulfilling their basic need.

Agricultural production inputs costs and outputs prices in market forced peasant to buy and sell their products at less prices then it should be. Peasants are unable to buy their household necessities and services from market. Therefore, they are suffering from earning lowincome and suffering from shortage of resources for fulfilling their necessities. Hence this is a societal problem instead a social problem in Bangladesh.

Capitalism thinks poor peasants are lazy and unskilled in crop cultivation, which is one kind of stereotyping to them. Hence it is vital to emphasis on the marginalized peasant economic sphere. Some sociologists' remark that peasant is unable to co-opt with the modern agricultural production system and marketing system, capitalist trading and commercialization process, and hence they are unable to survive in the modern agricultural market mechanisms. Moreover, existing exploitative land tenure system, lack of technology of genetically modified innovation (GMI) agriculture, high yielding variety (HIV) crop production, and green revolution excluded marginalized peasant from mainstream agriculture. They are unable to fulfill their household necessities by selling their agricultural products in the market; hence they are suffering from buying household necessities (health services, education services, housing, food, and clothing etc.) from private market. Hence they are suffering from poverty, malnutrition, education, food, clothing and housing. Even they do not get proper justice from the society because rural elites, political chieftains, and religious leaders play injustice to poor peasants in Bangladesh.

Landlessness and homelessness is the most extreme forms of social exclusion. Capitalist society blames individual fault is responsible for poor poverty. Poor people have less effort, less skills and potentials to earn more income and to overcome their miserable life. Lacks of agricultural processing industries in the villages resulted high rate of joblessness among marginalized peasants. Children of peasants are born into poverty and they suffer from the vicious cycle of poverty and retransfer it to their descendent family and society.

Government fiscal budget contributes more to urban development in Bangladesh; however, remote villagers get less physical and social infrastructural facilities from the state. Peasants are excluded from the industrial labor market as they are not skillful of machines and information technology (IT), hence peasants' are exposed to loss of non-agricultural job market in Bangladesh. Moreover, landlessness people are suffering from lacking of cultivable lands for food production. River erosion, flood, cyclone, hurricane, fire, social exploitations, and capitalistic market structure lead peasants to poor poverty in Bangladesh. The cause-effect consequences can be seen among homeless/landless people in rural and urban areas in Bangladesh.

Agriculture welfare services is absent for the poor peasants although the agricultural subsidy system exist in the fiscal policy in Bangladesh; however, the fiscal policy has few positive impact on them. Government should play a central role in reducing inequalities among peasants through the provision of subsidization of certain goods and services. The reason is poor peasant families are unable to get education, healthcare, housing, income support, and unemployment and pension facilities. Hence they are outside of the state service benefit.

Maloney*, Clarence and* Ahmed, *A. B.* Sharfuddin (1988) conducted a survey in 1991 on peasant wage and savings status in Bangladesh. The survey finds daily wage workers save and reinvest 9%, marginal and middle farmers save 12%, salaried people14% farmers who have trading business 22% and local rich 30-45% (Maloney, 1991). It shows from the statistics that marginal and middle farmers are sufferings from savings and invest money for crop cultivation. Hence it is necessary to develop a mechanism to save and invest money for more production and develop their food security systems. Simultaneously promote and develop the spirit of peasant entrepreneurship in rural Bangladesh. Furthermore, assist peasant social organizations like family, clan and household to develop cooperation among them and articulate their culture and values for producing high yielding crops. Moreover, provide agricultural knowhow knowledge to peasants through popular adult education. Rural peasants are living close to agricultural lands. So it is urgent decentralized agricultural and non-agricultural manufacturing plants across Bangladesh instead Dhaka based and or setup them few cities in Bangladesh.

Implication of the Study: The paper discusses the fundamental concepts, principles of peasant and peasants' socioeconomic life and their different issues and sufferings in Bangladesh. This paper gives readers to know and understand the patterns and scenarios of peasants' socioeconomic life and their different issues that they are sufferings from. Peasants' salient facets of the paper could draw attention of Bangladeshi peasant economists, researchers and policy makers to address the issues of the peasants in Bangladesh and thus to mitigate their suffering and to break the vicious poverty ring.

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XXI. Conclusion

Agriculture labors are isolated and their wages are little. Peasant cooperatives are few. Manirul Islam Khan (1991) and Bailey, F. G. (1984), therefore recommends it is necessary to increase agricultural labor wages and enhance forming peasant cooperatives in the villages. Support peasant cooperatives. Receiving loan for agriculture is difficult for peasants in Bangladesh. Grameen Bank has been providing agricultural seasonal loans to its borrowers for buying agricultural inputs since its inception. Stuart Rutherford (2009) finds microcredit is helpful to marginalized peasants for cultivating their small lands, leased lands and sharecropping lands.. Hence, revival and revitalization Samabay (cooperative) Bank is a must for peasants' for their access to agricultural loan.

