

# Review of Research Insight

*Multi-disciplinary- Peer Reviewed Research Journal*

Vol.1 No.1 2017 January ISSN XXXX - XXXX RNI: Code.KERMUL00602

ISSN –  
Vol – 1, No. 1 January 2017

## Review of Research Insight

*(Multi-disciplinary- Peer reviewed Research Journal )*



Printed, Published & owned by Dr. G. Vijayalekshmi, Principal,  
Government Arts College, Thycaud,  
Thiruvananthapuram – 695 014, Kerala  
Phone: 0471 2323040, Website. <http://gactvm.org>

A Half Yearly Research Publication



**GOVERNMENT ARTS COLLEGE**  
Thycaud, Thiruvananthapuram, Kerala

**MESSAGE**

It is a matter of great pride that our college has been able to bring out a Research Journal this academic year. I congratulate the editorial team, especially Dr. Gracious. J for bringing their efforts, and perseverance to fruition. It has not been easy given the financial constraints, but they had managed to pull it off. I am sure the journal will go a long way to integrate teaching and research, and also provide a good venue for researchers to advance their scholarship.

I wish this maiden project all success and fervently hope that this will inspire our young scholars to traverse into uncharted realms, and enhance their critical acumen.

January 2017

Dr. G. Vijayalekshmi

Principal

Chief Editor

**Editorial**

**Dear Readers**

It is with great pride, enthusiasm, and anticipation that I invite you to read the inaugural issue of **Review of Research Insight** (RRI). The RRI is a multi-disciplinary, peer reviewed journal published by the Research Committee of Government Arts College, Thiruvananthapuram, Kerala for the enhancement of research in different subject areas. The aim of the RRI is to encourage authorship and collaborative research. RRI is a quality-conscious journal published half yearly in print as well as online form. This journal aims to provide a highly readable and valuable addition to the literature which will serve as an indispensable reference tool for years to come.

Under the "publish or perish" regime it is wise to go with the herd and publish academic pieces. These academic pieces will help to refine arguments, reach more and more abstraction and generalization etc. Research is not only critical to the economic and social development of society; it is also critical to the mission of higher education.

I take this opportunity to express my gratitude to our Principal, Dr.M.Vijayalekshmi for her encouragement and valuable support. I also recognize the contributions of authors who have chosen the RRI to disseminate their research.

We are more than happy to receive contributions for our next issue from faculty members and scholars to ensure the consistency and the success of the Journal. I look forward to our journey together as we develop RRI into its fullest potential. We welcome comments and suggestions that would advance the objectives of the Journal.

**Dr.Gracious James**

January 2017

Editor

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**Effect Of Paddy Straw And Coconut Rachis Substrates On  
Yield And Protein Content In Oyster Mushroom  
(*Pleurotus Florida*)**



**Ajith Kumar P**

Department of Botany  
and Biotechnology,  
E-mail: ajithkumargck@gmail.com



**Bosco Lawrence**

Department of Botany  
and Biotechnology,  
E-mail: ajithkumargck@gmail.com

**Abstract**

*Mushrooms neither belong to the plants nor to animals. They belong to a separate group of organisms called fungi. They lack the usual green matter present in plants and grow on dead and decaying organic materials. The cultivated mushrooms as well as the common field mushrooms initially forms a minute fruiting body (basidiocarp), referred to as the pin head stage because of their small size. Slightly expanded they are called buttons, once again because of the relative size and shape, which form the economically useful( edible) part. Oyster mushroom (*Pleurotus spp* ) is an important commercially cultivated genus in tropical countries and is well known for its rich protein content. . It grows directly on various agro-wastes by making them free from germs with the help of physical / chemical treatments. Here we made a comparative study of *Pleurotus florida* cultivation on two different substrates- Coconut rachis and paddy straw; and the protein content of the basidiocarps, cultivated from these two substrates using colorimetric method.*

**Keywords:** *Mushroom, Oyster mushroom(*Pleurotus florida*), protein, colorimeter.*

Mushrooms neither belong to the plants nor to animals. They belong to a separate group of organisms called fungi. They lack the usual green matter present in plants and grow on dead and decaying organic materials. The plant body is made up of highly branched, tubular structures, called hyphae. The entangled mass of hyphae forms mycelia. The mushroom fruiting body (reproductive structure) may be umbrella like or of various other shapes, size and colour. Commonly it consists of a cap or pileus and a stalk or stipe but others have additional structures like veil or annulus, a cup or volva. The fruiting body of mushroom is commonly called as basidiocarp (Ainsworth, 1976). Mushrooms are known for their nutritive and medicinal value (Chang R, 1996).

The cultivated mushrooms as well as the common field mushrooms initially forms a minute fruiting body, referred to as the pin head stage because of their small size. Slightly expanded they are called buttons, once again because of the relative size and shape. Once such stages are formed, the mushroom can rapidly pull in water from its mycelium and expand, mainly by inflating preformed cells that took several days to form in the primordia. Mushrooms are cultivated in at least 60 countries with China, the United States, Netherlands, France and Poland being the top five producers in 2000 (Agarwala R.K, 1973).

Many species of medicinal mushrooms have been used in folk medicine for thousands of years. The use of medicinal mushrooms in folk medicine is best documented in the East. Medicinal mushrooms are now the subject of study for many ethno botanists and medical researchers. Recent

research has found that the oyster mushroom naturally contains the cholesterol drug lovastatin (Dharmananda S, 1988).

There are a number of species of mushroom that are poisonous, and although some resemble certain edible species, eating them could be fatal. Deadly poisonous mushrooms that are frequently confused with edible mushrooms and responsible for many fatal poisonings are several species of the *Amanita* genus, in particular, *Amanita phalloides*, the *death cap*. So eating mushrooms gathered in the wild is risky and should not be undertaken by individuals not knowledgeable in mushroom identification, unless the individuals limit themselves to a relatively small number of good edible species that are visually distinctive (B.P. Pandey, 1994).

Commonly cultivated mushrooms are *Agaricus bisporus*, *A. bitorquis*, *Pleurotus spp* (*Oyster Mushroom*), *Calocybe indica* (*Milky Mushroom*), *Volvariella spp* (*Paddy straw Mushroom*) etc.

**Properties of mushrooms:**

- Rich in proteins.
- Contains less fat, less carbohydrate and salts.
- Rich in fibre and Have high Vitamin B12 and folic acid content uncommon in vegetables.
- High availability of lysine and tryptophan amino acids usually absent in cereals.

-Ideal food for patients suffering from hypertension, diabetes and obesity.

Among all the edible cultivated mushrooms *Pleurotus* has maximum number of commercially cultivated species suitable for round the year cultivation. All the varieties or species of oyster mushroom are edible except *P. olearius* and *P. nidiformis* which are poisonous. Species commercially cultivated all over the world during summer months includes *P. flabellatus*, *P. sajor cajo*, *P. sapidus*, *P. membranaceous*, *P. citrinopileatus*, *P. eous* etc. and those produced during winter are *P. ostreatus*, *P. florida*, *P. cornucopiae*, *P. fossulatus*, *P. eryngii* etc.

Species of *Pleurotus* are the cheapest and the easiest to grow among all the cultivated edible mushrooms. Cultivation does not require complicated substrate preparation technique as in case of button mushroom. The former can be grown on non-fermented, almost fresh plant residues (agri-wastes containing lignin and cellulose). Substrate preparation does not require controlled environmental conditions as in case of button mushroom (Ragunathan, R *et al*, 1996).

### **Oyster Mushrooms:**

Oyster mushroom (*Pleurotus* sp.), belonging to the Class Basidiomycetes and Family Agaricaceae, is popularly known as 'dhingri' in India and grows naturally in the temperate and tropical forests on dead and decaying wooden logs or sometimes on dying trunks of deciduous or coniferous woods. It may also grow on decaying organic matter. The fruit bodies of this mushroom are distinctly shell or spatula shaped with different

shades of white, cream, grey, yellow, pink or light brown depending upon the species.

### **Botanical Description**

The oyster mushrooms have three distinct parts- a fleshy shell or spatula shaped cap called *pileus*, a short or long lateral or central stalk called *stipe* and long ridges and furrows underneath the pileus called gills or *lamellae*. The gills stretch from the edge of the cap down to the stalk and bear the spores. The spores are smooth, cylindrical and germinate very easily on any kind of mycological media within 48-96 hrs. The mycelium of *Pleurotus* is pure white in colour.

Oyster mushrooms are the third largest cultivated mushroom. China, the world leader in Oyster production, contributes nearly 85% of the total world production of about a million tonnes. The other countries producing oyster mushrooms include Korea, Japan, Italy, Taiwan, Thailand and Philippines. The present production of this crop in India is only around 1500 tonnes due to low domestic demand. Another inhibiting factor is that export demand orders are large and can be met only if a linkage is developed between producer, cooperatives and exporters.

The economic importance of the mushroom lies primarily in its use as food for human consumption. It is rich in Vitamin C and B complex and the protein content varies between 1.6 to 2.5 percent. It has most of the mineral salts required by the human body. The niacin content is about ten times higher than any other vegetables.

The folic acid present in oyster mushrooms helps to cure anemia. It is suitable for people with hyper-tension, obesity and diabetes due to its low sodium: potassium ratio, starch, fat and calorific value. Alkaline ash and high fibre content makes them suitable for consumption for those having hyperacidity and constipation. A polycyclic aromatic compound pleurotin has been isolated from *P. griseus* which possess antibiotic properties (Nayana Jose *et al*, 2006).

Oyster mushroom can be cultivated on a large number of agro-wastes having cellulose and lignin which helps in more enzyme production of cellulose that is correlated with more yield. These include straw of paddy, wheat and ragi, stalk and leaves of maize, millets and cotton, sugarcane bagasse, saw dust, jute and cotton waste, coconut waste, pea nut shells, dried grasses, sunflower stalks, used tea leaf waste, discarded waste paper and synthetic compost of button mushrooms etc. It can also be cultivated by using industrial wastes like paper mill sludges, coffee byproducts, tobacco waste, etc. Of these paddy straw and coconut wastes are very cheap and easily available substrates in our area (Ragunathan, R *et al*, 1996. Marimuthu T.S *et al*, 1993).

This study was undertaken to make a comparative analysis of *Pleurotus florida* cultivation on two different substrates- Coconut rachis and paddy straw; and consecutively their effect on the protein content of the basidiocarps, cultivated from these two substrates.

## **Materials and methods**

### **1. Experimental material**

Spawn, the seed material of *Pleurotus florida* on paddy grains, was procured from Central Plantation Crops Research Institute (CPCRI), Kasaragod. It was available in 300 g. quantity in polypropylene bags.

### **2. Substrate preparation**

Partially dried, fresh coconut leaves and paddy straw were collected from the field. Rice bran was purchased from a flour mill. The coconut rachis and straw were chopped to 5-10 cm long pieces, using a sharp knife. They were soaked in clean water; in separate vessels. Twentyfour hour soaking duration was given to coconut substrate; while the paddy straw was given 12 hours. Excess water was drained off, after soaking period. Substrates were then sterilized by hot water treatment, by immersing the presoaked substrates in boiling water, separately. Coconut rachis substrate was sterilized for 2 hours and paddy straw substrate for 1 hour. Rice bran, tied within a muslin cloth was sterilized separately for half an hour. Excess water was drained off, so that the substrates, maintained 70% moisture content. Substrates were then taken in separate plastic trays of 25x20 cm size. Before that the trays and our hands were wiped with 1% detol solution.

### **3. Spawning of substrate (Bed preparation)**

Polythene bags of 60X 45 cm of 150 gauges were used for bed preparation. About 10- 15 holes of 0.5 cm diameter were made on the polythene bags, at 2 inches distance, for aeration. The bottoms of the bags

were intact. Spawn, which was 20 days old, in polypropylene bag was transferred to 1% detol sterilized plastic tray. The spawn from one bag was divided into three equal parts and again one portion was apportioned into four equal parts for preparing bed.

Multilayered spawning technique was followed to inoculate the substrate, with the spawn @ 100 g per bed containing approximately 3-4 kg substrate. Addition of well sterilized rice bran at the rate of 5% (150 g) per bag was necessary. The sterilized substrate (either coconut petiole or paddy straw) was filled in the polythene bags up to 5-10 cm height; a layer of rice bran was spread over that, followed by sprinkling of a portion of spawn along the periphery. Four such layers were made with 3-4 kg substrate of coconut rachis substrate or with 1-2 kg of paddy straw substrate. The tips of the bags were tied with thread.

#### **4. Crop management**

After spawning, the bags were kept for spawn run in a fully dark room on raised platform (bench) for mycelium colonization on the substrate. Jute sacs were lined on the sides of the room and moistened periodically to maintain 80-85% relative humidity inside the room. Water filled plastic trays were also kept inside the room for the same purpose. The mushroom beds were kept for spawn run, for a period of 20 days, inside the dark room (mushroom house).

After twenty days of keeping the bags in the dark room, the polythene covers were ripped open and the compact cylindrical masses were hanged on a pole, using rope, inside a well aerated room, at place where no direct sun light.

Wet jute sacs were laid on the floor of the room to keep the moisture content of the room around 70%. After twelve hours of removal of the covers, water was sprayed thrice daily with a sprayer.

## **5. Harvesting**

Basidiocarps (fruiting bodies of mushroom) were harvested from each bed. Fresh weight of the basidiocarps, collected from each bed was found out using an electronic balance. They were packed separately in polythene bags and were kept in a refrigerator for further biochemical analysis.

After the first harvesting, the mushroom beds were scrapped with knife and sprayed with water thrice daily for the next round of flush to come out. The process of regular watering of the beds was continued up to 3<sup>rd</sup> to 4<sup>th</sup> crops.

## **6. Extraction of protein from the sample**

Weighed out 1gm fresh basidiocarp of *Pleurotus florida*, harvested from the coconut rachis substrate and 1gm from the paddy straw substrate, separately. Each one was ground well, with mortar and pestle, in 10ml phosphate buffer (pH 7.5) each. Then centrifuged at 3000rpm for 5 minutes. Collected the supernatant for protein estimation. Before that, measured the volume of the supernatant, using measuring cylinder (Sadasivam and Manickam, 1996).

## **7. Estimation of protein**

We followed the Lowry's method (Lowry *et al*, 1951) for the estimation of protein.

Expressed the amount of protein gm/ 100gm fresh weight sample, using the formula,

Amount of protein in 100gm. sample

$$\frac{\text{gm.of protein} \times \text{Total volume of the supernatant after centrifugation}}{\text{x 100 gm Volume of the supernatant taken for estimation}}$$

## **Results and Discussion**

### **Substrate sterilization**

Twenty four hours soaking in water, followed by two hours hot water sterilization was found to be effective for coconut rachis substrate; while, twelve hours soaking in water and one hour hot water sterilization was enough for paddy straw substrate, as we could not find any type of contamination on both the cases.

### **Yield of mushroom**

The spawn grew as mycelia and covered the entire bed, forming a white compact mass rapidly, within 15 days of spawning. Small buds of basidiocarps with bunches of stipes, with each one ended in a pinhead shaped pileus were started to develop from the mycelial mass on paddy straw substrate, after 7-8 days of removal of the covers; while on coconut rachis substrate, they were developed after 16-18 days of removal of the covers. On both the substrates, the basidiocarps were rapidly increased in size, reaching a maximum pileus size of 15 cm diameter. The basidiocarps were pure white to slight brownish in both the cases.

From the paddy straw substrate, an average fresh weight of 195 gm. of basidiocarp was harvested during the first cropping. But the coconut rachis substrate yielded an average fresh weight of 146 gm. basidiocarp. Three to four crops could be harvested from each bed during a period of 30-45 days. The interval between the consecutive flushes was normally 7-10 days on paddy straw substrate and 10-15 days on coconut rachis substrate. The yields of mushroom during the subsequent harvesting were found to be more or less similar to the first cropping, on both the substrates (**Table-II**). Fresh mushroom of 600-700 gm. / bed was obtained from paddy straw substrate, while 500-600 gm. / bed were obtained from coconut rachis substrate (**Figure-I**).

On paddy straw substrate, the basidiocarps develop approximately 15 days earlier than that on coconut rachis substrate; moreover paddy straw showed better yield of mushroom, compared to coconut rachis. It may be due to the hard nature of the coconut rachis, followed by difficulties in the degradation of cellulose and lignin components in it.

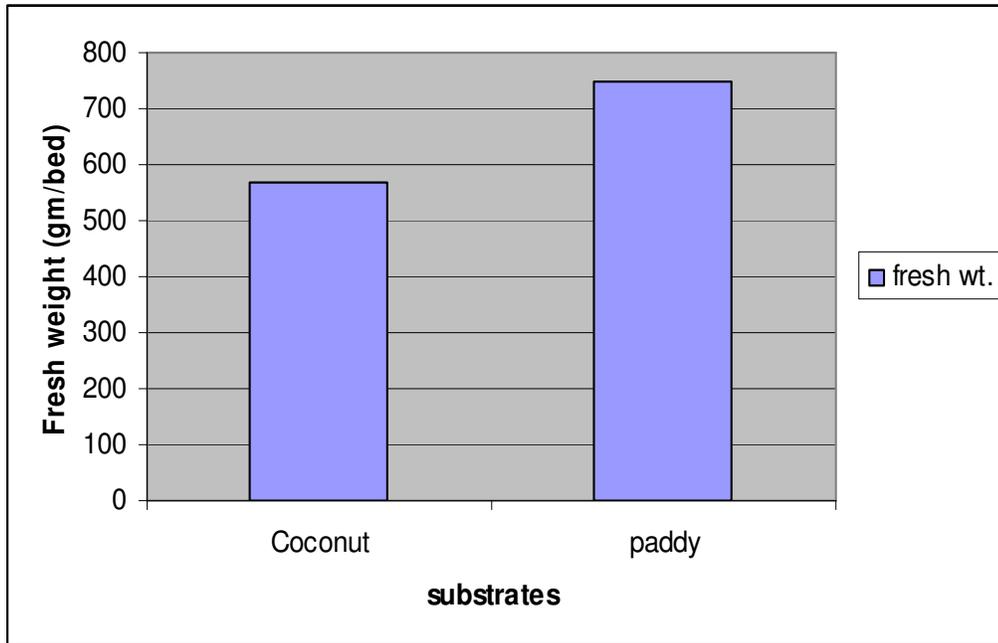
**Table-II**

Data showing yield of mushrooms (fresh weight) on substrates

Substrate	Fresh weight (gm.)			
	I harvest	II harvest	III harvest	IV harvest
Coconut rachis	146 <sup>+</sup> 3.6	142 <sup>+</sup> 1.6	138 <sup>+</sup> 2.3	141 <sup>+</sup> 1.9
Paddy straw	195 <sup>+</sup> 2.1	186 <sup>+</sup> 2.2	190 <sup>+</sup> 1.8	176 <sup>+</sup> 2.3

**Figure- I**

Fresh weight yield of mushrooms / bag, of coconut rachis and paddy straw substrates.



**Estimation of Protein content**

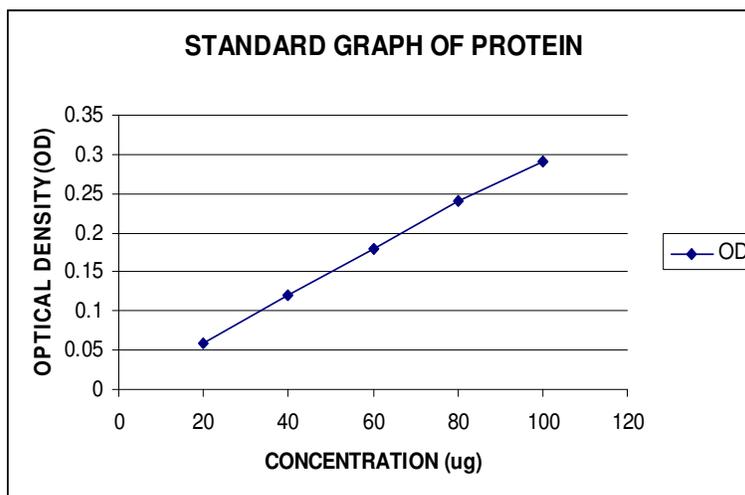
Protein contents of the mushroom, harvested from the two substrates were estimated, with the help of the standard graph of protein (BSA) (**Table-III and IV**) (**Graph-I**).

**Table No. III**

Data for standard graph of protein (BSA)

Sl. No.	Conc. of BSA(ml)	Amt.of D.H <sub>2</sub> O (ml)	Amt.of Cu reagent (ml)	Amt. of Folin reagent (ml)	Optical Density (OD)
1	0.02 (20µg)	0.98	5	0.5	<b>0.06</b>
2	0.04 (40µg)	0.96	5	0.5	<b>0.12</b>
3	0.06 (60µg)	0.94	5	0.5	<b>0.18</b>
4	0.08 (80µg)	0.92	5	0.5	<b>0.24</b>
5	0.10(100µg)	0.90	5	0.5	<b>0.29</b>
Blank	0.00 (00µg)	1.00	5	0.5	<b>0.00</b>

**Graph No. I**



**Table No. IV**

Data for the estimation of protein in the samples

Amt. of Sample supernatant (ml)	Amt. of D.H <sub>2</sub> O (ml)	Amt. of Cu reagent (ml)	Amt. of Folin reagent (ml)	Optical Density (OD)
Coconut 0.05	0.95	5	0.5	<b>0.21</b>
Paddy 0.05	0.95	5	0.5	<b>0.18</b>
Blank 0.00	1.00	5	0.5	<b>0.00</b>

From the standard graph of BSA, it was estimated that 0.21 OD corresponded to 68µg (0.068mg) and 0.18 OD corresponded to 0.18µg (0.060 mg) of protein respectively.

Amount of protein in 100gm.fresh weight sample were calculated by the formula,

$$= \frac{\text{gm.of protein} \times \text{Total volume of the supernatant after centrifugation}}{\text{Volume of the supernatant taken for estimation}} \times 100 \text{ gm}$$

Amount of protein in 100gm.fresh weight sample from paddy straw substrate

$$= \frac{0.06 \text{ mg} \times 10 \text{ ml} \times 100 \text{ gm}}{0.05}$$

$$= \frac{0.00006 \text{ gm} \times 10 \text{ ml} \times 100 \text{ gm}}{0.05} = \frac{0.06 \text{ gm}}{0.05}$$

$$= \underline{\underline{1.2 \text{ gm}}}$$

Amount of protein in 100gm. sample from coconut rachis substrate

$$= \frac{0.068 \text{ g} \times 9 \text{ ml} \times 100 \text{ gm}}{0.05}$$

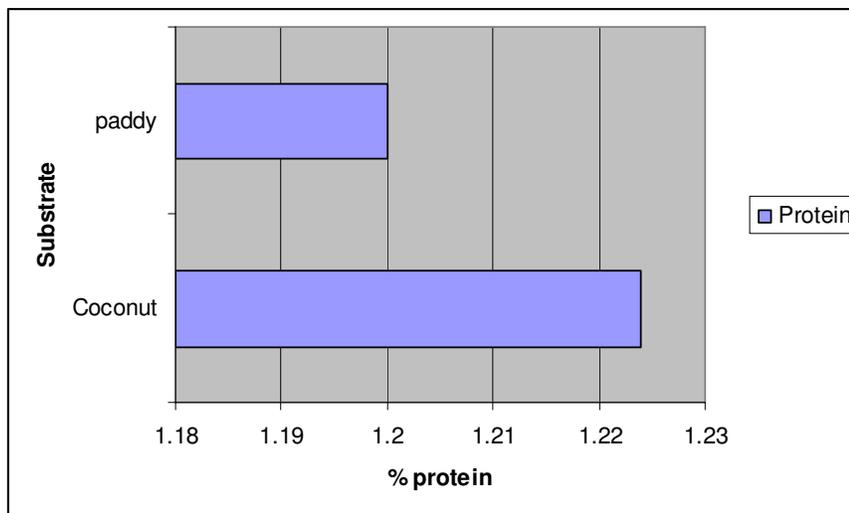
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$$= \frac{0.000068 \text{ gm} \times 9 \text{ ml} \times 100 \text{ gm}}{0.05} = \frac{0.0612 \text{ gm}}{0.05}$$
$$= \underline{\underline{1.224 \text{ gm}}}$$

Thus the protein contents of mushroom, harvested from both the substrates were estimated to be very high and they were calculated to be more or less the same (1.2 % in paddy straw and 1.224% in coconut rachis) (**Figure-II**).

