

# Archaeological Heritage and Tourism

(Developing underdeveloped Regions)

*Sunil Kumar Patnaik*

Archaeology, simply stated, is the study of human antiquities. An Archaeological Site is a place where the remains of an old civilization exist, sometimes visibly but mostly under the cover of the earth. It needs a lot of careful digging and sifting which in archaeological terms is called "excavation". After excavation the site reveals the existence of human settlement with houses, streets, temples, potteries, tools and other implements, sculpture, painting, writing etc. This ancient human settlement discovered or unearthed during the modern times is called archaeological heritage. The passion by the past is something inherent to the human being. As it says well: "Town that does not know from where town comes that does not know to where it goes".

The Archaeological tourism is ideal for which they look for a higher knowledge and sublimates, tie to the meditation and the relaxation, in perfect synchrony with the surroundings or ecosystem that is, integration with the Mother Nature, but always in old places, next to the ruins of the "enigmatic missing civilizations".

Knowledge about archaeology and archaeological sites adds to the expertise of those tourism professionals who package tours or work as a guide and escorts. There has been an increased interest in cultural and heritage tourism.

In some countries like Egypt, Mexico, Italy, Peru, Cambodia, India etc, tour operators package archaeological sites and monuments as tourism products and offer archaeological tours as special interest tours. In the modern days with evolution of new age tourism, the travellers particularly youngsters were very much interested to explore the heritage high ways to peep into the past through the material remains for which tourism has provided as tool.

India, virtually has repository of Archaeological Sites and Monuments which serves the backbone of Indian Tourism development. Although the sole aim of archaeology is to provide historical truth, laid bare material culture, enriches the contemporary knowledge on Architecture, Religion, Society, Art, Medicine, Town planning etc. The development of Indian Society was revealed, only when in 1921 Harappan Civilization brought to limelight through archaeological excavation which covered an area as wide as 1.8 million square kilometers. Archaeology has established that it was a long-forgotten civilization almost five thousand years old and contemporary with the ancient civilizations of Mesopotamia and Egypt. This civilization covered a wide variety of land and climate. While the settlements in Beluchistan developed and survived in inhospitable dry climates and

unapproachable hilly terrains, the settlements in the Ganga- Yamuna Doab enjoyed all the bounties of the nature. Hundreds of kilometers of desert-land separated the Harappan settlements in Rajasthan and Gujarat. The premier Harappan settlements in the Ghaggar-Hakra-Indus region was situated in the flood plains and the land was fertile making it possible for the cities to procure food from the adjoining villages. The great Indian civilization has been dated between 2700 B.C to 1400 B.C. The early and mature sites discovered at places like Mehargarh, Amri, Kot Diji, Gumla, Harappa, Kalibangan, Mohenjodaro, Banwali, Lothal are simply amazing. The Great Bath, Great Granary, Great Dock etc., discovered at these places not only present huge settlements but the science of city planning is the attraction on which now tourism could be looked upon.

Similarly, the historical cities like Hastinapur, Kosambhi, Rajghat, Rajgir, Pataliputra, Kapilavastu, Mathura, Tosali have discovered in India with substantial material remains which were well focused on the rich culture that was developed during early historical periods. Likewise, the historical sites such as Ujjain, Amaravati, Nagarjunakonda, Sanchi, Saranath, BodhGaya, Sisupalgarh, Arikamedu, Kaveripattanam, Kurukshetra, Hampi etc., has enriched the science of civilization and known to us by way of archaeological process. The great Cave and Buddhist sites like Ajanta, Ellora, Nasik, Bagh, Kanheri, Elephanta, Mahabalipuram, Khandagiri-Udayagiri and Bhimbhetika etc, bear the testimony of our great culture and civilization in the form of art, architecture, religion and above all glimpses of human settlement. Besides, the temple sites of India like Khajuraho, Halbed, Belur, Kanchipuram, Pattadakal, Aihole, Madurai, Tanjavur, Bhubaneswar, Konarak, Martand, and the medieval forts and tombs like Taj Mahal, Red

Fort, Fatepur-Sikri, Amar Fort, Hawa Mahal, Palaces of Udaipur, Jaisalmir, Jaipur, Forts and tombs of Aurangabad, Hyderabad, Bijapur etc were also centre of attraction and served as benchmark to the respective State Tourism Departments. These are all archaeological wealth that has taken as resource for tourism development. A matter of fact that a heritage trail could be explored from Khajuraho to Konarak which could combine efforts of three states. Of course Chhattisgarh Tourism Board and Orissa Tourism, now has taken initiatives in this regard. However, a trained Archaeologist is required to work as a consultant to every Tourism Board to bring down the cultural enigma of each site. The border state of Chhattisgarh has closer link with the Buddhist and Temple sites of Orissa. The mighty Mahanadi had its origin in the Sihawa rocks and travelled 1000 kms and met the Ocean near Paradeep. The Mahanadi valley has rich archaeological sites like Rajim, Arang, Sirpur, Sonapur, Binika, Kusaleswar, Boudh, Paragalpur, Bhattarika, Kantilo, Baneswaranasi, Dhavaleswar, etc. So also the coastal line of Orissa and Andhra Pradesh has also rich in Buddhist sites like Ratnagiri, Bandaeswar, Kuruma, Palur (Orissa) and Salihundam, Ramatirtham, Nagarjunakonda, Dhanyakatak etc.(AP). All these cultural sites are interrelated and had close cultural interaction in the past. Now, Tourism should use the resources so that inter-state tourism could be expanded and the regions could also be developed.

In this background let us focus on the archaeological sites of Orissa and its strength for tourism development. Orissa like Karnatak and Tamilnadu, is rich in historical remains in shape of temples and heritage sites. Since long, Orissa was enchasing its tourism resources based on temples of Konarak, Bhubaneswar and Puri. The forty

years journey of Orissa tourism concentrated on Golden Triangle, which was its main USP. Hotels, Resorts, communication and other related activities were taken up. Now, the tourist flow to these places are overwhelming. The gift of tourism to these places could be reckoned through the activities undertaken by the local people and engaged for their bread and butter. Konarak is the best example. The 100 number of guides, equal number of photographers, souvenir sellers, hotel owners and also government earn revenue due to the importance of our historical monument built in 13<sup>th</sup> century. Thanks to the Archaeological Survey of India and the Archeologists who have brought the heritage of mankind to limelight. It was in 1901 A.D., the great monument was discovered from the heap of sand and the archaeological conservation that has brought life to the monument and tourism gives the strength by popularizing and marketing the monument. Now, it is a world heritage monument and the responsibility of conservation of the standing monument has gone to the world body like UNESCO. The tourist flow to Konarak is more than 3 million.

The other archaeological sites of Orissa, like the Buddhist Sites discovered in the last decade could be utilized for the development of local area as well as serve the marketing benchmark for Orissa Tourism. The widely spreadover sites like Lalitgiri, Ratnagiri, Udayagiri and Langudi, were just wonders in Indian heritage. While working in the Archaeological excavation process during the year 1989-92, we know the strength of these sites which has changed the course of historical science of Orissa. The discovery of bone relics from Lalitgiri had just thrilled the Buddhist world as that of Sanchi and Rajgir, this place again has a huge Stupa and Chaitya dated to 2<sup>nd</sup> century B.C/A.D. The

gradual development of Theravada and Mahayana Buddhism could be clearly visible with its marvellous settlement pattern. So also the sites of Ratnagiri and Udayagiri are the repository of historical truth which could be marketed throughout the world for its landscaping, settlement pattern, construction pattern, use of scientific water system, drainage system and plethora of sculptural art besides religious growth that is Mahayana and Tantrayana or Sahajayana. Of course, almost all the big excavated historical sites like Kosambhi, Kurukshetra, Hampi, Nalanda has the same story to tell but, our sites has the more interesting stories. We have worked in the Mahabharat site at Kurukshetra for about three years (1987-89) which has brought out many new theories like dry bed of river Saraswati, development of settlement during Iron age etc and the site now is a major tourist attraction in Haryana. So also Hampi became the major attraction in Karnatak, Nalanda in Bihar also taken up for tourism brand. Here, our sites could be more value based product, by incorporating the marketing ethics and management process not only as Buddhist site but as major resource for culture and civilization.

All the major Buddhist sites, Lalitgiri, Udayagiri, Ratnagiri and Langudi has their own unique stories for growth and development of science of religion, culture, way of life, technological advance etc. For example, the rain water harvesting system at Lalitgiri particularly at Monastery –I is a wonder to the technocrats. Similarly, the use of bricks for double storied building, again astonishes the engineers. As said earlier, the potentials should be properly ventilated in the world of people. The uniqueness of Lalitgiri is the relic casket together with Buddhist monuments, Ratnagiri provides huge monastery with thousands of images, so also Udayagiri

presents the construction pattern of the brick built structures and an epi-center for Vajrayana form of Buddhism, Langudi tells the story of earliest phase of Buddhism with its narrative panel in the shape of rock-cut sculptures. It is all wonder in the Buddhist world. The living Buddhism prevailed in the Himalayas has its roots in these sites. The Lamaism of Tibetan Buddhism could also be visible from these sites so also the Buddhism prevailed in Sri Lanka and Thailand has its close interaction. The Chinese Buddhism had its close connection with Orissan Buddhism since 7<sup>th</sup>-8<sup>th</sup> century. Theoretically, we have all the potentials, only the need of the hour is to package and promote in a phased manner. Our motto is not only present Buddhism only to woo Buddhist tourists but attract the world of people by presenting the leafs of technological advances, artistic excellence, science of religion and culture, to whom most of the people like to experience, even a layman enjoys to look at the temple or a monument. The modern day visitors often search, the cultural corridors. Tourism organisations should have a cell for Resource Management and well-qualified tourism personnel may be engaged for product development. The Chhattisgarh Tourism Board is planning to develop a cultural corridor or tourism circuit from Khajuraho to Konarak which will be helpful to three states and its resources are almost all archaeological and ethnic sites. So also Orissa Tourism is working on Mahanadi Circuit which includes important archaeological sites of Chhattisgarh like Rajim, Siripur, Arang and the Orissan sites like Sambalpur, Huma, Sonapur, Binika, Boudh, Kantilo, Bhattarika, Singhanath, Banki, Banaswarnasi, etc. This is wonderful concept but the need of the hour is to how we present it in a professional way, for which, trained and qualified tourism professionals only can do wonder.

For sustainable development of the isolated regions having Archaeological sites and Monuments due care and respect is needed, as these are regarded as important assets for tourism. There is a Law governing these assets which is known as "The Ancient Monuments and Archaeological Sites and Remains Act, 1958". The main objective of this Act is to provide for the preservation of ancient and historical monuments and archaeological sites and remains of national importance, for protection of sculpture, carvings and other likewise objects. The Act extends to whole of India. As the Act takes care for its protection and preservation, tourism takes care for its economic viability. Since, Indian tourism is still largely cultural tourism and the main motivation for 70% of the total tourist arrival is only the cultural attraction of our country, so the viability of the Archaeological Sites and Monuments as tourism product has already been proved. The states like Orissa should now come forward to develop these sites as new product as we should project and present differently. The sites should be merged with capacity building programmes, rural tourism projects or even roads, drinking water supply, landscaping, establishment of interpretation centers, trained guides, village heritage workers and if possible establishment of good standard hotels (depending on tourist arrivals) etc are the need of the hour, so that, it will be easier to create heritage awareness, tourism promotion as well as local area development. ICOMOS - International Scientific Committee on Cultural Tourism has issued specific guideline in this regard. We should cite a local example that the Vindusagar development project with establishment of herbal garden which is unique in whole of Eastern India, undertaken by Orissa Government, is a step forward for heritage conservation and attraction management. Now the wonderful archaeological site Khurda Fort may

be taken for development. The Fort ruins could be developed as that of Hampi (Karnatak). It needs careful conceptual designing because, it is located in the mid-way of NH-6 and NH-203. The access is very easy from NH-6 near Khurda and the ruins are visible with huge entrance, moat, and palatial structures.. The Fort is the signature site of Oriya militancy and valour. It bears the whole heritage of freedom struggle since historical days. It could be developed with landscaping, information kiosks, picnic areas, interpretation center and guide service. A special project from State Archaeology and State Tourism Department is necessary for making it sustainable for tourism purpose. Some of the remote sites like Langudi Hills, Sisupalgarh, Jaugarh, Potagarh, Vikramkhol, Banaswarnasi, Manikapatna and the heritage sites along the river Mahanadi starting from Rajim, Sirpur in Chhattisgarh down to Sonapur, Bhattarika, Banaswarnasi to Cuttack etc, may be developed with all possible inputs from tourism and culture so that local area benefit could be visible and underdeveloped regions could be developed and linked to the travel circuits.

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# Life of Women Agricultural Labourers in Orissa

*Dr. Sabita Mishra*

*“There is no chance for welfare of the world unless the condition of women is improved.”*

– Swami Vivekananda

Although, ‘GREEN REVOLUTION’ has given our country self sufficiency in agriculture sector, its benefits have not been reached to the agricultural labourers specially the Women Agricultural Labourers (WALs). They get less and irregular wage and maintain lower living style remaining below poverty line. India being the agriculture-oriented country, agriculture labourers are the integral part of total Indian labour force. The exploitation of women labourers in rural regions happens both horizontally and vertically. Therefore, the study of Women Agricultural Labourers (WALs) is very important in this regard.

Keeping this in view, one research study was undertaken under the project entitled “Efficient Resource Management of Women Agricultural Labourers” covering two Blocks like Niali in Cuttack district (irrigated) and Dhenkanal Sadar in Dhenkanal district (non-irrigated). Hundred WALs were randomly selected (50 from each Block) from twenty villages (ten in each Block) having children and minimum three years of experience in farm labour work.

The study is based on the objectives of assessing socio-economic profiles, the time management, family resource use and household activities of WALs. Data was collected through interview schedule on the basis of the objectives and observations were made as follows.

## **Observations**

### **Socio-Economic-Personal Profile:**

Of the socio-economic variables, 96% of the Women Agricultural Labourers (WALs,) were from backward caste families and illiterate while most of them were landless. Only 6% of them had land with small size and low economic living standard. Forty percent of the WALs took up farming in leased-in lands, which is maximum up to three acres. Livestock management was the main source of income next to wage for maximum WALs (26%) followed by nutrition garden. The less number of WALs (16%) had other source of income like small business, contract work, betel farm, service, rural craft and farming. As in modern society the people prefer the nuclear family system due to overburden and self centeredness, the WALs were not out of it.

The wage rate was Rs.40 – Rs.50 and Rs.50 – Rs.60 for both farm (rice based) and non-farm activities (bond work) respectively. The WALs (71.50%) got it in cash form against their

labour. They also got kind like 1 bundle of grams against 10 bundles of its harvest. In case of caste profession, the washer women had got 10 kg. of rice per family per year. The housing facilities were very poor and pitiable having no proper rooms for kitchen and sanitation although shelter is the basic human need. It was observed that the percentage of *kacha* house with WALs was 58.00%. They viewed *food* as the main item on which major expenditure was done.

Most of the WALs were with debt to manage their livelihood. They had borrowed money from different sources like LIC, money lender, friends and relatives, DRDA, bank, Mahila Sangha and SHG with interest rate up to eight percent.

#### **Employment Opportunities:**

The comparison between the WALs of the two different situations brought out the following differences:

The employment of WALs in Cuttack district (irrigated) was little different from Dhenkanal district (non-irrigated) in Orissa. During summer, in Cuttack district, the WALs (4 to 8%) got employment for harvesting sugarcane (30 days), bond work (20 days), work in betel farm (10 days), harvesting groundnut and grams 15 (days) while not a single WAL in Dhenkanal district got employment for a single day in farm activities. Rather, sixty percent of WALs were engaged (20-30 days) for collection of fuel, 50% for kendu leaves and bidi making (20-45 days), 20% for palm leaves mat making (10-12 days), 10% in brass handicraft (50-60 days) as caste profession and another 10% in cow-dung cake preparation (20-25 days) for household cooking purpose. Here, training may be imparted for WALs to improve their skills in mat making, bidi making and doing handicraft for better market.

In winter, 76% of WALs were engaged in rice harvesting (15 – 60 days) in Cuttack while (70%) for 8 – 50 days in Dhenkanal. In addition, the WALs in Cuttack got employment in other field activities like sowing of green gram (8 days) and harvesting of both sugarcane (30 days) and ground nut (10 days). But, for Dhenkanal situation, the WALs were busy in collection of kendu leaves for 10-15 days, fuel for 15-20 days and salia (khali) leaves for 10-20 days. So, for non-irrigated situation, some income generating programmes may be introduced for effective utilisation of their time.

In rainy season, majority of WALs (80%) in irrigated and (70%) in non-irrigated situations were employed in transplanting for 24 - 60 days and 25-32 days respectively. In both the situations 80 % of WALs were engaged in weeding. However in irrigated situation 4% of WALs were found in fertilizer application (8 days) but none of the WALs were involved in these activities in non irrigated track. The WALs were found more in collection of fuel and grass which was not found in irrigated track.