The paper also recommends strengthening of local government agencies and opens their activities to poor peasants for their access to local resources in Bangladesh. Moreover, develop physical infrastructures and social infrastructures at the village level. Simultaneously peasants' entrepreneurship development is very crucial for reviving rural economy. Women household activities and their agricultural processing activities are not count in the Bangladesh national economics. However, their contributions to household economy and national economy are important. Therefore, it is necessary to count women domestic and agricultural processing activities that have economic value to the household economy and to the national economy.

Many rural agricultural labors are unemployed for many months round the year in villages, so develop alternative income generating activities for utilizing their labors during lean periods in Bangladesh.

Huge population growth causes collapse of development; however, Bengali peasant life can support the greatest population density on the land without destroying the resource base. Therefore, design a village development plan and implement these plans by mobilizing village natural resources instead borrowing outside resources. Hence, a socio-economic reform should put in place for the benefit of peasants that can raise their class consciousness, improve rural land holding, and retain the cultural system of beliefs that support the structure of the peasants' economy and culture. Traditional peasant means of production is neither threat to environment nor destructive to the natural process of genetic selections; hence the agricultural extension education should promote natural agriculture that is eco-friendly in Bangladesh.

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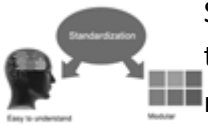


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3. Submission of Manuscripts,

4. Manuscript's Category,

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3. Think Like Evaluators: If you are in a confusion or getting demotivated that your paper will be accepted by evaluators or not, then think and try to evaluate your paper like an Evaluator. Try to understand that what an evaluator wants in your research paper and automatically you will have your answer.

4. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

5. Ask your Guides: If you are having any difficulty in your research, then do not hesitate to share your difficulty to your guide (if you have any). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work then ask the supervisor to help you with the alternative. He might also provide you the list of essential readings.

6. Use of computer is recommended: As you are doing research in the field of Computer Science, then this point is quite obvious.

7. Use right software: Always use good quality software packages. If you are not capable to judge good software then you can lose quality of your paper unknowingly. There are various software programs available to help you, which you can get through Internet.

8. Use the Internet for help: An excellent start for your paper can be by using the Google. It is an excellent search engine, where you can have your doubts resolved. You may also read some answers for the frequent question how to write my research paper or find model research paper. From the internet library you can download books. If you have all required books make important reading selecting and analyzing the specified information. Then put together research paper sketch out.

9. Use and get big pictures: Always use encyclopedias, Wikipedia to get pictures so that you can go into the depth.

10. Bookmarks are useful: When you read any book or magazine, you generally use bookmarks, right! It is a good habit, which helps to not to lose your continuity. You should always use bookmarks while searching on Internet also, which will make your search easier.

11. Revise what you wrote: When you write anything, always read it, summarize it and then finalize it.

12. Make all efforts: Make all efforts to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in introduction, that what is the need of a particular research paper. Polish your work by good skill of writing and always give an evaluator, what he wants.

13. Have backups: When you are going to do any important thing like making research paper, you should always have backup copies of it either in your computer or in paper. This will help you to not to lose any of your important.

14. Produce good diagrams of your own: Always try to include good charts or diagrams in your paper to improve quality. Using several and unnecessary diagrams will degrade the quality of your paper by creating "hotchpotch." So always, try to make and include those diagrams, which are made by your own to improve readability and understandability of your paper.

15. Use of direct quotes: When you do research relevant to literature, history or current affairs then use of quotes become essential but if study is relevant to science then use of quotes is not preferable.

16. Use proper verb tense: Use proper verb tenses in your paper. Use past tense, to present those events that happened. Use present tense to indicate events that are going on. Use future tense to indicate future happening events. Use of improper and wrong tenses will confuse the evaluator. Avoid the sentences that are incomplete.

17. Never use online paper: If you are getting any paper on Internet, then never use it as your research paper because it might be possible that evaluator has already seen it or maybe it is outdated version.

18. Pick a good study spot: To do your research studies always try to pick a spot, which is quiet. Every spot is not for studies. Spot that suits you choose it and proceed further.

19. Know what you know: Always try to know, what you know by making objectives. Else, you will be confused and cannot achieve your target.

20. Use good quality grammar: Always use a good quality grammar and use words that will throw positive impact on evaluator. Use of good quality grammar does not mean to use tough words, that for each word the evaluator has to go through dictionary. Do not start sentence with a conjunction. Do not fragment sentences. Eliminate one-word sentences. Ignore passive voice. Do not ever use a big word when a diminutive one would suffice. Verbs have to be in agreement with their subjects. Prepositions are not expressions to finish sentences with. It is incorrect to ever divide an infinitive. Avoid clichés like the disease. Also, always shun irritating alliteration. Use language that is simple and straight forward. put together a neat summary.