**Figure II**

Percentage of protein contents in mushroom, from two substrates



Oyster mushroom can be grown at moderate temperature ranging from 20 to 30<sup>0</sup> C and humidity 55-70% for a period of 6 to 8 months in a year. Therefore, it is suitable for most of the places of India. It is a familiar item in the menu of most hotels in metropolitan cities in India, where it is being grown commercially. (Pradeep N.S, *et al* 2004).

In this study we made an attempt to know much about the cultivation of Oyster mushroom by taking two easily available and low cost substrates in our area - coconut leaf and paddy straw. We studied the yield of the mushrooms in these two substrates and also made a comparative analysis of the protein content of the mushroom, developed on them. Further work has to be done in this field with different varieties of edible mushrooms on various substrates, for the effective utilization of cheaper substrates around us and also we should aim at monitoring the protein and other nutrient contents of the product for commercializing better mushroom varieties.

### **Acknowledgement**

We are thankful to Dr.Sanal Kumar, Technical officer, KVK, Kasaragod for his valuable technical advice, throughout the mushroom cultivation phase of this study.

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## Special Economic Zones In India (Sezs): Impact On Labour



**Dr. G L Arunjilal**  
P.G Department of Economics  
E-mail: arunjilalsahithi@gmail.com

### **Abstract**

*In the globalized era, most developing countries witness shift away from an import substitution based development strategy to export promotion based policy. As part of this they are strongly promoting export processing zones .Among a set of well defined objectives, generation of employment opportunities has been one of the major objectives of implementing SEZs throughout in India. But they are not seemed to be promising with regard to the generation of new employment and inadequate to absorb the underemployed workforce in the low productivity agriculture. Most of the SEZs are notified in IT and IT Enabled Service Sectors, which will not create much job opportunities for the unskilled. The exploitative work culture as found in the neo-liberal economic policies is also reflected within the zones which call for a strong regulatory mechanism on the part of government.*

## **Introduction**

Special Economic zones (SEZs) are specified, delineated and duty free geographical region that has different economic laws from those of the country in which it is situated. The idea of SEZs has been upheld by the government for the realization of a set of well defined objectives. In the globalized era, most developing countries witness shift away from an import substitution based development strategy to export promotion based policy. As part of their policy instruments to promote exports, many of these countries are strongly promoting export processing zones (EPZs). SEZs are not only expected to bring large flow of foreign direct investment but also domestic investment, which will help in generating additional economic activity in the form of creating employment opportunities, infrastructure development and enhancing productive capacity . Among them the most important objective is that the zones have been instrumental in providing employment to a large section of the population. The most controversial issue associated with the setting up of SEZs in India has been the acquisition of land and its impact. Assessing the impact of SEZs on labour is also important by the same coin since India possesses a substantial portion of the labour force as unutilised and underutilised

The main objective of this paper is to make a decisive evaluation of the impact of SEZs on labour in the Indian economy. The two major questions discussed here are 1) what is the employment potentiality of SEZs in India? 2) Will employment generated have sustainability and social security? The second question pertains to the quality of employment generated by SEZs. The paper is organised in four sections. The first section presents a brief

description of SEZs in India. The second section focuses on the employment potentiality. The third section discusses on the quality of employment and the final section provides summary and conclusions.

### **Section-1: Background Note on SEZs in India**

India was one of the first in Asia to recognize the effectiveness of the Export Processing Zone (EPZ) model in promoting exports, with Asia's first EPZ set up in Kandla in 1965. With a view to attract larger foreign investments in India, the Special Economic Zones (SEZs) policy was announced in April 2000. The Special Economic Zones (SEZs) Act, 2005 was passed by the parliament in May, 2005 which received Presidential assent on the 23<sup>rd</sup> of June, 2005. After extensive consultations, the SEZ Act, 2005, supported by SEZ Rules, came into effect on 10<sup>th</sup> February, 2006. According to the Indian SEZ Policy, SEZ may be set-up in the public, private, or joint sector and/or by a state government. The policy requires the minimum size of SEZ to be 1000 hectares. Various tax benefits are available to SEZ developers like exemption from customs and excise duties, hundred per cent Income Tax exemption on export income for SEZ units under Section 10AA of the Income Tax Act for first 5 years, 50 per cent for next 5 years thereafter and 50 per cent of the ploughed back export profit for next 5 years

The main objectives of the SEZ Act are a) generation of additional economic activity (b) promotion of exports of goods and services (c) promotion of investment from domestic and foreign sources (d) creation of employment opportunities and (e) development of infrastructure facilities;

Currently the SEZs are operating throughout India in the states of Karnataka, Kerala, Chandigarh, Gujarat, Haryana, Maharashtra, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal and Odisha. Names of the few SEZs

set up by the Central Government of India are: 1) Kandla Special Economic Zone, Kandla (Gujarat) 2) SEEPZ Special Economic Zone, Mumbai 3) Noida Special Economic Zone, Noida (UP) 4) MEPZ Special Economic Zone, Chennai (TN) 5) Cochin Special Economic Zone, Cochin (Kerala) 6) Falta Special Economic Zone, Falta (West Bengal)

Visakhapatnam SEZ, Vishakhapatnam (AP). In addition to the seven Central Government Special Economic Zones (SEZs) and 12 State/Private Sector SEZs set up prior to the enactment of SEZ Act, 2005, approval has been accorded to 523 proposals out of which 352 SEZs have been notified (As on 21st January, 2015)).

## **Section 2: SEZs on Employment Generation.**

Theoretical proposition suggests that SEZs generates employment opportunities via GDP growth and export promotion. The employment effect of SEZs operates through three channels. SEZs generates i) direct employment for skilled and unskilled labour ii) generate indirect employment and iii) employment for women workers. It is believed that employment creation generates incomes, creates non pecuniary benefits, improves the quality of life of labour and enhances their productivity. These, in turn, have poverty reduction effect (Aggarwal 2007). The labor intensive activities and the shift towards value added activities generate direct demand for both skilled and unskilled labour. The operations within the zone may also generate ancillary activities in sectors like transport and communication, tourism, shipping, hospitality, packaging, banking and insurance etc. It is also true that SEZs are the greatest source of female employment, since this category of labour involves the advantage of cheap labour and de-unionization. Above all SEZs

are the focal basis of foreign exchange earnings which can also facilitate additional employment. The additional incomes generated bring multiplier effect via demand generation in the economy.

The literature on the economic impact of SEZs presents a number of studies which shows successful stories of SEZs on employment generation particularly in Asian countries like Indonesia, Malaysia, Thailand, Philippines and most recently in China, Vietnam, Bangladesh and Srilanka. As per the ILO reports, in China, more than 30 million persons are employed in SEZs.

In a short span of time, there have been noticeable gains from the SEZs by way of generation of investment and employment. After the implementation of the Special Economic Zones Act, 2005 there has been an elevated growth of investment and employment in the SEZs in India. The percentage of increments to investment and employment generation during the period between June 2008 and September 2014 has been impressive. The growth of investment and employment at the end of September 2014 over the year June 2008 was 368 and 287 per cent respectively (See Table 1).

It has to be noted from the above estimate that the growth of employment may be significant in percentage terms but this may seem insignificant in absolute terms. The volume of employment generation (as on September 2014) was only around 13.5 lakh persons (See Table 1) and the elasticity of employment is only 0.7. In India, varied and inflated employment claim has been made at the time of the implementation of SEZs. They have ranged from 5 to 15 million jobs. Kamal Nath, the then minister for Commerce and industries had claimed that SEZs will create 30 lakhs jobs within a few years. But the data show that within a period of six years from

2008 to 2014, growth in the volume of employment generation was only 10 lakhs. (See table 1)

**Table 1**  
**Growth of Investment and Employment in SEZs in India**  
**During 06/2008 to 09/ 2014**

	INVESTMENT ( In Crores of Rupees)			EMPLOYMENT (In Persons)			
	As on June. 2008	As on Sept. 2014	Growth in Investment	As on June 2008	As on Sept. 2014	Growth in Employment	
i	<b>7 SEZs set up by the Central Govt.</b>	4043.28	12,282	8,238.72 (203.8)	1,99,330	2,11,348	12,018 (6.0)
ii	<b>SEZs set up by state Govt./ Private SEZs during 2000- 05</b>	3701.91	10,694	6,992.09 (188.9)	48,988	75,677	26,689 (54.5)
iii	<b>SEZs notified under the SEZ Act, 2005</b>	73348	3,57,308	2,83,960 (387..14)	1,00,885	10,63,04 6	9,62,161 (953.7)
iv	<b>TOTAL</b>	<b>81093.2</b>	<b>3,80,284</b>	<b>2,99,190.8</b> <b>(368.9)</b>	<b>3,49,203</b>	<b>13,50,07</b> <b>1</b>	<b>10,00,868</b> <b>(286.6)</b> <b>(0.7)</b>

**Source: Compiled from the Fact Sheet on Special Economic Zones, sezindia.nic.in**

Thus the available data on employment generation suggest that these claims are dubious and invalid. The workforce at the all-India level, was about

459.0 million as on 1st January 2010 (NSS 66th round) which increased to 472.9 million as on 1st January 2012 (NSS 68th round), indicating a growth of about 13.9 millions of the workforce at the all-India level between 2010 and 2012. The estimated labour force in India is 50-55 crores, comprising a substantial portion of unemployed youths. Therefore it is highly rational to consider employment generation as one of the major criteria in all the investment projects under taken in India including SEZs. In the labour front the SEZs should target at development of labour intensive manufacturing industry, development of labour intensive services industry and employment opportunities in rural India, including youth and women.

**Table 2**  
**Sector Wise Distribution of SEZs in India**  
**(As on March 2015)**

<b>Sectors</b>	<b>Formal approvals</b>	<b>Notified SEZs</b>
Agro	5	5
Airport based multiproduct	3	0
Aviation/Aerospace/ Animation & Gaming/ Copper	6	5
Beach & mineral/ metals	3	3
Biotechnology	24	16
Engineering	15	15
Footwear/Leather	5	4

**Review of Research Insight**

Food Processing	4	3
FTWZ	10	7
Gems and Jewellery	8	5
Handicrafts & Carpets	3	2
<b>IT/ITES/Electronic Hardware/ /Services</b>	<b>274</b>	<b>219</b>
Metal/Stain. Steel/Alum/Foundry	3	3
Multi-Product	20	16
Multi-Services	6	6
Petrochemicals & petro./oil and gas	2	0
Pharmaceuticals/chemicals	17	17
Port-based multi-product	6	3
Power/alternate energy/ solar	4	3
Textiles/Apparel/Wool	6	6

**Source: sezindia.nic.in**

A significant aspect to be discussed with regard to the employment generation through SEZs is that 63 per cent of the approved SEZs being in the IT and IT Enabled Service Sectors. Out of 436 approved SEZs in India 274 are

in the IT and IT Enabled Service Sectors (See table 2).But this would not create much job opportunities for the unskilled.

It is also argued that the cost of creating jobs in SEZs has been very high. As far the SEZs are concerned, the labour cost include not only the huge investments made but also the loss of public revenue caused by the incentives given to SEZs ( by way of exemptions in customs duties, income tax, sales tax, excise duties , service tax and the acquisition of cultivable land ). The estimated cost of this revenue loss to the state exchequer will be Rs 1, 74,000 crores till 2010 (Report of the Ministry of Finance, Govt. of India). It is criticised that the forgone tax revenue every year is five times the annual allocation for the National Rural Employment Guarantee Scheme and it is enough to feed 55 million people in each year who go to bed without food every day. Conversion of large chunks of prime agricultural land has serious implications for food security throughout the country since food security is a major concern that country facing today. Hence even if the multiplier effect of investment is considered, the cost of new job creation in SEZs is argued much in India compared to the other Asian countries.

Another major disapproval in terms of SEZs versus employment generation is with regard to the number of jobs losing. Some estimates show that when one job is created, another four jobs may be taken away. Acquiring hectares of cultivable land has displaced farm workers and their families. Unfortunately we have no reliable data on the job loss in the country. This is primarily because the governments do not want to provide information on the number of jobs lost but what they want is to highlight the jobs created. A little over 46 per cent of the country's area is under cultivation and almost 50 per

cent of the total workforce is still engaged in agricultural activities. Therefore the opportunities opening up in SEZs are not on behalf of the displaced agricultural labourers but for the skilled and semi skilled persons. The displaced agricultural labourers are not going to be considered for anything other than casual labourers.

### **Section 3: SEZs on Employment Sustainability and Social Security.**

Will SEZs promote quality of employment or not? It is the major question which has to be discussed seriously. The quality of employment is associated with job security and employment benefits. The government insists that SEZs will bring in investments and employment but it is to be noted that neither of these is of a permanent nature. Private companies have always given unfeasible promises on employment generation and they are governed by the 'hire and fire policy'. This perpetuates the rising rate of casualisation of the workforce in SEZs. It is also true that SEZs have created islands of 'no-labour law implementation' in the country. Though labour laws are applicable to SEZs in India they are not being strictly implemented. The scope of 'collective bargaining' has been reduced in all the zones throughout the country. It has been declared as 'public utilities'. The workers have to work in pitiable conditions (low wages, non-existent benefits and long working hours). Since industries in the Zones are export oriented, the prominence is on reducing the labour cost. Investors search for cheap labour and the consequent rise in the demand for female labour has given rise to 'feminisation of labour' in majority of the industries. Most of the workforce in the Zones in India constitutes young women in the age of 18-30 (preferably unmarried women). Most of them are appointed only on the operation side at the tail end of the production

process. This segmentation increases the vulnerability of the female workers. They are even denied of their basic rights (such as maternity leave and benefits). We have specific studies to highlight that intense work concentration and tension had affected the health status of women labourers even at their younger age. The deplorable working conditions in Zones call for a strong regulatory mechanism on the part of government to provide sustainability and social security in employment.

#### **Section 4: Summary and Conclusions**

Generation of employment opportunities has been one of the major objectives of implementing SEZs throughout in India. But they are not seemed to be promising with regard to the generation of new employment. Most of the SEZs are notified in IT and IT Enabled Service Sectors, which will not create much job opportunities for the unskilled. They are unlikely to come anywhere close to solving the unemployment problem in the country, and inadequate to absorb the underemployed workforce in the low productivity agriculture. The exploitative work culture as found in the neo-liberal economic policies is also reflected within the zones. In India SEZs are not abide by labour laws and workers' basic rights are not recognized. A strong regulatory mechanism on the part of government becomes indispensable to lessen the pitiable conditions of labour in Zones.

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## Oligomeric aldol Condensation



**Dr. Muhammed Arif M**

Associate Professor in Chemistry

E-mail: arifmmm@gmail.com

### **Abstract**

When sodium metal is allowed to react with acetone, the aldol product first obtained undergoes dehydration in the presence of powerful basic dehydrating agents such as metallic sodium, resulting in  $\alpha,\beta$ -unsaturated ketone. Abstraction of a proton from the  $\gamma$ -position by the base leads to the formation of a carbanion at the  $\gamma$ -position. This carbanion can attack another acetone molecule, resulting in a  $\delta$ -hydroxy  $\alpha,\beta$ -unsaturated ketone. This compound further undergoes dehydration to form a compound containing conjugated carbon-carbon double bonds. Thus, aldol condensation proceeds in an oligomeric manner. The UV-spectral studies on the red-colored product obtained by the reaction of acetone with metallic sodium, showed absorption of light in the UV and visible regions.

**Key words:** oligomeric aldol condensation, reaction of sodium metal with acetone.

## Introduction

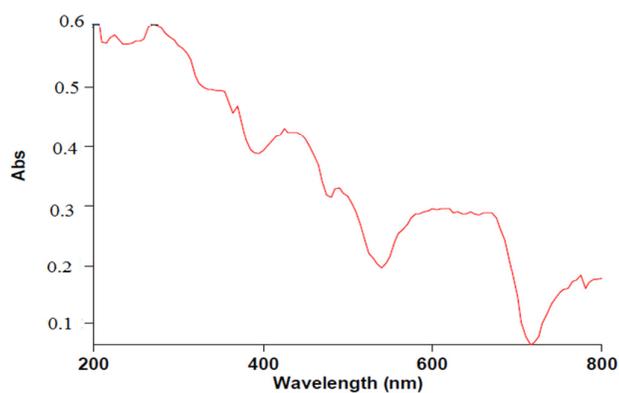
**Aldol condensation:** The reaction of aldehydes and ketones contain  $\alpha$ -hydrogen atom in the presence of base such as  $\text{OH}^-$ , two molecules undergo condensation giving  $\beta$ -hydroxy aldehyde or ketone. Aldol condensations are important in organic synthesis, providing a good way to form carbon-carbon bonds. The Robinson annulation reaction sequence features an aldol condensation[1]; the Wieland-Miescher ketone product is an important starting material for many organic syntheses[2]. Aldol condensations are also commonly discussed in university level organic chemistry classes as a good carbon-carbon bond-forming reaction that demonstrates important reaction mechanisms [3][4][5]. Aldol condensation involves the nucleophilic addition of a ketone enolate to an aldehyde to form a  $\beta$ -hydroxy ketone, or "aldol" (aldehyde + alcohol), a structural unit found in many naturally occurring molecules and pharmaceuticals [6][7][8]. The first part of this reaction is an aldol reaction, the second part a dehydration or an elimination reaction (Involves removal of a water molecule or an alcohol molecule). Dehydration may be accompanied by decarboxylation when an activated carboxyl group is present. The aldol addition product can be dehydrated via two mechanisms; a strong base like potassium t-butoxide, potassium hydroxide or sodium hydride in an enolate mechanism [9] or in an acid-catalyzed enol mechanism. The concept of oligomeric aldol condensation is not found in literature. To my knowledge the reaction of acetone with metallic sodium was also not reported earlier. When sodium metal is allowed to react with acetone, aldol product first obtained undergoes dehydration in the presence of powerful basic dehydrating agents such as metallic sodium, results in  $\alpha,\beta$ -unsaturated ketone. On abstraction of a proton from  $\gamma$ -position by the

base, leads to the formation of carbanion at  $\gamma$ - position. This carbanion can attack another acetone molecule, resulting in  $\delta$ -hydroxy $\alpha,\beta$ -unsaturated ketone. This compound further undergoes dehydration to form compound contains conjugated carbon-carbon double bonds. Thus aldol condensation goes in oligomeric manner.

### **Experimental**

A small piece of metallic sodium (about 500 mg) was added to a dry test tube containing 10 mL acetone at ambient temperature of 30°C. The reaction proceeds slowly with the liberation of hydrogen gas. The temperature of the test tube is maintained at room temperature by keeping in a water bath. The colour of the reaction mixture turns intense red after 24 hours. The coloured product is extracted with petroleum ether (60-80°C), after adding some water, in order to eliminate acetone from the organic layer. Organic layer on evaporation gives red gummy mass. The above red gummy product dissolved in petroleum ether and recorded the absorbance between 200- 800 nm by using a UV visible spectro-photometer (Agilent -Cary-60)

### **Results and discussions**

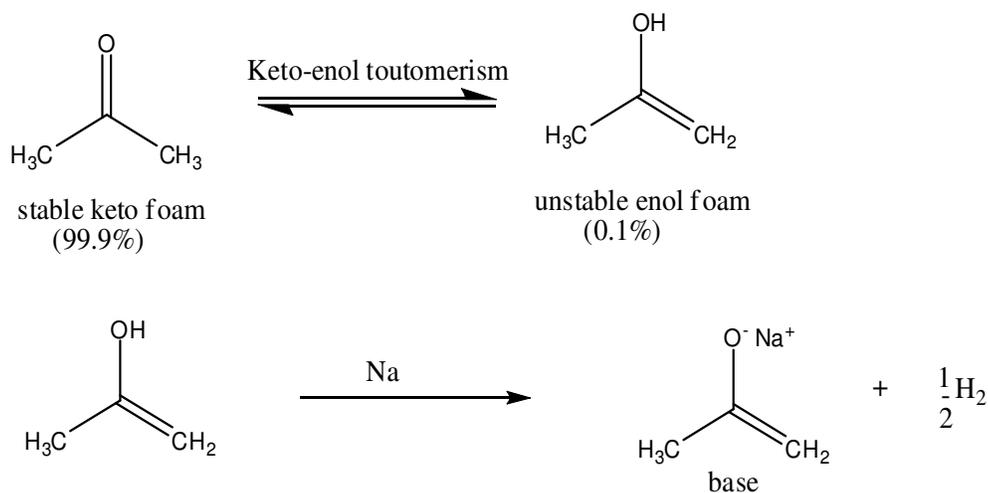


**Fig 1. UV spectrum of reaction product**

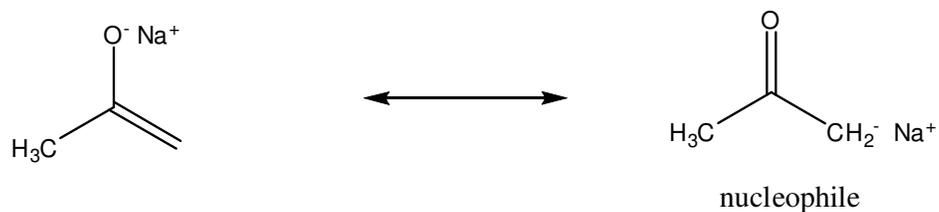
UV spectrum reveals the absorption of light in UV and visible region. The absorption in visible region around 560-700nm, reveals that there are about 8 to 12 double bonds in conjugation, when the calculation is done as per Woodward- Fieser rules[10]. Evolution of large volume of hydrogen gas implies oligomeric aldol condensation, mechanism of which is as follows.

### Mechanism

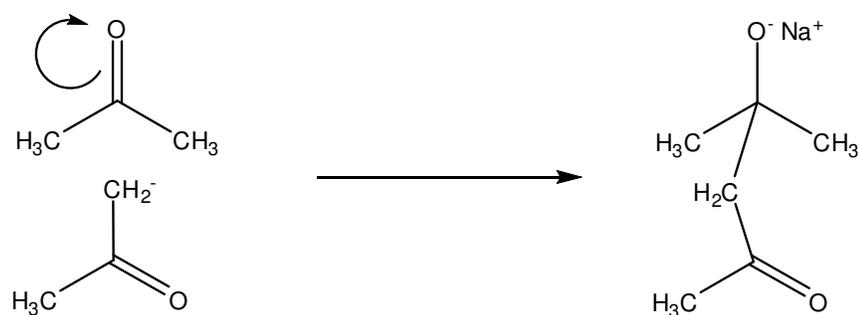
In acetone a small percentage of enol form exists, which reacts with sodium metal liberating hydrogen gas, when the amount of enol form decreases, conversion of keto form to enol form takes place and the keto-enol equilibrium is maintained. This reaction leads to the formation of powerful base sodium enolate.