It was observed that 9.00% had gone 15 to 20 km and also above it by walking in search of wage and returned by public transport or by truck pre-booked by a *Sardar* /Contractor. Otherwise being harassed again by walking they return home. For this, they start at 6.00 A.M. from home and return with the same truck at night 9 to 10 P.M.

To establish good relation they did different types of part time activities like moping clay house (4%), fuel collection (8%), winnowing of milled rice (8%), rearing animals (12%), cow dung cake preparation (2%), calf rearing (2%), cleaning cow shed (2%) without any wage. They had expectation that at the time of need they could get loan from them with interest rate of 5 to 10

percent. Some of them did washing clothes of other families as part time job and earned Rs.50/- per day, total amounting to Rs.1500/- to 2000/- in a year against the work.

#### **Factors Affecting Work Efficiency:**

The perception of WALs reveals that the wage rate was the most affecting factor (100%) by harming their efficiency. While the efficiency of 86% was much deteriorated due to low wage rate, 14% expressed the good wage rate contributed much for their efficiency. The major factors (where more than 50% respondents affected) affecting the efficiency were use of leisure time, family pressure, age, family support, distance, health, use of labour saving devices and inter-personal relationship. The other minor factors were skills, other incentives, experience, seasonal work, contractual work, cultural factor and attitude. The WALs (10%) who used their skills in farming perceived the skills contributing for their efficiency.

#### **Social Participation:**

It was observed that more number of WALs had both active and passive participation in SHG. Very negligible WALs were ward members in Gram Panchayats. Other than these, there was no other organizational participation. In other words the contact was found to be most localised in nature. Therefore, there is need to increase participation of WALs in different formal organisations in order to make them active partners of developmental programmes.

#### **Leisure Time Use:**

The study investigated the leisure time spending of WALs in different ways relating to family and household work. The interesting part of the study is that the time spent on different activities was sometimes non-productive like gossiping, sleeping, playing cards and watching

TV in orderly manner. It indicates that the WALs leave a substantial time at hand which can otherwise be utilised by making best use of it to earn more and leave better.

#### **Food Habit:**

They preferred to consume mostly coarse rice in beverage form and locally produced fruits and vegetables. Sometimes they purchased costly fruits from market during festivals like 'savitri' and meat once or twice only during festivals like 'Raja'. Here awareness should be created among the WALs about family food and nutritional security coupled with training on raising nutrition garden, value addition etc.

#### **Future Plan:**

For improving their economic standard of living, they were more interested for taking livestock management, opening small shop (betel shop) and raising vegetable crops on lease plot. Therefore, care should be taken for developing different enterprises and its management.

#### **Physical Drudgery:**

For women agriculture labourers, the time and working hours are very important as besides farm labour work they have to take the burden of family-work, child care, animal care etc. It was observed in this study that in peak period, maximum WALs (28%) had worked for 14-18 hours while in lean period it came down to 14-16 hours. Further, the WALs had taken rest from 1-3 months during carrying stage before the delivery of their children whereas 14% had delivered their children without availing any rest. Even on the particular day of delivery also they had worked on the field itself.

#### **Suggestions**

- The wage rate of the women agricultural labourers should be increased and equal with the males.

- Work done by women agricultural labourers should be reserved for female only.
- Technology and loan should be assisted for leisure time income generating activities.
- Organizing unions for women agricultural labourers to avail government help.
- Maternity leave facility, rest place, sanitation and special place for children should be taken care of.
- They should be provided nutritious food, primary medical help and educational facility.
- In maternity leave period, provision of lowest wage rate by government should be made.
- There should be a special cell for women agricultural labourers' problems and settlement in each village/block level.

#### The distinct features

- Deprivation of child from play and education
- Deprivation of child from mother due to farm work in post-natal period
- Victim of child labour and exploitation
- Low wage rate

- Mental and physical torture by male persons
- Poor access to health care services
- Dawn to dusk hard labour
- Insecurity at work place
- Health hazards due to farm work
- Dissertation and divorce by husbands
- Worst sufferers of natural calamities

#### Conclusion:

It is time to address the issues and discuss the kind of policy reforms and institutional changes required for the emancipation and empowerment of rural female labour force. Empowerment should aim at changing the nature and direction of the power structures which marginalize the women labourers.

“Nature gave women too much power,  
the law, giving them too little”

- Will Henry

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*His Excellency the Governor of Orissa  
Shri Murlidhar Chandrakant Bhandare  
donating to Armed Forces Flag Fund  
at Raj Bhawan on 7.12.2009.*

# How to Win the Gamble of Monsoon in Orissa ?

*Dr. S. Pasupalak*

The income and profitability from farming basically revolve around two key processes, namely, increasing productivity and better marketing of produce. Increased productivity can be made reasonably under control as it is mainly influenced by the local conditions, while marketing is a much complex issue influenced by both domestic, national and international factors. Although farmers definitely need to be assisted on both the points, here the discussion is limited to creating a favourable environment of farming for higher productivity that would mitigate the risk of crop damage and scale up the confidence and morale of a farmer, specially in the rainfed rice growing areas. Seasonal weather, particularly monsoon rainfall, is the most important factor of crop production. It is strongly believed that although its occurrence is not under our control, and it is becoming more unpredictable due to climate change, its impact can be reasonably under control, if suitable mitigation measures could be taken beforehand. On this background, this article is written to identify **thrust areas as a package**, instead of putting every point as in the Agriculture Policy document. Emphasis has been made to throw light on how best to cope up with the emerging challenges due to climate change that is going to exert more stress in the kharif cultivation in Orissa, as is the case of 2009.

Following are the eight-fold principles of adaptation and mitigation measures listed in the order of priority, which need immediate and careful attention to convert them into a time-bound action plan on a focused and targeted way, preferably as a package. A key element of each principle has been identified as a MANTRA.

## **1. Increased availability of water, the basic element of crop production.**

### ***Philosophy:***

Next to weather, water is the driver of the crop production in Orissa. If a farmer has water he can grow a crop, whether with modern technology or not. Punjab and Haryana are going to harvest good kharif crops even in 2009 severe drought year due to assured water supply.

### ***Suggested Action :***

- **Water Harvesting (MANTRA# 1) :** It will assure one or two irrigations at critical times in kharif in deficit years and rabi crops in normal years.
- **Ground water use** through wells and bore wells.
- **Repair of LI :** A considerable number of LI points remain non-functional at any one time. Repair and maintenance may be made through public-private partnership.

- **Use of water from the Hydropower projects primarily for irrigation** : Power generation in the years of deficit rainfall reduces storage volume.
- **Checking water loss from minor irrigation projects** : Leakages and weed growing reduces the water.
- **Roof water harvesting** : It needs to be enhanced through law in cities and through assistance in rural areas for ground water recharge.
- **Scientific distribution of irrigation water** including change in timing and pricing of canal water supply.

**Justification of Mantra 1 :**

Climate change has increased number of heavy rainfall events (Fig. 1), and decreased number of rainy days and prolonged the dryspells (Fig. 2.). Most of rainfall is lost as runoff. Water harvesting into ponds shall provide life-saving irrigation to rainfed kharif crops, if dryspells occur and to rabi crops if kharif rainfall is good. Even in irrigated areas farm ponds will serve the purpose of early growing besides reducing the waterlogging and increasing the command area through increased field irrigation use efficiency.

**Considerations while implementing:**

- The interior districts require water harvesting more than the coastal districts as the recent rainfall data indicate the trend of increasing rainfall amount in the coastal districts and decreasing rainfall amount in the rest districts (Fig.3).
- Areas where crops are grown for seed purpose should be preferred first. For example, late harvest of kharif groundnut seed crop causes delayed supply in rabi. Early supply of seed shall

help growing on residual soil moisture exploiting late September /early October rain.

- To start with locate the spots on natural drainage line in the medium lands in the first phase and at other spots of a village subsequently.

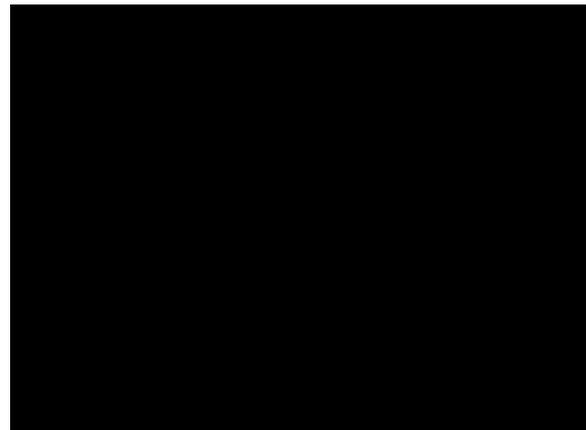


Fig. 1.

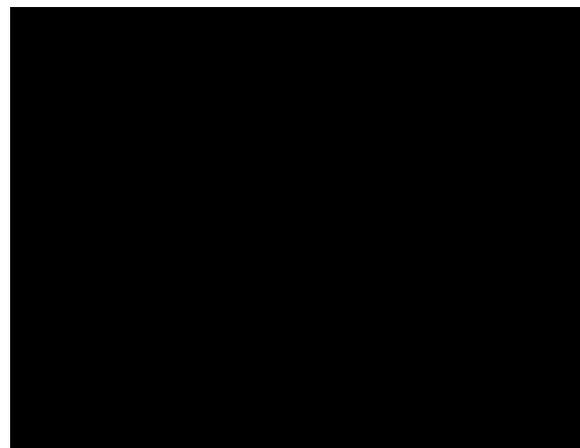


Fig 2.

**2. Growing right Seed, the primary input of crop production**

**Philosophy**

A field crop is basically centered around the variety uses. When a farmer has right kind of seeds, he can harvest something, even he does not use any other inputs like fertilizer. Hence, if

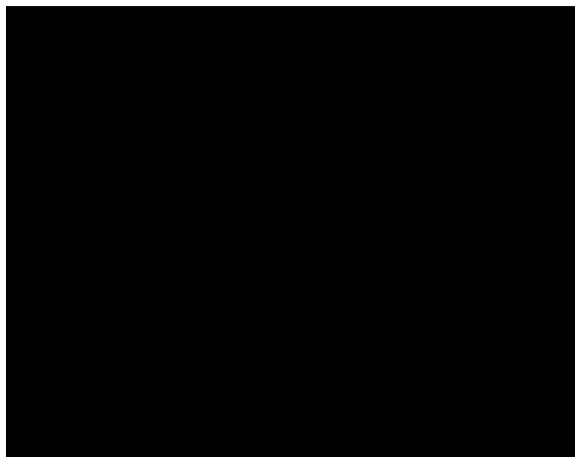


Fig.3

any assistance is to be given to the farmers, it is the truthful seeds of right variety to be supplied well before optimum sowing time. Requirement of short duration varieties is more now than earlier due to climatic change, specially for uplands and medium lands.

### **Suggested Action**

- **Short duration HYVs (MANTRA # 2)** : Upland : 90 days, Medium lands : 120-130 and Lowland : 145 – 150 days duration varieties are required under rainfed conditions, whether it is a normal year or drought year. Under irrigated conditions, duration may be 15 days more than that for the above rainfed categories.
- **Drought and Flood resistant varieties** : Frequency of prolonged dry spells and heavy rainfall is increasing in Orissa. The nation experienced two severe droughts in 2002 and 2009 within a span of seven years. Some floods in the country, in both south and north, surpassed records of the last century. The HYVs including the popular cv Swarna cannot tolerate submergence of 5 to 7 days, as evidenced from September 2008 flood in Orissa. More research is required in this direction to develop drought and flood resistant varieties. Of course, Swarna

Sub gene 1 needs to be multiplied urgently for flood-prone areas.

- **Go for few varieties and zone specific** : Large number of varieties create problem for marketing. The varieties may be narrowed down to 3 to 5 each for uplands and medium lands. Moreover, the consumer oriented super market culture requires to opt for the varieties according to their demand for better marketing.
- **Seed production and supply action plan** : Realistically hard numbers be fixed on quantity, time and place of seed requirement and procurement before the season in which seed crops are grown; Lifting and positioning be completed by May 1 for Kharif. Planning just before the crop season is not left with much time to procure sufficient quantities of required varieties.

### **Justification of Mantra 2**

- Delayed onset of Monsoon and less rainfall in October are likely to be more common under climate change, leading to shorter growing season, which in turn requires short duration varieties.
- Farmers in Orissa use rice varieties of relatively longer duration in uplands and medium lands than optimum duration that the land types require. Uplands and medium lands together constitute 76.6% of cultivated area in the state. More than 85% of medium land and 36% of upland are grown with rice in a kharif season.
- Short duration varieties shall impart stability on production and productivity of rainfed rice.

### **Considerations while implementing**

- Required short duration varieties are not available in adequate quantity in the state. These are to be produced in the state only, as less chance of availability in the other states. Private (both

agencies and individuals) and government agencies like NSC may be suppliers, signing agreements / MOU a year ahead.

- Priority may be given to rainfed farmers holding / cultivating only uplands and medium lands as the beneficiaries of short duration varieties.

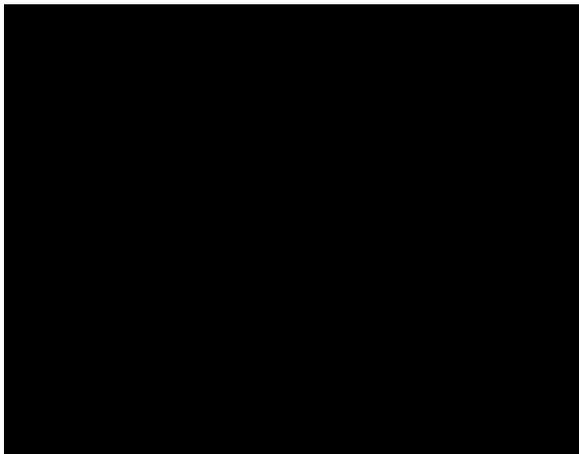


Fig. 4

### 3. New Cultivation Method

#### Philosophy

Presently cultivated rice cultivars do not require submerged conditions, although rice was originated under these conditions. Continuous ponding of water under conventional method makes rice roots shallow and a great proportion of rice roots are dead or become less active by the time of flowering, when rice plant still needs to be active to absorb nutrients. Besides the soil is degraded and more water is infiltrated, which would be accelerated under climate change. SRI method is an answer to overcome these problems.

#### Suggested Action

- **SRI method (Mantra # 3):** System Rice Intensification is a method of rice cultivation for resource use efficiency and higher productivity.

However, it cannot be universally adopted in all the land types and both the seasons.

- **Increased use of organic manures :** This includes green manuring of Dhaincha and application of bacterial fertilizers (*Azospirillum* and *Azotobacter*) as a part of Integrated Nutrient Management (INM). INM shall improve soil organic C, which helps soil nutrient transformation and longer retention of soil moisture. Climate change is considered to reduce soil organic C. Production of Dhaincha seeds in the state should be enlarged.

#### Justification of Mantra 3

- Water is going to be scarce under climate change. SRI method requires less water, less seed rate and produces more yield. Besides it maintains soil health with enhanced microbial activity.

#### Considerations while implementing

- SRI method needs to be propagated in a modified form.
- In kharif it shall be limited to medium lands with some assured water supply and well drainage conditions.
- Simple weed control implements like Kono weeder must be available in adequate quantity for supply to the farmers. Weed menace is more under SRI method, which is otherwise controlled by ponded water in the field under conventional cultivation method.
- Irrigation water supply schedule in the adopted areas of SRI method needs to be changed to save water.

### 4. Diversify the production system

#### Philosophy

In case of crop failure, some income would be assured from other component enterprises.

**Suggested Action**

- **Farming System (MANTRA # 4):** Cattle, poultry, fruits like banana, flowers and vegetables in and around the Farm Pond.
- **Diversify Rainfed uplands :** Rainfed uplands are not suitable for rice crop due to shallow soil depth, poor fertility and higher infiltration and seepage loss of water, since rice is a crop of high water and nutrient requirements and less tolerant to stress compared with non paddy crops. Thrust should be given for covering marginal lands under fruit crops like cashew and unbunded uplands under fruit crops like mango besides other non-paddy crops.

**Justification of Mantra 4**

- Water use by other crops and component enterprises is much less than by rice crop.
- Non crop enterprises give more stable yield in dry lands.
- Farming system will supplement the benefits of the proposed farm ponds (Mantra # 1) as an irrigation source.

**Considerations while implementing**

- As it requires investment, only proven technologies must be filtered and passed on to the farmers.

**5. Contingent plan****Philosophy**

Preparedness for all kinds of situation makes one half successful at first go before application of any mitigation measures.

**Suggested Action**

- **Blue print on Contingent Action Plan (MANTRA # 5):** Various scenarios of possible crop damage due to drought, flood, cyclone and pest attack are to be chalked out on priority basis.