21. Arrangement of information: Each section of the main body should start with an opening sentence and there should be a changeover at the end of the section. Give only valid and powerful arguments to your topic. You may also maintain your arguments with records.

22. Never start in last minute: Always start at right time and give enough time to research work. Leaving everything to the last minute will degrade your paper and spoil your work.

23. Multitasking in research is not good: Doing several things at the same time proves bad habit in case of research activity. Research is an area, where everything has a particular time slot. Divide your research work in parts and do particular part in particular time slot.

24. Never copy others' work: Never copy others' work and give it your name because if evaluator has seen it anywhere you will be in trouble.

25. Take proper rest and food: No matter how many hours you spend for your research activity, if you are not taking care of your health then all your efforts will be in vain. For a quality research, study is must, and this can be done by taking proper rest and food.

26. Go for seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.



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27. Refresh your mind after intervals: Try to give rest to your mind by listening to soft music or by sleeping in intervals. This will also improve your memory.

28. Make colleagues: Always try to make colleagues. No matter how sharper or intelligent you are, if you make colleagues you can have several ideas, which will be helpful for your research.

29. Think technically: Always think technically. If anything happens, then search its reasons, its benefits, and demerits.

30. Think and then print: When you will go to print your paper, notice that tables are not be split, headings are not detached from their descriptions, and page sequence is maintained.

31. Adding unnecessary information: Do not add unnecessary information, like, I have used MS Excel to draw graph. Do not add irrelevant and inappropriate material. These all will create superfluous. Foreign terminology and phrases are not apropos. One should NEVER take a broad view. Analogy in script is like feathers on a snake. Not at all use a large word when a very small one would be sufficient. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Amplification is a billion times of inferior quality than sarcasm.

32. Never oversimplify everything: To add material in your research paper, never go for oversimplification. This will definitely irritate the evaluator. Be more or less specific. Also too, by no means, ever use rhythmic redundancies. Contractions aren't essential and shouldn't be there used. Comparisons are as terrible as clichés. Give up ampersands and abbreviations, and so on. Remove commas, that are, not necessary. Parenthetical words however should be together with this in commas. Understatement is all the time the complete best way to put onward earth-shaking thoughts. Give a detailed literary review.

33. Report concluded results: Use concluded results. From raw data, filter the results and then conclude your studies based on measurements and observations taken. Significant figures and appropriate number of decimal places should be used. Parenthetical remarks are prohibitive. Proofread carefully at final stage. In the end give outline to your arguments. Spot out perspectives of further study of this subject. Justify your conclusion by at the bottom of them with sufficient justifications and examples.

34. After conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print to the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects in your research.

Informal Guidelines of Research Paper Writing

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form, which is presented in the guidelines using the template.
- Please note the criterion for grading the final paper by peer-reviewers.

Final Points:

A purpose of organizing a research paper is to let people to interpret your effort selectively. The journal requires the following sections, submitted in the order listed, each section to start on a new page.

The introduction will be compiled from reference matter and will reflect the design processes or outline of basis that direct you to make study. As you will carry out the process of study, the method and process section will be constructed as like that. The result segment will show related statistics in nearly sequential order and will direct the reviewers next to the similar intellectual paths throughout the data that you took to carry out your study. The discussion section will provide understanding of the data and projections as to the implication of the results. The use of good quality references all through the paper will give the effort trustworthiness by representing an alertness of prior workings.

Writing a research paper is not an easy job no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record keeping are the only means to make straightforward the progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear

· Adhere to recommended page limits

Mistakes to evade

- Insertion a title at the foot of a page with the subsequent text on the next page
- Separating a table/chart or figure - impound each figure/table to a single page
- Submitting a manuscript with pages out of sequence

In every sections of your document

· Use standard writing style including articles ("a", "the," etc.)

· Keep on paying attention on the research topic of the paper

· Use paragraphs to split each significant point (excluding for the abstract)

· Align the primary line of each section

· Present your points in sound order

· Use present tense to report well accepted

· Use past tense to describe specific results

· Shun familiar wording, don't address the reviewer directly, and don't use slang, slang language, or superlatives

· Shun use of extra pictures - include only those figures essential to presenting results

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Choose a revealing title. It should be short. It should not have non-standard acronyms or abbreviations. It should not exceed two printed lines. It should include the name(s) and address (es) of all authors.



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Abstract:

The summary should be two hundred words or less. It should briefly and clearly explain the key findings reported in the manuscript--must have precise statistics. It should not have abnormal acronyms or abbreviations. It should be logical in itself. Shun citing references at this point.