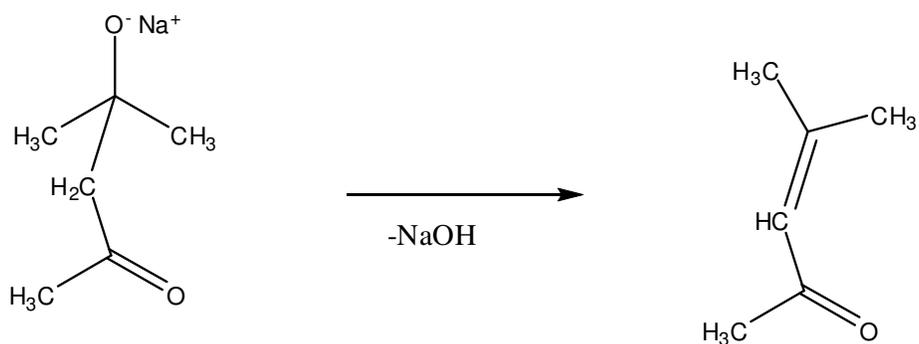
A nucleophile can be obtained from the above species is stabilized by resonance



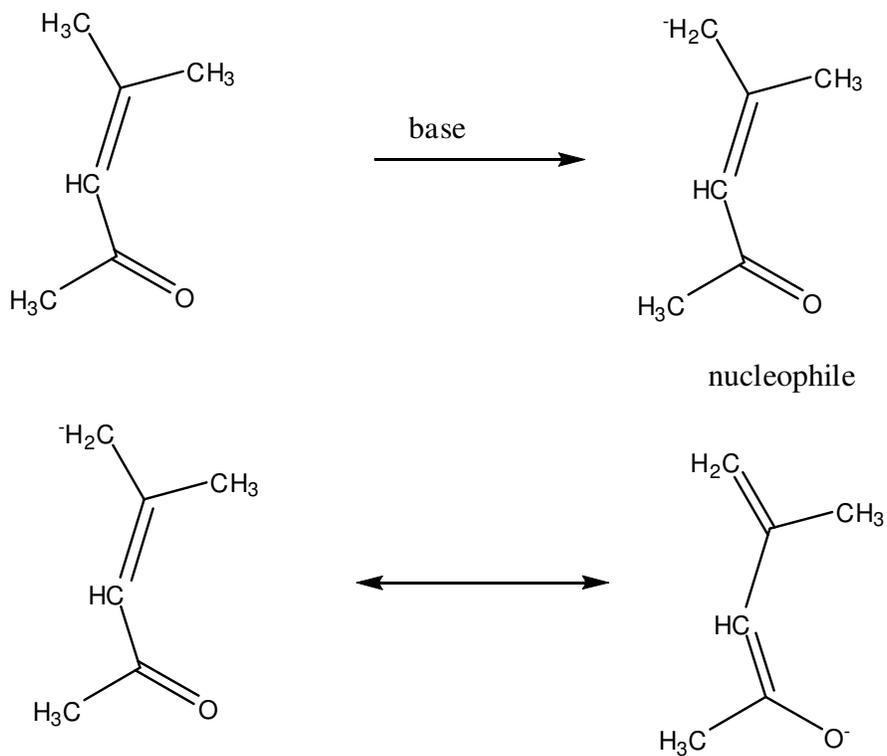
The above nucleophile attacks another molecule acetone as follows



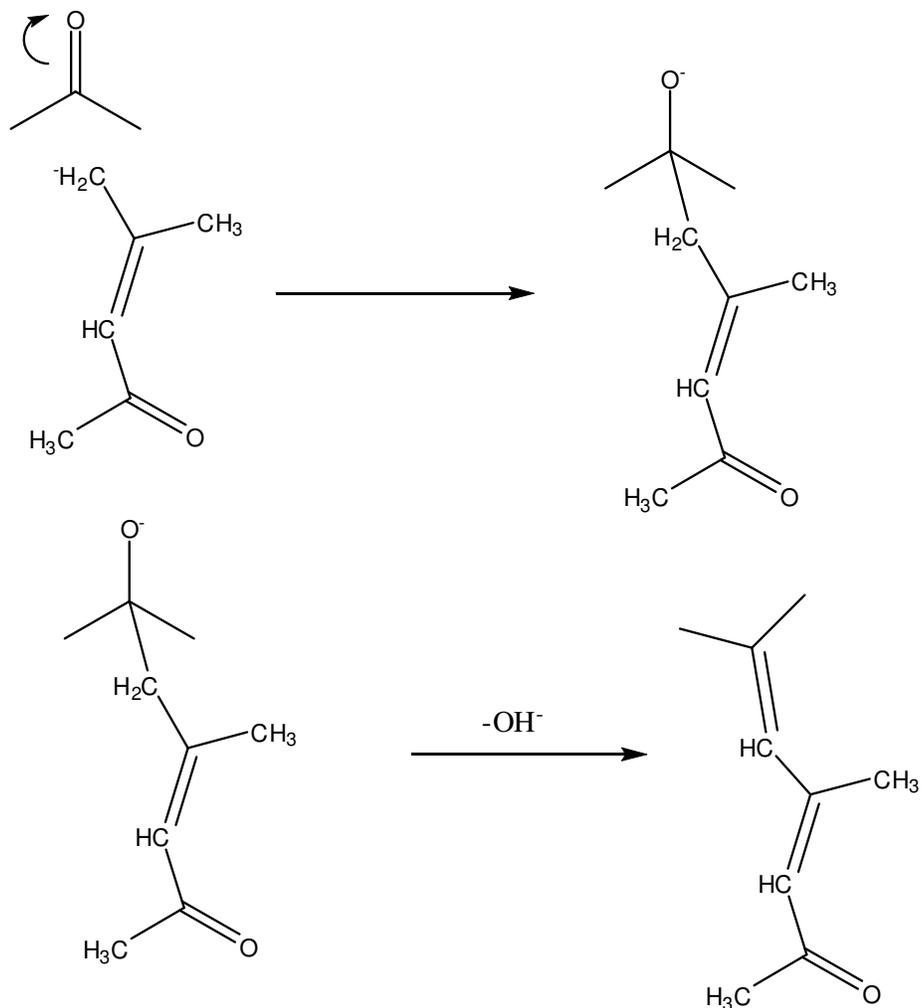
A molecule of NaOH is eliminated from the above results in the formation of  $\alpha,\beta$ -unsaturated ketone



Now the base abstracts a proton from  $\gamma$ -carbon atom resulting in the formation a resonance stabilised nucleophile



The nucleophile attacks another molecule of acetone and aldollike condensation proceeds



Base further abstracts proton from  $\epsilon$ -position and the condensation proceeds result in the formation of a conjugated oligomer with terminal keto group.

### Future scope

The oligomeric aldol condensation reaction can be extended with many types of aldehydes and ketones containing  $\alpha$ -hydrogen atom. Different conditions

are subjected such that degree of polymerisation can be made high. For example acetaldehyde can give poly acetylene. Acetone can give poly propyne and so on.

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**Role Bondage and Loss of Identity  
An Exploration into the Feminist Consciousness in Fay  
Weldon's Weekend and Lakshmi Kannan's "She"**



**Praveena Thompson**  
P.G. Department of English  
E mail: praveena.thompson@gmail.com

**Abstract**

*Comparative literature is an interdisciplinary field whose practitioners study literature across national borders, across time periods, across languages, across genres, across boundaries between literature and the other arts, across disciplines. This paper attempts a comparative study of the short story Weekend by the British writer Fay Weldon and the poem "She" by the South Indian writer Lakshmi Kannan. Fay Weldon is an English essayist, novelist and playwright whose work has been associated with feminism.*

*In her fiction, Weldon typically portrays contemporary women who find themselves trapped in oppressive situations caused by the patriarchal structure of British society. Lakshmi Kannan is an eminent bilingual poet, novelist, short story writer and a translator who writes in English and Tamil. She uses the pseudonym “Kaaveri” for her writings in Tamil. She has published critical essays on gender sensitivity and on retrograde practices on women in the name of religion and custom. The women in her writings are unforgettable in their struggle towards **self-realization** and reveal a unique feminine sensibility.*

*In Fay Weldon’s short story Weekend, the protagonist Martha is continuously taxing herself to be everything that her husband wishes her to be. A similar female persona is presented in Lakshmi Kannan’s poem “She”. Read side by side these two works present the universal fate of women who lose their **identities** in the struggle to be all that the patriarchal world wants them to be. Their real selves are trapped in the **roles** that society forces on them.*

## Introduction

Generally speaking, feminism is a political, social and cultural stance that is pro-woman. Women writers and women readers have always had to swim against the current. Aristotle declared that the female is female by virtue of a certain lack of qualities. St.Thomas believed that woman is an imperfect

man (Beauvoir 307). Feminist writing over the years have tried to disturb the complacent certainties of patriarchal culture.

This paper attempts a comparative study of the feminist consciousness in the British writer Fay Weldon's short story *Weekend* and the South Indian writer Lakshmi Kannan's poem "She". These works, belonging to entirely different socio-cultural backgrounds and completely different genres, have uncanny similarities in the internal experiences that the works open a window to.

Feminists consider that one is not born a woman, but becomes one. The concept of woman is a myth invented by men to confine women to their oppressed state. This myth has succeeded in inventing stereotyped roles and duties and obligations which have become the means of oppression and subordination of women for centuries. Toril Moi puts it thus, "a woman defines herself through the way she lives her embodied situation in the world, or in other words, through the way in which she makes something of what the world makes of her." According to influential feminist critics, for women, it is not about asserting themselves as women, but about becoming full-scale human beings. Feminism over the years has interacted with a variety of critical streams and has come up with diverse approaches to the study of women in literature. Feminist criticism has been concerned "with the specificity of women's writing, a tradition of women authors and an exploration of women's culture" (Eagleton 9). Showalter has termed this approach "gynocriticism". The gynocritic studies the female author and character and develops an understanding of female identity. Mary Eagleton says that the most popular sequence in a gynocritical reading is from reality, to author, to reader, to

reality. According to her there is an objective reality which the author apprehends and describes truthfully in her text, the reader appreciates the validity of the text and relates it to her understanding of her own life. The author, character and reader together expose what it means to be female. The reader feels a sense of gratification at having her experiences and feelings confirmed by the author and narrative (9).

Fay Weldon is an English essayist, novelist and playwright whose work has been associated with feminism. In her fiction, Weldon typically portrays contemporary women who find themselves trapped in oppressive situations caused by the patriarchal structure of British society. The short story *Weekend* was published in 1978.

Fay Weldon's narratives invariably afford such a great gratification to the readers. Fay Weldon was born in England in 1931 and was raised in a family of women. This upbringing might have contributed to her remarkable power of understanding in minute detail the innermost, hardly acknowledged thoughts and fears of women.

Lakshmi Kannan is an eminent bilingual poet, novelist, short story writer and a translator who writes in English and Tamil. She uses the pseudonym "Kaaveri" for her writings in Tamil. She has published critical essays on gender sensitivity and on retrograde practices on women in the name of religion and custom. The women in her writings are unforgettable in their struggle towards self-realization and reveal a unique feminine sensibility.

In Fay Weldon's short story *Weekend*, the protagonist Martha is continuously taxing herself to be everything that her husband wishes her to be.

A similar female persona is presented in Lakshmi Kannan's poem "She". Read side by side these two works present the universal fate of women who lose their identities in the struggle to be all that the patriarchal world wants them to be. Their real selves are trapped in the roles that society forces on them.

*Weekend* begins with Martha and her family comprising of her husband Martin and three children- Jolyon, Jenny and Jasper- packing up and getting into the car to head off into the countryside for a relaxing weekend. This relaxing trip only piles up more domestic chores for Martha. She has to organize everything for the trip- the food, games and medicines for the children, books and anything and everything her family might need. Her husband's only help during all this frenetic activity is the comment that she is allowing their part time domestic helper to take advantage of her.

We learn that Martha has a job. Martin has generously allowed her this privilege. She is constantly made aware that this is rather selfish on her part and so must compensate for the time, service and care that she is depriving her family of. The compensation which even Martha has accepted as her moral responsibility is that she must pay for all the family expenses. Even the responsibility to drive down to the countryside for the weekend is hers. She owns a large utilitarian car which she usually drives on their weekend trips. Her husband prefers to drive a little sports car in the city. Due to an unfortunate accident, Martha's driving license was suspended for six months. So this time she is guiltily conscious of having imposed the unpleasant of driving her lumbering old car on Martin who was usually very tired on Fridays and sleepy on Sundays. Martin shows his irritation by making fun of Martha's car. Martha feels that the comments could be indirectly addressed to her. They

reach their cottage and Martha is back to work unpacking the things, making beds, connecting the electricity, removing cobwebs and making supper. Martin retires to bed very early leaving a number of instructions for Martha. She gets to bed very late but is soon woken up by their weekend guests- Martin's friend Colin and his new young wife Katie who had unexpectedly arrived early. Colin had replaced his dull boring and overweight first wife Janet with the beautiful, elegant and childless Katie when he had become fairly rich and famous. Martin entertains their guests while Martha is full of anxiety about her meal arrangements. One Saturday morning Martha has to take her son Jasper to the hospital as he trod on a piece of wood. She comes back to find the house in a mess. None of the others have bothered to clear up anything. Katie's offer to make lunch ended up in her clearing the fridge of everything Martha had set aside for the next day's picnic lunch. Sunday brings another couple to their cottage- Harry and Beryl Elder. Beryl Elder was working and paying for their sons to be sent to boarding school even though she did not want them to go there. Harry was from a rather grand family and Beryl had been just a typist and therefore had to compensate for her low social status in a lot of ways. Harry who had been a stockbroker suddenly decided that he wanted to be an artist and quit his job. So now it was Beryl's responsibility to meet the expenses for the boys' education. Beryl tries to be sensible and prevents her husband from drinking too much as he had to drive back. But the men and Katie ridicule her as a nagging wife. After they leave, Martha tries to clear up the coffee cups and is accused by Katie of making others feel bad by her constant attention to household chores. At this point, Martha's daughter Jenny calls out to her and Martha discovers that Jenny has reached puberty. Martha wants to handle this in a normal motherly fashion with happy and encouraging

words. But her efforts prove futile and she ends up sobbing her heart out. Her daughter has attained the female status and will shortly be caged up in the roles of wife, mother and friend.

“She”, the poem by Lakshmi Kannan as the title suggests is about a nameless faceless woman of the upper middle class with no identity of her own. The woman wears well-tailored dresses and also adorns value judgements with flair. Her inner being is highly tensed. She is “house-proud”, as every woman is expected to be. Her dining room gleams with cleanliness and reflects her proper concerns about her family’s health and hygiene. She has also displayed her skill in flower arrangement. The sitting and living rooms are clean and uncluttered. Unfortunately her heart is as empty and barren as the swept floors. Her afternoons are long and lonely as she sits and stares at the orderly back garden. The sight of the blooming mango tree and the song of “sweet-throated” birds fail to give her any pleasure. Only painful memories are evoked. She looks at the eagle soaring freely up in the sky and she breaks down and cries silently, echoing the shrill cry of the eagle in her heart.

Compared to the female persona in “She”, Martha might seem to be more independent. She has a job. Her income almost matches her husband’s. However, her life is dictated by the expectations of her husband and family. She had to stop working for five years while her kids were small. When she went back to work she had lost her seniority in the office. But she is not supposed to protest or even care about that. It was such a trivial sacrifice when much more noble sentiments are expected from motherhood. Her right to work has been bought at a price and even then her husband feels himself to be

immensely magnanimous for allowing this. Martha is made to feel guilty at every turn for having a career, as being less than the noble and self-sacrificing mother.

Therefore she willingly spends her own money for more or less all the domestic expenses. Moreover, she has to toil doubly hard to make sure that everything is just as Martin wants it to be. The career has not empowered her. It has only enslaved her more. The lonely hours spent by Lakshmi Kannan's protagonist as she waits after grooming herself and her home perfectly and the feverish activity of Martha prompted by her anxiety to be as good as a wife who stays at home are just two sides of the same coin. Neither have the independence to express themselves freely or to find their individuality.

Both women distrust their own instincts and thoughts. Lakshmi Kanna's "She" echoes the value judgements made by others. Martha suppresses her subversive thoughts. It is Martin's words and wishes and likes that she uses as a guidebook in her life. In her determination to please everyone, she thinks:

Ah, to be all things to all people; children, husband, employer, friends!  
It can be done; yes, it can: super woman. (371)

In the poem, "She is house-proud / (As she needs to be)". She provides clean and healthy surroundings for her family and shows good taste in beautifying the interiors because a good wife is expected to do these things. In the short story, Martha makes sure the house isn't messy because Martin hates messes.

She is anxious to do all the right things for her children, to give them a normal happy childhood:

The right food, the right words, the right play. Doctors for the tonsils; dentists for the molars. Confiscate gums: Censor television: encourage creativity. Paints and paper to hand: books on the shelves: meetings with teachers. Music teachers. Dancing lessons. Parties. Friends to tea. School plays. Open days, Junior orchestra. (370)

Martha makes bread at home even though it means a lot of time and effort because shop bread is full of pollutants. She schedules her time with minute precision to give dinner parties to Martin's guests and to prove a good cook. Even during her lunch break at the office, her mind is filled with the things to be done when she gets home.

In the poem, "she" fills out well-tailored clothes and value judgements with her form. Martha is also concerned with clothes and acceptable thoughts and behaviour.

Clothes, Oh, Clothes! Can't wear this: must wear that. Dress shops. (370)

But try, Oh try, to be what you ought to be, not what you are. Inside and out. (371)

Martha tries not to be bad tempered or anxious or fussy or nagging because Martin doesn't like such things. She should always be pleasant and co-operative and efficient and charming. Martin likes slim ladies and so Martha feels pressured to diet. She has a sneaking suspicion that Martin is

attracted to his secretary and his admiration for Katie is obvious. If she fails to maintain her figure no one will blame Martin if he goes after someone else. He resents the fact that Martha doesn't find the time to wear perfume and be more enticing even though he more than anyone else should be able to bear witness to the million things that she did not manage to find time for. Martha is ultra careful not to have any accidents- drop or break something because:

Accidents are Freudian slips. They are wilful and bad tempered things. (371)

Martin doesn't like bad temper and so bad temper has to be banished from even the subconscious mind.

In "She", the lonely woman might be accepting the role bondage because of lack of financial independence or because she is used to conforming to patriarchal society. Patriarchy expects a wife to behave in a certain way, to dress in a certain way, to speak in a certain way, and to generally conduct herself in a way that might have nothing to do with her inner experience and inner reality. This vast disparity between her inner and outer reality can stretch her nerves to the breaking point.

Martha conforms to her role because of a deeply felt need for social acceptance. Martha's mother had led a secluded and suspicious life. Martha used to be lonely and shy. After marriage she had Martin to stand between her and the hostility of the world. Martin was popular and funny and had lots of friends. As his wife, Martha finds social acceptance. However much Martha tries to repress her thoughts, the realization of the sacrifices and adjustments necessary for this social acceptance stays with her. When she thinks of her daughter having to make the same sacrifices in order to fit into the socially

ascribed female roles of wife, mother and friend, she breaks down emotionally.

Feminist critics have revealed time and again the distortion of female experience in literature. The woman is usually depicted as a seductive creature, domestic angel, victim, mother, witch or prophet. Such roles can overlap. These female roles are usually depicted as powerless. Even a “good” mother is denied access to any power (Monteith 2). Martha as well as the female in “She” are domestic angels. They carry out their duties of cooking and cleaning and caring for the home and children to perfection. Martha is quick to take care of each and every need of her children. If any one of them falls ill or has an accident, she is the one who jumps into action. But all this shouldering of responsibility doesn’t give her any power. All the decision-making is done by Martin. Her earning power is just another way to serve her husband. After running the affairs of the family, planning and preparing for all their needs and coping with every crisis, Martin dismisses all her capabilities as negligible. He makes fun of her ways, her anxieties and the things she says and teaches the children to do the same.

Martha is so grateful for being brought out of the cold of social isolation that she puts up with all the subtle insults and cavalier treatment meted out to her. Outwardly, she has everything she could wish for- a smart a witty husband, three lovely children and a job to boot. This social perception so fills her consciousness that she feels herself to be a traitor if she is ever unhappy or annoyed with her husband or her situation. Society thinks that she should be fulfilled and happy in the roles of wife and mother. But reality is entirely another thing. The female persona in the poem is also not happy with

the role of the housewife who takes pride in keeping her house spic and span and well decorated. She wants something more. This illustrates clearly the feminist viewpoint that women do not simply move into a female identity and role. That role or identity is not natural or pre-given but a construct of the patriarchal society.

Child bearing is often seen by feminist writers as a biological snare, “a harsh edict of nature which renders women helpless in an unchosen role” (Foster 165). Martha is made conscious of losing her figure and becoming too heavy about the hips after her deliveries through veiled comments by Martin. In contrast, Katie’s childless state and her attractive body are admired. The “she” in Lakshmi Kannan’s poem is also conscious of maintaining her attractiveness and she invariably wears “well-tailored” clothes.

Martha is also seen as a means to expend his sexual energy by Martin. Martha submits to the emotionally barren act because she is afraid that Martin might be tempted to turn to his secretary if she doesn’t provide the passion she is expected to.

Kate Millet writes that women have continued to be coerced into a system of sex-role stereotyping. The acting out of the roles in the unequal relation of domination and subordination is what she calls “sexual politics”. Deviance from such socially imposed roles is punished by society. Martha fears being isolated and marginalised like her mother. She accepts her subordinate role in order to be accepted in turn by society.

Betty Friedan speaks of “the problem that has no name” which ailed the minds of thousands of American women who were told through books and

columns that their role was to seek fulfilment as wives and mothers. They were pressurised by society to fit in to the “feminine” roles and it was almost treason to be dissatisfied or to yearn for something more or to be anything less than happy. Labour saving appliances had reduced the drudgery of housework. This only served to devalue the work that a housewife does. Women are ostensibly given a lot of freedom- the freedom to choose automobiles, clothes, supermarkets, and the like. Martha and the “she” who represents innumerable Indian women are also expected to be contented. The realization of their deep-seated discontent and unhappiness dawns on them without warning. Martha has a job but it is Martin who is the creative one. He is a freelance designer and Martha is supposed to provide the right environment at home for his creativity to flourish. The work that Martha puts in at the office is not even acknowledged. Moreover, Martin is rather aggrieved that she is taking so much time off from her normal duties. Her privilege of being allowed to own a car and to drive does not free her. It only results in her being apportioned more and more tiresome chores. The duty of driving the family to their weekend resort is hers as Martin will be too tired. It is just another means of serving her family.

This image of the oppressed woman is common across cultures and is mirrored in the works of these two contemporary writers, Fay Weldon and Lakshmi Kannan. The developed west and the tradition bound Indian society are not so much different when it comes to the treatment of women. Everywhere the attempt is to keep women in their “places” or the socially acceptable feminine roles. Feminist awareness is a painful state of mind (Showalter 29) and it is this awareness, which causes the emotional breakdown of the women protagonists at the end.

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## ‘दंतकथा’ की यथार्थता



**डॉ. राखी बालगोपाल**

असिस्टेंट प्रोफेसर  
हिन्दी विभाग, आर्ट्स कॉलेज,  
तिरुवनन्तपुरम

सह लेखन: श्री. प्रियामोल. आर. वी, शोध छात्रा, (हिन्दी), केरल विश्वविद्यालय

### **Abstract**

अब्दुल बिस्मिल्लाह परिचय दंतकथा का अर्थ दंतकथा का नायक मुर्गे की पीडा प्रकृति के प्रति मनुष्यों की एवं मुर्गों का दृष्टिकोण - मनुष्य एवं मुर्गों की जातियों का अन्तर - मनुष्य के लिए सीख।

हिन्दी के प्रख्यात कथाकार अब्दुल बिस्मिल्लाह की रचनाएँ बहुचर्चित हैं। उनकी कथा रचनाओं में ‘दंतकथा’ का अपना विशेष महत्व है जिसका प्रकाशन सन् 1960 में हुआ। रचनाकार प्रायः मनुष्य जीवन की यथार्थता को पेश करता है, लेकिन ‘दंतकथा’ उपन्यास में अब्दुल बिस्मिल्लाह ने एक मुर्गे को कथा नायक बनाया है और उस मुर्गे के दौरान मुर्गे- मुर्गियों की जीवन – पद्धति को पेश किया है। उपन्यास पढ़ते वक्त यह बिलकुल ही नहीं लगता कि एक मुर्गे की कथा पढ़ रहे

हैं। मुर्गा द्वारा व्यक्त मनुष्य की दुनिया के विविध प्रसंग से पाठक निसंकोच सहमत हो जाते हैं। मनुष्य एक सामाजिक प्राणी है - लेकिन 'दंतकथा' हमें सोचने बाध्य करती है कि असल में हमारी सामाजिकता क्या है?