The required contingent plan for each scenario must be well spelled out and ready on hand as a blue print. On pressing the panic button, the blue print is to be executed.

- **Strengthening Rabi crop production:** SEEDS, IRRIGATION, ADVANCED SOWING and MECHANISATION FOR LAND PREPARATION are the important elements.

**Justification of Mantra 5**

- Planning and execution are often delayed, even when a decision on crop damage is made.

**Considerations while implementing**

- The possible scenarios must be defined and described clearly, considering the spatial and time domain, land type, seasonal point of time, crop stage and extent of damage.
- The plan should take care of all stress situations, even the extent of damage does not attract declaration of a calamity.
- The mitigation measures prepared beforehand should not be considered fully static and it may need modification in a dynamic way for a particular situation.

**6. Use of ICT****Philosophy**

Information is powerful. Several decisions are delayed due to unclear information and its delayed outreach. Modern Information and Communication technology can be used to strengthen the information flow on real time to the out-reach..

**Suggested Action**

- **Weekly Info (MANTRA # 6):** Information on crop and animal resource status from

Panchayat is to be regularly prepared on a simple format and it should be of joint responsibility of Sarapanch, Executive Officer/ VAW and proposed cadre of Village Weather Man.

- **Monthly Meeting** : Meetings of the Panchayat and revenue Block Level Committees should be regularly held on scheduled dates to take stock of the situation.
- **Rain gauge installation** : One manually operated rain gauge station needs to be established at premises of each Gram Panchayat and a cadre of voluntary force to be called as Village Weather Man be created and trained.
- **District level Agro advisory** : District level agro advisory with outreach at village level was started in 2006 by ATMA with initiative from Agrometeorology Section of OUAT for the first time in India, but it got gradually weakened. It needs to be strengthened on content and dissemination.
- **Uniform, useful and simple Infosheet format** : It is required for ready reckoning of status at micro level and further data analysis.

#### **Justification of Mantra 6**

- Sometimes correct ground truth does not come out and reach the higher ups in time. The information on crop loss due swarming caterpillar on rice in 2009 kharif did not reach the higher ups in time with clear tone.

#### **Considerations while implementing**

- The recent proposal of Internet connectivity at Gram Panchayat level should be well used for information flow.
- The present form of weekly pest status bulletin disseminated by the DDA (Plant Protection) does not serve much to assess the status clearly.

## **7. Insurance**

### **Philosophy**

Insurance is the top most risk minimization tool among the off-farm tools available to the farmers.

### **Suggested Action**

- **Insurance coverage to all farmers (MANTRA # 7)**: It should cover all farmers of major crops, both loanee and nonloanee. Non-loanee farmers does mean that their economic strength is high in most cases.

### **Justification of Mantra 7**

- As the capital investments increase in the modern farming, importance of insurance increases.
- Insurance acts as a psychological strength besides financial instrument of risk minimisation.

### **Considerations while implementing**

- Awareness campaign and simplification of procedure are needed.
- Group insurance may be considered for lower premium and motivation.

## **8. Assessment and declaration of crop damage**

### **Philosophy**

Conventional method of damage assessment and devising matching mitigations measures have become obsolete under climate change and development of new scientific tools, and, hence, it now requires a new mechanism with more scientific back-up and less administrative procedural hack-up.

### **Suggested Action**

- **Real time assessment and declaration of damage (MANTRA # 8)** : A new mechanism of crop loss estimation under drought, flood, pest, hail storm, etc must be quantitatively codified.

- **Creation of an Autonomous State Authority** : It shall act as an independent advisory agency to monitor, assess and recommend the declaration of crop damage
- **Creation of a new Department of Agrometeorology** : Its creation in the Orissa University of Agriculture and Technology shall strengthen R & D for real time assessment of crop loss by Simulation Crop Modelling and other tools and developing mitigation measures.
- **Greater role of Agriculture Department** : It seems imperative that primary responsibility of data collection at microlevel on crop status, weather and other relevant information affecting agriculture should lie on either Agriculture Department on an Inter-Department mode or the suggested new State level Autonomous Authority.

#### Justification of Mantra 8

- Government can be able to support farmers to take up mid season correction and prepare for the next season.
- The relevance of Revenue Department in declaring drought, perhaps a legacy inherited from the British Raj with primary aim of collecting taxes, may be reviewed.
- Creation of the new Department of Agrometeorology in the state is an overdue, as

other state universities have already created it, some even 3 decades back. Climate change has made its requirement more essential in the agrarian state like Orissa.

- Decision by the new State level Authority would be considered by the farmers transparent and impartial.

#### Considerations while implementing

- Quantitative method of damage assessment with indicators, criteria and time limit has been submitted by the Agromet Section of OUAT in 2006, which can be used with some modification of spatial scale until it is refined with integration of satellite and weather data.
- The new state level Authority may have members from people's representatives, progressive farmers, academics, NGOs and administrators. It shall be an Advisory body to the existing implementing agencies.

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*Her Excellency the President of India  
Smt. Pratibha Devisingh Patil  
inaugurating the Cactus House in  
Raj Bhavan on 10.12.2009. His Excellency  
the Governor of Orissa  
Shri Murlidhar Chandrakant Bhandare and  
Hon'ble Chief Minister Shri Naveen  
Patnaik are also present on this occasion.*

## Tribal Culture : An Invisible Roots of Odissi Dance

*Ms. Manjushree Panda*

### **Towards a Conceptualization :**

“Culture is the vehicle of progress and civilization. It’s an way of life, a predominant way of life. Johan Von Herder has rightly remarked, “The culture of a people is the blood of it’s being.” In other words it can be said that whatever a man thinks, feels, acts is the final product of culture. Whatever we are practising in our day to day life, its rhythm and tempo, its direction and momentum is directed by its own culture. Every society has its own culture which has centripetal force binding in each individual member. The tribal culture brooms in the isolated high lands and forest of India. It is called as “Fourth World” and is the most delicate culture in the world. Tribal life and culture of Orissa has a warmth and vitality. It has a range, complexity, grandeur, colourfulness which is perhaps unmatched by any other states in the country. Oriya society, religion and culture have been enriched through countries of cross fertilization between this culture and non-tribal culture which has created and nurtured the pertaining classical folk tribal continuum.

### **Tribal Culture: An overview :**

The amazing conglomeration of traditions, beliefs, sorrows and philosophies that together constitute and visualise the rituals and festivals of

the tribes, has descended from antiquity and has been preserved to the present day. It is these aspects of their culture, that give meaning and depth to their lives and solidarity to their social structure. In Orissa, varieties of such folk traditions, tribal cultures enhance our glory at the national and international level and at the same time they no doubt provide the matrix, deliver the nourishment for all our creativity and help to promote our way of life.

The Indian religion of tradition by which we mean “Hindu Religion” is stronger and broad based in Orissa than most of other religions of Indian. Orissa is the rich repository of an amazing wealth of cultural tradition mainly of dance and music surviving through ravages of time and nature. It sustains its continuity rather enriching by evolving its folk traditions. At different periods of history different races and tribes have come down to the land, got rooted to the soil. With them various impulsive religions and religious sects rolled on this land culminating the Jagannath cult.

### **Jagannath cult :**

Nilamadhab – Purusottam- Sri Jagannath of Sri Kshetra (Puri) in Orissa stand out as historic departure from Hindu Pantheon. He is claimed as a “Savara God”. From the Puranic record and

ever-lasting tradition it is evident that a Visnuite deity called “Nilamadhava” was worshipped in Purusottam Kshetra by the Savaras. The worship of Nilamadhava (Jagannath) by the Savaras also finds mention in other Oriya texts like the “Daru Brahmagita” of Jagannath Das (16<sup>th</sup> Century AD) and the “Deula Tola” by Nilambara Das. (17<sup>th</sup> Century AD) The Savaras inhabiting in the deep forests, usually worship trees. They cut the unnecessary branches and worship only the stem with two branches, which represent the hands of the tree-deity. On the top of it, they painted a human head: The almighty Lord Jagannath resembles the stem of a tree and his hands stretched towards like the branches of a tree.

According to Deula Tola of Nilambara Das, we got lot of information about Srikshestra Dham and the mythical descriptions about Jagannath Trinity. All these legendary description testify to the fact that Jagannath Trinity has a tribal origin and Jagannath in the ancient times was worshipped as Sabari Narayan by the tribal living in Utkal Khanda.

The tribal are those people who have a innate sense of beauty and they love to beautify their immediate surrounding according to their generations. Performing art is the complex of communal activity, which includes singing, dancing, religious celebration and celebration of social occasions. The songs, dances and the relevant festivals are integrally linked. For celebrating each important religious festivals or socio religious ceremony, they have appropriate songs and dances.

#### **A cultural synthesis :**

Most of the tribal communities have retained the rich and varied heritage of colourful dance developed over countries and maintained

by them in a continuous tradition. To them dances and songs are part of their life and sources of enjoyment and relaxation.

Although every tribe has its unique pattern of dance there are several characteristics features which are common to all. Tribal dances are usually accompanied by songs and orchestra. Both men and women, young and old, dance but the accompany orchestra is usually provided by the male members. Invariably the dancers song to the accompaniment of music. To them dance and song are group activities forming integral part of the celebration of religious festivals, wedding and funeral and occasionally for enjoyment and relaxation. So tribal dance is characterized not only by its originality and spontaneity but also for its rhythmic movement of limbs, the free expression of emotion and colourful dancing costumes and attire.

The tribal songs and dances have versatility in itself. It is the only via-media through which people express themselves. The song and dance have invaluable congenial social atmosphere and feelings of oneness as human being. In itself it combines arts, literature and music which are essential assets of human beings and separates man from animals species.

Amusement among them, in general develops directly and with spontaneity as an integral part in their lives in everyday activities and social interaction which arises out under various life situations and experiences of the people in time dimensions as well as of the needs, aspirations and interests and continues as traditions. As such it reflects the whole behavioural lives of the people as well as their way of thinking and feelings.

So it is pointed to the fact that work and entertainment go together in tribal society for it

reduces the physical pressure and refreshes the energy. Besides the stated occasions of merriment, music and dance are the regular features of every tribal village where during evening hour, prior to retiring to bed, dance and song are organized in the village “Akhra”.

From different studies it is found that not only the tribal origin and tribal religion had a link with Jagannath Culture but also their socio cultural life has been considerably shaped and influenced the Jagannath/ Orissan culture. A very high degree of social equality and natural tolerance are primarily ingredients of the Jagannath Culture which has influenced and enriched Orissa’s – society and culture. It is not merely the songs, poems but the dance numbers which accompany the culture, that one can discern the same authenticity and intensity of shared community experience. The music and dance used in Saora / tribal culture has a great similarity with Mahari / Gotipua / Classical Odissi dance.

#### **Invisible root of Odissi Dance :**

The dance postures of Odissi trace their origin to the ancient Indian Culture. Researchers accept that the growth of Odissi Dance since fundamental principles can be reviewed as glimpses of the original style are available through the beautiful sculpture of the ancient majestic temples of Orissa. Musicians and dancers were deeply involved in the temple culture in which musical and dance recitals were just not part of rituals and worship they were considered essential like tribal dance. Thus the Odissi dance form was bonded to culture to spiritual devotion and became the medium to propagate religion. It’s growth, development, support and existence have been inseparably asked with the temple rituals. With the temple acquiring importance as the focal point of the life the dance as a ritual performed

by the “Maharis” grew in importance. It is this class of dances who have kept the dance tradition alive in Odissa. These dances dedicated themselves to the service of God in the temples.

Odissi dance purposely and with deliberate design emphasized only certain types of movement. It seeks to depict the perfect point or the movement of balance along the “Brahmasutra” (the vertical median) so much so that all movement emerges from the “Sama” (the point of perfect balance, a kin to the Sambhanga of sculptures) and come back to this. Both the Bhramari of the Abhinaya Darpana and the Rechka of the Natyashastra belong to a class of circular movement which could be termed as Spinning or a Pirouette (Chakkar). These movements are also found in the tribal dance (Saora Dance) like dancing in a circular movement. The principles which govern the techniques of Odissi dance are the same as those which governs the technique of tribal dance (Saora Dance).

In the art of both dances different aspects of spirit and technique merge harmoniously to make beautiful synthesis. The *nritta* portion of both dances depends for its life breath on the music and rhythm which accompany it : the *abhinaya* portion depends for its expression on the theme of the narrative or lyrical composition (term Sahitya by practicing dancers) which is sung. The costumes, ornaments, musical instruments of Odissi dance have also similarity with tribal dance as they are somewhat the developed and adopt form of tribal dance. The principles, techniques and the collaboration of ritual put light on the songs and the dances which accompany both the Jagannath Culture and Saora Culture and the invocation of blessings for the prosperity and well being of the community as a whole. The regular features of every day

performance in the evening hour, prior to retiring to bed by the tribal are also accepted as customized performance of Mahari dance before Lord Jagannath went to sleep in the temple premises.

So the different similarities which we find in both the dance forms give an insight into the process and links between both the art form. From this it is evident that,

(i) The dance performed in group form in both the dance style gives a feeling of oneness in the society.

(ii) Combination of art, literature, music and dance gives a complete entertainment of social, psychological and spiritual atmosphere to the audience in both the dance form.

(iii) The movements, patterns, expressions, postures, costumes of Saora dance resemble with Odissi dance and so on.

In toto, Odissi dance is not only an attempt at reconstruction of a dance form, from all these fragments of Mahari tradition, of the Gotipua tradition, of the Bandhanrutya tradition, of the Martial and Chhau tradition known to Orissa but also the inspiration, techniques, process and rituals drawn from the tribal (Saora dance).

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Hon'ble Chief Minister Shri Naveen Patnaik felicitating the Young Talents at the Young Talent Astronomer Search -2009 on the occasion of 174<sup>th</sup> Birth Anniversary of Pathani Samanta in the Planetarium on 13.12.2009.

## Panacea for Poverty Alleviation in Orissa

*Mayadhar Nayak*

Orissa is a land of poor with rich resources. We harbour dreams of a glorious Orissa, back to its past in terms of trade and business. It may be called as one of the paradoxes of India. During the Kalinga era, it has shown its mighty and economic strength in terms of development towards trade and business in India. During the period, the business icons of Orissa travelled far and wide outside the south eastern parts of India and contributed its share to the economic development of the State. As such, the State flourished in all aspects of development. However, frequent attack of the pirates on the ships, stopped the business morale of the people of Orissa. After India got independence, the State enjoyed political and social power to the teeth. But, it failed to get economic strength due to the evil designs of some unscrupulous politicians ruling the State. Some of the people who ruled the State during the last six decades, became politically, socially and economically rich. But the common masses remained poor and their per capita income reduced substantially.

Actually, Orissa has the potential to become the number one state in India in terms of development. In spite of deposits of huge mineral resources like iron ores, chromite, manganese, bauxite, coal, granite, gems, etc the state tasted the fruits of backwardness and remained one of the backward states in India and it remained

backward in comparison with other States in spite of availability of long coastal line, fertile land with adequate rainfall and intelligent people.

BJD has completed 11 years of its birthday. It came to power with BJP with thumping majority since 2000 with the objective of giving good governance to the people of Orissa. During the rule of this government, Orissa has benefited a lot in terms of political stability, economic development of the poor people at large. About Rs.6.00 lakh crore of investment proposals have come to Orissa. The government has taken steps to implement new agricultural policy, irrigation facilities to 35% of the total land, reduced interest on agricultural loans, strengthening of facilities for drinking water, road construction, education, health, etc. It has encouraged popular schemes / yojanas like Biju Krushaka Yojana, Gopabandhu Gramin Sadaka Yojana, Mo Kudia Yojana, Madhubabu Pension Yojana, Two Rupees Rice Scheme, increased wages scheme for Kendupatra pluckers, etc and the poor people of Orissa are very happy with the two rupees rice scheme Yojana. Steps have been taken to bring the Scheduled Tribes to the mainstream of the society. In general, the people of Orissa have tested the culture of development with satisfaction. Besides, steps are being taken and thrust is given to reduce/eradicate corruption at all levels. However, no punishment has been

given to some of the corrupted employees due to lack of evidence and other reasons. The government has already increased the salary structure of the government employees for their happiness. But the people of Orissa are not happy with the work culture of some of the government employees. Scanty response is given to the grievances of the public. Some of the employees are in the habit of demanding bribe and they take a few days to complete one hour work. Sometimes the work is being done through the middlemen to accomplish it. If the work is done within the stipulated time, corruption can be reduced to some extent. Strict punishment is necessary for the employees for the delay in work. It is high time to strengthen all the machinery to give justice to the common people. If the employees code of conduct available for them is implemented properly at all levels, the public will get immense benefit and clear roads will be available to reduce corruption from the public life. Besides, social, political and administrative indiscipline tantamount to corruption. It is high time to reduce them. In spite of this, the majority of the people of Orissa has developed trust on the activities of the Chief Minister of Orissa due to his clean and selfless image.