An abstract is a brief distinct paragraph summary of finished work or work in development. In a minute or less a reviewer can be taught the foundation behind the study, common approach to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Yet, use comprehensive sentences and do not let go readability for briefness. You can maintain it succinct by phrasing sentences so that they provide more than lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study, with the subsequent elements in any summary. Try to maintain the initial two items to no more than one ruling each.

- Reason of the study - theory, overall issue, purpose
- Fundamental goal
- To the point depiction of the research
- Consequences, including definite statistics - if the consequences are quantitative in nature, account quantitative data; results of any numerical analysis should be reported
- Significant conclusions or questions that track from the research(es)

Approach:

- Single section, and succinct
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- A conceptual should situate on its own, and not submit to any other part of the paper such as a form or table
- Center on shortening results - bound background information to a verdict or two, if completely necessary
- What you account in an conceptual must be regular with what you reported in the manuscript
- Exact spelling, clearness of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else

Introduction:

The **Introduction** should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable to comprehend and calculate the purpose of your study without having to submit to other works. The basis for the study should be offered. Give most important references but shun difficult to make a comprehensive appraisal of the topic. In the introduction, describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will have no attention in your result. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here. Following approach can create a valuable beginning:

- Explain the value (significance) of the study
- Shield the model - why did you employ this particular system or method? What is its compensation? You strength remark on its appropriateness from a abstract point of vision as well as point out sensible reasons for using it.
- Present a justification. Status your particular theory (es) or aim(s), and describe the logic that led you to choose them.
- Very for a short time explain the tentative propose and how it skilled the declared objectives.

Approach:

- Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done.
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- Present surroundings information only as desirable in order hold up a situation. The reviewer does not desire to read the whole thing you know about a topic.
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Procedures (Methods and Materials):

This part is supposed to be the easiest to carve if you have good skills. A sound written Procedures segment allows a capable scientist to replacement your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt for the least amount of information that would permit another capable scientist to spare your outcome but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section. When a technique is used that has been well described in another object, mention the specific item describing a way but draw the basic principle while stating the situation. The purpose is to text all particular resources and broad procedures, so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step by step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

- Explain materials individually only if the study is so complex that it saves liberty this way.
- Embrace particular materials, and any tools or provisions that are not frequently found in laboratories.
- Do not take in frequently found.
- If use of a definite type of tools.
- Materials may be reported in a part section or else they may be recognized along with your measures.

Methods:

- Report the method (not particulars of each process that engaged the same methodology)
- Describe the method entirely
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures
- Simplify - details how procedures were completed not how they were exclusively performed on a particular day.
- If well known procedures were used, account the procedure by name, possibly with reference, and that's all.

Approach:

- It is embarrassed or not possible to use vigorous voice when documenting methods with no using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result when script up the methods most authors use third person passive voice.
- Use standard style in this and in every other part of the paper - avoid familiar lists, and use full sentences.

What to keep away from

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings - save it for the argument.
- Leave out information that is immaterial to a third party.

Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part a entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Carry on to be to the point, by means of statistics and tables, if suitable, to present consequences most efficiently.You must obviously differentiate material that would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matter should not be submitted at all except requested by the instructor.



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Content

- Sum up your conclusion in text and demonstrate them, if suitable, with figures and tables.
- In manuscript, explain each of your consequences, point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation an exacting study.
- Explain results of control experiments and comprise remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or in manuscript form.

What to stay away from

- Do not discuss or infer your outcome, report surroundings information, or try to explain anything.
- Not at all, take in raw data or intermediate calculations in a research manuscript.
- Do not present the similar data more than once.
- Manuscript should complement any figures or tables, not duplicate the identical information.
- Never confuse figures with tables - there is a difference.

Approach

- As forever, use past tense when you submit to your results, and put the whole thing in a reasonable order.
- Put figures and tables, appropriately numbered, in order at the end of the report
- If you desire, you may place your figures and tables properly within the text of your results part.

Figures and tables

- If you put figures and tables at the end of the details, make certain that they are visibly distinguished from any attach appendix materials, such as raw facts
- Despite of position, each figure must be numbered one after the other and complete with subtitle
- In spite of position, each table must be titled, numbered one after the other and complete with heading
- All figure and table must be adequately complete that it could situate on its own, divide from text

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- Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work
- You may propose future guidelines, such as how the experiment might be personalized to accomplish a new idea.
- Give details all of your remarks as much as possible, focus on mechanisms.
- Make a decision if the tentative design sufficiently addressed the theory, and whether or not it was correctly restricted.
- Try to present substitute explanations if sensible alternatives be present.
- One research will not counter an overall question, so maintain the large picture in mind, where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

- When you refer to information, differentiate data generated by your own studies from available information
- Submit to work done by specific persons (including you) in past tense.
- Submit to generally acknowledged facts and main beliefs in present tense.

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Topics	Grades		
	A-B	**C-D**	**E-F**
Abstract	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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