'दंतकथा' का अर्थ शब्दकोश के अनुसार कल्पित कथा, किंवदंती, जनश्रुति इत्यादि है। लेकिन प्रस्तुत उपन्यास की कथा में काल्पनिकता, किंवदंती इत्यादि का एहसास नहीं लगता है और इसकी समूची संरचना उपन्यास के प्रचलित मुहावरे से एकदम अलग है। कथातंतु के बीज में निहित यथार्थता संपूर्ण उपन्यास में व्याप्त है। आत्यकथात्मक शैली में वर्णित कथा पाठकों में जिज्ञासा एवं कुतूहलता निरंतर पैदा करती है। अब्दुल बिस्मिल्लाह व्यक्त करते हैं कि उन्हें 'दंतकथा' लिखने की प्रेरणा बनारस में उनकी पत्नी द्वारा पाला गया वह मुर्गा था जो किसी भयवश अपनी जान बचाने के लिए नाबदान में घुस गया था। तब लेखक को यह चिंता हुई कि नाबदान के अन्दर मुर्गा कैसे जी रहा होगा और उसी चिंता के फलस्वरूप 'दंतकथा' की रचना हुई। (मुस्लिम समाज जीवन और अब्दुल बिस्मिल्लाह के उपन्यास – डॉ. बाबा साहेब रसूल शेख, - पृ. सं – 22 -23)

'दंतकथा' का नायक मुर्गा मनुष्य की हत्यारी नीयत को भाँपकर अपनी – प्राण रक्षा के लिए एक नाबदान में घुस जाता है। उस नाबदान में मुर्गे को कई तरह की समस्याओं का सामना करना पड़ता है। उन समस्याओं का सामना करते हुए वह लगातार सोचता है - अपने बारे में, अपनी जाति के बारे में, मनुष्य के व्यवहार एवं रीति रिवाज के बारे में। मनुष्य के हाथों हलाल होकर मरने के बजाए वह स्वाभाविक मृत्यु पसन्द करता है। मनुष्य की तरह हरेक प्राणी की भी इच्छा स्वतंत्र

रूप से जीने की होती है और जीने की इस लालसा के कारण, दम घुटनेवाले नाबदान के माहौल से बाहर निकलने के लिए वह जुझता है। उसका शरीर नाबदान से बड़ा था, अतः वह न ठीक से खड़ा रह सकता था न ही बैठ सकता था। खाने को कुछ न मिलने के कारण, भूख से मुर्गा तड़पता है, फिर भी वह अंत तक संघर्ष करता है।

नाबदान में रहते हुए मुर्गा अपनी और मनुष्य जाति के बारे में कई तरह की बातें सोचता है एवं आलोचना करता है जो लेखक के ही विचार हैं। प्रस्तुत उपन्यास में निम्न समझी जाने वाली प्राणी के द्वारा महान विचारों को प्रस्तुत करके मनुष्य के बड़प्पन पर कठोर आघात किया गया है। मनुष्य के हाथों से अपनी जीवन रक्षा के लिए दौड़ते हुए मुर्गा सोचता है – “जो खदेड़ता है वह पूरी हिम्मत के साथ खदेड़ता रहता है और जो भागता है वह अपनी सुरक्षा के लिए केवल भागता रहता है।” (दंतकथा - अब्दुल बिस्मिल्लाह – पृ. सं – 7) खदेड़ने और भागने वाले के प्रयोग से शोषक और शोषित की स्थिति की ओर संकेत किया गया है जो वर्तमान युग में भी विविध तरह से शामिल हैं।

आगे मुर्गा, शहर और गाँव के अंतर को स्पष्ट करते हुए कहता है – “शहर और गाँव का फर्क मनुष्यों से लेकर कुत्तों, बिल्लियों, बकरियों और चूहों तक में देखने को मिल जाता है। गाँव की बकरियाँ खुले आसमान के नीचे मुक्त विचरण कर शाम को अपने घर लौटती हैं तो शहर की बकरियाँ सिकड़ियों में बँधी - बँधी पागुर किया करती हैं और छूट जाने पर दूसरों के घर चली जाती हैं।” (दंतकथा - अब्दुल बिस्मिल्लाह – पृ. सं. – 11, 12) उसी तरह मनुष्य की बात

लें तो शहर के लोग आपस में खूब लड़ते हैं, पर शत्रु के आगे भीगी बिल्ली बन जाते हैं जबकि गाँव – देहात के लोग ऐसे मौकों पर सारा बैर भाव भूलकर संगठित हो जाते हैं। वे अपने शत्रु को पहचान लेते हैं और फिर उससे जमकर लड़ते हैं।

प्रकृति के प्रति मनुष्य समाज और मुर्गों की जाति के दृष्टिकोण के फरक को लेखक व्यक्त करता है। प्रकृति को मनुष्य उपयोगितावादी दृष्टि से देखता है तो मुर्गों एवं अन्य पशु पक्षियाँ उसे सौन्दर्य की दृष्टि से देखता है। यही कारण है कि पशु पक्षियों को मारकर मनुष्य उसका माँस खाता है, जानवरों पर बोझ लादता है, उससे खेत जोताई करवाता है, भारी भरकम चीज़े उठवाता है, त्योहारों में यातनाएँ देकर शामिल करवाता है, जानवरों – पक्षियों की आपसी लड़ाई करवाता है, अंडे, दूध और गोश्त के व्यापार के लिए पशु पक्षियों की स्वाभाविक शारीरिक प्रक्रिया तक में कृत्रिम मार्ग अपनाता है और उपयोग रहित पशु – पक्षियों की उपेक्षा की जाती है या फिर उन्हें मार डालते हैं।

प्रकृति के विभिन्न रूपों को पशु – पक्षियाँ उसी रूप में ग्रहण करते हैं। मुर्गा इस संबंध में कहता – “हम अंधकार को अंधकार की तरह और प्रकाश को प्रकाश की तरह जीने पर विश्वास करते हैं। इस तरह प्रकृति को उसके नैसर्गिक रूप में भोगना ही हमारा मूल स्वभाव है।” (दंतकथा - अब्दुल बिस्मिल्लाह – पृ. सं – 45, 46) मनुष्य हमेशा प्रकृति की नैसर्गिकता में कृत्रिमता जोड़ देता है और रात को भी वह बिजली, दीपक इत्यादि के माध्यम से दिन का उजाला स्थापित करता है। इससे शायद मनुष्य यह साबित करना चाहता है कि हमारा स्वभाव प्रकाश में

रहने का है। पशु – पक्षियों को पालतू बनाकर मनुष्य ने इस कृत्रिम स्वभाव को जानवरों पर भी थोपा है जिससे उनकी नैसर्गिकता नष्ट हो जाती है।

अपनी जाति की कुरीतियों पर भी मुर्गा विचार करता है – कथानायक मुर्गे की माँ का जब जिबह किया गया तो दूसरे मुर्गे उसके खून पर टूट पड़े। कई उसकी कटी हुई गर्दन पर भी चोंच मारे और जब उसकी अंतड़ियाँ आदि निकालकर फेंकी गईं तो परिंदे उन अंतड़ियों से अपनी भूख आंत करने लगे। (दंतकथा - अब्दुल बिस्मिल्लाह पृ. सं – 24) मुर्गा - मुर्गियों में मनुष्य की सी संस्कृति के विकसित होने से कथानायक बेहद दुखी हो उठता है।

मुस्कराना, ठंडी साँस लेना, हँसना, रोना, भावयुक्त होना जैसे विकार मनुष्य की तरह पशु – पक्षियों में भी होती है लेकिन पशु – पक्षियों के इन विकारों के प्रति मनुष्य बिलकुल अनभिज्ञ है। मनुष्य शायद ऐसा सोच भी नहीं सकता क्योंकि वह पशु पक्षियों को अपना सहजीवी नहीं मानता है। इसपर मुर्गा कहता है – “मनुष्य का मानना है कि एहसास करनेवाला दिल केवल उन्हीं के पास होता है, मुर्गों का दिल तो तवे पर तलकर खाने की चीज़ होता है। उसमें धड़कन तो भले ही होती हो, पर भावना नहीं होती। इसलिए वह न तो रो सकता है और न मुस्करा सकता है।” (दंतकथा - अब्दुल बिस्मिल्लाह – पृ. सं – 28)

मनुष्य जाति हमेशा अपने किसी न किसी कार्य के लिए दूसरों का आश्रय लेता है। मनुष्य की इस प्रवृत्ति पर सोच विचार करते हुए मुर्गा व्यक्त करता है कि ऐसा अन्याय मुर्गों मुर्गियों की जाति में नहीं होता है। “यहाँ नर होने के नाते कोई

भी मुर्गा किसी मुर्गी पर निर्भर नहीं था इसी तरह कोई भी बूढ़ी मुर्गी किसी भी जवान मुर्गी से अपनी सेवा - टहल नहीं कराती थी। सबको अपना - अपना काम खुद करना होता था। हमें बचपन से ही आत्मनिर्भर होना सिखाया जाता था, जबकि मनुष्य तो स्वभाव से ही मानो पराश्रयी होते हैं। हर कोई किसी ओर पर निर्भर। अगर अपनी जाति पर वश न चले तो पशु - पक्षियों पर निर्भर।” (दंतकथा - अब्दुल बिस्मिल्लाह - पृ. सं - 32) प्रकृति और जीव जन्तुओं पर अधिकार जताने वाले मनुष्य की अन्याय प्रवृत्तियाँ अनेक हैं, उनमें से कुछ को जब लेखक दंतकथा में एक मुर्गे के द्वारा रेखांकित करते हैं तो मनुष्य इन प्राणियों के सम्मुख बिल्कुल तुच्छ हो जाते हैं।

इसी तरह का ओर एक संदर्भ मुर्गा उजागर करता है प्रायः मनुष्य बासी खाना नहीं खाता और इस बासी खाने को वह या तो फेंक देता या फिर किसी भिखारी को देकर पुण्य अर्जित किया करता। मनुष्य जाति में ही हम ऐसी प्रवृत्ति देखते हैं जहाँ वह अपने सहजीवियों को समदृष्टि से न देखकर झूठन या बासी खाना उसे खिला देता और उस कर्म को पुण्य समझता! मुर्गा इसपर विचार करते हुए कहता है दरअसल हमारे यहाँ अमीर, गरीब, भद्र-अभद्र, संपन्न विपन्न का कोई भेद नहीं है। ये सब चोंचलें मनुष्य को ही शोभा देते हैं। हमारे यहाँ छोटे - बड़े की कोई अवधारणा ही नहीं है। (दंतकथा - अब्दुल बिस्मिल्लाह पृ. सं 42) दाने के लिए मुर्गे भी लड़ते हैं लेकिन सड़ा दाना किसी के लिए नहीं छोड़ता है। भद्र समझे जाने वाले मनुष्य को जीव जन्तुओं से बहुत कुछ सीखना है

क्योंकि अक्सर मनुष्य सड़ा भोजन का रूप-रंग बदलकर मनुष्य को खाने के लिए देकर बिसिनस चलाता है!

लेखक ने मनुष्य एवं जीव जंतुओं की जाति के विभिन्न रीति रिवाज, व्यवहार, पारस्परिक संबंध इत्यादि का सूक्ष्म अध्ययन किया है जो पाठकों के हृदय में कभी चुभता है तो कभी सहलाता है और कभी सत्य की पहचान दिलाता है। प्रसव पीड़ा जैसे प्राकृतिक कार्य में मनुष्य और जीव जंतुओं का नारी वर्ग एकजुट हो जाते हैं जो एक भौगोलिक यथार्थ है। इस मामले में मनुष्य जाति की स्त्रियाँ समझदार और उदार होती हैं। वे गाय बकरी से लेकर मुर्गियों तक की जनन संबंधी पीड़ा को समझ लेती हैं और उसे अपनी पीड़ा से जोड़कर देखती हैं। इस एक काम के लिए वे अचानक ही बड़ी दयालु हो जाती हैं और हर तरह की सहायता करने के लिए तैयार हो जाती है। (दंतकथा - अब्दुल बिस्मिल्लाह, पृ. सं 67) मनुष्य जाति के क्रूर एवं अत्याचारी प्रवृत्ति के कारण मुर्गा कभी भी मनुष्य नहीं बनना चाहता है। हिन्दू - मुसलमान के नाम पर वह एक दूसरे की हत्या करता है जो मुर्गे के मन में घृणा पैदा करती है। अपनी ही जाति के लोगों की हत्या करने के कारण मुर्गा इश्वर से पार्थना करता है कि वह अगले जन्म में भी मुझे मुर्गा ही बनाए, मनुष्य नहीं वरना मजबूरन मुझे हिन्दू या मुसलमान बनना पड़ेगा। (दंतकथा - अब्दुल बिस्मिल्लाह पृ. सं 81)

मुर्गों के ज़रिए लेखक मनुष्य जाति के लिए कई सीख भी देते हैं। मनुष्य कभी भी अकेला नहीं लड़ सकता, प्रकृति से अलग होकर अकेले लड़ते रहने की अर्थशून्यता की ओर लेखक संकेत करता है। प्रकृति के सहयोग मात्र से ही मानव

एवं पशु पक्षियों को अपनी इच्छा शक्ति का उपयोग संभव हो सकता है। अंत तक अपने जीवन को बचाए रखने के लिए मुर्गा विष्टा तक खाने को तैयार हो जाता है क्योंकि उसे किसी भी हाल में जीने की लालसा थी। जीवन के प्रति आग्रह होने और जीने की लड़ाई हमेशा शक्तियुक्त निभाने का पाठ हमें मुर्गे से मिलता है। मुर्गा अपनी ज़िन्दगी से यह साबित करता है जीवन सुंदर है। वह प्यार की तरह मीठा और करुणा की तरह नरम है। उसमें सुगंध है। उस सुगंध का बोध नाबदान जैसी गंदी जगह तक में होता है। (दंतकथा - अब्दुल बिस्मिल्लाह पृ. सं 74, 75) उपर्युक्त वाक्य दुनिया के मनुष्य हृदयों में बसना है क्योंकि इसे समझे बिना ही मनुष्य एक दूसरे की हत्या करता है और आत्महत्याएँ भी करता हैं। खून का रंग एक है, लेकिन इस रंग की एकता को हम नहीं देखते बलिक कई अन्य रंगों में डूबकर हम अपने को नष्ट कर देते हैं।

मुर्गे को मानव एक तुच्छ प्राणी मानता है। लेकिन प्रस्तुत उपन्यास का मुर्गा जब अपना विचार प्रस्तुत करता है तो लगता है कि मानव कितना तुच्छ है। इन्हीं कारणों से अब्दुल बिस्मिल्लाह जी का उपन्यास दंतकथा एक दंतकथा नहीं रह जाती है।

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## Micro Finance through Retail Banks - A New and Safe Endeavour or not???



**Rejani R. Nair**

Assistant Professor

Department of Commerce & Research Center

E mail: rejanirnair@yahoo.co.in

### **Abstract**

*It is increasingly recognised that providing financial services to disadvantaged people can help them break the vicious circle of poverty. Since savings banks' primary concern is to mobilise financial resources and, where possible, invest these in the economy, they differ from microfinance initiatives that were created with a credit focus. In most countries they have built up a reputation as solid institutions that have proven effective in times of crisis and are trusted by savers. Savings banks generally provide a sense of security for low income clients and guarantee on deposits. The underprivileged need not only credit, but also a wider range of financial services including savings, insurance and payment services. Institutional commitment is a prerequisite for providing low-income people with financial services.*

*The commitment of savings banks to provide financial services to underserved markets distinguishes them from most other formal financial institutions. In addition to that, the distribution of their profits, educational initiatives and efforts to support initiatives aiming at social inclusion are other expressions of their social responsibility. The savings and retail banks mobilise deposits from their customers to fund their micro-credit programmes. As proximity banks, savings banks have essential assets that make them ideally equipped to provide microfinance services. They are accessible because of their geographic proximity given their wide spread branch networks and nationwide coverage. What distinguishes savings banks from other microfinance providers is that they are all formal financial institutions whose first commitment is the mobilisation of savings. The clients of savings and retail banks are households, farmers, SHG's, self employed, microenterprises and SMEs.*

*Confidence in well-established savings and retail banks is therefore relatively high. Savings banks are characterised by large distribution networks to reach out to the clients nationwide. They are often known as 'proximity banks'. Savings banks are committed to regional economic development and often have a social mandate within their charter. The demand for microfinance services is still considerably larger than the supply and that institutions like the savings and retail banks can contribute to the massification of microfinance that is needed in order to satisfy this demand. The characteristics of savings banks and their way of operating as 'proximity banks' respond to the needs of microfinance clients. It is their commitment to society that makes microfinance services a natural progression in their development. The challenges should be overcome and steps should be taken to contribute and enable savings banks as well as other institutions that share the same commitment, to bring microfinance services to the people through an effective and mass medium.*

## **Introduction**

The market is huge, with half of the world's population falling into the underserved or unserved customer segment. Numerous initiatives have therefore been established and supported to provide microfinance services to this particular segment of people.

With the Millennium Development Goals<sup>1</sup> in mind and the huge challenges related to reducing poverty by 2015, there is an increased awareness among policymakers and practitioners that the involvement of the formal financial sector is required for the massification of financial services to the poor in a sustainable manner and to achieve a significant reduction of financial exclusion.

They have the opinion that the lack of access to banking services for the disadvantaged impairs economic growth and a better distribution of its benefits. For many underprivileged households, the possibility of accessing financial services constitutes a chance to build wealth. Recognising the evolution of financial exclusion, many institutions have started to provide microfinance services, be it out of a development consideration or a business opportunity or a combination of both.

And among these, are the savings and retail banks that are affiliated to the World Saving Banks Institute. Each institution may differ in objectives, focus on financial services, business orientation, target group within the microfinance segment, ownership structure, capacity to mobilise savings, or regulation etc, but all share the same commitment to providing services to an otherwise 'unbanked' population. We can see three effects of providing the disadvantaged persons with financial services<sup>2</sup>. Firstly; it can augment the expected value of income and thus increase potential for consumption, future

investment and asset accumulation. Secondly, it can limit the downward spiral of earning insufficient income to satisfy basic consumption needs. Thirdly, it can facilitate the constitution of precautionary savings for facing risks and uncertainty that can affect income levels, thus helps smooth consumption levels.<sup>3</sup> In spite of the acknowledged advantages of using financial services, many households still remain ‘unbanked’ for various reasons.

Retail banks need to develop business models that work best to be successful in micro financing. This might mean forging strategic alliances with microfinance institutions. Or in other cases, banks might create specialised business units with products and services to serve this market segment, either directly or through the organisations already working in microfinance. ICICI Bank in India is one example, as both capital investor and partner providing operational support for several MFIs. Serving the working poor can be both profitable and beneficial in dealing with global poverty.

Micro finance started out as providing loans to low-income consumers in the form of micro credit. However, the industry has matured rapidly and is now becoming more commercial, with industry players working toward scaling up and broadening the range of financial services on offer. Retail banks have increasingly become involved in micro finance and are learning from microfinance institutions (MFIs). Banks are learning how to serve a customer base they have previously ignored, while MFIs are learning how to become more efficient and offer services on a mass scale. As microfinance evolves, those involved in the industry are seeking ways to make their services more sustainable and are increasingly pursuing profit. Where previously the pioneers of microcredit were only concerned with alleviating poverty, many

new entrants to the field argue that its long-term viability comes through profitability.

**Objectives**

1. To find out Savings and Socially responsible Retail banks.
2. To study the different services provided by the Retail banks to the poor.
3. To determine the factors that would encourage the retail banks to explore the possibilities of micro finance activities.
4. To know the important role they play in diversifying financial services.
5. To interpret the challenges faced by the retail banks who want to enter into micro finance activities.

**Microfinance**

Microfinance today can be defined as the range of ‘small-scale’ financial services that are provided to disadvantaged persons with the aim to improve their capacity to take their development in their own hands.

Microfinance clients are typically low-income persons, who are self-employed or salaried, such as factory workers. In rural areas they may generate some income from farming, food processing or trading at the local markets, whereas in urban areas they tend to be shop keepers, street vendors, entrepreneurs, service providers, craftsmen, etc.

Whereas in the beginning microfinance was considered as micro-credit, in recent years microfinance providers have come to appreciate the needs of poorer households to have access to other financial services, such as savings, insurance and payments. The financial services provided to low-income households need to take into account some basic aspects that

characterise these people such as irregular income flows from numerous activities in some cases seasonal, activities of an informal nature, a lack of collateral and low basic reading and writing skills.

### **Micro finance in India**

“We can put poverty in the museums” (Muhammad Yunus 2006)<sup>4</sup>

Muhammad Yunus a Nobel Prize winner, introduced the concept of Microfinance in Bangladesh in the form of the "Grameen Bank". NABARD took this idea and started concept of Micro Finance in India.

Micro Finance is defined as, financial services such as Saving A/c, Insurance Fund & credit provided to poor & low income clients so as to help them to rise their income & there by improve their standard of living.

From this definition it is clear that main features of Micro Financing:

- 1) Loan are given without security
- 2) Loans to those people who live BPL (*Below Poverty Line*)
- 3) Even members of SHG enjoy Micro Finance
- 4) Maximum limit of loan under micro finance Rs25,000/-
- 5) The terms and conditions given to poor people are decided by NGOs
- 6) Micro Finance is different from Micro Credit- under Micro Credit, small amount of loans given to the borrower but under Micro Finance besides loans many other financial services are provided such as Savings A/c, Insurance etc.

### **Who should provide microfinance services?**

- Formal institutions - i.e. rural banks, cooperatives, commercial banks, state banks, agricultural development banks, savings banks, rural banks and non-bank financial institutions.

- Semiformal institutions- i.e. nongovernment organizations, SHG's as they have access to good knowledge about each other's financial circumstances and can offer convenience and flexibility and since they are managed by poor people, their costs of operation are low.
- Informal sources - i.e. money lenders and shopkeepers, because they know each other well and live in the same community, they understand each other's financial circumstances and can offer very flexible, convenient and fast services. But the services can also be costly and the choice of financial products limited and very short-term. Informal services that involve savings are also risky; many people lose their money.

**Microfinance: Financial Services for the Poor**

Microfinance is the provision of a broad range of financial services such as, deposits, loans, payment services, money transfers and insurance, to poor and low-income households and their microenterprises. It also shares the concept that low-income individuals are capable of lifting themselves out of poverty if given access to financial services.

In some regions, microfinance is used to describe the supply of financial services to low-income employees, which is closer to the retail finance model prevalent in mainstream banking.

For some, microfinance is a movement whose object is "a world in which as many poor and near-poor households as possible have permanent access to an appropriate range of high quality financial services, including not just credit but also savings, insurance, and fund transfers."<sup>5</sup> Many of those who promote microfinance generally believe that such access will help poor

people out of poverty. For others, microfinance is a way to promote economic development, employment and growth through the support of micro-entrepreneurs and small businesses.

About 90% of the 180 million poor households in the region still lack access to institutional financial services<sup>6</sup>. Most formal financial institutions deny the poor financial services because of

- perceived high risks
- high costs involved in small transactions
- the poor's inability to provide marketable collateral for loans

**Factors encouraging the Retail banks to do micro finance activities.**

- Extensive network of branches.
- Technology infrastructure: ATMs, MIS, among others.
- People with skills in areas such as information technology, marketing and legal management who can support microfinance operations.
- Market presence and brand recognition.
- Access to low-cost funds through deposit-taking.
- Lower operating cost structure.

Large commercial banks often have an extensive network of branches, frequently covering all major cities in a country. Banks can take advantage of the cities that prove suitable for microfinance by venturing into this market and thus benefiting from their long-time presence in the area. The advantages are often connected with benefiting from the already established connections with clients (through ATMs and branches), internal service areas suitable for large scale economies (marketing, human resources, information technology) and brand recognition. Access to finance through taking deposits from the general public is another comparative advantage of commercial banks as

opposed to MFIs engaged in micro lending, which in many countries are not allowed to take deposits and, if allowed, only have access to lower-income depositors' savings.

### **Micro finance and social interventions**

There are currently a few social interventions that have been combined with micro financing to increase awareness of HIV/AIDS. Such interventions like the "Intervention with Microfinance for AIDS and Gender Equity" (IMAGE) which incorporates micro financing with "The Sisters-for-Life" program a participatory program that educates on different gender roles, gender-based violence, and HIV/AIDS infections to strengthen the communication skills and leadership of women.<sup>7</sup>

Microfinance has also been combined with business education and with other packages of health interventions.<sup>8</sup>

### **Role of Retail banks in Micro finance**

Inefficient financial markets are recognized as one of the major threats for less developed countries. Limited access to financial services involves less economic growth. Giving access to financial services to the broad population in LDC — even in the rural areas — means creating growth and welfare.

Microfinance requires a whole retail banking product range including savings and insurance products. Thus microfinance can be seen as a certain kind of retail banking. Most of the retail banks in developed as well as developing countries have started penetrating into the microfinance market.

Retail banks can involve in microfinance in several ways, ranging from indirect involvement while raising the capital to direct interaction with

borrowers. Retail banks have realized the growth potential, which can be achieved through microfinance, apart from the social needs. Banks play vital role in microfinance through following ways-

- **Direct Lending:** Retail banks can lend to entrepreneurs directly. Group lending includes providing a loan to every borrower of the group. New loans are not approved to borrowers if any borrower defaults his existing loan. The process of group lending entails an accountability on borrowers to repay their loan in more disciplined way.
- **Partnership with Microfinance Institution:** Retail banks create partnership with microfinance institutions. Banks lend to MIs in the form of retail and wholesale banking. MFIs are involved in collection, monitoring and origination of loan. MFIs enjoy lots of benefits by doing tie up with banks. As the higher amount of capital can increase the size of the loan, banks have greater reach through their geographical expansion.
- **Microfinance Subsidiary:** Banks can also choose their microfinance operations through the new subsidiary creation. Such kind of branches assist banks in mitigating the risk levels involved while lending to the poor. From the borrower's perspective, specialized microfinance services provided by banks may create higher trust and shows the commitment of bank in poverty reduction.
- **Securitization:** Last but not the least, retail banks play vital role in microfinance by raising funds in international as well as domestic market for the several lending operations of MFIs.

## **Impact and Criticism**

While all microfinance institutions aim at increasing incomes and employment, in developing countries the empowerment of women, improved nutrition and improved education of the borrower's children are frequently aims of microfinance institutions

The impact of microcredit is a subject of much controversy. Some state that it reduces poverty through higher employment and higher incomes. This is expected to lead to improved nutrition and improved education of the borrowers' children. Some argue that microcredit empowers women.