When I was working as DGM, NABARD in Chennai from 2004 to 2008, some of my colleagues asked me, why our State was backward in spite of availability of all natural resources. I felt insulted and found myself in an embarrassing position. However, I gave a befitting reply to satisfy their answer. But the question perturbed my mind from time to time. It is necessary that we should regain our past glory what **Sadhava Sons** of past Kalinga had shown while doing their glorious business in Java, Sumatra, Borneo, etc. Of course, the present government of Orissa has been making valiant efforts to engineer industrial growth and stimulate

momentum of growth in the State. Certain measures are necessary to facilitate and strengthen smooth implementation of the industrial climate in the State, which are furnished below.

### Synergy of Efforts

Since economic well being of the people of Orissa is the ultimate goal, synergy of efforts is one of the vital forces to propel economic growth in the State. Proper use and management of natural resources in the context of economic development are necessary to fuel economic growth and create employment opportunities. The State needs to re-orient, redesign and re-streamline the work of various departments, which is within its control, for the smooth development of industrial climate in the State. It is a fact that the State remained at the bottom ladder of economic growth and the BPL was 47%, which was highest in India. Now, it is sharing the fruits of economic development which needs strengthening of synergy of efforts at all levels. Proper utilization of natural resources like land, water, minerals, etc and human resources can bring sustainable economic growth for the State. Whenever there is no work with them, most people of Orissa resort to playing cards as they lacked entrepreneurship quality to earn additional income. Small and Medium Enterprises (SME) are the best solutions for engaging the idle mind of the people for additional income. Proper management of water and land for improving productivity and production along with conservation of water is important to harness economic development. Besides, Orissa has got cheap labour and abundant mines, which are the backbone of any industry. With synergy of efforts, we will see that the most underprivileged sector can be the promising one. It is necessary that proper awareness should be created for meaningful co-operation and coordination from the public.

## Consensus

Investors are interested to invest in Orissa due to availability of cheap raw materials and existence of cheap labour force. The Orissa government has signed many MOUs with various companies to establish steel plants, thermal power plants, promoting education, etc. The State has already attracted proposals more than Rs.6 lakh crore which, if implemented properly, can boost the economy of the State. For achieving the objectives, consensus among the opposition and the government is vital. The government should take into confidence the opinion of opposition parties for any developmental work. Everybody has some ego. Whenever the ego of the opposition parties are hurt, some of the unscrupulous elements create unnecessary disturbances in the State by polluting the mind of the people near the proposed industrial sites. Take the example of South Korea Posco. The company will invest about Rs.52000 crore in the State to provide 12 million ton steel projects at Kalinga Nagar near Paradeep. It is highest foreign direct investment(FDI) attracted by the country. The State government has pinned much hope in its projects to woo more foreign investments. It is learnt that the company has already obtained the Supreme Court clearance for diversion of forest land of about 2958 acres under the project area, out of the total 4004 acres allotted to the company. For implementation of the gigantic project, consensus is a must. Otherwise Singur type situation may spoil everything. It is time on part of the all political parties operating in the State to put aside their political differences and to focus on achieving economic development through job oriented industries. There is a consensus on the need for the coordinated and decisive action to harness the economy in the State. Besides, the policy makers and officials should take time

bound, focused and in divided attention to strive off poverty. I am sure that the project will succeed and our future engineers and technocrats may get jobs in their own State by not rushing to Bangalore, Chennai, Mumbai, etc. Otherwise, unscrupulous politicians will be held accountable for their sins and future generation will never pardon them. We have to remember that coordination is the need of the hour for setting up new industries and revival of old industries in Orissa. The road is long and there is lot of things to be done.

The present government has taken initiative to start the process of economic development to infuse confidence among all. Growth through consultation, inclusiveness and involvement of all categories of people will bring us to prosperity and sustainability. The government should try to take oppositional consensus before embarking upon any project so that the POSCO and KALING NAGAR type fiascoes do not repeat in future.

## Political Will Power

To accelerate the tempo of economic development, missionary zeal coupled with political will power are necessary. Due to lack of missionary zeal, the backwardness of the State has increased and now it is one of the poorest States in India. Some of the states like Gujrat, Maharashtra, Haryana, Punjab, Tamilnadu, Karnatak, etc. have developed due to progressive policies and proactive political will power. Efforts are being taken by the present government to harness economic prosperity by utilizing the weapon of political will power. The weapon of political will power needs doubling of efforts; activating and strengthening sensitive departments to achieve economic development. When will power is lacking the problem does not suddenly change and becomes a new problem.

### Quality Infrastructure Support

Infrastructure is the important factor for the development of any state. Development of world class quality infrastructure like roads, regular power supply and bridges and their proper maintenance are essential to promote industrial growth. It will be a novel idea if road maintenance work is also assigned to contractors at the time of initial awarding of the contract work. Supply of timely electricity, congenial support from the public will boost the sustainability of various industries and promote employment opportunities in the state. Besides, areas identified for industrial projects should be properly connected with road, rail and air. More stress should be given to upgrade and double investment in infrastructure sectors like agriculture, irrigation, roads, ports and power. Besides, important social infrastructures like good health centers and quality educational institutions are to be promoted with full speed and upgraded from time to time in tune with the demand of the populace. If industry is developed, agriculture can not be neglected. Both are not only complementary to each other but also inter dependent for sustenance and growth. Holistic policy is necessary on part of the state government to provide critical infrastructure relating to industry at par with southern states of India like Karnatak, Tamilnadu, Andhra Pradesh, etc. Since any state government can not afford full infrastructure support to the state of its own, Public Private Partnership (PPP) model should be promoted and implemented to get the desired effect in infrastructural growth. Public-private partnership model can be initiated in support infrastructure like schools, technical colleges, good hospitals in those areas. There are shortage of skilled technicians like welders, electricians, masons, fitters, plumbers, etc in Orissa. If we create centers of technical colleges with excellence for technical training and produce technically and competently skilled people with

excellence, there will be high demand within the country and abroad to recruit them. As such, we can minimize unemployment problems existing in the state.

A number of surveys have been made in the recent past to evaluate the industrial growth in the state. The findings should be analysed and implemented by taking action oriented programmes to boost the confidence of the entrepreneurs. Promising entrepreneurs will be interested to rush to the state if there is adequate infrastructural support to sustain industrial growth.

### Land Acquisition Support

Land, labour and capital are the chief ingredients of production. Orissa is blessed with existence of suitable mono cultivable as well as barren land for development of industry. For promoting industry, land acquisition is prime fact. We have to ensure that all industrial and infrastructural projects should come up without delay with better land acquisition rules to facilitate transfer of land to the new companies. In order to find an amicable and everlasting solution to the land acquisition problem, the government should consult all major opposition parties and should come out with an acceptable formula for acquisition and compensation package to the land holders, who give up the land for development of the state. Besides, the government should create, aggressively, awareness about the merit of industrialization. The interested companies should directly purchase land from the land holders on mutually agreed terms. The government should ensure that at least one employment is given, if possible, to every agricultural family that has given agricultural land for industrialization. Since this approach is for the benefit of the agricultural land holders and business people, unanimity will not be disturbed. Utmost care should be taken to ensure that the process of land acquisition should not be sabotaged by conflicting political interests

as in Singur of West Bengal. For any economic development, the government should conduct Orissa Global Investors Summit periodically as done by the Gujrat government during the years of 2003, 2005 and 2007. Development should reach the most deprived and vulnerable class of the society. Besides, the government should create land bank in which, land available in industrial areas, government departments and fallow and mono crop lands.

Right to strike is one of the fundamental rights which can not be enforced to resorting to bandh. But it does not mean to use the weapon of right to strike in unconstitutional manner as it is grossly misused by bringing the entire state to the brink of standstill and deprive the common man and woman the right to movement and the right to work. Bandh culture should be stopped as it has the potential to vitiate a congenial atmosphere.

Frequent bandhs will disturb and sometimes paralyse the economy of the state. Bandh and Hartal will bring the state towards backwardness by creating a negative impression. Rule of law and good governance are the prerequisite for attracting investors for investment. Irrespective of the party/parties that govern the state, there should be complete ban on bandh, gherao, etc, which serve no purpose other than affecting all sectors of people, specifically the daily wage earners and the common man. Good governance with transparency and accountability at all levels should be enforced to bring prosperity to the state and creates awareness and confidence of development in the state.

Suitable steps should be taken to offer attracting tax and fiscal incentives to intended business people by holding business fairs and conclaves in collaboration with them to attract entrepreneurs to the land of natural resources, developing more SEZs to the need of the state,

creating right type of vibrations to bring an aura of prosperity and growth in tune with the demand of the state, etc. The opposition parties should put their best foot forward in the areas of our strength rather than our weak areas.

### **Tourism Development**

Orissa is rich in areas of tourist attraction and immense natural beauty and historical significance. It has its share of mountains, monuments, forests and sea beaches. It is the place where the great Kalinga war took place and the great Chandasoka was converted into the great Dharmasoka. It needs conscious branding, marketing and promotion. As such, it is in need of brand new campaign for tourist marketing and promotion which will refurbish its brand identity and attract tourists in large numbers to visit and experience the rich, vibrant and historical culture of Orissa. Bhubaneswar is the witness and centre of the rich and historical culture and it is worthy to visit and admire the city and nearby places of Konark and Puri by tourists of the globe.

While agriculture constitutes about 26% of Gross State Domestic Product(GSDP) as against the dependence of about 70% of the population on the agriculture activities for livelihood in the state. Fertilizer consumption in Orissa is about 53kg/hectare as against the national average of about 100kg/hectare. There is need to increase fertilizer consumption to bring the production and productivity capacity of agriculture at par with national average. The research activities under agriculture should be vigorously promoted and strengthened from lab to land in agriculturally backward areas of Orissa. An apex organization like NABARD is functioning at Bhubaneswar and most of the districts of Orissa and offering focused and undivided service to its clients for development of agriculture and allied activities in rural areas.

NABARD is not only offering refinance to its clients including the state government but also helps its clients in the form of preparation of suitable projects towards development of agriculture and allied to agriculture in rural areas. The State Focus Paper prepared by NABARD contains detailed picture of the available potential for various activities, impediments of credit take off, present and future infrastructure support and suggestive action points for various stake holders. NABARD has possessed expert staff to guide the state government in the direction. The state government is requested to take the help of NABARD for development of agriculture in rural areas.

### **Solving Maoist Problems**

The Maoists are human beings. The movement is spreading rapidly more especially in tribal areas, where people are exploited, oppressed, deprived and marginalized and also unemployment is rampant. If the people in the areas are properly educated, all the government programmes are implemented properly with human touch, the movement may be checked and completely stopped. To check the movement, the only solution is undertaking massive economic development in the areas, where the people are exploited, oppressed, depressed and neglected due to various reasons. All movements breed in troubled water of oppression and depression. It is my humble submission to the state government to initiate free communication and respectful treatment to them rather than employing guns and fires. Massive micro-finance through Self Help Groups initiated by NABARD and implementation of various types of micro insurance schemes are some of the instruments to check Maoist movement than massive guns.

In Orissa, agricultural backwardness seems to be its strength as it beats backwardness with the use of organic farming. It is a fact that the

state is the third largest certified area with about 55000 hectares under organic farming, mostly in Kandhamal district under turmeric cultivation. The government of Orissa in its recent policy has stressed to increase fertilizer consumption and promote organic farming in a massive way. Fertiliser and pesticide consumption have yet to penetrate deep into the tribal areas of Orissa. More stress is required to promote participatory guarantee approach in organic farming.

### **Centre's Role**

The Centre should introduce special package for development of Orissa. During the recent flood in Bihar, the government of Bihar has demanded about Rs.1000 crore. But it got more what it demanded. But Orissa got about Rs.98 crore as against the demand of Rs.500 crore in spite of the announcement of the Home Minister of India. Is it not an act of injustice to the people of Orissa? When the people of Orissa have welcomed the culture of development, they should not be debarred from its genuine demands. If Orissa is developed, it will add thrust to the GDP growth of India.

All the MPs of Orissa, irrespective of any political affiliation, belonging to Lok Sabha and Rajya Sabha, should raise their voice to get their genuine demands from the Center. Orissa can not be exploited on the grounds of its innocence and tolerance. Development of the state is the birth right of the people of Orissa. Let us participate in the ocean of development and sing the song of development to banish poverty from the soil of Orissa; bring prosperity and smile to the people of the State.

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## Underwater Acoustics Studies Using Hydrophone Array for Irrawaddy Dolphin in Chilika Lagoon

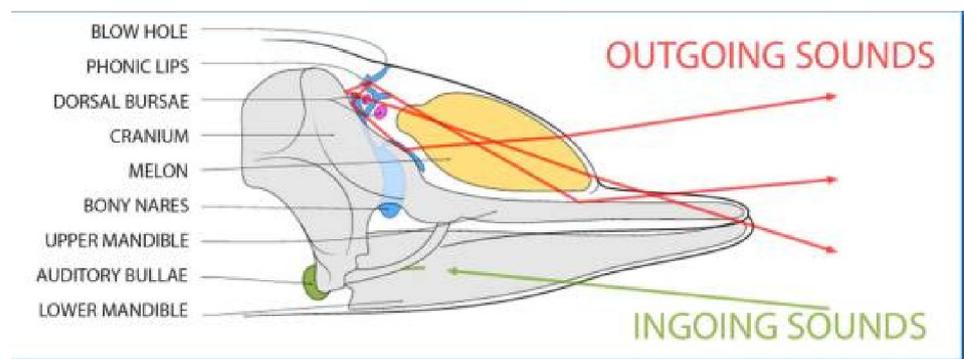
Dr. A.K. Pattnaik

Chilika is the largest brackish water Lake and a Ramsar site, located along the east coast of India. It is identified as one of the most significant hotspots of biodiversity in the region that harbours the largest population of Irrawaddy dolphins (*Orcaella brevirostris*). Irrawaddy dolphins species is found only in South and South East Asian waters. The dolphin population of Chilika Lake in India and Songkhla Lake in Thailand are two isolated or partially isolated lake populations. The scientific information on Irrawaddy dolphins in Chilika and along the coast of India is not complete thus the species is listed as data deficient.

Irrawaddy dolphins in Chilika are found in four ecological regions of the lake i.e. Outer channel, Northern sector, Central sector and Southern Sector. The population size based on direct counts using line transect surveys is estimated to be 147 animals. No intentional killing was reported by Annandale (1915) which holds good now as well in the coastal parts of Orissa. Local fishers traditionally

protect the dolphins as they consider them friends and co-operative to fishers, as the dolphins drive fish towards their net.

Significantly, Chilika Lake contains the most important lake population of Irrawaddy dolphins in South Asia in comparison to Songkhla Lake. Although the Chilika Irrawaddy population is evident, but the intensity and diversity of threats for the dolphins are significantly high. The main



identified threats to the population are from the operation of variety of fishing nets and gears as well as from the operation of the mechanized boats.

A research project was initiated by the Chilika Development Authority in 2002 and continuing, to collect information regarding distribution, abundance, threats and causes of

mortality for the population along with the local perceptions towards dolphin conservation. Ongoing research throughout the lake has identified hotspots of dolphin distribution by determining current habitat use and trends in abundance and movement patterns.

Based on the findings of these projects mitigatory measures have been initiated to decrease threats and increase awareness. A nature trail is being developed by Chilika Development Authority to popularize land-based observation of dolphins in the Outer channel. A dolphin watching protocol has been developed based on how to approach dolphins and to regulate tourist boat traffic during the peak tourist seasons. Orientation programmes with boat drivers and boat owners have been carried out for proper management of dolphin watching in the lake. Appropriate signs, to raise awareness and increase local knowledge towards dolphin conservation will be developed and installed. Proposal has been made to regulate detrimental fishing techniques by creation of a task force consisting of people from the Forest, Fishery and Tourism Departments. Active participation and support of the local community, NGOs, government and international agencies are needed to save this population from extinction. To develop a concrete strategy for development of a conservation plan the study of the underwater behaviour of the dolphin is essential. Due to poor visibility the underwater study by diving was ruled out in Chilika.

Dolphins' communication is based on echolocation. The term echolocation refers to an ability to locate and discriminate objects by projecting high-frequency sound waves and listening for echoes. Sound waves travel through water at a speed of about 1.5 km/sec, which is 4.5 times faster than sound travelling through air.