Critics say that microcredit has not increased incomes, but has driven poor households into a debt trap, in some cases even leading to suicide. They add that the money from loans is often used for durable consumer goods or consumption instead of being used for productive investments, that it fails to empower women, and that it has not improved health or education.

The available evidence indicates that in many cases microcredit has facilitated the creation and the growth of businesses. It has often generated self-employment, but it has not necessarily increased incomes after interest payments. In some cases it has driven borrowers into debt traps. There is no evidence that microcredit has empowered women. In short, microcredit has achieved much less than what its proponents said it would achieve, but its negative impacts have not been as drastic as some have argued. Microcredit is just one factor influencing the success of small businesses, whose success is influenced to a much larger extent by how much an economy or a particular market grows.

### **Challenges**

In the 2000s, the microfinance industry's objective was to satisfy the unmet demand on a much larger scale, and to play a role in reducing poverty. While much progress has been made in developing a viable, commercial microfinance sector in the last few decades, several issues remain that need to be addressed before the industry will be able to satisfy massive worldwide demand. The obstacles or challenges to building a sound commercial microfinance industry include:

- Inappropriate donor subsidies
- lack of use by potential customers
- Poor regulation and supervision of deposit-taking MFIs
- poor operating procedures
- Few MFIs that meet the needs for savings, remittances or insurance
- Limited management capacity in MFIs
- Institutional inefficiencies
- Neglect of duties
- Need for more dissemination and adoption of rural, agricultural microfinance methodologies

### **Suggestions and Conclusion**

MFIs were the first to identify the unserved demand for microcredits and to develop models for the provision of credits and other financial services to low-income people.

Although much progress has been made, the problem has not yet been solved, and the overwhelming majority of people, especially in rural areas,

continue to have no practical access to formal sector finance. Microfinance has been growing rapidly. Most needs are met through a mix of saving and credit.

Several reasons have led banks to become engaged in the downscaling process, including MF profitability and growing competition in the medium-sized and large businesses financing market.

There are four downscaling models generally used: the creation of an internal unit in the bank developing the MF activity, the establishment of a financial subsidiary legally separated from the bank undertaking the microfinance activities, the creation of a service company that is not a financial institution and that generates bank owned micro credits, and the formation of bank strategic alliances with non-banking institutions that are already engaged in the MF business. Commercial banks could make the most of their experience in the provision of financial services, its vast network of branches and their technological infrastructure to serve the MF segment.

Specific training and counselling on how to best serve this sector or the establishment of strategic alliances with MF-specialized institutions under an appropriate regulating framework, would allow them to cost-effectively serve the low income sector.

In order to ensure sustainable growth and contribute to the economic development of a Less Developed Country, MFI must not remain in the donor-dependent NGO corner. MFI have to become successful and professional retail banks with a focus on their particular client base. They need to become profitably working financial institutions that offer a financial and social return to their share- and stakeholder simultaneously.

In addition to these efforts, alternative ways need to be found to deepen the outreach of savings and retail banks to where their distribution channels cannot currently reach. Alliances between savings banks, microfinance institutions and community-based organisations could for instance be explored.

Public-private partnerships that increase the underprivileged's awareness of financial services and their benefits can assist in deepening the outreach of savings banks.

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## Policy Shift towards Direct Cash Transfer: Issues and Implications



**Abin T Mathews**  
Assistant Professor  
P.G Department of Economics  
E mail: abintmathews@gmail.com

### ***Abstract***

*The policy change towards Direct Cash Transfer can make positive impacts on the economy as a whole. In the long run the benefits will be trickled down on poor and middle class. This underlying fact of good economics may not hold true or appropriate in the vision of those who advocate the popular idea of welfare state. Hence the issue is worth debatable in the academic rather than in the political circles. The present paper 'Policy Shift towards Direct Cash Transfer: Issues and Implications' is one of the maiden attempts.*

### **Key words**

*Direct Cash Transfer, Subsidy, Aadhar, Conditional Cash Transfer, Leakages*

## **Introduction**

Indian Economy, in the post reform period is progressing towards a free market economy. The period witnessed frequent changes in economic as well as social policies. One such recent policy shift is Direct Cash Transfer Programme which aims to provide cash in the place of subsidies. The identification and disbursement is on the basis of a national identity card (either Aadhar or identity card based on National Population Register). The programme is supposed to bring transparency and terminate leakages from the distribution system.

## **Background of Implementation**

Since independence governments at Centre and States have been giving top priority to the welfare of its citizens and committed to address the issues of poverty, deprivation etc. Towards this end, a substantial portion of our resources are allocated or diverted. The annual disbursal amount of subsidy has increased considerably especially during the last few years. With large amount being spent in the name of subsidies, the government now is examining the ways that ensure maximum outcome out of every rupee spend.

Advancement of technology is another supporting factor behind the policy shift. The presence of improved technology equips the government with the tool to redesign so as to improve targeting and empower beneficiaries. The use of national identity card based on biometric features makes things smoother.

The policy change towards Direct Cash Transfer is revolutionary in nature and can make positive impacts on the economy as a whole. In the long

run the benefits will be trickled down on poor and middle class. This underlying fact of market economics may not hold true or appropriate in the view of those who advocate the popular idea of welfare state. So the issue is worth debatable in the academic rather than in the political circles. However one could hardly find serious studies or discussions on Direct Cash Transfer and the present paper is the outcome of such an attempt which focuses on the defects of the traditional system and the impacts of the new Direct Cash Transfer

The present analysis is descriptive in nature and the data is mainly collected from the reports published by the government departments. A few articles published in leading newspapers and magazines are also used as supplementing sources.

### **Limitations**

The recent Supreme Court's order forbidding the government from making Aadhar mandatory for availing financial assistance created confusions. There is no clarity regarding the future of Aadhar. Either Aadhar or identity card based on National Population Register will be the identifying mechanism. Since both are almost similar, the term National Identity Card is used for the sake of analysis. There is lack of clarity even among policy makers regarding the implementation of Direct Cash Transfer scheme. So the existing literatures don't provide a clear cut picture.

The present study comprises of 5 sections of which the first section reviews the traditional subsidy system. Second section is about implementation and in

the third, case studies are included. Fourth section examines the new Direct Cash Transfer system and the next concludes.

### **Section I**

India has a well established subsidy system. For which huge amounts are setting apart in every budget. In addition, there exists a well connected government mechanism to review the working of the system. However Indian subsidy system has a series of serious drawbacks which are often debated across the country. A few of them are glaring and deserves special attention.

Kerosene is one of the highly subsidized commodities. Even in states where electrification is widespread Kerosene is offered at subsidized price. As a source of energy for cooking, Kerosene is not a significant fuel. For rural India the proportion was 2 percent in 2001-02. That too decreased to 0.6 percent in 2007-08. At the same time it reduced from 15.3 percent to 7.6 percent in urban centres. As a source of lighting also, the Kerosene consumption is coming down. During the period between 2001-02 and 2007-08 it decreased from 47.2 percent to 38.6 percent in rural and 7.8 percent to 5.1 percent in urban centres. But studies show that the consumption of subsidized kerosene is not coming down. That itself shows that a part of subsidized kerosene is leaking out off the system. There are evidences of oil mafias mixing the kerosene with petrol and diesel and reap huge profits. A study conducted by National Council of Applied Economic Research has estimated the total leakage of kerosene from public distribution system as 38.6 percent.

Report published by World Bank entitled 'Social Protection for a Changing India' says that only 41 percent of the food grains released reach the targeted households. That means the remaining 59 percent is going somewhere else. Planning Commission estimated the leakage as 58 percent. In a country where millions of people live under the clutches of poverty, this much leakage is not justifiable.

Besides, there are problems which often lead to wrongful inclusions and exclusions. Inclusion problem means including those who are not actually eligible while exclusion problem means excluding those who are actually eligible. Inclusion problem occurs from the practical difficulty of correctly assessing the income of a person. In addition we have no clear idea about ultimate beneficiary. Beneficiary may be somebody else who is not supposed to receive it. This problem mainly occurs due to the lack of electronic database and common unique identifying mechanism. Exclusion problem can be attributed to two reasons mainly 1) many poor are unaware about the help from the government for which they are eligible 2) many are unable to fulfill the procedural formalities and 3) sometimes they are forced to seek the help of middlemen. There is nothing like charity in pure economics.

According to a study conducted by World Bank in Karnataka, eighty percent of the subsidy is utilized by farmers using electric pumps for irrigation. They are large and medium scale farmers and they constitute only 11 percent of the rural population in the state. Remaining 89 percent is deprived of the benefits and they share only 20 percent.

Mounting fiscal deficit is another serious problem. Increased spending for financing subsidies creates imbalances in income-expenditure equation.

Macroeconomic instabilities including inflation can be attributed to a great extent on fiscal deficit. These problems should be analysed in the background of a nation where millions of people live in poverty and hunger.

Excessive use and wastage of subsidized commodities are other serious drawbacks of the subsidy system. People are not aware about the true value of subsidized commodities. Hence they are treating them as free goods which lead to uncontrolled use of such commodities. It's over use or wastage is not good in the long run.

“The world is spending hundreds of billions of dollars annually to subsidise its own destruction.”

Earth Council

## **Section II**

Direct Cash Transfer proposes to ensure

- Accurate Targeting
- De-duplication
- Reduction of fraud and corruption.
- Process re-engineering of schemes for simpler flow of information and funds.
- Greater Accountability.
- Elimination of waste in subsidy transfer.

In the long run Direct Cash Transfer can

- Consolidate cash transfers to households which are getting benefits from multiple sources in multiple forms.
- Improve efficiency of social safety net, consolidated income support programme for the poor and eliminate multiple sources of subsidy.
- Positive institutional externalities.
- Adoption of cutting edge technical system.
- Free administrative system.
- Maximize benefits from expenditure of welfare schemes which leads to overall human development.

A Coordination Committee called the 'National Committee on Direct Cash Transfer has set up to coordinate action for the introduction of cash transfers to individuals under the various government schemes and programmes. The Committee is under the chairmanship of the Prime Minister. It consists of eleven Cabinet Ministers, two Ministers of State, Deputy Chairman of Planning Commission, UIDAI Chairman, the Cabinet Secretary and the Principal Secretary to the Prime Minister.

Duties of the Committee are

- 1) Provide an overarching vision and direction to enable Direct Cash Transfers of benefits under various government schemes and programmes to individuals, leveraging the investments being made in the Aadhar project, financial inclusion and other initiatives of the government with the objective of enhancing efficiency, transparency and accountability.

### ***Review of Research Insight***

- 2) Determine broad policy objectives and strategies for Direct Cash Transfer.
- 3) Identify government programmes and schemes for which direct cash transfers to individuals can be adopted and suggest the extent and scope of Direct Cash Transfers in each case.
- 4) Coordinate the activities of various Ministries/ Departments/Agencies involved in enabling Direct Cash Transfers and ensure timely, coordinated action to ensure speedy rollout of Direct Cash Transfers across the country.
- 5) Specify timelines for the rollout of Direct Cash Transfers.
- 6) Review the progress of implementation of Direct Cash Transfers and provide guidance for mid course corrections.
- 7) Any other related matter.

The Committee is assisted by an Executive Committee on Direct Cash Transfers. The Executive Committee would engage in the tasks mentioned below.

- 1) Identify and propose for the consideration of the National Committee on Direct Cash Transfers such government programmes and schemes for which Direct Cash Transfers for individuals can be adopted and suggest the extent and scope of Direct Cash Transfers in each case.
- 2) Ensure the preparation of and approve strategies and action plans for the speedy rollout of Direct Cash Transfers in areas agreed to and in line with the timelines laid down by the National Committee on cash transfers.

- 3) Coordinate the activities of various Ministries/ Departments/Agencies involved in evolving Direct Cash Transfers to ensure that the architecture and framework for Direct Cash Transfers is in place for rolling out Direct Cash Transfers across the country.
- 4) Review and monitor the rollout of Direct Cash Transfers and undertake mid course corrections as and when necessary.
- 5) Any other related matter entrusted by the National Committee on Cash Transfers or relating to Direct Cash Transfers.

The Chairman can invite any Officer/Expert to any meeting of the Executive Committee when necessary. The National as well as Executive Committee is serviced by the Planning Commission. For this the Commission gets the assistance from Ministries/Departments/ Agencies of the government. In Planning Commission an officer in the rank of Joint Secretary coordinate and service the work of National Committee and Executive Committee. For finalizing the operational and implementation details relating to the design and implementation of the Direct Cash Transfer system and for ensuring a smooth roll out of Direct Cash Transfers in an orderly and timely fashion, Mission Mode Committees will be constituted. The Mission Mode Committees are 1) technology committee 2) financial inclusion committee and 3) implementation committees on electronic transfer of benefits.

Technology Committee is for focusing on the technology, payment architecture and information technology related issues.

Financial Inclusion Committee is for focusing on ensuring universal access to banking and ensuring financial inclusion.

Implementation Committees on Electronic Transfer of Benefits to work out the details of cash transfers for each department such as data bases, direct cash transfer rules and control and audit mechanisms.

Identification is on the basis of national identity card. The assurance of uniqueness through biometric information in the card helps to avoid duplicates and frauds. Further there is a proposal for setting up of Core Subsidy Management System which will function like Core Banking Solution. The main purpose of Core Subsidy Management System is maintaining book keeping information on entitlements and subsidies for all beneficiaries. The Core Subsidy Management System also provide increased transparency in the movement of goods, level of stocks, prediction and aggregation of demand and identification of beneficiaries. While the Core Subsidy Management System automates all business processes related to direct subsidy transfer, the specific policies and business rules will continue to be framed by the policy makers in the respective ministries. Stake holders can customize the Core Subsidy Management System for their own requirements and extend it to integrate with their own processes. The System maintains the bank account of beneficiaries and all policies related to subsidy management. It would be capable to support all forms of direct transfers of subsidies such as non cash transfers, conditional cash transfers etc. Beneficiaries can report malpractices to the government directly making it possible for the government to react in a timely manner. The government through the Core Subsidy Management System transfers the cash directly to the bank account of beneficiaries. Beneficiaries can withdraw the cash through various banking channels.

### **Section III**

#### **Brazil**

'Bolsa Familia' is the conditional cash transfer mechanism of Brazil. It is a social welfare programme of the Brazilian government. The scheme provides financial aid to poor Brazilian families. It attempts to reduce poverty by direct cash transfers. Poor families in advance have to satisfy certain condition. The children must have 85 percent school attendance and their nutrition and growth chars are climbing. All children under five must have the full course of vaccines. Pre and post natal checks for mother are another requirement. Bolsa Familia covered almost 100 percent of the poor in Brazil. The entire system is managed through efficient targeting and regular monitoring of the disbursed fund. Results are very much visible all through the countries. One best specimen is the fact that during the period between 1995 and 2004 inequality fell by 28 percent as per Gini Index.

#### **Mexico**

Progresa in Mexico is a result based financing programme. It attacks poverty and raises improvised families current incomes by 20 – 30 percent. It also aims to lift future generations out of poverty.

#### **Columbia**

'Familias en Accion is the cash transfer programme of Columbia. It was started in 2002. The programme is almost similar to Progresa.

#### **Zambia and Namibia**

Zambia and Namibia are good specimens of successful experience with cash transfer. The introduction of cash transfers into poor in remote areas stimulated local demand.

### **Honduras**

The Family Allowance Programme of Honduras was started in 1990

### **Indonesia**

Similar programmes in Indonesia are ‘Program Keluarga Harapan’ and ‘Program Nasional Pemberdayaan Masyarakat Generasi Sehat dan Cerdas’. Program Keluarga Harapan is a household conditional cash transfer programme while Program Nasional Pemberdayaan Masyarakat Generasi Sehat dan Cerdas is a community based conditional cash transfer programme.

### **Panama**

‘Red de oportunidades’ is a programme implemented by the government of Panama. It is for the population under 18 to provide them access to health services and education.

### **Peru**

‘Juntos’ programme in Peru is meant for mother and children. This programme provides a monthly dividend to mothers live in poverty. Mothers can qualify if they send their children to school and take them for regular checkups.

### **Alwar in Rajasthan**

In India a pilot project was introduced in Kotkasim tehsil of Alwar in Rajasthan. Under the scheme every ration card holders is allocated 3 liters of kerosene per month at the market rate. The subsidy amount is then transferred to the bank account of the beneficiaries. Sale of kerosene fell drastically. It reduced by 79 percent in December 2011, 73 percent in January 2012 and 82 percent by February 2012. This should be read along with the leakage of kerosene as mentioned in the first part.

#### **Section IV**

Cash is transferred through bank accounts. Hence it necessitates the opening of bank accounts. Encouragement of banking transactions could have double advantage. It can stimulate the economy and at the real time rural poor will be gradually freed from the clutches of local money lenders. Besides since cash is directly pumping directly into the economy, it will give stimulations via multiplies effect.

Proper identification and perfect targeting is made possible under direct cash transfer. The use of biometric cards can avoid fraud cases. Hence leakages and diversions can be controlled to a large extent and ultimate beneficiaries may be those who are supposed to receive it.

Choice is limited under subsidy system. Suppose only two varieties of rice are available in the ration shop from where one have to buy it. If that person wants to buy a third variety, it is not possible under the present system. The same difficulty prevails with regard to the choice of ration shops also. The new system may be an answer to all these problems.

However the new system is not beyond criticisms

Aadhar is not a completely foolproof identification mechanism. Anybody can make Aadhar. A person from Nepal or Sri Lanka with a valid address can make it. So there exists the possibility of problem of inclusion. At present only half of the population has Aadhar and at the same time half of the rural population doesn't have bank account. When the country goes for Aadhar based cash transfer system these are major challenges before the government and the banking sector.

Further there is no proper provision for containing inflation. Suppose at present a person is getting one kilo gram rice at subsidized price from the

government every month. That means one kilo gram is ensured for him. Suppose cash transfer is introduced and now the government gives the price of one kilo gram rice that is Rs 10 to that person. There are chances that inflation goes up next day and the purchasing power of the person will be affected. It is impractical to link subsidy amount with the price level which is changing frequently.

The beneficiary has to give the identification number. Then the beneficiary's biometric features will be crosschecked with the details of that person in Central Repository. For that high speed internet connectivity is required. There are thousands of villages in India without even a single computer.

Mere cash transfer doesn't guarantee that the amount is spending for the specified purpose. People can use this for some other unproductive activities. If such things happen the very purpose can't be served.

With the introduction of Direct Cash Transfer, people will be depending on private shops for buying the essentials. Complete transparency and accountability can never be expected from private shop keepers. Illiterate and poor people may be the victims of exploitation in all forms.

### **Sections V**

Even though India has a well established subsidy system, it faces so many draw backs. We have tried our best to correct the existing system in vain. However in a country like India, since it is closely associated with the existence of millions of people, a responsible government can't remain as a mere spectator. The introduction of Direct Cash Transfer is a noble attempt in that direction and no doubt with all its limitations, it is better than the subsidy

system. Since it is the need of the time, the new system must be well implemented with some modifications and practiced with extra care.

### **Suggestions**

Direct cash transfer can be modified as conditional cash transfer. This scheme is proved to be successful in Mexico, Brazil and in several other developing economies. The government can put forward certain preconditions. Suppose the cash transfer is for education purpose. The conditions might be, there should be minimum attendance, education should not be stopped in the midst etc.

The amount can be given to the bank account of eldest women in the family. This will empower the women in the family and ultimately the women in the country. In addition the chance of misutilization of fund is comparatively less if the amount is in the hands of women. An average woman in an Indian family can manage money better than a financial expert.

Our present banking system should be strengthened. Then only, banks can open accounts and manage fund flow. This will take time and at least two or three years are required for that. So the programme must be implemented in phases.

At the time of writing this paper, there are confusions regarding the identification mechanism. It may be either Aadhar or identity card based on National Population Register. In the midst, the Honorable Supreme Court's verdict that Aadhar should not be made compulsory for getting subsidies casts shadow on the future of Aadhar.

Direct cash transfer is not one of the many policies. For crores of people in the country it is a determining factor that can affect even their

existence. So due care must be given for making a clear cut blue print and thereafter implementing the programme effectively.

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Vol. 1 No.1  
January 2017 Pages 92-99

താളിയോല ഗ്രന്ഥങ്ങളുടെ പരിരക്ഷണം  
ആധുനിക സങ്കേതങ്ങൾ



**Dr. Priya. L**  
Assistant Professor,  
Department of Sanskrit  
E mail: pravchand@gmail.com

പുരാതനമായ കൈയെഴുത്തുപുസ്തകങ്ങളുടെ സംരക്ഷണം എങ്ങനെ ആകാം എന്നതാണ് ചിന്താവിഷയം. ഇതിൽ അവ സൂക്ഷിക്കേണ്ട കെട്ടിടനിർമ്മാണം മുതൽ ശാസ്ത്രീയമായ ശ്രദ്ധ ചെലുത്തേണ്ടതുണ്ട്. നല്ല വെളിച്ചവും വായുവും ലഭിക്കുന്ന ഈർപ്പമില്ലാത്ത ഒരിടം കണ്ടെത്തണം. അനും ഉയർന്ന പ്രദേശമായിരിക്കും ഉചിതം.

**കെട്ടിടനിർമ്മാണം**

കൈയെഴുത്തുപുസ്തകങ്ങൾ സംരക്ഷിക്കാനുള്ള കെട്ടിടത്തിന്റെ രൂപകല്പന ഉദ്ദിഷ്ടകാര്യത്തിനു പര്യാപ്തമാകണം. കടലാസിൽ എഴുതിയ പുസ്തകം സൂക്ഷിക്കാൻ ആധുനികമായ ധാരാളം മാർഗങ്ങൾ ഉണ്ട്. എന്നാൽ താളിയോലഗ്രന്ഥങ്ങളുടെ സംരക്ഷണം വളരെ ശ്രമകരമാണ്. താളിയോലഗ്രന്ഥം ശാസ്ത്രീയമായി പരിപാലിച്ചാൽ അഞ്ഞൂറ് കൊല്ലം ജീവിക്കാം. സാമാന്യ സാധാരണബുദ്ധിയും മിതമായ പരിശീലനവും ഉള്ള ആർക്കും ഇത് സാധ്യമാണ്. ജോലിക്കാരുടെ ലഭ്യത, അറിവ് ആർജ്ജിക്കാനുള്ള അവരുടെ കഴിവ്, സമർപ്പണബുദ്ധി ഇവയാണ് ഇക്കാര്യത്തിൽ പരമപ്രധാനം.

കെട്ടിടത്തിന്റെ അസ്തിവാരത്തിനു തറയിൽ നിന്ന് രണ്ടടി പൊക്കമുണ്ടായിരിക്കണം. അതിന്റെ ചുറ്റിനും ഒരടി ഉള്ളളവു കിട്ടത്തക്കവണ്ണം ഒരു കെട്ടുകൂടി ഉണ്ടാകണമെന്ന് നിഷ്കർഷിക്കേണ്ടതുണ്ട്. വെളിയിൽ നിന്നു

**Review of Research Insight**

വന്നേക്കാവുന്ന ചിതലിന്റെ വഴി ശ്രദ്ധയിൽ പെടാനും കെട്ടിടത്തിന്റെ അസ്തിവാരത്തിൽ പ്രവേശിക്കാതെ തടയാനാണിത്.

അസ്തിവാരത്തിനുള്ളിൽ ചിതലിനെ നചക്തമാർജനം ചെയ്യുന്ന, താഴെപറയുന്ന രാസവസ്തുക്കളിൽ ഏതെങ്കിലും ഒന്ന് വെള്ളത്തിൽ കലർത്തി നല്ലവണ്ണം നനക്കുക. വെള്ളത്തിൽ ലയിക്കാത്ത ഈ രാസവസ്തുക്കൾ താഴെയുള്ള മണ്ണിനും അസ്ഥിവാരത്തിനു മുകളിലുള്ള തറക്കും ഇടയിൽ ഒരു വിരിമറയായി പ്രവർത്തിക്കും. രാസവസ്തുക്കളുടെ വിവരണം ഇപ്രകാരമാണ്.