These sound waves bounce off objects in the water and return to the dolphin in the form of an echo. Dolphin emits high frequency "clicks" when it bounces back from an object, the brain receives the sound waves in the form of nerve impulses, which relay the messages of sound and enable the dolphin to interpret the sound's meaning. By this complex system of echolocation, odontocetes can determine size, shape, speed, distance, direction, and even some of the internal structure of objects in the water. Irrawaddy dolphins are able to learn and later recognize the echo signatures returned by preferred prey species. So this provides an excellent opportunity to study the underwater behaviour of dolphin is to use the acoustic technology by use of customised hydrophones to capture the clicks. The major challenge was the technology. As each species of dolphin emits different clicks and the capture the click a customised hydrophone needs to be developed. CDA approached the Tokyo University for necessary help. Fortunately Tokyo University agreed to extend the help. It was a huge task. To formalise the study a Memorandum of Understanding (MOU) was signed between Chilika Development Authority and the University of Tokyo, Institute of Industrial Science, Underwater Technology Research Centre, Japan on March 22nd 2006 for a period of two years initially with mutual interest to develop an advanced observation systems for Irrawaddy dolphin, providing advanced technologies, human resources and training of dolphin researchers for undertaking further studies. The team of scientists from Tokyo University visited Chilika in March 2006 and the preliminary study was conducted to capture the clicks with different types of hydrophones. The WWF India also collaborated in the study. This preliminary study was of great help for developing a customised hydrophone to perfectly capture the clicks of Irrawaddy dolphin.

The team deployed the customised array of hydrophones in Chilika to capture the clicks of Irrawaddy dolphin in February 2007. The team found that the customised hydrophones could be able to capture the clicks successfully. Based on the output, the team have developed a complete device which is an array of 8 hydrophones with an *in-situ* data capturing system. The device can be deployed in the lake and it can capture the data uninterruptedly. The digital data captured can be used to interpret its underwater behaviour by use of the software developed by Underwater Technology Research Centre, Japan, Tokyo University. This would help to determine the response of the dolphin to the approaching objects like boats and the noise from the boat and other sources. This would help to develop a protocol for dolphin watching. It would also be able to determine size, shape, speed, distance, and direction of movement, its migration within the lake and outside the lake through mouth.

Now the team is back again with the complete device which would be test run in the lake from 19th-22nd November 2009. Once it

is found perfect the device would be deployed on a long term basis in the lake. The Wildlife wing of Forest Department and the WWF India would also collaborate in this long term study.

This study would be first of its kind in the world. As nowhere this type of study is carried out on Irrawaddy dolphin so far. These important findings would definitely help in formulating the long term conservation plan for Irrawaddy dolphin population of Chilika. Most importantly this technology is a non invasive and passive technology which causes least disturbance to the Irrawaddy dolphin population. Considering the status of Irrawaddy dolphin globally, the success of this study would be of great significance.

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*Hon'ble Chief Minister Shri Naveen Patnaik unveiling the statue of Maharaja Shriram Chandra Bhanja Deo at Power House Chhak, Bhubaneswar on 17.12.2009.*

# Brahmesvara Temple at Beraboi

*Dr. Ratnakar Mohapatra*

## Introduction

The Brahmesvara temple is an important *Saiva* shrine of the coastal-belt in Orissa. It is situated at Beraboi, a small village about 2 km distance from Delanga of the Puri district. This temple stands on the edge of a big tank. It is a medium size of temple, which is dedicated to Lord Brahmesvara Siva. This temple is made of sand stones, which are locally called as *Baulamala* and *Kanda patharas*. The temple faces to east. It is a renovated temple of that locality. The surface of the temple complex is about 3 feet below the road level. From the architectural point of view, the temple of Brahmesvara is very significant. A good number of sculptures are noticed on the outer walls of the temple and several loose sculptures are also found preserved in the temple premises. This temple represents one of the best specimens of the early *Kalinga Style* of temple Architecture in Orissa. A modest attempt has been made



in this article to highlight the detailed art and architecture of the temple.

## Art and Architecture of the Temple

The temple of Brahmesvara consists of two structures such as *vimana* or main *deula* and *jagamohana*. The *vimana* of the Brahmesvara temple exhibits the *rekha* type of *deula* whereas the *jagamohana* is *pidha* type of *deula*. Both the structures of the temple are thickly plastered with lime mortar.

### *Vimana*

The *vimana* of the Brahmesvara temple is a *pancharatha rekha deula* and its height is about 40 feet from the surface of the temple complex. The structure of the *vimana* has three fold vertical divisions such as *bada*, *gandi* and *mastaka*. The base of the *bada* measures square of 14 feet.<sup>1</sup> The *bada* of the *vimana* is *panchanga* type i.e. having five parts such as *pabhaga*, *tala-jangha*, *bandhana*, upper *jangha* and *baranda*.

The *pabhaga* of the *bada* is decorated with conventional mouldings of *khura*, *kumbha*, *patta*, *kani* and *basanta*. The height of the *pabhaga* is 3 feet and 1 inch.<sup>2</sup> The *jangha* of the *bada* is divided into two storeys by *bandhana*, which consists of a single horizontal moulding. The lower *jangha* is 3 feet 1 inch high while the upper *jangha* measures 2 feet 7 inches.<sup>3</sup> The *kanika* and *anuratha pagas* of the lower *jangha* are decorated with *khakhara mundis*. *Astadikpalas* are comfortably housed in the *khakhara mundi* niches of the *kanika pagas* of the lower *jangha*. They are depicted with their respective mounts and directions. Stylistically, *dikpalas* are related to their counterparts like the Somanatha temple of Ghoradia. The *anuratha* niches of the lower *jangha* contain different Brahmanical deities as on the Brahmesvara temple of Bhubaneswar. The deities on the south are *Aja-Ekapada* and *Siva-Andhakasura murti*; on the west they are *Ardhnarisvara* and dancing *Bhairava*; while on the north they are *Nataraja* and seated *Durga*. The intervening recesses of the lower *jangha* of the *bada* are filled with *virala* (locally called *vidala*) figures such as *asvavidalas* and *simhavidalas*. The *pagas* of the upper *jangha* are decorated with *vajra mundis*. In the *khakhara mundi* niches of the *kanika paga* of the upper *jangha* are housed with the figures of *Sapta matrikas*. From the east, above the image of *Indra* on the lower storey, the images are of *Brahmi*, *Vaishnavi*, *Sivani*, *Kaumari*, *Varahi*, *Indrani* and *Chamunda*. Except *Chamunda*, they are all seated in *lalitasana* pose with a child on their left laps and their respective mounts carved on their seats. The mount beneath *Sivani* appears to be a lion rather than the bull. *Chamunda* is in *ardha paryanka* pose with her left knee raised. She holds a *kapala* in front of her chest with her right hand and a trident in left hand. She is emaciated in form. On the north-east corner a female figure is seated in

*lalitasana* similar to the *matrikas* though there is no child on her lap. Her right hand rests on her knee and displays *varada mudra* while her left hand holds a lotus that blossoms near her ear.<sup>4</sup> *Virabhadra* and *Ganesha* are housed in the *anuratha* niches on the southern side between the images of *Vaishnavi* and *Sivani*. Here Dr. H.C. Das opines that the *matrika* images carved on the upper *jangha* of the Brahmesvara temple of Beraboi are similar to the *matrika* images, found on the upper *jangha* of the Jalesvara temple at Kalaharanga.<sup>5</sup> *Sapta matrikas* accompanied by *Ganesha* and *Virabhadra* are usually worshipped in a group in separate style or carved in a row on the outer wall of a Siva temple. This probably led to the association of the *Sapta matrikas* with the *dikpalas* in the earlier period and the female *saktis* of the *dikpalas* in later period.<sup>6</sup> The other *anuratha* niches of the upper *jangha* house the images of a bearded *risi*, *Manasa*, *Durga* and *Parvati*. The image of *risi* is carved seated in *padmasana* pose with his hands in *dhyana mudra* on the west. In the same direction, an image of *Manasa* as serpent hoods appear over her head and a prostrate figure is beneath her lotus seat. The image of *Manasa* is not only appeared in this temple but also found in many temples of Orissa. In this connection Dr. H.C. Das remarks that the *Manasa* images found on the different places of Orissa belong to the period between the 7<sup>th</sup> and 13<sup>th</sup> century AD and are aligned to the Saiva pantheon.<sup>7</sup> *Manasa* formed an important aspect of the female principle in Orissa. In the *anuratha* niches of the north house *Mahisamardini Durga* and a standing four-armed *devi* possibly *Parvati*, who holds a rosary in her lower right hand, the other attributes are not clearly visible. The image of *Mahisamardini Durga* is two armed. The head of the buffalo has been severed by *Durga*'s sword and it is trampled beneath her right foot. The intervening recesses

between the *pagas* of the upper *jangha* are filled with amorous couples and *alasa kanyas* standing in various poses.

### *Parsvadevatas*

The central niches of the three sides of the *bada* of *vimana* are housed with the *parsvadevata* images of Ganesha, Kartikeya and Parvati. These side deities are carved out of black chlorite. The background slabs of these deities are decorated with trefoil arch; *makara* heads at the base and *kirtimukha* motif at the apex. The image of Ganesha is the *parsvadevata* of southern side. He is carved in standing posture on the double petalled lotus pedestal. He has four hands, the upper right hand is broken at the elbow portion and the lower right hand rests on a *kuthara* (hatchet). His upper left hand is plucking sweets from a pot while the lower left hand displays *varada mudra* with holding rosary. Mouse, the conventional mount is also carved on the right side of the deity (Ganesha). The deity Ganesha wears a string of beads around the neck. Kartikeya is the *parsvadevata* of the western side. The four handed image of Kartikeya has been installed on the double petalled lotus pedestal. His four hands display *dambaru*, trident, rooster cock and touching the mouth of peacock, which is depicted on the right side of the deity. There is a standing female figure (Devasena) depicted on the left side of Kartikeya and she is lifting the feet of the rooster cock. *Devi* Parvati is the *parsvadevata* of the northern side. The four-armed image of *devi* Parvati has been installed on the double petalled lotus pedestal. Out of the four arms, two are in broken condition and other two hands display lotus flower and *dhvaja*. Lion, the conventional mount of *devi* is found carved on the pedestal. All the three *parsvadevata* images are not original but they are made in modern period. Most probably, the earlier *parsvadevatas* of the temple would have broken

by nature. Both side frames of the central niches of the *bada* are decorated with scroll works. At the top of both side frames (pilasters) are carved with *alamba* motif of *kirtimukha* masks dripping festoons from its mouth.

The *baranda* of the *bada* consists of five horizontal mouldings. The central or *rahapaga* of the *baranda* is decorated with a large *vajra mastaka* on three sides except the front. It is similar to the design crowning the *raha* on the single storey plan at the Gatesvara temple at Algam.<sup>8</sup> There are a few *bharavahaka* figures carved in the intervening recesses of the *baranda*.

The *gandi* of the *vimana* is a curvilinear superstructure and it continues the *pancharatha* plan of the *bada*. The lower part of the *gandi* is decorated with *angasikharas* and *vajra mastakas*. The *raha* and *anuratha pagas* are adorned with a large *angasikhara* at the base while the *kanika pagas* contain four small *vajra mastaka* designs superimposed one above another. A large *gaja-kranta* (*gaja-simha*) motif is projected out above the large *angasikhara* on each side *raha paga* of the *gandi*. The upper part of the *gandi* is devoid of decorative ornamentation, because it is thickly plastered with lime mortar. *Dopichha* lions have been fixed on the top of *kanika pagas* of the *gandi*. *Deula charini* figures are inserted in the four cardinal directions of the *beki* above *rahas*.

The *mastaka* of the *vimana* consists of *beki*, *amalakasila*, *khapuri*, *kalasa*, *ayudha* (trident) and *dhvaja*. The *amalakasila* of the *mastaka* is slightly damaged by lightning.<sup>9</sup>

The sanctum preserves the *Sivalinga* within *Saktipitha* as the presiding deity of the temple. Here *linga* is not appeared from outwards but only *Saktipitha* is noticed. At the backside wall of the sanctum, there is a stone pedestal on which Siva and Parvati are installed

with usual attributes in their hands. They are being worshipped by devotees as *Chalanti pratimas* or representative deities of the presiding deity. The inner walls of the sanctum are devoid of decorative ornamentations in contrast to the exterior walls. *Nandavarta* steps are provided for entry into the sanctum sanctorum of the temple.

The sanctum has one doorway towards the *jagamohana*. The doorjambs of the sanctum are mostly undecorated. Figures of Nandi and Bhrunji are housed in the *vajra mundis* at either side base of the doorjambs and they are acting as the *dvarapalas* of the temple. The figures of river goddesses' viz. Ganga and Yamuna are also depicted at the lower part of the doorjambs. The jambs of the doorway are made of chlorite.

### **Jagamohana**

The *jagamohana* of the Brahmesvara temple is a *pidha deula* and its height is about 25



feet from the surface of the temple complex. The structure of the *jagamohana* is *pancharatha* in plan. The base of the *bada* measures approximately square of 22 feet. The *bada* of *jagamohana* is *panchanga* type i.e. having five component parts such as *pabhaga*, *tala jangha*, *bandhana*, upper *jangha* and *baranda*. The *pabhaga* of the *bada* is completely plain and it consists of a single vertical moulding. The *jangha*

is divided into two storeys by a single *bandhana* moulding. The intervening recesses between the *pagas* of the *tala jangha* and upper *jangha* are filled with amorous couples, erotic scenes, *asvavidalas*, *simha vidalas*, *alaskanyas* and a female figure holding a baby on her waist. The *baranda* of the *bada* consists of a single moulding, which is completely undecorated. The front or eastern side *bada* wall of the *jagamohana* is bereft of decorative ornamentation.

The *gandi* of the *jagamohana* is a pyramidal superstructure and it consists of two *potalas*; the lower and upper, which contain four and three *pidhas* respectively. The *pidhas* of each *potala* are finely decorated with *tankus* in all sides. The central *raha paga* of the lower *potala* is decorated with *pidhamastaka* design, which is surmounted by *udyatasimha* on each side. *Dopichha* lions are fixed on the top of the *kanika pagas* of the *gandi*.

The *mastaka* of the *jagamohana* consists of *beki*, *ghanta* (bell-shaped member) above which there is another *beki*, *amalasila*, *khapuri*, *kalasa* and *ayudha* (trident).

Bull, the conventional mount of Lord Siva is noticed in the centre of *jagamohana*.

The *jagamohana* has one doorway towards the eastern side. The centre of the doorway lintel is carved with an image of Gaja-Lakshmi. *Navagraha* figures are finely carved on the architrave above the doorway lintel. The doorjambs of the *jagamohana* are devoid of decorative ornamentation except the figures of Nandi and Bhrunji at either side base of the doorjamb. One of them is housed in the *vajra-mundi* niche and another figure is carved in a separate slab, which is fixed in the left side jamb of the doorway. They are acting as the *dvarapalas* of the main doorway.

### ***Sandhithala***

The *bada* wall of the *sandhithala* between the *vimana* and *jagamohana* is decorated with *jagrata* motifs and *sikshadana* panels. The lower storey of the *sandhithala* wall in both sides is decorated with the standard *jagrata* motif. The leonine monster leaping on its hind legs above a croaching elephant and it has a warrior as a rider. This motif is an important decorative motif on the *sandhithala* walls of the most of later temples. Most interesting decorative elements of the *sandhithala* wall is the *sikshadana* panels. The panel on the south is divided into two registers of equal height. On the top register is a royal figure seated with his right arm resting on a cushion. In the background on either side is a female attendant. A standing figure with hands fold in front of his chest faces the seated figure. The centre of the lower register contains a male and female standing and facing one another while an attendant behind each appears to be braiding the hair of the royal couple. Two small figures, possibly children, look up from below where they are seated. On the north side panel, the upper register is much larger and contains a royal figure, again bearded, seated with a cushion behind his back. His right hand is raised in front of his chest, as if giving orders and a smaller figure is seated facing him while two standing figures in the background listen intently. The royal figure with a host of attendants appear above his parasol. In the small lower register, there are two seated couples facing each other.

### **Additional Shrines**

Besides the above two structures, there is a small shrine noticed in the north-west corner of the temple complex. In the sanctum of this shrine, goddess Charhika is being worshipped. The shrine is a *pidha deula* and its height is about 20 feet from the surface of the temple complex.

Goddess Charchika is considered by villagers as the tutelary deity of the Nayak family of that village (Beraboi). Another flat roof shrine of Mahavira Hanumana is built in the north-east corner of the temple complex. These two additional shrines are built in modern period by the co-operation of villagers.

There are several loose sculptures noticed in the temple premises. They are figures of Astika-Jaratkaru, Mahavira (Hanumana), hero memorial stones, etc.

### **Boundary Wall**

The temple of Brahmesvara is enclosed by a compound wall, which is made of laterite and its height is about 8 feet from the surface of the temple complex. The temple complex has two entrances; one on the eastern side and another on the western side. The boundary wall of the temple measures approximately 120 feet in length on the northern and southern sides and 80 feet in width on the eastern and western sides respectively.

Now the temple is being managed by the Nayak family of that village.

### **Date of the Temple**

There is no authentic historical evidence with regard to the exact date of the temple of Brahmesvara as yet. According to local tradition, the temple was constructed by a lesser Somavamsi ruler of Orissa. R.P. Mohapatra has referred to the structures of both *vimana* and *jagamohana* represent the characteristic features of the temples of 11<sup>th</sup>-12<sup>th</sup> century A.D.<sup>10</sup> According to Prof. T.E. Donaldson, the Brahmesvara temple of Beraboi was constructed in the end of the Somavamsi period.<sup>11</sup> By comparing the *matrika* images carved on the upper *jangha* of the Jalesvara temple of Kalaharanga and *matrika* images of Brahmesvara temple of Beraboi, Dr.

H.C. Das opines that both these temples belong to the same period and are datable to the Somavamsi period.<sup>12</sup> On the basis of the architectural style and sculptural features, the construction period of the Brahmesvara temple of Beraboi can be tentatively assigned to the 2<sup>nd</sup> half of the 11<sup>th</sup> century AD. Most probably, this temple was built before the construction of the present temple of Lord Jagannatha of Puri.

### Conclusion

Thus it is known from the above discussion that the temple of Brahmesvara exhibits the best specimen of the early *Kalinga Style* of Architecture in Orissa. Both from the architectural and sculptural points of view, this temple is one of the important monuments of the Somavamsi period. The cult images as well as the non-iconic figures are profusely depicted in the outer walls of the temple. Some detached sculptures are also found preserved in the temple premises. This temple was probably built by the later Somavamsi ruler of Orissa.

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*Hon'ble Chief Minister Shri Naveen Patnaik discussing on Pani Panchayat at Secretariat on 7.12.2009.*

## Strategies for Enhancing the Seed Cotton Yield in Orissa

*Nirakar Ranasingh  
Bhabani Shankar Naik  
Dr. L.N.Mohapatra  
Dr. B.C.Jena*

Cotton the white gold is the important natural textile fibre of the world which accounts 30% of the total Indian export. Orissa is one of the most important states growing this cash crop under rainfed conditions in KBK districts particularly in Kalahandi, Rayagada, Bolangir, Ganjam, Koraput and Nuapada. Although the production of cotton increased from 1.08 lakh bales in 2006-07 to 1.25 lakh bales during 2007-08 still it is much below the national average i.e. 530 kg lint/ha. But in 2008-09 the production has also decreased to some extent due to high incidence of disease i.e. (Black arm of cotton and Colletotrichum leaf spot) and environmental moisture stress conditions and lack of knowledge regarding full package of practices. So for the benefit of the farming community the following full package of practices may be helpful for increasing their seed cotton yield without any risk.

The following package of practices should be followed to boost the seed cotton yield in Orissa.

- Deep ploughing ensures moisture availability at peak flowering to peak boll development stage in the last week of September after cessation of monsoon.
- Trap cropping with Caster/ Maize reduces the attack of sucking pest.



Use of Biological agent, *Trichogramma chilonis* gaining popularity in the farmer's field against bollworm in Cotton in Rayagada district

- Intercropping of Cotton: Arhar at 8:2 rows will ensure crop diversity, stability of crop yields and assured economic returns.
- Broadcasting of FYM enriched with Trichoderma formulation product @ 2.5 kg /250 kg of FYM before two weeks of sowing in the man field reduces disease attack like leaf spot and wilting in the man field.
- IPM technology including seed treatment with Bavistin @ 1.5 gm. + Plantomycin @ 1gm+ Imidaclopride @ 7 ml./kg of seed reduces diseases and pest attack in the man field up to one month.

- Manual weeding at 21 DAS followed by pre-emergence herbicide Butachlore at 2-3 DAS.
- Foliar spray of Neem @ 5 ml./lt of water at 45 and 60 days after sowing.
- Foliar spray of NAA @ 40 PPM at 45 DAS for boll retention, urea (2%) at flowering and DAP (2%) at boll development.
- Installation of Pheramone trap @ 5 no./ha. for monitoring the bollworm in the field at 65 DAS and spraying Bt 1kg a.i. /ha. or Ha NPV @ 500 LE/ ha. or release of *Trichogramma chilonis* @ 1.5 lakh /ha. for 5-6 times in 1 week interval in the appearance of bollworm.
- Maximum seed cotton yield will be obtained due to detopping at 90 DAS.
- Need based application of Endosulfan @ 2ml. /lt. at 120 DAS reduces the attack of bollworm.
- About 30 to 35 % rain water of total normal rainfall of 1200 mm. goes waste as runoff during peak rainy season and adoption of appropriate soil & water conservation including water harvesting measures and rain water management such as farm ponds can substantially increase in the cotton yields.
- Deep bore wells and dug wells also contribute for higher yield under rain-fed conditions.

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*Hon'ble Chief Minister Shri Naveen Patnaik greeting to His Excellency the Governor of Orissa Shri Murlidhar Chandrakant Bhandare on his Birth Day (10.12.2009).*

## Interest Behind the Proposed Seed and Patent Acts

*Dr. Baburam Singh*

In the beginning of agriculture, farmers were engaged in developing new plant varieties. Systematic and organized plant breeding for development of plant varieties began only after rediscovery of Mendel's Laws in 1900. Many public funded agricultural institutions started showing their interest in this activity. However, interest of commercial seed companies in plant breeding increased manifold in the middle of last century due to commercial prospect of hybrid and Genetically Modified (GM) varieties.

Prior to 1941, there was no system of plant variety protection in the world and this was creating strong discontentment among plant breeders and multinational seed companies. The issue of providing protection to plant varieties and incentive to plant breeders was recognized and a bill to the effect came up in Dutch Parliament in 1941. Later, an International Union for Protection of New Varieties of Plants (UPOV) was formed in 1961 to develop uniform guidelines as regards to Plant Variety Protection. In course of time more countries joined the UPOV and new declarations came up (UPOV 1972, 1978 and UPOV 1991).

In 1995, World Trade Organisation was formed and India joined the organisation as its member and signed its Trade Related Aspects of Intellectual Property Rights (TRIPs) agreement. In obligation to this international treaty and

specifically to the provisions of article 27.3b, India enacted a legislation to provide protection to plant varieties which is called "Protection of Plant varieties and Farmers' Right Act, 2001."

Reasons for enacting this legislation were as follows:

- i) To protect Intellectual Property Rights (IPR) associated in the process of new plant variety development as per the agreement signed with WTO.
- ii) To encourage public and private investments in developing new plant varieties and to accelerate progress of agricultural development in the country.
- iii) To ensure availability of high quality seed and planting material to farmers by promoting seed industries.
- iv) To recognize the contributions of the farmers in conserving, improving through selection and making plant genetic resources available for developing new plant varieties.

After enactment of PPV & FR Act 2001, the seed bill was introduced in 2004 with objective of ensuring availability of high quality seed and planting material to the farmers by promoting seed industries.

### Features of PPV and FR Act-2001

The Protection of Plant Varieties and Farmers Right Act 2001 is mostly based on the principles of UPOV 1978 and some principles of the UPOV 1991. This act is considered unique, in the world, as it caters to the interest of both plant breeders (seed industry) as well as farmers. The act provides the scope for registration of all three types plant varieties viz., Farmers' varieties, extant varieties and new varieties including transgenic. Some other important features of this act are (i) researchers right (ii) benefit sharing provision among breeders and farming or tribal communities, who have contributed for conservation of genetic diversity used for developing varieties by the breeders and (iii) creation of national gene fund for promoting conservation of genetic resources.

### Rights of breeders

Plant Breeders' Right (PBR) is a special form of IPR created to provide incentive for the seed industry. PBR as defined by UPOV, is an exclusive right over the commercial production and marketing of the reproductive or vegetative propagative material of the protected variety. This right is for a limited period (15 years for annual and biennial crops and 18 years for perennials like trees and vines). It is considered less stringent in comparison to patent as it allowed for (i) research exemption and (ii) farmers privilege.

### Research exemption:

A protected variety may be used in breeding / research programme as long as it does not require repeated use of the variety in the breeding programme for development of a new variety.

### Farmers' privilege:

Farmers can reuse, exchange and sale the seeds of the protected variety except sale in a brand name.

### Farmers' Right

PPV and FR Act acknowledges role of farmers in conserving genetic diversity, their poor economic means to buy seeds for every sowing, their poor legal literacy and honours, their traditional rights on seed to promote conservation and provides several rights to the farmers entitling them for equitable share of benefits arising from new varieties in future. These rights are as follows.

- i) **Farmers right on seed** : It includes the right to save their own seed from their crop and use it for sowing, resowing, exchanging, sharing with and selling to other farmers.
- ii) **Right to register traditional varieties** : Traditional varieties developed or conserved by farmers and new varieties developed by them are eligible for registration.
- iii) **Farmers' right for reward and recognition** : Important role played by farmers individually or collectively as community for conservation of varietal wealth of crop plants, now be recognized.
- iv) **Farmers' right on benefit sharing** : The act provides for equitable sharing of benefits earned from the new variety with those farmers or communities who contributed for development of the new variety by sharing parents.
- v) **Right to compensation**: The Act has created a provision to check unfair marketing practices by exaggerating claims on the performance of new variety. In the event a farmer is unable to achieve the claimed preference. PBR-holder will be liable to pay compensation to the affected farmers.
- vi) **Right to compensation for undisclosed use of traditional varieties** : In case breeder of new variety fails to disclose the correct identity of the parental variety or fails to acknowledge at the time of registration and the claim either by the farmers or by a third part on

behalf of farmers community is proved, then the farmers or community will be eligible for compensation which would be awarded and paid from the National Gene fund.

vii) **Farmers' Right on seeds of registered varieties :** The Act is to promote accelerated agricultural growth through assured availability of high quality seed and planting material to the farmers. The Act also recognizes the right of farmers to access adequate seeds of the varieties at a reasonable price. When a PBR holder does not satisfy this requirement three years after the registration, farmers have the right to take the matter of non-availability, poor supply or high price of seed to the PPV and FR Authority and the authority has the provision to initiate one of the several remedial measures.

viii) **Farmers' Right for receiving free services :** The PPV and FR Act totally exempts farmers from paying any fees such as registration fee, test fee, fee for renewal of registration, fees for opposition and benefit, claim, etc.

ix) **Farmers' Right for protection against infringement :** A safeguard to farmers against innocent infringement is provided in the Act. This exceptional provision has been provided considering poor legal literacy prevailing among Farmers and to discourage legal harassment through infringement proceeding by seed companies.

This act also recognizes vital issues of on-farm conservation which is the traditional and most effective method of conserving agro-biodiversity. PPV & FR Authority is providing funds and support for conservation of agro-biodiversity and identification of agro-biodiversity hot spots with objective of enhancing genetic variability.

To harness the benefit of PPV and FR Act, farmers should register their varieties and establish their ownership fast. This is desirable because; (i) registration of farmers varieties are

free, (ii) to establish IPR of farmers on their varieties, (iii) to harness commercial potential of farmers varieties, (iv) for establishing ownership on farmers' varieties and (v) for safeguarding farmers varieties from piracy.

The farmers need to form NGO or cooperative since alone, they will not be able to take the benefit of registration. By registering their varieties, they can protect them from being scavenged by formal breeders. Panchayats can even make an effective contribution in enabling the farmers to access right provided in the PPV and FR Act. Panchayat can start building peoples' biodiversity register and keep a list of plant varieties cultivated within its political boundaries so as to get full benefit from the provision of the Act.

Emergence of stronger intellectual property regime in India is a consequence of globalization and post WTO harmonization of national laws. Whether stronger IPRs generate more innovation and improve the economic condition of people can be debated but pressure from the developed countries to safeguard their intellectual properties (IPs) in the emerging economies has certainly influenced the R & D expenditure by domestic firms, enterprises even individuals and their policies.

In the third world countries, the impact of TRIPs will vary according to each country's economic and technological development. Middle income countries like Brazil and Malaysia are likely to benefit from it. Countries like India and China which are endowed with large intellectual infrastructure can gain in the long run by stronger IP protection. However, least developed countries, where formal innovation is minimal, are likely to face higher cost without offsetting benefits.

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## Tribal Contributions to the Cultural History of Orissa

*Harapriya Das Swain*

Orissa has been the homeland of sixty-two tribes. Their interaction with the common people has influenced their life style and culture. Of course, all these tribes may not have equal contribution in the field of culture, but some of them have made significant contribution. This paper attempts at a close study of the tribal contribution to Orissa and culture in various fields.

The tribals are associated with the cult of Jagannath. As per the description of the Skanda Purana, the original place of worship of Nilamadhava was being performed at Nila Saila (blue mountain) amidst the thick forest. In a dream, king Indradyumna of Malava saw it and sent Vidyapati, a Brahmin who married Lalita, the daughter of Viswavasud and spotted the place. However, He was found and installed in the temple at Puri. Although this fact has been narrated in the book 'Deula Tola'.<sup>2</sup> Further, the servitors (Sevakas) of Jagannath are known as Daitas and Patis. The Vanayaga Dala (people who go in search of log for the new incarnation of Jagannath) are the servitors of Jagannath who first come to Goddess Mangala to seek her permission to search Daru or log belong to the tribal origin. Jaleri Penu, Tana Penu and Murani Penu worshipped by the Khonds of Orissa are regarded as Jagannath, Balabhadra and Subhadra respectively.<sup>3</sup>

The worship of Mangala a goddess is very old in Orissa. The merchants of Orissa before their journey for trade were worshipping Mangala<sup>4</sup> for their safe landing in different islands. This practice is prevalent today in coastal Orissa. At present such palm points are also similarly found in some parts of Western Orissa, which are painted on the inner wall of the house for the worship of Goddess Mangala. The Ulabgarh rock art site bears both the symbolic images of Goddess Mangala, one for Western Orissa and another for Coastal Orissa, which are popularly known as Usha-Kothi.<sup>5</sup>

In Ganjam and other parts of southern Orissa there is one ordinary house meant for the guests. The diagram of goddess Mangala and other deities are usually painted once in a year during Dusahara and worshipped with elaborate ritual. Thus, in western, northern, southern and eastern Orissa Goddess Mangala is the Ista Devi ( Presiding Goddess) of all the Savara and Harijan- inhabited villages in Orissa. Thus, it may be stated that Orissa was definitely predominated by the Savaras along with schedule castes and Goddess Mangala might have been the state or people's Goddess all over the state. The relationship of Vanajaga Dala (band of Savaras) with Jagannath and their link with Mangala (of Kakatpur during Navakalevara ceremony) go a

long way in establishing the relationship between tribal people and the cult of Jagannath.<sup>6</sup>

The 'Stambhesvari' or 'Khambesvari' was the earliest prevalent form of worship of Sakti in Orissa. It had deficiently a tribal origin. In this cult, a Stambha or Khamba (pillar) of wood or stone was worshipped as goddess in the tribal dominated areas like Baud-Khondmal, Athamalik, Bolangir, Kalahandi, Angul, Ghumsar, Sambalpur etc. The 'Stambhesvari' worship prevails even today. S.N. Rajguru discerns the fact from Terasinga copper plate that on the river bank of Rishikulya river at Aska, there was a temple of 'Khamvesvari' who is said to be worshipped by the local tribal priest.<sup>7</sup> The Sulkis of Jarnagartha Mandala (comprising Angul and some portions of Keonjhar districts) and the Bhanjas of Boudh, Sonapur and Ghumsar area worshipped Khambesvari as the Aryan goddess.<sup>8</sup> In the Samaleswari temple at Sambalpur, the deity Samaleswari is made of stone which is a pillar. The wooden pillar structure of the deity reveals the aboriginal character where as its stone form in the temple is an Aryanised one.<sup>9</sup>

Another tribal influence on Orissan culture was the worship of 'Banjari Devi'. Banjara was a nomadic tribe on the Chhatisgarh and Orissa border region in the past. They carried salt and other commodities on bullocks and exchanged for necessities of daily life. They carried on with them a goddess and kept it under a 'Kendu' tree. They called it as 'Banjari Devi'. The local non-tribal people also began to worship that deity. Now-a-days on road sides such Goddess is being worshipped by the tribals, non-tribals and even by the bus and truck drivers. In a similar vein, there are many myths associated with 'Kesariipalli', 'Kandhuni' of Sorada, 'Narayani' of Konkorda 'Samalei' of Hinjilikatu, 'Tarini' of Ghatagaon in Keonjhar district and Tara-Tarini of Ganjam etc. who were tribal goddesses and in

due course of time, they have been worshipped by the Hindus.

The worship of 'Budha Raja' in western Orissa, is another tribal influence on Orissan culture. The people, of the locality say that the name actually was 'Bada Raja' (Great King). He was primarily a tribal God. Gradually, the common people worshipped that deity. Now, of course, the name of Bada Raja has been changed into Budha Raja<sup>10</sup> (Old King) and the people of general castes are worshipping him. Even at places people are worshipping him as God Siva.