- (1) Dieldrin - .05%
- (2) Aldrin - .05%
- (3) Heptachlor - .05%
- (4) Chlorodane - 1.0%

**ലോഹവിരിമം**

ജനലും വാതിലും വയ്ക്കുമ്പോൾ അവയുടെ ഭിത്തിയോട് ചേരുന്നവശം ചെമ്പുതകിടുകൊണ്ടോ നാകം പുശിയ ഇരുമ്പുതകിടുകൊണ്ടോ മറക്കണം. കെട്ടിടത്തിനടുത്ത് ചിതലിനെ കണ്ടാൽ അതിനെയും അതു വന്ന കുഴൽ വഴിയും നശിപ്പിച്ച് DDT, BHC മുതലായ രാസവസ്തുക്കൾ ഉപയോഗിച്ച് കെട്ടിടം സുരക്ഷിതമാക്കണം. കെട്ടിടത്തിനു വെളിയിലായി കെമിക്കൽ ഇമലിഷൻ പെയിന്റ് പലതവണ അടിച്ചു കവചം സൃഷ്ടിക്കണം. തടിപ്പണി ചെയ്തിട്ടുള്ള ഇടങ്ങൾ കൂടെക്കൂടെ പരിശോധിക്കുകയും വർഷത്തിൽ ഒരിക്കൽ പെയിന്റ് ചെയ്യുകയും വേണം.

തടിപ്പണി ചെയ്യുമ്പോൾ തടിയുടെ കാര്യം പ്രത്യേകം ശ്രദ്ധിക്കേണ്ടതാണ്. തേക്കിൻ തടിയേ ഉപയോഗിക്കാവൂ. അതു തന്നെ ചിതലിനെ പ്രതിരോധിക്കുന്ന രാസവസ്തുക്കൾ ചേർത്ത് പുഴുങ്ങി പരിശോധിച്ചു മേന്മ ഉറപ്പ് വരുത്തേണ്ടതുണ്ട്.

**മുറ്റം**

കെട്ടിടത്തിന്റെ അൻപതടി ചുറ്റളവിൽ തറ നിരപ്പാക്കി കരിങ്കൽക്കഷ്ണങ്ങളിട്ട് ഇടിച്ചുറപ്പിക്കണം. കനം ആറ് ഇഞ്ചാകണം. ഇതിന്റെ ലക്ഷ്യം ചെടികളൊന്നും അത്രയും സ്ഥലത്ത് വളരാതിരിക്കുക എന്നതാണ്.

**ഓലഗ്രന്ഥത്തിനുള്ള ഹാൾ**

ഇപ്പോൾ ഉള്ളതും ഭാവിയിൽ ലഭ്യമായേക്കാവുന്നതുമായ ഗ്രന്ഥങ്ങൾ വക്കാൻ സൗകര്യമുള്ളതായിരിക്കണം താളിയോലഗ്രന്ഥത്തിനായുള്ള ഹാൾ. അതിൽ തന്നെതുടച്ച് തൈലം പുരട്ടിയ താളിയോലകൾ പരസ്പരം മുട്ടാതെ നൂലിൽ കോർത്ത് ഉണക്കാനുള്ള സൗകര്യമുണ്ടാകണം. ഗ്രന്ഥങ്ങൾ തുടക്കാനും എണ്ണയിടാനുമുള്ള ഒരു മുറിയും സജ്ജമാക്കണം.

**ഷെൽഫുകൾ**

താളിയോലഗ്രന്ഥങ്ങൾ വയ്ക്കാനുള്ള ഹാൾ രാവു പകലും നിശ്ചിതമായ താപത്തിലിരിക്കാൻ വേണ്ട സജ്ജീകരണം വേണം. സ്റ്റീൽ കൊണ്ടുള്ള ഷെൽഫുകളാണ് നല്ലത്. ഗ്രന്ഥങ്ങൾ പരസ്പരം മുട്ടിക്കൂട.

**സംരക്ഷണനിയമാവലി**

താളിയോലഗ്രന്ഥങ്ങളുടെ സംരക്ഷണത്തിന് നിർദ്ദിഷ്ടകാര്യങ്ങളും അനുബന്ധകാര്യങ്ങളും ഉൾക്കൊള്ളിച്ച് ഒരു ചെറുപുസ്തകം നിർമ്മിക്കേണ്ടതുണ്ട്. അതിൽ ഗ്രന്ഥശേഖരത്തിനു സംഭവിച്ചേക്കാവുന്ന അപകടങ്ങൾ, അവക്കുള്ള പരിഹാര മാർഗങ്ങൾ വിദഗ്ദ സേവനം ഉടനടി ലഭ്യമാക്കാൻ പറ്റുന്ന സ്ഥാപനങ്ങളുടെ വിലാസം, ടെലിഫോൺ നമ്പർ തുടങ്ങിയവ ഉൾക്കൊള്ളിക്കണം.

**ഗ്രന്ഥങ്ങളുടെ അപചയപരിശോധന**

ഓല ഗ്രന്ഥം കണ്ടെടുക്കുകയോ സംഭാവനയായി ലഭിക്കുകയോ വിലകൊടുത്തു വാങ്ങുകയോ ചെയ്താൽ ആ ഗ്രന്ഥങ്ങളുടെ സംരക്ഷണമായി എന്ന് ദാതാവും സ്വീകർത്താവും കരുതിക്കൂടാ, അവ സൂക്ഷിക്കാനും അപചയത്തിൽനിന്ന് രക്ഷിക്കാനും നടപടികൾ ഉണ്ടോ എന്ന് ഉറപ്പ് വരുത്തണം. മാതൃകാപരമായ സാഹചര്യം ഗ്രന്ഥരചനയ്ക്ക് പ്രാവർത്തികമാക്കേണ്ടതാണ്.

**സംരക്ഷണം**

സംരക്ഷണം രണ്ടുതരത്തിലുണ്ട്. (1) കേടു വരാതിരിക്കാനുള്ള മുൻകരുതലുകൾ ഏർപ്പാടാക്കുക. (2) പുനഃപ്രതിഷ്ഠാപനം നടത്തുക. ഇവയിൽ ആദ്യത്തേതാണ് ഇക്കാലത്ത് ഇഷ്ടപ്പെടുന്നത്. മുൻകരുതലിന്റെ സീമ വളരെ വലുതാണ്. ഏതെങ്കിലും വസ്തുവിന്റെ അപചയകാരണം കണ്ടെത്താനും അപചയത്തിൽ നിന്ന് അതിനെ രക്ഷിക്കാനും നടത്തുന്ന ഏതു പ്രവൃത്തിയും ഇതിൽപെടും. മറിച്ച്, പുനഃപ്രതിഷ്ഠാപനം വസ്തുവിനെ പൂർവസ്ഥിതിയിലേക്ക് കൊണ്ടുവരാനുള്ള ശ്രമത്തിൽ മാത്രം ഒതുങ്ങിനിൽക്കും.

**ഗ്രന്ഥങ്ങളുടെ അപചയകാരണം**

സംരക്ഷിക്കേണ്ടവസ്തു തുറസ്സായ സ്ഥലത്ത് കിടക്കുമ്പോൾ മഴയും മഞ്ഞുംകാറ്റും അതിനെ വികൃതമാക്കും. എന്നാൽ കെട്ടിടത്തിൽ അതുസംഭവിക്കുകയില്ല. കെട്ടിടത്തിലും എല്ലാം സുരക്ഷിതമെന്ന് കരുതിക്കൂട. പകലും രാത്രിയും പ്രവർത്തനനിരതരാകുന്ന പ്രാണികൾ ഓലഗ്രന്ഥങ്ങളെ നാശത്തിലേക്ക് നയിക്കും. ഇവയ്ക്ക് പുറമേ കാലാവസ്ഥയും പരിസ്ഥിതിയും പ്രകാശവും പൂപ്പലും കീടങ്ങളും ഗ്രന്ഥങ്ങൾക്ക് അപചയമുണ്ടാക്കും. മനുഷ്യൻ വരുത്തിവക്കുന്ന വിന വലുതും നാനാവിധവുമാണ്. അശ്രദ്ധയോടെയുള്ള കൈകാര്യം ചെയ്യൽ, മോശമായ സ്ഥാനത്തേക്ക് വലിച്ചെറിയൽ, കരുതിക്കൂട്ടിയോ യാദൃശ്ചികമായോ സംഭവിപ്പിക്കുന്നതോ സംഭവിക്കുതോ ആയ അഗ്നിബാധ സ്ഥാനാന്തര ചലനത്തിൽ ഗ്രന്ഥം കൈമോശം വരിക തുടങ്ങിയവ മനുഷ്യകൃതത്തിന്റെ പട്ടികയിൽപെടുത്താം

**കാലാവസ്ഥ**

ഏറിയ അളവിലെ ചൂടുംതണുപ്പും ഓലഗ്രന്ഥത്തിന് ഹാനിവരുത്തും. വെള്ളം ദ്രവരൂപത്തിലായാലും അതു ഗ്രന്ഥത്തെ ഇല്ലാതാക്കും. ഉണക്കിന്റെ ആധിക്യം താളിയോല പൊട്ടിപ്പോകാൻ കാരണമാകും. തണുപ്പുകൂടിയാൽ ക്ഷുദ്രജീവികളും പൂപ്പലും വർധിക്കും. ചൂടും തണുപ്പും മാറിമാറി വരുന്നതും താളിയോലകൾക്ക് ഹിതമല്ല. അതു നാശത്തിലേക്കുള്ള യാത്രക്ക് ആക്കം കൂട്ടും.

**താപനിയന്ത്രണം**

താളിയോലകൾക്കായുള്ള ഹാളിൽ വായുവിനെ ശുദ്ധീകരിക്കാനും താപനില നിയന്ത്രിക്കാനും കഴിയുന്ന താപനിയന്ത്രണോപകരണം (Air-Conditioner) ഘടിപ്പിക്കണം. ഒരിക്കൽ താപനിയന്ത്രണം ഏർപ്പെടുത്തിയാൽ അതിന് ഭംഗം വന്നുകൂടാ. ഭംഗം വന്നാൽ താളിയോലകൾ അതിവേഗം ജീർണ്ണിക്കും. അതുകൊണ്ട് നിശ്ചിതവേളകളിൽ മാറിമാറി പ്രവർത്തിക്കാൻ പര്യാപ്തമായ യൂണിറ്റുകൾ സ്ഥാപിക്കണം. വലിയ ഹാളിന് പെട്ടി പോലുള്ള യന്ത്രം മതിയാകയില്ല. കേന്ദ്രീതമായ Air Condition plants ആയിരിക്കും ഉത്തമം.

താപനിയന്ത്രണം ഘടിപ്പിക്കുന്നതിനുമുൻപ് അതിനുവേണ്ടിവരുന്ന ചിലവും ആവർത്തനചിലവും കണക്കാക്കണം. ചിലവുകൾ നേരിടാൻ വിഷമമുള്ളവർ തങ്ങളുടെ പക്കലുള്ള ഗ്രന്ഥങ്ങൾ എല്ലാ സൗകര്യങ്ങളുമുള്ള സ്ഥാപനങ്ങളെ ഏല്പിക്കേണ്ടതാണ്

**ഷട്പദങ്ങൾ**

പലതരം ഷട്പദങ്ങൾ താളിയോല ഗ്രന്ഥങ്ങൾക്കും കടലാസുപുസ്തകങ്ങൾക്കും കേടുവരുത്താറുണ്ട്.

**(1) പുച്ചി**

വെളുപ്പും തവിടും ചേർന്ന നിറം. എട്ടുമുതൽ പത്തുമില്ലീമീറ്റർ നീളത്തിൽ വളരും. ഇരുട്ടതാണ് ജീവിതം. ചെറിയതോതിൽ ഇൗർപ്പമുള്ള പ്രതലത്തിൽ ഇവ വിഹരിക്കും. കടലാസാണ് ഇഷ്ടം. രണ്ടുമുതൽ മൂന്നുകൊല്ലം വരെ ഇവ ജീവിക്കും. Arsenic Pentoxide ൽ ധാന്യപ്പൊടി കലർത്തി ഇവയെ നശിപ്പിക്കാം. കൂടെക്കൂടെ ഗ്രന്ഥങ്ങൾ തുടക്കുന്നതും അവ വച്ചിരിക്കുന്ന ഷെൽഫുകൾ വൃത്തിയാക്കുന്നതും പുച്ചിയുടെ നിർമാർജനത്തിന് അനുപേക്ഷണീയമാണ്.

**(2) പാറ്റ**

ഉഷ്ണമേഖലയിൽ ധാരാളമായി കാണുന്ന ഒരു ഷട്പദമാണ് പാറ്റ. കടലാസിലുള്ള ഗ്രന്ഥങ്ങൾ, ഓലഗ്രന്ഥങ്ങൾ, തൂണി, പുസ്തകം, മൃഗചർമം തുടങ്ങിയവ പാറ്റ നശിപ്പിക്കുന്നു. പുസ്തകം തയ്യാറാക്കുന്ന പശയാണ് ഇതിന് കൂടുതൽ ഇഷ്ടം. ഏറെക്കാലം ജീവിക്കും. രാത്രിയിലാണ് ഉണർവോടെ

സഞ്ചരിക്കുക. Chlorodane, Pyrethrum, DDT, Sodium Fluoride എന്നിവ ഇതിനെ അകറ്റും.

**(3) വെൺചിതൽ**

അത്യധികം അപകടകാരിയാണ് വെൺചിതൽ. രണ്ടുതരം ചിതലുകളുണ്ട്. ഉണങ്ങിയ തടിയിൽ ജീവിക്കുന്നവയും മണ്ണിൽ മാളമുണ്ടാക്കി അതിൽ കഴിയുന്നവയും. തടിയിൽ ജീവിക്കുന്നവക്ക് ഭൂമിയുമായി ബന്ധമില്ല. എന്നാൽ മൺകുഴിയിൽ കഴിയുന്നവ കുഴൽപോലുള്ള മൺവഴികളുണ്ടാക്കി വെളിയിൽ വരും. ഈ വർഗത്തിൽപ്പെട്ട ചിതലാണ് ഗ്രന്ഥങ്ങൾക്ക് വൻദ്രോഹം വരുത്തിവെക്കുന്നത്. ഇതിനെ ഉമുലനം ചെയ്യാൻ .5% വീര്യമുള്ള DDT യും .5% വീര്യമുള്ള BHC യും .25% വീതം വീര്യമുള്ള Dieldrin, Aldrin എന്നിവ ഉപയോഗിക്കാം.

**(4) പുസ്തകപ്പുഴു**

ചിറകുള്ളതും ചിറകില്ലാത്തതുമായ രണ്ടുതരം പുസ്തകപ്പുഴുക്കളുണ്ട്. വൃത്തിയായി സൂക്ഷിച്ചാൽ പുസ്തകപ്പുഴുക്കൾ ഉണ്ടാവുകയില്ല. ഉണ്ടായാൽ അവയെ പിടിച്ച് നശിപ്പിക്കുക. Para-dichlorobenzene ഉം Naphthaline ഗുളികകളും ഉപയോഗിച്ച് പുസ്തകപ്പുഴുവിനെ ഇല്ലാതാക്കാം. പുസ്തകത്തിനുള്ള ഷെൽഫുകളിൽ DDT വിതറി കടലാസിട്ട് മുടി പുസ്തകം വക്കാവുന്നതുമാണ്.

**കൈയെഴുത്ത് ഗ്രന്ഥങ്ങളുടെ വൈവിധ്യം**

പലതരത്തിലുള്ള എഴുത്ത് സാമഗ്രികളാണ് പഴയകാലത്ത് ഉപയോഗിച്ചിരുന്നത്. കല്ല്, ചെളിക്കട്ട, തടി മുതലായവ. ഭാരക്കൂടുതൽ കൊണ്ടും കൈകാര്യം ചെയ്യാൻ ആയാസമുള്ളതുകൊണ്ടും ഈ സാമഗ്രികളുടെ സ്ഥാനം വൃക്ഷത്തൊലിയും ഇലകളും കൈയടക്കി. കടലാസിന്റെ ആഗമനത്തിനുമുമ്പു തെക്കേ ഏഷ്യയിലും തെക്കുകിഴക്കൻ ഏഷ്യയിലും താളിയോലയാണ് എഴുതാൻ ഉപയോഗിച്ചിരുന്നത്. താളിയോലയിലുള്ള ഗ്രന്ഥങ്ങൾ ഈ പ്രദേശത്ത് ഇപ്പോഴും സുലഭമാണ്. വടക്കേ ഇൻഡ്യയിൽ ഭൂർജ പത്രത്തിനായിരുന്നു കൂടുതൽ പ്രചാരം.

**ഭൂർജതപക്**

ഭൂർജമരത്തിന്റെ ഉൾത്തൊലി കനം കുറഞ്ഞതും മൂന്ന് അടി വീതിയിലും നാലടി നീളത്തിലും സുഖകരമായി മുറിക്കാവുന്നതുമാണ്. മഷി ഉപയോഗിച്ചാണ് ഭൂർജതപക് എഴുതിയിരുന്നത്. അടുക്കുകൾ അഴിയാതിരിക്കാൻ വൃക്ഷപ്പശു പുരട്ടി ദൃഢപ്പെടുത്തിയിരുന്നു. തയ്യാറാക്കിയ ഭൂർജതപകിന്റെ നടുവിൽ ദ്വാരമിട്ടു ഇരുവശവും പലകവച്ചു ബലപ്പെടുത്തിയാണ് ഗ്രന്ഥങ്ങൾ തയ്യാറാക്കിയിരുന്നത്.

കാലപ്പഴക്കത്തിൽ ഭൂർജതപക് ദുർബലമാവുകയും പൊട്ടുകയും ചെയ്യും. ഒട്ടിപ്പുകൾ അയഞ്ഞുപോകും. ഈർപ്പം ഈ ദുർബലതയെ വർദ്ധിപ്പിക്കും.

**Review of Research Insight**

അന്തരീക്ഷത്തിൽ ഈർപ്പം കുറഞ്ഞാൽ ഭൂർജ്ജതാക്കിൻ അയവില്ലാതാകും. ഒട്ടിപ്പുകൾ വിട്ടുപോയാൽ ഗ്രന്ഥത്തിന്റെ അവസ്ഥ പരിതാപകരമാകും.

ഭൂർജ്ജതാക്കിലുള്ള ഗ്രന്ഥം കൂടെക്കൂടെ ഉപയോഗിക്കാതിരുന്നാൽ പുറങ്ങൾ മുറുകി മരിക്കാൻ സാധ്യമാകാതെ വരും. അതുകൊണ്ട് ഗ്രന്ഥം കൂടെക്കൂടെ പരിശോധിക്കുകയും തുടച്ചു വൃത്തിയാക്കി സൂക്ഷിക്കേണ്ടതുമാണ്.

ഭൂർജ്ജതാക്കിൽ കറയുടെ പാടുകൾ വേഗം വീഴും. നേർമ്മക്കൂടുതൽ കാരണം അവ മാറ്റാൻ സാധ്യമാകാതെ വരും. അഴുക്കുള്ള കൈകൊണ്ട് ഭൂർജ്ജതാക്ക് സ്പർശിക്കാതിരുന്നാൽ ഒട്ടുമൂക്കാലും ഈ വിന ഒഴിവാക്കാം.

ഭൂർജ്ജതാക്കിൽ പൂപ്പലുണ്ടാകാൻ സാധ്യതയുണ്ട്. കാലാവസ്ഥാവ്യതിയാനമാണ് ഇതിന് കാരണം. ധാരാളം വായുസഞ്ചാരമുള്ള ഇടത്ത് ഭൂർജ്ജഗ്രന്ഥം വക്കുകയും തുടച്ചു വൃത്തിയാക്കിക്കൊണ്ടിരിക്കുകയും, പുകകൊള്ളിക്കുകയും ചെയ്താൽ പൂപ്പൽ കുറയും. Paradichlorobenzene, Carbon sulphide, carbontetra chloride, methyl bromide തുടങ്ങിയ രാസവസ്തുക്കൾ ഉപയോഗിച്ച് പുകകൊള്ളിച്ചാൽ പൂപ്പൽ നശിക്കും.

ഭൂർജ്ജതാക്കിന്റെ അരികുകൾ ദുർബലമാണ്. അതിനാൽ പലകകൾ കൊണ്ട് ഇരുവശവും ബലപ്പെടുത്തി ടിഷ്യുപേപ്പറിൽ പൊതിഞ്ഞുസൂക്ഷിക്കേണ്ടതുണ്ട്. പലകകൾ ഭൂർജ്ജഗ്രന്ഥം കവിഞ്ഞുനിൽക്കണം.

**താളിയോലഗ്രന്ഥങ്ങൾ**

കടലാസു പ്രചാരത്തിൽ വരുന്നതിനുമുമ്പു തെക്കും കിഴക്കുമുള്ള ഏഷ്യൻരാജ്യങ്ങളിൽ താളിയോലയാണ് എഴുത്തിന് ഉപയോഗപ്പെടുത്തിയിരുന്നത്. താളിയോല ശേഖരിച്ചു മുറിച്ചുണക്കി വെള്ളത്തിൽ പുഴുങ്ങി വീണ്ടും ഉണക്കി എഴുതാൻ രൂപപ്പെടുത്തുകയായിന്നു പതിവ്. കേരളത്തിലാകട്ടെ മഞ്ഞൾ പുരട്ടി പാലിലാണ് പുഴുങ്ങിയിരുന്നത്. താളിയോലയുടെ നീളം ആവശ്യത്തിൽ അധിഷ്ഠിതമായിരുന്നു.

താളിയോലയിലെ എഴുത്തിന് രണ്ടുരീതികൾ സ്വീകരിച്ചിരുന്നു. ഒന്ന് കുർത്തമുനയുള്ള നാരായം കൊണ്ട് എഴുതുകയായിരുന്നു. എഴുത്തിനുമുകളിൽ കരിക്കട്ടപൊടിച്ച് പുരട്ടി അക്ഷരത്തിന് തെളിച്ചം കൊടുത്തിട്ടുണ്ട്. മഷിയിൽ പേനത്തുമ്പ് മുക്കി എഴുതുന്നതായിരുന്നു രണ്ടാമത്തെ സമ്പ്രദായം. ഓലയുടെ നടുക്ക് ദ്വാരമുണ്ടാക്കി നൂലുകടത്തി കെട്ട് ബലപ്പെടുത്തിയിരുന്നു. ഓലയുടെ അഗ്രങ്ങളിൽ മർദം ഒഴിവാക്കേണ്ടതുണ്ട്. നടുക്ക് ദ്വാരമിട്ട പലകപ്പെട്ടി ചേർത്തുകെട്ടി ഗ്രന്ഥം ഉപയോഗിക്കുക പതിവായി.

കൈയെഴുത്ത്ഗ്രന്ഥങ്ങൾ വായിക്കാൻ അതേപടി കൊടുത്തുകൂടാ. അവയുടെ ഫോട്ടോകോപ്പി മാത്രം പഠനത്തിനുനൽകാം. താളിയോല വേഗം മലിനമാകുന്നതും പൊട്ടിപ്പോകുന്നതുമാണ്. അഗ്രമാണ് അതിന്റെ പ്രകൃതി ദുർബലമായ ഭാഗം. അവിടെ ഒട്ടും മർദം പാടില്ല.

ഷർപ്പദങ്ങൾ വമ്പിച്ച നാശമാണ് താളിയോലഗ്രന്ഥത്തിലുണ്ടാക്കുക. ആവിയാകുന്ന രാസവസ്തുക്കൾ ഉപയോഗിച്ച് ഇവയെ നശിപ്പിക്കാം. കൂടുതൽ പ്രയോജനപ്രദമായത് കീടനാശിനിയുടെ ലായനി പ്രയോഗിക്കാവുന്നതാണ്. കീടബാധയുള്ള ഓല അഴിച്ചെടുത്ത് \* Alcohol ൽ മുക്കിയ ബ്രഷുകൊണ്ട് തുടച്ച് നിഴലിൽ ഉണക്കി എടുക്കുന്നതാണ് ഉത്തമം.

താളിയോല സൂക്ഷിക്കുന്ന ഷെൽഫുകളിലും DDT ഉപയോഗിക്കാം. Paradichlorobenzene ഷെൽഫുകളിൽ വക്കേണ്ടതാണ്. കൂടെക്കൂടെ കീടശല്യം ഉണ്ടോ എന്ന് പരിശോധിച്ചറിഞ്ഞ് വേണ്ടതുചെയ്യണം.

തണുപ്പുള്ള സാഹചര്യത്തിൽ താളിയോലകളിലും പൂപ്പൽ ഉണ്ടാകും. അതിന്റെ നിവാരണത്തിന് അവ തുടച്ച് ശുദ്ധമാകുകയും നിയന്ത്രിതമായ വായുപ്രവാഹത്തിൽ വരുകയും ചെയ്യണം. ഉപേക്ഷാബുദ്ധി താളിയോലഗ്രന്ഥങ്ങളെ നശിപ്പിക്കും.