In the evolution of ancient Orissan Polity, the influence of tribal Chiefs can never be ignored. In the Mahabharata, Sage Lomasa advises the five Pandava brothers :

'This is the land, O' Kunti's sons, where the Kalinga tribe dwells and through it passed the river Vairtarani"<sup>11</sup>

Ashoka in his separate Kalinga Edicts refers to the 'Atavika Kingdom during his Kalinga War of 261 B.C. In separate Rock Edict II Ashoka says :

"The unconquered people on my border (Atavika Kingdom) may ask- what is the policy of the king towards us ? They should be made to understand that this is my desire with regard to them. The king desires that they should not be worried because of him. They should derive consolation from him and get happiness and no sorrow... They should understand that the kind will forgive them as far as they can be forgiven, and that through him they should follow Dhamma and gain this world and the next."<sup>12</sup>

This shows that there was tribal polity during Ashoka's Kalinga invasion. Tribals also existed during the Gangas who were made peasants during the Ganga period. Jore was Gond king of Bammara. There were other tribes like

Binjhal, Bhuiyan and Sohara (Sabara) in Western Orissa. S.P. Dash has mentioned that Bargarh in Sambalpur was a fort along Jira river. Balaram, the chief of Chauhan dynasty of Patna drove them away and acquired it which later on became the capital of Sambalpur Kingdom.<sup>13</sup>

In addition to the above chieftainship the tribals had their organisation too. The organization named 'Pirh' exists among the Juangs and Bhuiyans. The organisation of Khonds is known as 'Mutha'. The 'Sardar' of Bhuiyans, Juangs, Khonds, Mundas, Santals, Hose Gonds, Binjhals and other tribes lives in forts constructed with mud or stone walls. The tribal chiefs were usually appointed as Samanta or Upasamanta. They played a vital role in the process of state formation in ancient and mediaval Orissa.<sup>14</sup>

In the social front, the tribals are gaining upward mobility. Most of the tribes in Orissa like the Bathudi, Sounti, Bhumija, Lodha, Sudha, Saora, etc. now stress on their Savara identity. As stated earlier, the Savars associate them with Jagannath cult. That is why they consider themselves as their counterparts. This has influenced the society a lot. This process has been termed as 'Savarization'.<sup>15</sup>

In recent times the tribal art, craft and dance have allured the attention of the urban society in Orissa. In different functions and cultural performances, the tribal dance is being presented by the educated dancers. The tribal crafts like flute, basket and other bamboo works are being kept in the drawing rooms of the elite class in Orissa. This trend has created new avenues for the excellence of tribal culture.

In our survey of the tribal influence on Orissan culture, it is found from ancient period that the tribals have been regarded as an integral part of Orissan society and culture. In political, social and religious fields they have contributed a

lot to enrich Orissan culture. Even today, the tribals are casting some influence on Orissan culture. With the advancement of time new vistas will be opened in the field of tribal influence in the Orissan society.

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## Paradip Port : Centre of Rich Marine Heritage of Orissa.

*Dr. Janmejy Choudhury*

Orissa, famous as Kalinga, in ancient times, has a long maritime history and tradition which had developed owing to its close association with the Sea. Orissa had a rich maritime heritage. Its prosperity chiefly depended upon its flourishing maritime trade and overseas colonies. Being situated on the shore of the Bay of Bengal its stretchy coast-line studded with several ports, since the pre-centuries A.D. facilitated overseas contact with many foreign countries like the Roman Empire, Ceylon, China, Burma, the islands of Indonesia-Java, Bali, Sumatra and Borneo, Malaya collectively known as the Suvarnadipa (the island of gold) in ancient time. Besides a favourable geographical setting it possessed a band of daring adventurous Sailors and Seamen. Mostly it acclaimed as Kalinga Sahasika – the brave of Kalingans in the Sanskrit literature. Maritime adventure was, indeed, in the blood of the mercantile community of Kalinga who sailed far and wide in search of wealth. The maritime intercourse between overseas world and east coast of India, including Orissa, may go back well into the pre-historic period. The merchants, navigators and different categories of people from various parts used to appear at different interval of time on the ports of east coast of India where they had established trading centres. The ports of Dantapura, Kalinga Nagar, Toshali, Singhpur, Pithunda, Tamralipta, Paloura, Apheterdan, Kantakasila, Dosarene and Chelitala etc have been referred as important ports of Kalinga. The maritime activities of the people of ancient Orissa starting from the Port at Kalingapattanam, Palur, Chitrotapala, Dhamra, Tanvalitra down to far off Eashernlands of Simla, Java, Sumatra, Bali, Borneo, Shyam, Indochina, Burma for trade and

colonization. There was a time when the present Bay of Bengal was known as sea of Kalinga due to predominance of the Oriya Sailors and navigators over this part of the Indian Ocean.

It was a travesty of history that at the time of Independence a state with one of the richest maritime traditions namely 'Kalinga' or modern Orissa did not have a port of its own. The laying of the foundation stone of port of Paradip on 3rd January, 1962 by the then Prime Minister of India Pt. Jawaharlal Nehru in the presence of the then Chief Minister of Orissa Biju Patnaik was therefore the fulfillment of a long cherished dream of the people of Orissa. It Started as a Port of State Government, then it was opened to traffic in March, 1966. Soon thereafter and Port was declared a Major Port on 18<sup>th</sup> April, 1966. Located at 80°20' on the east coasts of India, Paradip Port stands on an artificial lagoon carved out from the landmass with two break waters at the mouth of the lagoon so designed that the Port remains navigable throughout the year. Offering a depth of 13 meters with a channel less than a kilometer long from the roads where the ships wait for berth, Paradip Port's main advantage lies in its nearness to deep sea. In fact Paradip Port is considerable to be one of the deepest inner harbour ports. The absence of rock surface upto 40 meters below the mean sea level makes it possible to go for even deeper berths. The Port started as a mono commodity Port intended mainly to cater to export of iron ore from Orissa to Japan. There was only one berth when the Port started. As trade grew more berths were added. One more berth was added in the year 1984-1985. By the year 1995 the Port had eight berths consisting of one oil jetty, one dedicated berth for fertilizers raw material,

one iron ore berth and the rest meant for general cargo. In fact there were eight and half berths and the 9<sup>th</sup> berth came into operation when the other half was completed in the year 2000. Night navigation was started in the year 1998. The port is now adding four more berths taking the total number of berths to thirteen. Two of these new berths being inaugurated today are backed by a mechanized coal handling plant of 20 million capacity. Thus while the number of berths are going from nine to thirteen, the capacity of the port is taking a quantum jump from 14 million to 34 million ton, leading it, in terms of capacity, to the forefront of Indian Ports. Incidentally two more general berths with a capacity of 3 million ton are also being inaugurated again which along with an oil jetty of 6 million capacity about to be completed during this year will increase the port's capacity further to 43 million ton.

The Cargo handling in Paradip Port has grown significantly over the years. In fact during the year 2000-01 the total cargo of Paradip Port grew from 13.92 million tons of previous year to 19.9 million tons recording a growth of 45.94% which is highest in Ports history and highest among all the other major ports of India taking the Port from its previous 9<sup>th</sup> position amongst the major ports to 6<sup>th</sup> position in terms of volume of cargo. Paradip Port's cargo is expected to go further with the commissioning of the Nilachal Steel Plant in the immediate future and the oil Refinery of Indian Oil Corporation Ltd, in the near future. The I PA's projections predict a cargo turnover of 64 million tons by the year 2007 which is supported by 'VISION 2020' prepared by RITES.

Really Paradip Port is a growing Port and is expected to grow further. The Oil Refinery is likely to add about 9 million ton cargo besides giving a fillip to growth of industry and exports in the region. A "Special Economic Zones" has already been planned. There is also a massive growth in export of iron ore and the Daitari Bansapani Railway Line when completed is expected to give a further boost to export of iron ore through the port. The Port is in the process of inviting BOT bids for clean cargo berth in its southern site for

handling of food items and containers. Paradip Port is thus poised to Become not only a leading Port on the east coast but also a nucleus of development in the region.

The coal handling plant being commissioned at Paradip Port is not an ordinary cargo handling Plant. The total cost of the Plant which includes the loan component as well as contribution from the Port's own resources stands at Rs.703 Crore excluding interest during construction. The coal handling system in Paradip was designed by BHPE Kinhill Joint Venture, a leading consultancy firm of Australia and has been executed by a number of nationally and internationally reputed agencies such as L & T, Strancken and Henshaw, Ircon, Kripp Germany, Afcons, Buskaies HCLSTP and Subha Project. This is the first system in which the cargo can be unloaded from a moving train to be loaded directly in to a ship waiting at the berth. The plant provides enormous flexibility.

The coal handling plant is not merely a process of mechanization. It defies comparison with any other such plant in the country by sheet volume and technology. It becomes a milestone in development of Paradip Port both in terms of quality and quantity. From the point of quantity it signifies the introduction of most modern technology in bulk handling system. From the point of quantity it adds capacity of 20 million tones which is like the capacity of a port by itself whose significance can be understood from the fact that the total capacity of Paradip Port is also adding two more berths on the same day. Over and above the two coal berths which are part of the mechanical coal handling system, two other general cargo berths on the western side of the Port are also ready for commissioning on the same day. All together Paradip Port is adding a capacity of 23 million tone to its existing 14 million tons making the total capacity of the port jump to nearly 37 million tons.

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## Women and Empowerment

*P.R. Panda*

From time immemorial women have been confined to the home and hearth. I like this cozy and warm atmosphere of the home and will say there can be no better quest for a woman than one that involves self-discovery. And this self-discovery can only be achieved in the atmosphere of a home and family. Individuality is the inner voice that commands you to be different. It is the strength that can make any mountain, respect its power, recognizes its potential. United force of women will change the shape of India.

In India through centuries together women have been playing second fiddle to the whims and fancies of man. In short, I am agreeing that gender discrimination exists even today i.e. in the 21<sup>st</sup> century.

But at the same time I will say that men are not entirely selfish. Because one political leader alone who are men have brought about significant changes and amendments for empowering women.

In the year 2001 Govt. of India started women's empowerment year under the able leadership of ex-P.M of India, Mr. Atal Vihari Vajpayee. Likewise our beloved Chief Minister Mr. Naveen Patnaik started Mission Shakti on March 8<sup>th</sup>. People started laughing telling that why women should be empowered. But if we think in depth they are already empowered since inception. Women are the finance minister of the

house or Goddess Laxmi. She manages the economy of the house properly though she does not possess an M.Com. degree, M.F.C.A or C.A. She is the 1<sup>st</sup> teacher of her child. She is the tutor or minister of education-Goddess Saraswati. To quote Mahatma Gandhi who said that "if you teach a man you teach somebody, if you teach a woman you teach a nation."

According to the words of Napoleon, "Give me a good mother, I will give you a good nation."

Women is also the defence minister acting like Goddess Durga at the time of indiscipline of household. Not only that she is the health minister of the house by taking care of the ailing persons of her house, taking the role of Goddess Kali.

Poverty and unemployment are the major problems of undeveloped countries like India. The role of women in the development of nation is very important. So, women should be respected both in the home and the nation. Women are engaged in different activities at various time of the year for their survival.

The strategy for strengthening woman's economic status is to add the twin objectives of increasing income and solidarity of women. Moreover to increase the status of women, they must be empowered socially, economically and politically. Women are one wheel of a cart or one

side of a coin. If we look to ancient India starting from Vedic period upto present-women have played vital role in all spheres of life.

In every walk of life woman are much ahead. If we look to the results of class 10<sup>th</sup>, +2, +3, Engineering and Medical examination they are proving their excellence by securing top positions. It will not be wrong to mention here the two mythological epics were written because of tear of 2 women. One is Ramayana for Sita and Mahabharat for Draupadi. In the present scenario Late Indira Gandhi was the lady Prime Minister of India, Late Nandini Satapathy was the 1<sup>st</sup> lady Chief Minister of Odisha, Late Giribala Mohanty was the 1<sup>st</sup> lady Pilot from Odisha. Justice Amiyabala Padhi, 1<sup>st</sup> lady Justice of Odisha, Kalpana Das 1<sup>st</sup> Everest Climber and so on and so forth.

Late Rajiv Gandhi ex-Prime Minister of India thought for empowerment of women and tried his best but could not pass the 73<sup>rd</sup> amendment in the Parliament since India is a male dominated country. Late P.V.Narasimha Rao ex-Prime Minister of India passed the 73<sup>rd</sup> amendment which became a landmark in the political history of India.

Biju Patnaik the legendary man of India started the Panchayati Raj Movement by giving 33 % reservation to women. Now PRI's are doing commendable work by electing women as the member of Panchayat, Panchayat Samiti, Zilla Parishad, NAC, Municipality and Municipal Corporation. They are taking leadership in the local bodies for its all-round development.

Empowerment of women through SHGs would lead to benefit not only to the individual woman but also the family and community as a whole. Empowering of women is not just for meeting their economic needs, but also for more holistic social development. The SHGs provide credit and empower women both socially and economically. They encourage women to

participate in the decision-making in the household, in community, local democratic section and prepare women to take up leadership position. Now 3 lakhs SHGs are formed in the State networking with a networking of 30 lakhs women. Now they have been assigned with the Mid-day meal programme and with the collection of electric bills by CESU.

For social development lot of programmes are being started by the UPA Govt. - such as Sarba Sikshya Abhijan, National Rural Employment Guarantee Scheme, Rajiv Gandhi Rural Electrification work. Girls are being given free education up to Matric standard. 30 % reservation are being made for them at the time of admission to the technical college. School uniforms are being supplied to the girl students by Govt. of Orissa. To attract more girls to higher education cycles are being provided by the SC/ST Department of Govt. of Odisha. Not only that Govt. of India enacted new laws like Domestic Violence Act; set up Sexual Harassment Committee in each Office and district headquarter. To reduce female foeticide Govt. of India, have facilitated scholarship through UGC to a single girl of a family up to PG level. Orissa Govt. set up Women and Child Desk in the Police Stations for giving justice to women.

Let us dream for a future India where women will be respected equally at home and outside in practice like other developed countries. There is a saying that behind every successful man, there is a woman. A woman's emotional strength is a true measure of her beauty and power. Women is God's most beautiful creation on earth and she can uphold that beauty and grace of God by internally empowering herself by building up a strong character.

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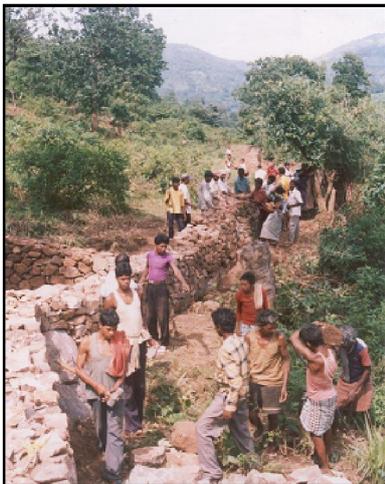
Smt. P.R.Panda is the Chairperson, Women Grievance Cell, Govt. Science College, Chatrapur.

## D.R.D.A : Gajapati Dedicated for People Development

### NREGA

Gajapati District has been covered under NREGA w.e.f. 02.02.2006. After wide publication / sensitization / organizing workshops from District level upto Village level, there has been perfect response from the Job Seekers of the District.

Soil erosion is a constant feature in the hill areas of Gajapati District. Tikamal village of Sabarpalli GP in R.Udayagiri Block is one such village where the soil erosion was rampant. The soil has lost its characteristics and the land has become less productive day by day. NREGA brought life to the village and to the people when they thought to do wage employment works by



way of constructing stonewall terracing across the gradient. They passed a resolution in the Palli Sabha and demanded work from the Gram

Panchayat under NREGA Scheme. The Gram Panchayat, after preparing the estimate for the project started the work in the month of August, 2006. Members from 99 SC families and 47 ST families joined to do the work. The people of the region are accustomed in doing stone works along the gradients. When it was put to piecemeal rates, there was a competition among the labourers and very quickly they completed the project. As per Govt. scheduled rates, Rs. 217/- could be paid for construction of terracing works worth 100 Cft. 6350 mandays were created and the work was completed. At the end, it was found that the average wage per manday was Rs.65/- against the minimum wage of Rs.55/-. Due to their skill and excess works, the labourers are able to do more outturn over and above the prescribed outturns. As a result of which they could get Rs.65/- wage per day for 7 hours work. This success has led them to demand more and more work under the NREGA. Keeping this in view, the neighbouring villages have also become vigilant and demanded work at the Gram Panchayat level. Migration is no more a problem. NREGA has solved it. As an impact of this stonewall terracing, soil erosion will stop and help increase the moisture storage in the upper portion. Schedule Tribe families have meanwhile planned to take up cashew plantation in the barren patch of land.

Govt. of India has accorded top priority to provide safe drinking water and sanitation in the rural areas. It is an arduous task to provide these facilities in the villages situate at higher altitude and hilly terrains. Rigs could not pass to these villages and installation of tube well was found impossible. Sanitary wells excavated became dry during Summer. People resort to bring water from the valleys down the hills from *chuan* and *chaulas*. The water was quite contaminated and unsafe. People generally suffered from water-borne diseases. Sinking of tube wells and excavation of sanitary wells were often found not feasible. Besides, the tube well water in these areas has higher iron contents and very often unsuitable for potable purposes. To combat the above situation, DRDA contemplated an innovative idea to supply pipe-water by tapping the spring based water sources which plenty available in villages. The sources were identified and were connected to the filter tanks. The filtered water was canalizing to the chlorination tank to make it safe for drinking purposes. This has given immense relief to the villagers in getting potable drinking water. The supply of pipe-water has also improved sanitation in the area. In many places, the surplus water is also being utilized for raising backyard plantation and kitchen gardens.



Piped Water supply at Rumunda village of R.Udayagiri Block

Improved sanitation has a telling effect in checking infant mortality and warding of water-borne diseases. The estimated cost of these projects varies from Rs. 1.5 lakhs to Rs. 5 lakhs.

The scheme is popularly known as providing safe water through gravity flow.

The stream was flowing about 1 Km. away from the village. The water from the stream has been canalized and it is filtered through the natural filter tank and then chlorinated in another tank. Then safe and pure water is being supplied to the villagers through Pipe Water Supply Scheme. One stand post for 10 families has been provided. Now water flows automatically to the village. The project has been handed over to the Gram Panchayat for maintenance. The project requires absolutely very negligible maintenance. Water flows through gravity round the clock and round the year. The only requirement is to change the components like sand and small chips in the filter channel at least twice in a year. The village committee is very much aware of it and they are determined to perfectly maintain it.

### Community Water Supply and Total Sanitation Mission under RSVY

In this scheme the entire 30 nos. of households have been provided with piped water supply to toilets and bathing rooms.



Community water supply under RSVY at Latigaon under Gandahati G.P of Rayagada Block.



Total Sanitation Mission under RSVY at Latigaon under Gandahati G.P of Rayagada Block.



Construction of C.C Road at Kardi Sahi at Ranipentha of Kasinagar Block under SGRY.

### SGRY

Sl. Funds Position	Rs. In Lakhs
i. Period of Operation	2002-2006
ii. Total Allocation Received	4678.37
iii. Expenditure made	4678.37
iv. Man-days created (Lakh Mandays)	77.25

### Creation of Productive Assets

- i. **C.C. Roads** : 100% villages covered and 90% fully covered.
- ii. **Market Complex** :312 Nos. of market complex taken-up. 206 Nos. completed & allotted to the beneficiaries.
- iii. **Drinking Water Supply** : 84Nos. of villages programmed to cover. Out of which 34 Nos. of villages have been covered.
- iv. **GP Godown** : 100% GPs covered.123 nos. of godown completed.

### Pradhan Mantri Gram Sadak Yojana

Pradhan Mantri Gram Sadak Yojana (PMGSY), was launched by the Govt. of India to provide connectivity to unconnected rural habitations as part of a poverty reduction strategy. Government of India is endeavouring to set high and uniform technical and management standards and facilitating policy development and planning at State level in order to ensure sustainable management of the rural roads network. In the first priority, habitations (villages) of population of 1000 (500 in the case of tribal areas) and above will be covered. Habitations of population of 500(250 in the case of tribal areas) then 499 to 250-size villages will be covered in subsequent priority. 910 villages of Gajapati district will be benefited under the programme as per Core network of Roads.

Status of Connectivity under PMGSY	1000+	500-999	250-499	Less than 250	Total
Total number of Habitations	79	153	333	653	1218
Total number of Connected Habitations	61	55	80	112	308
Total number of Unconnected Habitations	18	98	253	541	910

Habitations covered by PMGSY 2000-2001	New Connectivity	2	1	3	4	10
	Up gradation	0	4	0	2	6
Habitations covered by PMGSY 2001-2002	New Connectivity	9	4	4	2	19
	Up gradation	0	0	0	0	0
Habitations covered by PMGSY 2003-2004	New Connectivity	2	13	2	1	18
	Up gradation	0	0	0	0	0
Habitations covered by PMGSY 2004-2005	New Connectivity	0	3	2	1	6
	Up gradation	0	0	0	0	0
Habitations covered by PMGSY 2005-2006	New Connectivity	0	7	6	5	18
	Up gradation	0	1	2	3	6
Habitations proposed to be covered by PMGSY 2006-2007	New Connectivity	2	13	6	7	28
	Up gradation	0	0	1	2	3
Balance unconnected Habitations under new connectivity		3	57	230	521	811



Construction of PWD road from Padasahi to Kumulsingi - Phase II PMGSY -OR-10-07 with a length of 5.32 Kms. & an expenditure of 120.69 lakhs under Rayagada Block.

### PMGSY Phase wise Physical & Financial

(Rs. in Crores)

Year	2000	2001	2003	2004	2005	2006
	2001	2002	2004	2005	2006	2007
Value of projects cleared	3.48	6.58	10.21	6.41	13.9	13.85
Total no. of road works	9	16	16	4	10	27

Total no. of Habitations benefited	16	19	18	6	24	31
Total length of road works (KM)	22.22	34.86	40.86	19.19	33.9	77.925
Total No. of road works completed	9	12	13	0	0	Under Tending
Expenditure upto date	3.63	6.54	9.47	5.4	3.66	0



Construction of PWD road from Vistala to Tadaba - Phase II PMGSY -OR-10-05 with a length of 3.11 Kms. & an expenditure of 89.133 lakhs under Kasinagar Block.

**OTELP, ITDA, Paralakhemundi dedicated for tribal empowerment and secured livelihood.**

ITDA, Paralakhemundi, has been selected as one of the ITDAs for implementation of Orissa Tribal Empowerment and Livelihoods Programme (OTELP) with the assistance from IFAD, DFID and WFP as a Pilot Project.

Unlike traditional Watershed Development programmes which emphasize on Natural Resource Management and there by ensuring productivity enhancement, OTELP's thrust is on Empowerment and Sustainable Livelihood. The Institutions to ensure

empowerment, sustainable livelihoods & food security are VDA/VDC/SHG/UG and such other village based traditional institutions.

For the first time GO-NGO partnership would help enhance core competence of the community based institutions/organizations to achieve the above-mentioned objectives. The Programme Implementation Agencies (PIA) are locally based NGOs.

**Institutional Arrangements**

- The programme is being implemented through ITDA in coordination and active involvement of the Facilitating NGO (FNGOs), Users groups, SHGs, VDA, VDC and financial institutions.

- Approval & Monitoring of Watershed projects by the District Project Management Committee (DPMC), headed by the District Collector.
- Regular monthly review meeting is held on first Monday of every month at ITDA level to assess and facilitate performance of PIAs and their WDT members. It is presided over by Project Administrator, ITDA.
- Weekly review meeting of OTELP subject master specialist, is also held on every Tuesday under the Chairmanship of Project Administrator, ITDA.
- Besides fortnightly review meeting is done at PSU level where PIAs and OTELP Staff attend.
- 4 nos. of FNGOs namely Society for the Welfare of Weaker Sections (Rayagada Block), Centre for Community Development (Gumma Block), People's Educational Action and Communal Evocation (Nuagada Block), Janakalyan Pratisthan (Nuagada Block), allotted for the implementation of watershed plus mode project in three Blocks namely Rayagada, Gumma and Nuagada. Each of the FNGOs is assigned for 10 nos. projects to provide the technical and organizational support to the village development association, users groups and SHGs at the field level through their watershed development team.
- To Empowering 4877 tribal House Holds i.e. 31186 population consisting of 593 (40 VDA, 339 SHGs, 156 UGs, 37 VSS and 21 PRI) institutional based organizations in Gumma, Rayagada, Nuagada Blocks of Gajapati District

covering total treatable area of 26691 Hac and enabling them to enhance their food security, manage their resources in a sustainable manner, with the intervention of Programme which leads to increase their income and improve overall quality of their livelihood. Apart from the above-mentioned treatable area, 150-200 Hac of Reserve and Protected forest area adjacent to each watershed have been planned to be covered, for this purpose an amount of Rs 7000 per Hac has been earmarked for treatment. Treatment will be taken up through VSS. In the meantime identification of RF/PF area and formation of VSS have been completed in almost all the watersheds. Preparation of micro plan for each VSS is on the process.

#### **Capacity of Building**

Through community mobilization the training needs are identified to empower different SHG and User group along with VDC members in the discipline of role and responsibility of VDC member, financial management of VDA leadership, legal rights of tribals, agriculture, horticulture, income generating by establishing processing unit of tamarind, dal, cashew, mushroom and fruit preservation are the priorities. Also cross exposure visit have been conducted and pre-plantation trainings completed in all the watershed areas. Pre-plantation training has been imparted to 2000 stakeholders.

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*Courtesy* : DIPRO, Gajapati District

## Odisha Handlooms : Problems and Perspectives

*Dr. Gouri Shankar Tripathy*

Much has been said, also being talked to, about the problems of handlooms in general and their solutions. In many a meetings, it has been discussed, also being discussed, about the present challenges with reference to their anticipated future shape. No day passes without one or the other newspaper or pamphlet carrying the news of the progress and problems of handlooms and articles discussing remedies. Many national and international conferences have taken place pertaining to the intricacies of handlooms centering round their gradual method of growth in full sawing and their research and relationship with national development with reference to the international reputation.

Handloom is the oldest known form of making cloth by hand. It represents a very early stage of cloth production. Handloom is now the source of livelihood to several millions of artisans and their families all over the world. In the so called third world nations, a few countries still proudly keep on the ancient tradition of hand weaving side by side with powerlooms as the symbols of cultural legacies. Even during the present days when man is trying to win the space, people still look at the handloom as symbol of the glorious past of the entire human race. What is the magic behind ? Handloom products are not merely mere pieces of decoration but also they symbolise the

cultural ethos and the aspirations of generations of people to preserve the best part of culture and civilization. That apart it is the time-honoured legacy from time immemorial that has been passed on to us by our ancestors.

In a decentralised sector like handloom, there are many problems due to illiteracy of the weavers, inadequate finance and vested interests. There are hindrances and difficulties in measuring the effectiveness of our planning and controlling activities like procurement of raw-materials, product developments, quality and cost control. Planning is to be done with the hope that there should be a demand for our products in the market and in case of failure to sell, all our planning will go ineffective. The main problem that often confronts us is the procurement of required raw-materials like yarn, dyes and chemicals at the right time and in right quantities.

Due to violent fluctuations in the yarn prices perhaps frequently due to the fluctuations in cotton prices, it is difficult to stick on to any definite price of the end products. It is a paradox to overrule the possibility of stabilising the prices of yarn in the cooperative sector.

Handloom industry had several jolts in the past on account of a lump in demand and it is still suffering the shock. The industry goes into the

grip of stock accumulation and financial difficulty which faces the industry to reduce its capacity drastically whenever the prices of yarn and dyes shoot up without any corresponding increase in the demand of the finished products. Such unhealthy accumulation also invariably leads to cut throat competition on account of proliferation of weak producers in the sector.

In the rural belts of our country, handloom is the only industry which is capable of creating more employment, next to agriculture. By encouraging the poor weavers after creating the confidence in them, this industry can be expanded with the stepping up of the qualitative production of cloth in the country. This can be done successfully if only the industry is helped to overcome the difficulty in obtaining the raw-materials regularly and in adequate quantities at reasonably steady prices. With minimum capital investment, handloom is capable of creating more employment in the rural areas.

Product development is an essential exercise for any successful marketing strategy. In case of a decentralised cottage industry, this factor gains an added importance. This industry has to face a serious competition from an organised sector like the mills. Despite stiff competition from the mill-made textiles, the handloom industry is thriving owing to its interest potentialities and artistic while the mills find it hard to imitate the intricate handloom designs and tie-ups in mass production of cloth. In fact, it is the beauty and fineness of handloom products that qualify the attention and patronage of the housewife but not in her sentiment. But this idea also has become old and legendary taking the present hard days into account. 20% rebate is the only attraction of the mass in general to purchase handloom goods.

The organised sector has an edge in many respects over the handlooms sector. But it is

needless to mention here that in one respect the handloom sector can score over the organised sector - that is in the field of intricate and attractive designs and colours. This has to be exploited to the fullest extent by the handloom sector to produce a vast variety of varied designs and textures in attractive shades and colours quickly offering each time a new range of products to suit the need of the consumers. It is in this context that product development becomes not only important but even necessary for handloom sector. What is product development ? It means not only developing or adding a new range of products in the handloom sector but it also means developing or improving the existing varieties of products which are clearly in the market all over the country. For this product development the technical personnel should remain in the field in order to impart their technical skill to the illiterate weavers. But practically, it is found that they are wedded to the files in the office. As a result they are not able to devote their time to do justice to their job in the true sense of the term. Hence it is high time for the authorities to give a serious thought to this matter at the earliest if really they want to improve the handloom industry.

An optimist, I would like to believe that our realisation of the problems of handlooms and their link with the problems of our growth and development is not yet acute enough to crystallise in positive remedial measures. But the situation will soon demand for the suitable corrective measures.

The perspectives are rather clear and this is a great measure of agreement on them. Like the artist does a portrait in his cabin, handloom products are unique because the designs are painstakingly hard-woven as such they are not stereotyped prints stamped on a piece of colourless plain cloth. On the top of it a good

deal of ornamentation that comes naturally in weaving in the shape of buties, tie-ups, laced borders etc. whenever desired for in the fabrics.

Fabrics are being developed all over the world. In the traditional textiles, the fabrics developed long ago, have continued upto date and have covered a place for themselves.

A broad understanding of raw-materials, process, intermediate products, finished products, the colour composition of the fabrics, the design aspects, market trends, economics and lastly thorough insight into fabric properties as related to the consumer's requirement are the essential aspects to be understood. The fabric creator has to keep in view several factors like raw-materials count of yarn, threads per unit space, weight per square metre, width, weave, cover, thickness, strength, abrasion resistance, crease, recovery washability, comfort etc. The fabric development personnel should be able to link the dyeing department with this information so that the basic work of matching economical dyeing etc. is completed. The consumer then takes the fabric and gudes the feel and has a closer look to decide about their factors like proper cover, soft touch, a good drape, the proper thickness, weight, lustre, comfort, durability and dimensional stability etc. Of course that follows automatically the

composition, price texture and feel. He would also like to know whether the colour is fast whether the fabric is durable, whether it is anti-creased, threads splippage possibility etc., at the counter.

Hence high standardisation of all the fabric qualities is essential which should be supported with a publicity and promotion in a systematic and scientific manner. A field trial is necessary before promoting a new texture into the market. If a wrong fabric is marketed under a good brand name, it will ruin the reputation built by other good fabrics.

Handloom plays an important role in the process of social, economic development of any country. It is at this level that all the generalists and specialists required for manning key position in productive enterprises, research, and planning in a variety of ways.

The excitement of handloom training, the joy of creation of best designs suitable for markets and the subsequent heat of debate and discussion crystallise attitudes and personalities that moved into scientific and systematic roles in different walks of life.

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## CONTENTS

<b>Archaeological Heritage and Tourism</b>	<i>Sunil Kumar Patnaik</i>	...	1
<b>Life of Women Agricultural Labourers in Orissa</b>	<i>Dr. Sabita Mishra</i>	...	6
<b>How to Win the Gamble to Monsoon in Orissa ?</b>	<i>Dr. S. Pasupalak</i>	...	10
<b>Tribal Culture : An Invisible Roots of Odissi Dance</b>	<i>Ms. Manjushree Panda</i>	...	17
<b>Panacea for Poverty Alleviation in Orissa</b>	<i>Mayadhar Nayak</i>	...	21
<b>Underwater Acoustics Studies Using Hydrophone Array for Irrawaddy Dolphin in Chilika Lagoon</b>	<i>Dr. A.K. Pattnaik</i>	...	27
<b>Brahmesvara Temple at Beraboi</b>	<i>Dr. Ratnakar Mohapatra</i>	...	30
<b>Strategies for Enhancing the Seed Cotton Yield in Orissa</b>	<i>Nirakar Ranasingh Bhabani Shankar Naik Dr. L.N. Mohapatra Dr. B.C. Jena</i>	...	36
<b>Interest Behind the Proposed Seed and Patent Acts</b>	<i>Dr. Baburam Singh</i>	...	38
<b>Tribal Contributions to the Cultural History of Orissa</b>	<i>Harapriya Das Swain</i>	...	41
<b>Paradip Port : Centre of Rich Marine Heritage of Orissa</b>	<i>Dr. Janmejay Choudhury</i>	...	44
<b>Women and Empowerment</b>	<i>P.R. Panda</i>	...	46
<b>D.R.D.A. : Gajapati Dedicated for People Development</b>		...	48
<b>Odisha Handlooms : Problems and Perspectives</b>	<i>Dr. Gouri Shankar Tripathy</i>	...	54

# WE REMEMBER THEM



Pathani Samanta Chandrasekhar



Maharaja Shriram Chandra Bhanja Deo



Rama Devi