താളിയോലഗ്രന്ഥങ്ങൾ എളുപ്പത്തിൽ അഴുക്കും കറയും പിടിച്ച് വൃത്തിഹീനമാകും. അഴുക്കുപിടിച്ചതോ ഈർപ്പമുള്ളതോ ആയ കൈ കൊണ്ട് അവയെ തൊട്ടുകൂടാ. അവയിൽ വിയർപ്പ് പറ്റാനും ഇടയാകരുത്. ഭക്ഷണപാനീയങ്ങൾ താളിയോലഗ്രന്ഥപ്പുരയിൽ ഒഴിവാക്കണം. താളിയോലഗ്രന്ഥങ്ങൾ തുണിയിൽ പൊതിഞ്ഞുവെക്കുന്നതും കൃത്യമായ ഇടവേളകളിൽ പുതുക്കിപ്പൊതിയുന്നതും പൊടിയിൽ നിന്നുള്ള സംരക്ഷണത്തിന് സഹായകമാകും.

**കടലാസ്**

തടി, മൂള, വക്കോൽ തുടങ്ങിയ നാരുള്ള വസ്തുക്കളിൽ നിന്നാണ് കടലാസുണ്ടാക്കുക. നാര് യന്ത്രമുപയോഗിച്ച് വിഘടിപ്പിച്ച് വെള്ളത്തിൽ മുക്കിവെക്കും. ഒരു വല ഉപയോഗിച്ച് നാര് പൊക്കിയെടുക്കും. അതുപയോഗിച്ച് കടലാസിന്റെ പ്രാഗ് രൂപം ഉണ്ടാക്കും. ഈ പരുക്കൻ കടലാസിൽ gelatin (തോൽപ്പശ) starch അഥവാ resin ചേർത്ത് പതിമ വരുത്തി എഴുതാനുള്ള പ്രതലം മിനുസപ്പെടുത്തും.

നീരാവി, ചൂട്, പ്രകാശം, ഷർപ്പദങ്ങൾ, പൂപ്പൽ, പൊടി ഇവയാണ് കടലാസിന്റെ ശത്രുക്കൾ. ഇവയിൽ നിന്നുള്ള രക്ഷ കടലാസിന് അത്യന്താപേക്ഷിതമാണ്.

കടലാസിനെ നാശത്തിലേക്ക് നയിക്കുന്നത് അമ്ലമാണ്. കടലാസിന്റെ നിർമ്മാണാവസരത്തിൽ നിന്ന് രാസവസ്തുക്കളുടെ അവശിഷ്ടം പൂർണ്ണമായി നീക്കാത്തതുകൊണ്ടോ അന്തരീക്ഷത്തിലെ ഗന്ധകാംശവുമായി സമ്പർക്കത്തിലേർപ്പെടുന്നതുകൊണ്ടോ ആണ് കടലാസിൽ ഗന്ധകാംശം കാണുന്നത്. കടലാസിലെ അമ്ലാംശം ലിറ്റ്മസ്\* (Litmus) പൂപ്പൽ ഉണ്ടാകും.

## Review of Research Insight

അതിന്റെ നിവാരണത്തിന് അവ തുടച്ച് ശുദ്ധമാക്കുകയും നിയന്ത്രിതമായ വായുപ്രവാഹത്തിൽ വക്കുകയും വേണം.

താളിയോലഗ്രന്ഥങ്ങൾ എളുപ്പത്തിൽ അഴുക്കും കറയും പിടിച്ച് വൃത്തിഹീനമാകും. അഴുക്കുപിടിച്ചതോ ഇഴർപ്പമുള്ളതോ ആയ കൈ കൊണ്ട് അവയെ തൊട്ടുകൂടാ. അവയിൽ വിയർപ്പുപറ്റാനും ഇടയാകരുത്. ഭക്ഷണപാനീയങ്ങൾ താളിയോലയുടെ ഗ്രന്ഥപ്പുരയിൽ ഒഴിവാക്കണം. താളിയോലഗ്രന്ഥങ്ങൾ തുണിയിൽ പൊതിഞ്ഞുവക്കുന്നതും യുക്തമായ ഇടവേളകളിൽ പുതുക്കിപ്പൊതിയുന്നതും പൊടിയിൽ നിന്നുള്ള സംരക്ഷണത്തിന് സഹായകമാകും.

## **People's Participation in Sustainable Development Through Watershed Projects**



**Shijumon K.J**

Assistant Professor,  
Department of Commerce of Research Centre  
E mail: shijucapricon@gmail.com

***Abstract***

Water is essential for economic development of every country. As an agrarian economy India needs a better package for the efficient use of water. The integrated western ghat programmes are such a kind of policy of government to save the rainwater. This study is an attempt to peep through the effective participation of beneficiaries in the sustainable development of watershed projects in one of the 13 states including in the westernghat watershed projects. Watershed development refers to the conservation regeneration. In terms of resource development it covers development and management of resources like soil, water, and plants, animal, human and all associated components. This study aims to identify the benefits of watershed projects.

## **Introduction**

Water is the most precious thing in the world nowadays. May a third world war will occur in the coming future for water. In Kerala an average amount of 2000-8000 ml water is runoff through a rainy season. There is no proper water preservation method to save this for future use. Water is essential for economic development of every country. As an agrarian economy India needs a better package for the efficient use of water. The integrated western ghat programmes are such a kind of policy of government to save the rainwater.

Western ghat is a burning topic now a days. Kerala is one of the five states in western ghat region. 44 rivers of Kerala are originating from Western Ghats. And we have a 6 months of monsoon and to preserve all these water sources, govt. introduced and implementing different watershed programmes in the state, these programmes are implementing through Grama panchayat's and NGO's. This study is an attempt to peep through the effective participation of beneficiaries in the sustainable development of watershed projects in one of the 13 states including in the westernghat watershed projects.

A watershed can be defined "as the drainage basin or catchments area of a particular stream or river" simply, But, It refers to the area from where the water to a particular drainage system like a river or stream comes from. A Watershed may be small, consisting of a few hectares or huge, covering several thousands of hectares. The above definition is mostly postulated by hydrological unit. But it is beyond doubt that watershed is a biological,

physical, economic and social system based on integrated approach. A watershed has a wide ranging effect on the lives of the people at large.

Watershed development refers to the conservation regeneration. In terms of resource development it covers development and management of resources like soil, water, and plants, animal, human and all associated components. The total resources can be properly developed only by adopting the watershed approach. The basic unit of development is a watershed, which is manageable hydrological unit. In this approach, development is not confined just to agricultural lands alone but covers all the area starting from the highest point (ridge to valley) of the watershed to the outlet of the natural stream.

### **Objectives**

1. To get an idea about the concept of watershed project.
2. To identify the benefits of watershed projects.
3. To understand public participation in watershed programmes.

### **Need of the Watershed Development Programme**

“Soil without water is a desert and water without soil is useless”. Activities of man like deforestation wrong farming techniques, livestock, over grazing and faulty land use lead to the destruction of plants and trees cover, exposing the earth to the natural forces like heavy rains, direct sunshine, high winds and drought. This leads to environmental problem like soil erosion, floods, or water scarcity. Agricultural yield is lowered and this results in the decline in the income level of the community and often poverty and famine eventually lead to migration from rural to urban areas. The equilibrium between need and availability will lead to a better and increased resistance to

drought, increase in the supply of food, agricultural produce, water, fuel, fodder, timber and as a result improving standard of living and reducing rate of poverty & migration. Today 66 % of area is rained. The productivity of crops in drylands is very low due to soil erosion. The soil erosion is a major problem in dryland. Due to lack of ground coverage with grass/crop during the pre-monsoon period physical factors are damaged in dryland. Today nearly one-fourth of total land surface of India is affected by erosion due to excessive deforestation over grazing and faulty agricultural practices. Though 33 percent of geographical area should be under forests only 21 percent of area is under forests. At present the effective forest area is only about 10 percent due to widespread deforestation. There are less water resources to meet the requirement of wild animal. Which in turn affected the wild animals leading to reduce their number. The need to maintain better environment and preserve natural resources like soil, water and vegetation was realized by rules and managed through different kinds of villages Institutions (Gram Panchayat, Co-operative society, village watershed committee (VWC), Kudumbasree units. etc). Hence there is urgent need for watershed development.

#### **Watershed Development Programme In India:-**

Watershed development concept was first introduced by the great social reformer Mahatma Jyotiba Phule about quarter and century ago. But the importance of watershed development was realized very late. After independence the importance to executive authorities at village level has gradually declined in India due to many changes in rules, policies and variation in punishment etc. in the democratic setup and liberalization spirit of freedom. This led to more damage to soil and environment. Hence government

of India and different state governments took up afforestation measures. Soil conservation measures; run off water conservation and utilizing techniques etc. To conserve and utilize natural resources. However effective results were not seen on constant and continuous basis.

Government of India launched watershed programme in 1983-84 on a large scale in India to conserve and utilize natural resources for higher productivity of crops and more income/employment generation in addition to create better climatic conditions. Watershed development programme was expanded on longer scale. Though it has been carried out since 1983-84 the impact of watershed development programme is to be evaluated for better strategies / policies and to preserve, conserve and utilize natural resources for betterment of mankind. Indian council of agricultural research (ICAR) New Delhi, adopted 47 watersheds by providing expertise and technical guidance through central research institute for Dry Land Agricultural (CRIDA) and central soil and water conservation research training institute (CSWCRI). During 1983-84 to 1989-90 forty seven watersheds were selected under different agro-eco regions in India to study variability, impacts on productivity of crops, employment, income in addition to improve micro-climatic condition. Bench mark studies/surveys were conducted before each location and then current/post evaluation studies were also made by this organization. Total of forty-seven watersheds under were selected and visited to conduct surveys during 2001-2002. In addition to this these watershed were visited by different institutions such as Ministry of Agriculture, Ministry of Rural Development (MRD), Indian Council of Agricultural Research (ICAR) Institutions, and International Agencies which funded watershed and Non-Government Organization (NGO's). The above said agencies studied the

detailed data on various aspects like rainfall, run off, soil loss, soil erosion, ground water recharge, infiltration rate of rain water, surface water, other physical factors, vegetation, productivity of crops, employment and income generation, improvement in standard of living including education and health etc.

Secondly the World Bank (WB) financed four watershed project in Manoli (Maharashtra) Kabbalanala (Karnataka) Mahesh waram (Andhra Pradesh) in dry land area in 1983 which had active participation of agricultural universities. Thirdly, the state government such as Maharashtra and Karnataka has under taken up such programmes either with newly established or existing administrative machinery. Fourthly, the central government activated a national watershed development programme (NWDP) in 1986 which was implemented by state government with some modification. Lastly, there are projects undertaken by non-government organization (NGO's) which have relatively less scientific input and manpower but their result area exemplary. The national watershed development project for rain fed area (NWDPR) was launched in 1992 in 25 states and 2 UTS for restoration of ecological balance and sustaining biomass production. The purpose of the project is to conserve, upgrade and utilize natural resources in an integrated manner using low cost replicable technology. The project directly involves farmers and other beneficiaries in rain fed area in watershed development to conserve rainwater and top soil. The project envisages self-employment of poor farmers and rural masses in animal husbandry. Agro-forestry dry land horticulture, organic farming, fisheries, sericulture etc. In 1996 the programme was revised with various new concepts like development of barren lands, artificial recharge of water, participation of people with money or labour work contribution, reuse

of village tank and historical tanks. During the first 4 years of ninth plan (1997-98 to 2000- 01) an amount of Rs. 745 crores was released. An area of 22.5 lakh hectares was developed.

### **Western Ghats Development Programme**

The Western Ghats Hill Ranges run to a length of about 1600 Kms. more or less parallel to the west coast of Maharashtra starting from the mouth of river Tapti in Dhule district of Maharashtra and ending at Kanyakumari, the southern-most tip of India in Tamil Nadu. The region covers an area of 1.60 lakh sq.kms. Supporting a population of 442 lakh (1991 Census).

The main problems of the Western Ghats region are the pressure of increasing population on land and vegetation, undesirable agricultural practices etc. These factors have contributed to ecological and environmental problems in the region. The fragile eco-system of the hills has come under severe pressure because of submersion of large areas under river valley projects, damage to areas due to mining, denudation of forest, clear felling of natural forests for raising commercial plantation, soil erosion leading to silting of reservoirs and reduction in their life span and the adverse effects of floods and landslides, encroachment of forest land and poaching of wild life etc.

A separate Western Ghats Development Programme (WGDP) was launched in 1974-75 as a component of the programme for the development of hill areas of the country. The delineation of the Western Ghats Region for inclusion in the Programme was settled in 1981 by a one-man Committee headed by Dr. M.S. Swaminathan, the then Member-Incharge of the Hill Areas in the Planning Commission. For delineation of the areas for coverage

by the WGDP, the criteria of elevation (600 metres above MSL) and contiguity with taluka (a territorial administrative unit) was adopted. The Programme is being implemented in 159 talukas comprising of Western Ghats in five States viz. Maharashtra (62 talukas), Karnataka (40 talukas), Kerala (29 talukas), Tamil Nadu (25 talukas) and Goa (3 talukas). 14. Since the Sixth Plan, the allocable Special Central Assistance (SCA) for the Hill Area Development Programme (HADP) was being distributed between WGDP and HADP in the proportion of 13.39 per cent and 86.61 per cent respectively. Presently, this is being distributed in proportion of 16 per cent and 84 per cent. The SCA allocated to States is released in the form of 90 per cent grant and 10 per cent loan. The financing pattern of Special Central Assistance (SCA) earmarked to WGDP is allocated among five States on the basis of 75 per cent weightage to the area and 25 per cent weightage to the population except Goa in which case, ad-hoc allocation of 5 per cent of the total SCA is made because Goa's share when worked out adopting same criteria of weightage of area and population comes out to be minimal.

### **Approach and Objectives of the Programme**

During the Seventh Plan period, the following guiding principles were followed for WGDP for sustainable development of the areas covered under the Programme:

- Maintenance of ecological balance essential for the life support system.
- Preservation of the genetic diversity.
- Restoration of the ecological damage caused by human interactions.

- Creation of awareness among the people and educating them on the far-reaching implications of ecological degradation and securing their active participation for the eco-development schemes.

### **Special Area Programmes**

The general approach under WGDP during Eighth Plan period and continued during Ninth Plan has been of integrated development on compact watershed basis keeping in view the over-riding priorities of eco-development and eco-restoration as well as the basic needs of the people like food, fodder, fuel and safe drinking water. The guiding principles of WGDP, also, lay emphasis on the people's involvement in the programme. This calls for extension of education and publicity through audio-visual aids, mass contact programmes, visits to model sites etc. All these requires highly trained and motivated executing staff with team spirit.

It has been decided to gradually switch over to the Integrated Watershed Approach on Project basis for development in the Western Ghats area. This approach envisages the identification and delineation of macro and micro watersheds, their prioritisation, base-line survey and preparation of an integrated development plan for each macro/micro watershed covering all relevant activities such as Soil Conservation, Agriculture, Horticulture, Afforestation, Fuel and Fodder Development, Minor Irrigation, Animal Husbandry and Sericulture.

During the current financial year, it has been decided to allocate about 40 per cent of the total allocation under WGDP for programmes to be implemented on Integrated Watershed basis. The State Governments have

been directed to initiate necessary preparatory work such as identification and prioritization of macro watersheds, entry level works, Participatory Rural Appraisal/Rapid Rural Appraisal exercises etc.

A decision has also been taken to allow State Governments to utilise up to a maximum of 15 per cent of Special Central Assistance allocated to them under WGDP, for maintenance of assets created in the past under the Programme.

**People’s participation in the sustainable development.**

The watershed projects are implemented in Kerala by government through two bodies generally, grama panchayaths and Non Governmental Agencies. Watershed development programme provided an opportunity to people to involve at all stage and participate in all activities to develop their own resources. The involvement of people including women increased through associations\ group, training, field visit, demonstration etc.

**1. Village Watershed Committee (VWC)**

The VWC has been constituted and registered under societies Act.1860. There are 10 to 25 member including 03 Women. The work to be taken up, quality of the work done and the payments to be made and the issues related to watershed are regularly discussed in the monthly VWC meetings and the latest development report is presented in Gram Sabha. The VWC is empowered to take action against the people who violate the basic principles of the programme like contribution of voluntary Labour, ban on cutting trees from public lands, ban on free Grazing of livestock and payment of dues etc.

## **2. Joint forest Protect Committee (JFPC)**

In the watersheds project Joint Forest Protect Committee was formed (JFPC) at the village level. This JFPC have been registered to forest Department. The forest Department permitted the treatments under in forest area. The JFPC is taking steps to protect the forest and hence people from the neighbourhoods have stopped cutting the forest trees in the watershed area. Work planning contribution of voluntary Labour, fund, field visit and it always motivates people for participation in watershed development activities. There is a need for promoting co- operation, co-ordination and relationship between local organization and watershed committee.

## **3. The Kudumbasree units**

Under Kudumbasree every family below poverty line is organized into a Neighbourhood Group (NHG) at the local level consisting of 15 to 40 families with each family being represented only by a woman. Women were involved in the project implementation right from the planning and decision making in watershed development programme. To give special priority to integrated watershed development works. Women are more comfortable in smaller homogeneous women groups and are able to express their views too. Most of the Self Help Groups (SHGS) formed in the projects are having 15 to 35 members.

## **4. Accredited Non-Governmental Organizations (NGOs):**

Dependable Non-Governmental Organizations (NGOs)/ Voluntary Agencies who have the infrastructure and vision for intervention in developmental activities in Western Ghat region can be considered as Programme Implementing Agency (PIA) for projects under WGDP/ A panel

of accredited NGOs may be prepared by the District Level Co-ordination Committee based on the following criteria;

- At least year of standing.
- Experience in having executed at least one watershed project.
- Availability of technical manpower
- With Chartered Accountant audited accounts for the last 1 year.
- Willingness to submit to social conditions and keep all records of spending in the project as open document.
- Clean track records.

### **Conclusion**

Peoples participation is considered to be an important component for the successful implementation of watershed programmes. The number of benefits from watershed programmes can only attained through the effective participation of the mass. A sustainable development can be achieved through the effective participation of above mentioned categories. Water is so precious and getting fewer on earth, so to conserve it for the future, every person should actively involved in those programmes.

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## **Clientelism, Corruption and Mismanagement**

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**Dr. S.L Harikumar**

Assistant Professor,  
Department of Political Science  
E mail: ksharikrishnan40@gmail.com

Looking at the works of decentralization and local governance in the last twenty years or so, it has clearly proved impossible to achieve the expected outcomes and reach the envisaged targets in many areas of importance. All the states have passed conformity legislation, all of them have held elections for the local bodies and the elections have now become more or less regular. In almost all the states, the local governance institutions such as the finance commission, election commission, district planning committees, etc., are in place. But it is impossible today to write of the success of panchayati raj or municipalities, or of decentralization and local government.

The main reason is the actors in the system. Social and cultural factors perpetuate the hierarchical, unjust social system in the country, which produces illiteracy (about 40%) and extreme poverty conditions (35%). Because of the pyramid like rent-seeking structures of political parties, the command and control system of bureaucracy and the organised caste and class

interests, the leaders this system produces have hardly had an interest in change. On the contrary, leaders at the state and federal levels alike have had, and still have, a vested interest in maintaining status quo. This work makes an attempt to evaluate corruption clientelism and mismanagement in local self governments. Since independence corruption is seen as a growing phenomenon in Indian democracy. This destructs the functioning of cherished values of democracy and develops several malpractices. Several attempts are made to abolish corruption but we didn't succeed in compacting corruption and mismanagement.

The most important sociological fall-out this persistent traditional social and cultural mind-set is the conscious effort of the leaders at all levels to cultivate and strengthen clientelism through the modern democratic process, utilizing traditional instrumentalities like feudal/land relations, caste, community or religious ties. This is particularly the case at the local level because of the close and intimate relationships that exist there, in spite of the *one person, one vote system*, as well as a wide range of rules and bye-laws that govern all institutions and are designed to avoid favouritism and short cuts. As a study by the Institute of Social Studies puts it, "The argument that freedom to choose local representative places everyone on an equal footing, allowing each to have their interests represented equally, is only a farce in the absence of proper accountability"(Kurian,199:41). Feudalism and feudal attitude still prevail in most parts of India, which has direct implications for local leadership, even though this is elected through a democratic process. Another trend causing serious concern is the criminalization of politics, as persons with criminal backgrounds enter public life using muscle and money power.

Clientelism, which has taken new forms after the introduction of modern democracy, needs to be discussed in this context. Political leaders today desire to keep what may be called 'vote banks'. Favours are granted to those within the vote banks and clientage becomes the most important social relationship. The easy criteria of the vote bank are affiliations in terms of caste, religion, and region and so on. The clients show extreme deference to their patron. The patrons then use their political influence to extend favours, bypassing or even violating laws, rules and norms and even resorting to extra constitutional means. For many, beginning with the submission of their nomination papers as candidates in the elections, democracy is a convenient instrument for sustaining and perpetuating clientalism.

Evidently this is conspicuous in local communities where traditional relationships still exist, the negative side being the dependence syndrome due to extreme inequality. Caste loyalty makes things worse. The face to face interaction in everyday life, close proximity to leadership, connectivity of neighbourhood communities, kinship and family relationships- all these , though positive, are being turned into means of strengthening loyalties, clientage and thereby vote banks in elections to the local bodies and their operation. These sociological factors contribute to enhanced corruption even in the working of the local bodies.

Clientelism, which results in the abuse of power, and misappropriation and misutilisation of public resources, finds its antithesis in accountability. The positive aspects of accountability in the context of our discussion are that it institutionalizes the democratic values of responsiveness and participation, brings about efficacy and efficiency in the management of

programmes and prevents the abuse of power and dishonesty in the use of public funds. Accountability will make local governments engaged in developmental functions responsive (programmes meet the objective), and efficient (resources are used economically).

Accordingly, many checks and balances and accountability mechanisms are built into the system of governance. India is one country where there is no dearth of rules and bye-laws. Two situations have developed as a result: (1) nothing will move because of the multitude of rules and regulations, and (2) those who are in power find loopholes in the laws, defy them and do as they want.

In India, developments at two levels attract our attention in this context. First, the accountability mechanism built up by the governments at both federal and state levels. Second, innovative programmes initiated by civil society organizations, state or local authorities to break the patron-client relationship so as to reduce corruption and bring about transparency and accountability.

***Mechanisms to combat clientelism, corruption and mismanagement***

The local government institutions (LGIs) are required to play an active role in the planning and implementation of development programmes. The success of LGIs will depend on the extent to which they are able to improve the delivery of programmes, which can be done through participation, transparency and accountability. In order to avoid malpractices and misuse of power by the functionaries and elected representatives of these institutions, all

state governments have introduced relevant legislative provisions in their *panchayati raj* acts.

Broadly, the checks and balances in terms of state control over the panchayati raj institutions can be categorised as: (1) power to cancel or suspend a resolution; (2) power to take action in default of a gram panchayat; (3) power to remove elected representatives; (4) power to dissolve panchayats; (5) power to give directions to panchayats; (6) power to call for records and inspection; (7) power to conduct inquiry .The following table shows the checks and balances and the states that subscribe to each of these categories(Government of India,2001:80).

	<b>Powers</b>	<b>States</b>
1	Power to cancel or suspend a resolution	Andhra Pradesh, Orissa, Himachal Pradesh, Kerala Madhya Pradesh, Manipur, Rajasthan, Sikkim, Tamil Nadu
2	Power to take action in default of a gram panchayat	Andhra Pradesh, Orissa
3	Power to remove elected representatives	Andhra Pradesh, Orissa, Sikkim, Tamil Nadu, Uttar Pradesh
4	Power to dissolve panchayats	Andhra Pradesh, Orissa, Himachal Pradesh, Kerala Madhya Pradesh, Arunachal Pradesh, Assam, Gujarat, Maharashtra, Rajasthan, Sikkim, Tamil Nadu, Tripura, West Bengal
5	Power to give directions to panchayats	Arunachal Pradesh, Bihar, Sikkim, Himachal Pradesh

6	Power to call for records and inspection	Arunachal Pradesh, Andhra Pradesh, Orissa, Himachal Pradesh, Karnataka, Kerala, Madhya Pradesh, Assam, Gujarat, Maharashtra, Rajasthan, Sikkim, Tamil Nadu, Tripura, West Bengal
7	Power to conduct inquiry	Assam, Bihar, Gujarat, Himachal Pradesh, Karnataka, Madhya Pradesh, Maharashtra, Manipur, Orissa

It may be noted here that in some states wide powers of suspension and dismissal are vested in the state bureaucracy. This has immediately placed LGIs in a disadvantageous position vis-a-vis even middle-rung officials of the state governments. It takes away the basic characteristic of LGIs as democratically elected representative bodies and goes against the concept of democratic decentralisation and autonomy

***Gram sabha or village assembly***

The gram sabha (village assembly of all voters) is the basic unit of Indian democracy. Although villages are defined differently according to the habitation of the people, the gram sabha is the forum, which enables direct democracy aimed at making democracy vibrant and participatory

The gram sabha has no executive powers and is only a forum in which those above eighteen years (eligible voters) can meet and express their wishes and criticisms of the working of local government institutions. Powers

and functions assigned to gram sabhas in the various state acts include: examining and discussing reports on the administration as well as annual statements of accounts and audit reports; reviewing the programme of work; considering proposals for fresh taxation or for raising existing taxes; selection of development schemes, beneficiaries and locations of work; mobilizing voluntary labour and contributions in kind and cash for community welfare programmes; rendering assistance in the implementation of development schemes and rendering services in the villages; seeking clarifications from the president and members of panchayat about any particular activity, scheme, income or expenditure; scrutinising all kinds of activities of panchayats; maintaining a register of all development works undertaken by a gram panchayat or any other government department; scrutinising the completed works; seeking clarifications from the sarpanch(president) and other panches(members) of the grampanchayat regarding panchayat activities, income, expenditure, schemes and other matters . Of course, no state has incorporated all of these in its local government acts.

It may be stated here that the relationship between gramsabhas and panchayats is dialectical in nature. The panchayats in the rural areas will be effective only if gram sabhas meet regularly with maximum popular participation. At the same time, gram sabha will be effective only if the panchayatiraj institutions (PRIs) are strong.

The state governments generally fail to ensure that gramsabhas are convened at regular intervals. Although all voters from the gram sabha area are members, attendance at sabha meeting is poor. Studies have found that in most cases even a quorum was lacking. (See for instance, Kurukshetra, April,

December 1995; October 1999) Women and oppressed classes are particularly handicapped, as attending meetings involve travelling long distances. The advantage for women of reserved representation in panchayats is thus substantially lost. In some cases, whenever the gram sabha meets, it devotes its time to considering lists of beneficiaries and discussing matters relating to works and contracts in which many have no interest. The gram sabhas in some cases are too large and unwieldy for any effective participation.

But it must be stated that several states are taking up gram sabha issues seriously. In order to overcome large size or unwieldy geographical space, states like West Bengal, Orissa, Kerala and Madhya Pradesh have gone for smaller and viable units for people to meet in. Gram sansads in West Bengal, palli sabhas in Orissa, the ward sabhas of Kerala are manageable in terms of area and no of persons covered.

Moreover in Madhya Pradesh the gram sabhas have acquired a new status as a result of a state law to ensure holistic development of villages. The village based sabhas meet once a month – a quorum is twenty per cent of the voters, one third must be women and a proportionate no belongs to SCs and STs. A nine member village development committee, eight standing committees for important matters, a village fund for development and audits by external agencies are other features. It is to be noted that ward sabhas plays an important role in micro level planning. In West Bengal absolute power has been given to the gram sansad in respect of selection of individual beneficiaries under the poverty alleviations scheme

As the constitution makes no provision in respect of the functions and powers of the gram sabha, the state acts have given it only a marginal role.

If the gram panchayat is to be made effective in the present context there is a strong feeling that there must be certain amendments to the constitution making it incumbent on the states to bestow compulsory necessary powers on the gram sabha. The sabha should also have power to oversee the functioning of the gram panchayats. It should have power to approve the plan, the budget, the list of beneficiaries, sites for different works and accounts of the panchayat(Sharan 1999:4)

### **Social audits**

With the gram sabha coming to the fore, the concept that gained currency is the 'social audit'. The concept of the social audit has a broader scope than a traditional audit. A social audit is an independent evaluation of the performance and attainment of social obligations and it starts from the principle that in a democracy the decision makers should account for the use of their power. The social audit adopts the perspective of the vast majority of people in a society, in whose name and for whose sake the very institutional/administrative system is promoted and legitimized. Social audits of institutions are undertaken to see what these institutions mean for the vast majority of the ordinary people, who are not essentially a part of the state machinery or the ruling class of the day.

Today the panchayats provide the best forums for implementing social audits. For effective social audit, committees consisting of respected citizens and professionals are set up at various levels. The committee set up by Kerala government in 1996 went into some details as to how to facilitate social audits

As the gram sabha is the eyes and ears of the people, it is the best social audit unit in India's new democratic institutions. As public-spirited citizens and their collectivity are the key to social audits, in the gram sabha all sections of the people could raise issues of social concern and public interests and demand explanations, teachers or others of impeccable integrity could constitute a social audit forum or a social audit committee

In order to bring about greater transparency and accountability through social audits by the gram sabhas, the Ministry of Rural Development, Government of India, has issued instructions , to include the following: (1) a mandatory special meeting of the gram sabha during the last quarter of every financial year, for a social audit of all works completed or in progress, (2) if the majority of the gram sabha expresses dissatisfaction this must be recorded and communicated to panchayats at all levels; within one month a special gram sabha meeting should be convened, presided over by a member of the gram sabha who is not an elected member of the panchayat, for a detailed audit; similarly, the secretary for this meeting need not be the regular gram panchayat secretary. The proceedings would be recorded and approved by the gram sabha; (3) copies of all documents including estimates ,bills, vouchers, and muster rolls must be posted on the notice board of the gram panchayat office; (4) all records must be available for inspection and certified copies available on payment of fees

If we examine the working of the gram sabhas in various states we come across two kinds of situations. First, there are cases where social audits are taking healthy, democratic, humane approach to social and development problems. There are many success stories of gram sabhas using the social

audit for the good of the villages, preventing misuse of resources and corruption. The second situation is that of the gram sabhas where people raise unwelcome questions which results in violence

This is a serious problem in the backward areas of the country where caste divisions results in conflicts. The gulf between the rich and the poor, where government officials side with the rich through corrupt practices, also contributes to the violence. There are many examples of crude and violent behaviour in the villages of north India and also the southern districts of Tamil Nadu. After the introduction of the gram sabhas such incidents have come to light very frequently.

***Right to information and panchayats***

A significant development in the last few years is the sphere of accountability and anti-clientalism has been the struggle for the right to information. Information is necessary for citizens to participate in governance, especially at local levels. Since information is power, those who i the authority deny ordinary people the acces to information. The bureaucracy in india still keeps the colonial culture of secrecy, distance and mystification. Today there is a strong movement for every citizen to be given “the enforceable right to question, examine, audit, review and assess government facts and decisions, to ensure that these are consistent with the principles of public interest, probity and justice”. It would promote openness, transparency and accountability in administration by making government more open to continuing public scrutiny

Mazdoor Kisan Shakti Sangathan(MKSS) in the state of Rajasthan took the pioneering role in this. Their survey in two district panchayats in the state revealed that 85 percent of the estimated development projects budget was not spent on development work. False vouchers and bills were submitted by panchayat representatives for official sanction. These findings gave rise to a demand for the right to information

As a result of MKSS's struggle, the Chief Minister of Rajasthan declared on the floor of the State Assembly in April 1995 that every citizen had the right to information. On payment he/she could demand and receive details of expenditure on the work done over the last five years in his/her village and all the relevant documents could be photocopied as evidence, should they be wanted for use in the future. However, this assurance was not put into practice and social activists resorted to public action to get it implemented. Their question was: "why can't the government give us information regarding expenditures made in our name?" It took more than two years after the Chief Minister's assurance in the assembly for the government to issue an order

Meanwhile this idea spread all over the country and states like Tamil Nadu, Kerala, Madhya Pradesh and UP followed the suit. Madhya Pradesh and Uttar Pradesh opened a large number of their departments, including panchayat bodies, to public scrutiny through executive orders. But there was a setback to the RTI movement when the Madhya Pradesh Right to Information Act was unable to obtain the President's assent. However the RTI has gained momentum, and today it is a central government legislation. The Parliament passed the right to information bill in December 2002, and the

President gave his assent to the Freedom of Information Act on 10 January 2003.

As more and more states are forced to open their records to the public, the idea of social audits will spread to the local government institutions, enabling grassroots democracy to function effectively.

### ***Public hearings***

The MKSS in Rajasthan State has also successfully organised *jan sunwais* (public hearings). Identifying people's problems and relevant information, and accessing and scrutinising documents, are the preliminary steps for organising these public hearings. When a *prima facie* case of corruption is established, backed by the necessary documentary evidence, the date for a *jan sunwais* is fixed.

The preparations for *jan sunwais* begins by sharing the information in each place where the public work was undertaken and mobilizing small groups of affected people. Wall writings and pamphlets with details of some *prima facie* cases are also used for bringing people together.

Those accused also mobilize support in a variety of ways, through persuasion, appeals to class, caste and clan loyalties, threats and covert or overt violence. In many cases, payments withheld from workers in the past are clandestinely paid. The accused may also come forward to negotiate with the facilitators of the public hearing. Such negotiations are conducted with full transparency

Government officials, panchayat members at district, block and village levels and a panel of impartial observers are invited and they participate enthusiastically. The proceedings are conducted with “forthrightness and courage” and without “personal rancour or irresponsible mudslinging”

At the beginning of jan sunwai itself the rules of the meetings are laid out. Everyone present is entitled to speak, except persons under the influence of liquor. They must exercise restraint in their language and abstain from assaults on the dignity of any individual. Cases are taken up one by one and the documents and relevant rules and technical details are “paraphrased and demystified for the assembly”. People speak out, and verbal evidence is gathered. The government and panchayat authorities are also encouraged to clarify or defend themselves on any issue.

The outcomes of the right to information movement and jan sunwais in Rajasthan is positive and encouraging. In Ajmer district, two sarpanches returned misappropriated money detected during jan sunwai . the Collector ordered a special audit and recovery of misappropriated money as arrears of land revenue, and also filed police complaints against the guilty. The two sarpanches are presently in judicial custody. Until now three officials have been jailed, eight have received suspended sentences, and departmental investigations have been instituted against twenty-five officials

It is noteworthy that this citizens’ initiative is now being taken up by the state. The Rajasthan government has stated in the assembly that it would institute social audits in panchayat samitis to review thye spending of development funds over a period of five years. There was pressure from

presidents of panchayats against this as they opposed the jan sunwais. Their plea was that it was an infringement of the authority of the elected representatives. The government was firm in its statement that it will not succumb to the pressures of the sarpanches. The government is also taking steps to familiarise its employees with the process of carrying out jan sunwais

### ***Experiments in Kerala***

Kerala, one of the smallest states in India with a population of thirty million, has gone ahead with several programmes to ensure accountability. Being a state with high political consciousness and a multitude of active political parties, clientalism of the variety existing in some of the backward states is absent here. The clientelism in Kerala is more oriented to political party loyalties and affiliation. It may be mentioned here that the recent decentralization reforms in the state were also designed to reduce rent seeking by political parties at the local level.

In Kerala, ward sabhas and at a smaller level 'neighbourhood groups' have become active players in the panchayati raj system. The state's achievements have lain in involving citizens in the activities of the panchayat through institutional backing and above all by creating civil society organizations through peoples plan campaigns. Recommendations of the Government Committee on Decentralization(1996) laid the foundation for strengthening ward sabhas and through that social audits.

The panchayats have more or less implemented these recommendations and as a result, the ward sabha meets as frequently as possible, at any rate not less than once every three months, written invitations

are sent to every household to ensure the ten percent quorum and every member is given a copy of the government order detailing the rights and responsibilities of ward sabhas, with a covering letter by the gram panchayat president. The ward sabha has the right to know: (1) the action plan of schemes for the next three months, (2) the detailed estimates of the proposed works, (3) the detailed item wise accounts of every expenditure incurred within the ward sabha area, (4) the rationale of every decision of the panchayat concerning that area, (5) the services the officials will render and the work they are to execute in the next three months, (6) priorities for the preparation of the Five-Year and Annual Plans.

The ward sabhas also disseminate information on the development and welfare programmes; canvass participation in health, literacy and similar development campaigns; collect essential socio-economic data; provide feedback on the performance of development programmes; use moral suasion to induce people to pay taxes and repay loans; promote environmental cleanliness; mobilize local resources to augment panchayat resources; supervise development works by volunteer teams; make arrangement for prompt reports on the incidence of epidemics and natural calamities; and above all, maintain social harmony. The convenor of the ward sabha is required to maintain a record of the decisions taken at each meeting which must be made available in the panchayat office for reference and copying

The ward sabha is expected to lay down norms and criteria for selection of beneficiaries and then select them as per those norms and criteria. Subcommittees undertake or oversee items of work in furtherance of the rights and responsibilities of the gram sabha. Failure to convene the ward sabhas in

Kerala is a violation of the provisions of the Kerala Panchayati Raj Act and calls for penal sanctions, including loss of membership of the convenor in case of two consecutive instances of non compliance.

The most important institution in Kerala in the context of our discussion is the Ombudsman. This is a seven-member body consisting of a High Court Judge as the Chairperson, two district judges, two officers with the rank of secretaries and two non political representatives appointed in consultation with the opposition parties. The Ombudsman in Kerala is not only an advisory body but will also be given legal teeth. Another important development is the setting up of the appellate tribunals for appeal against decisions by a panchayat body. No advocate is allowed to plead in these bodies. These are not adversarial but investigative bodies. The members of these bodies have the status of High Court Judges and they can only be removed by being impeached. Executive interference, therefore, will be practically nil.

Kerala also has special women's watchdog committees at the gram panchayat and municipality level. Any such committee should have nominees from each gram sabha or ward committee, one being a member of a Scheduled Caste or Scheduled Tribe. Such committees have the same rights as social audit committees and may scrutinize costs, estimates, the quantity and quality of materials used in works, adherence to norms in selection, etc

Because of all these mechanisms it may be stated that there is reduced clientalism and hence less corruption in Kerala at the local governance level than in other states. According to the Performance Audit Authority report for the five year period 1997-2001, the most serious flaw they

could find was non-utilization of funds, that is, nearly INR 490 million remained in the form of idle deposits outside the treasury. During the five years in the total implementation of the various schemes, the audit could find fault bordering on corruption with the utilisation of only INR 23.5 million- although unfortunate- it is less than in other parts of the country

### Conclusion

From the above argument, it can be concluded that corruption and clientalism were emerged as the most vital issues in the third world countries, especially in India. Local governments have to be driving forces for compacting corruption and clientalism. Several mechanisms prevent corruption in Kerala are significant in this context. Effective governance and development depends upon corruption free society and inclusion of citizens in developmental process.

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Abstract of the Ph.D thesis entitled  
**Construction of Tissue Engineered Vascular Graft to Study  
Effect of Scaffold Properties and Shear Stress on Function of  
Endothelial And  
Smooth Muscle Cells**

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**Dr. Ragaseema V. M**  
Assistant Professor  
Department of Biotechnology  
E mail: ragaseema7@gmail.com

**Dr. Lissy K Krishnan**

Scientist G (Senior grade), Thrombosis Research  
Unit, Biomedical Technology Wing, Sree Chitra  
Tirunal Institute for Medical Sciences and  
Technology, Thiruvananthapuram

**Introduction**

Atherosclerosis is an inflammatory disease, which causes blood vessel wall thickening and ultimately blockage of vessels. In the case of small diameter blood vessels, the ultimate therapeutic approach is to replace the diseased blood vessel with internal mammary artery or saphenous vein,. But this option is restricted by the limited availability of healthy autologous blood vessels. Although synthetic large diameter vascular grafts are success as vessel replacement, synthetic small diameter blood vessel substitutes fail due to thrombotic complications. In this context, tissue engineered vascular graft

(TEVG) is one of the promising approaches for addressing the problem. The present study attempts the creation of a tissue engineered blood vessel equivalent, for which feasibility of autologous stem cell derived cells, antithrombotic infection-resistant scaffold and mechanical stimuli is being investigated.

The various approaches of tissue engineering of vascular grafts include endothelial cell (EC) seeding, collagen based vessel grafts, cell sheet assembly, peritoneal cavity graft implantation and biodegradable polymer based blood vessels. The biodegradable scaffold based grafts attained much attention, due to its degradability, mechanical strength and capacity to support vascular cell growth. Eventhough, long-term patency cannot be achieved in this regard due to problems such as hyperplasia, infection, aneurysm, neointimal thickening or stenosis.

Since functional vascular cells are critical for the patency of vascular grafts, functional tissue engineering has been explored recently, in which the tissues attain function before implantation. The essential components for a functional tissue engineered vascular grafts are vascular cells, scaffold, and signals such as mechanical and chemical signals. Stem cells as source of vascular cells and biodegradable polymers as scaffolds have been investigated in many studies. Apart from the chemical signals mechanical stimuli are considered as crucial especially in the case of blood vessels, where cells are constantly exposed to blood flow. The mechanical stimuli are sensed by ECs and the signals are sent to smooth muscle cells (SMCs), in response to which the blood vessels are dilated or contracted. The EC-SMC cross-talk is also important in pathological conditions such as atherosclerosis, where the vessel

wall thickening occurs. Due to lack of proper *in vitro* model systems, the pathological conditions associated with blood vessels are difficult to study.

With this background, hypothesis of the study was developed as follows. Adult stem cells may be used as a viable autologous source of stem cells for vascular tissue engineering applications. Development of an anti-thrombotic and antibacterial scaffold may aid the *in vitro* culture and patency of the vascular grafts. In this context, silver nanoparticle (SNP) incorporated poly ( $\epsilon$ -caprolactone) (PCL) scaffold may serve as a good scaffold for the graft generation. Mechanical signals especially shear stress may support to develop a functional tissue engineered graft *in vitro*. The tissue engineered graft may serve as a model system to study the pathological conditions such as vessel wall thickening.

#### **Aim and Objectives of the study**

The study aims to 1) Standardize the *in vitro* differentiation of endothelial progenitor cell (EPC) and smooth muscle progenitor cell (SMPC) from peripheral blood into EC and SMC respectively and characterise the differentiated cells using specific markers. 2) Modification PCL scaffolds by incorporating SNP and evaluate its antithrombotic, antimicrobial, and cytotoxic properties. 3) Construction of tissue engineered graft and its use as an *in vitro* system to study the effect of shear stress on vascular cells and effect of vessel thickening on the EC-SMC cross talk was another major objective of this study.

#### **Methodology**

The peripheral blood mononuclear cells (PBMNCs) were isolated and seeded onto growth factor incorporated fibrin-based matrix to induce differentiation of EPCs and. Differentiated ECs and SMCs were characterized

using specific markers (ulex lectin binding and PECAM for ECs and basic calponin and  $\alpha$  actin for SMCs) by fluorescence microscopy. PEG protected SNPs were prepared by chemical reduction method and characterized by spectrophotometry and transmission electron microscope (TEM). Various assays were used to study the antithrombotic (scanning electron microscopy (SEM), aggregometry, MDA assay, western blotting and flow cytometry) and antimicrobial (zone of inhibition assay) properties of SNPs. SNP incorporated PCL tubular scaffolds (4mm diameter) of two different thickness ( $80 \pm 13 \mu\text{m}$  and  $600 \pm 13 \mu\text{m}$ ) were prepared by solvent cast or solvent cast and electro spinning methods. ECs ( $1 \times 10^6 \text{ cells/cm}^2$ ) were seeded onto luminal and SMCs ( $5 \times 10^5 \text{ cells/cm}^2$ ) were seeded onto abluminal surfaces of the polymer scaffolds of different thickness by the static method. To study the effect of shear stress, the cell seeded scaffolds were subjected to fluid flow in a two channel bioreactor system and static controls were kept in parallel. Phenotype of ECs and SMCs was analyzed by light microscopy, spectrophotometry, real-time PCR analysis and ELISA.

### **Results**

The niche was found to be crucial in the differentiation of EPC and SMPC. A biomimetic growth factor incorporated fibrin matrix has been standardized in this study for the differentiation of EPCs and SMPCs into ECs and SMCs respectively. Also, cell culture medium composition has been optimized for the derivation of EPCs and SMCs from PBMNCs.

The efficacy of SNPs as an antithrombotic and antimicrobial agent has been well established in this study. The antimicrobial, antithrombotic, and cytotoxic effects of SNP were found to be concentration dependent. The antithrombotic property of SNP incorporated scaffolds was evident, on

analysis of platelet activation, adhesion, and aggregation. SNPs were found to be effective against both Gram positive and Gram negative bacteria from 0.1w/w% concentration onwards. Cell attachment, spreading, and survival was found to be comparable to the negative control at 0.1 w/w%. Hence, 0.1w/w% has been identified as the optimum dose in the polymeric scaffold for vascular tissue engineering applications.

Tubular polymer scaffolds of 4mm internal diameter and different wall thickness were prepared by solvent cast or solvent cast and electrospinning methods. The SNP incorporated fibrin coated scaffolds were found to support the cell seeding after 24 hours of incubation. The lumen of the scaffold was covered by ECs within 72 hours of seeding and cells were found to be aligned with the direction of flow, in response to shear stress. Antithrombotic phenotype of ECs and contractile phenotype of SMCs were found to be maintained under shear stress, on analysis after 7days of *in vitro* culture. Under the influence of shear stress, the production of nitric oxide (NO) was up-regulated when compared to static culture. There was a positive correlation between the expression of NO in ECs and production of cGMP from SMCs. When the thickness of the scaffold was increased, the effect was found to be diminished.

### **Summary and Conclusion**

Niche composition is found to be critical for PBMNC derived EPC and SMPC differentiation into ECs and SMCs respectively. Growth factor incorporated fibrin based biomimetic matrix designed in this study has found to support the differentiation and survival of cells. The PEG protected SNPs are found to be antithrombotic and antimicrobial in nature and promising for vascular tissue engineering applications. Shear stress is found to affect the

phenotype of ECs and SMCs, which is found to be crucial for the *in vitro* construction of a TEVG. For the signal transduction between ECs and SMCs, scaffold wall thickness is found to be one of the determining factors, therefore, which must be taken care of during TEVG construction. The main limitation of the study is found to be the short culture time in terms of the ECM synthesis. A fully matured TEVG may serve as a more appropriate tissue equivalent for *in vitro* study.

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2. Suggested themes of papers: The Journal tries to maintain a balance between research oriented papers from different areas of Sciences, Social Sciences, Humanities and Commerce. The selection of papers for publication will be based on their relevance, clarity, topicality and originality; the extent to which they advance knowledge, understanding and application; and their likely contribution towards inspiring further development and research.
3. Length of manuscripts: Manuscript should not exceed 5,000 (five thousand) words. The text should be in M.S. Word format, double-spaced on A4 size paper, Times New Roman, 12 Font size with one-inch margins on all sides giving page number and should be submitted with a cover page bearing only the title of the paper, author/s' names, designations, official addresses, phone/fax numbers, and e-mail IDs. The author's name should not appear anywhere on the body of the manuscript to facilitate the blind review process. The manuscript should be accompanied by an abstract of 250 words containing five key words.
4. Tables and charts: All tables, charts, and graphs should be given on separate sheets with titles. They should be numbered continuously in Arabic numerals as referred to in the text. Wherever necessary, the source should be indicated at the bottom of tables/charts. Number and complexity of such exhibits should be as low as possible. Endnotes, italics, and quotation marks should be kept to the minimum. The location of tables, figures and graphs in the text should be indicated as follows: Table 1 about here. For figures appropriate 'figure legend' should be included.
5. References: References should be complete in all respects and arranged in alphabetical order in A.P.A./Harvard/Vancouver style.  
E.g. Journal reference  
Akasofu S. I., Smith R. A. and Goertz C. K., Organization of magnetosphere during major solar flare events, J. Geophys. Res., 117, 2345-2354 (2014)  
Reference from proceedings  
Pincus, S. M., Approximate entropy as a measure of system complexity, Proceedings of the XV National symposium on Plasma Science and Technology, Bhopal (India), 88-97 (1991)  
Reference from text books  
Gonzales N. D. and Hong D. B. in Fundamentals of Space Physics, D Reidel Publ. Co., Washington (USA), p. 345 (2012)  
Citations should be incorporated in the text at suitable places in proper style.
6. Book review: The book review should normally not exceed 800 words. The citation of book-particulars is as follows:  
Kurt Verweire & Lutgart Van Den Berghe, Integrated Performance Management: A Guide to Strategy Implementation. London: Sage, 2004. xvii+334pp. £26.99 soft cover.
7. Theses Abstracts: Theses Abstracts should normally not exceed 1000 words to be presented in a logical manner.
8. Other formalities: For clinical studies and animal studies, ethics committee approval of the institution is essential. Duly signed "Author Declaration" and acknowledgements should be attached with the contributions. Authors of selected papers will have to submit the "Copyright Assignment" in due course.
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